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Original and Selected Papers.

A NEW ADULTERATION OF PORT WINE.

BY E. B. SHUTTLEWORTH.

Having recently had occasion to test a number of samples of port wine, I principally directed my attention to the detection of foreign coloring matter as affording the best evidence of falsification. On applying the test recommended by Lapeyrere,* five out of the fourteen samples examined gave colorations differing from the remaining nine. This test appears to be of some value, but I have no doubt that considerable experience is required before a definite and satisfactory conclusion can be arrived at. Filtering paper is saturated with a solution of acetate of copper, dried, and dipped in the suspected wine. If genuine, a greyish rose-red color is produced. Logwood is said to give a distinct sky-blue, while other coloring matters give modifications of the original natural tint.

On examining by the spectroscope, the nine samples before alluded to, the spectra produced showed no special characteristics,

* Jour. de Pharm. et de Chimie.

and this would go to confirm the statements of Sorby† and Phipson‡ who found that the coloring matter of the grape gave no absorption bands, but only a general darkening of the spectrum. The five remaining samples of wine gave decidedly different spectra, and one of them so peculiar that I was led to suspect the presence of fuchsine.

A further examination by other tests rendered this fact unmistakeably evident, and I have since ascertained that a mixture of magenta and a blue coloring matter known to the trade as azaline, are largely employed for the purpose of coloring cheap made-up wines. These colors are put up and sold by the dealers in wine and spirit doctoring materials, and are sold at exorbitant prices.

In order to detect the adulteration, I have found the following method to be satisfactory, and very easy of application. To a portion of the suspected wine, placed in a test tube, add an equal volume of fusel oil; agitate well and allow the mixture to separate, when, if magenta be present, the supernatant layer will be more or less tinctured of a characteristic or pink or purple color. Genuine port, when so treated, does not impart to fusel oil any of its color, so that the slightest coloration may be taken as certain evidence of adulteration. If amylic alcohol be not at hand, ether may be substituted, but does not answer nearly so well.

Considering the dark color which factitious port must be made to assume, and the large quantity of such wine that is liable to be taken at one sitting, it is evident that the presence of these poisonous coloring matters might produce serious, if not fatal results.

† Jour. of Microscopical Science, Vol. ix, p 338.

‡ Jour. of Chem. Soc., Feb. 1870.

SUGGESTIONS TO BEGINNERS IN PHARMACY.*

BY PROFESSOR WILLIAM PROCTOR, JR.

REPLY TO QUERY No. 30.—What shall I read, and where shall I begin? An essay in reply to this constantly recurring query of beginners, who are confused by the mass of books presented to them as sources of the knowledge they need.

If the reply to this query does any good it must be by appealing directly to those for whom it is intended, viz., beginners in pharmacy, or those in the first year of their apprenticeship, and indirectly to proprietors and qualified assistants, who have it in their power greatly to aid the former class by an occasional word of advice or friendly suggestion. When a boy enters an apothecary shop with the view to becoming a pharmaceutist, he is first employed in a great variety of services, as in opening and closing the shop, sweeping and dusting, cleansing mortars and other utensils, washing bottles, grinding, bruising, and garbling drugs, cutting herbs, stirring evaporating liquids, cutting, pasting, and attaching labels, bottling liquids, &c.; engagements requiring but moderate skill: after a time, however, the boy becomes aware that he is only on the surface of the knowledge he came to acquire, and that it is necessary for him to read and study. If he is thoughtful and earnest, and is fortunate in finding himself associated with a kindly disposed clerk, who will give a proper direction to his inquiries, and encourage his desire for knowledge, he soon gets sufficiently within the subject to find the great extent of its range and the variety of its detail.

The first effects of this impression are sometimes strongly discouraging and depressing, but if he perseveres, and has mastered the idea that all knowledge is of gradual growth, that like the stalactite it grows by accretion from without, as well as, plant-like, by development from within by thought-action, he will soon become reconciled to the process, and employ his spare time in its pursuit. But what shall the boys do who have no guide in a well-disposed associate, or who may be so unfortunate as to be the victim of a churlish or tyrannical clerk, or of an oppressive illiberal employer, or, what is nearly as bad, to be placed at service with an ignorant, ill-qualified preceptor?

In considering the query, it has appeared feasible to undertake a short and suggestive essay, which, without entering deeply or systematically into the subject of pharmaceutical tuition, may succeed in aiding this extensive class of learners, and at the same time afford help to well-disposed apothecaries, who really desire to aid their boys, but who are at a loss how to advise them.

* From the Proceedings of the American Pharmaceutical Association.

The *special* knowledge requisite to the apothecary is of four kinds, viz.:

1st. A practical acquaintance with the implements and apparatus of pharmacy, and with the methods of using them in all kinds of manipulation.

2d. The intelligent use of this apparatus in making preparations of the Pharmacopœia, so as to adapt it to the nature of the material treated, which involves not only some acquaintance with the physical laws, but also with the nature and composition of drugs.

3d. The study of the scientific relations of pharmacy as explained in works on Chemistry, Materia Medica, Botany, and Physics, and a thorough acquaintance with the physical appearance and properties of drugs.

4th. That important part of the business involved in getting medicines ready for the sick, as well on the prescription of physicians, as on ordinary demand by consumers, where of maturity of judgment has to be exercised in regard to the correctness of substances required. The construction of the Latin language, and some knowledge of its vocabulary, is absolutely necessary in this department in many countries, though less indispensable here than abroad.

In view of all this knowledge to be gained, it must be apparent that the native ability, and the preliminary education of the boy, have much to do with his success in mastering its details. So important is it that the beginner in pharmacy should be well grounded in the ordinary branches of school education, that in several countries abroad, none but such are admitted to apprenticeship, with some knowledge of the classics superadded. When, therefore, he brings with him some rudimentary knowledge of the sciences as taught in the best common schools, our novice is well equipped, to make progress in the avocation he has chosen, and needs only perseverance to succeed.

The text-books upon which the beginner has mainly to depend, are the United States Pharmacoœia, the United States Dispensatory, and some one or more works on chemistry and pharmacy, with a Latin dictionary, and when possible Webster's dictionary. One of the first lessons is to get a practical acquaintance with the labels in the store, in connection with the substances labelled; this is the groundwork of his study of the business, and is essential to progress in other directions. The habit of abbreviating labels on shop furniture and in prescriptions, adds much to the trouble of the novice in learning them, and it has sometimes happened that he has never thoroughly acquired the terminations of the words so as to use them with facility. A good plan is to commence with a shelf of bottles or a row of drawers at a time, and by the aid of the officinal list of the Pharmacopœia and the Index of the Dispensatory, to copy the

names in full into a rough note-book in *columns,* placing the English name in line. He should be assured that the labels are correct for the substances contained, and then by close observation get as clear an impression of the appearance, taste, and odor of each substance as possible. Another shelf or row should then be taken and proceeded with, observing from time to time to exercise the memory and the senses on each preceding lesson till it becomes familiar. This brings us to consider for a moment the manner of consulting the Pharmacopœia and Dispensatory for this purpose. The Pharmacopœia officinal list is arranged alphabetically, and the same arrangement applies to the groups or kinds of preparations, as well as to the individuals of each group. The *officinal names* (or authorized names) in full, with the regular English name, and a brief definition of the nature and natural source of the substance is given. Most Materia Medica names will be found in this list, whilst preparations will be found in the second part of the book, and most easily by consulting the index. Special attention should be given to the spelling of the Latin names and their terminations. For example, suppose our young friend in his first lesson has a drawer labelled "Colocyn.;" referring to the list he finds "*Colocynthis,*" translated "Colocynth," and described as the fruit of Citrullus colocynthis "deprived of its rind." He naturally desires to know what sort of fruit, what are its qualities, what sort of a plant yields it, where it grows, what it is used for, &c. To get these answers he must go to the Dispensatory, article "Colocynthis," where he will find all he desires to know about it; but *this* inquiry may well be left until he has considerably extended his superficial knowledge of drugs and their correct names.

The immense size of the United States Dispensatory, and its comprehensiveness of detail, render it a formidable object as a text-book for the beginner, until he gets the key to its construction, and finds it almost as easily consulted as a dictionary, having an alphabetical arrangement. The greatest difficulty it presents is its fulness, and the longer time necessary to consult it. But it is by no means necessary for the beginner to read each entire article: for instance, in the example above stated, he can easily find that colocynth is a fruit like the mock-orange, growing on a vine with leaves like those of the watermelon, that its pulp is exceedingly bitter and purgative, that it comes from Northern Africa, and enters into several valuable medicines.

(To be continued.)

VEGETABLE POISONS AND THEIR ANTIDOTES.*

BY E. M. HOLMES,

Curator of the Museum of the Pharmaceutical Society.

A knowledge of the action of poisons in the human frame, and of the means by which their fatal effects upon the system may be prevented, may perhaps appear to belong rather to the medical practitioner than to the pharmacist. There are, however, occasionally times when he is not at hand, and the prompt application of remedies being the only chance of saving life, as in poisoning by prussic acid or nicotine, the nearest chemist is called upon in the emergency. A knowledge, therefore, of the most reliable antidotes to use in cases of emergency cannot fail to be valuable to the pharmacist, and rightly forms a branch of his education.

For many poisons, more particularly those belonging to the vegetable kingdom, there are no real antidotes known, and it is therefore a subject which demands the attention of the pharmacist as well as the physiologist. The derivation or substitution compounds of the vegetable poisons have not been investigated to any extent, and the discovery of the different properties of methylstrychnia† to those of strychnia, show that there is here a wide field open to chemical discovery. This branch of science may, indeed, be said to have been culpably neglected, seeing that it has not kept pace either with chemical discovery or with the progress of medical science.

No amount of care on the part of the chemist can prevent the occasional occurrence of poisoning, nor can any Act of Parliament hinder the employment of substances in common use for the purposes of suicide or murder. Even if the sale of mineral poisons were entirely forbidden, there are many poisonous plants to be found in our gardens, fields, and hedges.

As an instance of the extent to which poisoning was carried in the 16th and 17th centuries, and therefore could again be carried, unless our knowledge of antidotes is improved, it is said that the manufacturer of the celebrated "acqua tofana" confessed to having been instrumental in the death of no less than 600 persons, and this in spite of the severest measures taken by the Government. It is obvious, therefore, that the best way to render poisoning less frequent as a crime, is to know how to counteract its effects.

The employment of antidotes appears to be of as ancient a date as the use of poisons. Thus we find that from very early times

* From the PHARMACEUTICAL JOURNAL AND TRANSACTIONS.

† PHARM. JOURN. (2), vol. i., p. 561.

endeavours were made to discover an universal antidote. We read of Mithridates, King of Pontus, taking every morning a dose of an electuary, which was supposed to be an antidote for every kind of poison. It is possible that the opium which it contained may have proved an antidote to such poisons as dilate the pupil of the eye, and it may be owing to this that it retained a place in medicine for so long a period.

The researches of the ancients, however, like those of the alchemists for the elixir of life and the philosopher's stone, must have sadly disappointed their expectations. To find an antidote for even one poison is a matter of considerable difficulty, for the same drug will, under different circumstances and in different people, produce quite opposite effects. Thus, in some persons opium will produce sleep, in others wakefulness, and in some cases it has caused diarrhœa, delirium, or even lock-jaw.* Hemlock also in some instances has produced insensibility and convulsions, while in most cases consciousness is retained and the power of the muscles is paralysed. These results may be owing to difference of temperament, or condition of health at the time. Thus, in tetanus large quantities of opium may be taken without producing any effect. From these facts it would appear that *the symptoms produced are the best guide in the administration of antidotes.*

Many antidotes have, at different times, been brought into notice, some of which remove the poison from the stomach, others render it inert by chemical means, and others again produce a reaction by neutralizing the physiological effects of the poison. It is to the latter class that I would more particularly direct attention, for, although it is necessary to render inert, or to remove the bulk of the poison from the intestines, to prevent its absorption, yet it is only the small portion that is absorbed into the blood which causes death, and the effects of which it is necessary to combat by antidotes. In order to find what will best answer this purpose, it is necessary to investigate the way in which poisons are absorbed into the system; their action when absorbed; the way in which they cause death, and the manner in which they are eliminated by nature in cases which do not prove fatal.

But before investigating these points, it is necessary to define what vegetable poisons are. This is, perhaps, not so easy a matter as might at first appear. Plants which are poisonous to some animals are not so to others. Strychnia has no effect upon invertebrate animals, and is said not to poison monkeys. Many of the poisons which destroy the life of man and other carnivora are eaten with impunity by graminiverous animals. Thus, opium does not poison pigeons; tobacco and hemlock do not injure goats; and

* Taylor on "Poisons," p. 805.

stramonium, henbane, and belladonna are eaten by rabbits.† Whether this is owing to the difference of digestive apparatus or to the knowledge of an antidote, as is said to be the case with the mungoose, must be at present a matter of speculation. Again, several umbelliferous plants, namely, *Cicuta virosa*, *Œnanthe crocata* and *Conium maculatum* are said to be without poisonous effect in Scotland, while in England, Wales, and Ireland they cause death as rapidly and almost as surely as arsenic. It is well known that the roots of hemlock are eaten as food by the Russian peasants. It is possible that coldness of climate may cause this difference, as it is a well ascertained fact that hemp will only yield its intoxicating resin in hot climates. A vegetable poison will therefore be best defined by saying that it is a vegetable production which, in the majority of cases, is capable of destroying human life when administered in small quantities. As poisons of the class are exceedingly numerous, it will only be possible to notice a few of them. Those which are in frequent use in medicine or commerce, and those by which death is most frequently caused, either accidentally or intentionally, more particularly demand our attention; many of the vegetable poisons being only known to, and obtainable by, the few.

On perusing the statistics of poisoning,‡ it will be found that in cases of *accidental* poisoning, the root of aconite, the tempting berries of belladonna, the peculiar capsules of stramonium, and the tuberous and somewhat agreeable roots of the poisonous umbelliferæ are those which have generally proved fatally attractive to human beings; and the leaves of the yew tree to animals, more especially in the winter season.

In cases of *intentional* poisoning, opium, strychnia, prussic acid, and tobacco have been the drugs generally resorted to; while the ignorant medicinal use of savin, digitalis, lobelia, and black hellebore has often led to unexpected and fatal results. Of the above-mentioned poisons more deaths have been occasioned by opium and its preparations than any other. Strychnia, prussic acid, aconite, and belladonna come next in order, cases of poisoning by the others being comparatively rare. To find antidotes for these poisons in particular is therefore of the greatest importance.

(To be continued.)

† PHARM. JOURN. (2), vol. xi., p. 871.

‡ Taylor on "Poisons," p. 237.

THE PRODUCTS OF DRY DISTILLATION AT THE VIENNA EXHIBITION.*

BY PROF. HENRY SCHWARTZ.

The products of dry distillation may be divided into several groups according to the substance which is subjected to distillation.

TURPENTINE.

First, we have the production of turpentine and rosin. Quite an extensive strip of country between Wiener-neustadt and Gloggnitz, is devoted to the cultivation of the black fir, and the production of rosin and other products. Andes and Frobe, in Simmering, exhibited a handsome collection of tools and apparatus employed, and products obtained. Several extensive manufactories, such as Furtenbach's and Biach's, distill the crude turpentine by steam heat to obtain oil of turpentine and colophone, beside subjecting the rosin to dry distillation, which breaks it up into pinoline, a heavy rosin oil and pitch. This rosin oil is mixed with caustic lime and employed as wagon grease, being sometimes colored black with soot or lamp black. Portugal has for years devoted a large tract in the State forest, where the pine flourishes, to this industry. The product obtained contains a large quantity of oil of turpentine. In 1871-2, as much as 275,000,000 kilos. of turpentine were collected, which yielded 45,000,000 kilos. of oil of turpentine, 189,000,000 kilos. colophonium, and 36,000,000 kilos. yellow rosin, while the remainder was sold as crude turpentine, going to London and Lisbon. Spain sent rosin also from Guadarama.

PETROLEUM.

The second group embraces petroleum, photogene and paraffin, the hydrocarbons so much used for illumination. Strictly speaking petroleum is by no means to be considered as a product of dry distillation. It agrees so completely with photogene in its properties and uses that we may leave this theoretical question out of view. Among all the countries where petroleum is found, North America, without doubt, ranks first, the value of her annual production of petroleum being only second to that of cotton and wheat. Galicia in Austria, the trans-Caucasian provinces of Russia, and those on the Caspian, with Farther India (Rangoon), and finally Roumania, are of nearly equal importance. Roumania had numerous exhibitors of oil and paraffin, and is beginning to play an important part in these articles. The cost of production there is so low that, in spite of import and export duties, and transportation for 150 miles by land and railroad, it can be brought to Galicia so as to compete

* Journal of Applied Chemistry.

with that produced there. Rangoon was not represented by petroleum in the English section of the exhibition. Austria is blessed with rich petroleum treasures in Galicia. At the foot of the Carpathian mountains, near the north end, petroleum is found from Bochnia to the borders of Bukowina for a distance of 300 miles, and has already been discovered in not less than 150 places. It has been known there for a very long time, as shown by the derivation of the names of many places in that province. In America, the oil which collected on the surface of standing water, along the edges of streams, and in shallow ditches, was gathered by the Indians and used for medicinal purposes, and similar cases are reported in Galicia. There was, however, this difference, that while in America the legislation in reference to boring for petroleum left nothing in doubt, in Galicia it is variable; in America there were enterprise, capital and easy communication, while Galicia is far behind in these things. In 1848, some Jews first undertook to obtain petroleum in Galicia, and since 1853 a wild, careless method of working has been developed, employing shallow pits which reached only to the upper layer of the petroleum-bearing marl, and when that immediate vicinity was exhausted they were deserted and fresh ones dug. More rarely the marl brought out was mixed with water, when the oil contained in it would rise to the surface. Gradually more energy was infused into this industry, so that the yield in 1866 was about 166,000 cwt. Unfortunately the yield has since decreased, until, in 1871, it was only 70,000 cwt. Lukasiewicz did much for this branch of industry by sinking 35 wells, some of them 700 feet deep, and introducing the American system of boring. In this way more satisfactory results were obtained, as was expected, so that some of the wells produced 100 cwt. of petroleum per day. This much seems to be established, that enough crude material could be obtained by improved methods of working, and that it could be refined as easily and perfectly as American petroleum. In fact, this oil possesses one advantage over the American, for it contains less of the highly volatile oils, and consequently more illuminating oil. Some of the oils are free from parafin, and hence do not freeze in the greatest cold. There were fourteen exhibitors, some of whom exhibited refined oil, others the crude. C. Pratt, of New York, exhibited a specimen of petroleum which he calls astral oil, with a very high burning point.

It seems as if petroleum, having been produced in such immense quantities in America, had almost extinguished the previously flourishing industry of making photogene and paraffin. All manufactories that used poor material, like shale and peat, have, of course, stopped. On the other hand, the distillation of bog-head coal in England, and of brown coal in Saxon-Thuringia, continues to be profitable. The former is carried on very extensively by Young in England, and 50 per cent. of tar is obtained, which is very rich in

oils of a high boiling point, but low specific gravity, and which burn with a brilliant light and are perfectly free from danger. The coal obtained by the Murajewnisch Co., in Rjæsan, is very similar to the English material, and the product obtained from it is all that could be desired.

TAR FROM BROWN COAL.

The distillation of brown coal is carried on chiefly for its tar, which is very rich in parafin, and hence the exhibitors have done well in placing this beautiful product in the foreground. Not all brown coal is suited to the profitable production of tar. In all Germany there is but a comparatively small tract of country, lying between the cities of Halle, Weissenfels and Zeitz, in Saxon-Thuringia, where such a coal is found. This coal is pulverulent, and when dry has a light yellow color; it is found chiefly in the outcrop of strata, in detached masses, and in thin layers; the tar produced equals 16 per cent. of the weight of the fresh coal, possesses a light color, and has a low specific gravity, and besides, owing to the large per centage of parafin in it, it has a buttery consistency even in summer. It seems that this kind of coal is also found in Bohemia, but only in small quantities. Upon analysis it is found to contain as much as 11 per cent. of hrydrogen. It fuses in a candle flame like sealing-wax, and a light-yellow resin, melting at 160° Fahr., may be extracted from it by boiling alcohol. The tar is obtained by distilling the coal at a dull red heat in horizontal or upright iron retorts. The latter, when formed of a series of inverted iron bells, possess this advantage, that the heat has to penetrate only a thin layer of coal, and the tar produced is immediately run off. In purifying the tar, pains are taken to avoid any unnecessary distillation, since it has been ascertained that the yield of paraffin is thereby diminished. Dr. B. Hubner, in Zeitz, has discovered that, by treating the tar directly with sulphuric acid and afterward distilling it over lime, it is unnessary to distill the paraffin, and the yield is two per cent. higher. The quantity of soft paraffin, which was formerly destroyed by hot sulphuric acid in the final purification, is now reduced to a minimum, and is mixed with stearin for candles. The great progress which this industry has made is shown not only in the excellently-arranged exhibition made by several firms in Zeitz, Halle, Weissenfels and other places, but also by the statistics, which show the very considerable extension of this branch of manufacture. In 1871, in this district, 41 tar works, employing 1844 horizontal and 610 upright retorts, consumed over 300,000 tons of coal, and produced 33,823 tons of tar; 1,350 laborers were employed, and the capital invested exceeded $1,700,000 in gold. The same number of laborers and a still larger amount of capital were employed in refining the tar and converting it into photogene, solar oil, paraffin oil, paraffin and asphalt. The soda employed in the purification is regenerated

by evaporating and igniting, and also mixed with the sulphuric acid employed to make Glauber's salt, carbolic acid being also obtained. The sulphuric acid, after the tar has been removed, can be used in making superphosphates, ammonia salts and green vitriol, while the tar is burned to make lamp black.

In contrast with this immense industry stands the similar production of tar from Lias shale. It may here be remarked that certain kinds of paraffin—for instance, that made by Dr. Hubner—melts at 63° C. (145° F), whereas the normal melting point is 53° to 55°C. (127° to 131° F.) The heaviest oils are now treated like the analogous petroleum residues, namely, allowed to flow into strongly heated iron retorts, and thereby converted into a heavy illuminating gas, which burns very slowly and makes a good light. P. Suckhow, of Breslau, exhibited a complete apparatus for this purpose, which is easily attached and so constructed that it can be very easily masoned in.

HEAVY COAL TAR.

Very different from the light tar of brown coal is the heavier tar from bituminous coal. The latter is produced at a much higher temperature, and is a by-product in the manufacture of illuminating gas. Although on the average only five per cent. of the coal is converted into tar, yet, owing to the great extension of coal gas illumination, the total quantity produced is immense. We may suppose that in London alone a million and a half tons of coal are used in making gas, and in all England ten million tons, which would yield half a million tons of tar. The production of the rest of the world may be reckoned at an equal quantity. Coal tar can now be used profitably. It can be employed for covering roofs, making asphalt and asphalt tubing, for painting wood and other purposes. Its uses are far more varied and numerous if it be subjected to distillation. The principal products thus obtained are benzole, carbolic acid, naphthalin and anthracene. Each of these substances opens a series of highly interesting and important uses. At present Germany stands at the head of this branch of industy, and has almost complete control of the market in coal tar colors. Hence we are not surprised that many German manufacturers sent coal tar products to the exhibition. Among these were four—Rutgers near Breslau, Erkner in Berlin, Angern on the Nordbahn, and Niederau near Meissen—who together distill 6,250 tons of tar. Rutgers is largely engaged in preserving railroad ties. He uses partly chloride of zinc and partly the heavy oil of coal tar, containing carbolic acid, and which was first employed by Bethell, in England, for this purpose. He is compelled to import a good deal of this oil from England.

In general, no essential improvement has been made in the material used as foundation for the coal tar colors. Anthracene, which

is found in the last heavy oil, has gained a special importance, and in obtaining it the tar is often distilled until only coke is left, in order to obtain as much as possible of this substance, which is so important for the manufacture of artificial alizarin.

There remains to be described the distillation of wood and similar substances for the manufacture of wood tar and wood vinegar. In this department Austria is well represented. The old tradition of the distillation of wood in Blansko, where Reichenbach carried on his celebrated investigations, which have become in many ways the foundation of our knowledge of dry distillation, still has its effect. Dr. Oppler, near Nuremberg, manufactures wood vinegar and iron mordants, as well as ammonia salts and tin preparations; both his establishment and that of the Chemical Union, at Mainz, deserve a more detailed description. It is well known that in the Grand Duchy of Hesse there are many oak forests, and the excellent oak bark from here has rendered celebrated the leather of the Rhine, and especially Mainz leather. After peeling off the bark, the wood is left in short sticks about an inch thick, which are subjected to distillation. By carefully regulating the temperature, a large yield of very good charcoal is obtained, and the valuable wood vinegar, which is purified as usual, and also wood spirit tar. This company possesses in all seven factories, which in 1871 produced $285,000 worth of these articles. Besides various acetates, including some beautiful verdigris, and pressed coal from the refuse of the charcoal, and there were also interesting specimens of butyric, valerianic and capronic acids, prepared from the mother liquors of the acetate of soda. The presence of these acids there has only recently been demonstrated.

THE BRITISH PHARMACOPŒIA ADDENDUM.*

BY C. UMNEY.

Discussions upon the nomenclature, the weights and measures, the preparations, and other matters connected with the British Pharmacopœia, have on many occasions during the past three or four years, occupied the members of this Society at their evening meetings.

Although the repeated invitations of the President, to have subjects of pharmaceutical interest brought forward for discussion, have not been as heartily responded to as he and other well-wishers to pharmacy could be desired, still, it is beyond dispute that when opportunities have occurred for the interchange of ideas upon such

* Read at the Evening Meeting of the Pharmaceutical Society, April 1, 1874, and published in the Pharmaceutical Journal and Transactions.

topics as have been presented at our evening meetings, good has invariably resulted.

During the past year pharmaceutical research has, it is to be regretted, flagged considerably; it can hardly have been caused by the announcement that the Supplement or Appendix to the British Pharmacopœia was to be published at an early date, for one would have imagined an announcement from Professor Redwood that such a publication might be expected, would have stimulated pharmacists to have brought forward all matters that deserved the attention of the Pharmacopœia Committee.

To those who have worked to amend the errors of the 1867 edition, as well as to those who have bestowed thought and labor upon the preparations now added to our national pharmacopœia, our thanks are due.

As you well know, after some considerable delay, the addendum has made its appearance, and it has the good fortune to be associated with a volume of which pharmacists are justly proud, and with which the medical profession is evidently satisfied, as was shown by the *Lancet* in a recent article upon the British Pharmacopœia, the closing paragraph of which might be here reproduced with advantage:—

"It will be seen that there is at least a promise of some valuable matter in these additions to our national Pharmacopœia, and if the practical knowledge and judgment displayed in preparing the previously published part of the work have been equally exercised in this, the profession will be indebted to the Medical Council and the Pharmacopœia Committee for their labors in this direction."—(*Lancet*, March 21, 1874.)

My object in addressing you this evening is not so much to bring my preparations (placed upon the table) specially under your notice, but rather to have them before us as illustrative of the 34 new remedies and substances used in the preparations of medicine contained in the supplement, while we discuss their relative merits.

I must acknowledge that I have had no special experience of many of the matters before us other than that I have gained, by way of experimenting, during the past few days; I ask, therefore, your indulgence for any errors of judgment that I may commit, in my haste to bring so important a matter before you.

Let us in this discussion be mindful of the fact that the compilation of a work is a much more difficult task than a criticism; also, on the other hand, that criticism fairly carried on must, in the end, be to the benefit of those criticised.

Lut us turn, then, to the Supplement, and take the preparations *seriatim*.

Acetic Ether.—This body, although not new to the chemist, is a body with which pharmacists are but little familiar. All will remember the characteristic and pleasant odour so often noticed in

preparations containing alcohol and acetic acid, and notably in the officinal tincture of acetate of iron, in which acetic ether is unmistakably formed, much to the detriment of the tincture, not so much from its presence as from the loss of acetic acid, and consequent deposit of a basic salt (which, by the way, may be obviated to a degree by having about 5 per cent. free acetic acid present in the tincture). This ether, we have been told, has more especially been introduced with a view to its use subsequently when the pharmacopœia is more generally altered.

The special objects in its introduction may have been for flavoring certain preparations, and also to have a more perfect solvent of cantharidin when making blistering fluid.

The Pharmacopœia does not pretend in all cases to give minute directions to manufacturers, but general remarks for their guidance, it therefore merely states that this ether may be made from dry acetate of soda, rectified spirit, and sulphuric acid. A better form could hardly have been given, as the more anhydrous the two liquids the more quickly and abundantly do they produce the compound ether.

Chloride of calcium is directed to be used to dry the ether when produced by digestion, with half its weight, and final rectification.

Here I cannot help noticing one omission of great importance, which may lead to confusion, viz., the non-rectification of the product from a solution of carbonated alkali, to remove free acetic acid, of which considerable quantity will always be present.

Under "characters and tests" we have the specific gravity described as 0·910, and the boiling point 166°. In Gmelin's Chemistry we find the specific gravity described as ·888, and the boiling point as 165° (74° C.)

Miller also very nearly corroborates this, for he names ·890 as the specific gravity, and 164° as the boiling pointr

But upon reference to Watt's Dictionary of Chemistry, this ether is described as having a specific gravity at 0° C. of ·910 (Kopp) and a boiling point 74·3 (166 Fahr.).

In the face of this conflicting evidence by good authorities, it is difficult to decide at any rate the specific gravity of acetic ether, unless by actually working out the matter for oneself.

I had my suspicions, that if I could find a specimen in pharmacy that would answer to the pharmacopœia tests, I should, in all probability, find free acetic acid as an impurity, I also thought that some specimens might be contaminated with ordinary sulphuric ether.

Accordingly I examined three, with results as under :—

	Specific Gravity.	Boiling point.	Free Acid.
a	·890.....	160°	none.
b	·889.....	158°	"
c	·915.....	164°	10 per cent. of monohydrated acetic acid.

Washed with an equal volume of water, while *a* lost 3·5 per cent. *c* lost 10 per cent.

I find that the acetic ether of the French Codex is directed to be rectified from a small quantity of potassic carbonate, but not from chloride of calcium.

The resulting ethereal liquid would not, although deprived of acid, be thoroughly dessicated, and would contain (probably 10 per cent.), of *either* water, alcohol, or sulphuric ether; even all might be present.

It would therefore appear that the text in the addendum, to be strictly accurate, must in some way be modified, and at least direct the rectification of the product over carbonated alkali, to ensure the absence of free acetic acid.

I should imagine that the French Codex preparation would be preferable; but this remark at the present time is premature, for I am not fully aware whether almost anhydrous acetic ether would not be required in some preparations.

I purpose further investigating certain points connected with this liquid as soon as possible.

Nitrate of Ammonia is so well known to us, as the source of laughing gas, that it seems almost unnecessary to bring it before you.

The tests of the Pharmacopœia have been framed with great caution, anyone carefully following these cannot fail to select a good specimen of the salt now so largely used for the production of nitrous oxide for use by the surgeon dentist.

It would be well here to call attention to the presence of chlorides in some commercial specimens which must, upon being fused, produce a gas much contaminated with the irritating vapour of ammonium chloride.

Nitrate of Amyl.—This powerful medicine, although known since 1844, when it was discovered by Balard, has been but little used. We are indebted to Guthrie* for having first observed in 1858 the remarkable and powerful action of this liquid on man. Its physiological properties have been investigated by Drs. Richardson, Brunton, Talfourd-Jones, Anstie, and others, and have formed the subject of more than one paper for the meeting of the British Association. To those reports and to other journals† I must refer anyone desirous of becoming further acquainted with the medicinal properties of this liquid.

Pharmacists, here and in America, seem to have given some attention to the production of this remedy in a state of purity.

Maisch‡ prepares it by the action of nitric acid direct upon

* *Journal of Chemical Society*, vol. xi. 1859.

† *Pharmaceutical Journal*, Sept. 1870, p. 209, and *Pharmaceutical Journal*, Nov., 1871.

‡ *Pharmaceutical Journal*, April, 1871, p. 465.

amylic alcohol, and reserves that portion of the liquid for final purification which distils between 96° and 100° C.

Tanner* takes advantage of Redwood's process for spirit of nitrous ether (the British pharmacopœia process), and prepares the amyl nitrite in this way. Other processes have also been suggested, which I should recommend to your notice.

The chief points in the production of this body in a state of either absolute or even medicinal purity, first and foremost hinge upon the thorough fractional distillation of the fousel oil, until the amylic alcohol selected for use has a constant boiling point of 132° C. The crude nitrite, prepared by either of the processes indicated, must be washed with caustic soda, to remove prussic acid formed during the process, and nitrous compounds, and finally rectified over potassic carbonate.

That portion only is reserved for use in medicine which distils between 96° and 100° C.

The boiling point, as given in the Pharmacopœia, is not, I presume, intended to be the boiling point of absolutely dry and pure amyl nitrite, indicated by Guthrie, as 99° (210° Fahr.), but rather an average boiling point of good medicinal nitrite, ranging through some eight or ten degres of Fahrenheit's scale.

The specific gravity, as represented in the Pharmacopœia, is, I believe, for medicinal purposes, sufficiently accurate. Some three years since,† I found that some specimens I then examined were not amylic nitrite, but were contaminated with nitrites of radicals much higher in the series than amylic alcohol.

Chloroform Water is, perhaps, one of the best of the introductions into the Pharmacopœia. All, at some time or other, have been inconvenienced by the sparing solubility of chloric ether, when ordered in a mixture in such quantity as to be only partially dissolved, which difficulty has been considerably aggravated by the variable strength of chloric ethers as compared with the officinal spirit of chloroform.

The water, containing one-half per cent. (fluid) of chloroform, seems to be, as far as I have observed, a fully saturated solution.

Areca nuts, as they are termed in commerce, are introduced as a vermifuge.

It has been urged that this remedy to exert its maximum anthelmintic force, must be in a certain state of division, and not prepared as a fine powder.

My opinion is that this is more imaginary than real, and that, in all probability, when a specimen has been pronounced inert, it was due either to partial destruction by an insect of the betel seed

**Pharmaceutical Journal*, Nov. 25, 1871, p. 421.

† *Pharmaceutical Journal*, Nov. 26, 1870, p. 422.

before powdering, or to the powder having been stored for a considerable period previous to administration.

Aurantii Fructus is introduced for the fresh peel, directed to be used in the preparation of Tinct. Aurantii Recentis. Fruit merchants consider the fruit in perfection in the months of February, March, and April; pharmacists should therefore prepare their stock of tincture for the ensuing year as soon as possible.

Bismuthi oxidum is introduced with a view to its use in subsequent Pharmacopœias. Solution of citrate of bismuth and ammonia is the preparation for which it is, no doubt, intended by a manipulation very similar to that given by Wood (*Pharmaceutical Journal*, 16th September, 1871). A liquor thus prepared is free from the impurities common in the present officinal solution, which process is seldom if ever resorted to by manufacturers. This oxide can be obtained by boiling basic nitrate with caustic soda solution, 80 parts being produced from 100 of the nitrate.

Calcis Hypophosphis and *Sodæ Hyphophosphis* are already in considerable use in medicine; they may be said to have forced their way into the Pharmacopœia from the fact that their medicinal value is acknowledged on all sides.

We shall, doubtless, in forthcoming editions, hear more of these, in the form of syrup or other convenient modes of administration, and if not of these, probably of a ferruginous syrup with hyphosphorous acid (syrupus ferri hypophosphitis). This latter is now in demand, and may most rapidly and advantagously be prepared by Wood's process (*Pharmaceutical Journal*, vol. ix. p. 461).

While we are speaking of acids of phosphorous, I should like to draw attention to the advantages in using a phosphoric acid of greater strength than the 10 per cent. solution now officinal, for the manufacture of a certain class of preparations now in considerable demand, with a view of introducing it into the Pharmacopœia on a future occasion. I would employ a 50 per cent. solution at least (specific gravity, about 1·500) as described by Carteighe (PHARMACEUTICAL JOURNAL, 26th March, 1871).

I am tempted to again dwell upon a preparation containing the element phosphorus, which seems to be playing, you know, an important part in the medical treatment of the present "high pressure" days.

The preparation to which I would refer, perhaps, will be thought by some to savour of quackery, but still it is in enormous demand. The public, who are generally keen observers of the value of such remedies, attach great importance to it, but whether their views are wholly corroborated by the medical profession, I am not prepared to say. It will be sufficient to remark that it is one of those compounds which are dubbed by our American cousins (the *Lancet* styles some of the addendum preparations in the same way) as "elegant pharmacy." The compound syrup of the phosphates,

known popularly as Parrish's Syrup, is the preparation to which I refer, and my own view is, the sooner we have an official formula for it the better. Why not this, as well as citro-tartrate of soda, which was introduced to imitate a well-known preparation, and to keep pace with the public taste for physic?

Charta Sinapis.—Mustard leaves, as they are termed in trade, were made officinal in the last United States Pharmacopœia; our process is almost identical with the American, and both are imitations of Rigollot's mustard leaves, which have been in considerable demand.

It will require dexterity and practice before one can make the elegant leaves of the French manufacturer.

The American Pharmacopœia directs the spreading of the solution of gutta-percha and mustard with a brush, while the British Pharmacopœia, with the same viscidity of the gutta-percha solution, directs the passing of the paper on one side over the mixture.

Chloral Hydras.—Although known to the chemist from the earlier days of Liebig, still it was not until some four years since that it was brought forward as a remedial agent. It has been in large demand (not in the quantities the newspapers stated), and although perhaps less is used now than a year since, still my own observation convinces me that it is maintaining its ground. At first our market was wholly supplied from the Continent, but eventually, thanks to the enterprise of an English firm of manufacturing chemists,* it was produced at home.

Its import in considerable quantity was viewed with a jealous eye by the Customs, who attached a duty of fifteen pence per pound to it.

For a considerable period the chloral hydrate of pharmacy was wholly found in masses; now, however, detached crystals, ranging from the size of large crystals of sulphate of magnesia to those of chlorate of potash, are met with; but these are wholly of continental manufacture. I am informed that English makers, presuming that these are now required by the description given in the addendum of chloral hydrate, are quite prepared to undertake their manufacture.

The Pharmacopœia Committee does not undertake to be a manufacturer's encyclopædia, still it would, I think, have been advisable to state the particular liquid from which chloral hydrate may be crystallized.

The characters and tests enumerated are ample to decide the purity of good chloral hydrate, the boiling point of 205° and Wood's quantitative chloroform test (PHARM. JOURN., March 4th, 1871) being those chiefly to be relied upon.

Extractum Glycyrrhizæ Liquidum is certainly a preparation of which both prescribers and dispensers stood in need.

* Foot, Barrett & Temple, Battersea.

When it was first introduced to our notice within these walls by Professor Redwood, who at the same time brought forward other United States' Pharmacopœia preparations, we were told that glycerine and proof spirit would be the liquids by which the fluid extract would be preserved, and that the starting point would be extract of liquorice, and not liquorice in powder as there directed. It appears, however, to have been decreed that we shall not be afflicted with "the glycerine mania" prevalent on the other side of the Atlantic, for the glycerine has been discarded, the extract of liquorice replaced by the root, and the spirit only retained, and that in very small quantity.

That a fluid extract shall be made from the root direct is certainly more like "artistic pharmacy" than dissolving the extract in water. That there will be no lamentation over the rejection of the glycerine few will question, but that the preservative action of 11 per cent. of rectified spirit will be sufficient to prevent acetous fermentation I much question. Time and observation only will decide this matter. Experiments I have made with this fluid extract give the following results from 100 parts:—

Dried Liquorice Root	100	parts.
Solid Extract (B. P.)	26	"
Extract Fluid (sp. gr. 1·160)	56	"
Extract Glycyr. Liquid, B. P.	61	"

This latter, when complete, has a specific gravity of 1·130, which information might have been appended with advantage to the Pharmacopœia description, thereby giving one an opportunity of determining what the density of the completed extract should be.

Gutta-percha is a body with which pharmacists hitherto have not had experience. I would call attention to the impurity of much of the gutta-percha of commerce, and the variation of 100 per cent. in price.

Hydrargyri Oxidum Flavum is a preparation with which we have been for some time familiar, not only for use in ointments, but as the mercuric oxide used in the preparation of the valuable oleates of mercury.

These latter, perhaps, may find favour on a future occasion, when they have been more extensively tried, and when the oleic acid of pharmacy is other than the rough oleic acid of the candle factories.

Injectio Morphiæ Hypodermica is a preparation of which various solutions have from time to time been used, the weakest being probably the officinal solution, and the strongest one of ten grains to the fluid drachm. This latter is the one prescribed in Squire's work on hospital formulæ, and has perhaps been more generally used than any other. The preparation now offincinal has a strength of five grains to the fluid drachm.

I confess I am an admirer of the method by which this solution is directed to be made; it is practically and theoretically sound and likely to produce uniform results, provided always that its preparation by a good manipulator can be ensured.

I have, however, my misgivings on this point, and imagine that frequently such good results will not be obtained as might have been expected had the solution been directed to be prepared from acetate of morphia direct, even with all its faults, and more especially if required hurriedly, which will doubtless often be the case.

I had almost made up my mind that at any rate for all things now in medicine, we should count by ten and not by twelve; had we done so in this instance, we should have had a solution of one grain in ten minims, the continental pharmacist would then have been able to almost "run and read," as it were, and dispense easily his decigramme of morphia salt to his c.c. of solution when an English prescription was presented.

(To be continued.)

ON THE YIELD OF EXTRACTS.*

H. Werner has compiled, according to his own and the researches of others, the following table. He aims to prove by this comparison, that, supposing a uniform and careful manner of preparation—the indigenous vegetables differ in their yield according to the soil, and that foreign drugs are not always found in commerce of standard quality. Concerning his labors he premises the following notes:

Extr. Aloes was prepared by boiling aloes lucida in small pieces till the liquid appeared quite homogeneous, when after standing for 48 hours the resin had subsided very nicely, and the strained liquor was evaporated.

Extr. Ætheræ are prepared in a displacement-apparatus, by pouring on ether three times, the last portion of which instead of being recovered by pressure, is displaced by water.

Only drugs of the best quality were used for extraction, by which perhaps some differences of the table may be explained; regarding Extr. Opii the author remarks expressly, that in spite of using the best dry Smyrna Opium, the quantity he obtained never amounted to 50 per cent. The large differences which exist in Extr. Jugland cort. sicc. and Extr. Rubiæ tinctor. between the results of Hager and those of the author, are to the latter inexplicable.

* Neues Jahrb. f. Pharm., Sept., 1873; translated in the Pharmacist and Chemical Record.

	HAGER.	KOSTLA.†	WERNER.
Extr. Aloes	45,0	50,0	60,0
" " acid sulf. corr	—	—	70,0
" Arnicæ rad	30,0	—	20,0
" Aurant Cort	—	—	41,0
" Bellad. e. hb. rec	4,5	—	2,3
" Calabar. fabar	—	—	7,0
" Calendul. e. hb. rec	4,0	—	2,3
" Campech. ligni	10,5	7,0	11,0
" Cardui benedicti	22,5	34,0	22,0
" Cascarillæ	16,5	8,5	14,0
" Catechu aquos	—	54,0‡	28,0
" Centaurii	25,0	25,0	17,0
" Chelidonii e. hb. rec.	5,0	—	3,0
" Chinæ fusc. fr. par	12,0	15,0	15,0
" Chinæ fusc. P. Germ	—	14,0	16,0
" Chinæ reg. fr. par	—	8,5	17,0
" Cinæ æther	20,0	—	20,0
" Coffea	—	—	10,0
" Colchi sem. acid	—	25,0	20,0
" Colocynthid	18,0	32,0	24,0
" Colombo	11,0	10,0	11,0
" Croci	50,0	—	62,0
" Cubebar. æther	17,5	—	26,0
" Digital. e. hb. rec	5,5	—	4,5
" Dulcamaræ	15,0	16,0	20,0
" Ferri pomati	—	4,5	6,5
" Filicis æther	10,0	—	6,5
" Frangulæ cort	—	—	35,0
" Fumariæ	20,0	—	24,0
" Gentianæ	33,0	27,0	28,0
" Granat. cort. spir	20,0	—	24,0
" Gratiolæ e. hb. rec	5,0	—	2,0
" Guajaci ligni	3,0	—	2,0
" Helenii Ph. Germ	—	31,0	33,0
" Humulii lipulii spir	20,0	—	20,0
" Hyoscyami e. hb. rec	3,5	1,2	2,3
" Ipecacuanhæ	—	—	5,2
" Jugland fol. sicc	—	—	33,0
" Jugland cort. nuc	20,0	—	50,0
" Lactucæ viros. e. hb. rec	4,0	—	2.3
" Mezerei spir	9,0	—	9,0
" Myrrhæ	38,0	50,0	60,0
" Nicotianæ e. hb. rec	—	—	4.5
" Opii	50,0	51,0	45,0
" Pimpinellæ	16,0	20,0	27,5
" Polygalæ	30,0	—	30,0
" Pulsatillæ e. hb. rec	5,0	—	5,0
" Quassiæ ligni	7,5	3,0	4,0
" Ratanhæ	17,0	12,0	11,0
" Rubiæ tinctor	18,0	—	50,0
" Sabinæ	20,0	—	25,0

† Archiv der Pharmacie 148, 218.
‡ Probably Alcoholic.

	HAGER.	KOSTLA.	WERNER.
Extr. Saponar	35,0	——	50,0
" Scillæ Ph. Germ	37,0	——	40,0
" Secalis cornut. Bonj.	15,0	14,0	2,00
" Strychni opir	7,0	10,0	6,5
" Senegæ	33,0	23,0	25,0
" Sennæ	28,0	——	35,0
" Taraxaci sicc	——	22,0	25,0
" Taraxaci e. hb. rec	——	5,0	5,0
" Trifoli	25,0	34,0	32,0
" Valerian. Ph. Germ	15,0	——	22,0

ON LOZENGES.

These medical sweatmeats are thus spoken of by Dr. Prosser James, in a lecture reported in the *Medical Press and Circular*:—

"Lozenges may be looked upon as the modern representatives of the ancient class of remedies termed 'hypoglottides,' and which Galen, Dioscorides, and others were accustomed to prescribe. The name was derived from the dose being placed under the tongue of the patient.

"The attention bestowed on the precess of deglutition in connection with gargling precludes the necessity of considering it in reference to lozenges. The local effect of certain substances on the mucous membrane is often obtained by the employment of lozenges, which should always be allowed to dissolve in the mouth without breaking them by the teeth, and should also be swallowed very slowly, so as to prolong their action as much as possible. It is, however, to be remembered that as lozenges are swallowed their effect on the stomach is not to be forgotten. Indeed, their liability to interfere with digestion is one of their disadvantages. Some lozenges, as those containing morphia for instance, are also used for their general effects. In the British *Pharmacopœia* there are ten formulæ for lozenges. Some, as those of tannin and chlorate of potash, most useful locally; others, as those of iron and opium, for their effects on the system. The hardness of these lozenges is sometimes an objection. To overcome this, at the Hospital for Diseases of the Throat the lozenges are made of fruit paste, such as is used in the currant lozenges to be found everywhere.

"I have had lozenges made like the ordinary jujubes. The *pate de guimauve*, so common in France, and indeed all the elegant forms of French Pharmacy, may be made equally serviceable. The most useful additions to the lozenges of the British *Pharmacopœia* are astringents. Of these krameria is one of the best, as its remote effects are less marked than those of other astringents. In tonsilitis, guaiacum has been strongly recommended by Sir T. Watson and others, and can be given in the form of lozenges."—*Phila. Med. and Surg. Rep.*

BALSAM OF SULPHUR.*

(Ol. Lini. Sulphuratum.)

BY HENRY KERBER.

Balsam of Sulphur, though not officinal in our Pharmacopœia for a number of years, is still used in large quantities, especially in the country, and in the manufacture of Harlem Oil. It is really a blessing to pharmacists that this preparation has been made unofficinal; for, among all the preparations, we can hardly think of one with a more disgusting odor than that of the Balsam of Sulphur; and whoever has made it once will never forget this odor, but will think of it for years with a horror of its manipulation.

For the preparation of this balsam one gallon Raw Linseed Oil and one quart of Malaga Olive Oil are heated in an iron or brass kettle, holding three or four times the quantity of the oil used, over a charcoal furnace, at the temperature of about 300° Fahr. or near the boiling point, which temperature is indicated by the peculiar odor of the vapors arising from the decomposition of the oils; then adding two pounds of dry flour of sulphur, in small portions, say ½ oz. from time to time, constantly stirring with a wooden spatula until portion after portion is dissolved.

As the vapors are inflammable, care should be taken to have a tight lid, or a few wet towels at hand to extinguish the flames if necessary. At first the oils retain their yellowish color, but after three-fourths of the sulphur has been used the mixture turns darker. The sulphur dissolves easily in the oils, but if the temperature has not been raised to 480° Fahr., will partly separate from the oils, after cooling, in the form of a crystalline powder, the balsam remaining liquid and dissolving incompletely in oil of Turpentine.

If the oils are heated above this temperature, not necessarily to the boiling point, (600° Fahr.) the sulphur will become amorphous or go into the Gamma modification, and will remain there perfectly dissolved.

A seething is only to be feared after three-fourths of the sulphur has been used, and when by stirring it can be felt that the oils are getting thick at the bottom of the kettle. It should then be taken off the furnace, the remainder of the sulphur gradually added and stirred diligently.

Another vessel should be at hand so that if it shonld foam over the balsam may be caught.

Having all the sulphur in, the critical moment is at hand. The reaction upon the oils, which have not only dissolved the sulphur, but have also entered into a chemical combination with it, then begins, and generates such a heat that a seething, and if the kettle be on the furnace too long, a foaming over of the substance takes place.

*Pharmacist and Chemical Record.

Letting it quietly run into the other vessel until the reaction is over, a gelatinous mass will be found on cooling, which should be mixed with an equal quantity of Raw Linseed Oil, and again heated until it has dissolved. Then strain through a sieve. This on cooling forms an empyreumatic, odoriferous, honey-like fluid, which upon being mixed with Oil of Turpentine forms a clear liquid.

Harlem Oil is simply a mixture of one part Balsam of Sulphur with three parts of Oil of Turpentine. It is used internally in diseases of the kidneys, chronic catarrh, pulmonary complaints, and generally in all complaints where Oil of Turpentine is indicated. On account of its acrid taste and disgusting odor it should only be used for beasts and not for mankind.

ON THE LOSS OF WEIGHT BY THE DRYING OF AIR-DRY DRUGS.*

BY GEORGE W. KENNEDY, G.P.

In the April number of the *Journal* of 1872, page 156, will be found an article by the writer on the amount of moisture contained in air-dry drugs. The experiments were made during the months of January and February, and only show the loss and re-absorption for those two months.

That examination is inadequate as a guide for the year, as some months are wet and others more dry, necessarily causing the drug to vary in the amount of moisture it contains.

Prof. Maisch suggested to me the importance of making a series of experiments with a number of drugs in each month during the year, for the purpose of ascertaining how much they would vary during wet and dry weather, and thus to determine the importance of using only drugs that are thoroughly dried in the manufacture of the many galenical preparations, and especially tinctures, syrups and fluid extracts and the like, which must vary in strength as made from anhydrous or merely air-dry drugs. I give below the results of my experiments, commencing with January, and continuing during the year till December, 1873.

The operation was conducted in the following manner: The drug was weighed from the stock on hand about the first of each month, and then exposed to a heat of about 110° Fahrenheit in a common cooking stove oven until it ceased losing weight. The loss was noted, and the material was then exposed to the atmosphere until the end of the month, when it was re-weighed in order to find out how much moisture had been re-absorbed during the month. It will be found upon examination that the quantity of moisture lost and re-absorbed varies considerably, owing to the condition of

* From the American Journal of Pharmacy.

the weather at the time when the drug was weighed; for instance, supposing at the first of the month the article was weighed in dry weather, the loss in moisture was invariably smaller than if it were weighed in rainy weather; then again at the end of the month, when the drug was re-weighed in wet weather, the amount of moisture re-absorbed was always larger.

The figures presented by the writer are as correct as they possibly can be, care having been taken to avoid the loss of material on the one hand, and excessive contamination with dust on the other hand. Sometimes two or three experiments in drying, etc., were made in order to satisfy myself that the results were correct.

In the following tables the I column for each month indicates the actual weight obtained from 100 parts of the drugs after drying as indicated above; the II column shows the actual weight of the same material at the end of the month; the difference between these and the first figures indicating the amount of moisture re-absorbed during the month. The remarks, Dry, Wet, etc., at the head of each column, describe the weather on the day the weight was taken:

DRUGS.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.	
	I.	II.	I.	II.	I.	II.	I.	II.	I.	II.	I.	II.
	Dry.	Dry.	Dry.	Wet.	Damp	Dry.	Showery.	Dry.	Dry.	Dry.	Dry.	Wet.
1. *Roots and Rhizomes*												
Colchicum	88·00	97·15	88·20	96·60	88·00	96·00	88·20	96·00	88·90	96·80	88·60	98·50
Gentiana	89·00	97·50	89·60	98·25	88·90	97·15	89·10	96·77	89·50	97·10	89·20	98·00
Lappa	88·00	96·80	88·00	97.10	87·40	95·80	88·00	96·20	88·20	96·60	88·00	97·00
Podophyllum..	88·80	97·05	88·90	97·30	87 80	96·70	88·25	96·05	88·80	96·60	88·50	97·10
Rheum	89.20	97·45	89·00	96·50	87·90	97·10	88·20	96·80	89·15	96 40	89·75	97·85
Senega	89·55	97·45	88·80	97·30	88 10	96·85	89·10	96·00	89·75	97·25	89 65	98·45
Serpentaria ..	88·75	97·00	88·40	97 35	87·00	96·10	87·90	96·15	88·75	96 90	88·00	97·00
Taraxacum....	88·00	96·33	88·00	97 80	86·00	95·00	86 40	95·15	87·00	95·40	86 80	96·55
Valeriana	89·10	97·10	88·75	97·85	87·90	96·00	88·80	96·30	89·00	96·20	88·50	97·00
2. *Barks.*												
Cinchona rubra	89·80	97·30	89·30	97·70	88·10	96·00	88·80	95·20	89·00	95·00	89·00	96·90
Cinnamomum ..	89·10	96·98	89·00	97·75	88 00	96·10	88·50	96·50	88·90	96·00	80·80	97·30
Prunus Virgin..	89·67	97 57	89·60	98·00	88·50	96·70	89·25	96·65	89·20	96·70	89·70	97·70
Sassafras	89·25	95·35	89·00	97·90	87·20	95·00	89·10	96·45	89·00	94·20	89·00	97·20
3. *Leaves.*												
Aconitum	87·00	95·25	88·00	97·00	86·50	95·00	87·00	95·10	88·00	96·00	87·80	96·70
Belladonna ..	86·25	95·25	87·50	96 75	85 60	94·70	87·00	95·20	88·50	96·60	89·00	97 95
Buchu	88·75	96·45	89·00	97·50	87 80	96·30	89 00	96·20	89·25	96·15	89·00	97·75
Digitalis	88·00	96·00	88·75	97·75	86·00	95·05	87·50	95·50	88·50	95·50	88·00	97·00
Hyoscyamus ..	88·00	96·20	88·00	97·10	87·20	95·95	88·10	96 30	88·25	96·25	88·20	97·20
Senna Alex ..	88·20	96·00	88·25	96 65	86·80	94·40	89·00	96·80	89·00	96·25	88·75	97·95
Uva ursi	89·67	97·07	89·00	97·90	88·80	97·00	89·25	86·85	89·20	96·60	89·60	98·35
4. *Flowers.*												
Anthemis	90·00	97·10	89·00	97·65	88·40	96·80	89·25	96·95	89·80	97·10	89·75	97·85
Arnica.....	89·75	97·25	89·20	97·30	88·70	96·37	89·00	96·50	90·00	97·50	89·75	97·70
5. *Seeds.*												
Colchicum	89·75	97·75	90·00	98·00	88·20	96·20	88·80	96 20	89·00	96·25	89·20	97·30
Stramonium ..	91·40	98·40	90·00	97·00	89·80	96·70	89·60	96·45	90·00	96·00	90·00	98·00

DRUGS.	July.		August.		September.		October.		November.		December.	
	I.	II.	I.	II.	I.	II.	I.	II.	I.	II.	I.	II.
	Dry.	Very Wet.	Wet.	Wet.	Dry.	Dry.	Damp	Wet.	Dry.	Dry.	Dry.	Wet.
1. *Roots & Rhizomes.*												
Colchicum	88·80	98·80	87·70	98·25	88·20	97·20	88·00	97·75	88·25	96·35	88·70	98·30
Gentiana	89·20	98·00	87·90	97·50	89·20	98·00	88·25	99·45	89·60	97·45	89·60	98·00
Lappa.....	88·20	98·20	87·00	98·00	88·35	97·15	87·80	97·90	88·25	95·85	88·80	98·45
Podophyllum..	88·10	97·70	87·25	98·00	88·75	97·65	88·15	97·50	88·75	96·25	88·90	98·00
Rheum	89·60	98·30	87·20	97·95	88·75	96·75	88·20	97·70	89·10	97·00	89·75	98·75
Senega	89·25	98·65	88·20	98·40	88·90	97·30	88·20	97·60	88·90	96·20	89·10	98·60
Serpentaria ..	88·80	97·90	86·75	96·00	88·20	96·45	88·00	97·10	88·75	96·65	88·85	98·60
Taraxacum ..	86·90	96·90	84·40	95·90	86·50	95·60	84·75	93·75	87·10	95·50	86·80	97·90
Valeriana	89·00	97·65	87·80	97·80	86·50	96·70	88·10	97·60	89·00	97·05	88·90	98·40
2. *Barks.*												
Cinchona rubra	89·75	97·60	87·80	96·90	88·90	96·70	88·50	97·25	89·00	94·40	89·20	97·20
Cinnamomum..	88·80	97·55	88·25	98·00	89·00	97·20	87·90	97·90	88·80	96·40	88·90	98·70
Prunus Virgin..	89·25	97·25	89·00	98·70	89·50	97·90	88·00	97·25	89·00	96·50	89·15	98·65
Sassafras	88·90	97·50	87·90	98·00	88 80	96·95	87·75	97·35	88·90	96·00	89·00	98·15
3. *Leaves.*												
Aconitum	88·20	98·20	87·00	97·75	88·10	97·30	87·50	97·50	88·00	96·15	88·50	98·50
Belladonna ..	88·75	98·55	86·25	96·75	88·75	97·80	87·20	97·70	87·90	96·15	88·40	98·60
Buchu.....	89 30	98·20	87·90	97·40	88·90	97·65	88·10	97·00	89·00	97·00	89·00	98·70
Digitalis.....	88·25	97·75	86·75	97·75	88·00	97·00	87·00	97·20	88·00	96·10	89·00	98·50
Hyoscyamus ..	88·25	98·00	87·00	97·25	88·00	96·90	87·60	97·20	88·00	96·25	88·20	98·00
Senna Alex ..	90·00	98·00	87·00	97·20	89·00	96·85	88·20	97·20	88·40	96·30	89 00	98·75
Uva ursi.....	89·60	98·10	88·00	97·20	89·10	97·35	88·50	97·00	88·75	96·15	88·80	97·20
4. *Flowers.*												
Anthemis	89·67	97·67	88·75	97·75	89·75	97·65	89·00	97·25	89·00	96·20	89·25	98·25
Arnica.....	89·40	98·15	88·65	97·75	89·35	96·50	88·50	97·70	88·90	96·40	89·40	98·50
5. *Seeds.*												
Colchicum	89·90	98·00	88·50	97·00	89·50	97·60	88·80	96·90	89·50	96·65	90·00	98·20
Stramonium ..	89·80	98·20	89·65	97·40	90·00	98·00	89·60	97·80	90·10	97·20	90·20	98·20

Editorial.

THE TARIFF.

The recent changes in Customs and Excise duties apply to all classes of drugs and will have the ultimate effect of necessitating a general advance in prices. It is, however, probable, that with some classes at least, retailers will, for the time, gain an advantage, as the bulk of stocks on hand will be sold at calculations based on cost. This more especially applies to articles included in the special category of *drugs;* which, under the old tariff, were required to pay a duty of 15 per cent., and have now suffered an advance of 2½ per cent.

The extensively used class of *dye woods*, formerly admitted free, is now rated at 17½ per cent. This attempt at protection is supposed to have been made in the interest of an eastern manufacturer, and appears to be an ill-advised step. Dyewoods are very low in price, and require to be sold on the best terms, and should be handled as little as possible. It is, therefore, apparently prejudicial to the general interest that, for the sake of encouraging one factory, these goods should have to pay perhaps 10 per cent. of their value in the shape of freight to the place of manufacture ere being distributed to their places of consumption.

The duty on perfumery, in bottles, is increased to the extent of 12 cents per dozen, and the purchaser will have to pay that additional cost. Perfumes, in bulk, formerly paying $1,25 per gallon, have been increased 30 cents.

The excise charges on alcohol have been raised from 63 to 75 cents per gallon of proof strength. This will advance the price of commercial alcohol of 65 over proof, 21 cents per gallon. Tinctures, and other alcoholic preparations, will, of course, have to sympathize with this, and buyers will probably now have to pay for the stronger alcoholic tinctures, three cents additional per pint; and for tinctures of proof strength, two cents per pint. Fluid extracts and essences will advance proportionately; and, by the same rule, spirits of nitre will command an advance in price of five cents per pound.

A DISPENSER'S RESPONSIBILITIES.

A few weeks ago one of our city druggists was requested to dispense, for a lady suffering from neuralgia, the following prescription:

℞ Iodine..... gr. vj.
Pot. Iodidi..... ʒj.
Fowler's Sol. Arsenic ..... ʒss.
Syrup. Simplex .... ʒviiss.
M.—A teaspoonful to be taken twice a day.

It appears that the prescription was not originally intended for the patient in question, at least not at this time, but as it had been given by a regular practitioner, and had been found a serviceable remedy, it was, at the request of the patient's son, repeated. This occured during the absence of the family physician, but, just as the medicine had been sent home, the doctor returned to town, was called in, and, in due course, the medicine was shown to him. On examining the prescription he affected great concern, declaring that had his patient taken the medicine it would have killed her in one hour. This startling assertion had the natural effect of arousing the feelings of the patients and her friends, who were loud in their condemnation of the druggist who had been so careless as to dispense, without a word of warning, a medicine of so frightfully fatal a potency. This censure was not long in finding its object, and, as may be supposed, was the means of arousing much indignation. Explanations followed, and, after some investigation, the patient's friends were satisfied, not only that their charges were unfounded, but that the doctor's statements could not be corroborated. Smarting under this attempt to deprive him of an old and valued circle of customers, the druggist obtained legal advice, which resulted in the sending of a lawyer's letter demanding the retraction of the statements in question. To this the doctor pays no attention; and we understand that stronger measures, in the form of an action for damages, are now about to be instituted against him.

Had this been the mere extent of the case we should have simply rated the doctor's statements as originating in ignorance or malice, and have deemed the whole matter unworthy of our notice; or to be better disposed of with contempt or redress, as the spirit of the aggrieved party might dictate. But, at this juncture, we find the *Canada Lancet* appearing upon the scene, and with

more regard to partizanship than good sense, espousing, with considerable warmth, the doctor's cause.

Our contemporary not only supports the assertion that the medicine was dangerously poisonous, but avers that, had evil consequences ensued from its administration, the dispenser should be held responsible. In addition to this, we are informed that, if the Pharmacy Act be properly interpreted, all poisonous substances, even when dispensed by prescription, should be labeled "poison, in large letters;" and for this omission the druggist was also culpable and should be held responsible.

These conclusions are, each and all of them, so palpably absurd and contrary to good sense, justice, and law, that it is needless for us to enter into their refutation in anything like an argumentative spirit; we shall, therefore, merely enumerate the errors into which our contemporary has fallen.

By reference to the prescription it will be seen that six grains of iodine, and half an ounce of Fowler's solution—equal to two grains of arsenious acid—are contained in an eight ounce mixture, containing sixty-four doses. This gives, to each dose, about one-tenth of a grain of iodine, and one-thirtieth of a grain of arsenious acid. Ordinary doses of these substances may be stated at half a grain of the former and one-twelfth of a grain of the latter. That the small doses ordered to be given would have produced fatal results, even to the weakest patient, is simply ridiculous and may so be dismissed.

Again, our contemporary says that had evil consequences resulted, the druggist should have been held responsible. Under ordinary circumstances, the responsibility rests with the prescriber; but, in this instance, neither the prescriber or dispenser could be held liable, as the prescription was furnished by a third party, who, in having it dispensed, incurred the responsibility. It is plainly no part of the duty of the dispenser to make himself acquainted with the patients for whom he prepares medicine, provided such medicine is ordered by the prescription of a legally qualified practitioner.

The labelling of all poisonous substances, whether ordered by prescription or otherwise, "with the word *poison*, in large letters," is certainly a new requirement of the Pharmacy Act. The Act does not require *all* poisonous substances to be labelled, but only such as are enumerated in a schedule; it does not require *any* to be labeled "in large letters;" nor do the restrictions of the Act extend to the

supplying of patients with medicine. This will be evident from a careful reading of the twenty-eighth section. But even if such were required, it could not be carried out in practice, and we fancy that if the interpretation of the Act, as given by the *Lancet*, were adopted, our contemporary would be one of the first to find fault, and in this would be joined by the entire medical profession.

We should have been glad to have let this matter rest with the parties concerned, but as the *Lancet* has made the discussion public, and has, moreover, made the circumstance the occasion of raising new issues affecting the community which we represent, we have been compelled to make these explanations.

THE MEDICAL ACT AS AFFECTING DRUGGISTS.

The recently passed Medical Act underwent, in its passage through the Legislature, so many changes, that we doubt not but many of our readers have lost track of the portions which bear upon the interests of druggists. We therefore transcribe from the Act, as now printed, the following extract:

"*Sec.* 35. No person shall be entitled to recover any charge in any court of law for medical or surgical advice, or for attendance, or for the performance of any operation, or for any medicine which he shall have prescribed or supplied, unless he is registered under this Act: Provided this clause shall not extend to the sale of any drug or medicine by any duly licensed chemist or druggist."

We have not been able to find anything other than this which affects our legitimate interests, but it may be interesting to give a portion of the Fortieth section:

"It shall not be lawful for any person not registered to practice physic, surgery, or midwifery in the Province of Ontario for hire, gain or hope of reward; and if any person not registered under this Act shall for hire, gain or hope of reward practice or profess to practice physic, surgery or midwifery, or advertise to give advice in physic, surgery or midwifery in the Province of Ontario, he shall upon a summary conviction thereof before any justice of the peace, for any and every such offence, pay a penalty not exceeding one hundred dollars nor less than twenty-five dollars:

2. Any person who shall wilfully or falsely pretend to be a physician, doctor of medicine, surgeon or general practitioner, or shall assume any title, addition or description other than he actually

possesses and is legally entitled to, shall be liable on conviction thereof before any justice of the peace to a penalty not exceeding fifty dollars, nor less than ten dollars:

3. Any person not registered under this Act who shall take or use any name title, addition or description implying or calculated to lead people to infer that he is registered under this Act, or that he is recognized by law as a physician, surgeon, accoucheur, or a licentiate in medicine, surgery or midwifery, shall be liable upon a summary conviction thereof before any justice of the peace to pay any penalty not exceeding one hundred dollars, nor less than twenty-five dollars."

STUDENT'S DEPARTMENT.—The gentleman upon whom we were depending for a continuation of the papers on Botany has failed in sending in his communication in time for this issue, but it will appear in next number.

Editorial Summary.

Disinfection of Water Closets.—As druggists are frequently require to supply materials for this purpose, it may be interesting to note the results obtained from a number of experiments made by A. Eckstein, of Vienna, and alluded to by Dr. A. W. Miller, (*Am. Jour. Pharm.*) in a lengthy article on Disinfectants and Deodorizers. Eckstein experimented for two years with the privy of his house in Vienna, which was frequented by at least one hundred persons daily. He successfully tried a great number of chemicals in various methods, with the following results: 1st. When an aqueous solution of two pounds of iron sulphate was poured into the well, the odor of sulph-hydric acid was eliminated for several hours. After this time all unpleasant odor had disappeared, but within twelve hours the effect of the deodorizer was no longer perceptible. 2nd. A solution of sulphate of copper behaved in the same manner. 3rd. Two pounds of iron sulphate in crystals exerted a deodorizing effect for two entire days; the same amount of copper sulphate in crystals gave analogous results. 4th. Two pounds of disinfecting powder, composed of a mixture of iron and copper sulphates with carbolated lime, acted for only two days. 5th. Sulphurous acid, in a liquid form, was found to be rapidly effective, but it proved to be very troublesome to the organs of respiration for an hour, and it was dis-

sipated within twenty-four hours. 6th. One ounce of red carbolic acid disseminated a very unpleasant tarry odor throughout the entire house for two days, so that its true effects could not be estimated, as one fetid odor was concealed by a still worse one. 7th. Two pounds of iron sulphate in crystals were introduced into a parchment bag and put into the cesspool. No result was observed until after two hours, and but little sulph-hydric acid was eliminated. The place was thoroughly deodorized for three full days. When the parchment bag was removed it contained only a turbid, but almost inodorous, liquid. 8th. Two pounds of commercial chlorinated lime, of high test, enclosed in a parchment bag, began to deodorize within two hours after being deposited. It did not in any manner inconvenience either the respiratory or the olfactory organs, while its action extended over a period of quite nine days. 9th. Two ounces of crude permanganate of sodium, used by itself in solution, deodorized almost instantly, but all traces of its effects had vanished after twenty-four hours. The same preparation, when enclosed in a parchment bag, was active for two days. These experiments appear to prove conclusively that simple purposes of disinfection, or deodorization, as practically tested by the olfactory organs, the chloride of lime is the best material known. By enclosing it in a bag of parchment, or other suitable material, its effects extend over a greater period of time, and the violence of its action, and the quantity of eliminated chlorine, are so far lessened as not to injure or incommode the resparatory organs. The results obtained by Eckstein have been corroborated by experiments conducted in the official Laboratory, at Dresden, where chlorinated lime, in conjunction with sulphuric acid, was found to be more effectual than any other of the ordinary disinfectants.

Source and Mode of collection of Gamboge.—The following remarks occur in a letter accompanying eight cases of specimens, presented by Robert Jamie, Esq., of Singapore, to the Pharmaceutical Society's Museum, Edinburgh. It will be seen that the mode of collecting gamboge is quite different to that usually given in works on Materia Medica, but we judge there can be no doubt of the reliability of the account. There is also a difference in regard to the localities; according to Mr. Jamie, neither Siam Proper nor Cochin-China proper ever produced gamboge. The Siamese and Cochin-Chinese, at various times, wrested from the Cambogians portions of their territory; and it is from those conquered portions of Cambogia (as well as Cambogia) that the gum resin is prepared for exportation, Saigon and Bangkok being the principal places now of export, though, in former years, the greater part of, if not all, came from some seaport of Cambogia. At present, Kâmpoh is the only seaport

left to the Cambogians, and what little they now export comes from it. Cambogia, then, is the native place of the gamboge tree, and there it may be said to be indigenous, for the trees there flourish most luxuriantly, without attention or cultivation, in the dense jungles; they must be propagated by means of birds, monkeys, mustangs, and such-like animals, for no trees are ever planted. The best time for collecting the gum resin is a little time after the wet season is over (that season is from about the middle of June till the middle of October), say from February to the end of March, but it extends more frequently till after April, as March and April are very hot months, and the exudation from the trees is not so watery then. When the trees are fit for wounding,—and they are so when their trunks vary from the size of a man's thigh and upwards, the larger the better,—they are wounded by means of a parang, or chopping-knife, in various parts of the trunk and larger branches, when prepared bamboos are inserted between the wood and the bark of the trees, to hold the juice as it flows from the wound. After tying the bamboo cylinders to the trees, for they are tied as well as inserted, they are left there and examined daily till filled, which generally takes from fifteen to thirty days, and sometimes longer, the length of time filling depending on the flow of juice and the size of the bamboo cylinder. When no more is seen exuding, the cylinder and its contents are removed, a fresh wound made in some other part of the tree, and the cylinder reinserted and tied as before; the same process is repeated till the bamboo cylinder is filled, when it is taken to a fire, over which it is gradually rotated till the whole of the water in the gum resin is evaporated, and it gets sufficiently hard to allow of the bamboo being torn off, when it is ready for the commercial world, and, as thus prepared, shows the striated appearance of the bamboo very distinctly.

Adulteration of Oxide of Tin.—Mr. G. Willborn, (*Pharm. Jour. & Trans.*) having had occasion to examine a powder containing several metallic compounds, found a quantity of oxide of lead for which he could not readily account, without supposing it to originate in commercial oxide of tin, one of the articles entering into the composition of the powder. Further experiment justified this conclusion, as three samples of so-called oxide of tin, or putty powder, obtained through commercial sources, gave, on analysis, 5 parts of oxide of tin to 15 of the oxide of lead. The price of the former is about seven times that of the latter, so the adulteration must certainly be profitable to its originators.

Uncertain Composition of Commercial Fluid Extracts of Cannabis Indica.—Mr. Henry W. Buchanan, (Chicago *Pharmacist*) publishes the result of an examination of the various fluid extracts of Indian hemp, and finds that, of sixteen samples examined the amount of solid extracts in 1000 parts varied from 100·25 to 23·00 parts—only six of the samples gave over 70·00 parts. The amount of resin varied from 74·0 to 17·5; and in one sample no resin whatever was found. The author made a standard preparation from the dried, flowering tops of the plant, using alcohol as a menstruum. From this he obtained 101·00 parts of solid extract and 78.3 of resin.

Registered Pharmacists of Great Britain.—From the recently published Calendar of the Pharmaceutical Society of Great Britain, it appears that the total number of registered chemists and druggists is 13,216 being an increase of 459 over last year. Of these, 10·59 per cent were registered by virtue of having passed the minor examination. In addition to the chemists and druggists, there are upon the register the names of 811 registered apprentices.

Books and Pamphlets.

A TREATISE ON PHARMACY: *Desigued as a Text-Book for the Student, and as a Guide to the Physician and Pharmacist.* By EDWARD PARRISH, late Professor of the Theory and Practice of Pharmacy in the Philadelphia College of Pharmacy, etc., etc. Fourth edition; enlarged and thoroughly revised by THOS. S. WIEGAND. Philadelphia: Henry C. Lea. Toronto: Hart & Rawlinson. 1874. 8vo. pp. 977.

It seems almost superfluous for us to notice a work with which our readers are so well acquainted, and the value of which they so well know. We are not aware that there exists in the English language, or indeed in any other, a work so comprehensive, complete, and of such practical utility. In reviewing former editions or reprints, we have found so little with which to find fault that our language has always been that of commendation, nor has our opinion been changed by the frequent reference which has been made to a book which occupies one of the most prominent positions on our shelves.

The fourth edition, which has just been issued, is, in many respects, an improvement on those which preceded it. Although, at the date of publication, the third edition was thoroughly up to the

times, the rapid advance of pharmaceutical science, and the issue of the United States Pharmacopœia last year, rendered necessary a careful revision and many additions. This work was commenced and carried on by Professor Parrish until the time of his death, in 1872, when the MSS. were handed over to the present editor, Mr. Wiegand, who has faithfully endeavoured to carry out the wishes of his deceased friend, and, as far as we have been able to judge, has done so successfully.

A great portion of the work has been re-written, and the general arrangement of subjects has been changed. About one hundred and fifty pages of new matter, embracing many illustrations, have been added, notwithstanding the care with which unimportant or obsolete details have been omitted.

The new chemical notation and nomenclature have been adoptod, and advantage has been taken of the valuable information comprised in the periodical scientific literature of the past ten years to bring the work up to the most modern standpoint.

REPORT OF THE QUEBEC LUNATIC ASYLUM: *Addressed to the Honorable the Prime Minister of the Province of Quebec, by the Medical Superintendents.*

In a pamphlet of over two hundred pages we have a report of the above institution for the years 1872-3. We have not had time to give it a careful perusal; but from a cursory examination, we judge it to contain not only the details properly belonging to the subject, but much valuable information relating to the medical aspects of insanity, which, to the medical practitioner, will doubtless be found acceptable and useful.

PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, *at the twenty-first Annual Meeting, held in Richmond, Va., September,* 1873. Philadelphia, 1874. 8vo., pp. 710.

There are few works of more interest to the pharmacist than the annual volume of the "Proceedings," and the present issue is in no respect behind its predecessors. We are indeed almost inclined to think that it is the best that has so far appeared. Certainly it is so in extent, and in the number and value of the essays it contains; while in completeness of detail and comprehensiveness of its review of the literature of the year it cannot be excelled.

The minutes of the meeting, which are unusually full, occupy about one hundred pages, while the report on the progress of Pharmacy, containing a summary of pharmaceutical progress for the year, takes up about three hundred pages. In addition to these, we have the usual reports on the Drug Market; on Specimens Exhibited to the Meeting; on Adulterations and Sophistications; on Legislation; on the Pharmacopœia, and on Formulas for Elixirs. The report on the last named subject was issued separately, some

time ago, and has already appeared in this journal, but is now incorporated with the others.

In addition to these, we have the essays read before the Association. Many of these are very valuable, embodying the result of much patient research, and of a thoroughly practical character.

We heartily commend this work to the notice of our readers, and doubt not but its perusal would not only be directly beneficial, amply repaying the reader, but by arousing a national spirit of emulation, and thus acting as a stimulant on the pharmaceutical energies which now seem well-nigh torpid, would be of no small advantage to the cause to which we are espoused.

Transactions of Pharmaceutical Colleges and Societies.

PHARMACEUTICAL ASSOCIATION OF THE PROVINCE OF QUEBEC.

The annual meeting of this association was held in the Laval University, Quebec, on Tuesday, the 19th May, when the following were elected the Council for the year, namely: Messrs. N. Mercer, H. Lyman, J. Kerry, H. R. Gray, E. Giroux, W. E. Brunet, A. Manson, R. Bolton, J. Harper, J. Goulden, C. I. Covernton, E. Muir. At a subsequent meeting of the Council, held May 26th, the following officers were elected, namely: Henry Lyman, President; H. R. Gray, 1st Vice-President; E. Giroux, 2nd Vice-President; James Goulden, Treasurer; E. Muir, Registrar and Secretary. The following compose the Board of Examiners, A. Manson, H. R. Gray, W. E. Brunet, J. D. L. Ambrose, H. F. Jackson, with the President ex-officio.

Practical Formulæ

"*Golden Farina*" *Cologne.*—

Tincture of Canada snakeroot	4 ounces.
" Orris root	12 "
Oil of bergamot,	
" lavender,	
" lemon, of each	6 drachms.
Essence of musk,	
Oil of neroli,	
" cinnamon,	
" cloves, of each	1 "
Orange-flower water	8 ounces.
Cologne spirits, sufficient to complete	6 pints.

"*Caroline*" *Cologne.*

Oil of bergamot,	
" lavender,	
" rosemary,	
" lemon, of each	1½ ounces.
" citronella,	
" neroli,	
Essence of musk,	
Oil of cloves, of each	1 drachm.
Alcohol	4 pints.
Rose water	2 "

Dissolve the oils in the alcohol, add the rose water and filter.—*Druggists' Circular.*

Registrar's Notice.

The Annual Register of those Chemists and Druggists, legally entitled to carry on business in the Province of Ontario, will have to be published on the 15th of this month, in accordance with the Pharmacy Act of 1871. Those members who have not paid the Registration fee for the current year are requested to send the amount at once to the Registrar.

GEORGE HODGETTS,
Registrar.

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

DRUGS, MEDICINES, &c.—*Contd.*	$ c.		$ c.
Sang Dracon	0 60		0 70
Scammony, powdered	6 00		6 50
" Virg. "	14 50		—
Shellac, Orange	0 80		0 85
Shellac, liver	0 70		0 75
Storax	0 40		0 45
Tragacanth, flake	1 10		1 75
" common	0 53		0 65
Galls	0 22		0 30
Gelatine, Cox's 6d	1 15		1 20
Glycerine, common	0 25		0 30
Vienna	0 29		0 30
Prices	0 60		0 75
Honey, Canada, best	0 15		0 16
Lower Canada	0 14		0 16
Iron, Carb. Precip	0 20		0 25
" Sacchar	0 40		0 55
Citrate Ammon	1 75		1 80
" & Quinine, oz	0 55		0 58
" & Strychine	0 20		0 25
Sulphate, pure	0 08		0 10
Iodine, gocd	6 25		7 50
Resublimed	7 25		7 50
Jalapin	1 25		1 50
Kreosote	2 40		2 50
Leaves, Buchu	0 22		0 32
Foxglove	0 25		0 30
Henbane	0 35		0 40
Senna, Alex	0 27		0 60
" E. I	0 14		0 20
" Tinnevilly	0 20		0 30
Uva Ursi	0 15		0 17
Lime, Carbolate.....brl	5 50		—
Chloride	0 05		0 06
Sulphate	0 08		0 12½
Lead, Acetate	0 15		0 16½
Leptandrin.....oz.	0 60		—
Liq. Bismuth	0 50		0 75
Lye, Concentrated	1 75		2 00
Liquorice, Solazzi	0 50		0 55
Cassano	0 23		0 40
Other brands	0 14		0 25
Liquorice, Refined	0 35		0 45
Magnesia, Carb..... 1 oz.	0 20		0 25
" .....4 oz.	0 17		0 20
Calcined	0 65		0 75
Citrate.....gran.	0 63		0 75
Mercury	1 85		1 90
Bichlor	1 70		1 75
Chloride	2 00		2 10
C. Chalk	0 75		80
Nit. Oxyd	2 10		2 15
Morphia Acet	4 90		5 00
Mur.	4 60		4 75
Sulph	5 00		5 25
Musk, pure grain.....oz	25 00		—
Canton	0 60		1 20
Oil, Amonds, sweet	0 40		0 45
" bitter	14 00		15 00
Aniseed	4 00		4 25
Bergamot, super	7 25		7 50
Caraway	3 20		3 50
Cassia	2 25		2 50
Castor, E. I	0 16		0 18
Crystal	0 22		0 25
Italian	0 26		0 28
Citronella	1 15		1 25
Cloves, Ang	3 00		3 00
Cod Liver	1 05		1 50
Croton	1 75		2 00
Juniper Wood	0 80		1 00
Berries	2 75		3 00
Lavand, Ang.....oz.	0 00		1 00
Exotic	1 40		1 60
Lemon, super	4 50		4 75
ord	3 20		3 40
Orange	3 00		3 25
Origanum	0 65		0 75
Peppermint Ang	15 00		16 00
" Amer	5 00		5 50
Rose, Virgin	8 50		8 75
" good	6 80		7 00
Sassafras	0 75		1 90
Wintergreen	6 00		6 50
Wormwood, pure	4 00		6 00
Ointment, blue	1 30		1 50
Opium, Turkey	0 00		0 00
pulv	00 00		00 00

	$ c.	$ c
DRUGS, MEDICINES, &c.—*Cont'd*		
Orange Peel, opt.	0 30	0 36
" good	0 12½	0 20
Pill, Blue, Mass.	1 30	1 40
Potash, Bi.chrom	0 18	0 20
Bi-tart	0 33	0 35
Carbonate	0 14	0 20
Chlorate	0 45	0 50
Nitrate	9 00	10 00
Potassium, Bromide	1 00	1 10
Cyanide	0 60	0 5
Iodide	5 75	6 25
Sulphuret	0 25	0 35
Pepsin, Boudault's.....oz	1 40	—
Houghton's..... doz.	8 00	9 00
Morson's.....oz.	0 85	1 10
Phosphorous	0 95	1 00
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 45
Howard's	2 40	—
" 100 oz. case.	2 35	—
" 25 oz. tin..	2 35	—
Root, Colombo	0 13	0 20
Curcuma, grd	0 12½	0 17
Dandelion	0 17	0 20
Elecampane	0 16	0 17
Gentian	0 08	0 10
" pulv	0 15	0 20
Hellebore, pulv	0 17	0 20
Ipecac, "	1 50	1 60
Jalap, Vera Cruz	90	1 15
" Tampico	0 70	1 00
Liquorice, select	0 12	0 13
" powdered	0 15	0 20
Mandrake "	0 20	0 25
Orris, "	0 20	0 25
Rhubarb, Turkey	2 50	2 75
" E. I	1 10	1 20
" " pulv	1 20	1 30
" " 2nd	0 90	1 00
" French	0 75	—
Sarsap., Hond	0 50	0 52
" Jam	0 88	0 90
Squills	0 10	0 15½
Senega	1 00	1 10
Spigelia	0 25	0 30
Salts, Epsom	2 25	3 00
Rochelle	0 32	0 35
Soda	0 02½	0 03
Seed Anise	0 13	0 16
" Canary	0 05	0 06
Cardamon	2 25	2 50
Fe ugreek, g'd	0 09	0 10
Hemp	0 06½	—
Mustard, white	0 14	0 16
Saffron, American	0 75	0 85
Spanish	12 00	13 00
Santonine	7 50	8 00
Sago	0 08	0 09
Silver, Nitrate.....Cash	14 85	16 50
Soap Castile, mottled	0 11	0 14
Soda Ash	0 03¾	0 05
Bicarb. Newcastle	—	6 50
" Howard's	0 14	0 16
Caustic	0 05½	0 05¾
Spirits Ammon., arom	0 35	0 35
Strychnine, Crystals	2 25	2 50
Sulphur. Precip	0 10	0 12½
Sublimed	0 03½	0 05
Roll	0 03	0 04½
Vinegar, Wine, pure	0 55	0 60
Verdigris	0 35	0 40
Wax, White, pure	0 75	0 80
Zinc. Chloride.....oz	0 10	0 15
Sulphate, pure	0 10	0 15
" common	0 06	0 10
DYESTUFFS.		
Annatto	0 35 @	0 60
Aniline, Magenta, cryst	2 50	2 80
" liquid	2 00	—
Argols, ground	0 15	0 25
Blue Vitrol, pure	0 09½	0 10
Camwood	0 06	0 09
Copperas, Green	0 01½	0 02½
Cudbear	0 16	0 25
Fustic, Cuban	0 02½	0 04
Indigo, Bengal	2 40	2 50
Madras	0 0	0 95
Extract	0 30	0 35

DYESTUFFS—*Continued.*		
Japonica	0 07¾	0 08
Lacdye, powdered	0 33	0 38
Logwood	0 02½	0 03
Logwood, Camp	0 02¾	0 3½
Extract	0 10	0 14
" 1 lb. bxs....	0 13	—
" ½ lb. "	0 14	—
Madder, best Dutch	0 12	0 14
2nd quality	0 11	0 13
Quercitron	0 03	0 05
Sumac	0 06	0 08
Tin, Muriate	0 10½	0 12½
Redwood	0 05	0 06
SPICES.		
Allspice	0 11½@	0 12
Cassia	0 35	0 38
Cloves	0 46	0 48
Cayenne	0 28	0 30
Ginger, E. I	0 19	0 20
Jam	0 20	0 30
Mace	1 65	1 75
Mustard, com	0 20	0 25
Nutmegs	1 15	1 20
Pepper, Black	0 22½	0 23
White	0 35	0 36
PAINTS, DRY.		
Black, Lamp, com	0 07 @	0 08
" refined	0 25	0 30
Blue, Celestial	0 08	0 12
Prussian	0 65	0 75
Brown, Vandyke	0 10	0 12½
Chalk, White	0 01	0 01½
Green, Brunswick	0 07	0 10
Chrome	0 16	0 25
Paris	0 30	0 35
Magnesia	0 20	0 25
Litharge	0 07	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 07½	0 08
Venetian	0 02½	0 03½
Sienna, B. & G	0 07	0 08
Umber	0 07	0 10
Vermillion, English	1 85	1 90
American	0 25	0 35
Whiting	0 85	0 90
White Lead, dry, gen	0 08½	0 09
" " No. 1	0 07	0 08
" " No. 2	0 05	0 07
Yellow Chrome	0 12½	0 35
" Ochre	0 02½	0 03½
Zinc White, Star	0 10	0 12
COLORS, IN OIL.		
Blue Paint	0 12 @	0 15
Fire Proof Paint	0 06	0 08
Green, Paris	0 30	0 37½
Red, Venetian	0 07	0 10
Patent Dryers, 1 lb tins	0 11	0 12
Putty	0 03¾	0 04½
Yellow Ochre	0 08	0 12
White Lead, gen. 25 lb. tins..	2 50	—
" No. 1	2 25	—
" No. 2	2 00	—
" No. 3	1 75	—
" com	1 30	—
White Zinc, Snow	2 75	3 25
NAVAL STORES.		
Black Pitch	4 75 @	5 00
Rosin, Strained	4 50	—
Clear, pale	5 75	7 25
Spirits Turpentine	0 57	0 60
Tar Wood	4 50	4 75
OILS.		
Cod	0 63 @	0 70
Lard, extra	0 85	0 90
No. 1	0 75	0 80
No. 2	0 72	0 75
Linseed, Raw	0 72½	0 75
Boiled	0 77½	0 80
Olive, Common	1 05	1 10
Salad	1 80	2 30
" Pints, cases	4 20	4 40
" Quarts	3 25	3 50
Seal Oil, Pale	0 72	0 75
Straw	0 68	0 70
Sesame Salad	1 30	1 35
Sperm, genuine	2 35	2 40
Whale refined	0 90	0 95