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Original and Selected Papers.

LEECHES, AND HOW I MANAGE THEM.*

BY A COUNTRY CHEMIST.

Do you want to buy any leeches, master? No; but where do you procure them for sale? Such was the question and answer which recently occurred to the writer. The reply received was that they were procured from a large mere or tarn in the centre of Cheshire. The little ragged fellow, for such was my amateur leech merchant, said he waded about the margin of the lake, minus shoes and stockings, on a close warm day, when the leeches fastened on his ankles, and by this simple means he secured them. The lake in question is called Achmere or Lechmere, a corruption of Leechmere. Formerly large quantities of good medicinal leeches were captured in it, and sold to the surgeons and chemists of Cheshire; now, however, the trade has declined. Very few are caught, for the simple reason that sufficient purchasers cannot be found, or the supply might be considerably increased. I cannot detect much difference externally between these specimens and those procured on the Continent, except, perhaps, that they are much smaller.

* From the Chemist & Druggist.

There are two kinds of leeches recognized by dealers—namely, the green leech (*Sanguisuga officinalis*) and the speckled or brown leech. (*S. medicinalis*). Our native species belongs to the latter. Sometimes it is difficult to detect any characteristic difference between the green and speckled leeches, and by many eminent naturalists they are supposed to be one species. The former is a native of the South of Europe, and is frequently called the "Hungary Leech," from its being extensively exported from that country. The American pharmacists use a very distinct species (*S. decora*). Our officinal leeches may be distinguished by one having a spotted yellow belly, the other is not speckled, but of a greenish yellow.

Leeches are not now so much thought of as in the days of our forefathers. This probably is the reason why we find so little knowledge respecting their habits and employment amongst chemists. If they were more frequently called for by customers, so as to become a profitable branch of the trade, their use and habits would be more studied. The leech, as is well known, is employed only to subtract blood in some local part and in small quantities. The narrowest end or part contains the mouth, the broad and flat end is merely a sucker to hold on to the skin.

The mouth is a triangular aperture furnished with from seventy to ninety teeth, very minute, certainly, but called teeth by naturalists. By means of these the skin is broken, whilst a continual sawing-like motion is experienced when the creature is sucking up the blood. It is thought the mouth keeps open the wound whilst sucking, but this is only conjectural; probably it acts upon the same principle as a sponge. The physician, when ordering his patient to apply leeches, should mark out the exact spot where they are to be placed with pen and ink, for sometimes ignorant persons, especially when applying them to the abdomen, allow them to wander about and suck anywhere, but if the place is marked out they would be more careful. The proverbial impossibility of making a horse drink against its will applies equally to leeches. It is at times difficult to persuade them to bite; even when they are induced it is, perhaps, only for a few seconds, and they wander away again. This may arise from several causes. It may be the blood is so impure that directly it is tasted the leech refuses to suck any more; this, however, is seldom the cause. If the skin is at all unclean it is useless to apply them. The chemist who sells the leeches should be careful to inform the applicant of this fact; it will save much annoyance. The part should first be well sponged with warm water, then rubbed with a little milk. Sometimes it is well just to gently prick the part with a fine needle, or to rub a small quantity of blood over the skin. I have also seen milk and sugar used with good effect. In cold weather, before applying leeches, they should be placed in warm water about 75° Fahr.—if a tablespoonful of beer is mixed with the water all the better—then for a few minutes allow them to

crawl about over a rough cloth or towel; they will afterwards generally bite very freely.

If they are too lively a good plan is to confine them beneath a wineglass until they are fastened on the skin. Many chemists recommend their customers to purchase leech glasses (tubes); I have found these useful when they are applied in the mouth, but I prefer to work without the tube when applying them to any other part of the body; a wineglass, which is found in almost every house, is all that is required. Persons unused to them do not know the difference between the head and the tail, therefore in using the tubes they are apt to apply the tail end to the skin.

I know it is not an uncommon fraud to sell leeches as virgin or new leeches which have been previously used. Dr. Christison's directions for discovering this deception should be known by every body. He says "the gorging of leeches is a more common fraud than the substitution of spurious species. They are known by being less velvety in their coat, less flat when pressed, and presenting a little tumour when squeezed betwixt the fingers from the head to the tail. Leeches which have been used are often sold for unused or virgin leeches. They are best known by putting them on a white cloth and dusting their forepart with finely powdered salt; in thirty seconds a little blood will be emitted, but not a particle if the leech be quite fresh."

It is not a pleasant thought to fancy a leech is being applied to your skin, which has been sucking some patient in a fever ward of a London hospital.

Of course no reasonable person can deny that leeches, if healthy, can be used more than once; even Christison states he has used them three days in succession without impairing their activity by immersing them in a solution of sugar and water frequently changed. Directly after removing them from the skin they are commonly sprinkled with fine salt on a plate to cause them to disgorge the blood. To me this appears cruel, not only to watch the leech writhing in agony but to observe the skin wrinkled where the salt has touched. I just cover them with brown or raw sugar for a few minutes; afterwards it is well to pass them betwixt the finger and thumb holding it by the tail, then place them in water in which a very small quantity of sugar has been dissolved, and change often for the first week. Working men and others, to whom the expense of leeches is a consideration, should be instructed as above by the chemist when giving him the leeches; they may possibly be required again by his medical attendant, if so it will save him much expense. A good mode of testing the healthiness of leeches is to hold them for a minute or so in the palm of the hand. The best and healthiest specimens will immediately contract into a roundish ball-like form; these seldom fail to give satisfaction.

Frequently it is desirable to draw more blood after removing

the leech. To do so, hot flannels or linen rags heated and held on the part answer admirably. I have invariably found this the most satisfactory method, far more so than applying hot bran or bread poultices. One thing should not be overlooked, the difficulty in stopping the flow of blood. This seems never to enter the mind of most individuals, yet there are patients met with in every practitioners' experience in whom it is exceedingly difficult to stop bleeding. If a case like this should be suspected when applying the leech, place it if possible and convenient over a bone, where a pressure from the finger will often stop the bleeding. If this will not succeed, moistened matico leaves are useful, or linen rags soaked in a strong solution of alum. When the patient is strong and not suffering from any debilitating illness, the loss of a little blood will not be felt, but in the case of a weak child, or a person reduced by disease, it is often important to stay the flow of blood immediately, or they might be so weakened by its loss as to cause fatal results.

Now a word on keeping leeches. I have heard many of my drug friends complain sorely about the loss from this source. To preserve them without loss and in a healthy state we should strive as closely as possible to imitate nature. How can they be expected to live in a fancy glass jar, exposed in a window, beneath the heat of a summer's sun? When I first entered into business; I ordered from a London firm, a hundred speckled Hambro' leeches, which I placed in a large glass globe, but although they were apparently healthy when received, they soon sickened and died. I do not think I sold a single dozen out of the whole lot. I thought this sort of thing would never pay, so I procured a fancy jar, or aquarium, made on purpose, and advertised extensively. It was to be stocked with *Valisneria spiralis* and other water weeds, water snails, sand at the bottom, etc., but I was still far from successful. At last I became so disheartened that I gave up keeping leeches altogether. I had no sooner so resolved, then naturally the demand increased, and in deference to the wishes of a medical practitioner in the neighborhood, I decided to give the leech trade one more trial. I purchased a large black earthenware jar, with a wide mouth, glazed inside, such as is used by frugal housewives as a pickle jar, only mine will hold nearly two gallons of water. I place at the bottom a layer an inch in thickness, of large pebbles and sand well washed, then I fill the jar about two-thirds with water, hard or spring does not answer so well as rain water. I change the water on an average every fortnight, in the winter season once a month is sufficient, for then the leaches are torpid; I never allow the water to freeze, although it frequently reaches as low as 40° Fahr. The jar is kept in a cool place. I now seldom loose any of my leeches, if the consignment is healthy when received.

I believe the chief cause of failure is exposing them too freely to the light, which excites them. In their native habitat, they live for

the greater part of their lives beneath the mud at the bottom of the lakes, where they lie in a semi-torpid state; in a dark jar, or where the light is kept from them, they are also semi-torpid.

BROMIDE OF POTASSIUM.*

This article, which has come into general use as a nervous sedative and hypnotic, is too little known for its general properties and effects to be consistent with sound and judicious medical practice. The subjoined facts are a translation by Dr. Ott of Dr. Voisin's prize essay on this salt, published recently in the *Archives Generales de Medicine.*

The article contains the following points:

1. The great necessity of administering it in a pure state.

2. The better mode of administering it is to give it in sweetened water at the commencement of the meal. Care should be taken of the teeth, as bromine is eliminated by the buccal mucous membrane.

3. We should watch the action of this medicine, as bromism can supervene in two different fashions, the slow and rapid form. The slow form annouuces itself by a deathly white color of the skin, especially of that of the face, by hebetude, stupidity, dryness of the mouth, its mucus becoming pasty, by diarrhœa, considearable meagreness, titubation, profound sleep, a sort of coma, by difficulty of speaking and finding words, by bronchital catarrh which may become suffocating. Bromism comes on rapidly in those who take little exercise. It may be produced in a few days by daily doses of twenty to thirty grains in patients confined to their beds. Exterior temperature does not seem to exercise the least influence on the genesis of it. Bromism appears in patients who have taken for many months or many years of doses from sixty to one hundred and fifty grains, without any assignable reason that it should occur at that moment rather than any other.

The brisk, rapid form presents itself in the following way: In patients who have taken for three or four years of this medicine, in doses of ninety to one hundred and fifty grains, titubation, considerable difficulty in the gait, impossibility of expression, drooping of the eyelids, somnolence, pain in the head, dirrahœa, dull look, stupidity, writing is tremblingly or badly traced, the phrases are written in a mode nearly incomprehensible, because they want portions of entire words. The tongue, at the end of some hours, is red, dry, and broad. The patients are very thirsty.

The treatment of bromism is the immediate disuse of the medi-

*Medical and Surgical Reporter.

cine, baths of dry vapor, black coffee, purgatives, diuretics, and a very nourishing liquid alimentation.

4. A good sign to determine if the dose is large enough is the absence of reflex nausea caused by introducing a spoon down to the base of the tongue. Iron and arsenic should be frequently associated with this medicine to prevent the anæmia and cachexia produced by it.

5. Duration of treatment. A relapse in epilepsy occur six years after apparent cure, this author considers that in this disease the length of treatment should be at least ten years; although admitting he exposes himself to error in this respect.

6. Accidents which may result from the use of this medicine. Bromism has already been noted. Bromic cachexia. This is characterized by considerable decolorization of the skin, blowing vascular murmurs, languor in the movements and expression, general debility and emaciation. This writer believes that every patient who takes bromide of potassium, in doses exceeding seventy-five grains daily, should be examined by his physician every five days. He considers it a dangerous habit for pharmaceutists to deliver the remedy on a receipe already served. In women who take sixty to ninety grains of the bromide, a dry cough, with difficult inspiration, supervenes, especially in the evening or during repose. The cough resembles whooping-cough. This medicine produces also cutaneous eruptions.

7. Elimination. Elimination by the kidneys does not seem to be greater in infants than in adults. The alimentary canal eliminates little or nothing. The amount excreted by the skin and through the saliva has not been determined. The present facts do not explain the remarkable tolerance of this remedy in infants compared with adults.

8. Therapeutic value. The two most important points in the treatment of epilepsy are the exhibition of it in a proper dose and a continuance of it for long periods. It acts in two different ways, physiologically speaking; one a sedative action on the medulla oblongata and the spinal chord; the other a constrictive action of the muscualar fibres of the capillaries, making the tissues anæmic. The first explains its efficacy in those diseases where the cord and medulla are excited, as in epilepsy, chorea, simple and traumatic tetanus, spinal irritability of hysterical and anæmic patients, etc. Its happy results in spermatorrhœa are due to its capillary constriction. By the same buccal, pharyngeal, vaginal, and probably stomachal secretions are diminished. He relates ninety-six epileptic cases treated, twenty of which have not exhibited any further morbid phenomena.

A portion of the article was in support of the great value of this remedy in nervous diseases, particularly epilepsy. Dr. Brown-Sequard's researches on epilepsy were also referred to as given in one of the lectures by Prof. Agassiz, before the Museum of Com-

parative Zoology, Cambridge, Mass., last April. "My friend Dr. Brown-Sequard," says Prof. Agassiz, "who has made more experiments among animals than any man living, continuing them upon successive generations, and ascertaining what diseases may be transmitted, has stated facts, some of which almost defy belief. These facts are unpublished. I will give a few of them. He has found that the disease of *epilepsy* can be induced in guinea-pigs by certain operations, and that this disease, being so introduced into the system, may be transmitted from generation to generation, and thus becomes hereditary. Where such operations have produced malformations of the skin, as is often the case, these also have been transmitted; or where the pores have been affected by such operations a peculiarity has been also transmitted. Malformation produced by these experiments as a disease during the life of a parent, has been passed down to the offspring, and even habits arising from disease have been inherited in the same way. These facts have a fearful significance." The value of bromide of potassium and chloral in disease was then discussed.

ACTION OF WATER UPON THE RESINOID PRINCIPLE OF OPIUM.*

BY L. PERIER.

Soubeiran, in his *Traite de Pharmacie theorique et pratique*,† has pointed out that the proportion of water put into contact with crude opium exercises an influence upon the solution of the resinoid principle, oil, and narcotine, but that the resulting modifications of this action are little known. The author has found that at any rate the proportion of water employed plays an important part in the solution of extract of opium, as shown by the following experiments:

(1) 120 grams of extract of opium was divided into two equal parts; one half was treated with 120 grams of distilled water at 15° C., the other half, with 250 grams of water at the same temperature. At the end of six hours, assisted by agitation, solution was complete in both liquids, and they were filtered through paper. The first only left a few bubbles of blackish matter; the second abandoned six grams of oleo-resin.

(2) The first solution was then evaporated to dryness and the product divided into two parts; one was put into a small quantity of water (about twice its own weight), the other into 1000 grams.

* *Bulletin des Travaux de la Societe de Pharmacie de Bordeaux*, xiii., 245, reproduced in the Pharm. Jour. and Tras.

† Fifth edit. (1857), i., 777; seventh edit. (1869), i., 851.

After twenty-four hours, the concentrated liquor was quite limpid and without deposit, but the dilute liquor had deposited considerable residue.

(3) 30 grams of extract was dissolved in water, under the conditions prescribed in the Codex (ten times its weight of water at 15° C.). The solution was at first muddy, a black granular precipitate covered the bottom of the vessel; but upon evaporation in a water bath the extract again became homogeneous, and afterwards dissolved in 30 grams without any deposit. In its turn, this solution threw down a precipitate when double its own volume (60 grams) of water was added, and the precipitate was augmented commensurately with the addition of more water. Afterwards, concentration reproduced a normal extract, soluble without residue.

(4) The quantity of water employed gave rise to a regular progression in the phenomena of solution and precipitation. If, for example, five grams of extract of opium were put into ten grams of distilled water, the portion which was first dissolved left in suspension a granular deposit. In proportion as the liquid became saturated this deposit was effaced, until at last no more remained undissolved. The maroon black liquid, a layer of four centimetres of which was impermeable by sunlight, did not require filtering; if it were sometimes scarcely clear yet it did not deposit. With five grams more water a turbidity was manifested which was not completely removed by shaking. At the maximum of 20 grams of water, the deposit commenced; toward 30 grams, and after standing for an hour, the deposit was nearly doubled; at 50 grams (ten times the weight of the extract) it ceased and the liquor was no longer troubled by fresh additions of water.

The whole of the resin however could not be removed by water from solutions of opium. Thirty grams of extract which no longer gave a percepitate upon the addition of water, yielded 2-5 grams of black resin when treated with ammonia. Although in this case the extract was the product of a fourth maceration, the phenomenon occurred, but in a less degree, under ordinary conditions.

It thus appears that the same matter will alternately pass through a filter without residue or leave an enormous residue, according as the quantity of water employed is small or large; also that the precipitation ceases when the weight of the menstruum is about ten times greater than that of the substance. It is even possible to dissolve in a very concentrated cold solution a deposit that has not been obtained from it. Finally, that the heat of a water-bath will restore the homogeneity destroyed by an excess of water, an observation which is not in accord with what has been written by other authors. The constant results obtained during his experiments have induced M. Perier to formulate his conclusions as follows:—

(1) The quantity of distilled water at 15° C. in which extract

of opium is dissolved has a direct and certain influence upon the partial elimination of the resinoid matter.

(2) Concentrated aqueous infusions of extract of opium do not give any noticeable precipitate, except with the lapse of time; dilute solutions, where the weight of the menstruum exceeds twice that of the matter dissolved give as much more residue as the proportion of water is increased from two to ten.

(3) Water, in whatever quantity, does not percipitate the whole of the resinoid matter; a certain proportion yields only to ammonia.

(4) The residue of extract of opium treated with cold water redissolves in the concentrated mother solution, and heat, instead of aiding in the separation of the resin, oil and narcotine, reconstitutes the homogeneity of the extract.

THE PREPARATION OF LIQUOR BISMUTHI.*

BY C. MEHU.

In the formula given by Mr. C. H. Wood for the preparation of Liquor Bismuthi† there are two equivalents of citric acid ordered to one equivalent of bismuth. I have satisfied myself many times that a single equivalent of citric acid is sufficient to obtain a perfectly stable solution of bismuth. In this manner an excess of citrate of ammonia in the liquor is avoided. The method which I adopt is as follows:

I dissolve an ascertained weight of pure bismuth in three times its weight of pure nitric acid, then concentrate the solution and leave it to crystallize. After one or two days the mother liquor which surrounds the crystals is decanted and evaporated in a porcelain capsule at a moderate temperature, so as to completely drive off the excess of acid; in cooling the liquor forms a crystalline mass. All the crystals being put together, I then pour upon them a concentrated solution of citric acid, made with heat. For each equivalent of bismuth I employ an equivalent of crystallized citric acid, being very nearly equal weights of each. The solution of citric acid dissolves completely the crystals of nitrate of bismuth.

In order to obtain citrate of bismuth I divide this solution of nitrate of bismuth in citric acid into two equal parts, and pour into one of them a sufficient quantity of ammonia to dissolve the precipitate that is formed at first, leaving only a slight excess of ammonia, and then add the other portion of the solution. From this mixture there results a very white precipitate of citrate of bismuth,

* 'Annuaire Pharmaceutique,' 1873, p. 55, translated in the Pharm. Jour. and Trans. Nov. 1873.

† Pharm. Journ. [3] vol. ii., p. 233.

which I wash with warm water as long as it gives any traces of acidity, and then dry in a stove. The washings are acid and contain a large proportion of nitrate of ammonia, with scarcely any traces of bismuth. This can be isolated in a state of sulphide by means of sulphite of sodium.

The citrate of bismuth so prepared dissolves in ammonia; the solution can be diluted at will with water without becoming turbid, and may be preserved for years. I have examined during two years several solutions of bismuth containing 20 to 50 grams of metallic bismuth per litre without recognizing the least alteration. The solubility of the citrate of bismuth is very rapid and easy; it is only necessary to wash solid citrate of bismuth with a strong solution of ammonia to obtain a perfect sodium too strong for ordinary use.

When the solution of citrate of bismuth in ammonia is evaporated upon plates there is left a white residue insoluble in water, but completely soluble, although rather slowly, in ordinary solution of ammonia.

The citrate obtained by the evaporation of the ammonical solution yields nothing perceptible to alcohol, unless it contain nitrate of ammonia in excess or some other impurity soluble in that menstruum. The solution of citrate of bismuth in ammonia is not rendered turbid by acetic acid, chloride of sodium, chloride of ammonium, iodide of potassium, ferrocyanide of potassium, or bichromate of potash. It is precipitated by oxalate of ammonia, nitric acid, phosphoric acid, sulphuric acid, and nitrate of urea.

THE PRODUCTION OF OPIUM.*

The varied collection of opiums shown at the Vienna Exhibition furnishes a good opportunity for a cursory review of the producing districts of this drug, which is almost solely used medicinally in Europe, while in the Eastern and Mahometan countries, and especially by the Mogul and Malayan races—that is, by at least 700 millions of souls—this narcotic passes into ordinary and extensive consumption.

Commencing, then, with the Turkish Empire, which by its possessions in Asia Minor is with Persia the most ancient seat of production. There almost every small proprietor cultivates the poppy on his land. Some days before the falling of flowers, the capsules or heads of the poppy are scored horizontally with a knife, and that the wall may not be broken, the whole length of the incision is bound round with thread.

The white juice which flows from this cut congeals rapidly in

* From the Chemist and Druggist.

the air, and assumes a brownish hue. The next day it is removed and laid on poppy-leaves, and when a sufficient quantity has been obtained (a poppy-head scarcely yields the third of a grain), it is made up into little cakes or rolls wrapped in poppy-leaves, and forwarded to market for sale. From 1830 to 1850 the sale of opium was monopolized by the Government, and there were at Smyrna and Constantinople depots where all produced had to be brought and delivered at a fixed price. Since the suppression of this Government privilege all, or nearly all, the opium produced in Turkey enters into commerce by the way of Smyrna, and passes under the name of Smyrna opium. The average annual export is about 400,000 lbs., of which three-fourths goes to Europe and the remainder to North America, where, in the last thirty years, the consumption of opium has nearly quintupled; and to Eastern Asia, especially China, where Turkish opium is sold under the name of kin-ni (golden dirt). The production is very variable, as the poppy harvest is uncertain. Hence the oscillations in this Turkish drug, which, during the last six years, has doubled in price. The cause of this arises no doubt from the increased demand and extended use, as well as the changes of transit routes. The opium of Smyrna is the purest of all which enters into commerce. The best kinds contain from 12 to 15 per cent of morphia, and hence it is more esteemed in European pharmacy. The opium most valued is that of Boghadytsch and Balikesri, after which come those of Kyrkagatsch, Kjutahie, etc. There are shown in the Exhibition ninety-seven specimens of opium. From authentic anaylses, the opium of Halab-Hipar contains 12·55 per cent of morphia, and that of Sinope 12.85 per cent. Persia, which is probably the parent country of the poppy, as well as that of opium, obtains this product from its central provinces, and sends it to Turkey, as well as to the southern and eastern parts of Asia. That of Disful and of Schuschter is renowned, and that obtained at Yezd and the Province of Mazandearan on the Caspian Sea is equally esteemed. The Persian opium rarely appears in commerce in the form of cakes, but usually in cylindrical rolls wrapped in paper. The Russian opium of Derbend (Transcaucasia) is also met with in the same form. This kind is but slightly narcotic, has a very bitter flavor, is of a yellowish brown color, and of the consistence of an electuary, owing no doubt to the admixture of a large quantity of honey.

In British India opium is produced in large quantities, principally in the districts of Malwa, Patna, and Benares. In Malwa the extraction is limited, and in Bengal it is a Government monopoly. The whole is delivered to the State factories, and a special opium agency supervises the cultivation, production, delivery, and transport of this drug. The extraction and preparation of opium in India is different to that pursued in Asia Minor, and the product obtained, judging by the morphia it contains (the true criterion of value) is

very mediocre, yielding only from 5 to 9 per cent. In India they pierce the capsules vertically with a special kind of knife with several blades; the juice which flows out is collected in a kind of spoon and deposited in earthen vessels, where it separates into a solid mass (the opium proper) and a liquid part of a dark brown.

In the factories the opium is made up of round balls, weighing four or five pounds, which, after becoming dry, are placed in special cases, each holding forty balls, and shipped to China. The Celestial Empire is almost the sole market for opium so prepared. At first the Chinese only used opium as a medicinal agent, but later it came to be a object of general consumption. At the commencement of the last century there were only very small quantities of this drug received in China, probably through the agency of the Portuguese, and the quantity never exceeded 30,000 lbs. But towards the close of the century the use of opium had spread over the surface of the empire, and penetrated among all classes, in spite of stringent measures levelled against its introduction.

The production in India was largely extended, and the importation into China reached unheard of proportions. At the time of the opium war, or at least a few years after, the importation amounted only to 4,000,000 lbs.; in 1867 it had reached 10,000,000 lbs.; and in 1869, the value of the opium imported into China was £10,500,000 sterling. Now this article takes the chief place in the imports into China, and the monopoly of opium brings into the Indian Government a gross sum of £8,000,000 sterling per annum.

However, the official statistics of the opium exports from India in the ten years ending 1870, shows that there was no augmentation on the previous decennial period, but, on the contrary, the shipments are about stationary.

The consumption of opium in China has, however, by no means diminished, on the contrary, the conclusion must be arrived at that the Chinese supplement their supply by other means. The consumption is estimated at over 15,000,000 lbs. per annum. Despite the edicts of the Chinese Government the local cultivation of the poppy is always extending, especially in the southern provinces of Yun-nan, Setschuan, Hounan, and Tche-kiang, where it forms the principal winter crop.

The poppy appears to have been long cultivated in many provinces in China (in 1736 it was grown in a part of Yun-nan), having been apparently introduced from India. Two, and often three, crops are obtained in the year by alternating the poppy with alimentary plants. It has not been without a strong opposition on the part of the Government that the culture of the poppy has been thus extended. Notwithstanding the severe edict of the 28th April, 1865, and confirmed by those of the 21st January, 1869, and December, 1872, this plant continues to replace rice and the cereals. If, however, we may believe a high mandarin, the Government only tolerates the

indigenous production, with the view of stopping the Indian importation, and if this were accomplished they could readily arrest the local culture.

For smoking, a preparation of opium is used, *min-yang*, of which there exist many qualities, from the finest to the mere residue of the pipes (tie-chan-tao), which is used by servants and the poor. The indigenous opium of China, which appears to be often adulterated with foreign substances, such as the glutinous juice of *Cassia fistula*, is rich in morphia, 6·94 per cent according to Dr. Jamieson, and in narcotine 8·87 per cent. But it is not so much sought after by smokers as the foreign. Of late years, the lower price at which it is sold—less than half—has caused it to interfere materially with the sale of Indian opium.

For Europe, Indian opium has not that importance, seeing that the Chinese pay dearer for it than the best Turkish opium is sold for here, and looking at its smaller percentage of morphia, it could not be employed medicinally.

Turkey in Asia and British India, it is thus seen, are the two grand producers of the opiums of commerce. That which is obtained in other countries is scarcely worth speaking of, although efforts are making to cultivate the poppy in various countries.

Egypt was formerly cited as an opium producing country, and the produce of the environs of ancient Thebes was much in vogue, but it lost its reputation in the European market by arriving adulterated. Endeavors are being made to revive the culture and commerce. At Esneh, Assiut, and Akhmin an opium is obtained which contains respectively 3, 8, 8½, and 10 per cent of morphia.

In Algeria there is a good future prospect for the production of opium, which is found to contain a larger proportion of morphia and less of codeine and narceine than that produced in the centre and north of France. According to calculations made by colonists in the Province of Oran, who have carried on this culture for some years, the mean return from a hectare of land (about two acres) is as follows:

	Francs.
20 kilog. of opium at 30 francs	600
10 hectolitres of poppyseed at 20 francs	200
	800

This return, however, barely repays the cost, for the collection of the opium is troublesome and expensive, and the plant requires a good deal of manure, being considered in India as a very exhausting crop.

In Victoria the culture of the poppy seems to have a chance of success, the opium contains from 3 to 7 per cent of morphia. In North America, especially in the States of Vermont, Illinois, and

Virginia, endeavors have been made to develop the culture of the poppy for the extraction of opium, but up to the present time the reports as to the results are contradictory, and on the whole unfavorable.

Finally, we come to the European States. Various efforts have been made to produce opium in France, Germany, Austria, Greece, Italy, Switzerland, and Sweden. The most serious and extended efforts were those of France, where M. Aubergier, of Clermont, obtained a fair quantity of opium; and M. B. Roux, at Rochefort. When it is borne in mind that France obtains annually from the poppies, cultivated for their seed only, oil exceeding in value £1,250,000, it is hoped also to add to this some quantity of indigenous opium.

In Germany, opium has been obtained, especially in Wurtemberg and Silesia, which yielded 12·15 per cent of morphia.

These different trials have satisfactorily proved one fact, that Europe is able to furnish an opium equally rich in morphia as the best product coming from Turkey. And if this question so often mooted has not yet attained a satisfactory result commercially, the fault lies chiefly in the greater expense of land and labor which the Eastern nations can furnish so much cheaper.

The subject of opium having occupied so much preliminary space, the consideration of other medicinal plants and pharmaceutical products shown must be held over for another article.

P. L. S.

PATCHOULI.*

Patchouli, or Pucha-pat, is the Hindostanee name of the plant from which the perfume is obtained, which is known to botanists as *Pogostemon Patchouli*. It belongs to the order *Labiatæ*, which furnishes us with so many of our aromatic plants, such as sage, thyme, marjoram, rosemary, lavender, mint, pennyroyal, etc. The patchouli is tall and shrubby, not unlike the garden mint in habit, with broad egg-shaped, opposite leaves, about three inches long, and thick spikes of small purplish-white flowers. It is a native of Penang, Silhet, and the Malay Peninsula, and is imported into England from Hindostan and Bengal. In India it is a very popular perfume, being generally sold in the bazaars, besides being used in tobacco for smoking, and for scenting the hair of women. It was not imported into England until 1844, when forty-six cases, some containing fifty pounds, others one hundred and ten pounds, were put up for sale at Garraway's Coffee House. The price asked was only six

* From the *Journal of Applied Science* in Pharm. Jour. and Trans.

shillings a pound; but there were no biddings, which proves that its popularity is of but recent date. This lot was brought from New York, to which place it is said to have been taken from China. The plant flowered in Europe for the first time in the winter of 1844, in the greenhouse of a gentlemen at Orleans; since then it has been in cultivation in many botanical gardens, and may usually be seen in the Economic House at Kew. Some years ago genuine Indian shawls could always be distinguished by a peculiar odour which they bore, the cause of which was long unknown. It was, however, at length discovered by the French manufacturers that this odour was due to patchouli, and they imported the plant in order to give articles of home manufacture the same perfume. The smell of patchouli may also be detected in Indian ink, in the manufacture of which it is an ingredient. The dried leaves and tops are the parts imported, and these may be bought in the markets in bundles of half a pound each. Dr. Wallich states that a native friend of his told him that the leaf is largely imported by Mogul merchants, that it is used as an ingredient in tobacco for smoking and for scenting the hair of women, and that the essential oil is in common use among the poorer classes of the natives for imparting the peculiar fragrance of the leaf to their clothes. The sachets of patchouli which are sold in European shops consist of the herb coarsely powdered, mixed with cotton wool, folded in papers. These are simply placed in drawers and wardrobes to drive away moths and insects. The patchouli plant is in great favour with the Arabs, who use and export it more than any other nation. They take up great quantities on their annual pilgrimage, and use it chiefly in stuffing mattresses and pillows. They believe it to be very efficacious in preventing contagion and prolonging life. It is also said to protect clothing from moths. The preparation of the herb is very simple, the tops—about a foot in length—being merely gathered and dried in the sun. It must not, however, be allowed to get too dry, or the leaves will become brittle and crumble in packing. It is recorded that ill effects, such as loss of appetite and sleep, have arisen from excessive employment of patchouli as perfume; and is very probable that such effects would be produced by it on cerlain constitutions. The scent is more powerful in dry than in damp places. The odour is due to a volitile oil, which is contained in the leaves and stems. When distilled, it is yellowish-green, with the same smell as the herb, but neither a burning nor an astringent taste. It is almost as heavy as water. A hundredweight of the plant yields about twenty-eight ounces of oil, or, according to a specimen of the latter in the Kew Museum (where may also be seen the plant in its dried state as imported), one ounce of oil may be obtained from two hundred ounces of the herb. It is from this oil that the essence of patchouli is prepared. In the sachets of patchouli, however, the coarsely-powdered leaves are used.

REMARKS ON AN AQUEOUS FLUID EXTRACT OF SENNA.*

BY ADOLF G. VOGELER.

There is in the Prussian pharmacopœia a preparation, species laxantes Saint Germain, composed of senna, potassium-bitartrate, fennel and elder-flowers. This tea is much in vogue amongst Germans, who admintster it when a mild laxative is required, but more especially and almost exclusively, is it taken by females, pregnant or during confinement. What makes this " St. Germain Thee " so popular is its gentle mode of operation, being void of any irritating properties, without the repulsiveness of castor-oil, which to a great number of persons is insuperable. But these qualities are only attained by a process peculiar to this preparation, namely: the senna leaves are exhausted with alcohol previous to being mixed with the other ingredient. The apparent object in view in employing alcohol is, to separate from the drug that peculiar resin soluble in alcohol, which is also partially soluble in boiling water but insoluble in cold water, and when administered causes intense griping.

Taking advantage of the knowledge regarding the solvents for this resinous body, some physicians, whenever they have occasion to prescribe senna, advise their patients *not* to use boiling water, but to prepare the "tea" simply by macerating the leaves in cold water for about ten hours; or, if the presence of aromatics is desired, first to steep those and add the senna to the cold infusion.

Being familiar with the above-mentioned method of extracting senna, the idea suggests itself to me that fluid extract could as well be made in this same way.

Accordingly, 16 troy ounces of senna in coarse powder was moistened with some water, packed moderately loose in a percolator, and after 24 hours maceration cold water was gradually poured on till it passed through nearly tasteless. After evaporating the whole, by means of a moderate heat, to the measure of one pint, 10 av. ounces of sugar were dissolved in the liquid, and concentration continued to make it measure 16 fluid ounces.

This I found to furnish an extract satisfactory in every respect. Its odor is most characteristic, color very dark; and under ordinary circumstances from two to three fluid drachms will operate on the bowels, from four to six drachms producing brisk cathartic action without any unpleasant sensation, and above all, its taste can be called almost agreeable. Every druggist is aware how often mothers demand a physic for their little ones; the child will not swallow that nasty castor oil, nor does it like rhubarb, and they want us to "fix them up something nice." So far, I had always been at a loss

* From the Pharmacist.

to know what to dispense, but now I do not hesitate to give this fluid extract at once, and, so far as known, with general satisfaction.

Last December five pints of the extract were prepared, which kept well in a room of the ordinary temperature till the beginning of summer, when it began to show mould, which, however, after removal was prevented by an addition of one per cent. of sodium hyposulphite. Since the middle of August it has been slowly changing, and at present is in a state of active fermentation. If less sugar were used, and glycerine in the proportion 1 to 8 were added, or if the latter alone was employed, as in the last edition of the pharmacopœia, for fluid extracts, this instability of the preparation might be obviated.

ADULTERATION NOTES RESPECTING TURMERIC IN RHUBARB, AROMATIC CHALK POWDER, AND MUSTARD.*

BY W. L. HOWIE.

Turmeric in Powdered Rhubarb.—The experiments of which the following notes are the result were suggested by the expression of an opinion by many pharmacists of my acquaintance that turmeric was responsible for the brilliant yellow color of certain samples of very fine powdered rhubarb.

The test for turmeric given by Pereira, Christison, and other authorities, and lately elaborated by Professor Maisch, U. S. (*vide* Pharm. Journ., vol. i., 3rd series, p. 1027), requires the preparation of a tincture or decoction of the rhubarb, and is far from delicate owing to the difficulty of detecting the brown-red tinge in presence of the deep yellow color of the rhubarb. My aim has been to supplant this preliminary exhaustion of the suspected rhubarb by a process which should more completely eliminate the curcumine, and while rendering the test strictly practical for counter use, improve its efficiency.

An effort to discover a menstruum in common use which would dissolve the coloring principle of one only of the drugs under notice proved not altogether successful, in a measure owing to a variation in the peculiar constituents of different varieties of rhubarb, which will be further referred to.

Of turpentine, carbon bisulphide, benzole, ether, and chloroform, I have been induced to prefer the last-named, though the test can be applied with either of the others, should convenience suggest such a course; but, with the exception of ether, none seems so efficient

* Read before the British Pharmaceutical Conference, and published in the Pharm. Journ. & Trans., Nov. 1st.

as chloroform, on account of the readiness with which it dissolves curcumine, and its volatility, rendering the manipulation of a number of samples exceedingly rapid.

I discard ether, because crysophanic acid is much more soluble in it than in choloroform.

The application of the test is as follows:

Let the required number of pieces of white blotting-paper, about three inches square, be numbered and placed on a pill tile or glass slip; in one corner of each of these papers place about five grains of the several rhubarb samples to be tested, keeping the powder as much together in one heap as possible; press it flat and smooth with the aid of a piece of paper, and drop cautiously on the centre of the powder, chloroform, so that it may slowly percolate to the circumference, carrying with it any soluble matters, and extend nearly one inch from the powder, taking care not to float any particles over or under the paper, which would interfere to some extent with the succeeding tests. Having allowed the papers to dry, it will be found that a yellow stain of varying intensity has been left around the powder. With really fine, bright-colored East Indian rhubarb, this stain is scarcely perceptible, but cheaper and darker samples may yield a brilliant yellow, while even the finest bright-colored English powder will give a yellow stain as deep, and in most cases, deeper, than the darkest East Indian. Should turmeric be present in quantity in any sample it will at once give a brilliant yellow stain, in tint undistinguishable from that of the rhubarb, but which may readily be identified by the following tests.

Place a minute pinch of biborate of soda in powder on that portion of the paper over which the chloroform had extended, and which probably has a yellow tint, choosing the deepest colored part. With a glass rod deposit a single drop of hydrochloric acid over the borax. In a few seconds, should turmeric be present, a distinct red will be produced, which is changed to black or greenish black with solution of potash, but no change except a slight bleaching, takes place if the yellow is caused by rhubarb colors only. A drop of solution of potash instantly changes the yellow stain of turmeric to a more or less brown tint, while a pure rhubarb gives a bright reddish-purple color.

For delicate operations, a saturated solution of boracic acid is preferable to the powder borax, so that any obstruction of view by the white powder may be obviated; but it is necessary in either case to use hydrochloric acid, which quickens and intensifies the action of the boracic acid.

By this means turmeric can readily be detected in rhubarb containing only 0·05 per cent. While 0.1 per cent., or seven grains in one pound of rhubard, gives at once distinct and unmistakeable evidence of its presence.

As turmeric often carries in its train wheaten flour or farina,

which can be best identified under the microscope (*vide Pharm. Journal*, vol. ii., 3rd series, p. 841), rhubarb in which it is found should always be looked upon with suspicion.

It is gratifying to be able to state that of some thirty-six samples procured in different parts of the United Kingdom, only in one have I found turmeric; and strangely it was in a specimen of the old time Turkey, which a friend had carefully stored as a curiosity. The quantity present, however, was so small, about 0·07 per cent., that it could hardly be called a wilful adulteration, and may be accounted for when we remember that it is, or was, the practice of some dealers to rub the roots with turmeric to improve the color. Some such roots had no doubt been used in this instance for powdering.

That no one may be deterred from testing every parcel of rhubarb before taking into stock, I have only used chemicals found on the shelves of every pharmacy, and may just add that five samples may be tested in as many minutes, leaving no apparatus soiled but a glass rod and pill tile, and at a cost of a fluid drachm of methylated chloroform.

European in East Indian Rhubarb.—The observation of the regularly varying depth of tint of the yellow stain on paper, given by different rhubarbs with chloroform, suggested this test as a useful and ready means of determining not only the absence of turmeric, but also the quality of the drug.

East Indian rhubarb, sound, pale in color, dense, and freed from the cortical layer, when reduced to powder gives up almost no color to chloroform. A dark-colored but otherwise sound piece gives but a slight tint, while the cortical layer gives a more distinct yellow, as does in a yet more marked degree the interior of such pieces as are worm-eaten and rotten.

English indigenous rhubarb even when carefully selected gives a deep yellow tint, which is yet more intense from cortical and faulty pieces.

French indigenous rhubarb which sometimes appears in commerce in this country (*vide Pharm. Journal*, vol. ii., 3rd series, p. 1009), though in external appearance and density greatly superior, is in therapeutic value and chemical characteristics much like our own native root, and gives up about as much color to chloroform.

Of the character of the stain given by inferior or false rhubarbs, excepting its intensity, as compared with that produced by fine East Indian root, I have unfortunately been unable to distinguish any peculiarity such as would lead to its unfailing detection; still the constancy of the variation, according to the kind of rhubarb used, is such, I think, as ought to give a reliable index of quality.*

* Note.—Since reading the above we have so far modified this test as to obtain a quantity of the colored solution from each of the varieties of rhubarb, and have examined the liquids by a train of five prisms in Browning's direct vision spectroscope, but except a slight difference in the extent of absorption caused by the varying intensities of color of the liquids, there is no recognizable difference.—Ed. Can. Pharm. Jour.

A powder offered as East India rhubarb, of pale brilliant color, having the usual characteristics of that variety, should give but an exceedingly pale yellow tint. Should a deep yellow be given I would suspect English or French contamination. An East Indian powder of a dark hue however may give almost as deep a color as English, and still be genuine; though by this color I would judge it was the product of unpicked roots, trimmings, or even worm-eaten pieces, according to the depth of tint.

The few specimens of Turkey rhubarb I have been enabled to experiment upon, through the kindness of several friends, yield results like East Indian.

The cause of this varying color yielded by different rhubarbs is somewhat obscure, the chemistry of the drug being as yet far from satisfactorily elucidated. Chloroform seems to dissolve out chiefly the resinous principles erythroretine, phæoretine, (and aporetine?) which exist in varying quantity in different parts and varieties of root, while the chrystalline principles chrysophanic acid and emodine are left behind.

Beautiful aggregates of granular crystals of chrysophanic acid may be easily obtained by percolating ether after chloroform through East Indian rhubarb, and allowing the ether to evaporate spontaneously. It is noteworthy that English and French rhubarbs treated thus yield no such crystals, the residue being a minute quantity of pale brown gummy extractive; though from all varieties distinct brownish acicular crystals, probably emodine, will be observed on the sides of the evaporating basin.

It may be suggested that chrysophanic acid which is recognized as the chief principle of rhubarb, by continued exposure to atmospheric influences, absorbs oxygen and is converted into what is at present known as the resins erythroretine and phæoretine, which some have not accepted as distinct principles, but assert to be "nothing but impure chrysophanic acid" (Batka). Being thus changed in the exterior insect-perforated and spongy portions of the root into amorphous resins soluble in chloroform, we may trace in imagination the cause of the deep yellow stain given by deteriorated roots.

The formulæ slightly bear out this theory, that of chrysophanic acid given by Rochleder and Heldts, who seem to have obtained it from the lichen *Parmelia parietina*, is $C_{10}H_8O_3$, and that given by Thann, who procured it from rhubarb, is $C_{17}H_{10}O_2$, while that of phæoretine is stated as $C_{16}H_{10}O_7$, and erythroretine $C_{19}H_{18}O_7$ by Gmelin, whose formula for chrysophanic acid is $C_{14}H_{10}O_3$ (altered to new notation).

Chrysophanic acid gives with caustic alkalies a red color, and erythroretine a bright purple, as may be observed on touching the yellow rhubarb stain with solution of potash.

With a substance such as rhubarb, varying in chemical as well

as physical characteristics, great care must be exercised before pronouncing definitely upon any test for distinguishing between the varieties, depending upon such a minute difference as depth of tint. While putting forward this method of identifying European in presence of fine Eastern grown rhubarb with some degree of confidence, having found unvarying results from the examination of well-nigh one hundred specimens, it is much to be desired that others would take up the subject and confirm or discredit the results I have obtained.

It is necessary that daylight be used in following these tests, as gas or other common artificial light being yellow, the delicate tints are thereby rendered invisible.

Turmeric in Aromatic Chalk Powder.—As with bright-colored rhubarb so it is not uncommon to hear turmeric suggested as the cause of the fine yellow color of some makes of aromatic chalk powder.

This and other powders containg saffron may be tested in exactly the same manner as above directed for rhubarb. Polychroite, or crocine, the coloring principle existing to the extent of 50 to 60 per cent. (Pereira) in hay saffron is quite insoluble in chloroform, which only dissolves out a small quantity of yellowish oil. Aromatic chalk powder should therefore give no yellow stain with chloroform, a very small proportion of turmeric will thus be at once detected.

The saffron yellow, which may be obtained by using alcohol instead of chloroform, unlike that of turmeric, is changed to green by concentrated nitric acid, and to indigo blue, fading to dirty red and brown, by sulphuric acid.

Turmeric in Mustard.—In "mustard condiment" turmeric will be found by the same process, though like the gilding on otto bottles, it is generally expected, and not so likely to disturb a proper estimation of the quality; besides, it seems to serve an important purpose in keeping the article presentable for a week or more after being made, while a pure flour soon becomes unsightly, and has to be renewed for table use almost daily.

Mustard branded "genuine" should contain no turmeric.

Other applications of the principle involved in this test will no doubt suggest themselves to many pharmacits.

CHINESE MEDICINES.

Some time ago we announced the coming publication of a work on the Materia Medica of the Chinese, by M. M. Soubeiran & Thiersant. At that time we gave a short abstract of the contents, and are now enabled to give a more extended notice, for which we are indebted to a review in the *Chemist & Druggist*.

The authors have combined their labors, in order to make better known the therapeutic agents, and indirectly the medical ideas of people who have remained stationary in this respect, although advanced above others in science, industry, and the arts. It is not the first time that this subject has been broached, thanks to the zealous labors of medical men and naturalists. In this special class of literature, among others who have contributed of late years much useful information, are Messrs. Tatarinov, Porter-Smith, O. Debeaux, and especially Daniel Hanbury. But useful as these contributions have been, they were only, after all, essays more or less advanced and successful, owing to the special difficulties inherent to this class of investigations.

The difficulty of identifying the medicinal substances used in China has arisen from their being so much mixed and altered in appearance by successive decoctions in different liquids, or reduced, if not into powder, at least into such small fragments, that they were scarcely recognisable. The scientific determination of these various therapeutic agents would have been impossible, unless they had availed themselves of the labors of their predecessors, and added the special knowledge locally acquired by one of them by a long residence in China. One is struck, in scanning this work, by its similarity to early European work of this class; for all the principal medicinal substances used by us seem to be known and employed by the Chinese, and one might almost fancy he had before him the Materia Medica of Geoffrey, on one of the olden treatises in which early scientific research, not sure of its facts, does not disdain to collect and publish, conjoined with its own observations and prejudices, the medical errors and popular superstitions of the time. But with all the follies and superstitious opinions held of the virtues of many substances, their practitioners have evidently a thorough knowledge of the uses of some of the most important natural and artificial medicines. They use all the common mineral and vegetable astringents and febrifuges. From time immemorial they have used mercurial preparations in syphilis, arsenic for strumous afflictions and intermittent fevers; iron, as a strengthener; nitrate of soda, as a diuretic; carbonate of lime, as an absorbent, etc.

They use, as we do, sulphur, acetate of copper, castor oil, aloes, rhubarb, aconite, veratrum, colchicum, camphor, musk, and opium. They have stimulatories, anthelmintics, and others analogous to

ours, and are in possession of substances capable of preventing or removing the effects of intoxication, among which are named *Betonica officinalis*, *Novenia dulcis*, *Chrysanthemum album*, nutmegs, and borax. What is more remarkable, anæsthesia, general or local, is of very ancient employment in China. One of their great surgeons describes a species of Atropa, which produces insensibility sufficient to allow of serious operations being performed on the lower part of the stomach. There are some plants, of boasted reputation in the extreme East, which at least deserve being put to the test by experiments on animals, and a severe clinical examination. Among these are *Anemarrhena asphodeloides*, employed for the same use as squills; *Pardanthus chinensis*, to which are attributed most remarkable and varied properties; *Pupalia geniculata*, the bitter root of which is used in cases of rheumatism; *Passerina chamædaphne*, a tincture of which is employed as a soothing tonic and febrifuge; *Rehmannia chinensis*, useful in cases of general debility; *Dimorphantus edulis*, frequently prescribed in cases of loss of blood, heart disease, etc.; *Gynocardia odorata*, the seeds of which are used in skin disease and for syphilis. Among febrifuges, *Tournefortia argusina*, *Tricosanthes dioica*, and especially *Dichroa febrifuga*, which has a high reputation in Cochin China, and merits, perhaps more than the others, the title of a substitute for quinine.

In running over the articles used medicinally by the Chinese, there appear to be 110 derived from the mineral kingdom, which are alleged to have useful properties; 89 from the animal kingdom; and 676 from the vegetable kingdom. Space would fail us to go into full elaborate enumeration of the specialties which are new in the vegetable kingdom.

Some of the animal medicines are curious. For instance, torrefied human hair is administered in pills. The urine of women and children is considered to heal abscesses and absorb tumours. The urine of young infants is collected, and after adding sulphate of lime, or common salt, evaporated in crystalline cakes, which are given in cases of debility, gonorrhœa, affections of the kidneys, etc. After confinement the urine of a child of four years is administered to the woman, with the view of aiding nature to expel the impurities accumulated during pregnancy. The excrement of the bat has a high therapeutic reputation, and is applied to ulcers, and administered in cases of ophthalmia. The paws of the bear and its gall are much esteemed, being considered anthelmintic, and useful in affections of the liver and abdomen. The scales of the pangolin (*Manis javanica*) are considered remedies against the itch, and in cases of ulcers, buboes, and hæmorrhoids. The itch is very common in China, and the scales, fixed in a bamboo handle, are used for scratching. Castoreum is employed in the form of pills or tincture, in nervous affections and weakness of the genital organs. But the kidneys of an old dog are sometimes substituted for castor. The excrements of

almost all animals torrefied, such as those of the camel, goat, bat, etc., appear to be used medicinally.

The deer, of which several species are found in China, occupies an important place in their Materia Medica, the flesh, blood, horns, nerves, and marrow being all used. The young budding horns, especially those taken at the last quarter of the moon, when they are still soft, and filled with blood, are considered a sovereign remedy in poverty of the blood, and are especially recommended to those of sedentary occupation, and convalescents. They are also administered to women subject to miscarriages. The high price which these fetch cause an active chase to be carried on, to obtain them in Formosa, Sse-tchuen, Chen-si, Chanson, Pe-tchi-li, and other districts. One of the species of deer is *Elaphurus davidianus*, of Milne Edwards. These young horns, according to Huc, sell for as much as 150 ounces of silver. They are prepared with the vapor of spirit, and certain aromatic herbs. A species of skunk is used in medicine, in cases of suppression of urine, gravel, and hæmorrhage. A curious use of the gecko is as a test of viriginity. It suffices to place on the hollow of the hand of the female suspected a little of its blood, and then to plunge the hand in water; if the blood falls off it is a certain sign that the girl is not a virgin! The flesh and skin of various snakes are used medicinally, but the head and tail are removed, under the impression that poison is lodged in these. Various virtues are attributed to serpents; they are considered efficacious against rheumatism, leprosy, paralysis, ulcers, ophthatmia, and fevers. Several frogs and toads are also employed. The hippocampus has the reputation of aiding accouchements; it suffices to hold one of these little horse-fish in the hand to cause the expulsion of the fœtus.

A number of both marine and river shells are calcined and pounded, and used in cases of fever, apoplexy, and hæmorrhage. Cuttle-fish bone is considered styptic and anthelmintic. Pulverized, it is a domestic remedy for stopping the blood in cuts or wounds.

Mylabris cichorii is collected and dried, and employed as an emetic, diuretic, and antidote to poison, and also to promote abortion. But its most vaunted use is as a remedy for hydrophobia. Although it contains a third more cantharidine than the ordinary blistering fly, it does not seem to be used in China for vesicating purposes.

The silkworm and its products seem to enjoy a high repute, for the dead moth is used medicinally as an aphrodisiac and antileucorrhic. The caterpillar, torrefied, is administered in inflammation of the throat. The chrysalis, the cocoons, and the excrements of the worm are also employed. Raw silk is specified in some cases, and an empyreumatic oil of silk was formerly used.

The larva of the grasshopper, roasted, is pulverized, and made into pills, which are given to children in fevers, if troubled with

worms. The bodies of the grasshopper, stripped of their feet and wings, are sold in large quantities in autumn to the druggists by the peasants. They are employed in cases of sterility, impotence, menstrual disorders, lumbago, etc. Mixed with olibanum, arsenic, sal ammoniac, and rice flour, they are applied to strumous abscesses; and have also a high reputation is cases of hydrophobia.

The larva of the common meat fly (*Musca carnaria*) are collected from putrid carcases, roasted, and employed as medicine, being given to consumptive or scrofulous children The *Scolopondre morsitans* is employed as an anthelmintic. They are collected about the houses, dried, and mixed with rice spirit, and are said to be an infallible remedy for worms. The European scorpion, when roasted, is employed in apoplexy and tumors of the stomach, etc. It enters into the composition of a celebrated tincture, which is considered useful in all sorts of maladies, even the most dangerous.

Finally, we may state that the work has an added interest, from a good Chinese and French vocabulary appended, which will be found very useful for reference; and there is also a well-arranged classified table of contents.

SYRUP OF THE BROMIDE OF IRON.—Take of bromine three troy ounces; iron (in the form of wire) 350 grains; distilled water, three fluid ounces; citrate of potash, six troy ounces or q. s.; syrup, a sufficient quantity. Put the iron, with the distilled water, in a flask, and add of the bromine two troy ounces in small portions at a time, allowing the mixture to cool, if necessary, before the addition of each fresh portion. When the odor of bromine has disappeared, warm the mixture gently, until it assumes a green color; filter and add the remainder of the bromine. Transfer the resulting solution of ferric bromide to a porcelain mortar, and add gradually, with constant trituration, citrate of potash, until the color of the mixture changes from brown to green; finally, add simple syrup to make up thirty fluid ounces. The syrup thus prepared corresponds nearly in strength with the syrup of the iodide of iron, and may be administered in doses from twenty to thirty drops. It is elegant in appearance, not disagreeable in taste, and is not incompatible with alkalies or with tannic acid.—*Med. and Surg. Reporter.*

Editorial.

EXAMINATION OF ASSISTANTS.

The relations of pharmacists to each other, and to the public generally, have, by the Pharmacy Act, been adjusted in a manner which has proved satisfactory to all concerned. There still remains, however, a matter of almost equal importance, which, though neglected, has not been lost sight of, but simply awaits a suitable time and opportunity for settlement. We refer to the insuring of adequate competency on the part of assistants.

To every one who has given the subject a little thought, it must have appeared inconsistent that the proprietor of a pharmacy should be subjected to examination, in order that his competency be guaranteed, while his assistant, or assistants, who perform the greater portion of the work, and through whose operations the principal risks to life or person occur, should go unquestioned, and their qualifications be altogether disregarded by the law. The proprietor may be careful to a nicety, and have a thorough knowledge of his business, while the assistant may possess no more of these qualities than is sufficient to enable him to pass muster before a master whose attention may be fully occupied by other business, and who, at best, cannot be expected to be cognizant of all the details of work which his servant may perform.

It may be said that a careful and conscientious master would not retain in his employ a servant of this character. This may be conceded, but, at the same time, it will be necessary to remember that, in order to fully understand the capabilities, or faults of a servant, considerable time and close observation are required; and, even then, an artful employee may, for a longer or shorter period, evade the scrutiny. In most instances, assistants are engaged on the strength of their own recommendation, or that of their friends, and, in the event of incompetency being revealed, it may not always be convenient or possible to break these engagements. By subjecting assistants to a sufficient examination, before a disinterested board, these evils and inconveniences would be much lessened, if not altogether done away with, and druggists would soon realize the ad-

vantages of employing those of guaranteed competency, thus relieving themselves of much responsibility, uncertainty, and in many cases, pecuniary loss.

There is another aspect in which this phase of the subject may be viewed. Under existing circumstances, a master is responsible for the faults of his servants, and many a druggist has been made to realize the force of the rule. In some countries where the law in this respect is rigorously administered, pharmacists are often brought to complete ruin by the mistakes of their assistants. We often hear of such cases, and although their occurrence in Canada may be very rare—as actions for damages are seldom instituted, and a death more or less is regarded as no great matter—yet the druggist often feels the more indirect results of loss of trade and reputation.

It is manifestly unjust that one person should be made to suffer for the faults of another, and we feel confident that, as far as druggists are concerned, the burden will never be placed upon the right shoulders, until, by subjecting assistants to examination, and declaring them legally qualified to practice pharmacy, we make them individually responsible for their actions. It is possible that this result might not be, at once, realized, but the initiatory step would be taken and legislative action would, in all probability, soon follow.

We have, so far, only considered this subject from a single standpoint—that relating to the individual and more direct interests of pharmacists. This is decidedly the weakest side of the question, the general welfare and safety of the public outweighing all other considerations. It is evident that the reasons which have been adduced in favor of one side of the question are equally applicable to the other—the assistant is the servant of his master and also of the public, and it is to the interest of both that the servant be a competent one. Vastly superior, however, are the claims and demands of the public; as much more important as are the considerations affecting life over those of property. The mistake of a clerk may, indeed, prove the ruin of his master, but this is its utmost limit; it is the patient who alone is made to feel the worst calamity that can befal.

It is needless for us to urge further the rights of the public in this matter. Our readers are well acquainted with the subject, and we doubt not, when the time comes for these rights to be recognized, will do their utmost in furtherance of that which so deeply affects the general welfare.

Viewing this subject as related to the cause of pharmacy, and to the interests of pharmacists as a community, there is nothing which would so materially tend to their advancement as the education of the younger members of the profession. It is to the assistants and apprentices that we look forward for a full realization of the result of our labors, and we are glad to say that, even under existing regulations, there are favorable indications of future improvement. A few years ago it was impossible to maintain a well-attended class on any of the subjects of pharmaceutical study. Fees for attendance were not so much as thought of, and we question whether students could have been made to attend even were they themselves paid for it. We are glad to state this state of things has changed. At the present time we are aware of a number of young men—some of them who have left their situations in the country and are attending lectures in the colleges of this city—who are devoting themselves to the study of pharmaceutical science; and are giving their entire time and energies to this object. While, however, there are a few who are led by the dictates of a commendable ambition to qualify themselves for the position which they intend to assume, there are many others who will make no effort whatever. For these there is nothing but a compulsatory examination whose requirements shall necessitate an acquaintance with the various branches of study which an assistant must understand ere he can hope to raise himself above the standing of a common grocer's clerk. It is easy to see that this elevation of the standard of education will have a direct and beneficial effect on the social and professional standing of assistants, as well as on their pecuniary interests. A man whose competency is guaranteed can always command for his services a higher remuneration than one whose qualifications are, at least, questionable. The difficulties to be surmounted, and the ordeal which would have to be passed, would deter many persons from selecting any occupation beset with such obstacles. This would materially lessen the supply of labor and, as a natural consequence, better salaries would be realized, while the overstock of incompetent and half-fledged druggists with which the market is generally glutted would soon entirely disappear.

We understand that the Committee on Legislation, to whom the amendment of the Pharmacy Act is intrusted, intend introducing a section which will cover the ground of which we have been speak-

ing. The precise form which this amendment will assume has not yet been decided, but as soon as the details transpire, an opportunity will be afforded for their discussion through the pages of the Journal.

CITRATE OF MAGNESIA UNDER DIFFICULTIES.

English druggists have been thrown into a state of great excitement and consternation by the recent prosecution of one of their number for selling, as citrate of magnesia, the ordinary granular effervescent salt of commerce, which, on analysis, was found to be altogether devoid of the base indicated. The circumstances are, briefly, as follows :—The Sanitary Inspector of Bermondsey, called at the shop of a druggist, residing in that district, and presented an order, or prescription, for "Magnes. Cit. Effervescens, ℥iv." The druggist, being out of the article, procured a supply from a neighbor. From this, the Inspector's prescription was filled, and that functionary went on his way rejoicing, not however to test upon his own system the beneficial effects of so grateful a remedy, but, with malice aforethought, to hand over the medicine to the district analyst in order that its chemical shortcomings might be revealed. It is needless to say that analysis failed to show a trace of magnesia. The druggist was therefore summoned, under the Adulteration Act, and, after the hearing of evidence, was required to pay a penalty of ten pounds sterling, together with the costs of the analysis; besides being obliged to listen patiently to a lecture by the presiding magistrate on the enormity of the offence committed.

It may well be conceived that this decision his aroused the indignation of the British pharmacists, and also given rise to a general feeling of uncertainty and alarm throughout the trade. This arises not only in regard to the decision as specially applied to citrate of magnesia, but to the principle involved, that a chemist ought to be thoroughly acquainted with the character and quality of the articles in which he deals; that ignorance of the composition of any article cannot, perhaps, be urged as a plea, nor can the responsibility be placed upon the manufacturer or wholesale dealer. The tone of the English journals is decidedly to the effect that this case may be regarded as a test, and

that the druggist prosecuted was made the scape-goat. It is to be regretted that the pecuniary circumstances of the unfortunate defendant are not such as would warrant him in continuing legal proceedings; but despite this, we think that the matter will not be allowed to rest here, and that either the Pharmaceutical Society of Great Britian, or a combination of wealthy and influential manufactures or dealers will see that the case is carried to some more definite issue than that depending on a magistrate's decision.

At the meeting of the Pharmaceutical Society held Nov. 5th this case was discussed, at great length, in all its bearings. At that time, it did not seem probable that the Society would take action against the decision. It was thought that such a course would compromise the dignity of the organization and bring it to the level of a Trade Protection Society. One impression seemed general—that the name of the granular effervescent citrate of magnesia must be changed to something more nearly approximating to truth and correct nomenclature. Many names were suggested but none finally decided on. The pharmacopœial designation, *Sodæ Citro-tartras Effervescens*, appeared to be regarded with most favor. It was very properly urged that the public would not recognize this name, and, to meet this, a note explaining the change would have to be appended to each label.

Mr. Bishop, the originator of the granular salt, was present at this meeting. He made a very satisfactory statement that though the compound sold by the defendant in the case referred to was not of his (Mr. Bishop's) manufacture, yet as he had been the originator of the preparation he would stand by his offspring and would see that the defendant in the suit was at no pecuniary loss. Mr. Bishop had resolved to change the name of his preparation, in all probability calling it, "Citro-tartrate of Soda with Magnesia" some salt of the latter base being present.

As far as our own convictions are concerned, we cannot confess to any sincere regret at what has occurred, although we sympathize with the pharmacist who has been made to suffer for the combined offences of a community. The matter might, certainly, have been better arranged, put in a less offensive form, or been made to rest upon the shoulders of a more deserving sinner, but, as the blow has been struck, and as it has been levelled at the flagrant representative of a system the existence of which all conscientious pharmacists must deplore, we see no great reason to complain.

As citrate of magnesia, the commercial salt is a falsity and a humbug, and if the public have been ten or fifteen years in finding out this interesting fact we can only blame them for their obtuseness. The trade in this salt has been built upon the reputation of another article. People had a high opinion of the virtues of magnesia, a compound bearing that name was prepared for them, they eagerly received it as citrate of magnesia, while, in reality, they have been taking a compound, which, in most instances, contains no magnesia, or at best, a trace of Epsom salts, and differs little from flavored soda powders.

We, as a community of pharmacists, have tolerated and perhaps upheld this state of things, while, at the same time, we have been advocating a high standard of trade morality, and discussing nice points of nomenclature—whether, for instance, *Magnesiæ citras* would not be more correctly rendered *Magnesii citras*. Truly we have been straining at a gnat and swallowing a camel, and it is no more than we deserve if the meal proves indigestible.

NEW SOURCE OF INDIA RUBBER.

Although it has long been known that the milky juice of the common silk-weed, *Asclepias Cornuti*, contains a proportion of caoutchouc, and though thirty years ago Shultz announced this constituent to exist in notable quantity, yet, until lately, we were not aware of any practical advantage having been taken of the fact. We understand, however, that, a short time ago, this subject attracted the attention of some gentlemen residing in the western portion of this province, and that, on the strength of preliminary experiments, a company, having an authorized capital of $100,000, was formed at London, Ont., for the purpose of carrying out this new and promising branch of manufacture.

So far the undertaking has not passed the experimental stage, as the company are desirous of ascertaining the best methods of manufacture, and the probable extent of the business, before encroaching largely upon their capital. At the outset, a call of five per cent was made, and the result of the experiments made was so encouraging as to warrant a farther call of five per cent for the purpose of continuing these experiments on a more extensive and practical scale.

In a late experiment, one thousand pounds of milkweed were operated upon, and this quantity was said to yield about four per cent of caoutchouc. The process consisted in subjecting the plant to partial decomposition, heating by steam, and then treating by maceration with coal tar naphtha. The benzine, holding the caoutchouc in solution, was then distilled, when the rubber was finally obtained in a solid form. Of the benzine about eighty per cent was recovered.

The rubber so obtained possesses all the ordinary characteristics of pure caoutchouc, and in its solubilities, is identical with that substance. The company have, of course, protected their manufacture by patents; and we understand that in the United States, if not in Canada, patents for applying the process of vulcanization have also been obtained. The original patent does not apply exclusively to milkweed, but is extended to other caoutchouc-bearing plants, as the bamboo-berry, flax seed, &c.

A curious fact is stated in regard to the benzine recovered by distillation from the plant mentioned. While, in its original condition, benzine is exceeding inflammable and explosive, it is said that it loses the latter property, after distillation, and, in regard to the former, is so modified as to be easily manageable; so much so that the company intend offering it for sale as a new burning fluid. Perhaps some of our readers can account for this change of properties.

OBITUARY.

FREDERICK CRACE-CALVERT.—This well-known chemist died on Friday, Oct. 24th, at his residence Newton Heath, England. The immediate cause of death was ulceration of the lungs; but it appears that when at Vienna, as juror in the chemical department, he was seized with typhoid fever, from the effect of which he never thoroughly recovered.

Dr. Crace-Calvert was, at the time of his death, about fifty-four years of age. He was born at London, and was the son of Colonel Crace, who, on marriage, had assumed the surname of his wife. Dr. Crace-Calvert received his education and was the pupil of Girardin and afterwards of Chevreul. In 1846 he was appointed

Honorary Professor of Chemistry in the Royal Institute, Manchester, and has, since then, occupied many positions of honor. He was a Fellow of the Royal Society, and also of the Chemical Societies of London and Paris, and other scientific associations.

Besides being the author of numerous contributions to scientific literature,—several of which have appeared in this Journal—Dr. Calvert paid special attention to the development of the industrial arts, and was the originator of several valuable patents, amongst others, that relating to the preparation of carbolic acid, with which our readers are doubtless quite familiar.

Louis John Randolph Agassiz, died on Dec. 14, at Boston, U. S. His death resulted from an attack of paralysis induced by cerebral congestion. Professor Agassiz was born in Switzerland, May, 1807. His paternal ancestors had for six generations been clergymen of the Protestant faith. His mother was the daughter of a physician. He was early destined for the medical profession and successively entered the college at Lausanne, the medical school at Zurich, and the Universities of Heidelberg, and Munich. He soon betrayed a liking for those pursuits in which he afterwards attained such renown, and while quite young he was called upon to compile the discoveries relating to ichthyology which had resulted from the labors of a scientific exploration in Brazil. This branch of science was always a favorite one. Later on we find Agassiz engaged on his great work on fossil fishes. This book is in five volumes, and is accompanied by an atlas containing illustrations in detail of over one thousand different species. This work was followed by one on the *Fresh-water Fishes*; an index and classification of the entire Animal Kingdom, and other works of a kindred character. The *Systeme Glaciere* was published somewhat later, and was anticipated by *Etudes sur les Glaciers*, in which Agassiz first unfolded his ideas in regard to the glacial theory.

In 1846, Agassiz arrived in the United States and was employed in scientific labours in connection with the Coast Survey. He afterwards accepted the Chair of Zoology and Geology at Harvard University, and since then has been engaged in many explorations and expeditions in various parts of this continent.

Few men have done more to develop and enrich zoology and the kindred branches of science than has Prof. Agassiz. His success is

to be attributed to his entire devotion to his subject and his indefatigable industry. This is is well exemplified by the following extract, taken from a New York paper:

"The secret of the great personal influence exerted by Prof. Agassiz, and which enabled him to secure from wealth the assistance that his extensive scientific undertakings required, lay principally in his singleness of soul. He had but one object ever in view, and other matters were not merely subsidiary; they were all but forgotten. To science he was not only an humble student, a ministering priest —he was a self-abandoning devotee. One expression indicating this characteristic has been often quoted. A business man was urging him to become a partner in some commercial undertaking in which the technical knowledge of Prof. Agassiz was to be regarded as an equivalent for the capital and mercantile experience of the other members of the firm.

"You would make any amount of money in the business," said the man of dollars.

"I have no time to make money," replied the man of science.

Somewhat similar is another incident which he mentioned in private conversation, with the request that it should not be repeated with names. A publishing firm wrote to him urging him to write a book on natural history for use in schools, and offering him a large pecuniary inducement. "I wrote them," said he, and his eyes sparkled with indignation, "that I was not the man to do this sort of work. And I told them, too, that the less of this work was done, the better. It is not school books that we want, it is students. The book of nature is always open. All that I can write and say shall be to make them study that book, and not to pin their faith to any other." The self-denial of Prof. Agassiz may be better appreciated when the fact is mentioned that the salary of his professorship was only $1,500 per year.

Professor Agassiz was a fellow of the Royal Society of London, a member of the French Academy of Sciences, and of the National Academy of Sciences, United States, and numerous other scientific associations. He also held the Wollaston medal from the Geological Society of London, and the medal of merit from the King of Prussia.

Removal of Nicotine from Tobacco Smoke.—The following letter appeared in the *Pharm. Jour. and Trans.* Nov. 1st:

Sir,—In the *Pharmaceutical Journal* for August 30, under the head of "Notes and Queries," I find a quotation from the *Canadian Pharmaceutical Journal* relative to the above subject.

I find it stated that "a patent has been taken out for a process for the removal of nicotine from tobacco. The smoke is drawn through a sponge saturated with a solution of tannic acid, tartaric or citric acids, glycerine, and a flavoring ingredient, such as Florida or clove water."

I beg to direct the attention of your readers to a note in the *Lancet* of April 7th, 1866, in which M. Melsens' method of preventing the baneful effects of nicotine is indicated. It will be seen on reference to this note that the method devised by M. Melsens is essentially the same as that for which the patent has been obtained.

In a letter of mine in *Scientific Opinion*, April 18th, 1866, I thus comment on M. Melsens' method. "The chemical theory on which his method is based is strictly correct, but I cannot say as much for the method itself. I have tried many experiments with the ball of cotton impregnated with the tannic and citric acids, and in every case I was able to detect nicotine in the smoke, and that too in considerable quantity. I am bound to say, however, that the quantity was by no means so great as when the cotton ball was not used. In a manuscript work which I communicated to the Royal Academy of Medicine of Belgium on the 'Effects of Tobacco' I describe an apparatus for bringing the tobacco smoke through *water* before allowing it to enter the mouth. After I read of M. Melsens' method I substituted a solution of tartaric and citric acids for the water, and in no instance could I then detect the slightest trace of nicotine in the tobacco smoke." I would ask whether it is strictly fair of our Canadian friends to take out a patent for a process which has been invented seven years ago, without tendering some acknowledgment to those who have been, so long ago, working at the subject.

W. Handsel Griffiths,
Ph. D., L.R.C.P.E., L.R.C.S.E.
2 Sydenham Road, Dundrum, Dublin.

We gladly insert the above letter, and had we been aware of Mr. Griffiths' or M. Melsen's researches in regard to the action of tartaric and citric acids, should certainly have called attention to them at the time the note was published. We think, however, that the principle substance relied on by the patentees is tannic acid, but are not sure whether the credit of this discovery belongs rightfully to them. Dr. Williams (*Medical Record* and this Journal, August 1769) recommends a sponge saturated with solution of tannin; and Dr. Shelby, (Boston *Journal of Chemistry*, and this Journal, Oct. 1869) calls attention to the action of tannin, and also to that of sassafras bark, which probably owes its powers to the same substance. We have also known the Indians of the western praries to collect the leaves of the upland sumach, *Rhus glabrum*, for the purpose of

mixing with their tobacco. These leaves contain a considerable proportion of tannin. In smoking what Mrs. Partington is pleased to term "the calomel of peace," with this mixture, we remember noticing that the then much esteemed color of a meerschaum, rapidly deteriorated and was in time spoiled. We think it very questionable whether the question of originality either with regard to the tannin, or the tartaric or citric acids was enquired into very closely at the time the patent was granted.

Owing to an omission in transferring the extract from our pages to that of our contemporary, Mr. Griffiths charges Canadians with a want of courtesy which by right should be laid at the door of our American cousins. We said that the removal of nicotine had "been made the subject of a patent in the United States." Our contemporary merely says that a patent had been taken out, and Mr. Griffiths infers that it was in Canada.

College of Technology.—The lectures on Chemistry, in this school, have now commenced, the class meets on Monday, Wednesday and Friday evenings, at eight o'clock. Pharmaceutical students may attend by merely entering their names, and without the payment of fees.

Editorial Summary.

Fluid Extract of Cinchona.—R. Rother (*Pharmacist*), thinks the following formula preferable to that of the *U. S. P.*, 1870, in which glycerine is employed:

Take of Cinchona, in powder, from No. 50 to the finest grade, 16 troy ounces.
Chlorhydric Acid, sp. gr. 1.16, 1 to 2 fluid ounces.
Strong Alcohol,
Water. Each, sufficient.

Make a mixture of 3 measures of strong alcohol and 1 measure of water. Take three pints of this mixture and add to it the chlorhydric acid. Upon 4 troy ounces of the powder placed into a porcelain basin, pour 2 to 3 fluid ounces of the acid mixture, and unite the whole thoroughly with the aid of a pestle; add four troy ounces more of the powder, mix it well with the previous lot, and finally

add the remainder, incorporating it all in an appropriate manner, adjust the moistened powder firmly in a cylindrical glass percolator, forming a moderately low column, and pour on the menstruum, regulating the current by the lower orifice at a slow rate; reserve the first 12 fluid ounces of the percolate, continuing the percolation by the addition of alcohol and water as above directed, until about 2½ pints more of the percolate has been obtained; evaporate this at a moderate heat to 4 fluid ounces, and add to it, while yet warm, the reserved portion of the percolate, stirring the mixture a few moments until the separated residue has dissolved. The dense residue left after evaporation does not readily admit of measurement, but it rapidly dissolves in the reserved portion, especially if gently warmed. If the whole measures less than 16 fluid ounces, add strong alcohol until that measure is obtained.

Absence of Morphia in the Petals of Papaver Rheas.—In a paper read before the British Pharmaceutical Conference, Prof. Attfield gave the details and results of an examination of the petals of the red poppy. Pharmaceutical authorities have, so far, been undecided as to the presence of morphia in the petals, and Prof. Attfield's testimony, on this occasion, is on the negative side. About 6,000 fresh petals, weighing one pound, were operated upon, and it was also assured, by experiment, that the processes used would isolate morphia if that alkaloid were present. Two trials with the quantity of flowers stated above failed to give the slightest evidence of the presence of morphia. It must be remembered that these experiments were made on the red poppy and do not refer to the petals of the white poppy, *Papaver somniferum*, specially grown for opium.

Impurity of Commercial Guaiacum.—J. B. Barnes (*Pharm. Jour. & Trans.*) finds the quantity of pure resin contained in commercial guaiacum to be equal to about fourteen ounces in the pound.

Amount of Extract obtainable from Colocynth.—The same authority named in the preceding paragraph found that simple extract of colocynth, prepared by two macerations of the pulp in cold distilled water, pressing, boiling the liquor, separating the coagulated matter, evaporating to dryness, and exhausting with rectified spirit, yielded the same amount of extract as was obtained from the same quantity of pulp which had been exhausted with proof spirit and evaporated to dryness, until the weight was constant.

Addition of Glycerine to Astringent Infusions.—Mr. Barnes also states that glycerine may be successfully added for rendering astringent infusions bright. One part of glycerine to nine of infusion of roses is said to be sufficient. Mixtures of infusion of roses and sulphate of quinia, in which a precipitate of tannate of quinia is produced, may be rendered transparent by a similar addition, as also gargles composed of tannic acid and infusion of roses.

New Antidote to Strychnia.—It is asserted by a correspondent of an Australian paper that salad oil promptly applied is an antidote to strychnia. The remedy has not been tried on man; but, on dogs, a half pint of oil is said to be sufficient to prevent fatal results.

Practical Formulæ

Camphor Ice with Glycerine.—

(1.) Take

Spermaceti	6 ounces.
White Wax	4 "
Oil of almonds	32 "
Gum camphor	5 "
Glycerine	2 "
Borax	2 drachms.

Melt the sperm and wax, add the oil and then the camphor; when dissolved add the glycerine and borax dissolved in three ounces of rose water, stir until nearly cold, and pour into moulds.

(2.) Take

Spermaceti	6 ounces.
Wax	2 "
Glycerine	2 "
Powdered camphor	1½ "

Mix as above.—*Druggist's Circular.*

Registrar's Notices.

NEW REGISTRATIONS.

Chaffey, S. B., Newboro. Nelson, C. A., Montreal.

SPECIAL NOTICE TO ASSOCIATES.

The Registrar would remind all those who have not paid the Associate fee of $2 for the current year, that the Journal will be discontinued after the present number.

Drugs, Medicines, &c.	$ c.	$ c.
Acid, Acetic, fort	0 14 @	0 15
Benzoic, pure	0 23	0 30
Citric	1 40	1 50
Muriatic	0 05	0 06
Nitric	0 11½	0 15
Oxalic	0 22	0 26
Sulphuric	0 03¾	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 35	0 37
Sulphuric	0 50	0 50
Antim. Crude, pulv	0 15	0 17
Tart "	0 55	0 65
Alcohol, 95 per ct.....Cash	1 60	1 72
Arrowroot, Jamaica	0 18	0 22
Bermuda	0 50	0 65
Alum	0 02¾	0 03½
Balsam, Canada	0 50	0 50
Copaiba	0 95	1 00
Peru	3 75	4 00
Tolu	0 90	1 00
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 20
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 40	4 00
Carb.	3 65	4 00
Camphor, Crude	0 38	0 40
Refined	0 45	0 50
Cantharides	2 80	3 00
Powdered	2 85	3 10
Charcoal, Animal	0 04	0 06
Wood, powdered	0 10	0 15
Chiretta	0 20	0 30
Chloroform	1 10	1 65
Cochineal, S. G	0 75	0 90
Black	1 10	1 20
Colocynth, pulv	0 50	0 60
Collodion	0 90	1 00
Elaterium	3 20	4 00
Ergot	0 35	0 45
Extract Belladonna	1 50	1 60
Colocynth, Co	1 25	1 75
Gentian	0 50	0 60
Hemlock, Ang	0 85	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 42	0 50
" com. Gedda	0 13	0 16
Assafœtida	0 40	0 42
British or Dextrine	0 13	0 15
Benzoin	0 35	0 75
Catechu	0 12	0 15
" powdered	0 25	0 30
Euphorb, pulv	0 35	0 40
Gamboge	1 40	1 50
Guaiacum	0 90	1 00
Myrrh	0 50	0 70

Drugs, Medicines, &c.—*Contd.*	$ c.	$ c.
Sang Dracon	0 60	0 70
Scammony, powdered	6 00	6 50
" Virg. "	14 50	—
Shellac, Orange	0 65	0 70
Gum, Shellac, liver	0 60	0 65
Storax	0 40	0 45
Tragacanth, flake	1 10	1 40
" common	0 53	0 65
Galls	0 28	0 32
Gelatine, Cox's 6d	1 15	1 20
Glycerine, common	0 25	0 30
Vienna	0 25	0 30
Prices	0 60	0 75
Honey, Canada, best	0 15	0 17
Lower Canada	0 14	0 16
Iron, Carb. Precip	0 20	0 25
" Sacchar	0 40	0 55
Citrate Ammon	1 65	1 70
" & Quinine, oz	0 55	0 58
" & Strychine	0 20	0 25
Sulphate, pure	0 08	0 10
Iodine, good	6 75	7 00
Resublimed	7 50	8 00
Jalapin	1 25	1 50
Kreosote	2 40	2 50
Leaves, Buchu	0 22	0 30
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 06	0 07
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 70	1 75
Bichlor	1 65	1 75
Chloride	1 80	1 90
C. Chalk	0 75	80
Nit. Oxyd	1 90	2 00
Morphia Acet	4 45	4 60
Mur.	4 45	4 60
Sulph	4 60	4 75
Musk, pure grain.....oz	25 00	—
Canton	0 90	1 20
Oil, Amonds, sweet	0 40	0 45
" bitter	14 00	15 00
Aniseed	4 00	4 25
Bergamot, super	6 25	6 50
Caraway	3 20	3 50
Cassia	2 50	2 60
Castor, E. I	0 14	0 15
Crystal	0 22	0 25
Italian	0 26	0 28
Citronella	1 25	1 35
Cloves, Ang	2 75	3 00
Cod Liver	1 25	1 50
Croton	1 75	2 00
Juniper Wood	0 80	1 00
Berries	6 00	7 00
Lavand, Ang.....oz.	0 90	1 00
Exotic	1 40	1 60
Lemon, super	5 00	5 50
ord	3 20	3 40
Orange	4 00	4 25
Origanum	0 65	0 75
Peppermint Ang	13 00	14 40
" Amer	3 80	4 00
Rose, Virgin	8 50	8 75
" good	6 80	7 00
Sassafras	0 90	1 00
Wintergreen	6 00	6 50
Wormwood, pure	4 00	6 50
Ointment, blue	1 30	1 40
Opium, Turkey	8 50	8 75
pulv	10 50	10 75

DRUGS, MEDICINES, &c.—*Cont'd*	$ c.	$ c
Orange Peel, opt.	0 30	0 36
" good	0 12½	0 20
Pill, Blue, Mass.	1 30	1 40
Potash, Bi.chrom	0 23	0 27
Bi-tart	0 33	0 35
Carbonate	0 14	0 20
Chlorate	0 55	0 60
Nitrate	10 50	11 00
Potassium, Bromide	1 10	1 25
Cyanide	0 75	0 80
Iodide	6 75	7 00
Sulphuret	0 25	0 35
Pepsin, Boudault's...oz	1 40	—
Houghton's..... doz.	8 00	9 00
Morson's.....oz.	0 85	1 10
Phosphorus	0 95	1 00
Podophyllin	0 50	0 60
Quinine, Pelletier's	—	2 45
Howard's	2 70	—
" 100 oz. case.	2 70	—
" 25 oz. tin..	2 65	—
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 40	0 45
" Jam	0 88	0 90
Squills	0 10	0 15½
Senega	1 10	1 20
Spigelia	0 25	0 30
Sal., 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	1 00	1 10
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 04	0 05
Bicarb. Newcastle	—	6 50
" Howard's	0 14	0 16
Caustic.	0 06½	0 06½
Spirits Ammon., arom	0 35	0 35
Strychnine, Crystals	2 60	2 70
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 10	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 90	0 95
Extract	0 30	0 35

DYESTUFFS—*Continued.*		
Japonica	0 07¾	0 08
Lacdye, powdered	0 33	0 38
Logwood	0 02	0 03
Logwood, Camp	0 02	0 3½
Extract	0 10	0 14
" 1 lb. bxs....	0 13	—
" ½ lb. "	0 14	—
Madder, best Dutch	0 13	0 15
2nd quality	0 12	0 14
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 39	0 40
Cloves	0 40	0 42
Cayenne	0 30	0 35
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 48	0 50
PAINTS, DRY.		
Black, Lamp, com	0 07 @	0 08
" refined	0 25	0 30
Blue, Celestial	0 08	0 12
Prussian	0 65	0 75
Brown, Vandyke	0 10	0 12½
Chalk, White	0 01	0 01½
Green, Brunswick	0 07	0 10
Chrome	0 16	0 25
Paris	0 30	0 35
Magnesia	0 20	0 25
Litharge	0 07	0 09
Pink, Rose	0 12½	0 15
Red Lead	0 07¼	0 08
Venetian	0 02½	0 03½
Sienna, B. & G.	0 07	0 08
Umber	0 07	0 10
Vermillion, English	1 75	1 80
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	5 00 @	5 25
Rosin, Strained	4 50	—
Clear, pale	7 80	—
Spirits Turpentine	0 58	0 60
Tar Wood	5 50	5 75
OILS.		
Cod	0 63 @	0 70
Lard, extra	0 85	0 90
No. 1	0 75	0 80
No. 2	0 75	0 90
Linseed, Raw	0 75	0 80
Boiled	0 80	0 85
Olive, Common	1 10	1 20
Salad	1 80	2 30
" Pints, cases	4 20	4 40
" Quarts	3 25	3 50
Seal Oil, Pale	0 68	0 70
Straw	0 68	0 70
Sesame Salad	1 30	1 35
Sperm, genuine	2 20	2 40
Whale refined	0 90	0 95