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Botanical Medicine Monographs and Sundry

INSECTS INJURIOUS TO DRUGS.

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From an Inaugural Essay presented to the, Philadelphia College of Pharmacy.

In this paper is given simply what has been noted by the writer during a study of these insects extending over more than a year.

Sirodrepapanicea.—This is the elliptical, reddish-brown beetle, about one-eighth of an inch long, which is found in almost every edible drug, and in some, such as aconite root and capsicum, that would be pronounced far from edible. In addition to these two drugs, I have found it in bitter almonds, sweet almonds, angelica, boneset, calumba, chamomile, chocolate, coriander, dandelion, elm bark, ergot, extract of licorice, German chamomile, orris root, prince's pine, rhubarb, squill, and sweet flag.

The larva is white, with a brown head, is about twice as long as the beetle when full grown, although it is seldom or never seen stretched out at full length, always remaining curled up in a ball. It will in time fairly honeycomb a piece of root with small holes about one-twenty-fifth of an inch in diameter, at the end of which it is generally to be seen at home. Under the influence of camphor, these larvae become uneasy, but being apparently unable to crawl away, resign themselves to their fate, and seem to thrive just as well with camphor as without it.

Calandra remotopunctata.—This is a small, black beetle, about the size of the last, with what is popularly termed a "snout," projecting from the front of the head downwards. Under the microscope the back, thorax, and head are seen to be finely pitted, giving the insect a rough appearance. It was found in large numbers, the larva feeding on pearl barley, inside of which it lives, the egg being probably laid in the grain by the parent, and on hatching, the little insect makes its home there, eating all but the shell, and sometimes attacking the grain from the outside.

Tenebrioidea mauritanica, a species of "meal-worm," was found in pearl barley, and one specimen in calumba. It is a dark brown beetle, five-sixteenths of an inch long, the head and thorax forming nearly half the total length, and the mouth being fringed with hair. The back, which at first sight appears perfectly smooth, proves to be, when examined under the microscope, longitudinally corrugated. The larva is nearly half an inch long, white, with a brown head, and between the jaws is a row of hair as in the perfect insect. The posterior end is furnished with a pair of jaws very similar, though, of course, for a different purpose.

Trebolium furrugineum is a flat, reddish-brown beetle, about one-eighth of an inch long, appearing smooth to the naked eye, though the microscope shows the back

numerously pitted. These insects affect patent foods and similar substances, and the beetles are possessed of remarkable longevity, as proved by the fact that I have kept a few alive for two months in a small box with a little cerealina, which seems to be their favorite food. Whether the beetles themselves eat it or not I do not know, but they certainly have a liking for the dead bodies of other beetles.

Silvanussurinamensis is a narrow, brown beetle, almost one-eighth of an inch long, with a pitted and longitudinally corrugated back. One specimen only was found, on anthemis.

Anthrenusvarius.—This insect has been found only in cantharides, but I believe, also attacks other animal drugs, such as castoreum. During the month of July there emerges from the egg a very active larva, densely covered on the tops of the segment, with stiff brown hairs, which, at the posterior end, point towards the centre of the back, form a ridge, and when the insect is annoyed, it has the power of dividing the ridge in the centre and throwing half down on each side in a fan-like position, the object of which movement could not be determined. When the insect has been feeding on the whole cantharides, all these hairs on the back become rubbed off, those forming the ridge being generally last to go, because, being on the downward slope of the body they are not exposed to the same amount of friction. Underneath, however, the hairs are shorter, and do not become rubbed off as on the back.

The larvae consists of eleven segments, those at the ends being of a much deeper brown than those towards the middle, and the six legs being inserted on the three anterior segments, each furnished with a short, straight claw. The skins are shed quite often during the larval state, and are discarded by a slit nearly the length of the back, terminating indifferently at either end, and through which the insect emerges. The shed skins present a beautiful iridescent appearance under the microscope when viewed by reflected light.

These larvae feed on the cantharides all winter, and, if in quantity, commit great havoc, leaving only the hard exterior portions untouched, such as the upper portion of the thorax, the green wing cases, and transparent wings. When their legitimate food gives out they have no compunction about first eating their dead parents, and then each other, but on this diet they do not seem to thrive so well.

The beetle emerges in May or June, and is about one-eighth of an inch long, oval, and black, the upper parts being marbled and streaked with whitish and rufous, which are rubbed off after death if the insect is subjected to any rough usage.

Camphor does not kill these larvae, and after keeping some for a day in a small box about a quarter full of camphor, the only thing worthy of remark in their actions was that they did not seem quite so lively as those kept without it. That they have a distaste for it, however, is proved by the fact that some which were put in a box with holes in it, left the box during the night. The Pharmacopoeia direction to keep camphor with the cantharides is, therefore, not a remedy, merely a preventive measure, and not a very good one either. The vapor of chloroform rapidly kills them, so that by putting a small quantity of chloroform in a gallipot on the top of the infested cantharides, the heavy vapor will sink through it and destroy them.

NOTE.—The essay was accompanied with specimens of the larvae, skins, and beetles, well mounted for examination by means of the microscope.—EDITOR.

FLUID EXTRACTS OF THE NEW PHARMACOPOEIA. PART III

By ALONZO ROBBINS.

Read at the Pharmaceutical Meeting, March 20.

EXTRACTUM KRAMERIAE FLUIDUM.—*Fluid Extract of Krameria*.—For this preparation the Pharmacopoeia of 1870 directed a menstruum composed of eight fluidounces of alcohol, three fluidounces of glycerin, and five fluidounces of water, finishing the percolation with diluted alcohol, and adding one fluidounce of glycerin to the dilute percolate before evaporation. The present Pharmacopoeia directs diluted alcohol, with twenty per cent. of glycerin in the first one hundred parts of the menstruum, and the Philadelphia College of Pharmacy recommended the same. A sample thus made in December, 1879, has kept tolerably well, has almost no precipitate, is quite thick but not gelatinized, is of a deep red color, and not quite transparent in thin layers; another sample made at the same time, but with only ten per cent. of glycerin, is also without precipitate, is comparatively thin, of a deep red color, and perfectly transparent in thin layers. It would therefore seem that the officinal formula would be improved by the use of ten per cent. of glycerin instead of twenty.

EXTRACTUM LACTUCAE FLUIDUM.—*Fluid Extract of Lactacarium*.—This is one of the eleven fluid extracts added to the list by the Committee of Revision. The Pharmacopoeia directs a most, elaborate and complicated procedure, which, if carefully worked out, yields a fluid extract that will, when mixed with syrup, furnish that much-desired preparation, a permanently clear syrup of lactacarium; although there is considerable demand for this syrup, it seems a pity that so much pharmaceutical skill and labor should be required for the preparation of a drug, of which a recognized medical authority speaks of as being possibly desirable for persons with whom faith in a remedy supplies its want of intrinsic efficiency.

EXTRACTUM LEPTANDRAE FLUIDUM.—*Fluid Extract of Leptandra*.—This is one of the newly introduced fluid extracts; the Pharmacopoeia directs a menstruum composed of diluted alcohol, with fifteen per cent. of glycerin in the first one hundred parts, and the Philadelphia College of Pharmacy, two parts of alcohol, and one part of water; a sample thus made in November, 1879, contains now only a moderate precipitate, about the one-eighth of an inch deep in a four ounce bottle; the fluid extract appears to be in perfect condition. If glycerin is a necessary ingredient of the officinal menstruum, then that recommended by the Philadelphia College of Pharmacy is to be preferred, as the product keeps remarkably well without such addition.

EXTRACTUM LOBELIAE FLUIDUM.—*Fluid Extract of Lobelia*.—This is also a newly-introduced preparation; the Pharmacopoeia directs the use of diluted alcohol as the menstruum, and the Philadelphia College of Pharmacy recommended the same; a

sample thus made in January, 1880, now contains only a slight precipitate, the sides of the bottle are free of deposit, except that above the fluid extract there is a small portion of waxy matter, otherwise the preparation has kept very well.

EXTRACTUM LUPULINI FLUIDUM.—*Fluid Extract of Lupulin.*—For this preparation the Pharmacopoeia of 1870 directed stronger alcohol, the present Pharmacopoeia directs alcohol, and the Philadelphia College of Pharmacy recommended the same menstruum, and also that the powder be packed in the percolator without previously moistening it with a portion of the menstruum; this is a very good suggestion, as then the percolation proceeds evenly and without difficulty, while if the powder be first moistened, it is apt to form a tough mass, almost impossible to percolate. A sample of the fluid extract prepared in November, 1879, contains now only a very slight precipitate, and is in most excellent condition.

EXTRACTUM MATICO FLUIDUM.—*Fluid Extract of Matico.*—For this preparation the Pharmacopoeia of 1870 directed a menstruum composed of twelve fluidounces of alcohol, three fluidounces of glycerin, and one fluidounce of water, finishing the percolation with diluted alcohol and adding one fluidounce of glycerin to the dilute percolate before evaporation. The present Pharmacopoeia directs a menstruum composed of three parts of alcohol, and one part of water, with ten per cent. of glycerin in the first one hundred parts of the mixture; the Philadelphia College of Pharmacy recommended the same menstruum. A sample thus prepared in December, 1879, has now only the slight precipitate which formed soon after it was made, and is in every other respect in excellent condition; another sample prepared at the same time with alcohol, has also only a slight precipitate, but there is quite a large deposit of matter on the sides of the bottle; evidently the officinal menstruum is remarkably well suited for this preparation.

EXTRACTUM MEZEREI FLUIDUM.—*Fluid Extract of Mezereum.*—For this preparation the Pharmacopoeia of 1870 directed stronger alcohol, the present Pharmacopoeia directs alcohol, and the Philadelphia College of Pharmacy recommended the same menstruum; a sample thus prepared in December, 1879, has now only a slight precipitate and a very thin coating of matter on the sides of the bottle, otherwise the preparation has kept very well.

EXTRACTUM NUCIS VOMICAE FLUIDUM.—*Fluid Extract of Nux Vomica.*—This is one of the eleven fluid extracts added to the list by the Committee of Revision; the Pharmacopoeia directs a menstruum composed of eight parts of alcohol and one part of water, which will no doubt thoroughly exhaust the drug; the chief utility of this preparation would seem to be its availability for the quick preparation of the abstract, solid extract and, perhaps, the tincture of nux vomica.

EXTRACTUM PAREIARAE FLUIDUM.—*Fluid Extract of Pareira.*—For this preparation the Pharmacopoeia of 1870 directed a menstruum composed of eight fluidounces of alcohol, three fluidounces of glycerin, and five fluidounces of water, finishing the percolation with diluted alcohol, and adding one fluidounce of glycerin to the dilute percolate before evaporation. The present Pharmacopoeia directs diluted alcohol, with twenty per cent. of glycerin in the first one hundred parts of menstruum; and the Philadelphia College of Pharmacy recommended the same. A sample thus

prepared in October, 1879, kept well for a considerable time, and now contains only a moderate precipitate, about the one-fourth of an inch deep in a four-ounce bottle, but there is also a thick deposit of a transparent brown substance on the sides of the bottle; another sample prepared at the same time, with a menstruum composed of one part of alcohol, and three parts of water, and twenty per cent. of glycerin, now contains a large deposit, over half an inch deep in a four-ounce bottle; there is also a deposit on the sides of the bottle, but not near so thick as that on the sides of the other bottle. The condition of these samples seems to indicate that a more alcoholic menstruum is required for the preservation of this preparation, and it is probable that one containing not less than three parts of alcohol to one of water, with the same quantity of glycerin as is now directed would accomplish the object.

EXTRACTUM PILOCARPI FLUIDUM.—*Fluid Extract of Pilocarpus.*—For this newly-introduced preparation the Pharmacopoeia directs the use of diluted alcohol as the menstruum; the Philadelphia College of Pharmacy recommended one part of alcohol and two parts of water; a sample thus prepared in December, 1879, now contains only a slight precipitate and a very thin coating on the sides of the bottle; the fluid extract is perfectly transparent and of a deep red color in thin layers; another sample recently made with the officinal menstruum has also a deposit about equal in amount to that of the first sample, but it is of a much darker color; this fluid extract is also darker than the older sample, but this may be owing to the larger proportion of brown leaves found in Jaborandi of late. While the officinal menstruum produces an excellent preparation, the weaker menstruum recommended by the Philadelphia College of Pharmacy is evidently just as good for the extraction of the drug and preservation of the product.

EXTRACTUM PODOPHYLLI FLUIDUM.—*Fluid Extract of Podophyllum.*—This is also a new officinal preparation. The Pharmacopoeia directs, a menstruum composed of three parts of alcohol and one part of water; the Philadelphia College of Pharmacy recommended alcohol; a sample thus prepared in November, 1879, contains now only a very minute precipitate, and the fluid extract is of a bright red color, brilliantly transparent; a second sample, prepared at the same time, with the now officinal menstruum, contains a little larger, but still a very small precipitate, this fluid extract is very dark, but perfectly transparent, and of a deep red color in thin layers. It is evident that either of these menstrooms will yield an excellent preparation, and although alcohol may be the more scientific, the preference seems to be due to the weaker officinal menstruum.

EXTRACTUM PRUNI VIRGINIANAE FLUIDUM.—*Fluid Extract of Wild Cherry.*—For this preparation the Pharmacopoeia of 1870 directed a menstruum composed of four fluidounces of glycerin, and eight fluidounces of water, finishing the percolation with stronger alcohol. The present Pharmacopoeia directs one hundred grammes of wild cherry in number twenty powder to be moistened with fifty grammes of a mixture of two parts of water and one part of glycerin, and then set aside for forty-eight hours; the damp powder is then to be packed in the percolator, saturated with diluted alcohol, and again macerated for forty-eight hours; then the percolation is allowed to proceed, adding diluted alcohol, until the wild cherry is exhausted; the first eighty cubic centimeters of the percolate are reserved, the next one hundred and twenty cubic centimeters are to be evaporated to a thin syrup, the alcohol is to be

distilled from the remainder of the percolate, and the residue of this is also to be evaporated to a thin syrup; the two syrupy liquids are to be united and evaporated on a water-bath to a soft extract, which is to be dissolved in the reserved portion, and enough diluted alcohol added to make the fluid extract measure one hundred cubic centimeters.

The Philadelphia College of Pharmacy recommended the following process : one hundred parts of wild cherry in number forty powder are to be moistened with fifty parts of water and set, aside for twenty-four hours; twenty parts of sugar are then to be mixed with the damp powder, and the whole packed in a percolator and saturated with a mixture of one part of alcohol and six parts of water, and allowed to macerate for forty-eight hours; then the percolation is allowed to proceed, adding the same mixture of alcohol and water, until the wild cherry is exhausted. The first eighty parts of the percolate are to be reserved , ten parts of glycerin are to be added to the remainder, which is then to be evaporated to a soft extract, this is to be dissolved in the reserved portion, and a sufficient quantity of the menstruum added to make one hundred parts. A sample thus prepared in October, 1879, deposited in about four months after it was made a very slight precipitate, less than the one-eighth of an inch deep in a four-ounce bottle; this precipitate has not been increased perceptibly up to the present time, the odor of hydrocyanic acid has also disappeared, in other respects the same is in good condition, dark red in color, and perfectly transparent in thin layers. This formula was recommended only after a great many experiments with various proportions of alcohol, water, and glycerin; it has stood the test of time as well as any formula for this preparation can be expected to do, a partially filled bottle, exposed on a shelf in the store, and frequently opened, had not entirely lost the hydrocyanic acid odor in ten months. This odor will probably not be retained by any method for a great length of time; any sample of this fluid extract possessing it in a marked degree more than a year after its preparation, might justly be suspected of having had an addition of the oil of bitter almonds. Recently two new samples were made, one by the officinal and the other by the Philadelphia College formula; at present they both possess the hydrocyanic acid odor and taste in a marked degree, but the officinal has a very large precipitate, fully three-fourths of an inch deep in a four-ounce bottle; this precipitate, however, is probably composed of inert substances chiefly; the other sample is perfectly clear and has formed no precipitate. The fluid extract made by either of these formulas yields clear solutions in all proportions with syrup, simple elixir, and sherry wine.

Of the two formulas, that of the Philadelphia College of Pharmacy seems to be preferable for simplicity, economy, and permanence of product; the use of sugar in this fluid extract would not have been recommended had it not been considered to have a decidedly beneficial effect in preserving the preparation.

EXTRACTUM QUASSAE FLUIDUM.—*Fluid Extract Of Quassia.*—This is one of the eleven added to the list by the Committee of Revision; the menstruum directed is diluted alcohol, which will no doubt thoroughly exhaust the drug.

EXTRACTUM RHEI FLUIDUM.—*Fluid Extract of Rhubarb.*—For this preparation the Pharmacopoeia of 1870 directed a menstruum composed of fourteen fluidounces of alcohol and two fluidounces of glycerin, finishing the percolation with a sufficient

quantity of a mixture of two volumes of alcohol and one of water. The present Pharmacopoeia directs three parts of alcohol and one part of water, and the Philadelphia College of Pharmacy recommended the same menstruum.

After many preliminary experiments, seven samples were prepared in August, 1879, the menstruum employed for each, the results obtained, and the present condition of the product of each of the series is, for the convenience of comparison, arranged in tabular form.

Number.	Menstruum.	Per cent. of glycerin.	Reserve per- colate.	Sp. grav. of fluid extract.	Per cent. of dry extract.	Per cent. of dry residue.	Present condition of fluid extract.
1	A2. W1.		75	1·133	40·30	51·15	Moderate precipitate, thick and lumpy.
2	A3. W1.		75	1·102	40·17	51·80	Very slight precipitate, rather thick, but good.
3	A4. W1.		75	1·094	40·10	53·30	Very slight precipitate, thin, very good.
4	A2. W1.	20	65	1·192	60·	51·25	No precipitate, very thick, barely fluid.
5	A5. W1.	20	70	1·147	60·	51·50	Precipitate on bottom and sides, thick and bad.
6	Alcohol	20	75	1·114	50·	57·42	Very large precipitate on bottom and sides, thin.
7	Alcohol	20	75	1·108	50·	57·39	Same as number six.

Number two is the formula recommended to, and finally adopted by, the Committee of Revision; it remains at present in good condition, but is rather thick and lumpy, and in this respect only is inferior to number three, which has kept better than any of the other samples. From the rapidity of exhaustion, and the appearance of the fluid extract when first made, it seemed that alcohol, with twenty per cent. of glycerin in the first one hundred parts, would be the best menstruum for this drug; therefore two samples, numbers six and seven, were so prepared to more thoroughly test the menstruum; the product precipitated considerably in a few months, and now contains a very large deposit on the bottom and sides of the bottles, the remainder of the preparation is quite fluid and transparent in thin layers; samples numbers four and five, which also contain twenty per cent. of glycerin, likewise proved failures, and the result of these experiments appears to fully demonstrate, not only that glycerin is of no service in this preparation, but also that its employment is decidedly detrimental to the permanence of the Product. Sample number three having undergone no change since its preparation, the menstruum therein used, four parts of alcohol and one part of water, is recommended. in place of the present officinal menstruum.

EXTRACTUM RHOIS GLABRAE FLUIDUM.—*Fluid Extract of Rhus Glabra.*—This is a newly-introduced preparation; the Pharmacopoeia directs diluted alcohol, with ten

per cent. of glycerin, in the first one hundred parts of the menstruum. The Philadelphia College of Pharmacy recommended a menstruum composed of one part of alcohol. and two parts of water, with twenty per cent. of glycerin in the first one hundred parts; a sample thus prepared in December, 1879, contains now only a minute precipitate, is perfectly fluid, of a deep red color, and transparent in thin layers; this sample has kept so well it would seem impossible for the officinal, or any other menstruum, to yield a better preparation.

EXTRACTUM ROSAE FLUIDUM.—*Fluid Extract of Rose.*—This is one of the eleven added to the list by the Committee of Revision; the Pharmacopoeia directs diluted alcohol, with ten per cent. of glycerin in the first one hundred parts of the menstruum; the product will no doubt well represent red rose, and perhaps prove a useful addition to the practice of elegant pharmacy; it would seem that this fluid extract might as well have been directed for the preparation of the honey of rose, as for the syrup.

EXTRACTUM RUBI FLUIDUM.—*Fluid Extract of Rubus.*—For this preparation the Pharmacopoeia of 1870 directed a menstruum composed of eight fluidounces of alcohol, three fluidounces of glycerin, and five fluidounces of water, finishing the percolation with diluted alcohol, and adding one fluidounce of glycerin to the dilute percolate before evaporation. The present Pharmacopoeia directs forty-five grammes of alcohol, thirty-five of water, and twenty of glycerin, and then finishes the percolation with a sufficient quantity of a mixture of nine parts of alcohol to seven parts of water. The Philadelphia College of Pharmacy recommended diluted alcohol, with ten¹ per cent. of glycerin in the first one hundred parts of menstruum; a sample thus prepared in January, 1880, now contains a rather large precipitate, about half an inch deep in a four-ounce bottle, the fluid extract appears to be in good condition, is very dark, brownish-red, and transparent in thin layers. The officinal menstruum differs chiefly in containing ten per cent. more of glycerin, as the very unusual proportions of nine parts of alcohol to seven parts of water, really is less than six per cent. stronger than diluted alcohol; another sample prepared at the same time as the first, with a menstruum composed of two parts of alcohol to one part of water, and also containing ten per cent. of glycerin, now contains only a very slight deposit, and is in every other respect remarkably well preserved; this menstruum would therefore seem better adapted to blackberry bark than the officinal.

EXTRACTUM RUMICIS FLUIDUM.—*Fluid Extract of Rumex.*—For this newly-introduced preparation the Pharmacopoeia directs diluted alcohol, and the Philadelphia College of Pharmacy recommended the same menstruum; a sample thus prepared in January, 1880, has only a slight precipitate, and is otherwise in excellent condition.

EXTRACTUM SABINAE FLUIDUM.—*Fluid Extract of Savine.*—For this preparation the Pharmacopoeia of 1870, the present Pharmacopoeia, and the Philadelphia College of Pharmacy all agree in the use of alcohol as the menstruum; a sample thus prepared in December, 1879, now contains only a very slight precipitate, and is otherwise in excellent condition.

EXTRACTUM SANGUINARAE FLUIDUM.—*Fluid Extract of Sanguinaria.*—For

¹ In the table this was incorrectly given as twenty parts.

this newly-introduced preparation the Pharmacopoeia directs the use of alcohol as the menstruum; the Philadelphia College of Pharmacy recommended two parts of alcohol and one part of water, adding one per cent. of acetic acid to the dilute percolate before evaporation; a sample thus prepared in January, 1880, now contains only a moderate precipitate, but the sides of the bottle are thickly coated with a transparent yellowish-red substance; the fluid extract is still very dark in color, transparent and deep red in thin layers. The product of the officinal menstruum may undergo less change, but it is doubtful that this preparation can ever be made permanent.

EXTRACTUM SARSAPARILLAE COMPOSITUM FLUIDUM.—*Compound Fluid Extract of Sarsaparilla.*—For this preparation the Pharmacopoeia of 1870 directed a menstruum composed of eight fluidounces of alcohol, four fluidounces of glycerin, and four fluidounces of water, finishing the percolation with diluted alcohol, and adding four fluidounces of glycerin to the dilute percolate before evaporation. The present Pharmacopoeia directs a menstruum composed of one part of alcohol and two parts of water, with ten per cent. of glycerin in the first one hundred parts; the Philadelphia College of Pharmacy recommended the same menstruum, and one part more of glycyrrhiza and one part less of mezereum than the Pharmacopoeia directs; a sample thus prepared in January, 1880, now contains only a moderate precipitate, and is otherwise in good condition.

EXTRACTUM SARSAPARILLAE FLUIDUM.—*Fluid Extract of Sarsaparilla.*—For this preparation the menstruum employed is the same as that for the compound fluid extract; a sample prepared in December, 1879, now contains a rather large precipitate, nearly half an inch deep in a four-ounce bottle; the fluid extract is very dark-brown in color, and appears to be in good condition.

EXTRACTUM SCILLAE FLUIDUM.—*Fluid Extract of Squill.*—For this preparation the Pharmacopoeia of 1870 directed a menstruum composed of fourteen fluidounces of alcohol and two fluidounces of glycerin, finishing the percolation with alcohol. The present Pharmacopoeia directs alcohol, and the Philadelphia College of Pharmacy recommended the same menstruum; a sample thus prepared in June, 1879, is now entirely without precipitate, and appears to have undergone no change whatever.

The choice of menstruum was between that used in the above formula and diluted alcohol, which also furnishes a transparent and permanent fluid extract, but not more than fifty parts, of the percolate can be reserved when this menstruum is used, as the dilute percolate contains a large proportion of gummy matter; various intermediate strengths of menstruum were experimented with, but in each case the product separated into two clear layers, which became milky when shaken together.

EXTRACTUM SCUTELLARAE FLUIDUM.—*Fluid Extract of Scutellaria.*—This is one of the newly-introduced fluid extracts; the Pharmacopoeia directs a menstruum composed of one part of alcohol and two parts of water; the Philadelphia College of Pharmacy recommended diluted alcohol; a sample thus prepared in December, 1879, now has some oily matter on the sides of the bottle above the fluid extract, and also contains quite a large precipitate, which is divided into two equal layers, the lower of a bright green, and the upper of a dull brown color, the fluid extract otherwise is in rather bad condition; diluted alcohol is evidently not suited for this preparation, but

the remedy would seem to be more in the direction of a stronger menstruum than a weaker one, such as the officinal.

GLEANINGS IN MATERIA MEDICA.

BY THE EDITOR.

Constituents of Tamarinds.—Carl Mueller examined 9 samples of East Indian tamarinds with the following results:

Seeds.	Pulp free from seeds.					Dry pulp.	
	Water.	Insolu- ble.	Potass. Bitart.	Tartaric acid.	Citric acid.	Potass. Bitart.	Tartar. acid.
Highest per ct., 38.0	30.81	20.2	6.01	8.80	3.95	8.25	12.25
Lowest per ct., 1.5	21.92	12.2	4.66	5.29	0.64	6.21	6.77
Average per ct., 13.9	27.00	16.2	5.27	6.63	2.20	7.20	9.09

The author found very small quantities of malic acid, which were calculated as citric acid. In his opinion, tamarinds should not contain more seeds than 10 per cent. of their weight; four of the samples contained considerably less (1.5, 2.4, 4.5, 6.0), two approached this limit (8.7, 9.8), and three exceeded it considerably (20.6, 23.3, 38.0).—*Phar. Centralh.*, 1882, Nos. 49, 50.

Constituents of Trifolium pratense.—Fred. Grazer examined the flower heads of red clover and found 2 resins, fat, chlorophyll, glucose, tannin, gum, an acid principle, and extractive matter; the resin soluble in ether dissolved in ammonia with a green color, and in potassa with a yellow color. The ash amounted to 71/2 per cent. and consisted of carbonates and phosphates of magnesium, potassium, and calcium, and of oxide of iron.—*Proc. Cal. Phar. Soc.*, 1883, p. 49.

PolygonumHydropiperoides, Mich.—An editorial in the "Medical News," Dec. 9, 1882, directs attention to this indigenous plant, of which the late Dr. Eberle, in his work on *Materia Medica and Therapeutics*, speaks as the most active and certain of the emmenagogues. He obtained his knowledge of it from a country practitioner, who made it the subject of his thesis as a candidate for the doctorate at the medical school where Eberle then held the chair of practice. The late Prof. M. B. Wright, of Cincinnati, held it in equal estimation, and during his long career prescribed it often with success. It has very decided stimulant, even vesicating property, when rubbed into the skin, whence its common name, smartweed. The form most convenient for its administration is the fluid extract, given from 5 to 30 minims, three or four times a day; mixed with some glycerin or wine it can be readily taken. The activity of this drug is due probably to the presence of polygonic acid, which was isolated by Dr. C. J. Rademaker from *Polygonum hydropiper*, Lin.—(*See Amer. Jour. Phar.* 1871, p. 490.)

*Megarrhiza californica*², Torrey.—The root of this Cucurbitaceous plant has been examined by J. P. Heaney (see “Amer. Jour. Phar.,” 1876, p. 451). The bitter glucoside megarrhizin seems to have been recently obtained in a much purer state by Wilfred M. Young; its decomposition product now named megarrhizein was prepared in white feathery crystals, soluble in hot water, alcohol and chloroform, insoluble in ether and cold water; it is purgative in doses of 1/4 grain.

Young found also a second glucoside megarrhin which resembles saponin and possesses the property of dilating the pupils; also two resins, one soluble in alcohol the other soluble in ether.—*Proc. Cal. Coll. Phar.*, 1883, p. 52.

A bitter bark from San Salvador, of unknown origin, and for which febrifuge and tonic properties are claimed, has been described by Robert L. Ball. It is the inner bark and consists of quills or curved pieces, 3 to 12 inches long, 1/2 to 1 or 2 inches wide and 2 to 4 lines thick, of a blackish-brown color externally, somewhat lighter internally, small portions of the outer bark still adhering. Its taste is sweetish, then persistently bitter and astringent. On mastication it is found to be gritty and tinges the saliva red. It is inodorous, has a short fibrous fracture, and shows upon the resinous cross section numerous resin cells and numerous shining specks which proved to be crystals of calcium oxalate. A chemical examination proved the presence of 6 per cent. of resin, soluble in alcohol, red coloring matter and other common constituents, but failed to reveal the presence of an alkaloid. The ash amounted to 8 per cent.—*Ibid*, p. 51.

Andromeda japonica, Thunberg.—A poisonous principle, named *andromedin*, has been isolated from this plant by P. C. Plugge; it is resinous, nearly insoluble in petroleum-benzin, absolute ether and carbon bisulphide, slightly soluble in benzol, glycerin and oil of turpentine, soluble in water, and freely soluble in chloroform, alcohol, amyl-alcohol, glacial acetic acid and alkalies; its aqueous solution has a faint acid reaction, and is not precipitated by lead acetate or subacetate.—*Archiv d. Phar.*, 1883, Jan., p. 1-16.

Probably the same principle, which, however, yields a flocculent precipitate with lead subacetate, has been named *asebotoxin* by J. F. Eijkman, and is obtained by agitating the concentrated aqueous infusion of the plant with chloroform, precipitating the chloroformic solution with petroleum-benzin, and purifying the precipitate by dissolving in alcoholic ether, agitating with water and evaporating the latter solution. Asebotoxin is colorless, glass-like, soft at 100°C., melts at 120°, is freely soluble in warm water, in alcohol, chloroform and amylic alcohol, and less freely soluble in potassa solution than in ammonia and pure acetic acid. It is slightly soluble in pure ether, and almost insoluble in benzol, petroleum-benzin and carbon bisulphide. The aqueous solution has a neutral reaction, and is not precipitated by ferric chloride, cupric sulphate, mercuric chloride, auric chloride, argentic nitrate or plumbic acetate. When boiled with diluted hydrochloric acid, a resinous body separates and the filtrate yields, with alkaline copper solution, a copious precipitate of cuprous hydrate. Asebotoxin acquires a beautiful blue color when moistened with hydrochloric acid, the color changing to violet-red when heated in a water-bath. Diluted sulphuric acid colors it red, changing to rose color, at the same time separating a blueish-gray substance. The lethal dose for rabbits is .003 gm. of asebotoxin or an infusion of .2 gm. of the

² *Marah fabaceus* —MM

leaves.—*Chem. Centralbl.*, 1883, p. 72; *Phar. Weekblad*, Oct. 1, 1882.

The leaves of *Andromeda mariana*, Lin., known as stagger-bush, of *Kalmia angustifolia*, Lin., known as lamb-kill, and of several allied American species, are reported to be poisonous, and may contain a principle identical with or allied to the foregoing.

Analysis of Cinchona leaves.—Emil Happersberger has determined the amount of alkaloids contained in the leaves of four species of cinchona grown in the University grounds at Berkeley, Cal., which is declared to be a most unfavorable locality for the cultivation of the plant. The results were as follows:

Process.	Cinchona Calisaya.			Entire leaf.		
	Lamina without midrib.	Entire leaf.	Midrib.	C. succirubra.	C. officinalis	Hybrid.
Br. Phar.	·70	2·0	3·2	1·5	·50	·75
Muter's.	·76	2·0	4·0	1·8	·66	·70

The alkaloids of calisaya leaves were separated, and consisted of quinine, quinidine, cinchonine, and cinchonidine, of which quinidine comprised about one-half of the whole. If these leaves are a fair representation of cinchona leaves generally they must possess considerable medicinal value.—*Proc. Cal. Coll. Phar.*, 1883, p. 53.

Oil of Gaultheria.—Wm. P. Underhill has distilled this oil since, 1874, and gives the average yield as 10 pounds from a ton of the leaves, the highest yield being 14, and the lowest 9 pounds of oil. The larger yield is obtained when the season is dry. The cost of the leaves delivered at the mill is 1½ cents per pound, and it is very difficult to obtain leaves at that price. Since it will require about 200 pounds of leaves to make one pound of oil, the cost of the latter is \$3.00 for the leaves alone. The author does not believe that the large sleazy leaves of New Jersey yield more oil than the stiff, hard, and brittle leaves of New Hampshire.—*Proc. N. H. Phar. Assoc.*, 1882, p. 34.

Blue volatile oils.—On the fractional distillation of the volatile oils of German chamomile, wormwood and yarrow, Carl Hock obtained the first fractions colorless; those obtained above 150°C. were greenish, or blue-green, and those passing over at and above 260°C. were intensely blue. A considerable quantity of blue distillate was also obtained from the oil of elecampane. It is known that on the dry distillation of galbanum, a blue oil is produced. A. Kachler (1876), reported on a blue oil from the so-called aromatic Peruvian guaiac resin, and on blue fractions from oil of valerian; and Flückiger (*Phar. Chemie.*, p. 309) on blue oils from sumbul, puchury, patchouly and asafoetida. Rock finds that all these blue oils show in the spectroscope three absorption bands in red and orange; they distil at 260°C. and give a colorless vapor, not blue as was stated by Kachler (1871), for oils of galbanum and German chamomile. Though the blue compound seems to pre-exist occasionally in the plant, Hock regards it as being mostly produced by decomposition at an elevated

temperature. Old resinified oils were found to yield a larger amount of the blue product, which, in contact with air is easily altered, turning to dingy brown.—*Archiv d. Phar.*, Jan. 1883, pp. 17, 18.

Composition of Cacao Butter.—Kingzett announced in 1877 the isolation of two fatty acids having the melting points 57° and 72°C.; the latter was named theobromic acid, and was stated to have the formula, $C_{64}H_{128}O_2$. Vander Becke in 1880 endeavored to prepare the latter, but without success. The subject was recently investigated by M. C. Traub, who examined five samples of oil of theobroma, two of which had been prepared by himself. After saponification the acids were ascertained to be completely precipitated by magnesium acetate, and by repeated fractional precipitation it was proven that the oil consists of the glyceryl esters of oleic, lauric, palmitic, stearic and arachic acids, and that the solid consistence of the oil and its low melting point are most likely due to the peculiar proportions in which these compounds are combined resembling in this respect the behavior of certain metals.—*Archiv d. Phar.*, Jan., 1883, pp. 19-23.

Free Acids in Vegetable Fats.—Ernst Schmidt and H. Roemer obtained from *Cocculus indicus* 23.6 per cent. fat, of which 39 per cent. (9.2 per cent. of the fruit) proved to be stearic acid, which was obtained by dissolving the oil in hot alcohol, precipitating with barium acetate, exhausting the precipitate with petroleum benzin, and decomposing the barium salt with hydrochloric acid.

By fractional distillation, in vacuo, of commercial expressed oil of nutmegs myristic and stearic acids were obtained, amounting to 3 or 4 per cent., the last-named acid being present in small quantity.

A very small proportion of free acid is contained in laurel oil, the expressed fat of the fruit of *Laurus nobilis*; but by exhausting the fruit with hot alcohol 2 to 3 per cent. of fatty acid was obtained, which proved to be a mixture of several acids not yet identified, but possibly containing palmitic acid.—*Ibid.*, pp. 34-38.

Convallaria majalis has recently been recommended as a substitute for digitalis in regulating the frequency and rhythm of the heartbeats, increasing the strength of the contractions and raising the blood pressure, and as being free from the cumulative action of digitalis. Dr. B. Stiller has used the drug in twenty-one cases, of which seventeen gave absolutely negative results, showing not the least influence on the frequency or rhythm of the heart's action; two individuals experienced a certain degree of diuretic effect without any of the other vaunted phenomena, not even the dropsy being diminished; only two patients underwent decided improvement in most of the cardiac symptoms during the use of the new medicine; but these cannot outweigh the large balance of negative results.—*Boston Med. and Surg. Jour.*, Feb. 22, 1883; *Wiener Med. Woch.*

VARIETIES.

Willow Leaves In Ague.—The "Lancet" says that an Indian surgeon, Chetan Shah by name, has recently revived the use of willow leaves in intermittent fever. This is an old remedy, now almost forgotten in Europe, while the leaves of several species of

willow are still largely prescribed by hakims of India and Afghanistan, especially in the form of a distillate. Among the lower classes of Cabul, and especially in women, quinine was found to irritate the bowels, while the juice of the fresh willow leaves, largely diluted with water, rarely failed to cure intermittent fever. In pregnant women the willow leaf is almost always found preferable to quinine.—*Med. and Surg. Reporter*.

The Action of Quassin.—Dr. Comparden finds that quassin, the active principle of *Quassia amara*, in moderate dose, produces an increase in the salivary, hepatic and renal secretions, and acts as a stimulant to the muscular fibre of organic life. In doses of 15 milligrams to 15 centigrams, it causes in man a burning pain in the esophagus, headache, nausea, vertigo, dimness of vision, vomiting and diarrhea, and cramps of the muscles of the leg. These symptoms are removed by chloral or chloroform.—*Bull. Gén. de Thér.*—*Phila. Med. News*.

Powdered Capsicum as a remedy in sub-acute and chronic rheumatism has been recommended by Mr. A. Drummond MacDonald in the "British Medical Journal." Two drachms to the ounce of lard, to which one of the essential oils may be added to make it more elegant, is the proportion mentioned. It is to be thoroughly rubbed over the affected part by a gloved hand for ten minutes at a time, night and morning, or at bed time only, according to the effect produced. Dry heat applied afterwards intensifies its effect, which lasts for some time.—*Weekly Med. Review*, March 3, 1883,

Asthma Cigarettes.—Impregnate well nitred paper with an alcoholic fluid extract of grindelia; let dry and use in cigarettes. Owing to the nitre they will continue to glow and develop.—*Medical Record. N. Car. Med. Jour.*, Jan., 1883.