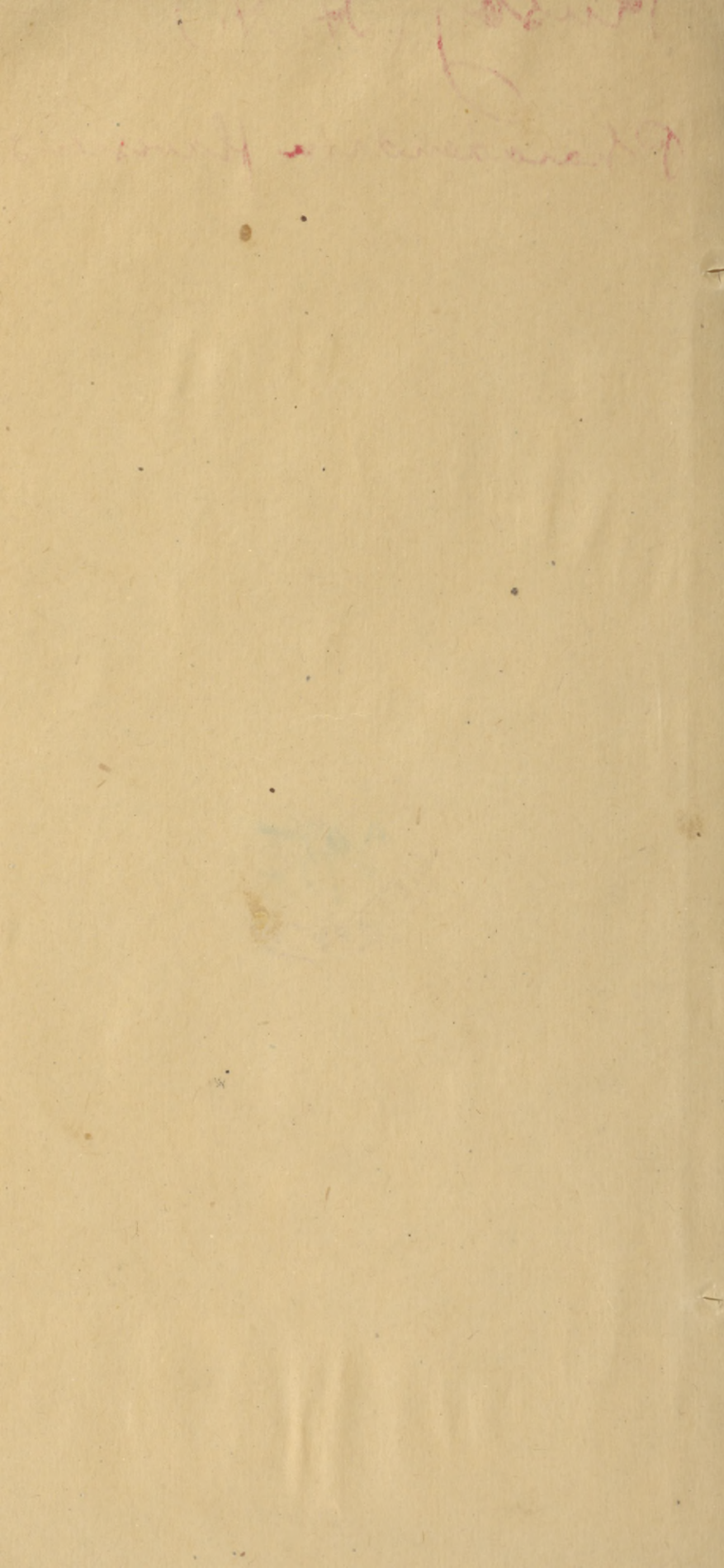


Rusby (H. H.)

(10)

Pharadendron flavescens.





PHORADENDRON FLAVESCENS, Nutt.

(American Mistletoe.)

BY H. H. RUSBY, M. D.

The plant which we have selected for illustration this month is a very interesting one from several points of view. Amidst the dense forests of the tropics, parasitical plants are so common as almost to constitute the majority of the species, but in our own temperate regions they are much less common. Among our species one of the most prominent is *Phoradendron flavescens*. It grows throughout the warmer parts of the United States, extending into Mexico to the southward, and to the northward into southern New Jersey and well up into California. On account of its peculiar habit of growing upon trees, the ignorant idea prevails in many sections where it grows, that it is an outgrowth from the tree itself, and many superstitions are associated with it.

We bear in mind the instance of a willow tree in Florida under which a soldier was buried, and upon one of the lower branches of which developed, immediately after the occurrence, a plant of *Phoradendron* which grew rapidly and soon formed a large semi-pendant mass. The inhabitants of that section firmly believed this growth was in some way associated with the ascending spirit of the deceased. The probability is that some bird of carrion which had recently been feeding upon the berries of the mistletoe, was attracted to the spot by the burial proceedings, and there deposited the seed from which the plant was produced.

The *Phoradendron* grows upon a great variety of trees and shrubs, although it prefers cotton-woods and oaks. Its appearance is very peculiar. Its stems are greenish-yellow, semi-woody, but very weak, and so jointed that they are broken off with the greatest ease. At first erect, they soon become somewhat pendant, and branch freely so that the growing plant forms a dense mass, covering and enveloping the limb upon which it rests. The leaves are exceedingly fleshy, and like the stem, greenish-yellow and brittle; and they vary greatly in form from the obovate-spatulate to the lance-oblong, and in size from two inches in length by three-fourths as broad, to a small thing little larger than a common soup bean; are opposite and thickly disposed upon the stem, and borne upon a short, thick petiole. The flowers are exceedingly inconspicuous, and would scarcely be visible except for the fact that they are borne in longish spikes upon a thick rachis, so that while the individual flowers are hardly to be seen, the inflorescence is somewhat prominent. They are unisexual, but both forms are quite similar. The fruit is an almost globular, whitish, semi-transparent and very viscid



berry. These berries are quite freely eaten by birds, at least by some species, without injurious effects; but to man they are apparently poisonous, the symptoms being very similar to those produced by the berries of the European mistletoe, of which we shall speak farther on. Little is known concerning the composition or constituents of the plant, but it enjoys quite a local celebrity in the Southern States as an oxytocic. Dr. W. H. Long, we believe, was among the first to report upon its value in this direction, and declared that he found it of great value in arresting all forms of uterine hæmorrhage, even including the post-partum. As an oxytocic, he gave a drachm of the fluid extract very much in the same way as ergot is administered. While the properties of this plant are scarcely referred to in standard works, yet we know its use to be very general in many parts of the south, and every now and again some practitioner reports upon its efficiency. What degree of importance it really possesses is very difficult to say in the present state of our knowledge. There are so many distinctly nervous phenomena connected with the process of parturition, that it is extremely difficult to determine from clinical trial what the physiological action of any such drug really is; otherwise we should be compelled to place considerable reliance upon the many reports which have been published concerning the efficacy of this remedy.

In this connection some general remarks upon the natural order to which the *Phoradendron* belongs, may prove of interest.

The Loranthaceæ are parasitical plants with the exception of a few terrestrial species. They exist in nearly all the warmer parts of the world. The family is best known through its English representative, the *Viscum album* or mistletoe, which was prominently connected with the religious rites of the Druids, and has become classical in literature. Many tons of this plant are annually used in Christmas festivities, both in England and in this country. With the genus *Viscum* our *Phoradendron* was associated during the early history of this country, when it was known as *Viscum flavesces*, Pursh., but the distinguishing characteristics between the two genera were soon pointed out. Like *Phoradendron* *Viscum* has inconspicuous and almost imperceptible flowers. This character, however, does not apply throughout the entire family. I have seen the trunks of poplar trees in the vicinity of Valparaiso brilliantly covered with the scarlet flowers of a *Loranthus*, and some of the Brazilian genera furnish species whose flowers are of great splendor.

The general vegetative characters of *Phoradendron* apply throughout most of the order, although, as previously stated, a few of them are terrestrial, and a few climb slightly by means of tendrils. They are, too, nearly all furnished with berry-like fruits, possessing a

pericarp which is rich in viscin, one of the most glutinous substances known. Upon this constituent depends one of the very few economic uses of the family, as it serves as a basis for bird-lime. Not only is this property thus utilized in Europe, but among the natives of the South American countries I have also seen a rude mixture prepared from species of *Loranthus*, which was used for the capture of small birds. In India it is stated that the same substance has been used for the capture of tigers and other huge beasts. To this substance are also due, perhaps, the fatal effects which have occasionally resulted from the eating the berries of various species of this order. Although some of the symptoms produced would seem to indicate a genuine poison, yet it is generally considered that the ill-effects are due to mechanical injury produced by the glutinous coat of the seeds, an impermeable mass being formed in the stomach or intestine. The object of this viscid property, so far as the plant is concerned, is unquestionably to aid in the distribution and safe lodging of its seeds. Many birds are exceedingly fond of the fleshy covering of the seeds, but in devouring, are unable to disconnect it from the latter, so that they are broadly distributed through this medium. On account of the same property, the seeds find secure lodgment upon the boughs of the trees, where they subsequently take root and draw their nourishment ready formed from the host-plant. Other uses which have been found for various species are the production of a black dye from the *Phrygilanthus tetrandrus* (R. & P.), Eichler, and other species; the preparation of an ointment for tumors from the *Struthianthus marginatus* (Desr.), Eichler; and of a pectoral remedy from the *S. rotundifolius* (St. Hil.), Eichler, with the addition of milk and sugar.

As regards the medicinal properties of the order in general, we possess about as little knowledge as we do concerning those of the species under consideration. *Viscum album* has long been reputed to possess antispasmodic properties, but it has gone entirely out of use; and in large doses it is said to be emetic and cathartic. I have been struck by the fact that in the Andean sections which I have visited, various species of the order have been used by the natives for their effects upon the uterine function. Thus in Yungas and Mapiri I found a species of *Phoradendron* (which has since been named in honor of its discoverer by my friend Dr. Britton) which was said to act favorably as a uterine sedative and to prevent abortion. Its use, seemed to me at the time to be possibly dependent upon the native appreciation of the fixing power of its berries, on account of their glutinous properties. Thus another remedy which was given for the same purpose was the ashes produced by burning sealing-wax and a red ribbon. Here the idea unquestionably was that the binding power of the ribbon and

the adhesive power of the sealing-wax could in some way be imparted to the organs of the body. I therefore inferred that the same idea might determine the use of this native species of mistletoe. This species was there popularly known as *soldar-consoldar*, in apparent allusion to the peculiar manner in which the successive joints of the floral spike are attached, as it were, by soldering. In other localities I found *P. Mandoni*, Eichler, and *Loranthus pyrifolius*, H. B. K., credited with similar properties.

Botanically considered, the Loranthaceæ are interesting from the fact that their ovules are destitute of coats. There are no species of true *Viscum* in America. They are distinguished from the genus *Phoradendron* by having the anthers affixed at the middle of the perianth-segments, while in *Phoradendron* they are affixed at the base. In the same way it is distinguished from the American genus *Arceuthobium*, although one of its species, *P. Juniperinum*, Eng., closely resembles the *Arceuthobium* in general appearance. In the tropics the *Phoradendrons*, of which there are about eighty known species, all American, are ordinarily associated with many species of *Loranthus*, but the two genera are readily distinguished from the fact that the flowers of *Loranthus* possess a double perianth. (An elaborate account of the nature and habits of the Loranthaceæ is given in the preliminary pages of Eichler's monograph in the *Flora Brasiliensis*.)

The following description of *Phoradendron* is taken from Bentham and Hooker's *Genera Plantarum*: "Flowers dioecious or rarely monœcious, sessile, or lightly immersed upon the rachis of the spike. Tube of the perianth in the male flowers, short, solid; in the pistillate flowers, adnate to the ovary; in both, the limb three-parted, or rarely four- or two-parted. Stamens in the male flower affixed at the base of the segments, erect, the filaments very short or obsolete; anthers broadish, two-celled at the apex, the cells longitudinally dehiscent. Disk in both sexes fleshy. Ovary in the female flowers inferior. Style very short, thick, subconical; stigma obtuse or subcapitate. Berry sessile, globose or rarely ovoid, usually crowned by the minute segments of the perianth; the viscid pericarp usually succulent, the endocarp usually distinct. Seeds ovoid or oblong; embryo small, imbedded in copious fleshy albumen, or the radicle shortly exerted. Shrubs parasitical on trees, the branches terete, angular or rarely compressed, usually articulate. Leaves opposite, plane, thick, or rarely reduced to small distinct scales. Spikes terminal or axillary, solitary or two- to many-fascicled, usually indefinite articulate, minutely two-bracteolate at the articulations. Flowers superposed upon both sides of the broad rachis in two to many series, or rarely crowded in a few shortened articulations.

MONTHLY REVIEW.

The report of the Committee of the New York State Pharmaceutical Association on Adulteration is full of interest (and we had almost said of discouragement), for those who appreciate the importance to a successful medical practice of a uniformly good quality of the drugs dispensed upon prescriptions. Of dilute acetic acid 15 samples were examined, the strength ranging from 1.9 to 26.8, only two being alike. Well may the committee inquire: "How can it be possible for a doctor ever to be sure of his dose when the same prescription will in one store bring fourteen times more than in another?" Seven samples of spirit of nitrous ether varied so greatly "that the patient would need to take about a pint of one to equal a teaspoonful of another." This statement is followed by the pertinent query: "What earthly chance could a doctor have in trying to save a patient's life by reducing excessive temperature with such an article?" Of 50 samples of Hoffman's anodyne, only eight were of good quality, and only five others were even fair. Of 17 samples of iodide of potassium, none came up to the pharmacopœial standard, and only seven of them could be accounted fair. Of 40 samples of crocus, U. S. P., not one contained any crocus, all consisting of safflower. Out of 48 samples of precipitated sulphur only 18 were good, while a large number were positively dangerous. Almost all the other articles examined showed similar shocking imperfections. Comment upon such a report as this is entirely unnecessary. The fault lies with the medical profession as well as with the pharmacists. So long as physicians will not interest themselves in the quality of the drugs dispensed upon their prescriptions, so long do they allow one pharmacist to be forced into adulteration by his price-cutting neighbor.

In the *Therapeutic Gazette* for July, page 447 Dr. D. W. Prentiss reports three unusually interesting cases of poisoning by *Rhus toxicodendron* and its congeners. One of these was from homeopathic pellets of *Rhus*. The doctor does not state what "dilution" these pellets represented, but it must have been a remarkably low one.

The second case was one in which a gentleman had been dreadfully poisoned on opening a bottle of Japanese lacquer which had been unopened in the National Museum for years. The symptoms and course of the disease, and its behavior under treatment, were precisely the same as in cases of ordinary *Rhus* poisoning. Perhaps the most remarkable feature of the case was the fact that although the poison—a volatile acid—was inhaled freely, no poisonous effect was produced upon any portion of the mucous membrane. The gentleman described his sensations at the instant that the bottle was open as follows: "There was a feeling as of a warm breath over the face, and a suffocating, disagree-

able odor which he said he could not liken to any known odor. It was neither musty nor pungent, but very unpleasant." The report contains an interesting reference to the manufacture of lacquer in Japan.

The third case of poisoning is even more surprising and instructive. It seems that a gentleman encountering some large seeds with which he was unfamiliar, sawed one of them open to examine its structure, whereupon some gummy matter, exuding from just within the integuments, was deposited upon his hands. The result was a severe case of *Rhus* poisoning. The seeds proved to be those of *Anacardium occidentale* or Cashew. This is the first case that we have ever seen reported of poisoning by a species of *Anacardium*, although, owing to its close relationship to *Rhus*, the information is not surprising.

These seeds are said to be very generally roasted and eaten by people in South America. Dr. Prentiss makes one slight error when he says: "The nut grows in a curious way upon the outside of the fruit in its distal extremity." The nut really is the fruit, that which appears to be the fruit being in fact only the stem thereof. When the fruit first makes its appearance it is bean-shaped and borne upon the end of a stout stem. In the process of ripening, this stem enlarges greatly, becoming succulent and pear-shaped, and as large as a small Bartlett pear. It has a disagreeable, astringent flavor, but is eaten in a fresh state by the inhabitants of the countries where it grows. From it also, an excellent wine quite closely resembling Madeira, is produced, and this is credited with possessing important medicinal properties, making it of great value in torpidity of the liver. Under these circumstances we can only look upon it as remarkable that poisonous properties have been found to exist in its seeds. It may be that these properties have been developed as a result of the long time during which the seeds had been preserved. This is rendered the more probable from the fact that the poisonous properties of the bottle of lacquer had evidently increased as a result of age.

Dr. Prentiss highly recommends the following liniment in cases of *Rhus* poisoning:

℞ Acidi carbolici, ʒ.
Ol. lini,
Aq. calcis, āā 50.

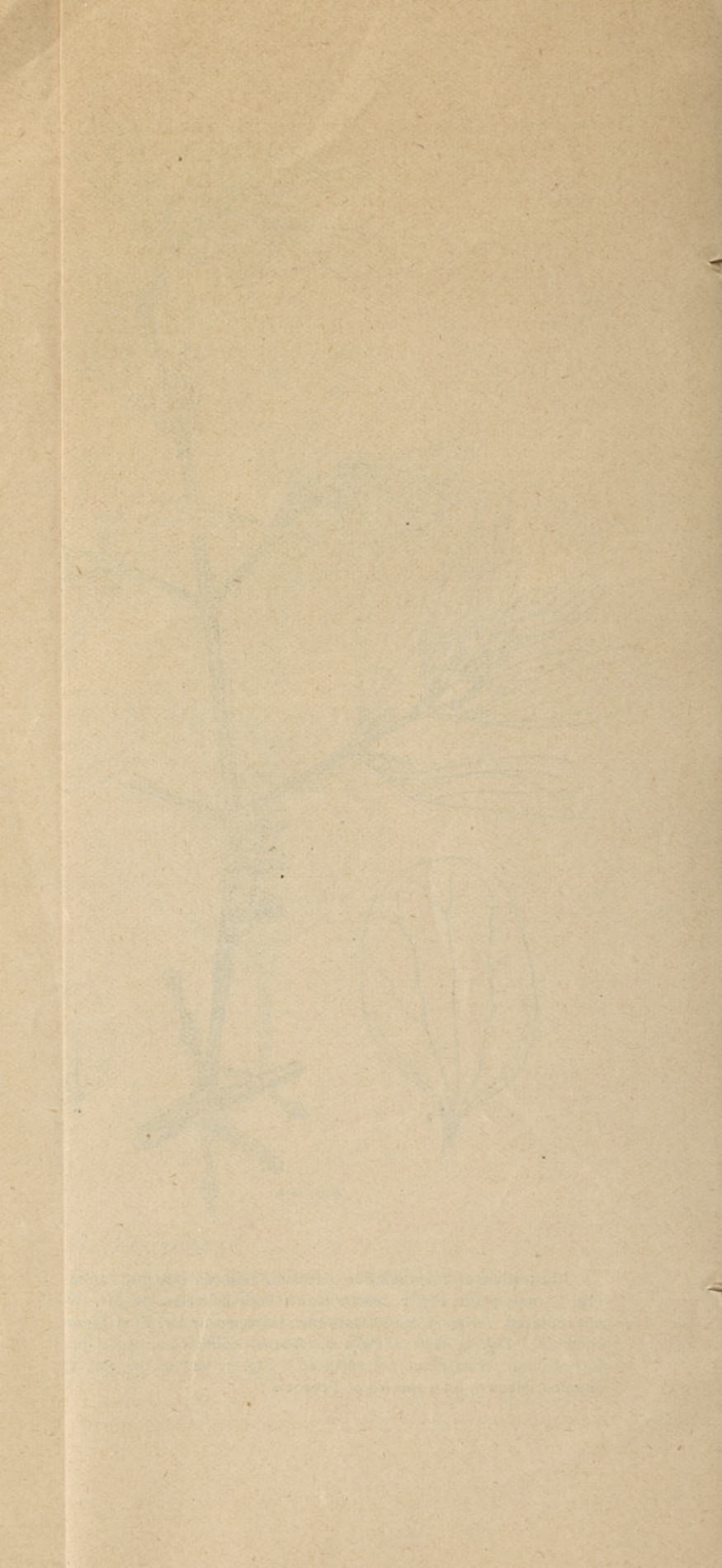
Apply constantly over the inflamed surfaces, and in addition a ten per cent. solution of carbolic acid to be applied over any intensely itching part.

On page 174 of the *Druggists' Circular* is a translation of a paper by Dr. O. Hesse on the "Chemistry of the Coca Bases," which is of much interest. It appears that this writer and Dr. Liebermann have arrived at results differing considerably from one another in their in-



EXPLANATION OF CUT.

Illustration of *Phoradendron flavescens* reduced one-fifth, from dried specimens in herbarium of Columbia College. Fig. 1, male plant; Fig. 2, female plant: both collected by Mr. William M. Canby, at Hibernia, Florida. Host plant not reported. Fig. 3, leaf of specimen collected by Dr. E. A. Mearns, at Fort Verde, Arizona. Host plant a species of *Populus*. Fig. 4, leaf of the var. *villosum*, collected on the Upper Sacramento, California, on the Wilkes' Exploring Expedition. Host plant not reported. Fig. 5, leaf of the var. *tomentosum*, Watson, collected by Mr. C. G. Pringle. Jimulco, Mexico, on a species of *Prosopis*.



vestigation of this subject. The paper is too long to be reviewed in this place, but we cannot but be in sympathy with Prof. Liebermann in his claim that coca leaves contain a volatile base which acts as a heart-poison. Our own experience with the properties of native coca leaves has been very extensive, and long before any announcement was made of the existence in them of bases other than cocaine, we had become strongly convinced that such was the case, and that it was to those bases and not to cocaine that the leaves owed their stimulating and supporting properties.

Quoting Dr. T. Frederick Pearse in *Knowledge, Science* says, "Experimentally, coca appears to act in small doses as a stimulant to the nervous system, affecting first of all the cerebral hemispheres, next the medulla, and lastly the spinal cord. It lessens the feeling of fatigue, but the only mental effect seems to be an exhilaration of spirits. Like caffeine, it increases the rapidity of the heart-beat and raises the blood pressure." It would have been much nearer the truth to have said that coca is unknown experimentally in this country. The present writer has already fully established the fact that coca leaves after having been exported to Europe or North America have so far changed their nature as to no longer represent the substance chewed by the South American Indians. The only real representation of the genuine native coca leaves is to be found in the Lorini elixir of native coca, imported by Messrs. Parke, Davis & Co., and which is now attracting great attention on account of the marked difference between its action, particularly in the exhaustion produced by typhoid fever and similar diseases, and that of preparations made from imported leaves.

Dr. Silva Nunez claims that vomiting as a result of the administration of lobelia is due to the disagreeable taste of the preparation, rather than to any specific emetic properties of the drug itself. This action he avoids by using the active principle lobelin instead. He administers doses of from three-fourths of a grain to six grains, and finds it of marked value in the cure of asthma. However free from nauseating properties lobelin may be, we cannot accept the doctor's statement that lobelia itself possesses no specific emetic properties, and that nausea is the result of the disagreeable taste of the drug.

In the July BULLETIN for 1888, p. 194, we presented an imperfect specimen illustration from a dried specimen of *Anhalonium Lewinii*, Henning, which, under the name of "Muscle Buttons" has been introduced as a cardiac remedy. In *Gartenflora* for August, 1888, appeared an excellent figure of this plant, showing the flower and fruit, and compared with a fine illustration on the same page of the most closely related species *Anhalonium Williamsii*, Lem., taken from a living plant in the Berlin

gardens. Accompanying the description is the following diagnosis of characters:

"Caule brevi subcylindrico crasso tuberculato, tuberculis latis subpolyedricis ad medium pulvillo tomentoso demum deraso ornatis, 12-serialibus, apice villo densissimo albo-sericeo instructo. Flore parvo, sepalis biserialibus oblongis, apice mucrone triangulari argenteo-scarioso, basi hinc inde sub-serrulato instructis; petalis sepala vix superantibus, stylo petalis subæquilongo, stamina manifeste superante."

The active principle of *Tonghinia toxifera* was presented to the French Academy of Sciences by Dr. Arnaud as an active heart poison similar to Strophanthine. The *Tonghinia* is quite closely related to *Strophanthus*, and yields to the natives the extract *Tonguin* which is used as an ordeal poison.

A most remarkable communication presented by Dr. Peyraud to the French Academy of Medicine, and which has been examined and accepted by a special Committee by them appointed, is to the effect that a disease very similar to hydrophobia may be produced by the hypodermic injection of oil of tansy.

Our common weed, Shepherd's Purse, has been known from very ancient times to be of value as a hæmodynamic. Its use for this purpose is now being recommended.

From the *Therapeutic Gazette* for July we learn that an attempt is being made in France to revive the use of *Solidago virgaurea* as a diuretic.

In the *Druggists' Circular* for August, p. 173, is reprinted from the *Chemist and Druggist* a very interesting paper on the subject of "Patchouly, Oil and Leaves."

According to the *Pharmaceutical Era*, whole coffee grains, made in Cologne from burnt flour or meal, may be readily distinguished from the genuine by their property of sinking in ether.

Dr. Hans Herman Behr in a paper read before the A. P. A. at the San Francisco meeting, mentioned a large number of poisonous or suspicious plants indigenous to California which are considered worthy of investigation.

Mr. M. Rockwell of the School of Pharmacy, University of Michigan, presented to the Am. Phar. Ass'n at its San Francisco meeting, an interesting report of his microscopical and chemical investigation of Pichi (*Fabiana imbricata*, R. and P.). An excellent illustration is presented of the microscopical structure of the wood and also of crystals of the hydrochlorate of the alkaloid.

At the same meeting a very interesting paper was presented by James G. Steele on the "Pines of California." Eighteen species are named, of which all but four are classed as pitch pines.

A PHARMACY AS IT SHOULD BE.—We had occasion recently to refer to the establishment of a liberally equipped pharmacy in Baltimore, devoted wholly to the prescription business. It gives us great pleasure this month to record a visit to a similar establishment just organized by Mr. F. E. Morgan, at 1629 Walnut street, Philadelphia. Mr. Morgan was recently at 1412 and 1414 Walnut street, where he was burned out in the great Wyeth fire. His new pharmacy is one of the most elegant and tasteful we have ever visited. Not a package of proprietary medicine, no soda water, no knick-knacks are to be seen. Merely an exquisitely finished room with a table in the centre, upon which stands a fine microscope and other scientific appurtenances, and the legitimate stock of a pharmacist tastefully disposed in cases about the room. In the rear is the large, perfectly equipped and ably manned prescription room, where order and cleanliness reign supreme.

In Philadelphia, legitimate pharmacy can not be considered an experiment, as its success has already been clearly demonstrated. Among others, Mr. Robert McNeil, Jr., has for many years done a successful business of this nature at Howard and York streets.—H. H. R.



