

# A TREATISE

# DIOSCOREA

The Therapeutic Uses of Dioscorea are written for this study by JOHN WM. FYFE, M. D.

Illustrations Nos. 1 and 2 are from the American Dispensatory.

The Description, History, Chemistry, and Pharmaceutical Record of Dioscorea are by JOHN URI LLOYD.

Treatise No. I embraces *Thuja Occidentalis*.  
Treatise No. II embraces *Cactus Grandiflorus*.  
Treatise No. III embraces *Pilocarpus (Jaborandi)*.  
Treatise No. IV embraces *Veratrum Viride*.  
Treatise No. V embraces *Chionanthus Virginica*.  
Treatise No. VI embraces Asepsin and Asepsin Soap.  
Treatise No. VII embraces *Collinsonia Canadensis*.  
Treatise No. VIII embraces *Nux Vomica*.  
Treatise No. IX embraces *Gelsemium*.  
Treatise No. X embraces *Belladonna*.  
Treatise No. XI embraces *Oenanthe Crocata*, Vegetable Caustic and *Crataegus*.  
Treatise No. XII embraces Ergot.  
Treatise No. XIII embraces Macrotys.  
Treatise No. XIV embraces *Dioscorea* and Sulphurous Acid.  
Treatise No. XV will embrace Development of the Pharmaceutical Still.

Drug Treatise, No. XIV.

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**Part Used.**-The rhizome of *Dioscorea villosa*.

**Common Names.**-Yam Root, incorrect, because the term "Yam" is derived from the vine, which resembles the vine of the Sweet Potato often called Yam; Wild Yam, from the vine; Colic Root, because of its use in that ailment; China Root, a term employed by Howard, derivation unknown.

**History.**-“At the battle of Trenton in December, 1776, General Washington captured a large number of Hessian prisoners. Among them was a botanic physician, a Dr. Bone, who subsequently settled in New Jersey, a few miles above the city of Newark. To him belongs ‘the credit of first using the *Dioscorea villosa* as a medicine. He appears to have used it for a long time as a secret remedy for bilious colic, and from his success in the administration of the medicine in this disease, he named it colic root. He gave to the patient half a tea-cup full of the decoction, every half-hour; the second dose rarely failed of curing this truly formidable disease.”

The above from the transactions of the Eclectic Medical Society of New York State, 1870, by Dr. D. E. Smith, of Brooklyn, is part of the most complete paper on *Dioscorea* to that date. Just where Dr. Smith obtained his reference to Dr. Bone we have been unable to find. The qualities of this drug were first authoritatively recorded in a book devoted to materia medica, by Horton Howard,\*

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\*Horton Howard was born in North Carolina of a wealthy slave-holding family, but being opposed to slavery he emigrated to the Ohio Territory where he thereafter lived. Until a late period in life he favored the Regular School of medicine. Owing to an epidemic of fever in 1825, that swept off many of his acquaintances, and members of his family, concerning which he states that “amongst whom I lost a lovely daughter, whose death, I have no doubt, was accelerated by bleedings,” he became an antagonist to the medical methods of that date. He then studied the treatment employed by the Botanic physicians, usually styled “steam” or “patent” doctors, against whom he was much prejudiced. A case came before him in which a friend, very ill, “to his utter astonishment and indescribable horror” employed a “steam” doctor, to which Howard adds, “on seeing this, I turned upon my heel with the most disdainful and disgusting emotions, with the intention of immediately leaving the house, and the sick man to perish, as I supposed he probably would, in the hands of this adventurous empiric of the botanical school.” He continues, “After reluctantly awaiting the end of the process, I again examined him, and felt myself astonished and confounded at the extraordinary effects that had been produced in so short a time. The fever was gone, the pain in his side was almost removed, the difficulty of breathing had ceased, the headache had departed, and his appetite for food returned. I was overwhelmed with reflections on my own want of liberality and consistency. I came to the conclusion that it was my duty as a man and a Christian to forego all my prejudices, and avail myself of the knowledge of these botanic medicines for the benefit of my own family.”

We next find Dr. Howard “reluctantly,” as he states, “the Official agent of Samuel Thomson,” and next we find Thomson and Howard jealous antagonists. The acrimonious discussions in *The Eclectic Medical Botanist*, Howard’s friend, and *The Thomsonian Recorder*,

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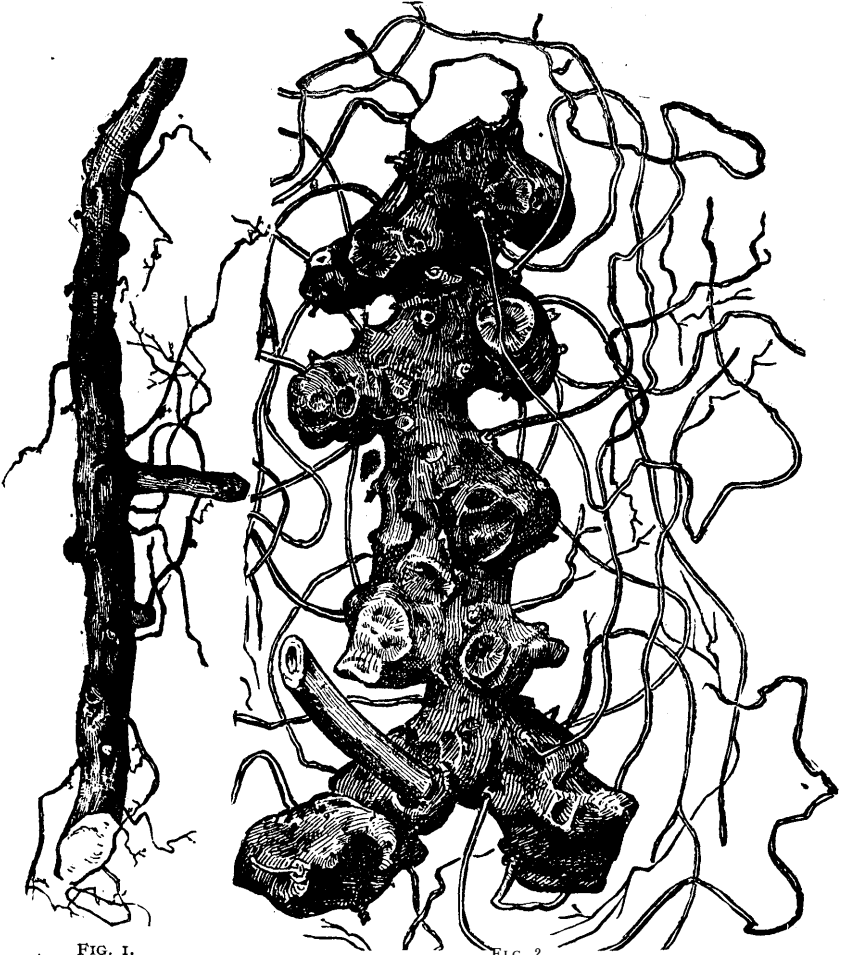


FIG. 1.  
Rhizome of *Dioscorea*  
*Villosa*, typical form.

FIG. 2.  
Rhizome of *Dioscorea*  
*Villosa*, "false" variety.

**1836**, in the third (revised) edition of his "Improved System of Botanic Medicine," no mention having been made of it in the preceding editions of the work. The drug had been brought to Howard's at-

Thomson's champion, are very curious records. Then it was that Howard issued (1832), as a rival publication to Thomson's work, his own book, "Howard's Botanic Medicine," (3,000 copies) acknowledging therein the great help of Dr. William Hance in the authorship, and also acknowledging his own indebtedness to Indian and domestic medicine. The second edition (4,000 copies) appeared in 1833. The third edition (1836) which contained the first authentic reference to *Dioscorea*, was also issued by Dr. Hance.

Dr. Howard was noted for his persevering, untiring industry. He was instrumental in advancing the settlement of a large district in the Eastern part of Ohio, encouraging emigration, and devoting himself to the interests of the immigrants. He was long Receiver of Public Money in the Land Office of the Delaware Land District, filling the office with the "utmost

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attention by Dr. J. I. Riddell,\* the statement being made that Dr. Miller, of Neville, Ohio, also employed it. Following Howard's introduction of the drug, came the efforts of the Eclectic School in medicine wherein, from the earliest day, Dioscorea has been valued. It was a great favorite of Professor R. S. Newton, M. D., and I. G. Jones, M. D., both of whom prescribed it extensively.

The part used is the rhizome, or underground stem, of which two forms, very distinct in appearance, are found in commerce, both being the product of what botanists consider the same vine. Figure 1 indicates the form of the rhizome preferred in the Eclectic School, and which was altogether used by physicians of this school until 1850, at which date Botanic druggists and physicians noticed the admixture by collectors of a tortuous, chubby, heavy drug, shown Ly Figure 2. The root diggers, however, insisted that both drugs were produced by the same vine. They claimed that although they could distinguish the difference in the two varieties, they could not put the distinction into words. Shipments of this newly introduced Wild Yam sent to the Eastern Botanic houses about 1860, were at first rejected, but the fact that that the form previously employed could no longer be obtained in sufficient amount, induced them, under protest, to accept the so-called "false" variety. In this connection, be it stated, physicians of the Eclectic School, although unaware of the substitution that had become a factor in commerce, rejected as unreliable, preparations made from the knotty drug (Fig. 2). In our opinion, the original variety should be employed in the making of Dioscorea preparations.† Thus, although Dioscorea was introduced by the Thomsonian School in medicine, it became a favorite in the Eclectic School, where for decades it has found a cordial reception.

In 1880, Mr. C. G. Lloyd investigated the Dioscorea subject, and found that the variety of the vine yielding the drug originally employed in medicine was pubescent on the under surface of the leaf, whereas the leaf of the vine yielding the knotty rhizome was entirely glabrous. It may be added that Linneus' description of *Dioscorea villosa* indicates that the typical form he possessed was of the pu-

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correctness, fidelity and punctuality., He was a minister in the Society of Friends, maintaining his religion in his every-day life before the world. He died of cholera at his residence in Columbus, September 14, 1833, in the sixty-fourth year of his age. A fund of interesting information concerning medicine and medical methods of the day of Howard is to be found in the *Columbus Eclectic and Medical Botanist*, 1832-3.

\*Dr. J. I. Riddell was Professor of Chemistry in the "Worthington Infirmary" (or college), Worthington, Ohio. He resigned in 1832 or 1833, and later took the chair of chemistry-University of Louisiana. Be it known that the "Worthington College" was the forerunner of the Eclectic Medical Institute, Cincinnati, Ohio.

† See our remarks, "Supplement to the American Dispensatory," King & Lloyd, 1880, and same work, Felter & Lloyd, Vol. 1, pages 659,660, 1898.

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bescent variety. In this connection the accompanying note by Mr. C. G. Lloyd is of interest:

"Works upon botany recognize only *Dioscorea villosa*, but it has become necessary to classify the two rhizomata of commerce. Considerable attention has been given to the plants, and, without an exception, the form of rhizoma was indicated by the pubescence of the under surface of the leaf. I am, therefore, led to hold to the foregoing distinctions until a better explanation is given."-Supplement to Am. Disp., 1880.

**Description-**The description given in the Supplement to the American Dispensatory (King and Lloyd, 1880,) cannot be improved by us at this writing, and needs no correction, hence we reproduce it, verbatim, as follows :

"The rhizome of *Dioscorea villosa* appears in market in slender contorted pieces from one-fourth of an inch to half an inch in diameter, and often two feet in length. It is oval, being flattened above and below as it creeps in a horizontal

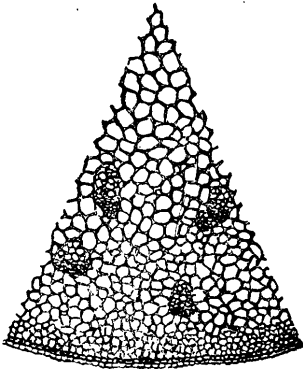


FIG. 3.  
Transverse section of a small  
rhizoma, magnified.



FIG. 4.  
Longitudinal section of Rhizoma,  
from epidermis to  
center, inclusive.  
Magnified.

position beneath the surface of the ground. It seldom throws out branches, but, occasionally, little protuberances project from its sides, being from one-eighth of an inch to an inch in length, and about one-third as large in diameter as the primary rhizome. They are rounding at the extremity, and seem to indicate abortive attempt of the rhizome to throw out branches; but they do not send up the vine. Along the upper side of the rhizome are stem-scars, which are about three-fourths of an inch apart. The epidermis is brown, thin, and scales off, more or less, upon drying, especially when the rhizome is gathered in the spring, but this is not the case with a good quality of it, when dug in autumn. The internal color of the dry rhizome is whitish, or slightly straw-colored, when gathered in the autumn, but it is often brown when collected early in the season; there is no bark to it. Under a magnifying glass the texture of a broken rhizome appears mealy and perforated with numerous woody bundles. (See Figures 3 and 4). Attached to the lower part of the rhizome, an abundance of strong, wiry-like fibers

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will be observed. *Dioscorea villosa* has one of the firmest of rhizomae, it being very difficult to powder or crush.\* It has no odor, and but little taste beyond a slight acidity after prolonged chewing. The so-called dioscorein is not a definite principle of the rhizoma, but is simply a dried solid extract, and to call it otherwise is a misnomer.

***Dioscorea villosa*.**-Var. *glabra*. **Description.** The rhizoma of this plant resembles that of *Collinsonia Canadensis* more nearly than it does the true *D. villosa*. It is found as a rough clump of a pound or more in weight when fresh, thickly-branched, each branch shooting from the side of the main rhizoma at an angle inclining backward and upward. The branches almost touch each other, are as large as the rhizoma, and are from one inch to three inches in length. Along their upper surface are numerous cup-shaped stem-scars, which are about one-fourth of an inch or one-third of an inch in diameter, and so thickly inserted as to intrude upon each other.<sup>7</sup> The diameter of the rhizoma and of the ramifications is from half an inch to three-fourths of an inch, and the length seldom more than six inches. Internally, the rhizoma resembles that of the true wild yam, while the lower portion is, in like manner, covered with stout fibrous rootlets. The color is generally a very much darker brown."

The dried drug is very hard, being almost as difficult to powder as *Collinsonia*. It is equally as difficult to extract by either percolation or maceration, and it is safe to say that much of the drug manipulated is only partially abstracted. The note concerning *Collinsonia* applies equally to *Dioscorea*.

**Constituents.**-Excepting saponin, obtained in 1885 by Mr. W. C. Kalteyer, there are no representative educts or products of *Dioscorea*, of a definite chemical structure. The drug has been attacked by enthusiasts in destructive chemistry, but the ultimates of their antagonistic processes are of no value whatever in therapy. In the early days of Eclecticism, close following the discovery of Resin of *Podophyllum* by Dr. King, attempts were made to obtain, by a similar process, an energetic principle from *Dioscorea*. The product was called *Dioscorein*, and on faith was accepted for a considerable time in the alkaloidal-resinoid-concentration craze of Eclecticism, as a worthy companion of King's energetic Resin of *Podophyllum*. It was a very inferior saponin and naturally did not stand the test of time. Then the dried and powdered solid extract was labeled "*Dioscorein*," and as such masqueraded thereafter before the profession. Finally, we find it ignominiously dismissed by Dr. King, in 1880 (*Am. Disp.*), in the following brief manner:

"The so-called *Dioscorein* is not a definite principle of the rhizoma, but is simply a dried solid extract, and to call it otherwise is a misnomer." ‡

\* See remarks under *Collinsonia*.

† The vine of the true *Dioscorea villosa*, upon the contrary, springs from the main rhizome.

‡ For thirty years we have protested against this "resinoid" imposition, and have aimed to teach that for decades these so-called "Resinoids" had no standing in Eclecticism.

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**Pharmaceutical Preparations.**-There has never been any pharmaceutical preparation whatever of Dioscorea recognized in the Pharmacopoeia of the United States, or the Dispensatories or Materia Medica connected with the Regular School of Medicine. In the early days of Eclectic medicine, decoctions of the drug were used, large doses being often repeated. Profes. or King administered from two to even eight fluid ounces at a dose, repeated every half-hour or hour, until relief was obtained. This heroic procedure is possible with the decoction, which largely excludes the acrid saponin-bearing compound found in the Fluid Extract and Tincture, and this fact must be borne in mind by physicians prescribing the harsh alcoholic preparations. The preparation employed in Eclectic medicine since the appearance of " Scudder's Specific Medication " is the Specific Medicine, which may be described as follows:

**Specific Medicine Dioscorea.**---This has a yellowish-brown color, due to the coloring matter of the epidermis of the drug; and a slightly acrid taste, due to touches of the saponin-like compound present in it. Its odor is scarcely perceptible. It mixes nearly clear with alcohol, water, syrup, and glycerin, as well as with all neutral, water-miscible liquids. The water dilution of the Specific Medicine, by standing, deposits a small amount of a flocculent precipitate, mainly saponin compounds, thrown down by the water. The white precipitate, mainly saponin, so prone to form in commercial liquid preparations of Dioscorea is absent from the Specific Medicine, which in its present perfected condition keeps unchanged indefinitely. The dirty-brown precipitates observed in ordinary Fluid Extracts are due to impurities and never occur in the Specific Medicine. Water-diluted Specific Medicine Dioscorea has a pleasant, sweetish odor, and in very small amount indeed, gives a copious reaction with Fehling's Solution a single drop giving a distinct reaction. We consider the Specific Medicine the most desirable, as well as the typical representative of the Dioscorea preparations.

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## THE THERAPEUTICS OF DIOSCOREA.

By JOHN W M . FYFE, M. D., Saugatuck, Conn.

Dioscorea has long been regarded as a medicament of wonderful power in the treatment of colic, but many physicians have seen cases of this abnormal condition in which the drug exerted but little, if any, curative influence. There surely must be some good reason for this lack of uniformity of action of the remedy, and it may be possible that the difference in effect is owing to failure on the part of

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the doctor employing the agent to closely observe and correctly understand the disease expressions presented in the cases in which it failed to improve the condition. of the patient. He may have prescribed for the name colic, instead of the wrong which actually existed as the cause of the colic. In colic, as in diarrhea, the indications for the remedies are not always the same, any more than the causes are always the same. Unless a medicine is clearly indicated we should not expect curative results from its exhibition, but a remedy which will once remove a wrong of life will always remove the same pathological condition under *exactly* the same circumstances. When we have once learned this we have learned it for all time. If it is true to-day it will be true in the years to come. A drug, however, which will cure a disease caused by atony can not be expected to remove a wrong caused by excitation. In referring to the action of Dioscorea in colic, Dr. G. M. Aylsworth in substance says :

“ Gould defines colic as ‘ spasmodic pain in the abdomen.’ Intestinal colic is due to irregular and violent contractions of the muscles of the bowels. Byron Robinson says these contractions are controlled by Auerbach’s ganglia through the plexus mesentericus. C. J. B. Williams says’ disease consists of excess, defect, or perversion of normal life, necessitating, according to Scudder, sedation, stimulation, or alteration for cure.

“Intestinal colic, then, is either perversion due to excess, or perversion due to defect in the nervous energy generated in Auerbach’s ganglia. Experience has shown that medicines making directly for the correction of these two distinct conditions are by far the most successful in the treatment of intestinal colic. Dioscorea meets an excited or excessive nerve force and directly sedates it to the normal, the large dose being useful to quickly produce the effect.

“ Small doses of colocynth meet a defect in nerve force and stimulate it to the normal. The dose must be very small, for in large doses colocynth will produce colic.

“ In these instances colocynth and Dioscorea are *directly* curative, morphine is not. Morphine only reaches the condition to afford relief by paralyzing sensation, which is a function of the cerebro-spinal nervous system. This means that the force from Auerbach’s ganglia may still be acting abnormally, but owing to the paralysis of sensation due to the morphine the brain is unable to impress the condition on the patient’s consciousness. This is almost an exact parallel to the use of chloroform in labor, where painful uterine contractions continue to the end of accouchement, but the patient



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does not know' it because the chloroform does not permit the nerves of sensation to perform their duty."

The credit of first using Dioscorea in colic belongs to Dr. Bone, who resided in New Jersey in the latter part of the eighteenth century. He employed a decoction of the root, and gave one-half teacupful of it every half hour. A second or third dose seldom failed to relieve the patient of his sufferings. It was from this physician that Dr. Wooster Beach obtained his knowledge of the medicinal properties of this now well-known remedy.

I was recently called to a man who was suffering from intense pain in the lower part of the abdomen. He also had what he described as a "twisting pain," extending along the region of the ascending colon. He informed me that he had often been similarly afflicted, and that anodynes, taken frequently, afforded only partial relief. The patient was immediately given twenty drops' of Specific Medicine Dioscorea in one-half teacupful of very hot water, the dose being repeated in fifteen minutes. The medicine acted very promptly, and the man was soon resting comfortably in bed. I then prescribed as follows :

℞ Specific Medicine Dioscorea, - - - gtt. xxx.  
Water, - - - - - ℥ iv.  
M. Sig.-Teaspoonful every half hour.

No other medicine was administered, and the patient made a complete recovery.

Dr. D. E. Smith, of Brooklyn, N. Y., for many years used Dioscorea with marked success. He employed it in all cases of colic, whether bilious or flatulent. He also deemed it efficient in the severe cutting pains which often occur in dysentery, and in the dull, heavy pains in the stomach and bowels which are sometimes produced by indigestion. In one of his cases the patient had suffered for years from almost constant pain in the stomach and upper portion of the bowels, which at night was often so severe that she could sleep but little. Numerous remedies had been employed, but to no purpose. Anodynes would modify the pain for a few hours only Dioscorea effected a permanent cure within a short time. --

Dr. Smith Rogers, of Michigan, has had a very extensive experience in the use of Dioscorea, and deems it a most efficient remedy. In reporting a case of so-called bilious colic he says that the patient had been unsuccessfully treated with various approved remedies for five days. A few drops of Dioscorea promptly terminated the pain, and the continued use of the drug for a short time effected a permanent cure.

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Dioscorea has valuable properties besides those found useful in the treatment of colic. In the nausea attending pregnancy it often affords much relief, and as a modifier of after-pains it acts in a very satisfactory manner. In dysmenorrhea it aids in rendering the painful condition bearable, and in hysteria it 'may well constitute a part of the treatment. Hepatic diseases, especially when accompanied with irritability of the stomach, are among the wrongs in which indications for this agent are likely to be seen, and as a remedy for dysentery and all spasmodic affections of the stomach and bowels, it is of frequent usefulness. It is also highly esteemed by many physicians as an expectorant in asthma, whooping cough, and bronchitis.

Dr. A. W. Forbush, in a paper read at a meeting of the Boston District Eclectic Medical Society, speaks of Dioscorea in part as follows: "It is of great value in neurosis of the abdominal cavity, and all spasmodic affections of whatever name. It has a strong affinity for enfeebled mucous tissues which become painful from spasmodic contraction of their muscular fibres. It is as much a specific in spasmodic conditions of the mucous membranes of the stomach and bowels, as is quinine in intermittent fever or malarial conditions."

Dioscorea is antispasmodic, diaphoretic, and expectorant. In large doses it is emetic.\*

Among the most prominent specific indications calling for Dioscorea are the following: Abdominal muscles contracted when there is constant pain; colic, with sharp, cutting pains; pains in the abdomen, relieved by pressure or by supporting the abdomen; hepatic disorders, accompanied by irritability of the stomach; typhoid fever, when there is tenderness and tympanitis.

The dose of Specific Medicine Dioscorea is from one to twenty drops, but it is usually employed as follows:

℞ Specific Medicine Dioscorea, . . . . . gtt. x to 3 i.  
Water, . . . . .  $\frac{3}{4}$  iv.  
M. Sig.-Teaspoonful every hour or two.

In colic fifteen drops of the Specific Medicine should be given in a little very hot, sweetened water, every thirty minutes, until relief is obtained. The remedy should then be continued in doses of ten drops each, every hour, as long as needed.

\* The remarks concerning the preparations of Dioscorea, on page 7, call attention to the presence of Saponin in the common tincture and fluid extract. Saponin is a very acrid substance and was absent, practically, from the decoctions that established the drug. The emetic qualities are absent from the Specific Medicine.