

(the raphe) running thence to the edge; externally gray, greenish-gray or light yellowish-gray, silky in lustre and to the touch, densely clothed with a coat of closely appressed, shining hairs; internally hard, very tough, somewhat translucent, consisting of two discs of perisperm which enclose a thin, circular cavity and the embryo which has small heart-shaped, palmately nerved cotyledons; inodorous and intensely and persistently bitter.

Nux vomica seeds are so abundant and cheap that there would appear to be little temptation to adulterate them; yet not only is the powdered drug subject to adulteration, but, what is of more importance, it varies widely in quality. Hence the great importance of insisting upon official standards as to the alkaloidal assay of the preparations.

CONSTITUENTS.—The one important constituent of nux vomica, from a medicinal point of view, is strychnine. The activity of the drug is wholly dependent upon that substance, and the degree of this activity conforms closely to the amount which it contains, although the latter statement is subject to certain modifications, in accordance with the following facts. Associated with the strychnine is a certain quantity of the similar alkaloid brucine,—a quantity which either may be equal to, or may be twice as great as, that of the strychnine present. The action of this alkaloid is almost identical with that of strychnine, although variously estimated at from five to ten times weaker. This variation in the strength of brucine is undoubtedly due to the presence in it of variable amounts of strychnine, which it is almost impossible completely to remove. It is to be remembered that the alkaloids, besides being highly insoluble, exist in nux vomica intimately associated with an extremely tough, horny albuminous substance, so that if the powdered drug be taken, they may be less quickly and completely absorbed than when strychnine alone is administered. Constituents which are not important from a medicinal, though more or less so from a pharmaceutical, standpoint are the tannin-like *igasuric* or *strychnic acid* with which the alkaloids are combined, a considerable amount of fixed oil, a small amount of the glucoside loganin, a little gum, sugar, etc. The combined percentage of strychnine and brucine ranges from two to five per cent. or even more, of which the strychnine represents from one-third to one-half. Strychnine will be fully discussed under that title. *Brucine* (C₂₃H₂₆N₂O₄ + 4H₂O) occurs in very fine colorless crystals, forming a whitish powder, soluble in alcohol. It is distinguished from strychnine by being reddened by nitric acid. It forms salts freely, several being upon the market; the sulphate, which is soluble in water, is the one chiefly employed.

ACTION AND USES.—Excepting as to the preparations and dosage, an account of the action and uses of nux vomica would be a duplication of that given under *Strychnine*, to which the reader is referred. Brucine is somewhat used in a similar way, in doses of gr. $\frac{1}{10}$ to gr. $\frac{1}{2}$, the total daily amount not to exceed gr. iiij. It is also sometimes applied externally to relieve itching.

The dose of nux vomica, in very fine powder, is 0.06–0.24 gm. (gr. i.–iv.). Of nux vomica the following are the official preparations, subject to assay by processes prescribed by the Pharmacopœia: The extract, to contain 15 per cent. of total alkaloid, dose 0.008–0.06 gm. (gr. $\frac{1}{4}$ to gr. i.); the fluid extract, to contain 1.5 per cent. of total alkaloid, dose ℥ i.–iv.; the tincture, to be made by dissolving 20 gm. of the dried official extract in 1,000 c.c. of a mixture of three volumes of alcohol and one volume of water—this tincture to contain a total of 0.3 per cent. of the alkaloid, and the dose to be 0.3–1.8 c.c. (℥v.–xxx.). It will thus be seen that the fluid extract is five times as strong as the tincture, and the extract ten times as strong as the fluid extract.

NYE LITHIA SPRINGS.—Wythe Company, Virginia. POST-OFFICE.—Wytheville. Hotel and boarding-houses.

ACCESS.—Via Norfolk and Western Railroad to Wythe-

ville, thence two miles over macadamized carriage roads to springs.

These springs are located in the southwestern part of Virginia, in a charming, picturesque locality, one-quarter of a mile from the corporate limits of Wytheville. The elevation of 2,360 feet above the sea level gives assurance of a cool and delightful summer temperature. The country about Wytheville has long been celebrated in the South as a summer health resort, and the yearly visitors came from far and near. The average yearly temperature of Wytheville is 53° F. The seasonal temperatures are as follows: Spring, 52° F.; summer, 70.6° F.; autumn, 53° F.; and winter, 32.3° F. The highest summer temperature observed during the past three years has been 88° F. in the shade. The region is quite free from malarial and miasmatic influences. The springs are surrounded by a tract of eighteen acres of the primeval oak forest, which furnishes a delightful shade in the summer. The accommodations for visitors are as yet somewhat limited, but a commodious hotel is in contemplation for the near future. Two good hotels and numerous excellent boarding-houses will be found in Wytheville. The springs are three in number, two lithia and one chalybeate. The summer temperature of the two lithia springs is respectively 53° and 54° F., and the chalybeate 56° F. The following analysis of two of the springs is furnished by Dr. George L. Nye, the resident physician:

NYE LITHIA SPRING, No. 1.

(Analyzed by W. L. Dudley, Vanderbilt University.)

ONE UNITED STATES GALLON CONTAINS:	
Solids.	Grains.
Calcium carbonate	10.63
Lithium carbonate	6.41
Iron and alumina oxide	.31
Silicic acid	1.19
Total	18.54

NYE CHALYBEATE SPRING.

(Analyzed by J. L. Jarman, of Emory and Henry College.)

ONE UNITED STATES GALLON CONTAINS:	
Solids.	Grains.
Potassium carbonate	0.01
Sodium carbonate	.81
Lithium carbonate	1.89
Calcium carbonate	11.60
Magnesium carbonate	2.35
Iron and alumina oxide	1.33
Silicic acid	.66
Total	18.65

Rating the lithium in these analyses as the bicarbonate it would amount respectively to 11.77 and 3.48 grains per gallon.

The waters have long been highly prized in the treatment of a variety of disorders. Dr. Nye presents numerous reports of cases from competent physicians illustrating the beneficial influence of these waters in diabetes and other urinary disorders. Their action in cases of dyspepsia and intestinal affections is also very advantageous. The chalybeate water is in high repute among physicians for the relief of menstrual and uterine disorders consequent upon anæmia.

NYMPHÆACEÆ.—*The Water-lily Family.* This small family of aquatic plants contributes several large, coarse, spongy, dark-colored rhizomes which have been used in medicine. The white water-lilies pertain to the genus *Castalia* Salisb., though long miscalled *Nymphæa*, the latter name still being applied to them as drugs. The species most used are *C. alba* (L.) Lyons (*Nymphæa a.* L.), the European white water-lily, *C. odorata* (Dryander) Woodv. et Wood (*Nymphæa o.* Dryander), the Fragrant or Sweet-scented white water-lily, chiefly of Eastern North America, and the *C. tuberosa* (Paine) Greene, the tuberous white water-lily, chiefly of Central North

America. The yellow water-lilies or pond-lilies, Spatter-docks, or Flatter docks, pertain to the genus *Nymphæa* L., though long miscalled *Nuphar*. The species of this genus which has been most employed, and the nature of which is best known, is *N. lutea* L., the European yellow pond-lily. From this rhizome has been extracted the white amorphous alkaloid *nupharine*, to which its bitter properties are probably due. The constituents of the other species named are but little known, though they contain bitter principles apparently similar to nupharine. All contain resin, tannin, starch, and gum.

The uses of these drugs are not based upon any scientific knowledge other than that they are mild astringents and bitter tonics. In this way they have been used as astringent gargles, intestinal astringents, and for local applications in gonorrhœa, leucorrhœa, etc. The dose of the fluid extract is i.–iv. cc. (fl. ʒ $\frac{1}{4}$ –i.).

Henry H. Rusby.

NYSTAGMUS is an involuntary rhythmic contraction of the ocular muscles producing oscillation of the eyeballs. It is due to imperfect cortical innervation of the voluntary muscles of the eye, and may result from either central or peripheral causes, or from both. The movements, which usually affect both eyes, may be vertical, rotatory, or lateral, but the most common form is from side to side. It is most commonly observed in eyes that are defective congenitally, as in albinos, or from coloboma of the choroid, microphthalmos, etc. Various inflammatory or degenerative diseases of the eyes, chiefly when they occur in early infancy or childhood, frequently cause nystagmus. This condition must not be confounded with the slight tremor observed upon voluntary movement of the eyes in efforts at fixation in various directions which is so often found in association with weakness of the ocular muscles.

Nystagmus may be acquired, and is often seen in those employed in coal mines, and is due to the work being done in cramped positions under poor illumination, the gaze being directed obliquely upward. Fatigue is thus induced in the superior recti and inferior obliques, and also in the internal and external recti muscles, finally causing their spasmodic action. This type of nystagmus may also be regarded as a fatigue neurosis.

Nystagmus also occurs in various diseases of the nervous system, and is often a conspicuous symptom in multiple sclerosis, cerebellar disease, and Friedreich's hereditary ataxia. It occurs in many diseases of the brain, such as tumor, softening, hemorrhage, meningitis, sinus thrombosis, etc. As a localizing symptom it is of no value, but it is an important diagnostic sign in the early stage of degenerative affections of the central nervous system.

In multiple sclerosis nystagmus is a frequent symptom. Spontaneous movements like those seen in albinism or in congenital ocular defects are rare. The nystagmus is usually manifested when the eyes are moved voluntarily in various directions, especially on lateral movement.

In cerebellar disease nystagmus has been classified as an irritative symptom, being ascribed to pressure on the pons and corpora quadrigemina.

William M. Leszynsky.

OAK ORCHARD ACID SPRINGS.—Geneseo County, New York.

POST-OFFICE.—Medina, Orleans County.

ACCESS.—Via New York Central Railroad to Medina, a station forty miles west of Rochester, thence six miles south by stage.

The springs are not used as a resort, but the waters have been sold to some extent. The accompanying analyses show the waters to possess exceptional properties.

These springs are remarkable in the amount of free sulphuric acid which they contain—more, indeed, with one or two exceptions, than is to be found in any other waters known. Waters containing this acid in free state are exceedingly rare. It is said that none of the kind is known in Europe. Among the few known on this side of the Atlantic are the following: One in the town of Byron,

ONE UNITED STATES GALLON CONTAINS:

Solids.	Spring No. 1, (Silliman and Norton.) Grains.	Spring No. 2, (E. Emmons.) Grains.	Oak Orchard, acid water, (Prof. Porter.) Grains.
Sodium sulphate	6.34	....	3.16
Calcium sulphate	74.89	12.41	13.72
Potassium sulphate	5.52	....	2.48
Aluminum sulphate	21.69	....	6.41
Magnesium sulphate	35.60	4.98	8.49
Iron sulphate	....	39.23	....
Iron protosulphate	28.62	....	32.22
Sodium chloride	2.44	....	1.43
Silica	4.59	1.84	3.33
Organic matter	....	10.88	6.65
Sulphuric acid	134.73	129.06	133.31
Total	314.42	118.40	211.20

near the Oak Orchard Spring; the Tuscarora Sour Spring in Canada; the Matchless Mineral Well in Alabama; and several acid springs in Texas, California, and Virginia. According to Prof. J. H. Armsby, of Albany, the Oak Orchard water has been used with advantage in "ill-conditioned ulcers, diseases of the skin, passive hemorrhages, diarrhœas depending upon an atonic condition of the mucous membranes, and in depraved and impoverished conditions of the body from specific diseases and from intemperance." The water requires dilution before drinking.

James K. Crook.

OAK, WHITE.—*QUERCUS ALBA.* *Oak Bark.* "The bark of *Quercus alba* L. (fam. *Cupulifera*)," U. S. P. This species of oak-tree is one of the commonest and most abundant of its genus, as well as the largest, in Eastern and Central North America. It yields one of the most highly prized of American hard-wood timbers. The bark is thus officially described: "In nearly flat pieces, deprived of the corky layer, about a quarter of an inch (6 mm.) thick, pale brown; inner surface with short, sharp, longitudinal ridges; tough; of a coarse, fibrous fracture; a faint, tan-like odor, and a strongly astringent taste. As met with in the shops, it is usually an irregularly coarse, fibrous powder, which does not tinge the saliva yellow." The last character distinguishes it from the largely employed bark of *Quercus tinctoria*. In nearly all temperate countries some locally occurring oak is used as an astringent; the British oak, *Q. Robur* L., in Europe, the holly oak, *Q. Ilex*, in France and elsewhere. In our own country, also, other species besides the white oak are sometimes used and were formerly official (*Q. coccinea vel tinctoria*, Gray, etc.).

White oak bark is simply an astringent. It contains from five to ten per cent. of tannic acid—probably identical with the *quercitanic acid* of *Q. Robur*—and a little coloring matter.

It is used in decoction (5%) for cracked or tender nipples, indolent granulations, leucorrhœa, nasal catarrh, etc., and is occasionally given internally, in doses of i.–iv. gm. (gr. xv.–lx.). Finely powdered white oak is often blown into the nares to check hemorrhage.

Henry H. Rusby.

OBESITY. See *Adipositas*.

OBSTETRIC OPERATIONS.—**INDUCTION OF ABORTION.**—This means the interruption of pregnancy before the period at which the child is viable. It is an operation performed solely in the interests of the mother and, as Hirst says, should be undertaken as reluctantly as justifiable homicide. The indications are: pernicious vomiting, pulmonary and cardiac disease, nephritis, chorea, acute mania, melancholia, and pernicious anæmia. Pregnancy may have a very deleterious effect upon each of the above disorders, and in allowing gestation to continue, the physician may sacrifice the lives of both mother and child; the induction of abortion should be regarded only as the last resort and never be undertaken without consultation. Among the local conditions which may call for the termination of the pregnancy must be men-