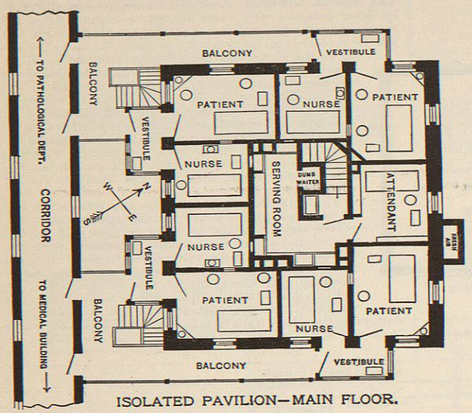
any doubt exists as to the nature of the case, should be placed in the observation wards until a diagnosis has been made. Their clothes should be sent to be disinfected, and they should receive these disinfected clothes



ISOLATED PAVILION—MAIN FLOOR.

FIG. 2974.—Plan of Isolated Pavilion of the Presbyterian Hospital in New York City.

or a fresh suit upon leaving. Before they take their departure, however, they should be subjected to a series of baths, this being especially necessary in the case of the exanthematous diseases. After the final bath they should dress with clean clothes in a room leading to the outside, so as not to re-enter an infected apartment.

It is of advantage to have a steam sterilizing apparatus upon the premises, though the use of a closed chamber with formalin gives adequate penetration of clothing, bedding, etc.

Whenever possible, a bacteriological examination should be made as a means of regulating the admission and discharge of patients, and for the establishment of the diagnosis in doubtful cases. For the public safety cooperation with a bacteriological laboratory is indispensable.

To prevent dissemination of disease by lay visitors these should be obliged to go through a thorough ritual of disinfection before leaving the premises, and they should be obliged to wear special protective caps and linen dusters, while visiting the wards. Visitors should be admitted only as a matter of urgent necessity and in dangerous cases.

Mortuary.—A suitable place for the care of dead bodies is indispensable. Facilities for proper post-mortem examinations are too often neglected. To prevent the danger of infection being spread by the corpses, and before removal, they should be wrapped in sheets soaked in some disinfectant solution such as sublimate 1:1000, or chloride of lime, one per cent., and the orifices of the body should be plugged by wadding. In case of transportation to a distance, a galvanized iron box, hermetically soldered, should enclose the coffin.

Isolation Departments in General Hospitals.—These are now provided in connection with all of the modern hospitals. As it is not contemplated to treat many cases at any one time, a number of small separate wards give the best accommodation, and, generally speaking, wards of one or two beds only are needed. The amount of accommodation for nurses in these wards must be relatively greater than in the case of an isolation hospital, and provision for separate attendance on each different case should be made. The building must be situated at a sufficient distance (at least forty feet), from any other building, and as far as possible from the surgical wards; location near the mortuary or laundry is preferable. It should not communicate directly with any part of the hospital, but should be accessible only through open corridors or bridges. Communication between the different wards of the isolation pavilion should be by means of a balcony or an open vestibule, rather than by internal passages. Food, medicines, clothing, etc., should be sent with special precautions, and nothing should be returned unless carefully disinfected. The services of an attendant apart from the nurses will be necessary even in the case of a small establishment, in order to prevent communication between this department and the hospital proper. The ventilation of each ward and room in the isolation pavilion should be strictly separate. Examples of isolation wards are shown in the accompanying figures (Figs. 2971, 2972, 2973, and 2974). The number of beds required is about four per cent. of the total population of the hospital.

The destruction of garbage and refuse by cremation is an essential in any well-conducted hospital. A number of small garbage and refuse destructors are on the market, but only a few of them are found to give very satisfactory results. Destruction of the bodies of persons dying of infectious disease may be called for in connection with severe epidemics, and a crematory is practically indispensable in connection with the isolation hospital of a well-equipped quarantine station. *Wyatt G. Johnston.*

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The publications of the Local Government Board, 1880, 1883, 1895, referred to above, contain valuable data. See also Burdett's Cottage Hospitals (with plans); MacNeill's Epidemic and Isolation Hospitals; Galton on Hospital Construction; Notter and Firth: Hygiene; Weyl's Handbuch f. Hygiene, Band 5; Ruppel on Hospital Construction; Mercke on Hospital Management, with very full plans of many leading hospitals.

ITCH-MITE. See *Arachnida.*

IVY.—*English, Black, Creeping,* or *Common Ivy. Hedera.* The herbage and fruit of *Hedera Helix* L. (*H. poetica* Salisb., fam., *Araliaceæ*). The gum resin exuded by the stem is also used.

This well-known and highly ornamental evergreen is native of Europe and temperate Asia, and is cultivated in all countries having a suitable climate. The leaves are stoutly petioled, from three to six inches long, and mostly of greater breadth, entire or palmately three- to five-lobed, rounded or cordate at the base, acute at the summit, smooth, very dark-green, very thick and coriaceous, somewhat aromatic and of an astringent and disagreeably bitter taste. The poisonous fruits are in long-peduncled, panicled umbels and are five-pyrenate berries, smooth, black, and internally mealy. They have a terebinthinate odor when bruised and a pungent, somewhat sour, terebinthinate taste. The leaves contain a little volatile oil, tannin, and the glucoside *helixin*, which yields *helixigenin*. The fruit contains a bitter-sweet resin in the pulp, and several specific principles in the seeds, namely *hederic acid* ($C_{16}H_{26}O_4$) and *hederotannic acid*. A bitter body, *hederin*, has been reported, but its nature is unknown. It has been claimed that it is identical with the hederotannic acid, but this appears unlikely. The emetico-cathartic and poisonous properties have been proven by Joanin to reside in the hederin.

Ivy leaves have been used, bruised into a poultice-like mass and in other forms, as a parasiticide and a stimulating application to cutaneous ulcers and eruptions. They are also used internally in doses of gr. xv.–xxx., in various diseases and wholly unscientifically. The fruits are emetico-cathartic and are doubtless effective as a nauseating diaphoretic, and have thus been used in febrile states. The gum resin is used as an astringent internally, and externally for the same purposes as the leaves.
Henry H. Rusby.

IVY, GROUND. See *Labiatæ.*

IVY, POISON.—Rhus Toxicodendron, Mercury, Poison Oak. "The fresh leaves of *Rhus radicans* L. (fam. *Anacardiaceæ*)," U. S. P. The general account of this plant will be found under the title *Poisonous Plants.* It is introduced here merely to refer to its use, chiefly in the form of the tincture, in doses under two minims and usually minute, in the treatment of "paralysis, skin diseases, and incontinence of urine." Those physicians who are not gifted with a homœopathic imagination have failed to find its use warranted, and it will probably be dropped from the next edition of the Pharmacopœia. *Henry H. Rusby.*

IXODES RICINUS. See *Arachnida.*

IXTLAN * SPRINGS, MEXICO.—Within the municipal limits of Ixtlan, state of Michoacan, Mexico, there are a large number of mineral springs generally known as "Pozos Hervideros," or in English "Boiling Springs." The temperature of the water is quite high and the odor of sulphurous acid is very marked. People suffering from syphilis and rheumatism, and especially those suffering from the chronic manifestations of these diseases, resort to the springs in large numbers in order to take the baths, in spite of the very unsatisfactory arrangements existing for the purpose.

In Mexico Dr. Zuñiga has made an analysis of these waters, and he states that their composition is as follows, per litre: Carbonic acid, 0.0075; carbonate of lime, 0.0257; sulphate of lime, 0.0210; chloride of magnesium, 0.0135. He therefore very properly places them in the group of simple thermal springs.
N. J. Ponce de Léon.

JABORANDI.—Pilocarpus. "The leaflets of *Pilocarpus Selloanus* Engler (Rio Janeiro Jaborandi) and of *Pilocarpus Jaborandi* Holmes (Pernambuco Jaborandi) (fam. *Rutaceæ*)," U. S. P. Just what the official definition ought to include is not clear, but certainly the first named of these two species is a very inferior drug, and its admission is excusable only on the ground that the market is often devoid of anything better. Its preparations should in all cases be specifically so labelled, and larger doses given. Better still, every preparation of jaborandi should bear a statement of its alkaloidal percentage. The British Pharmacopœia authorizes only the second specie. The genus *Pilocarpus* Vahl. contains about fifteen species, all tropical American shrubs, having impari-pinnate leaves, occasionally of but one leaflet. A number of them are known to possess alkaloids similar to those of the official article, and to possess similar properties. It is not at all improbable that others are even fully equal to *P. Jaborandi.* This species occurs in the Pernambuco region, and is exported thence. *P. Selloanus* grows in southern Brazil and Paraguay. Since the better drug will doubtless be alone retained in the next edition of the United States Pharmacopœia, it is here described.

Very shortly and stoutly petioluled, the blades 6 to 12 cm. (2½ to 5 in.) long and 2 to 4 cm. (¾ to 1½ in.) broad, oblong or oval, occasionally a very little narrower above or below the middle, usually slightly inequilateral at the base, blunt and retuse at the summit, entire and thinly revolute at the margin, yellowish- or brownish-green, smooth and slightly shining, especially underneath, thick and coriaceous, not much wrinkled, the reticulate venation prominent on both surfaces, especially underneath; strongly pellucid-punctate; somewhat peculiarly aromatic when crushed and warmed in the hand; taste bitterish, somewhat salty, aromatic, later somewhat pungent and sialagogue.

Leaves which are very much smaller, those of a dull or gray-green, those markedly narrowed in the lower half and those tomentose underneath are from unofficial species.

Even the powder is distinguished by a distinct yellowish-green tint, quite different from the dull green of the Rio Janeiro or Paraguay species. The distinction of the better drug is in this case of unusual importance, and the physician may well supplement the knowledge of the pharmacist, who is usually very ill-informed concerning it. The Rio Janeiro leaflets are narrower and much more frequently oblanceolate than lanceolate or oblong. They are not so thick or so veiny and are of a dull but strong green. The Paraguay jaborandi (from *P. pennatifolius* Lem.) is of a gray-green, and the leaflets are mostly oblong, otherwise like the last. They are almost worthless. Very poor also are the velvety-hairy leaves of *P. trochylophus* Holmes. *P. spicatus,* "Aracati jaborandi," has unifoliolate leaves and is quite worthless. Those of *P. microphyllus* Stapf, with obovate, strongly emarginate leaflets, acute at the base and only one to one and one-half inches in length, are of a quality almost equal to the best, and their introduction to this definition, in place of *P. selloanus,* appears justifiable.

Constituents.—The one-half per cent. of volatile oil is by no means inactive, but attention has not been attracted to it. Alkaloids to the extent of about three-

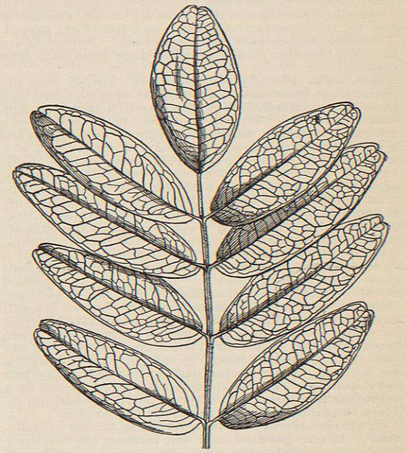

FIG. 2975.—Pernambuco Jaborandi Leaf (*Pilocarpus Jaborandi* Holmes). Reduced one-half. (After Greenish.)

fourths of one per cent. are the important constituents. The principal one is *pilocarpine* ($C_{11}H_{16}N_2O_2$), a colorless or yellowish syrupy liquid. It yields numerous crystalline salts, but we are not driven to their employment, since the alkaloid itself is soluble in both alcohol and water. It possesses the properties of the drug.

* Also spelled "Yxtlan."

Pilocarpidine ($C_{11}H_{14}N_2O_2$) is also present, and can be artificially produced from the former. It is soluble in water. Its action differs in slight particulars from that of pilocarpine.

Jaborine ($C_{22}H_{32}N_4O_4$) is also a derivative of pilocarpine. It is yellowish and syrupy, or becomes a soft solid. It is soluble in alcohol, but only slightly in water. Although its action is opposed to that of the others, there is so little of it as not to interfere greatly when the entire drug, or a preparation which certainly contains all its constituents, is used.

Action.—In almost every particular jaborandi is directly antagonistic to belladonna. Its essential action is to stimulate the secretions, with the exception of those of the kidney and the mammary gland. In the liver, the production of sugar is increased, but not that of the bile. The secretions most affected are those of the skin, the salivary glands, and the pancreas, but those of eyes, ears, stomach, and intestine all share markedly in the result. Salivation is the first to appear, and diaphoresis begins as that diminishes. The salivary, and especially the sudorific, increases are the greatest known in the case of any drug, and are sometimes quite phenomenal. The watery portion is most increased, but there is also some increase in the solid portion. The mode of operation appears to be the stimulation of the nerve endings in the gland. The production of leucocytes is notably increased. There is hyperæmia of the tissues whose activity is increased, but this seems secondary to, and dependent upon, the former. Through the increased heat radiation there is a fall of temperature. The powerful contraction of the pupil, also through stimulation of the nerve endings, illustrates what takes place in many other involuntary muscles. The blood-vessels are not thus affected, so there is not the increase of blood pressure that we should expect. Neither is the heart so affected, but the terminal filaments of the vagus in this organ are usually stimulated and the movements of the heart as a whole are slowed. This effect is, however, quite uncertain. Nausea is apt to follow the other symptoms after large doses have been taken.

Use.—The uses of jaborandi, though already very important, are by no means developed, especially that as a stimulant to intestinal digestion, through increased pancreatic secretion. It will probably, in future, have a wide and important use in this direction. Its present use is almost wholly as a sudorific, and it seems to work well in all cases in which increased perspiration can be of service. It is especially valuable in removing dropsical accumulations, and, while not itself directly affecting the existing disease, the improved condition is often the cause of complete recovery. It is also of special value in uræmia, in which condition it washes out from the skin accumulated waste and clears the way for further depurative action. By early relieving congestion, in case of a threatened cold, the latter can be averted, but the patient must be carefully protected. It promotes to a marked extent the nutrition of the nails and hair, as well as of the skin generally, and its use in cutaneous diseases is a still largely unworked field. It is often productive of great benefit in promoting a new growth of hair, even when locally applied. The hair at the same time becomes oily and is apt to become darker. Some well-known and curious accidents in producing dark spots upon white hair have occurred. The alkaloid is often used locally as a substitute for eserine in the eye, while its internal use relieves congested states of that as of other organs.

Several cautions are to be observed in the use of jaborandi. It may produce, and will increase the tendency to, abortion. Ordinarily, small doses are to be preferred, as there is a great tendency to reaction after its use, mental as well as great physical depression, and lack of secretion. The jaborine content should be avoided as far as possible. Since this is insoluble in water, but soluble in alcohol, while pilocarpine is soluble in both, a weak alcoholic menstruum is to be preferred, and commonly the use of the alkaloid, carefully prepared, is even better. The Pharmacopœia provides a fluid extract, made with diluted alcohol, the dose of which is 0.6–4 c.c. (♏x.–lx.). The dose of pilocarpine is 0.01–0.02 gm. (gr. $\frac{1}{6}$–$\frac{1}{3}$). For ocular instillation, a one-per-cent. solution is to be preferred, and one or two minims will be found sufficient.

Henry H. Rusby.

JACKSONVILLE, FLORIDA.—The city of Jacksonville, the largest in Florida, is situated about 25 miles from the mouth of the St. John's River, on its left bank. It contains 30,000 or more inhabitants, which are largely added to during the winter months by transient visitors and invalids seeking a mild and salubrious climate. The city is well laid out with wide and well-shaded streets and parks, and offers all the advantages to be expected from a city of this size: good public schools, a library, opera house, public halls, and churches of various denominations. There is a good water supply from artesian wells, and a system of sewerage introduced under the direction of the late Colonel Waring. The death rate is low. There are good shell roads leading out of the city which afford good driving and cycling. The various excursions on the river are also attractive.

If one desires to spend the winter in a city in a mild and sunny climate, Jacksonville offers many advantages. There are excellent and abundant accommodations of all kinds, from the hotel of five hundred guests to a variety of smaller boarding- and lodging-houses. Unfurnished cottages can also be obtained. The winter climate is mild and equable, and of medium moisture.

The following table gives the climatic data for the five winter months—November to March inclusive.

Climate of Jacksonville, Fla. Latitude, 30° 20′; Longitude, 81° 39′. Period of Observation Twelve Years.

	November.	December.	January.	February.	March.	Year.
Temperature—						
Average or normal	61.7°	55.8°	55.8°	58.1°	62.7°	69.2°
Average daily range	15.6	17.0	15.7	16.4	17.4	
Mean of warmest	70.9	66.4	64.9	68.5	73.6	
Mean of coldest	55.3	49.4	48.2	52.1	56.2	
Highest or maximum	84.0	81.0	80.0	83.0	88.0	
Lowest or minimum	30.0	19.0	24.0	32.0	31.0	
Humidity—						
Average relative	74.8%	73.7%	74.6%	70.6%	65.4%	72.0%
Precipitation—						
Average in inches	2.95	2.89	3.28	3.45	3.13	54.68
Wind—						
Prevailing direction	N. E.	N. E.	N. E.	N. E.	S. W.	N. E.
Average hourly velocity in miles	6.5	6.0	5.8	6.9	7.9	6.7
Weather—						
Average number clear days	9.8	10.2	9.0	9.7	12.7	123.2
Average number fair days	11.1	12.0	12.8	10.4	13.0	156.7
Average number clear and fair days	20.9	22.2	21.8	20.1	25.7	279.9

Edward O. Otis.

JALAP.—Jalapa. The tuberous root of *Exogonium purga* (Wend.) Lind. (*Ipomœa F.* Hayne; I. *Jalapa* Schiede and Deppe—fam. *Convolvulaceæ*).

This is a perennial, herbaceous twiner with numerous slender, twisted and furrowed, moderately branched stems, arising from ovoid, pear-shaped, or subspherical tubers, these often clustered or tangled together by roots and rhizomes. The flower is merely a large, handsome, rose-colored "morning glory." It is a native of Eastern and Central Mexico, from one town of which it has received its name (Jalapa). Jalap was known and brought to Europe as early as the beginning of the sixteenth century, if not before. Its botanical source was demonstrated first in the early part of this century, by Dr. Coxe, of Philadelphia.

The collection of jalap is carried on without much regard to season. The tubercles are dug up and dried by artificial heat, the smaller ones entire, the larger scored (usually lengthwise), or split or sliced. The heat employed is often sufficient to break the starch granules,

and so, when dry, the texture is often horny, on account of the hardened starch mucilage, irrespectively of the amount of resin contained. The cultivation of jalap is in its infancy.

Description.—The jalap tubercles are in part described above; the Pharmacopœial description is as follows: "Napiform, pyriform, or oblong, varying in size;

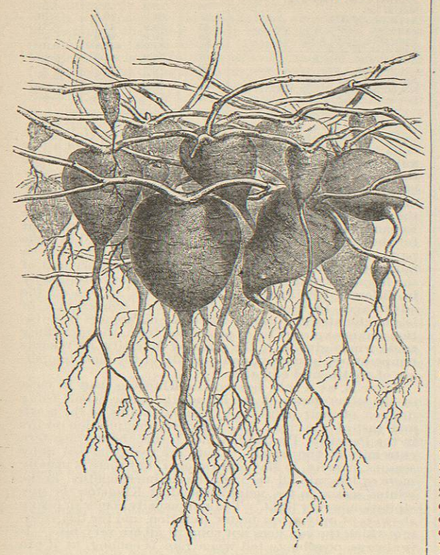

Fig. 2976.—Jalap Roots. (Baillon.)

the larger roots incised, more or less wrinkled, dark brown, with lighter-colored spots, and short, transverse ridges; hard, compact, internally pale grayish-brown, with numerous concentric circles composed of small resin cells; fracture resinous, not fibrous; odor slight, but peculiar, smoky and sweetish; taste sweetish and acrid.

"On exhausting 100 parts of jalap with alcohol, concentrating the tincture to 40 parts, and pouring it into water, a precipitate of resin should be obtained, which, when washed with water and dried, should weigh not less than 12 parts, and of which not over ten per cent. should be soluble in ether."

It is said that this requirement of twelve per cent. of resin is excessive and difficult, if not impossible, to attain in the commercial drug. Probably eight or nine or, at most, ten (as in the British Pharmacopœia) per cent. would be a reasonable requirement. Cultivation is an important factor, as under it twenty per cent. of resin has been produced. The dried tubercles of the market have shrunken and shrivelled considerably, and are usually much more acute than represented in the above cut of living roots.

Composition.—Jalap contains a large amount of sugar and of starch, substances which contribute to its taste and texture, but have no further value. Its active principle is a composite *resin*, the quantity of which determines the value of the article. This crude substance consists of two resins, both of which are soluble in alcohol, but only one of which (the most considerable) is also soluble in ether; the insoluble portion is called *convolvulin*. It is regarded as a glucoside. Merck gives the formula as $C_{31}H_{50}O_{16}$ and the dose as gr. i.–iij. It is only partly soluble in water. It is converted by alkalies into convolvulinic acid, which is active in three times the dose of the convolvulin. The jalapin is also active, and is the principal constituent of scammony. The crude resin of jalap is official (*Resina Jalapæ*, U. S. P)., and in common use.

Action and Use.—Jalap is one of a considerable number of active cathartics whose energy either lies in their resinous contents or is at present inseparable from them. Of these, however, it is one of the mildest and most uniform, and probably, in consequence, one of the most frequently employed. In full doses it produces free hydragogue catharsis, with more or less, but generally not excessive, nausea and griping.

It has been traditionally used as an adjuvant to calomel. Of its action upon other organs than the stomach and bowels but little can be said. It is doubtful whether much of it is absorbed. It will not act if injected hypodermically.

Administration. — Powdered jalap is frequently given, and contains so little woody tissue that it is a very good form. Dose, 1–1.5 gm. (gr. xv.–xx.); as a drastic purgative sometimes twice as much. The resin is about five or six times as active as the crude powder. The compound powder of jalap (Pulvis Jalapæ Compositus) is frequently of use in anasarca, when a combined effect upon the kidneys and intestines is desired. It consists of jalap, 35 parts, and cream of tartar, 65. Dose, a gram or so twice a day. There is also an official alcoholic extract, the dose of which is gr. ij.–viij. *Henry H. Rusby.*

JAMAICA.—Jamaica, a British colony, is an island in the Caribbean Sea, lying between 17° 43′ and 18° 32′ North Latitude, and 76° 11′ and 78° 20′ 50″ West Longitude. It is about 90 miles south of Cuba, nearly 5,000 miles from Southampton, and a little more than 1,400 miles from New York. It is 144 miles in length and from 21½ to 49 miles in width. The surface of the island is crumpled up into a central mountain range with numerous outlying spurs. The highest points of this range, contrary to the usual rule, are in the eastern portion, whence the surface slopes irregularly toward the west, where the only level parts of any extent are found. There is one principal range, called the Blue Mountains, running east and west through the centre of the island, and from this secondary ridges run north and south, themselves giving off other and shorter spurs in a direction parallel to the central range. The highest point is Blue Mountain Peak which rises to an elevation of 7,360 feet; Catherine's Peak has an altitude of over 5,000 feet; and there are several others, varying in height from 4,000 to 5,000 feet. The island is in general well watered, the abundance of rivers and springs in most parts giving plausibility to the generally accepted interpretation of the name, Jamaica, which is believed to have signified in the aboriginal tongue the "Isle of Springs," or the "Land of Wood and Water."

It is difficult, in a brief article of this nature, to describe satisfactorily the climate of Jamaica, as, owing to the diversity of elevation and other causes, it varies greatly in different parts of the island; in some parts it is hot, in others temperate and even cool; in some it is dry, in others the rainfall is very great; and indeed the only characteristic common to all the varying climates of Jamaica is equability. Thus, at the sea-coast the average temperature is 78° F. (the extreme range for the entire year being only 35° F.), while on the mountains at an elevation of between 4,000 and 7,000 feet the mercury ranges from 40° to 74° F., occasionally falling, on the summit of the highest peak and in midwinter, even to the freezing-point.