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FOREIGN WOODS

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IMBUIA, EMBUIA, OR "BRAZILIAN WALNUT"  
Phoebe porosa (Nees and Mart.) Mez.  
Family: Lauraceae

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There are about 85 species of the genus Phoebe. Some occur in the East Indies, China, and Malaya, but most of them are found in tropical America from the West Indies and southern Mexico southward through Central America and the Andes to Argentina and Brazil.

The most important species is Phoebe porosa (formerly known as Nectandra sp. and as Oreodaphne porosa Nees) of southern Brazil (3, 11).<sup>2</sup> It grows in the Araucaria forests of Parana and Santa Catharina, mostly at altitudes of 2,500 to 4,000 feet, and may form about 20 percent of the stand (12). The wood of Phoebe porosa is known commercially as imbuia, embuia, or "Brazilian walnut."

The Tree

Trees of the species Phoebe porosa grow to 130 feet in height and up to 6 feet or more in diameter.

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<sup>1</sup>Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

<sup>2</sup>Underlined numbers in parentheses refer to the list of numbered references at the end of the article.

They have evergreen leaves, but most of the old leaves are shed as the new leaves appear. On the underside of the leaves, in the axils of the veins, are little two-lipped pockets (domatia), which are inhabited by minute insect parasites (10, 12).

## The Wood

### Color

The color of the wood varies from yellowish to olive or rich chocolate brown. It is said that material can be selected to match any shade found in black walnut grown in the United States (12). It is further reported that the yellowish wood comes from young trees or trees grown in sheltered places and the "black" form from older, isolated trees (5).

### Weight

The specific gravity of the air-dry wood is reported as 0.595 to 0.76, and the average weight as about 43 to 47 pounds per cubic foot (5, 12).

### Mechanical Properties

Strength tests have been made at the Institute de Tecnologicas, Sao Paulo, Brazil, but are reported<sup>2</sup> in units not directly comparable to the United States standard tests.

### Figure, Grain, Texture, and Luster

The stock is mostly straight-grained, but curly and wavy grain may be found. Some trees in exposed locations may have markedly contorted or gnarled grain (5). The wood may be plain in color or markedly variegated and has rather fine texture and a medium luster (12).

### Odor

The freshly cut wood has a spicy, cinnamon-like, resinous taste and scent, which are generally lacking in dried material.

### Durability

The wood is considered as durable locally. Railway ties are reported to have lasted 10 to 20 years in service in Brazil.

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<sup>2</sup>Institute de Tecnologicas, Sao Paulo, Brazil. Bulletin No. 31. 1945.

## Workability

The wood is moderately hard and heavy and is considered easy to dry, to work, and to glue. It takes a high polish and has good dimensional stability when manufactured.

A fine dust may arise during the sawing of imbuia that is irritating to some workmen and may cause temporary dermatitis (8, 12, 14).

## Uses

Imbuia is used in both solid and veneer form. In Brazil, it is used for high-grade flooring, furniture, interior trim, doors, pianos, radio cabinets, and fixtures. Phoebe trees grow to sizes that permit the production of thick plank for wood carving and material for table trusses and chair legs (12). Imbuia has been recommended for gun stocks (6).

As veneer, imbuia is rated highly in Europe for fine furniture and interior work. It is marketed as: 1. Light, hell, or clara -- a yellowish brown in various tones with shadings and stripes; 2. Dark, dunkel, or escura -- a brown background with reddish-black markings; 3. Extra or optima -- the finest quality in brown and red-brown tones with wave and cloud effects (4).

One species of Phoebe yields a violet-colored dye from saw-dust and bark. This dye is specially prized for use on fine leather.

## Supply

The wood has been imported into the United States in relatively small amounts, as well as into Europe. Local demands for it in Brazil are high, restricting export.

## Minute Structure

Growth rings.--Growth rings are usually distinct owing to differences in density.

Pores.--The pores are small, barely visible, numerous, and uniformly distributed.

Tyloses.--Tyloses are lacking.

Vessels.--Vessels have simple perforations.

Rays.--The rays are very fine, mostly biseriate (10).

Fibers.--The fibers are septate.

Oil cells.--Oil cells occur in the rays, as well as in the parenchyma strands (9, 10).

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