When Wood Fights Back

That special board you've been saving may harbor hidden health risks

by Jon Arno

It wasn't the British army, but an unseen foe, that caused the demise of seven of Napoleon's soldiers in 1809. They died not by sword or musket ball but from eating meat that had been barbecued on oleander spits. The shrub, *Nerium oleander*, contains a deadly, soluble poison.

Oleander is a great deal more toxic than most woods. But skin rashes, respiratory problems and other health concerns are common reactions to many species that woodworkers routinely handle.

Plant toxins act as a defense mechanism to deter browsing animals, so the toxins tend to congregate in the foliage, fruit and bark. The woody tissue, as a general rule, is relatively inert. But it's rarely, if ever, totally void of potential toxins. Depending on how they are handled and the unique sensitivity of those who use them, all woods should be viewed as potentially toxic.

Exposure occurs through skin contact, inhalation and ingestion. Airborne dust sticking to sweaty skin and dust that we breathe in probably constitute the chief forms of contact. Wood exposure affects people as either an irritant or a sensitizer.

Irritants affect a larger portion of the population and may be either mechanical or chemical. With a mechanical irritant, fine dust particles dry out and abrade the mucous membranes. Perspiration releases acids and other soluble compounds contained in the dust to form chemical irritants, which are caustic to human tissue. The symptoms usually are skin rash and bronchial inflammation.

Sensitizers cause the body to produce histamines, which make the rash and the bronchial symptoms more severe. Most people are unaffected by sensitizers. But those who do experience allergic reactions, even from relatively modest contact, may find that these reactions get worse, not better, over time.

Offending compounds in wood, whether irritants or sensitizers,

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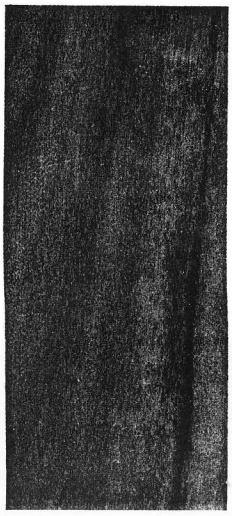
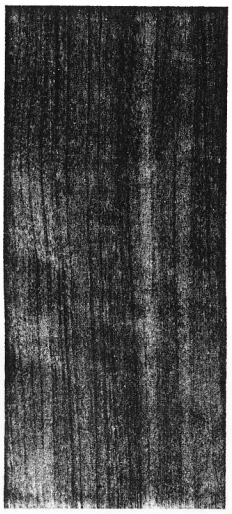
Some unfriendly exotics

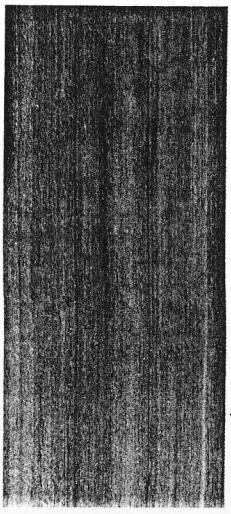
The wood species shown at right are potentially toxic. All of them, though, are popular and relatively important cabinetwoods. Individual sensitivity, however, depends on the intensity and the length of exposure to the wood.



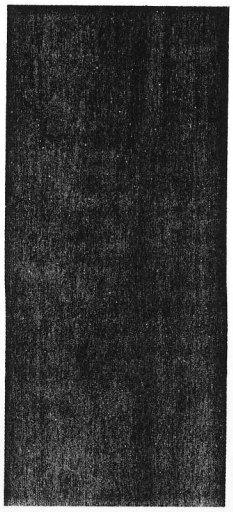
Gonçalo alves (*Astronium graveolens*): This is a member of the poison ivy family, Anacardiaceae. Symptoms can include extremely severe skin rash, but individual sensitivity varies greatly.



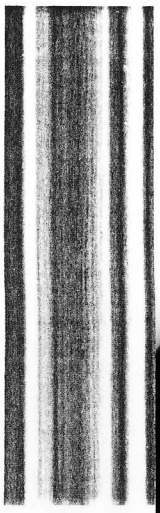
Imbuia (*Phoebe porosa*): Sometimes called **Brazilian walnut**, imbuia contains potent alkaloids, which are cardiac stimulants and can cause vomiting, headache and diarrhea.



Teak (*Tectona grandis*): Skin rash is common when working teak. The primary sensitizer in the wood can trigger sensitivity to allergens in other unrelated woods.



Makoré (*Tieghemella heckelii*): Sometimes called **African cherry**, makoré contains a strong irritant. Symptoms include skin rash and respiratory problems.



Ma[illegible]**sonia** (*Ma*[illegible] *altissima*): Som[illegible] call[illegible] **African l**[illegible] **walnut**. It's lac[illegible] ritants. Sympto[illegible] clude headache[illegible] rash, nosebleed[illegible] dio[illegible]ascular pro[illegible]

may be substantially different chemically. Some of these compounds, especially ones called quinones, bear a molecular similarity to petroleum distillates, such as benzine and naphtha. And quinones frequently are identified in clinical tests as the probable cause of many allergic reactions.

Allergic reactions to sensitizers sometimes are severe. Occasionally, the reactions are fatal. And now there is growing evidence that irritants also have lethal potential. Correlations are being drawn between exposure to numerous irritants and higher incidences of cancer. Asbestos, tobacco, food dyes, solvents and a host of other substances in the modern environment are all suspect.

In this respect, wood is no exception. Certain relatively rare cancers of the nasal passage tend to occur more frequently among woodworkers than among the population at large. The cause is generally linked to long-term exposure to a lot of dust in a factory-like environment rather than home workshops where dust levels may be a good deal lower.

Troublesome timbers

Some woods seem to cause more problems than others. The wood samples shown above are some of the foreign species that have been studied for many years. These woods are known to cause problems like skin rash or respiratory irritation among some woodworkers. But their relative toxicity in comparison to other lesser-known imported woods is not clear.

It's not only exotic, tropical species that can lead to health problems. Some very common timbers, such as mahogany, oak, walnut, western red cedar, Douglas fir and pine, are cited as toxic by some authorities. But research on the subject is far from conclusive and hasn't been tackled comprehensively.

Simple precautions reduce health risks

Because many wood pigments, gums and resins contain irritants or sensitizers, often it is the most attractive, vividly colored and fragrant timbers that cause problems. It's a good idea to limit first-time exposure to unfamiliar woods.

Be careful when selecting woods used for kitchen utensils or toys.

Imported species aren't necessarily more toxic, but it is wise to be especially careful with them. Also, even though a certain species may be relatively harmless, there is a remote chance that it may be contaminated by a fungus or micro-organism that you've never been exposed to before. If you have no prior experience with a particular wood, even if it's a well-known cabinetwood, experiment with it by cutting or shaping it and then waiting a few days before filling your shop with dust.

Kitchen utensils and toys—Be careful when selecting woods used for kitchen utensils. Some woods can impart unwanted flavors. Acids in woods like oak and beech and alkaloids in species like Peroba rosa and Masonia are water-soluble, so these compounds can permeate food. Ironically, bourbon whisky and fine

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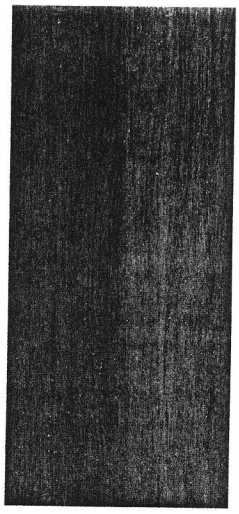
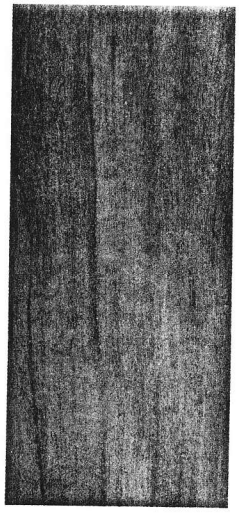
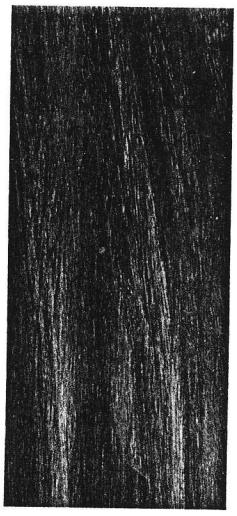
Photos of wood samples: Robert Marsala



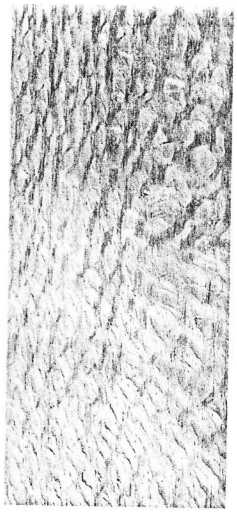
Mansonia (*Mansonia altissima*): Sometimes called **African black walnut**. It's laced with irritants. Symptoms include headache, skin rash, nosebleed and cardiovascular problems.



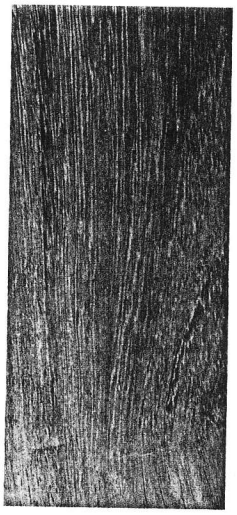
Peroba rosa (*Aspidosperma peroba*): This wood belongs to the oleander family, which contains irritants and poisonous alkaloids. Symptoms include skin rash and flu-like reactions.



Rosewood (*Dalbergia spp.*): A high proportion of people are affected by the woods in the rosewood genus. Skin rash is the primary symptom.



Silky oak (*Grevillea robusta*): Sometimes called **lacewood**, this wood contains phenols, which are irritants and potentially sensitizing. The foliage and wood can cause severe skin rash.



Iroko (*chlorophora excelsa*): This exceptionally durable African timber often is used as a teak substitute. It can cause skin rash and respiratory problems.

sherries attain their final flavor from oak barrels by this same leaching process. Also, gums and resins from some woods—pines and firs, for example—are liberated by heat, which makes them a poor choice for cooking utensils.

The physical characteristics of the wood also should be a consideration. Coarse-textured and open-grained woods, like ash, chestnut and oak, may collect food residue that can affect the flavor of the food and harbor bacteria, which can cause food poisoning.

When choosing woods for toys, remember that infants often chew on them. Given a child's body weight, even small doses of some toxins can be lethal. Stick with wood species traditionally used to make toys and kitchen utensils. Maple is the best choice because it's fine-textured and doesn't harbor dirt, and the sugars in the wood are edible. Birch, white pine, poplar and basswood also are acceptable.

Avoid walnut for making toys because it contains juglone, which is a natural laxative and sedative. Clearly, don't use oleander. The imported woods discussed above are best used for projects other than toys and food-related items.

Photo: Vincent Laurence

***Covering exposed skin and using a respirator** are ways to limit exposure to irritating dust.*

Minimize your exposure to wood—Many common woods have developed the reputation of being harmful to your health. But often it is the intense, prolonged exposure of these widely used woods, rather than a higher level of toxicity, that leads to health problems.

Allergic reactions often intensify with repeated or prolonged exposure. Aside from the risk this poses, the initial sensitivity may trigger a broader allergy to unrelated woods. If a particular wood causes a reaction, stop using it, and seek medical advice.

Installing a dust-collection system, using a respirator, wearing clothing that prevents dust from sticking to perspiration on the skin and washing as quickly as possible after working with wood are all sensible precautions.

Although it's smart to be prudent, don't panic. Sharp-edged power tools and organic solvent vapors probably constitute a greater danger to the average woodworker than exposure to wood. □

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