

AMBER:

AN ORGANIC GEM THAT SERVES AS MOTHER NATURE'S ENIGMATIC TIME CAPSULE.

BThe warm yellow of amber was most probably the major reason the Ancient Greeks called it *electron*, meaning *made by sun* or *beaming sun*. Its mythology is rather tragic; when Phaeton, son of Helios (the Sun) was killed, his mourning sisters became poplar trees, and their tears became *elektron*, *amber*. The romance aside, it is also recorded in ancient texts that the amber pieces attract small particles when rubbed on cloth, hence the modern word electromagnetism. Regardless of its etymology, amber, as a fossilized tree resin, has been a very important commodity through millennia. It is one of the oldest gemstones found in early civilization's records as well as their jewelry. Modern paleontology celebrates amber as a reliable time capsule, because many organisms such as seeds, plants, many different types of insects or even small reptiles got trapped in once soft resin and solidified within.

The most important point about amber, however, is its age. Gemologically speaking, the name amber is only given to fossilized resin that is as old as 15 to 320 million years. Yet, an almost identical organic gemstone "copal" forms the exact same way but is much younger, thousands of years old versus millions. Their gemological properties such as refractive index and specific gravity are identical too. Although the type of tree that produced amber and copal is the same, the fossilization process makes amber much more stable. Most copal (a.k.a., Kauri Gum in New Zealand) is lighter in color and very prone to crazing with whitish powder on the surface. Amber, on the other hand, might craze but never leaves a white residue and the crazing pattern is darker than the

body color. The best way to separate amber from copal is advanced lab testing to identify its chemistry. A practical gemologist would avoid a destructive test but, if possible, a small cotton bud soaked in acetone can be used to touch on the inconspicuous surface of the subject material. If the spot is intact, it is amber because copal would go soft very quickly with acetone.

The oldest source of amber is the Baltic region which is still a prolific source. Burma, Dominican Republic, and Mexico are also well-known amber sources. The



*Untreated Baltic Amber.
Photo by Michal Kosior.*

most valuable ones are the samples with intact plant and animal fossils in them. Amber goes through treatments, mainly heating with certain fluids in an autoclave, to improve its color and clarity. While this treatment is easily recognizable with "sun spangle"

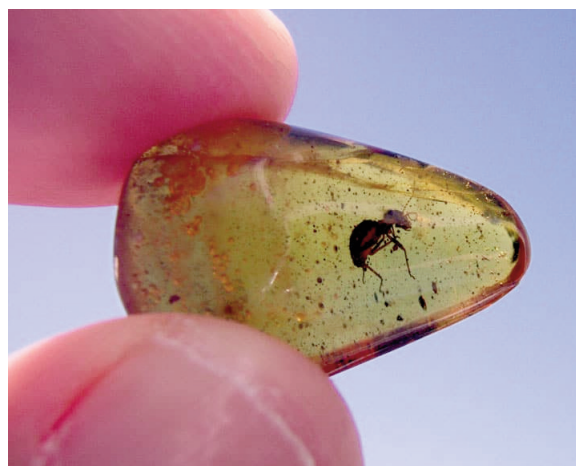


*Treated Baltic Amber.
Photo by Michal Kosior.*

inclusions, one needs to be aware of color treatments that are more difficult to detect. Moreover, amber is pressed and reconstituted from smaller pieces of amber with additional colorants and synthetic polymers. Creating “amber with insects” with similar methods is a common practice too. Since it is a resin, the most common and cheap simulant of amber is plastic which is easily separated by its specific gravity.

Copal is found in almost all subtropical regions of the world, including Madagascar, Colombia, Dominican Republic, Australia, and New Zealand. It was a very

important source of varnish production for centuries. Woodwork in every arenas of life, paintings, polishing of goods needed varnish from this natural source prior to development of the synthetic resins. Today, copal is enjoyed as a gem material more than anything. Copal, just like its older counterpart amber, may contain trapped fauna and flora that is also helpful for research. In fact, the age determination of these two materials is achieved through fossil identification. Copal is so commonly available that it is not treated or imitated. However, most copal is sold as amber since the value difference is significant. ♦



*Dominican amber with a trapped insect.
Courtesy of www.villatina.com/dominican-amber.*

Gemworld International, Inc., 2640 Patriot Blvd, Suite 240, Glenview, IL 60026-8075, www.gemguide.com
© 2021 Gemworld International, Inc. All rights reserved.

All articles and photographs that appear are copyrighted by the author; the contributing person or company, or Gemworld International, Inc. and may not be reproduced in any printed or electronic format, posted on the internet, or distributed in any way without written permission. Address requests to the editor-in-chief.

The opinions expressed in this publication are the opinions of the individual authors only and should not necessarily be considered to be the opinions of the staff of Gemworld International, Inc. as a whole. Any website listings that appear in articles are for informational purposes only and should not be considered an endorsement of that company.