The Nature of Amber

an essay by Sean McLaughlin
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Amber, the great healer and guardian of the ancient world, is one of the four organic gems. Gem dealers describe it as the polymerized and hardened resin of prehistoric trees that lived millions of years ago or, in other words, a near-stabilized ancient sap. Its chemical composition varies for there are many different resins that may make an amber, each of which contain their own particular pattern of organic compounds. One of the most important chemical aspects of an amber is its acids. We judge a piece of gem quality amber by both the type of acid it possesses and by the amount of that acid.

Succinic acid, from the Latin word succus, meaning sap, possessed by the majority of ambers found in the Baltic region [but not specific to the Baltic] is generally regarded more highly by gem dealers than that of retinite acid which is found in the majority of the ambers mined in the Dominican Republic and Caribbean. Gem quality ambers should contain as much as three to eight percent succinic acid. Such acid in such an amount presents a more stable amber as relates to oxidation, the process whereby the outside of the amber discolors, and to the brittleness of the amber itself.

Different types of amber are found in small quantities throughout the world. The oldest plant and insect inclusions are found in Lebanese amber which can date from one hundred and twenty five million to one hundred and thirty million years of age. Among the oldest ambers found, which may come as a shock to many, are those which are excavated in New Jersey. Some have been dated at an excess of ninety million years of age. Naturally, these ambers are prized for their inclusions, by which we mean the organic matter and debris collected by the sticky resin as it flowed down its particular tree. Collectors should be aware, before they descend on New Jersey with a shovel and a bucket, that fossilized resins are quite common to our world. One should remember that amber is only that type of resin that is crossed linked and polymerized with little resin volatiles. It is rare in the world of old resins. Resin hunters should further remember that of all the amber found, only an astonishing ten-percent is gem quality.

The path of resin becoming amber is not a linear one. It is quite complex and has a great deal of specifics that determine the evolution of a resin. But to simplify matters, one could say that a resin, once produced, if protected in certain ways, will experience an evaporation of properties and/or a change of properties that allows it to eventually harden. Most deposits of amber are in ancient estuaries that flowed into an ocean or sea. There, preserved and protected in sediment, the resins may become amber. The first great path to amber is when the resin reaches a copal-like state. Copals are resins that possess a certain hardness and whose molecules have started changing.

Copal is a carvable, workable resin substance that appears throughout the world and which may have a tremendous cultural value. Copal may have great cultural value, but it possesses little gem value. Berber amber, Afghan trade beads, Nepalese shaman balls, Asian Indian or African ambers, some wrongly identified Mexican amber, and what is often marketed as "new amber," are almost always copal. They should not be sold as amber, for they will oxidize very quickly, losing their luster and even their polish. Because of the compounds that they still contain, like an image of a ball of clay that is dry on the outside and wet on the inside, they, like that clay, are very brittle and subject to easy cracking.

The historical use of copal was to dissolve it in alcohol to produce a paint varnish. To the dismay of many scientists, whole areas of the world's copal, with dense inclusions, that is, insects, organic matter, or other debris, were utilized this way. Copal, because of its general youth, from 100 years, i.e. Dominican copals, to 35 million years as dated in a rare Japanese copal, contains the greater number of inclusions. Because of the great rise of angiosperms, our flowering plant life, and its impact on our insect life, copal has the larger sized inclusions as compared with ambers dating from forty to one hundred and twenty million years of age. The large and numerous dark ant inclusions I was offered in the Yucatan were not new ants preserved in plastic as many feared, but ants that were two hundred years old

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preserved in copal. If one studies the bee sizes in copal, or even their change of size in Dominican amber, which is younger than Baltic amber, one would be truly amazed at how small the bee is when it is preserved in Baltic amber. Copal does not necessarily lead to amber. But one could say that amber at one time was very, very close to copal.

Much amber is mined. In fact, most of the world's oldest ambers are found and now excavated from small deposits. Wonderful stories are told about their finding or their loss. For example, many people would be shocked to know that there was so much amber in one area of the clay strata of Staten Island, a borough of New York, that when it was being excavated for building government facilities and what would later become the Staten Island Ferry, the workmen burned it for warmth.

But the majority of amber, and the amber that I deal with and whose history and mythology I seek to preserve, is the amber that comes from the Baltic Sea. For thousands of years this amber gave a great richness to what grew to be Dane Mark, the expanding Vik Mark, northern Germany, the great tribes that compose Northern Poland, as well as the Balts.

The greatest amber beaches of the Baltic Sea were and are located in its lower eastern curve, in Latvia, Lithuania, and what was old East Prussia, and is now divided into Kaliningrad and Poland. The regions of these copious amber beaches were the home of the Baltic tribes and the Baltic language, and the great tribes who traded amber out and along the great rivers.

Amber, known as the Sun Stone, Sickness Averter, Gold of the North, the Guardian, the Healing Stone, the Burn Stone, the White Burn Stone, etc., came to be one of the oldest traded commodities that we know of in the history of our world. Much knowledge of that trade has survived. We know how amber was collected by the Mesolithic (8000 BC- 4000B.C.) Balts and the Battle-ax culture and what types and colors they included in their graves. We know that by the end of the Neolithic Period, the New Stone age, which lasted much longer among the Balts, that amber was being traded along diverse routes and that it was worked with primitive flints and bone drills, producing a shaped and pierced gem. We know of the Assyrian cuneiform trade disks, among the earliest trade vouchers in history, that keep a precise record of the amount of amber being transported, traded or bought, so that merchant princes would not be defrauded, for they are in the British Museum. We know the terrible stories of monsters, some of which are said to drip amber into the sea from their homes in twisted trees, and the false stories of impassable seas where rocks would crash to rocks, that the Phoenicians told to discourage others from sailing the amber sea-lanes, and thus competing with them in amber's acquisition.

What we do not know, though, for we have also lost a great deal of lore, is all the qualities of healing and protection associated with amber. For amber's forceful beauty seemed to reach into the individual psyche of each People along the amber routes. Each seemed to ascribe to amber something that was specific to themselves, whether it be dark or light, in a form of magic, science or religion. This multiplicity of regard personalized the lore of amber.

Often, at night, in the stillness of my world, when the world that I have created for myself is calm, I have the feeling that if one could ever perceive the whole lore of this little gem, then one could begin to form a picture of the great human soul even as it was developing, and watch it join others in community. For the history of this organic gem is a history of light and dark, a history of courage and betrayal, of that which is male and female, of that which guards and nurtures, or which, conversely, can curse the very history and root of its own being. It **is** the ancient world and the relationship that that world has forged with us who have come from it. It is a line unsevered from antiquity to here, to this place, so far from the sea.

A gracious thank-you, then, to this gem born from the "Tears of the Goddesses." It has always inspired us to raise the level of what we could make from it, even if it, itself, has never changed.

Sean McLaughlin can be reached at **ambermaster@balticimports.com**
Baltic Imports, 207 East Hennepin Avenue, Minneapolis, Minnesota 612.331.3296
http://balticimports.com 800.680.3380