Chapter 14

Amber Implies a Late Cenozoic Boundary

Amber is a hard, brittle fossilized resin or pitch (Figure 14.1) that is derived mostly from coniferous trees. It is usually yellow to brown in color and is translucent or transparent. *Copal* is similar to amber and is hardened tree resin. It is found only in very recent sediments,[1,2] and is not fossilized like amber.

Figure 14.1. Viscous pitch oozing from the trunk of a tree (Wikipedia).

[1] Martinez-Declòs, X., D.E.G. Briggs, and E. Peñalver, 2004. Taphonomy of insects in carbonates and amber. *Palaeogeography, Palaeoclimatology, Palaeoecology* 203:19–64.
[2] Lambert, J.B., S.C. Johnson, G.O. Poinar, Jr., and J.S. Frye, 1993. Recent and fossil resins from New Zealand and Australia. *Geoarchaeology* 8(2):141–155.

Mysterious Amber Observations

Amber is commonly associated with coal, found in marine sedimentary rocks, and needs water to form but cannot be oxidized.[3] The resins are typically released from trees as a result of trauma.[4]

Figure 14.2. An ant inside Baltic amber (Wikipedia).

[3] Oard, M.J., *The Genesis Flood and Floating Log Mats: Solving Geological Riddles*, Creation Book Publishers ebook, Powder Springs, GA, 2014.

[4] Lambert, J.B. and G.O. Poinar, Jr., 2002. Amber: the organic gemstone. *Accounts of Chemical Research* 35(8):628–636.

Many types of organisms are preserved in amber (Figure 14.2), including insects, spiders, bacteria, fungi, algae, slime molds, mosses, liverworts, ferns, conifers, flowering plant parts, protozoa, nematodes, rotifers, mollusks, worms, flowers, feathers, microorganisms, mushrooms, bones of a small mammal, crabs, scorpions, small lizards such as geckos, frogs, and a mole cricket that burrows into the ground. Even the fecal remains of a small insect were found in Spanish amber. Mammal hairs have also been found in Cretaceous amber from the "age of the dinosaurs."[5] It was even claimed that bacteria from the abdominal contents of an extinct bee preserved in Miocene Dominican amber were revived.[6] Aquatic organisms have been found in amber,[7] including the larvae of mayflies, caddisflies, and stoneflies that never leave the water. Schmidt and Dilcher are perplexed:

> Finds of obligate aquatic larvae of dipterans and caddisflies, which pupate and emerge exclusively under water, and finds of larvae of mayflies and water bugs, which usually never leave the water, cannot be explained by these theories…[8]

While the presence of freshwater organisms preserved in amber is conceptually possible, given certain environments, it is more difficult to explain *marine* organisms in amber.[9] Girard and others noted: "The presence of marine organisms in tree resin, however, seems highly unlikely…"[10] Poiner noted the curious presence of a certain water strider in Baltic amber whose modern representatives "…normally live on the surface of the ocean, often far from land."[11] More recently, a marine crustacean was found in amber at more than one location:

> Finally, although the inclusion of such distinctively marine forms like tanaidaceans [a crustacean] within amber is unusual, even unexpected, it is apparently not unique. R.-P. Carriol (personal commun. 2004) mentioned that he is working at a description of tanaidaceans in amber from the Albian-Cenomanian [Cretaceous] of France, and these are apparently unrelated to our Spanish material.[12]

Marine organisms as diverse as diatoms, radiolarians, sponge spicules, bits of coral, foraminifera, and a spine of a larval echinoderm have all been documented in amber from southwest France.[13,14]

Given all these mysterious observations of amber, it is not surprising that evolutionary/uniformitarian scientists cannot explain the origin of amber.[1,15,16] Martinez-Declòs

---

[5] Doyle, S., 'Remarkable' mammal hairs found in amber? http://creation.com/mammal-hair-in-amber, 2010.
[6] Cano, R.J. and Borucki, M.K., Revival and identification of bacterial spores in 25- to 40-million-year-old Dominican amber, *Science* **268**:1,060–1,064, 1995.
[7] Schmidt, A.R. and D.L. Dilcher, 2007. Aquatic organisms as amber inclusions and examples from a modern swamp forest. *Proceedings of the National Academy of Science* 104(42):16,581–16,585.
[8] Schmidt and Dilcher, Ref. 7, p. 16,581.
[9] Oard, M.J., Marine fossils in amber suggest the Flood log-mat model, *Journal of Creation* **24**(1):9–10, 2010; http://creation.com/images/pdfs/tj/j24_1/j24_1_9-10.pdf.
[10] Girard, V., A.R. Schmidt, S. Saint Martin, S. Struwe, V. Perrichot, J.-P. Saint Martin, D. Grosheny, G. Breton, and D. Néraudeau, 2008. Evidence for marine microfossils from amber. *Proceedings of the National Academy of Science* 105(45):17,426.
[11] Poinar, Jr., G.O., 1992. *Life in Amber*. Stanford University Press, Stanford, CA, p. 114.
[12] Vonk, R. and F.R. Schram, 2007. Three new tanaid species (crustacea, peracarida, tanaidacea) from the lower Cretaceous Álava amber in northern Spain. *Journal of Paleontology* 81(6):1,508.
[13] Girard *et al*., Ref. 10, pp. 17,426–17,429.
[14] Girard, V., S. Saint Martin, S.-P. Saint Martin, A.R. Schmidt, S. Struwe, V. Perrichot, G. Breton, and D. Néraudeau, 2009. Exceptional preservation of marine diatoms in upper Albian amber. *Geology* 37(1):83–86.
[15] Poiner, Ref. 11, pp. 16–29.

and others ask: "How is amber transported from the producing tree to the sediment in which it is preserved?"[17] Since amber comes from terrestrial tree resin and since it is so commonly found in marine sediments, then the first requirement for any hypothesis is that it includes a means to transport resin from its original environment to a marine environment. Moreover, the common association of amber and low-rank coal suggests that the resin requires some amount of heat and pressure to transform it to amber.[18] Martinez-Declòs and others stated:

> The major processes that affect amber-bearing deposits during diagenesis [the change after deposition] are overburden pressure and elevated temperature.[19]

Therefore, the origin of amber is likely similar to that of coal. Unfortunately, coal's origin is also poorly known.[20]

Amber Common Worldwide—Even in the Late Cenozoic

Amber is found at hundreds of sites worldwide and is as old as the Upper Paleozoic,[21] though most of it is found from the Cretaceous through the Miocene within the evolutionary/uniformitarian geological time scale.[22] The youngest amber from the Miocene is found in the Dominican Republic,[23] the western Amazon basin,[21] New Zealand, and Australia.[24]

Early Cenozoic Baltic amber is probably the most well-known.[25] It is found in Poland, Russia, Germany, Lithuania, Latvia, Estonia, Denmark, Sweden, Great Britain, and Holland. The main source of Baltic amber outcrops is a thin layer found in sea cliffs that has been exposed by storms eroding the Cenozoic sedimentary rocks and redistributing the amber on the beach. Mining operations began in the 1800s when miners discovered the amber layer. Ninety percent of the amber is found in a layer on a peninsula in the Baltic Sea that covers an area 20 by 25 miles (32 to 40 km). The amount mined so far is a staggering 1.1 million pounds (half a million kg). The size of the Baltic amber deposits raises the question of how so much resin could be secreted in one relatively small area.

Amber is also mined in Myanmar (Burma), where 180 thousand pounds (82,000 kg) were extracted between 1898 and 1940.[26] It is also mined in Canada, and like the countries surrounding or close to the Baltic Sea, the amber was eroded (from Alberta) and transported 375

---

[16] McKellar, R.C., A.P. Wolfe, R. Tappert, and K. Muehlenbachs, 2008. Correlation of Grassy lake and Cedar Lake ambers using infrared spectroscopy, stable isotopes, and palaeoentomology. *Canadian Journal of Earth Sciences* 45:1,061–1,082.
[17] Martinez-Declòs *et al*., Ref. 1, p. 51.
[18] Poiner, Ref. 11, p. 14.
[19] Martinez-Declòs *et al*., Ref. 1, p. 50.
[20] Poiner, Ref. 11, p. 14.
[21] Antoine, P.-O., Franceschi, D.D., Flynn, J.J., Nel, A., Baby, P., Benammi, M., Calderón, Y., Espurt, N., Goswami A. and Salas-Gismondi, R., Amber from western Amazonia reveals neotropical diversity during the middle Miocene, *Proceedings of the National Academy of Science* **103**(37):13,595–13,600, 2006.
[22] Martinez-Declòs, X., Briggs D.E.G. and Peñalver, E., Taphonomy of insects in carbonates and amber, *Palaeogeography, Palaeoclimatology, Palaeoecology* **203**:19–64, 2004.
[23] Grimaldi, D. and Engel, M.S., *The Evolution of Insects,* Cambridge University Press, New York, NY, 2005.
[24] Lambert, J.B., Johnson, S.C., Poinar, Jr., G.O. and Frye, J.S., Recent and fossil resins from New Zealand and Australia, *Geoarchaeology* **8**(2):141–155, 1993.
[25] Poinar, Jr., G.O., *Life in Amber*, Stanford University Press, Stanford, CA, pp. 16–29, 1992.
[26] Grimaldi, D.A., Engel M.S. and Nascimbene, P.C., Fossiliferous Cretaceous amber from Myanmar (Burma): its rediscovery, biotic diversity, and paleontological significance, A*merican Museum Novitates* **3361**:1–71, 2002.

miles (600 km) this time to Manitoba.[21,27] [28] Erosion and transport usually round the amber,[22] much like a rock is rounded in a river.

Figure 14.3. The Kauri pine from New Zealand (Wikipedia).

What Trees Produced Amber?

It was once thought that the resin that produced amber came from only one type of tree, the araucariacean conifer, also called the Kauri pine, currently found only in New Zealand (Figure

---

[27] Perrichot, V. and Girard, V., A unique piece of amber and the complexity of ancient forest ecosystems, *Palaios* **24**:137–139, 2009.
[28] McKellar, R.C., Wolfe, A.P., Tappert R. and Muehlenbachs, K., Correlation of Grassy lake and Cedar Lake ambers using infrared spectroscopy, stable isotopes, and palaeoentomology, *Canadian Journal of Earth Sciences* **45**:1,061–1,082, 2008.

14.3). There is an extensive fossil record of this tree in the Southern and Northern Hemispheres. Although the majority of amber may have come from the Kauri pine,[2] resin producing amber is now known to come from at least three other families of conifers and twelve families of flowering plants.[1] A chemical analysis can usually determine the tree of origin. However, one recent chemical analysis on supposed 320 million year old amber from Appalachian coal indicated the amber came from flowering plants.[29,30,31] The problem with this analysis is that flowering plants were not supposed to have evolved for another 200 million years! Of course, the chemical analysis was rejected. This is just one more instance of the vast circular reasoning network used to pigeonhole fossils, and in this case chemical signatures, into their preconceived slots in the geological column. This supposedly "proves" an evolutionary progression. If the data does not fit the evolutionary pattern, it is rejected, minimized, or explained away with *ad hoc* arguments.

Flood Log Mats Explain Amber and Organisms in Amber

Although uniformitarian science cannot explain large beds of amber, log mats that accumulated, floated, and were deposited during the Noatic Flood do.[32] Billions of logs would have been uprooted by a global flood. As they floated they would gradually coalesce into mats. The logs would be further damaged by violent contact with other logs or rocks and discharge their resin as they floated in the warm Flood water. Lambert and Poinar stated:

> Numerous genera of plants all over the globe spontaneously *or as the result of trauma* produce sticky substances that have been termed resins (emphasis mine).[33]

Trauma in today's environment can be caused by storm damage, fires, and outbreaks of wood boring insects.[34] The greater trauma of Flood-induced damage would result in abundant resin exuding from the floating logs.

The catastrophic nature of the early inundation would also result in organisms seeking shelter from the rising water. In the absence of land, floating log mats would be a welcome substitute. Organisms already living in the wood would remain. Even larger animals would seek refuge on floating wood, much like sailors after a shipwreck. For these reasons, organisms from *diverse* environments would be present on the accumulating mats, including those from freshwater, marine, and fossorial (underground) environments. Insects, birds, amphibians, lizards, and microorganisms would populate the developing mats. Even some marine organisms would find shelter.

The trees would be exuding their resin trapping insects and other small organisms. Larger insects and other organisms would have an easier time extracting themselves from the resin. Grimaldi and Engel suggest that the mechanism of entrapment includes two distinct flows; organisms are first trapped on the surface of one flow, then covered by a second.[34] This explains why the wings and legs of insects are commonly spread out in amber, and why so many delicate

---

[29] Bray, P.S. and Anderson, K.B., Indentification of Carboniferous (320 million years old) class Ic amber, *Science* **326**:132–134, 2009.
[30] Grimaldi, D., Pushing back amber production, *Science* **326**:51–52, 2009.
[31] Oard, M.J., 320-million-year-old amber has flowing plant chemistry, *Journal of Creation* **24**(2):16, 2010; http://creation.com/amber-with-flowering-plant-chemistry.
[32] Oard, M.J., 2014 (ebook). *The Genesis Flood and Floating Log Mats: Solving Geological Riddles*, Creation Book Publishers, Powder Springs, GA.
[33] Lambert, J.B. and Poinar, Jr., G.O., Amber: the organic gemstone, *Accounts of Chemical Research* **35**(8):628, 2002.
[34] Grimaldi and Engel, Ref. 4, p. 57.

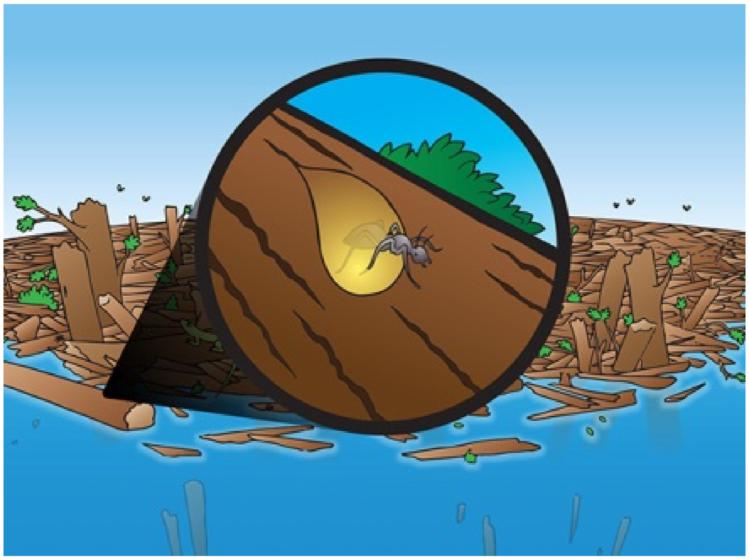
organisms are so well preserved. The preservation of mating flies and spiders in amber also supports this idea.[25]

The floating log mats would release resin, with or without trapped organisms, into the water. Tsunamis or other events would bury or mix the resin with sediment. Mats that were trapped in temporary bays or inlets could have released large volumes of resin that would be buried rapidly if sediments were transported to the basin. This might explain the occurrence of the thin layer of Baltic amber in a relatively small area. Given this scenario, plant matter should be associated with the amber, and this is what we see in the rock record. It is possible log mats ran aground on BEDS (Briefly Exposed Diluvial Sediments) and were covered by sediments.[35]

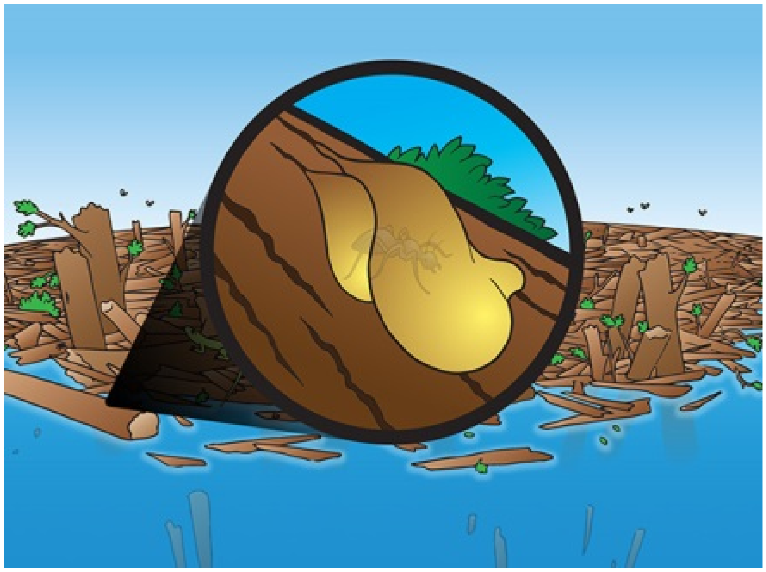
Rapid burial would result in reducing conditions with no oxygen, one of the requirements for amber formation. Continued sedimentation would have built up thick sediments that provide the heat and pressure required to transform the resin and plant debris into amber and coal. Although these deposits may have been buried by significant amounts of sediment, late-Flood erosion would have exposed these beds. Figure 14.4 illustrates this sequence of events.

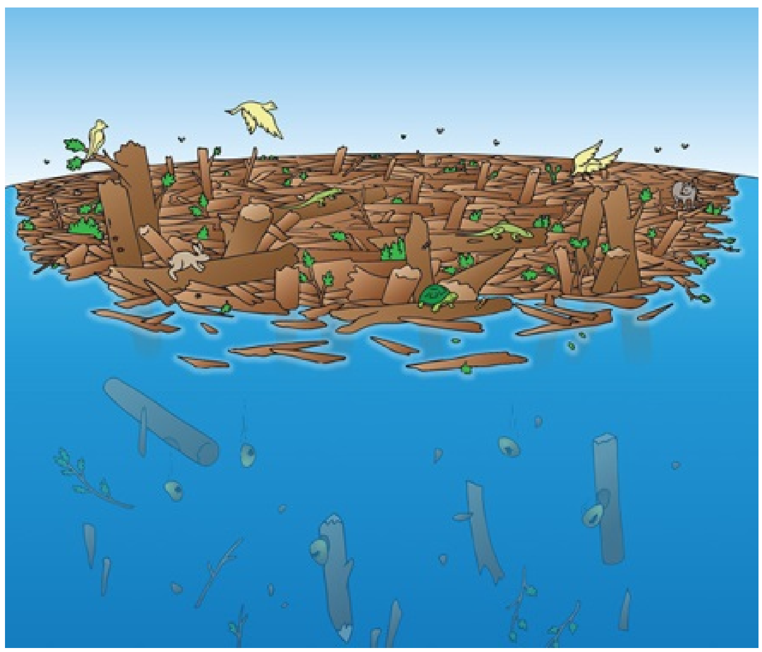
The Flood's floating log mats during the Flood provide a viable mechanism for explaining the large variety of organisms from widely divergent environments found trapped in amber, as well its occurrence in coal and marine sediments.[32] In fact, it appears to be better than any current uniformitarian model, since none of them are able to explain the diverse features of amber.

Amber most likely formed rapidly upon deep burial early in the Flood, since the Retreating Stage of the Flood[36,37] eroded, rounded, and carried already formed amber for long distances, as noted in some amber deposits. Furthermore, runoff of the Floodwater would remove the overburden sediments and thereby eliminate the conditions necessary for the formation of amber, and coal.



[35] Oard, M.J., *Dinosaur Challenges and Mysteries: How the genesis Flood Makes Sense of Dinosaur Evidence—Including Tracks, Nests, Eggs, and Scavenged Bonebeds*, Creation Book Publishers, Powder Springs, GA, 2011.
[36] Walker, T., A biblical geological model; in: Walsh, R.E. (Ed.). *Proceedings of the Third International Conference on Creationism*, technical symposium sessions, Creation Science Fellowship, Pittsburgh, PA, pp. 581–592, 1994.
[37] Oard, M.J., *Flood by Design: Receding Water Shapes the Earth's Surface*, Master Books, Green Forest, AR, 2008.





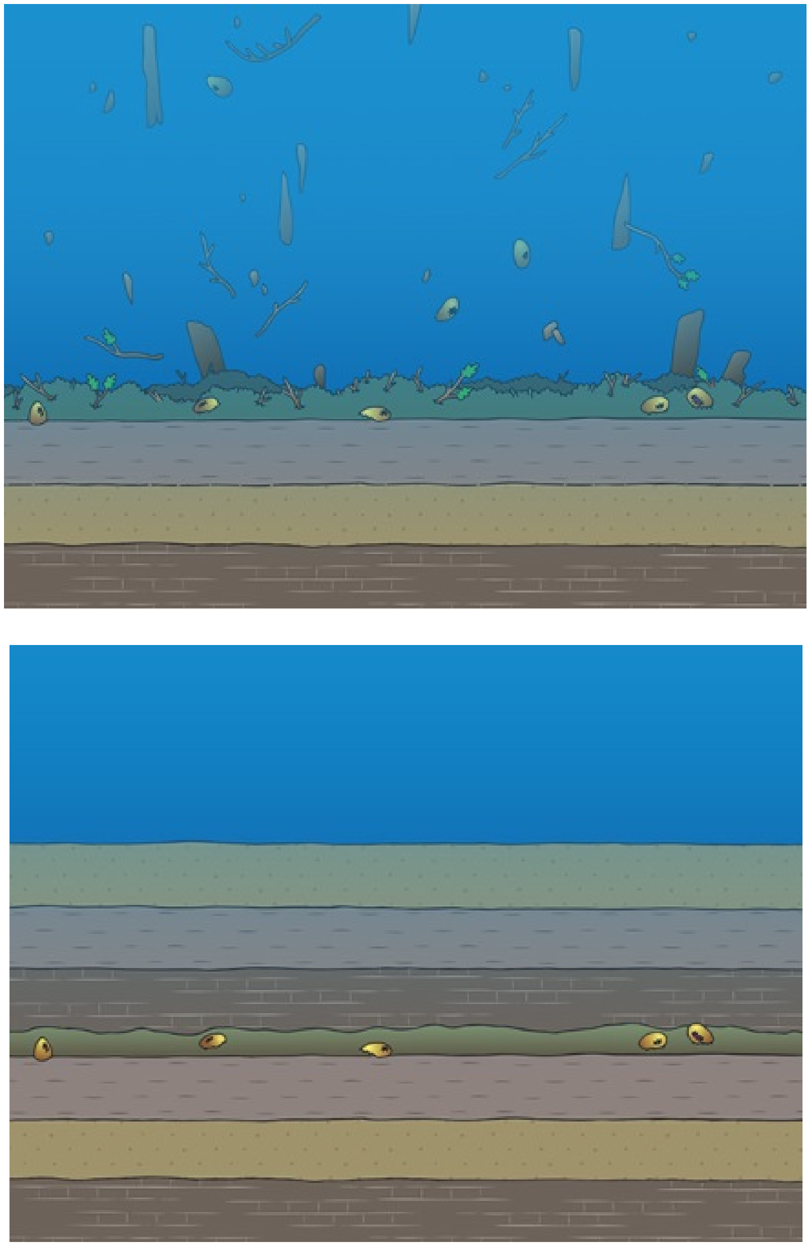


Figure 14.4. A schematic on the formation of insects in amber (drawn by Keaton Halley).
a) An insect becomes trapped in amber on a log in a log mat floating in the Floodwater.
b) Insect tries to escape, with wings and/or legs outstretch, but a second flow of resin completely covers up the insect.
c) The resin with insect falls off the log and into the water.
d) Resin with insect is incorporated into sediments.
e) Resin with insect is deeply buried and changes into amber.

Very Difficult to Form Amber After the Flood

The conditions needed to form amber are readily envisioned during the Flood, but seem impossible under present conditions or unlikely in post-Flood catastrophes. Although insects can be trapped in resin, the heat, pressure, and reducing conditions needed to transform resin into amber would be either impossible or extremely rare. Modern conditions form copal, not amber. Since a large amount of amber comes from the Cenozoic, even the early part of the late Cenozoic (the Miocene), amber is another evidence that the Flood/post-Flood boundary is in the very late Cenozoic, at least in those areas that contain the Miocene amber. Furthermore, Cenozoic amber generally comes from trees that are not living today[2]; reinforcing the Flood origin of Cenozoic amber.

It is inconceivable to suggest that Miocene amber came from trees that subsequently went extinct. It is even more difficult to imagine how it was formed in marine water without oxygen, covered by thousands of feet of sediment that produced heat and pressure, and finally, had its overburden mostly eroded—all after the Flood.