

Floating Gold: A Natural (and Unnatural) History of Ambergris. Christopher Kemp. Chicago and London: The University of Chicago Press, 2012. 187 pp. \$22.50 cloth (ISBN – 13: 978-0-226-43036-2)

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Ambergris is one of the most fascinating and sought-after natural goods because of its unexpected origin: it is a byproduct of the digestion by sperm whales (*Physeter macrocephalus*). These marine mammals main source of food are squids and when their beaks (as well as possibly other indigestible material) block their duodenum (the first section of the small intestine), the intestinal wall absorbs water from the feces-impregnated mass causing solidification. As time goes by, the mass grows by accretion (Clarke 2006). The resulting material ends up having an irregular shape, a waxy nature, and can weight up to 420kg. The name ambergris is of French origin from the combination of two words: *ambre* (amber) and *gris* (gray), as a way to describe its appearance. Although they look solid, ambergris pieces float once they are expelled because their specific gravity is lighter than water.

Though they have been described many times as “whale vomit,” the ambergris pieces are most likely defecated or just released in the ocean when they become too big and kill the sperm whale because of intestinal obstruction. Once the whale dies, the ambergris pieces just float on the ocean. While some ambergris have been found on beaches and even collected floating on the ocean, most pieces of ambergris have been collected directly from sperm whale intestines that have been caught in whaling operations. Since sperm whale whaling is prohibited by the International Whaling Commission (a prohibition that is violated by a few countries), findings of ambergris pieces in natural conditions is about the only way we can increase the not too large collection of these pieces in museums and private collections around the world. Its odor changes according to the time it has been exposed to air: from almost fecal smell to one of a fragrance of rubbing alcohol, and it is this odor that makes it so attractive.

Ambergris has been known since antiquity with Arabs and Chinese first using it for perfumery or to burn as incense. Because of its unique odor it was used in Europe during the plague to “sanitize” the air, which was (incorrectly) believed to be at the root of the epidemic. Some also used it as an aphrodisiac and for other medicinal purposes (none of them with confirmed effects).

Because of its rarity (only about 1% of sperm whales seem to produce ambergris), its commercial value has always been considered very high: its worth used to reach several tens of thousands of dollars, but no longer in this United States. Since it is a “whale product” it is protected under the Marine Mammal Protection Act and, therefore, cannot be commercialized.

Floating Gold is about ambergris, but those expecting to read a scientific book, even a standard popular science book when going through its pages, will be disappointed. In many ways, that is not very surprising since we know very little about the natural history of this substance. Besides technical aspects about its chemistry, what was summarized above is pretty much all what we know (or we think we do since it is largely based on hypotheses) about the biology of ambergris. After all, nobody has observed the process of formation or even expelling of ambergris.

Kemp’s book can even be interpreted as a collection of just so stories without a subject index (which is too bad) or a bibliography. That does not mean his work lacks scientific rigor. Kemp took a route of a more casual narrative that will please many readers not really interested in scientific aspects of ambergris as a first motivation for reading it. Yet, they will be surprised because Kemp, a molecular biologist, interjects scientific facts with ease and in very informative way. Kemp is also a popular science writer and does a good job as such. He does not sacrifice attention to the facts when telling human stories about ambergris, and that is where the book excels: describing human nature and behaviors which sometimes brings the best and worst of people when they encounter things that are very valuable and not necessarily well understood.

The reader may ask: is ambergris as indispensable today to the perfumery industry? The answer is no; this substance –or rather the one with its fixative properties for perfumery – is produced today synthetically and at a low cost. Yet, if the reader happens to find one on a beach, keep it or donate it to a science museum: it continues to be a rare natural product that not many people can find while walking on a beach.

REFERENCES

Clarke, R. 2006. The origin of ambergris. *Latin Amer. J. Aquat. Mamm.* 5:7-21.