CINNABAR AND ITS ROLE IN THE MAYAN CIVILIZATION

It is known that ordinary ancient Maya had very few personal possessions. They cultivated the land with simple tools and lived in huts similar to the ones still used by their descendants. The ruling class, kings, nobility, priests, lived rather extravagantly in palaces. The kings claimed to be gods or representatives of gods, and had complete control of whatever was written on monuments and possibly in many of the bark paper books, a virtual monopoly of the only medium of mass-communication. Kings and priests supervised the scribes when they wrote, and, since writing was limited to a small percentage of the population, it was rather risky for scribes to write anything having to do with dissent as they could be exposed. Nevertheless, if they ever did choose to risk death, their uncensored works are now lost.

The claim of divinely anointed dynasties legitimized and perpetuated the power of the ruling classes. Commoners everywhere were led to believe that in exchange for yanking the beating hearts of captured enemies, the gods advised only their legitimate kings on anything essential to the well-being and survival of the polities, from matters of rain and agriculture to issues of war and peace. This myth was gradually exposed at the end of the late classical period, when a devastating drought lasting two-hundred years occurred. The deeply religious Cholan-speaking Maya in the Petén jungle depended on abundant, predictable rain not just for drinking and agriculture, but for transportation as well. The great river systems draining this vast area, principally the Usumancita and Motagua, were the easiest, most effective means of conducting commerce among the many polities located along or near their banks as well as with foreign, distant lands that supplied critical commodities not locally available. In their eyes, a disaster of this length and magnitude meant either that the kings were no longer able to intercede with the gods, or that they never could; either way, they lost their legitimacy.

The trail of cinnabar is undeniable evidence that, because of their location and geography, both Yucatecs and Cholans were maritime traders. Recent intense excavations in Cholan ruins, such as Copán, Palenque, Yaxchilán, and others, reveal its widespread availability. Cinnabar was used in many ways, including pottery, writing, textile dying, and most importantly, burials. This fixation -one can almost call obsession- with cinnabar was not because people were particularly fond of its color, or because they necessarily were unaware of alternate materials to produce the same shades of red. As with other distant and unrelated cultures such as China and Egypt, the Maya thought that cinnabar had mystical properties.

The Maya believed that after burial, bodies could resurrect and search for its immortal soul that had departed at death. Left untreated, they would roam the countryside at night, and, unsuccessful in their search, would forcibly wrench a soul from the living to replace their own. Terrified with the undead, people stayed home after dark, hoping that the measures they had undertaken to prevent this nightmare would suffice. They would place a heavy rock, lid, or boulder to seal a tomb, which, it was hoped, would stop the undead from emerging. They would also apply a heavy coat of cinnabar to the body. When it inevitably resurrected, the cinnabar would make the deceased accept the fact that it was dead and that its soul was gone forever. The corpse would have peace and leave the living alone. Cinnabar, therefore, implicitly invoked the protection of the Benefactor in whatever use it was involved with, and explains its heavy and widespread geographic and demographic use. When one wrote hieroglyphs about the gods, cinnabar reverently formalized the serious, faithful nature of what was said. When one wore garments with cinnabar one identified with the gods, preempting any possibility that beings from Xibalbá, the underworld, might attempt any harm. Cinnabar, therefore, was fundamental, essential, vital. The king said so; the priests concurred.

The absence of local cinnabar mines combined with its widespread availability implies that an efficient, elaborate distribution network must have existed. Lacking beasts of burden, rivers were the freeways of the day. Slaves powered the ships on whose backs merchants and entrepreneurs traded furiously to generate the income with which to pay for the cinnabar.

It is known that there were –and still are- substantial deposits of cinnabar and obsidian at Pinal de Amoles and Sierra Gorda, north of modern Quéretaro City, in central Mexico. The Olmecs conducted intense mining operations and supplied Teotihuacán and El Tajín del Totonacapan. However, the most intense mining took place toward the Terminal Classic period and the beginning of the Post-Classic, a period which coincided with the highest degree of activity in the Cholan areas to the south. Teotihuacán, a great cultural, military, and commercial node northwest of today's Mexico City, supplied central Mexico and the Maya-speaking Teenek (Huastecs) living along the Gulf Coast in modern day Tamaulipas and Veracruz States with cinnabar. It was here that the great ocean-going pirogues –
galley-sized canoes used by coastal dwelling peoples in the Caribbean- owned and supervised by Cholan merchants but powered by captured slaves, came to pick up vast amounts of cinnabar and rare types of obsidian bound for the rest of the Mayan realm, and to deliver much prized tropical goods such as quetzal and macaw feathers, skins, seashells, and medicines heading for the Mexican plateau. The trade was vital to the economies of both areas. Entire urban centers were devoted to the mining of cinnabar and obsidian in Querétaro State, such as Ranas of San Joaquín and Toluquilla of Caderyta de Montes. And in Maya polities, cinnabar helped the ruling class maintain and perpetuate its legitimacy. In both areas the powerful wealthy upper classes benefited the most because only they could afford to hoard the goods that defined and perpetuated a growing wealth inequality.

The evidence of this connection between Teotihuacán and Copán in today's western Honduras, distant as they are from each other, is confirmed by the archeological and epigraphic record. Glyphs related to the founder of the Copán dynasty, K'imich Yax K'uk' Mo' (Great Sun, Green Quetzal Macaw) make reference to his association with Teotihuacán at the time of his accession to the throne on September 6, 426 AD, and there are reasons to believe his attire resembled that of contemporary Teotihuacán (Stuart, 2004). Except for a brief period, this association was maintained unbroken throughout the Classical Period of the Copán Dynasty. In conclusion, as previously stated, the physical presence of cinnabar inside the Copan tombs on the one hand, and the existence of mines in Queretaro at the other end of Mesoamerica on the other, conclusively prove that this commerce did in fact take place.

Cinnabar is not holy water, and it certainly is not an innocuous, harmless compound. Its mercury content is in fact highly toxic, the degree to which is only now beginning to be fully understood. A growing number of studies document the human toll: children exposed to mercury are slower to walk and talk and may be more susceptible to autism and attention deficit disorders. Adults can suffer memory loss, nerve damage and fatigue.

A crucial transformation takes place when mercury reaches the sediments of these waters. Bacteria there change the mercury into methyl mercury, which then enters the food chain when the bacteria are consumed by plankton. Those tiny creatures are then eaten by small fish, which are eaten by larger fish, and so on.
The higher mercury rises in the food chain, the more concentrated it becomes. The mercury in trout, for instance, can be a million times more concentrated than in the surrounding water. Cooking or cleaning will not remove the contamination.

New findings from the Seychelles, a fish-eating island nation in the Indian Ocean, revealed a difference in brain activity for common actions, such as moving a hand. Earlier research there had shown no effects from mercury exposure. Tests at New Jersey's Institute of Neurotoxicology and Environmental Assessment in Piscataway, part of the University of Medicine and Dentistry of New Jersey, and at Rutgers University showed that a different side of the brain lights up in brain scans of children exposed to higher mercury levels. This phenomenon emulates a rewiring of the brain, and its complexities are not yet fully understood.

Mercury in the developing fetus causes permanent changes that depend upon its stage of growth: how great the exposure, how long it lasts and what fetal development is taking place at that instant. Its role in autism is also being explored. Does prenatal exposure to mercury heighten susceptibility? Does that lead to the regression seen in autism?

Animal studies have found that even low levels of exposure and just for a short period of time harm brain cells: they don't multiply as frequently, and they don't form as many connections.

When intelligence is lowered across a population, the costs are high: a drop of just five IQ points because of mercury contamination doubles the number of children whose IQs fall below 70 and require remedial help. True geniuses, on the other hand, become merely highly intelligent, and society is deprived of the benefit of their brilliance because of mercury.

Mercury's dangers were recorded when hat makers in the mid-1800s used it as a felt stiffener, causing bizarre personality changes in those who inhaled the fumes--and inspiring the expression "mad as a hatter." In addition to mood changes, high mercury levels in the blood of adults have been linked, in various studies, with infertility, fatigue, headache, joint pain, and reduced memory and concentration.

Unlike newborns, who can suffer permanent damage, adults can recover from mercury's effects once the exposure ceases. In six to 12 weeks, a body can rid itself of half its burden of mercury.

With respect to ancient Mayas' exposure to mercury, it would have depended on how they handled the cinnabar. The lack of original documentation specifying the processes that they subjected it to in order to manufacture its many derivatives makes it difficult to recreate ancient cause and effect. The irrefutable evidence is there, that a jar with several ounces of mercury was found in a hitherto undisturbed tomb. At least once, someone roasted the cinnabar and released lethal fumes and pure mercury in a confined area with little or no ventilation. It is not known what if anything happened to the person who did this, but it is definitely an ominous act. The Maya were, and are, respectful followers of ritual. It is therefore probable that the simple act of roasting cinnabar was repeated countless times at other burial sites. Having done that, they may also have experimented with it for purposes unrelated to religious piety.

The evidence indicates that for a period of time in excess of at least a thousand years the Maya imported an incalculable amount of cinnabar which they processed in different ways for many purposes, and that in these processes and rituals they released fumes and pure mercury in a correspondingly incalculable amount. Present knowledge indicates that mercury is particularly hazardous to children, and that it can damage them permanently, that it penetrates the food chain, and that I causes bizarre behavior on adults. The study of the effect of mercury is ongoing. The concept of a whole society being subjected to a chronic, high-level contamination of a substance that disrupts normal brain activity has not yet been analyzed, and the possible consequences that the use of certain hallucinogens and other mind and/or mood-altering substances in conjunction with this long-term, chronic exposure might have on their lives. The data obtained by the use of forensic anthropology in tombs shows that the bones of many individuals, irrespective of age or sex indicates that they suffered from anemia, and that the health of the inhabitants of Copan declined irreversibly in the terminal classic period. Whether the use of cinnabar was the direct or the indirect cause of this is not all that important. The presence of mercury throughout Mesoamerica is unquestionable, and its lethal effect undeniable.