

Classic Maya Art, Iconography & Symbolism
PowerPoint Presentations in Full Color



Abstracts of Lectures, Symposium & Conference Topics available to your university,
museum, social club for 2024

Part I: Flowers, Animals in Maya Art (and at Teotihuacan and Cacaxtla)
Part I: Flora and Fauna in Maya Art (and at Teotihuacan and Cacaxtla)



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- Hunting Dogs (to hunt deer and large game birds),
- Dogs to Accompany your Soul to Xibalba
- (sadly) Dogs to Eat

JAGUARS, PUMAS, OCELOT, MARGAY & JAGUARUNDI

So many topics on jaguars and other felines in Maya art that they are listed deeper into these abstracts.

Insects, Arthropods & Arachnids in Maya Art

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Lightning Bugs, Giant Cave Cockroaches & Ceiba Borer Beetles

Butterflies as Pollinators (in the fields and forests of Guatemala)

Butterflies as Symbols of Fallen Warriors in art of Teotihuacan and Tiquisate

Stingless Bees & Honey Wasps

Insects used to make Colorants -- Insects used to make Varnish

Domesticated Insects of the Maya:

- *Dactylopius coccus* to make Cochinilla Red Dye Colorant,
- Nijj, *Llaveia axin* for lacquer or wax

Ants: Part 1

- Leaf-Cutting Ants (Zompopos) in Xibalba of the Popol Vuh

Ants: Part 2

- Bull-Horn Acacia, Subin, Ant Symbiosis and Mutualism,
- In forests, fields, marshes, and in Classic Maya Iconography

Arthropods & Arachnids in Maya Art, Part 1

- Scorpions and Tailless Whip Scorpions

Arthropods & Arachnids in Maya Art, Part 2

- Centipedes and Millipedes in Guatemala and in Art of Mesoamerica

Iconography and Symbolism of Freshwater and Marine Creatures of Mesoamerica Crustaceans in Art of Maya, Cacaxtla, & Cotzumalhuapa

Crabs in the Art of the Maya, Cacaxtla Murals, & Cotzumalhuapa Style Sculptures

Seashells: Spondylus shells and pearls as jewelry; Conch shells as musical instruments.

Artistic Renderings of Fish (of rivers and lakes) of Guatemala

Sharks & Stingray Spines in Classic Maya Art: one shark of the Caribbean can swim

Stingray Spines or Sharks' Teeth?

Iconography and Anatomy of Stingray Spines and Sharks' Teeth

Iconography and Symbolism of Iguanas in Classic Maya Art

Frogs and Toads in the Fields, Forests, and Wetlands of Guatemala

Bufo Toads, Uo Underground, and Bright-colored Frogs of Trees

Bufo Toad (formerly *Bufo marinus* now named *Rhinella marina*)

one of the Top 10 Sources of Chemical Exuberance for the Classic Maya

Iconography and Symbolism of Turtles in Maya Art

Land Turtles, Fresh Water Turtles and Giant Marine Turtles

Water Lily Flowers & Water Lily Pads in Classic Maya Art

Iconography and Ethnozoology of Crocodiles in Classic Maya Art

(no alligators in Mesoamerica; two species of crocodile and one species of caiman)

Snakes: Pit Vipers and Boa Constrictors in Classic Maya Art

Feathered Serpents in Murals of Teotihuacan and elsewhere

TWO SPECIES OF CROCODILES and ONE SPECIES OF CAIMAN

1st crocodile theme: Swamps, Marshes, Aguadas, Rivers, or along the Pacific or Caribbean coast? Where do Crocodiles and Caiman live in Mexico, Belize, Guatemala, and Honduras?

2nd crocodile theme: Classic Maya portraits of Crocodiles as 3-D ceramic figures or stone sculptures

3rd crocodile theme: Full-Bodied Crocodiles as Roof of Throne Rooms: Iconography, Cosmology and Ethnozoology

4th crocodile theme: Crocodiles in Bas-relief Sculptures at the Maya site of Copan, Honduras

5th crocodile theme: Crocodile Trees in ProtoClassic and PreClassic Maya Art

6th crocodile theme: Crocodile and Composite Deer-Crocodile as Bicephalic Cosmic Monster

Waterbirds

Of the Sea Coasts, Mangrove Swamps, (Caribbean & Pacific Ocean)

Marshes, Lakes, Rivers, Aguadas in the Rain Forests of Guatemala

Waterbird Iconography on Early Classic and Late Classic Art

Cormorants, Ducks, Egrets, Herons, Ibis, Pelicans, Storks, etc.

Boat-Billed Heron: Sacred Bird of the Olmec

Boat-Billed Heron or Ducks? associated with Women in Teotihuacan-related Ceramics of the Costa Sur

Front cover photo: Photographed in one of the several museums in the hotel Casa Santo Domingo, Antigua Guatemala, over a decade ago. Shows a happy spider monkey with a necklace and holding two items in his hands. I estimate what he is holding and will identify it in the presentation.

Title page photo: “mother” Jaguar God of the Underworld with two cute cubs. Museo Popol Vuh, UFM. Digital photo by Nicholas Hellmuth.

4-Petalled Flowers in Late Classic Maya Art Iconography and Symbolism

**Ethnobotanical & Ecological Aspects
of 4-Petalled Flowers in Classic Maya Art: How many are symbolic of Wetlands?**



I discovered these two 9th-century ceramic bowls inside the Tomb of the Jade Jaguar at Tikal in 1965. In that time no iconographer, epigrapher or ceramic specialist had identified these propeller-like symbols. Once I began studying Neotropical flowers of Guatemala I realized these were 4-petalled flowers.

Sometimes these are 4-petals. Other times they are four sepals. In rare instances there are plants with four leaves in a similar pattern.

The recent 20+ years of hiking through marshes and finding a boat that could take me up rivers and around the shore of lakes has allowed me to find several dozen wild native plants with 4-petalled flowers. Most are in wetlands (marshes, seasonally inundated savannas, or other wet areas). We have accomplished decades of field work in the Highlands and Lowlands of Guatemala to be able to show you the actual plants and flowers.

If you like rarely seen tropical flowers, this is a great presentation for you, your family and friends.

We will show you every 4-petalled flower of Guatemala that we have found out in the wild during multiple decades of field trips.

For Mayanists this lecture presents more vases, bowls and plates with 4-petalled flowers than have ever been studied before. The flower petals come in several very different sizes and shapes because several different flowers are the models.





This is a sample of the 4-petaled flowers that we had found after many field trips to remote parts of Guatemala over several years.

There are also plants with 4-leaves and plants with 4-sepals. All need to be studied to see which inspired the Classic Maya. For example, the common white water lily of Guatemala, *Nymphaea ampla*, is multi-petaled but has 4-sepals; and the green sepals of the *Ludwigia* flowers are as much role models as are its 4-petals. No surprise, most (but not all) of the inspirations for 4-petals are wetlands flowers. This 4-petaled aspect is occasionally potentially part of the Surface of the Underwaterworld.

Fleur de Lis Flower Symbols

Since at first no one knew what flower this was, it was called the Fleur de Lis. Then Charles Zidar was able to initiate identification suggestions (since his background includes ethnobotany).



This digital rollout of a Maya vase helped Charles Zidar many years ago in his research on iconography of the Fleur de Lis. We have complete HIGH-resolution DIGITAL rollout photos of each of these two vases (using tri-linear scan back with a large-format camera).

Today the FLAAR Photo Archive and other resources have images available that were not known previously. So lots of potential for fresh new insights by making all these illustrations available. Variants are on polychrome plates and on stuccoed-and-painted bowls.

During decades of field work we can now show you the flowers of two DIFFERENT species of genus *Pseudobombax*. Plus the FLAAR Photo Archive has one of the five largest archive of photographs of the flowers (and fruits) of *Pachira aquatica* in the world. The other flowers are extremely rare, but we have tracked down each genus and each species and then accomplished macro photography of the flowers.



We bring an entire digital photography studio with us, together with an experienced team of photographers and photo assistants. Our goal is to photograph the flowers in a quality and resolution not yet available at most botanical gardens. We have thousands of photos (over 20 TERAbytes).

These are just two of the flowers; there are also other species as “role models.” Photos by Nicholas Hellmuth, FLAAR Photo Archive.

Flowers & Fruits of the Palenque Tomb Sculptures of K'inich Janaab' Pakal

The plants shown in the Palenque sculptures surrounding Pakal have been studied by eminent Maya archaeologists and iconographers. But have these plants been studied by Ethnobotanists and Botanists who know, in-person, about every flower, fruit, tree, plant, leaf, vine of the Maya Lowlands?

Based on multiple decades of studying wild native flowers and fruits in Guatemala, it is now possible to document that

- about 60% of the “identifications” of the fruits and trees of Pakal’s tomb are correct
- about 20% need further study (the ID so far is not entirely convincing)
- about 20% were mis-identified and we can suggest the probably more likely tree or vine source

It helps to know which sculpted representations of fruits are correct identified (and which were mis-identified)

- if you have a botanical library next to your desk
- if you have over a 7,869 botanical monographs and articles as PDFs on your hard drive as an e-library
- if you have decades of experience hiking to bio-diverse ecosystems throughout the Maya lowlands

In 1961 the entire temple and stairway was open to the public. So at age 16, as a backpacker, I hiked down the interior stairway of the Temple of the Inscriptions and could look into (and thus photograph) the upper part of the royal burial chamber of Pakal. Evidently most rooms and many structures at Palenque are no longer allowed to be entered by tourists (too many graffiti).

In the early 1970’s, the discoverer of the Palenque tomb, Alberto Ruz Lhuillier, invited me to give a lecture at UNAM on my discovery of the Tomb of the Jade Jaguar at Tikal. So I am familiar with his publications on the fruits and plants sculpted inside the tomb chamber. Merle Greene Robertson also shared her inspiration and dedication with me on many occasions; her report on sculpture of Palenque has lots of helpful suggestions for what plant fruits were “royal logos” in that century at Palenque.



Merle Greene Robertson also shared her inspiration and dedication with me on many occasions; her report on sculpture of Palenque has lots of helpful suggestions for what plant fruits were “royal logos” in that century at Palenque.

Drawing by Merle Greene Robertson.

This presentation will show every royal ancestor and the fruits and fruit tree sprouts they are growing into (you can see the “split” in the “surface of the sacred earth” that the body is rising out of.

Sacred Flowers of the Classic Maya not yet adequately documented or Identified

- Fleur de lis (*Pseudobombax ellipticum* and its relatives and potentially *Pachira aquatica* flowers)
- water lily flowers
- 4-petalled flowers

are the three most common flowers in Classic Maya art. Charles Zidar and Nicholas Hellmuth have studied the tree flowers that are inspiration for the fleur de lis.

But... it is essential to find all other paintings, incised vases, bas-relief sculptures that show other flowers or trees. All these “mysterious flowers, fruits and plants” need to be shown so that students can consider doing a thesis or PhD dissertation to identify something.

The design on the plate shown here needs to be studied to learn whether it is a stylized cross-section of a water lily flower, or some other large Neotropical flower.



There are enough “unidentified flowers and leaves” in Classic Maya art to do a healthy thesis (finding dozens of examples of each motif on this plate and then identifying the symbolism and linguistic aspects).

These images also help iconographers and ethnobotanists to have fresh material for their peer-reviewed journal articles.

Entangled Vine Motifs

What (chemicals?) are Potentially in these Plant Species
to encourage the Maya to feature these Vines?



90% of iconographic research is on throne scenes, stelae/lintels/murals, deities, etc. Thus I am curious to what degree this twisted vine symbol has been studied. The “splattered design” is on both these ceramic bowls.

These ceramic bowls are same size and shape as calabash pods that the Maya have used for thousands of years to drink cacao. This raises the question of whether any plant parts of this vine were used as ingredients in cacao beverages or any of the other beverages consumed with these drinking bowls? We will discuss this aspect with Dr Miguel Torres, a Guatemalan research scientist who has studied many plants of Mesoamerica.

- The first step is to recognize that this twisted-vine motif has not often been studied.
- Next step is to find every bowl, vase, and plate with similar designs.

Then have a PowerPoint presentation available so that ethnobotanists, iconographers, students have this material available for their research.

The rollouts are digital, at high resolution, by Nicholas Hellmuth, FLAAR Photo Archive.

Cacao and Pataxte in Teotihuacan-related Art of Guatemala and in Classic Maya Art

Both *Theobroma cacao* and *Theobroma bicolor* grow in Guatemala and the rest of Mesoamerica (Mexico down to Costa Rica). Cacao is native to far south of Guatemala but the Maya and pre-Maya had cacao available from early times onward. Over 90% is either cultivated, in kitchen gardens, or if “wild” then escaped from cultivation of a Maya house in that area where the people moved away, the house became bio-degradable compost and the cacao survived and kept on growing.

I have been leaning about cacao since 1965 when I noticed “bean-shaped” contents in one of the large 9th century ceramic vases inside Tikal Burial 196 (Tomb of the Jade Jaguar). I have hiked to remote areas in the mountains where sizes and shapes of cacao pods there are missing from most books on cacao. I raise *Theobroma cacao* trees at 1,500 meters elevation in the FLAAR Ethnobotanical Research garden. Curiously, no pataxte has survived in this habitat; I estimate it needs more moisture and less dry season (or slightly lower altitude).

Both cacao and pataxte are used to make chocolate for thousands of years but LOTS of other plant ingredients are mixed in different recipes. All the cacao ingredients is a separate lecture; the present lecture is on the size and shape of cacao pods plus all the other fruits of Guatemala and Mexico that are same shape and size (and also have edible ingredients inside, but are not chocolate).

This is an incense burner lid in Teotihuacan-related style, from the trade route area of the Costa Sur of Guatemala. Millions of cacao trees are raised in the Soconusco area (coastal plains of Chiapas and adjacent Costa Sur of Guatemala). The Nottebohm family kindly let me and also let Edwardo Sacayon photograph this half a century ago. I estimate this is now in the Museo Miraflores Kaminaljuyu area museum.

A butterfly is rising out of splitting cacao pods. All this will be documented in the PowerPoint by Nicholas Hellmuth. Over 50% of Teotihuacan incensarios feature butterflies (the “souls of departed warriors”?). If this many warriors died, was it during combat or were Teotihuacan military stationed along the trade routes and simply passed away after decades of service (since most would have married into the local Costa Sur population). So a lot of questions to discuss.





This is *Theobroma cacao*, the preferred species for cacao in past and present. Cocoa is the word used today.



This is *Theobroma bicolor*; note how these pods are totally different on the surface. These pods dry to “solid wood.” The pods of *Theobroma cacao* rot within about 6 days after being picked off the tree. *Theobroma bicolor* is called balamte in some areas and pataxte in other areas of Guatemala.

Ceramic effigy containers were made by the Classic Maya to duplicate the eccentric outside patterns on *Theobroma bicolor* pods.

Fundacion La Ruta Maya and other museums have these pataxte effigy containers.

We will present many different 3rd to 9th century ceramics that show “cacao pods” in 3-dimensions.

We will then show, pod by pod, what plants these really are (half are cacao; half are not whatsoever). The ceramic pods at the right are *Theobroma bicolor*, pataxte, balamte.



La Ruta Maya Conservation Foundation
Photograph by Nicholas Hellmuth, FLAAS, Guatemala



The flowers of *Theobroma bicolor* are various tinges of red. Photo by Nicholas Hellmuth, Dec. 8, 2014.

Fruits of *Theobroma bicolor* are green when on the tree. They turn brown when harvested.

Trees of *Theobroma bicolor* are capable of growing very tall; but in orchards are kept lower so you can pick off the fruits more easily. We will also show you a third species of cacao of which only a precious few trees remain (because the other species are more botanically improved in recent years).

Photographed in a remote hillside community named Aldea El Retiro with a complete portable studio and team of photography assistants.

Photo by Nicholas Hellmuth, Dec. 8, 2014.

People around the world like to eat chocolate, but not many of us would know about what we show here in this FLAAR lecture.



Faux Cacao

All the Vines and Trees whose Fruit Pods are same size, shape, and ridged-edges as Cacao Pods



Since the tree here is flowering from the trunk, obviously it has been identified as cacao in 98% of art books, museum catalogs, and peer-reviews journal catalogs. This is one of the most frequently published polychrome vases from the Museo Popol Vuh, UFM. So it will help students and scholars to have botanical documentation from years of FLAAR field work studying flowers and trees in-person.

Medium-format digital rollout by Nicholas Hellmuth, FLAAR Photo Archive.

The lecture itself will show you Neotropical plants of Mesoamerica that you have never seen before (and whose fruits (pods) were never shown in books on Maya art.

We raise one of the main faux cacao plants next to our true *Theobroma cacao* trees in our FLAAR Ethnobotanical Research Garden.

All the others we have photographed in remote areas of the rain forests and cloud forests of Guatemala. We have “plant scouts” who search for each and every plant we wish to find. They alert us when the plant is about to flower so we can get our photo team and portable photo studio in front of the flower, fruit, etc. (we often have to drive 600 km then take a boat ride down a stream through the swamps). Twice we took a complete team and photo studio up a volcano to photograph an ingredient for native cacao beverage of the Maya.

Calabash Trees

Crescentia alata and *Crescentia cujete*

The pods of Calabash trees have been used to serve and drink cacao for thousands of years. When we are in remote areas of Guatemala and hike in to a community, the hospitable Maya people invite us into their homes and offer us cacao beverage served in a morro bowl. You can buy these in handicraft markets in Guatemala. The decorated ones are mostly made by Achi Maya families of Salama.



Crescentia cujete trees grow wild in seasonally inundated savannas of PNYNN and PNLT. *Crescentia alata* grows in dry areas of central Guatemala and Costa Sur. But in areas such as Salama the local people can have both species growing in their cultivated gardens around their homes and in nearby fields. Over centuries each family encourages pods of different sizes and shapes: one size is for drinking cups and smaller oval size and shape is for rattles for Maya music.

The drinking cups you see at front left and front right (on the ground).

You can occasionally find mixed breed (cross between the two species). The Garinga family helped us to accomplish research in Rabinal area for many field trips.

We will also show you what sacred trees in Maya paintings thousands of years ago are gourd trees. Remember, that the Hero Twins (of the Popol Vuh) are born from a *Crescentia* gourd tree.



Crescentia alata grows wild in many dry areas of the Costa Sur, including around Monterrico, within a few hundred meters of the Pacific Ocean.

Crescentia alata also grows along Highway CA9 past the Bosque Seco as you drive through El Progreso and Zacapa. *Crescentia cujete* we have found primarily in seasonally inundated areas along Rio San Pedro and its tributaries (west of town of Naranjo, Peten) and in seasonally inundated savannas in the RBM, Peten. Tasiste palm, *Acoelorrhaphe wrightii*, often grows in the same ecosystems.

Each tree produces abundant pods. Although today these are dried, cut in half, and used as containers, in fact they are medicinal. Plus you can make a drink from the seeds. Other parts (of both species) can have other edible potential.

We will also show you the pretty flowers of wild *Crescentia mirabilis*, morro de mar, that we studied along the shore of Amatique Bay during our 17-month field work project in the east half of Izabal, Guatemala.





Crescentia cujete can be found widely spaced in 90% of the open grassland savannas and in most of the tasistal savannas of PNYNN and PNLT. The jicaro tree is at left, background, and right (behind the tasiste palms). Nov. 16, 2021, Photo by Nicholas Hellmuth with iPhone 13 Pro Max.

We have been doing field work ethnobotanical and ecological research here since 2018-2019. In March 2023 the Dwyer family from Chicago joined us to see and experience this remote area in-person. Two parts of tasiste palm are edible; I eat tasiste seeds for its medical benefits and local Maya people showed me what part of the young center part is edible

What Foods did the Maya Eat (more than just Maize, Beans and Squash)



Maize, BEANS and Squash

It helps to have inspiration and focus on working to document

We have a capable team of designers (who can design the layout of the bean pods). A capable team of photography assistants, and 30-years of studio lighting equipment, tripods (and an entire photo studio inside our 6-level research office).

In Q'eqchi' Mayan language of Alta Verapaz, Guatemala: Kaqi kenq', frijol rojo, red beans.

In Q'eqchi' Mayan language of Alta Verapaz, Guatemala: keqi kenq', frijol rojo, black beans.

Ethnobotanists, botanists and linguists will have additional names (there are dozens of different colors, sizes and shapes of pre-Hispanic beans of the Mayan-speaking areas of Mesoamerica).





When I was a student at Harvard, the books by Carnegie (CIW) touted maize, beans, and squash. Root crops, ramon and other concepts were only just beginning to be recognized as food crops from native plants of Precolumbian Mesoamerica. During the recent 19 years of field trips and library research, we have found over 657 edible plants of the Mayan-speaking areas of Mesoamerica (the list of FLAAR is much larger than any published list, plus we have photos of a helpful percentage). No space to show xyz-hundred plants here in the abstracts, but if you, your university, your alumni club or social club, or museum wish to learn from our DECADES of field work and library research, we are ready, willing and able to provide unexpected documentation (in quantity and in quality (as you see from the photo here).

Maize, Beans and SQUASH

Pumpkins, squash, and gourds raised by the Maya people come in every size and shape that you can imagine.

Maize is literally a Maya deity (the “Maize God?”). We will show you 7th-9th century paintings of him. Squash is shown as 3-dimensional ceramic containers.



Incense Burning to the Gods: What Plants Produce Fragrant Incense?

Tobacco (and cacao) were often mixed together to “flavor” incense. Keep in mind that all the Maya who are burning incense are simultaneously inhaling it into their own body. So traditional incense often had so many resins and ingredients it’s a challenge to know what the gods were being offered. This presentation will document aspects of Maya civilization not in most books on “The Maya”.



Dozens of Classic Maya stelae show a king holding an incense bag. Hundreds of ceramic incense burners have been found by archaeologists. But the actual ritual of scattering the balls or chunks of incense onto the fire is rarely pictured (albeit check the Post Classic Maya codices).

This presentation shows the main trees whose sap or resin is still used today for incense in Maya ceremonies.

We will show you LOTS of incense burners (and explain the presence of conical Ceiba tree spines that decorate the outside of these incensarios).

Ceiba Spines on Incense Burners, Cache Vessels & Quiche Region Ceramic Urns

It is well known that many incense burners had conical spines to show that the incense burner was the base of a young Ceiba tree. Technically these conical spines are called prickles.

As you have noticed for each topic, for every plant of the Classic Maya, we have accomplished field trips for decades to photo both species: *Ceiba pentandra* and *Ceiba aesculifolia* trees literally all across Guatemala. Plus, as is typical for our research, we have found additional completely different trees that have spines identical to Ceiba. So if you arrange this lecture in your city, you will learn about ALL the other trees native to Mesoamerica that have conical spines of varying size and shape.

Our favorite Ceiba trees with spines were in Tayasal (Peten), Ceibal ruins (park near Sayaxche) and Copan Ruinas 20 years ago. We have also found an amazing mass of long Ceiba tree conical spines while doing flora and fauna research at Parque Nacional Yaxha, Nakum and Naranjo.

FLAAR has the largest photo archive in the world of trees of the Maya areas that have spines that are used on Classic Maya incense burners, cache vessels and urns. The tree at the right is from Tayasal (a quarter century ago). When they get over 100 years old most Ceiba's lose their spines since they don't need to protect their trunks any more once the trunk is mature).

Although obviously the conical spines of a ceiba are the inspiration for the conical spines on an incense burner, several other trees, totally different genera, have comparable spines.



We have photographed Maya incense burners in the museum of Palenque and elsewhere in Chiapas and Tabasco, plus in museum throughout Guatemala. Often there is a face on the front of the censer.

We will show all palace scenes (painted on vases in the 7th-9th centuries) where incensarios are pictured. Plus all the incense burners pictured in the bark paper codices of the Post Classic.

On our www.maya-ethnobotany.org and www.maya-archaeology.org you can already find and download FLAAR Reports on Ceiba trees (both *Ceiba pentandra* and *Ceiba aesculifolia*). But this lecture will show even more.



Silk cotton surrounds the seeds. The color of *Ceiba aesculifolia* is more off-white color. Here are three seed pods that have shed their outside. We will explain the entire development sequence of the seed pods.



Silk cotton of *Ceiba aesculifolia*, bosque seco, past El Rancho, March-31-2002. The seeds are edible and are used as flavoring! For native cacao (chocolate a thousand years ago).



Flowers of *Ceiba aesculifolia*, highway CA9, km95, Jan 23, 2014.



Flowers of *Ceiba pentandra* are totally different in size, shape.

If you like to learn about Neotropical forests, if you like to learn about flowers, then you will enjoy this lecture. We have been photographing Ceiba trees (both species) and all other trees with similar conical spines over many decades. So after the lecture we can help you learn where YOU can go in Guatemala to see these flowers up-close and in-person.

Tobacco Smoking for thousands of Years by the Classic Maya

The Maya and everyone else in Mesoamerica smoked tobacco for thousands of years. Their tobacco species was more powerful than that used today. Today the number of other plant (and chemical) additions to cigarettes is amazing. Some of these ingredients today are the same as the Classic Maya used over a thousand years ago!

Obviously smoking is not as popular today as it was in previous decades, but SMOKE and SMOKING were a major part of Maya lifestyle. Just as happy hippies smoked lots more than tobacco in the 1960's-1970's, the Classic Maya smoked, snorted and otherwise ingested LOTS more than just tobacco.

Most Maya houses in rural areas (where there are no pharmacies anywhere near) still today have one to three tobacco plants in their home garden. They use these plants for medicine (not for smoking as a cigar or cigarette).



This man looks very happy from what he is smoking. I discovered this vase in the Tomb of the Jade Jaguar that I uncovered under pyramid Str. 5D-73 (facing the south side of Temple II, Great Plaza, Tikal).

God L, the wealthy merchant god, loved to smoke cigars. He is shown still today with a cigar, as Maximon in the Lake Atitlan and adjacent Highland Maya area. Francis Robicsek wrote a helpful book on tobacco in Maya art and culture. We have much more to show you in this lecture by FLAAR.



Tobacco leaves are what we know more about. So our presentation will also show you tobacco flowers and seed pods (since these are rarely seen). It helps to have an ethnobotanical research garden surrounding your home and office in Guatemala so you can study everything up close. And then do week-long field trips every month or so to learn about other edible or usable plants in other bio-diverse ecosystems.



Native Maya cigars with tobacco leaves on top; all the other plant parts are ingredients. The pink flowers are the tobacco flowers (there are also white-flowered tobacco).

The background is over a thousand cacao seeds (of *Theobroma cacao*). This lecture will make available to you knowledge about fresh botanical material and ethnonbotanical documentation (Hellmuth did research on the 17th century Choltilacandon Maya and other Maya when the Spanish first entered their villages in the late 1600's. The Spanish describe what was inside each Maya house; the Spanish describe what was in the area surrounding the house.

Birds and the Hero Twins in the Sacred Book of the Popol Vuh The Hero Twins (Ixbalamque and Hunahpu) as Bird Hunters Iconography & Cosmology of the PRINCIPAL Bird DEITY

Each linguist and epigrapher or iconographer may spell their names differently but I stick with their basic names, the Hero Twins, Xbalanque and Hunahpu.

In 6th-9th century Classic Maya art, the Hero Twins help the Maize God Resurrect from the top center of a giant Turtle.

For over a thousand years there are paintings and sculptures of the Hero Twins shooting the large sacred bird (a macaw in the Popol Vuh and at Copan; but a snake eating hawk (the Laughing Falcon) in Maya art of Chiapas and Peten.



Laughing Falcon, *Herpetotheres cachinnans*, Reserva de la Biosfera Maya, Peten. Photo by Emanuel Chocooj, FLAAR Mesoamerica, June 4, 2022.

I documented this bird of Xibalba as a snake-eating raptor in my 1980's PhD dissertation. We see this legendary bird on many of our field projects during our current 2021-2025 project of cooperation and coordination with local national parks and nature reserves.

In the Popol Vuh the grandmother gives a message to a flea; a toad eats the flea and carries it forward; a snake eats the toad and carries the message further; a raptor eats the snake and carries it up to the top of the sacred tree. Part of this scenario is pictured on a 6th century Maya incised shell that I presented in my 1980's PhD dissertation. Since the Popol Vuh is a key element in the cultural heritage of the Maya it would be great to have an artistic edition, as if it were painted images on the original bark-paper codex (as it would have been over a thousand years ago).

studied the Principal Bird Deity primarily from Izapa stelae into Early Classic Peten ceramics. But in the 1980's the best Maya painting was Late Classic, published by Frans Blom in 1950. I wanted to show color photos for my PhD dissertation of 1986 but no one had seen the plate since Blom photographed it in the late 1940's. It took me about seven years to find the plate and the owner allowed me to photograph it in detail. Later he asked me what he should do with the plate, and I encouraged him to donate it to INAH so it could be in a museum in Mexico so all iconographers, epigraphers and archaeologists could study it. I describe how I found the plate in a recent FLAAR Report.



**Scarlet Macaw, Over 1,000 Years as
The Logo Bird of the Seven Macaw of the Popol Vuh
The Logo Bird of the Rubber Ball Game and Ballcourt of Copan Ruinas, Honduras**



The principal bird deity of the Popol Vuh sacred book is named Seven Macaw, but in the Pre-Classic (at Izapa and San Bartolo) and throughout the Late Classic, the Principal Bird Deity was, as mentioned previously, the Snake Hawk (also called the Laughing Falcon).

Much to our surprise, last year, the owner of a large area of Guatemala told us that scarlet macaws flew to his property to stay and eat seeds and fruits of local trees. We have his permission to stay on his property when the birds return.

If you wish to join us to document this, it would help us to have a Canon mirrorless camera (we have the 800mm lens for this mirrorless camera but need a camera with in-camera stabilization). Most scarlet macaw research is done in the macaw research area initiated by Nini Berger near the Rio San Pedro. We know how to reach that area as well; but the southern area is not well documented whatsoever, so you could be part of new discoveries of bio-diverse ecosystems of the endangered scarlet macaw.

In Guatemala, scarlet macaw rescue programs have been initiated by Nini Berger near Paso Caballos, Rio San Pedro, Peten. At Copan Ruinas, Honduras, scarlet macaws are protected and fly around this park. The Giant Bird Deity at Copan is the scarlet macaw (and the “logo bird” of Copan for centuries).

We have upcoming field trips to photograph waterbirds, especially wading migratory birds that visit Guatemala at the end of the rainy season (when there are more marshes to wade into to fish).

As mentioned above, we would like to do special field trips to photograph the scarlet macaw at the quality you see on this page (we can also provide a course to you, your family, your friends and colleagues, on *How to Improve your Bird Photography*).

Imagine having a photograph like the two here to print and frame to put on the wall of your office or home.



Raptors, Part 1: Owls & Potoo Bird (the best camouflaged bird in the world)

There are four species of “Messenger Owls” of Xibalba mentioned in the Popol Vuh. These Messenger Owls help save the life of the mother of the Hero Twins, Hunaphu and Xbalanque. So finding some of these Messenger Owls in thousand-year old paintings (on Maya vases, bowls, and plates, and in figurines) is pertinent to showing everyone that the chapters in the Popol Vuh actually were known to every Maya priest and their congregations.

Owls are one of the most common birds in architectural sculptures and murals of Teotihuacan that focus on their imperial military power. Thus no surprise that the “Teotihuacan” conqueror of Tikal had owl-related military symbolism.



Illustrations of Spearthrower Owl in Peten; drawings from *Spearthrower Owl Hill: A Toponym at Atetelco, Teotihuacan*, Nielsen and Helmke, 2008.



The back view (middle photo) shows clearly that this is a pataxte pod (standing up). The front of the owl also shows more details of a *Theobroma bicolor* pod pattern. That still needs to be explained is what is the relationship between an owl and a pataxte cacao pod? I was not aware that owls like to eat this particular cacao. Is there a linguistic pun? Definitely not related to Teotihuacan.



Stygian owl, *Asio stygius*, one of dozens of owls native to Guatemala. The eyes of owls (and eyes of potoo bird) are large since they need to see at night what is available for them to eat.

Photo by Nicholas Hellmuth.

As you can see, we have years of experience in bird photography.

I bet that over 95% of the people in the world have never heard of a Potoo. So these PowerPoint presentations can definitely be educational. In 50+ years learning about birds of Mesoamerica I did not see a potoo until the helpful Tikal biology team showed us one high in a tree in front of the visitor's center.

I include the Potoo bird because it is nocturnal (as are most owls). So the Potoo has developed large eyes (like an owl). So far I have not yet found the Potoo in Classic Maya art but will keep looking. In the meantime this bird is amazing due to its ability to hide from predators by pretending to be a stump of a branch on a tree.

Photograph by Moises Daniel Perez Diaz, FLAAR Mesoamerica photographer, Peten.



Raptors, Part 2: Hawks, Falcons and Eagles

It is notable that the birds selected by the Maya were waterbirds and the Snake Hawk; owls and feathered serpents (for Teotihuacan) and Quetzalcoatl (Quetzal Snake) for Aztecs (ps, they borrowed it from 4th-6th century Teotihuacan). Eagles in distinction are logos for European imperial propaganda and the Bald Eagle is the National Bird of the USA (we have this impressive bird living and making nests near where I lived as a child in the Ozark mountain area of Missouri). But eagle species of Mexico are occasionally pictured especially at Chichen Itza.

Spizaetus ornatus, ornate hawk eagle, Águila Penachuda, is native to Neotropical areas of the Americas. It is a challenge to identify which species of birds are in Maya art because they are often rendered in cultural styles.

Most of the eagles and hawks are rarely visible unless you are a dedicated bird-watcher out in the field. So this PowerPoint presentation will show examples of these majestic birds, plus giant raptors in Classic Maya art (and also art of Teotihuacan, Zapotecs, Aztecs, Mixtec, etc.).



Slicer Bat, Camazotz, of the Popol Vuh and Emblem Hieroglyph for Copan, Honduras

Bats are obviously not birds but bats fly quite well and are featured in the legendary mythical narrations of the sacred book of the Popol Vuh.

If you think that vampires are disgusting, then this lecture is a good topic to skip because there are several species of true vampire bats in the Maya areas plus two giant “vampire bats” that prefer raw meat together with the fresh blood (so they don’t just suck the blood out of your neck, they cut off the heads of their victims and eat the flesh while sucking up the blood). Hellmuth explored caves in the karst area of Missouri with his family in the 1950’s-1960’s and since the caves are the entrance to Xibalba (the underworld of the Maya) he has explored caves throughout Guatemala in past decades.

If you would like to help the FLAAR team find-and-photograph the gigantic bat species that is the inspiration for bat sculptures, we have contact with a leading bat specialist of Guatemala.

Our goal is first to send out scouts to learn where these bats roost and where they hunt. Then we will visit these areas to study them.

One of my lifelong dreams is to have a meal for the bat in my hand and have the bat land on my arm to grab the meal.

Imagine what a life experience this would be.



It is crucial to learn where these bats live so these areas can be protected. Not all live in caves; some live in hollow trees (the trees are so large in the rain forest that when they are over 200 years old and their center begins to rot, the bats live inside the core of the tree). We have found these trees and have ourselves gotten inside the trunk (the trees take about half a century to fall over so you can walk into the trunk, literally, I have walked into many and poked my head into almost a dozen).

Most people watch all this on documentary TV channels; we prefer to hike to remote areas and experience all this ourselves.

In the Popol Vuh legends, a giant bat slices off the head of one of the heroes in the Popol Vuh (Xibalba is a cave that leads into the Underworld; LOTS of bats there). I have nicknamed this the “Slicer Bat”.

There are two species of False Vampire; so named because instead of only sucking blood, they slice off the head of their victims and eat the fresh meat in addition to slurping up the blood. Their wingspan of one species can be a meter (both wings together with the body in between almost 3-feet wide).

There are several species of tree vampires in Mesoamerica plus lots of insectivorous bats and nectivorous bats, plus fishing bats. We dedicated an entire field trip to bringing the entire FLAAR photography team to the “bat cliff” in central Peten. The biotope administrator said that they would appreciate fresh digital photos of high-resolution for their website and their research, so we had a remarkable adventure with bats.



Drawing by illustrator Barbara Van Heusen, who assisted iconography research for over a decade, FLAAR Photo Archive.

Maya Batman, with crossed bones (meaning death) on his outspread wings. The Batman in the drawing at the left also has crossed “death bones” plus disembodied eyes. MPV, UFM.

To study large bats of Mesoamerica FLAAR sent two of our lead photographers in 2017 to caves in Costa Rica to find and photograph pertinent bats. Here is one of dozens of photos that is available for the people who would like to learn additional documentation about which animals are pictured in the art of the Maya and their neighbors.



Photo in a cave in Costa Rica by Melanny Celeste Quiñonez Izquierdo, FLAAR Mesoamerica, May 5, 2017. Now (November 2023) we are working together with a bat specialist in Guatemala to find: the bat with the longest wings in Mesoamerica and two other bats that are role models for the Slicer Bat (Camazotz) of the Popol Vuh. You and your family and friends can join our field trip to find these bats; or you can watch from home via our videos.

Vultures cleaning up waste in Mesoamerica; Vultures in Classic Maya Art

I first learned about vultures while living for 12 months at Tikal in 1965. These vultures liked to hang out in treetops with no leaves (so the wind could blow across the birds' bodies and dry off the body fluids of whatever dead animal remains the vulture had from recently sticking its head inside a rotting decomposing body).

There are four species of zopelotes in Guatemala and neighboring countries:

- Turkey Vulture, *Cathartes aura*
- Black Vulture, *Coragyps atratus*
- Lesser yellow-headed Vulture, *Cathartes burrovianus*
- King Vulture, *Sarcorhamphus papa*



It is a challenge to get a good photograph of a black vulture because they are solid black and the background (the sky) is a lighter color. But with patience (and experience, and a good digital camera) you can achieve nice images).

Photographed many years ago by Nicholas Hellmuth with telephoto lens.

Vultures help clean up decomposing bodies; you mainly see them gobbling up the remains of animals run over by cars on highways. Of course you see them high in the sky, circling around until their senses detect a dead body somewhere below. I saw my first Zope Rey in 2019, circling the hills at the west end of Lake Yaxha.

Vultures are occasionally pictured, in 3-Dimensions as lid handles of Early Classic tetrapods or basal flange bowls. In Late Classic Maya vase paintings not all “identifications” of vultures are acceptable, but the bird was clearly known to Maya artists. What if sculptors a thousand years ago showed vultures eating the eye out of decapitated ballplayers at El Tajin, Veracruz, Mexico?

However my primary interest is to show the vultures that you see around Guatemala to help people know the different species. Would help to have a colorful infographic poster to show students all four different species.



The bright colors of the head and featherless neck of the King Vulture are notable. How many people have seen this close-up of the head? The colors vary by age and other factors; we have plenty to show students.

Rey Zope, King Vulture, *Sarcoramphus papa*, closeup photo by Nicholas Hellmuth a decade ago (we have been photographing flora and fauna of Guatemala for several decades). We appreciate La Aurora Zoo and AutoSafari Chapin allowing us inside the cages so we can accomplish close-up photos of bird, reptiles, amphibians, and mammals. You can never get this close to a Rey Zope anywhere else.

Hummingbirds: More than just Pollinators

There are probably more representations of Hummingbirds in Classic Maya art than of any other bird that is not a waterbird (waterbirds are the most common because of the Surface of the Underworld as a key aspect of cosmology (world view)). In 1965, at Tikal, I discovered a vase that shows two hummingbirds in Burial 196, Str. 5D-73.

While hiking to remote areas in hills and bajos of Peten and in Izabal during recent years we have found dozens of hummingbird nests. They are always at eye level or a bit lower. Each nest has leaves and lichen pasted around it to make it look like part of a tree trunk (though the nests are in bushes, not up on actual trees).

Photo by Erick Flores, April 18, 2018, Yaxha national park (PNYNN), FLAAR Photo Archive of Fauna.





Most birds in the Early Classic renditions have a profile face of a snake on their wings. Here a hummingbird has that wing, though a wing this size is usually shown by the Laughing Falcon (Snake Hawk).

Since hummingbirds are helpful pollinators it is important to document their presence in Classic Maya art and to protect the fields and forests where these hummingbirds buzz around.

This illustration was in Hellmuth 1987 publication of 1986 PhD dissertation; page 223 in the German coffee table edition (ADEVA, Graz).

Vase discovered by Nicholas Hellmuth in royal tomb Tikal Burial 196, Str. 5D-73, in 1965. The documentation of the discovery and excavation of the royal crypt was the subject of his Harvard undergraduate thesis. Drawing published later, Culbert 1993: Fig. 84.

We have hard copies of the German edition (with 727 illustrations) and PDF in English. If you wish to donate to our hummingbird field work research projects, we can provide this book to you.

There is a jaguar hide on the throne and a second hummingbird feeding on the flower in the king's headdress. The Tikal emblem glyph is at the right.

Keel Billed Toucan in Rain Forests and Quetzal Birds in Mountain Cloud Forests



Close-up of a Keel-billed Toucan, *Ramphastos sulfuratus*. This bird is GREAT for making a coloring book. Can teach children about colors and about birds.

Although the Keel-billed Toucan, *Ramphastos sulfuratus*, is seldom pictured in Classic Maya art, this brightly colored toucan is the logo bird for the rain forests of Peten, Belize, Costa Rica, etc. It is worth visiting PNAT, PNYNN, Bio Itza, Cerro Cahui, Biotopo San Miguel la Palotada El Zotz and other parts of the RBM of Peten to see the toucan, parrots, Laughing Falcon and lots of other birds.

We will add one or two photographs of the motmot because their tail feathers were also popular for headdresses and other ornaments of the Classic Maya and their neighbors. One of the colorful species of motmot lives in the corridor bosque seco area paralleling highway CA-9 and the adjacent Rio Motagua.

Our photo archive provides images for ornithologists, bird watchers, iconographers and epigraphers (helps to see the actual birds to better identify their images in hieroglyphic inscriptions). But also we can assist school children to learn about the artistic cultural heritage of Guatemala.

The Quetzal is appropriately the National Bird for Guatemala; its feathers were popular for Mayan kings (same feathers were traded all over Mesoamerica; the bird also, as seen in the murals of Cacaxtla, eastern Central Mexico).

Quetzals were popular with rulers all over Mexico; so they had to trade with the Maya Highlands of Chiapas and cloud forests of adjacent Guatemala to obtain the actual birds.

Here a quetzal bird is portrayed in the murals of the trading center of Cacaxtla, Mexico.

Actual quetzal birds are more green, but the mural painters a thousand years ago only had certain other pigments available. Blue and red colors were favorites of the painters of the Cacaxtla murals in Central Mexico. So these murals are great for learning about sources of pigments and dye colorants over a thousand years ago.

Photo by Nicholas Hellmuth late 1990's, Leica or Nikon, Kodachrome film, scanned with Creo Scitex scanner.



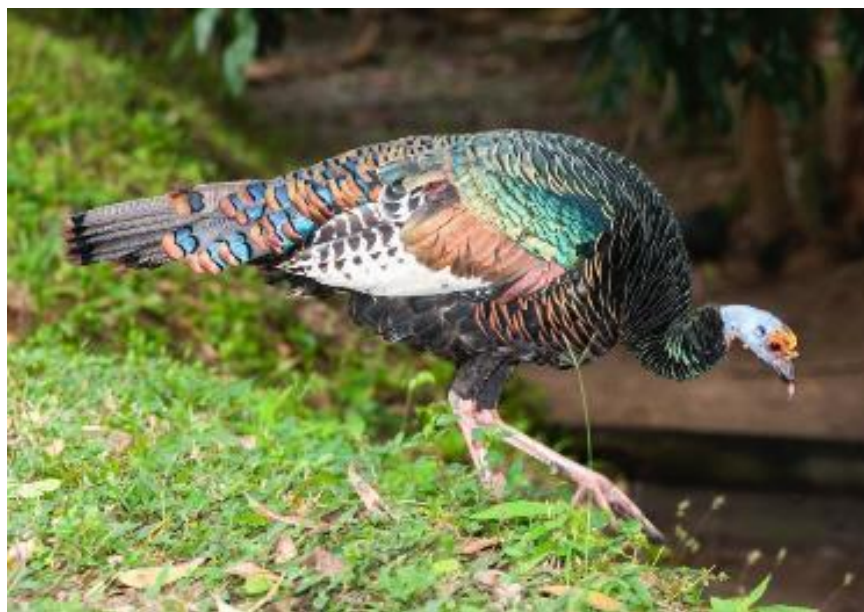
Ocellated Turkey, *Meleagris ocellata*

The ocellated turkey is pictured as a majestic bird on Codex Style vases. This turkey is also well documented for the Dresden Codex and Madrid Codex.



The tail feathers of the ocellated turkey adorn several large Tepeu 2 Maya plates that I discovered in the Tomb of the Jade Jaguar, Tikal Bu. 196. Another comparable large plate with tail feather design was in Tikal Bu. 116, Temple I (both tombs had the many plates, vases, and jades that were very similar to each other).

Bones of the common domesticated turkey, *Meleagris gallopavo*, were found several years ago at the Maya ruins of El Mirador. This domesticated species, from central Mexico, dates to 300 BC in the Peten area of El Mirador. The Classic Maya did not have chickens nor domesticated ducks; the domesticated Muscovy duck was brought to Guatemala by the Spaniards from Costa Rica within a few years after the conquest.



The range of bright colors of the Ocellated Turkey can inspire educational coloring books for children. It would help show children an animated video of how the turkey fans out its tail and lowers part of its wing to begin to strut and dance.

This presentation will also show other “ground birds” like the Chachalaca and *Aramides albiventris*, Gallineta, rufous-naped wood rail, a bird species where dozens of them wander around the ground every morning around our tents when we camp at the CONAP entrance to the Parque Nacional Laguna de Tigre. These birds are totally wild, are not fed any food by anyone (the birds prefer to eat insects). But since they know no CONAP person and no FLAAR person will bother them, they come within a few meters if they see an insect.

Oropendola pendant Nests and Oriole pendant Nests in Guatemala and in the very early Maya San Bartolo murals

The FLAAR team spent several years finding each species of oropendola and orioles that had large pendant nests in Guatemala.

Two native species of oropendola build impressive nests that hang from the limbs of *Ceiba pentandra* and other trees. We dedicated week after week of field trips throughout totally different altitudes and ecosystems of Guatemala to find as many different species as we could. In one area of Izabal we found a giant ceiba with a colony of Montezuma Oropendola nests and about 50 meters away we found the other species of Chestnut-headed Oropendola in a different tree.

The documentation of the San Bartolo murals by the many archaeologists, iconographers, and epigraphers has been greatly aided by the full-color drawings by Heather Hurst.



Oropendola nests are in colonies. It's amazing how the birds "weave" the nests with their beaks. If you look closely you can see a bird with its wings open.

Macho Creem Izabal, March 24, 2017.

We have an impressive series of photos to show all the different tree species used, especially by *Psarocolius ontezuma*, Montezuma oropendola.



The Preclassic Maya murals of San Bartolo (Petén) show yellow-colored orioles and a pendant nest. So I dedicated time and enthusiasm to find as many species as possible of pendant nests of orioles throughout Guatemala.

Altogether we have abundant material to show, in full color. Not many students have seen all these colorful birds and their remarkable engineering (weaving a nest almost a meter in height hanging from the end of a branch).

To “stop the wings in flight” you need a digital camera that works with high ISO so you can set the speed to 1/2000th of a second. The oriole is carrying a piece of fiber that it has harvested from a tree far away. The bird uses its beak to weave this fiber to finish its nest.

Photo by Nicholas Hellmuth, Finca El Jute, Rio Los Esclavos, Santa Rosa, April 29, 2017.



The style and color of this vase (black borders and limited color palette in the scene itself) is similar to the Altun Ha style of Belize. Most of these vases show birds, animals and insect-like creatures (even though with only four legs, not six). Here is one example.

The bird at the left with the long beak is the style of Maya rendering of a hummingbird. The other species will require detailed zoological and ethnozoological and iconographical analysis. But a lot of fauna are available to show cultural heritage, art of the Classic Maya, and images that can inspire students to express their own artistic talents.



Rabbits in Classic Maya Art

Rabbits and the Moon Goddess

Rabbit who Snubs God L

A rabbit was the companion of the Moon Goddess (and the rabbit assisted in the downfall of the Merchant God, God L). Here is the rabbit held by the Moon Goddess on the Skyband Bench, Copan sculpture museum, Copan Ruinas, Honduras. We have assisted doing photography at Copan during many field trips and donated our photos; there were years that most of the government infographic posters used our photos; and still today our photos are exhibited in the museum at Copan.



Every time we discuss mammals with people in central Peten (PNYNN etc.) they all say “rabbits are not wild nor native in our area”. But.... the rabbit is one of the dozen most commonly pictured mammals in Classic Maya art precisely of central Peten of the Reserva de la Biosfera Maya (RBM). So we will raise the question, “why are there no (or hardly any) rabbits in the Tikal or Yaxha national park areas of Peten?”

Our lectures, reports, and animated videos will also list all mammals that are mentioned in the Popol Vuh.

The Rabbit Companion also is the primary assistant in the dethronement of mighty God L.



Armadillos, Squirrels, Pisote (Coati), Tapir and other Mammals in Maya Art



This scene has about 10 different mammals (including two deer). The cute squirrel offering a drinking container at the left and the armadillo doing the same at the middle left are cute. The spider monkey is so thin it's a challenge to distinguish it from the tree trunk and branches. This excellent drawing by Karl Taube courteously mentions that it is based on FLAAR photos in the Dumbarton Oaks photo archive (photos taken by Hellmuth over a quarter of a century ago).

Many Classic Maya representations of the armadillo are in 3-dimensions in order to show the hard shell that covers the body of this animal.



Porcupines and the others are rarely pictured (and hard to identify zoologically in an 8th century painting). The popularity of the armadillo in Late Classic Maya art raises several questions: why are more armadillos pictured than porcupine, pisote, tepezcuintle, cotuza, tapir and squirrels? The shell-like, almost turtle-like protective enclosure, the parallel bands of triangles, and that it lives underground could be potential causes for its popularity. This is a good question for ethnologists, linguists, and ethnozoologists.

For the zoological aspects, we have lots of photos of most of these mammals; a porcupine lives in an 8th century palace in front of Temple 216 at Yaxha (Parque Nacional Yaxha, Nakum and Naranjo).

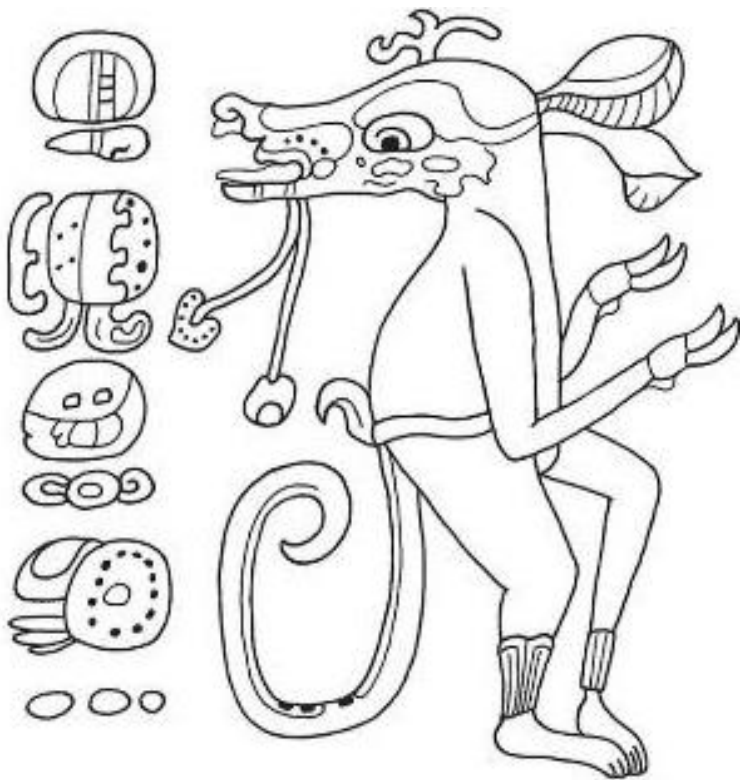


Tapirs are the largest mammal in the Neotropical rain forests of Guatemala and surrounding countries. Not only the tapirs need protection; the lagoons and aguadas that they need to live in also need to be conserved.

Iconography and Symbolism of Spider Monkeys & Deer in Classic Maya Art

Even though there are two species of howler monkeys in Guatemala, and even though generic howler monkey is mentioned in the Popol Vuh, the monkeys most frequently presented in naturalistic manner are the spider monkey. There were surely trained howler monkeys in the special zoos of the Maya High Priest and King. In other ceremonies it would be a man dressed in a monkey outfit.

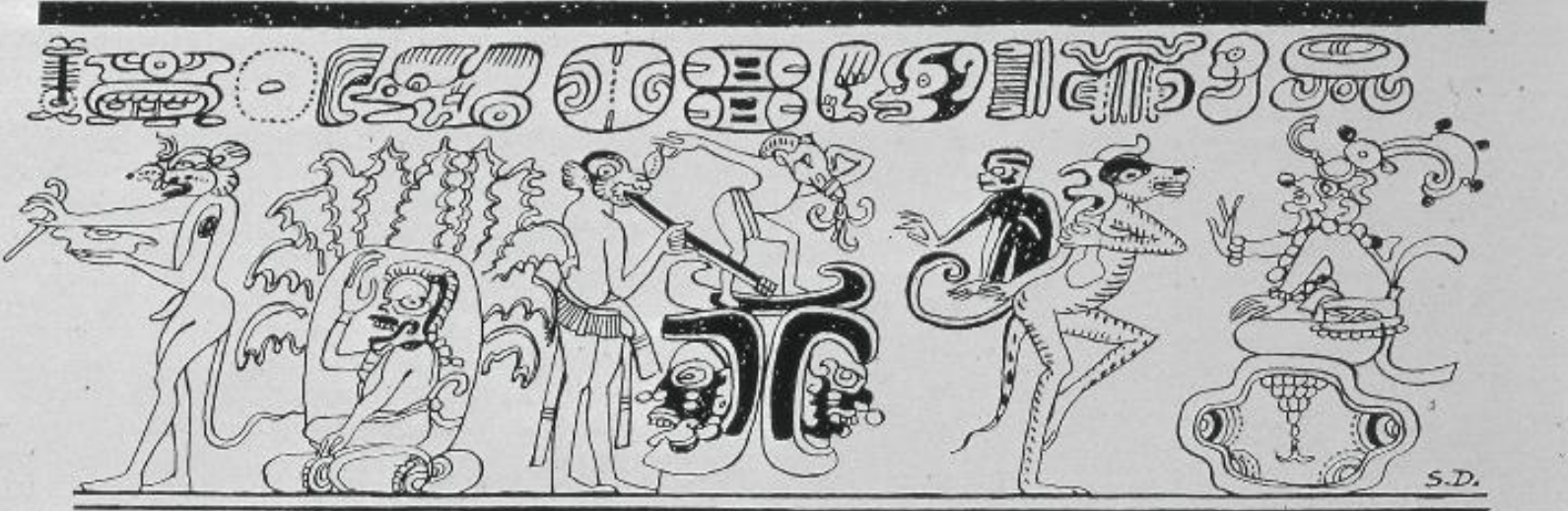
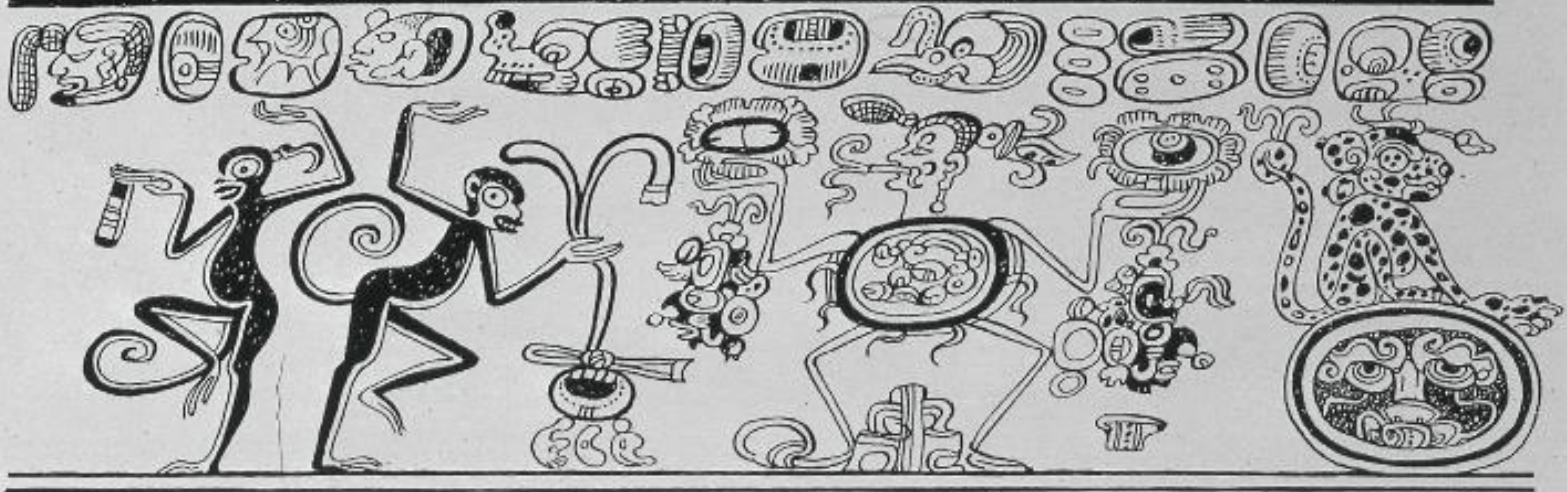
The monkeys are often shown dancing; they look very happy



Here I show the deer with monkey tail. It is a Maya dancer (with hoofs of a deer on his front arms). More than half the deer in parade scenes have this monkey tail. Drawing by Susanna Reisinger who helped for many years when I lived in Graz, Austria, spending years doing research for my 1986 PhD dissertation.

In dozens of other scenes (especially parades of animal spirit companions (wayob)), the monkey has a deer ear and deer antlers. And nearby deer have a monkey tail. But when dancing and frolicking, the monkeys don't tend to have deer aspects added.

Monkeys are also shown carrying cacao (the white pulp surrounding the seeds is one of the most delicious wild foods I have eaten out in the rain forests).



Two more happy monkeys dance in front of a probable God N. In the lower scene a deer carries a monkey heading towards God D. God D is often on a throne and often has animal (actors) approaching him. This scene is so long (from a single Tepeu 1 bowl) that I show it in two segments so you can see all the other personages (and the nice PSS around the rim (the last glyph in the drawing is the first glyph of the PSS)).



Odocoileus virginianus ssp. *virginianus*, white-tailed Virginia deer is one of two wild deer native to Guatemala. They hide in the forest but like to come out to a grassland to gaze.



Spider monkey with baby hanging on to mother. *Ateles geoffroyi* is the species in the rain forests of the Maya Lowlands. Other kinds of monkeys are in lower Central America and South America.


I worked on the iconography of deer hunting for many years and gradually recognized that

- many ballplayers wore deer headdresses
- many ballplayers wore other headdresses that were the same as deer hunters
- the same musical instruments are used in hunting and for the ballgame

So I have informally suggested that one variety of the Classic Maya ballgame was A HUNT: one team HUNTING THE OTHER TEAM. Matthew Looper has published an excellent book on deer of the Maya.

I will show the documentation in the second volume of abstracts (the present first volume is flora and fauna in Classic Maya art; the second volume is on deities, rituals, ceremonies, ballgame, how to make the latex of rubber tree bounce (if you don't have sulfur used by Thomas Goodyear), etc.


Four Peten Style Plates



showing Hunters surrounded by their pack of Yapping Dogs

Nicholas M. Hellmuth
1996


THE OLD DEER HUNTER AND THE WOMAN RIDING THE MYTHICAL DEER



The Actun Balam Vase, Belize, Tepeu 3
and the
Prototype Actun Balam Scene, Peten, Tepeu 1

Nicholas M. Hellmuth
1996

HUNTING



pictured on Early Classic Maya Pottery:
CYLINDRICAL TRIPODS
and
BASAL FLANGE BOWLS

Since the Classic Maya had no cattle, sheep or other large domesticated animals, they needed to hunt in the rain forest, in the savannas, to obtain meat to eat. They Maya show each aspect of hunting, that we will share with you

As you can see here, FLAAR has been studying hunting iconography since the 1990's.


You and your family, or your company, or a foundation, could have your name and logo on the year 2024 updates of each volume. We have tons of full-color photos and digital rollouts that show Maya hunting of birds, peccary, deer and armadillos. All this you can help update for our lecture and publication program of year 2024-onward.

Hunting
the
Principal Bird Deity

as pictured
in Maya Ceramic Art

Nicholas M. Hellmuth
National Museum of Ethnology
1996

Headdresses and Skirts



*shared by
DEER HUNTERS
and
BALLPLAYERS*

Iconography: Classic Maya Symbolism of Two Species of Peccary

Collared peccary (*Pecari tajacu*) and White Lipped Peccary (*Tayassu pecari*) are wild out in the rain forests. The most often mentioned “peccary” in Maya art is the celestial symbol in the Bonampak murals.



Peccary heads are very commonly presented as supports for wide polychrome tetrapod Tzakol bowls.

Peccary are mentioned in the Popol Vuh. Peccary figurines are available to learn from as well (see below). Plus peccary are occasionally pictured in vases and bowls of the Late Classic. There are several scenes showing a male deity riding a peccary (he must have been wearing spine-proof underpants to protect his essentials from damage). We show all this in the full-color PowerPoint presentation.

We have photographed peccary of both species, *Dicotyles tajacu* and *Tayassu pecari* so have lots of photos to help show the difference between the two species.



Peccary as ceramic figurine, photo by Nicholas Hellmuth, many decades ago, probably in one of the museums in hotel in Antigua Guatemala.

Pet peccary are found around homes in remote areas but it is incorrect to list any peccary as being domesticated by the Classic Maya. You also see occasional deer, parrots, macaws, and spider monkeys around homes in remote rain forest areas. They are not kept in cages; the local people feed them and take care of them.



I am not sure I want to know what the 6th-8th century Maya were drinking from this 3-dimensional ceramic peccary head.



Here you can see the extended peccary snout with the flat end. These peccary are covered with dried mud (because, like pigs, they love to wallow in mud).

Iconography and Symbolism of Dogs in Classic Maya Art

- **Hunting Dogs (to hunt deer and large game birds),**
 - **Dogs to Accompany your Soul to Xibalba**
 - **(sadly) Dogs to Eat**

Hairless Pre-Hispanic Dogs

(that can't "bark" and have "no" fur) in Classic Maya Art



Lots of felines in the Americas, but no “house cats” in pre-Columbian Mesoamerica; but plenty of dogs.

Dogs are frequently pictured assisting hunters (especially for chasing deer). The dog pictured here is an Early Classic lidded ceramic jug. It's ears are broken but most dogs in the rain forest have their ears consumed by flash-eating insects (chiclero's ulcer). When you hike to remote areas still today most of the dogs are missing parts of their ears.

Dogs and turkeys were probably the most common domesticated animals wandering around homes of the Mayan people for thousands of years. There were several sizes and shapes and varieties of dogs:

- dogs fattened up to eat
- dogs to help hunt deer
- dogs for helping you survive the journey to Xibalba.

Since most of us like dogs, this will be a popular topic since most people don't know that Mayan dogs were not furry. And the Maya dogs normally did not (could not) bark.



The artistic renderings of dogs varies considerable from 3-dimensional ceramic figurines to the paintings of dogs on Codex Style bowls.

The dogs of today around the world come from different DNA from different evolutionary paths.

In this presentation on domesticated animals we will differentiate between fully domesticated animals (dog, turkey, insects) and tamed wild animals (deer, monkey, parrots, macaws (especially in Copan), peccary and, for the kings, jaguars and other felines).

JAGUARS, PUMAS, OCELOT, MARGAY & JAGUARUNDI

Jaguars in Classic Maya Art

We have so much iconographic documentation on felines in Maya, Teotihuacan and Cacaxtla art that these topics by themselves are almost an entire day of presentation and discussion.

**Topics to be Covered in Felines (Jaguar) presentation series by Dr Nicholas Hellmuth,
ZOOM or FACEBOOK LIVE
but preferably in-person so the audience can really engage with the speaker**

We provide all six primary topics on Iconography of Jaguars & Felines for a one day (morning, lunch break; then afternoon; then tea break. The sponsor can also organize a dinner for attendees who provide donations to cover the costs.

JAGUAR Lecture #1

I: All Five Felines of Guatemala (and adjacent countries)

Photographs and drawings to show: Jaguar, Ocelot, Margay, Jaguarundi, Puma

II: Jaguars and Jaguarundi come in notable Diversity of Colors

- White jaguars, Black jaguars, Gray jaguars.
- Different colors of Jaguarundi

III: Jaguar-Spotted Designs on Late Classic Ceramics of Tikal, Uaxactun, etc.

On Maya vases, bowls, and plates: which are really Jaguar spots; which others are actually Ocelot spots or Margay spots?

JAGUAR Lecture #2

IV Jaguar-Spotted Clothing for Warriors & Royal Elite, Murals of Cacaxtla, Mexico

V: Jaguar-Spotted Clothing for Warriors & Royal Elite, Murals of Bonampak

VI: Jaguar-Spotted Hides used as Royal Clothing

(and Military Symbolism) on Stone Stelae and military scenes on Ceramics

- jaguar-spotted vests, jaguar-spotted skirts, jaguar heads as headdresses
jaguar headdress and jaguar pelage throne coverings for God L (merchant god)

JAGUAR Lecture #3

VII: (Jaguar-Spotted Coverings for Royal Furniture Shown on Vases, Bowls, Plates and Stone Stelae

- for oval-thrones
- back-rests of thrones
- for rectangular platforms used as seats or thrones for the elite
- 3-dimensional thrones (mostly jaguars but possibly some pumas)
- jaguar pelage throne coverings for God L (merchant god). This segment of the PowerPoint presentation will then show a dozen portraits of God L from Maya to Cacaxtla Murals to today as Maximon in the Lake Atitland & Highlands of Guatemala.

VIII: Jaguar Jade, Jaguar Leather, Jaguar Throne painting on Vase (Tikal Burial 196)

Presented as a preview of a potential Tomb of the Jade Jaguar lecture, Tikal Bu. 196, Tikal Str. 5D-73.

JAGUAR Lecture #4

IX: Trained Jaguars as Pets kept by Maya Kings for Ceremonies

X: Jaguars as trained to help in Human Sacrifice

XI: Jaguar Dancers (usually actors in jaguar outfits)

XII: Jaguars and Jaguar Actors in other ceremonies (enema and other rituals)

XIII: Jaguar God of the Underworld (JGU), Paddler Gods, and Hero Twins of the Popol Vuh

XIV Jaguars on Incensarios, Cache Vessels and Late Classic Highland Maya Urns,

JAGUAR Lecture #5

XV: Jaguars, Felines, Serpents & Feathered Monsters in the Murals of Teotihuacan, Mexico

- Jaguars with ropes or material woven around them, shown in the murals
- Jaguar-Feathered Bird-Reptile creatures
- Jaguars associated with stylized water
- Felines with no spots or other aspects to showcase as a jaguar (so probably a puma)
- Warriors with jaguar accessories (men in jaguar outfits)

Priests, Rulers or other Elite with Jaguar headdresses or other aspects

JAGUAR Lecture #6

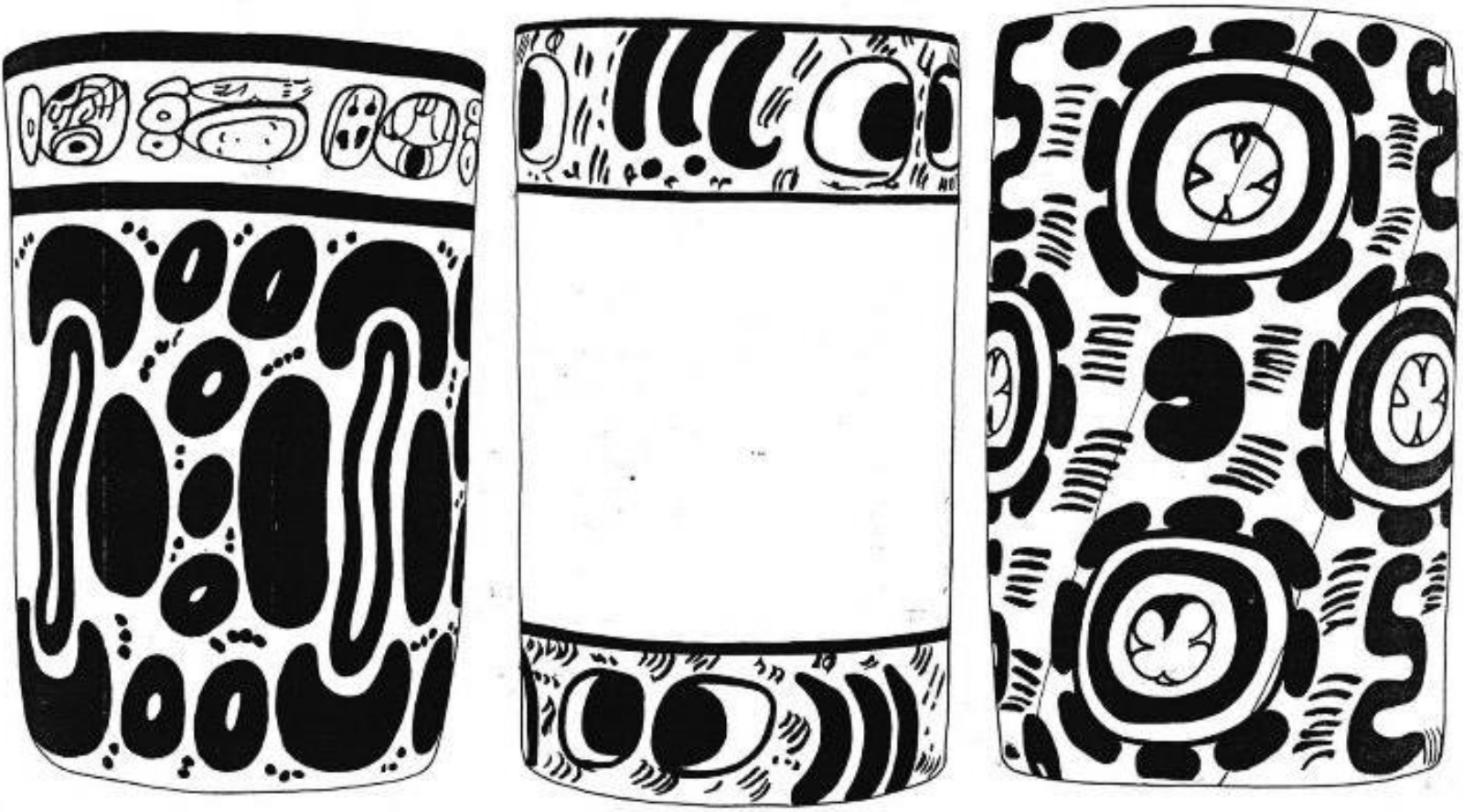
XVI: Where did all this Feline and Pelage Spot symbolism come from?

- Olmec Were-Jaguar
- Teotihuacan had jaguars but was more focused on Owls, Serpents, etc.
- Most Jaguar-pelage-spot designs in Maya settings are in the Late Classic not Early Classic
- Early Classic Jaguars in Maya Lowlands mainly as ceramic lid decor (what was inside?)
- Note that representations of full-figure puma, margay and ocelot exist but are very rare
- Popol Vuh has a “Cave of the Jaguars”

XVII: Jaguars & other Felines in the Maya Codices

XVIII: Jaguars & other Felines in the Aztec and Mixtec Codices

To show even samples of the mass of photos of all five felines and photos and drawings of vases, bowls, murals, stelae that show jaguars, pumas, etc. would take too much space for this abstract. So here we show just samples for one aspect: feline spots: **Feline Spots on Classic Maya Ceramics across the Maya Lowlands**



Some spots are jaguars but margay and ocelot also have spots, albeit in different size and shape.

Feline pelage spot patterns.

This was a master artist over a thousand years ago.

This polychrome plate is in the Museo Amparo, Puebla, Mexico.

We will document that Classic Maya kings had trained jaguars in the palace. These trained jaguars participated in human sacrifice. We will show you the several scenes that show actual jaguars in action in palace rituals.



GIANT Insects Portrayed on Tepeu 1 Drinking Bowls and other Large Beetles of the Rain Forests

Lightning Bugs, Giant Cave Cockroaches & Ceiba Borer Beetles

Although lots of people are terrified of insects, lightning bugs are often accepted. I like lightning bugs because they are so awesome flashing through the rain forest at night (when you are camping out in tents in a project so remote there is no hotel anywhere near (not any aldea either)). I also like lightning bugs because they helped keep the Hero Twins (Hunahpu and Xbalanque) from being sacrificed by the demons, devils and deities of Xibalba. We will tell that story in this PowerPoint presentation.

My other favorite insect is the giant cave cockroach, *Blaberus giganteus*. I estimate this is the largest beetle in Mesoamerica. When we are eating dinner in a remote camp surrounded by the rain forest there are no windows or walls, so any and every insect simply flies towards us (attracted by the light and yummy smell of our food). These giant beetles are like a miniature “helicopter sized” airborne bug: even though you know they won’t sting, bite or hurt you, something this large with all its wings in full motion does tend to freak us out.



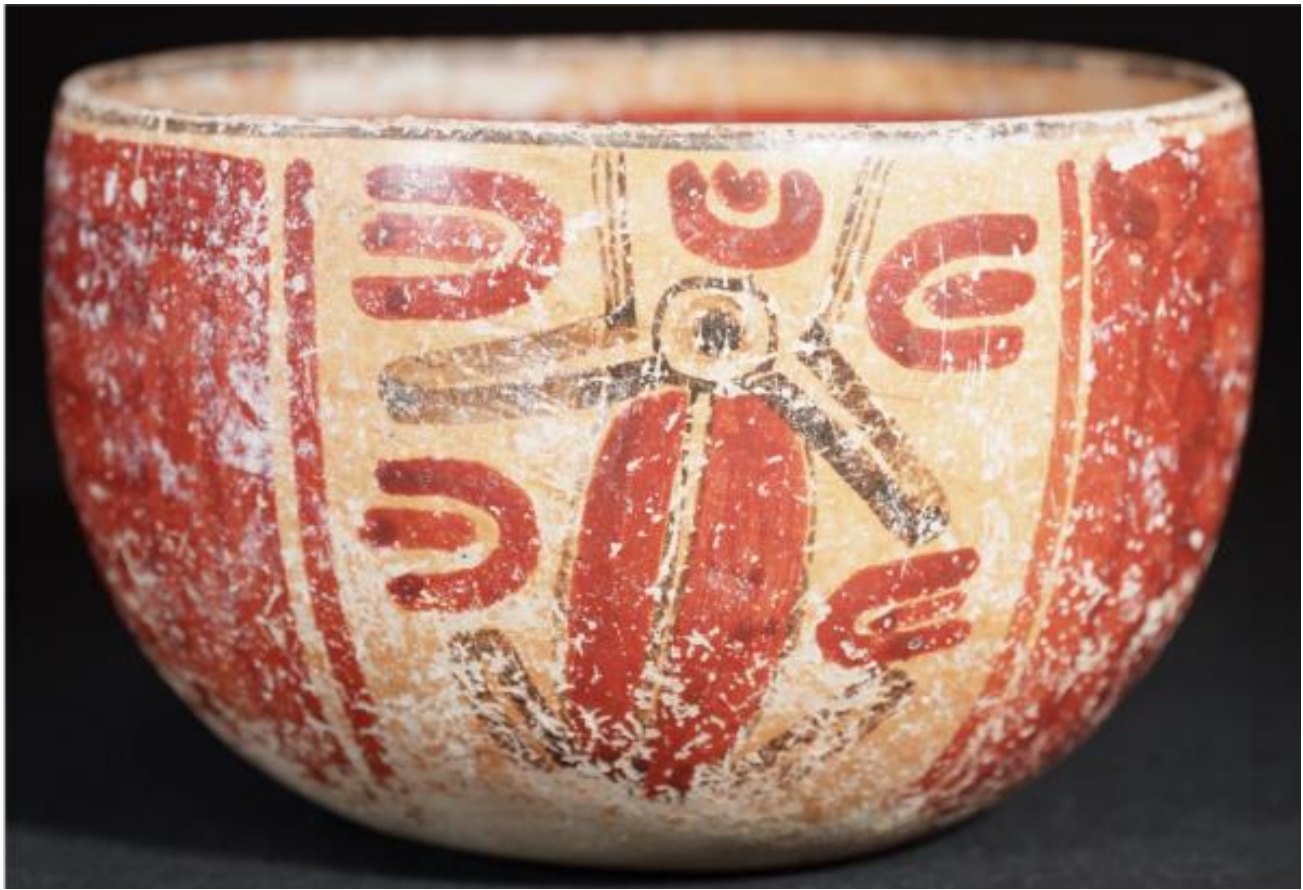
This giant insect is pictured on Late Classic vases, bowls and plates (the “cockroach” with a dark spot on its head).

Entomologists have suggested (mis-)identifications, and it could also be an “enlarged lightning bug.” But I estimate the Maya paintings show the giant cave cockroach *Blaberus giganteus*.

Each entomologist has suggested different insects as the inspiration for all these bugs in Maya art. Most iconographers and archaeologists call them bees! But there is no bee native to Guatemala of anywhere near this size.

We are able suggest more realistic identifications of 7th century Maya portraits of giant insects since we have all these various insects in front of us on field trips (and many live in our FLAAR Ethnobotanical Research Garden around our office). So we learn to identify each insect based on what is flying to our dining room table and landing and then hiking around. We learn which are actually bees by studying the actual bee hives in many areas of Guatemala.

Note that these insects have only four legs, not six. This is because most fauna in ancient Maya art is anthropomorphic (a composite of different species). There are many 8th-9th century Maya images of insects that mimic a monkey!

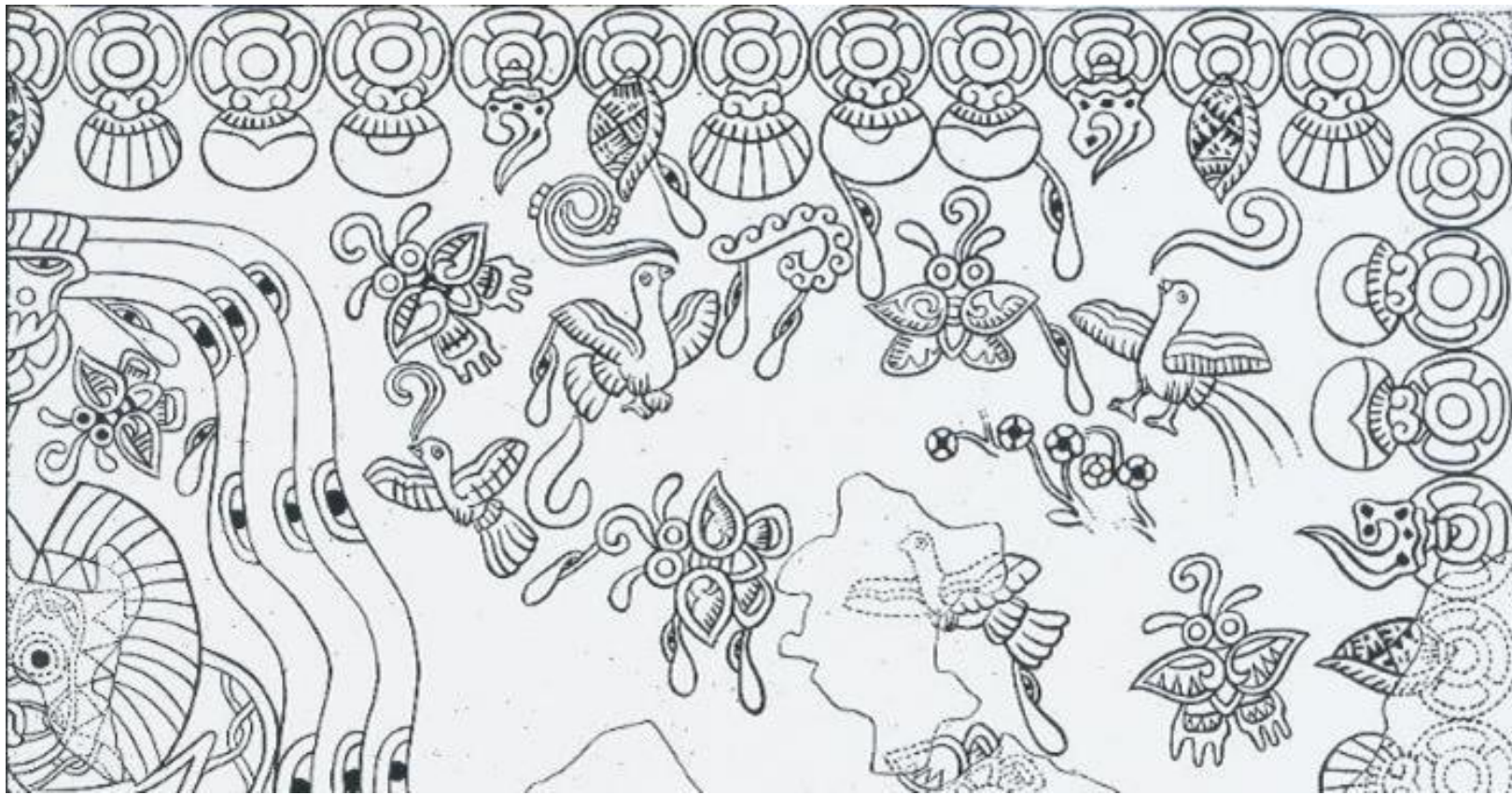


So far these Ceiba borer beetles have not been identified in Classic Maya art. But these brightly colored beetles can be found in many areas of Guatemala. They bore their way into damaged or rotten areas of ceiba trees. Once they open a path, then termites come in to gobble up the gradually rotting interior of the trunk. Decade after decade the trunk becomes hollow. FLAAR dedicated thousands of kilometers of criss-crossing Guatemala to find these giant 300-year old Ceiba trees that had the base of their trunk chewed out by the Ceiba borer and termites/.

These are close to the large size of the giant cave cockroaches. So our FLAAR Mesoamerican lectures will show the really large beetles. Their zoological name reflects their large size: *Euchroma gigantea*. Their color is actually a yellow waxy powder; if struck by heavy rain the color is washed off completely.

Butterflies as Pollinators (in the fields and forests of Guatemala)

Butterflies as Symbols of Fallen Warriors in art of Teotihuacan and Tiquisate



Butterflies and flowers are two very common symbols on ceramic incense burner lids of Teotihuacan (central Mexico) and areas of Teotihuacan imperial trade routes and colonization in the Costa Sur area of Guatemala (Tiquisate and surrounding areas).

Butterflies and flowers are common in the murals in the imperial capital of Teotihuacan. Since butterflies are colorful will be a great topic for coloring books to inspire children to consider learning about art.

Ironically, despite the Teotihuacan-led conquest of Tikal, Uaxactun, Yaxha, Holmul and other Maya sites in the late 4th century, there are almost no Teotihuacan incensarios in Peten and even fewer as 4th century provincial renditions of Teotihuacan incense burners. So far only a few Classic Maya paintings show butterflies. But butterflies are very common in the murals of Teotihuacan and incensarios throughout the Costa Sur area of Guatemala.

If you wish to see tropical butterflies of Guatemala, help fund our field trips and come along to see butterflies all day and moths at night.

You can take photos of the helpful pollinators (we have plenty of camera equipment to accomplish macro photography).

To start, have Hellmuth come to your city, museum, university and show all this in full-color PowerPoint presentation for you.





You can find butterflies all over Guatemala. In Parque Nacional Yaxha, Nakum and Naranjo you see them seeking nectar in the plants near the north shore of Lake Yaxha.

Photo by Moises Daniel Perez Diaz, photographer for FLAAR Mesoamerica.

There is also a “Cacao Butterfly.” This is my name for a butterfly that likes to live in cacao orchards. This butterfly is on a Tiquisate style Teotihuacan incense burner lid that shows split cacao pods. The giant butterfly rises out of the cacao pod. A rendition drawing inspired by this scene was the logo for FLAAR Mesoamerica for many years. Our current logo of FLAAR Mesoamerica shows a monkey, cacao pod, and macaw. Monkeys love the white material that is present in the pods when you open them (this we show in our presentation on monkeys).



Butterflies are a great way to encourage children to learn about art. The large Blue Morpho of the Maya Lowlands and other areas of Guatemala is a good example.

Photo by Nicholas Hellmuth, iPhone 12 Pro Max, August 8, 2021, in area of the central part of the RBM being reforested by Green Balam Forests (Sebastian de la Hoz, Juan Carlo de la Hoz and their team).

I also like to study larvae; they come in amazing diversity of colors. These larvae were in groups on tree trunks as you walk from Copan Ruinas village to the Copan archaeological site.

We found similar masses on trees at Tikal National Park last year. We found even more at the Yaxha part of PNYNN (between Tikal and Belize).

We have a huge photo archive of butterfly larvae; great to help everyone learn about the stages of development from egg to complete butterfly.

Arsenura armida, Zats



Stingless Bees & Honey Wasps

Stingless Bees of Guatemala and their Nests

Wasps that also make Honey

Wasps of Guatemala and their size, shape and structure of their nests

Yes, there are WASPS that make honey, yep, and they can be found in Guatemala (if you have patience). We fully understand that most people do not want to be anywhere near a wasp, much less an entire nest. While I am writing this, there is a nest of wasps seven feet in front of me, on the door from my office that goes out into the FLAAR Ethnobotanical Research Garden. Every time I walk out to enjoy the garden, I walk within a few inches of their nest, and they never attack because they know I am not going to try to remove them or their nest.

Most of us, including me, had never heard of a honey wasp until I spent year after year after year learning about insects and pollinators. So we will show the wasp literally named the honey wasp.

In front of the other door to our office building, there are happy stingless bees. These are so small you barely notice them. They have had their colony there for over six years. We are currently working with entomologists in the USA who are specialists in stingless bees and other remarkable insects of tropical Guatemala. Lots to learn.

Domesticated Insects of the Maya

(the Maya had more domesticated insects than domesticated animals):

- Cochinilla Red Dye Colorant, from *Dactylopius coccus*, Niij,
- *Llaveia axin* for lacquer or wax
- Stingless bees for Honey

We will also mention that the Muscovy Duck was NOT domesticated by the Classic Maya. The wild Muscovy is native but the tame domesticated ducks were most likely brought by the Spaniards from Costa Rica. Domesticated animals of the Classic Maya include dogs and turkeys (but not the ocellated turkey those are wild). Hernan Cortes saw that the Maya of Peten had tame deer, but they were not domesticated. House pets (thousands of years ago) also included spider monkeys. We will discuss mammals in the section on mammals. The present series of topics is on insects in Classic Maya art and insects raised in the past and still in remote Maya villages today.

Stingless bees come in many sizes and colors. With the help of insect specialist Anne Basham and her colleagues who also accomplish bee research in the USA we are learning a lot about stingless bees. We enjoy studying tiny gold-colored stingless bees that live in an open part of the wall in front of our FLAAR Mesoamerica home office in Guatemala City. We have tons of photographs of the different species and views of the remarkable structure of their nests (especially in Peten and Izabal).

We will also show bees in Classic Maya art (and politely document that some scenes labeled as with bees are in fact other insects).



Golden colored stingless bees busy at work extending the entrance tube to their hive.

Macro photograph, FLAAR Photo Archive of Fauna, Izabal, Nov. 20, 2011. We have been photographing bee hives and wasp nests for over a decade.

Structure and engineering ability of wasps and bees will be shown in macro photographs at high resolution that show the outside and insect of nests from a few centimeters in size to giant nests.

Pollinators help plants reproduce so protecting pollinators is helpful.

Stingless Bees that made their Nests inside Arboreal Pendant Nests of Arts

Local park rangers at Yaxha showed us arboreal ant nests where stingless bees had inserted their own nest inside (so two totally different kinds of insects were living within the same nest, albeit “separately”. This is an unexpected entomological discovery and we have not found it well documented anywhere else in Peten. So we now have the largest photo archive on the co-existence of two unrelated species of insects (bees and ants) living in the same nest!

This will be a chapter within the Powerpoint presentation on Stingless bees.



Insects used to make Colorants Insects used to make Varnish

Domesticated Insects of the Maya:
Dactylopius coccus to make Cochinilla Red Dye Colorant,
Nijj, *Llaveia axin* for lacquer or wax

The Maya people had more domesticated insects than domesticated animals (dogs and turkey were domesticated but the Muscovy Duck was brought from Costa Rica by the Spaniards). Muscovy ducks are native and wild in Guatemala but not domesticated in this country; this is the single most common error in discussions of Maya civilization (including the Muscovy duck and forgetting the cochinilla and nijj insects). The Maya had at least THREE insects being cared for around their homes:

- Bees for honey
- Cochinilla for dye colorant
- Nijj for varnish

Dogs were the primary domesticated mammal. Deer were often tamed in the savannas or raised around some homes but not domesticated. Same with monkeys: lots were kept as pets but are not domesticated. Jaguars were also kept by kings and High Priests, but were not domesticated.

The insect that supplies the red dye is a scale insect; the insect that supplies the lacquer is a different species but is also a scale insect. Both are raised by the Mayan people and in other parts of Mesoamerica. The main center for finding and studying these insects is in Rabinal, Baja Verapaz.



We have visited the two main producers of cochinilla and nijj in Rabinal many times, so have lots of macro photographs of these different scale insects.

Leaf-Cutting Ants (Zompopos) in Xibalba of the Popol Vuh

In the Popol Vuh the Hero Twins (Xbalanque and Hunapu) ask leaf-cutting ants to bring them flowers that the devils, demons, and deities of Xibalba have asked for. Xibalba is the underworld of the Maya mythology. So the leaf-cutting ants bring all the requested flowers.

I was intrigued by this, how can LEAF-cutting ants bring flowers? So, in my typical style, I initiated field trips throughout Guatemala and adjacent Copan Ruinas national park area of Honduras to find leaf-cutting ants and to photograph them. We found dozens, scores of instances with Leaf-Cutting ants carrying flowers; often complete flowers (when the flowers were small). We now have probably the largest digital photo archive in the world of these zompopos carrying flowers. If the flower is small the ants do their best to carry the entire flower along the trail to their underground nests. If the flower is large, such as *Pachira aquatica* (zapoton flower) the ants will cut the flower into pieces and carry each piece (we photographed all this so have a lot to show in this conference about Xibalba).

Considering that each flower is larger than three ants together, carrying a complete flower is a challenge for the zompopos. Our PowerPoint presentation will show a dozen different kinds of flowers being carried by zompopos of Guatemala and Copan Ruinas, Honduras.



Because of twigs all over the ground often the ants need assistance in moving a complete flower. Here at least six ants are going to try to get this white flower over the twig across their trail (one small ant at the right; the others are larger worker ants).

Usually one smaller ant rides on top to protect the zompopo below and its cargo.

Photos with Canon digital camera, November 2011, Rio Dulce area (near the dirt road towards Tortugal Hotel and Marina). Yes, we have been photographing these “Maya” insects for over a decade and wish to share all this documentation with you.

It is rare that an iconographer has first-hand in-person experience with the flora and fauna aspects of Maya iconography and mythology that they are studying. This is why I have initiated field trips multiple times each year during the recent 20-years to find, photograph, document, and publish this kind of unexpected experience: It is helpful to share this information and the photographs that document it: that Leaf-Cutting ants also carry flowers in certain times of the year.

We will also show army ants. Army ants are commonly experienced when spending year after year mapping Maya ruins since you are out in the field day after day, month after month

Bull-Horn Acacia, Subin, Ant Symbiosis and Mutualism,
In forests, fields, marshes, and in Classic Maya Iconography

Ant symbiosis is well known for hollow thorns of Bull Horn Acacia, for hollow trunks of *Cecropia* trees, and other plants (we have found ants associated with extrafloral nectar of *Costus* inflorescences all over the Maya Lowlands of Guatemala). We have also found and photographed other ants herding aphids. The ants “milk” these aphids for a sweet liquid; when the ant wants a sip of this sweet material it gently taps the aphid and the aphid releases the liquid (out its tailpipe). The ant slurps it up.

There is one Late Classic Maya vase that shows the bullhorn acacia with a nest in the large bush: we have found bullhorn acacia with wasp nests and with bird nests. Only one kind of wasp and only one kind of bird associate with the ant-filled bullhorn acacia. These types of relationships are known to entomologists but the wasp not as much and the bird aspect is probably not widely known to all ornithologists. So this lecture will help all these biologists plus iconographers. The general public will learn lots they have not seen on Discovery Channel nor even Nat Geo.



Wasp nest in bull-horn Acacia, subin, Arroyo Petexbatun, Municipio Sayaxche, Peten, March 20, 2014.

To me all bee and wasp nests are a “work of art” of Mother Nature. I photograph these nests all over Guatemala.

Arthropods & Arachnids in Maya Art, Part 1

Scorpions and Tailless Whip Scorpions

Obviously scorpions freak us out. Yet if you do field work in remote areas for over half a century you wake up and find a scorpion literally sleeping on your foot. It never stung me. Another year I woke up to the pitter patter of a scorpion hiking across my stomach. Scorpions do not attack people (only if they are sleeping inside your shoe or boots and you forgot to shake them out (and you put your feet into the frightened scorpion). I stayed in one remote location where I had to use a broom to sweep the scorpions off the floor. For the Classic Maya scorpions were a sacred celestial symbol.

Scorpions are seen carved from obsidian or chert (“flint”) as cache materials under stelae. Other astronomical patrons are in the same caches. Occasionally scorpions are pictured in Late Classic Maya art. Scorpions are a celestial image (along with turtles, peccary, and other creatures).

This carved stone sculpture adorns the front of the “Sky Band Bench” of Copan Ruinas, Honduras. A deity or elite personage has his arm going through the Venus symbol (which is to remind viewers past, present, and future that he is a celestial representation). Clearly it is Scorpion Constellation (from the tail).



It helps teach children about the plants, constellations, and other aspects of the night sky and to document that the Classic Maya were adept astronomers (even without any telescope).



Four scorpions and two nine-banded armadillo hides decorate this artistic vase. Digital rollout over 20 years ago (so not a tabulated rollout with 35mm or medium format film). Digital rollouts are with large-format cameras, Rodenstock or Schneider lenses, and a Macintosh computer. With a computer you can measure everything so the rollout is not distorted.

What I like most to see and photograph are mother scorpions giving a ride to all her tiny baby scorpions that are on her back. These are scenes that are so family-focused that they deserve to be shown to the world.

Tailless Whip Scorpions are not in Maya art of Mesoamerica but they wander around my home in Guatemala at night. Their body looks like it is equipped with stingers, grabbers (pinchers), spears and all kinds of other weapons. But when they visit you and crawl onto your hand they do nothing; no Tailless Whip scorpion has stung me. When I find a true scorpion crawling across my body in bed I simply flick it off with my finger; I do not want to have one staying on my body (but tarantulas I let wander around my hands, hike up my arms). Recently a tarantula walked across my face to stand on my head. When we put it back on the ground it jumped onto the shoes of the photographer next to me; so we had to put it back on the ground and then we all moved away so the tarantula could find what it really wanted to grab and eat.



Tailless whip scorpions can be found in caves or anywhere it is dark and humid.

Their side feelers are each more than 4 inches long.

This creature has grabbers, stingers, jaws, and other means of grabbing its prey. But they never hurt nor attack me. I let them run up and down my arms.

Photo by Erick Flores, May 5, 2017, in a cave in Costa Rica where went to find and photograph bats.



Photo by Nicholas Hellmuth in the research garden surrounding the FLAAR office/residence in the mountainins on the upper edge of Guatemala City.

Centipedes and Millipedes in Guatemala and in Art of Mesoamerica



In the late 1990's FLAAR was asked to do photography for a Japanese coffee table book on pre-Columbian art of Mexico and the Mayan areas. We spent 18 months going from museum to museum, from archaeological site to archaeological site. Here is a stone sculpture from a museum in Mexico that shows the right of two bizarre creatures whose legs suggest either a centipede or millipede. So far I have not found this sculpture in any of the excellent iconographic reports on centipedes in the art of the Maya, Aztec, etc.

Several articles (for example by Karl Taube) introduce images of arthropods in the art of Mesoamerica. But more research is needed on which of these creatures are in Peten and which in drier Aztec area of Central Mexico. It is important to show these creepy-crawly creatures in ancient art and show actual centipedes and millipedes out in the rain forests.

Jaguars, monkeys, birds, turtles, fish and snakes are well known as features of ancient art of Mesoamerica. So it is nice to introduce millipedes and centipedes.



The advantage of having a presentation by Hellmuth is that we will show you photos of scenes in Classic Maya art from the 50-years of photographing in museums around the world (such as week-after-week photographing in museums in Japan). So you will see creatures, monster, myths in Maya art not previously published or discussed. These two creatures are worthy of a PhD dissertation to identify, especially the wiggly creature at the left (LRM).

Digital rollouts are more precise than hand-made rollout with pre-digital film. A digital rollout is all controlled by the computer software, so everything is measured. Hellmuth had the first digital rollout camera in the world, developed by Michael Collette (Better Light). The resolution is so high that we have printed a single rollout to 42-inches high by over 5 yards length (the width of an entire room). So your university of museum can have these rollouts to do an awesome exhibit, to show details of Maya art are an unprecedented quality.

Iconography and Symbolism of Freshwater and Marine Creatures of Mesoamerica

CRUSTATIONS IN ART OF MAYA, CACAXTLA, & COTZUMALHUAPA

Crabs in the Art of the Maya, Cacaxtla Murals, & Cotzumalhuapa Style Sculptures

Hermit Crabs are a model for God N plus we have photographed crabs of in stone sculptures of Bilbao (Cotzumalhuapa) area of Costa Sur (Guatemala), and the murals of Cacaxtla, Mexico. We will show land crabs (amazing size and color that climb high into the hills overlooking Amatique Bay, the Caribbean area of Izabal, Guatemala). FLAAR had a 17-month project of flora, fauna and wetland ecosystems in the eastern half of Izabal during COVID years.



Crabs are also inland, albeit often brackish water from the Pacific Ocean. This is the Canal de Chiquimulilla. Jun. 2017. Not many iconographers or archaeologists study crabs up-close and in-person out in remote areas.



There are more crabs in the Cacaxtla murals than other murals. These are from Gulf of Mexico. Photo with INAH permit over a quarter of a century ago. The FLAAR team had a permit to photograph the murals of Cacaxtla circa 1994. We photographed each crab, each conch shell, each aspect of the mural with Leica and with Hasselblad cameras.

The focus of our discussion is the Early Classic through Post Classic Maya, but since Guatemala had trade routes for thousands of years (from Mexico down to Costa Rica) it helps to study the multi-cultural aspects.

I appreciate the access to photograph these ballgame stelae in Berlin many decades ago. As you can notice I brought an entire portable photo studio with me so I could use my style of cross-lighting to bring out the detail.

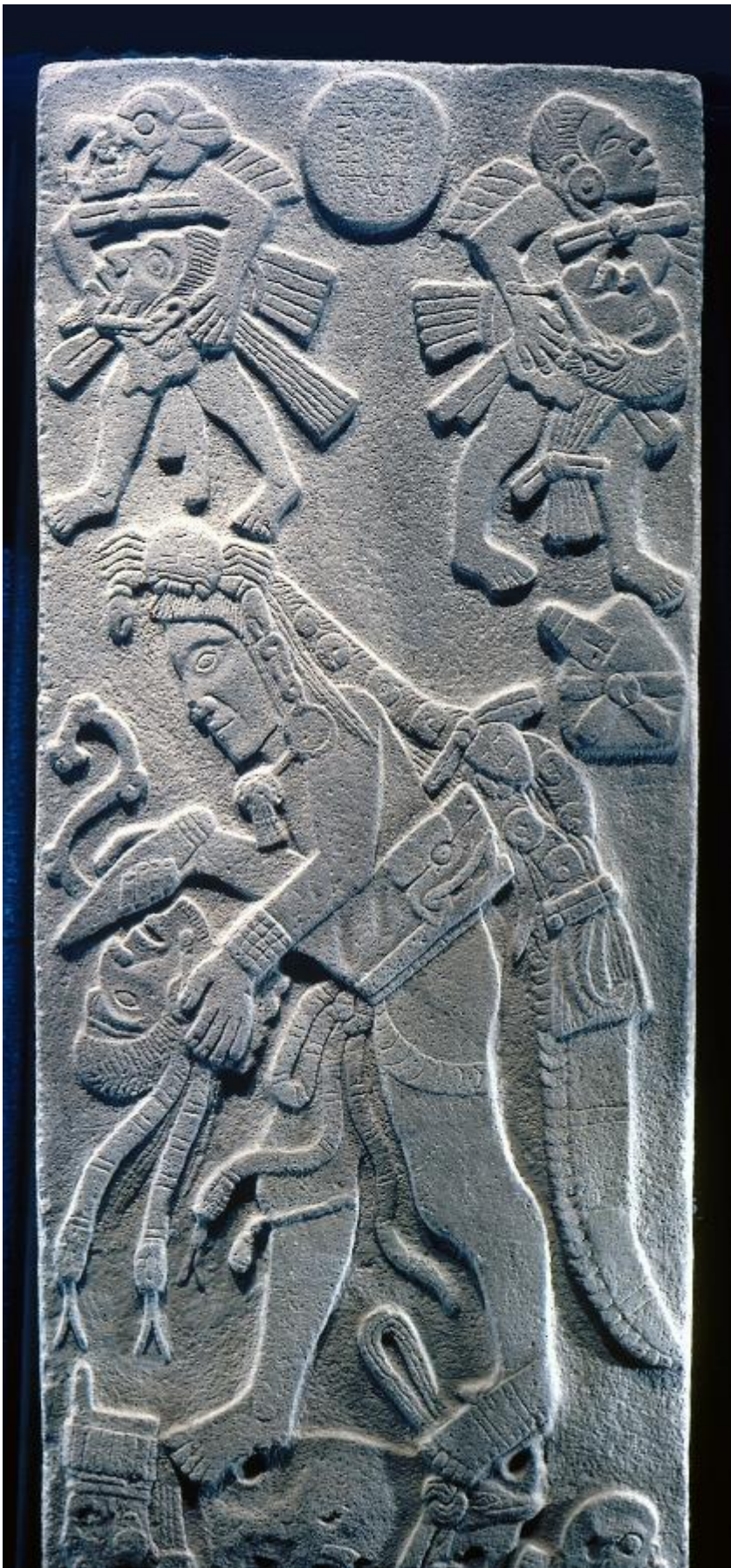


Cotzumalhuapa was near the Costa Sur trade route used from Olmec times through Teotihuacan imperial times, plus Zapotec trade, then Toltec and finally Aztec imperial trade.

The Costa Sur is not a Mayan-language area (though Takalik Abak is a proto-Maya site as is Izapa on the Chiapas side of Soconusco).

The Bilbao area is one of the most multi-cultural outside of Cacaxtla (but less Classic Maya clothing; less Maya content and style).

Archaeologist and iconographer Oswaldo Chinchilla has dedicated decades to the Bilbao area.



Photographs by Nicholas Hellmuth using a complete portable photo studio (lights, light stands, tripod, etc.) courtesy of permission of the helpful curators and staff at the Ethnologisches Museum Berlin, Germany.

SEASHELLS

Seashells & River Shells as Costume Decoration for Rulers & Elite: Spondylus and dozens of other shells from Caribbean, Pacific and Rivers/Lakes

Spondylus Shells worn in vertical rows during Penis Perforation. The

Yaxchilan Lintels and other sculptures show penis perforation by kings; but two kings of Tikal were buried with multiple totally different ritual costumes including the outfit for penis perforation: vertical rows of Spondylus shells. Hellmuth found this outfit in 1965 in the Tomb of the Jade Jaguar, along with two stingray spine perforators.

Shells as Earring for God Chak. Seashells are used in notable amounts both by deities and Maya kings who wanted to pretend they were related to or protected by these deities.

Giant Shell as front Waist Decoration, especially for Maya Queens and other royalty.

Conch Shells as musical Instruments (we discuss this in ballgame and in deer hunting lectures, since blaring sound from conch shells was part of the ballgame and deer hunting.



Naturally we associate large shells with the Caribbean Sea or Pacific Ocean on the other side of Guatemala. But far inland, in western Peten, towards the Tabasco border with Mexico, we saw and photographed “fresh water clam-sized shells”. They even form “reefs” in the river (200 kilometers inland from the Gulf of Mexico).

We will also show and discuss freshwater snails. They inhabit rivers and are even more visible in seasonally inundated grassland savannas. These jute snails are edible.

Artistic Renderings of Fish (of rivers and lakes) of Guatemala

Whereas a catfish is easy to identify, it is a challenge to identify the hundreds of fish that nibble on water lily flowers. I spent field trip after field trip going to remote areas and then wading into the marshes, rivers, and lagoons with water lily flowers to learn what aspect the fish out in the wild were really nibbling on. This I will reveal in the PowerPoint presentation.



Catfish are featured in the mythology of the Popol Vuh. So I have dedicated time and effort to find polychrome Maya vases that picture catfish (have found enough to show that the Classic Maya really did feature the catfish over other fish).

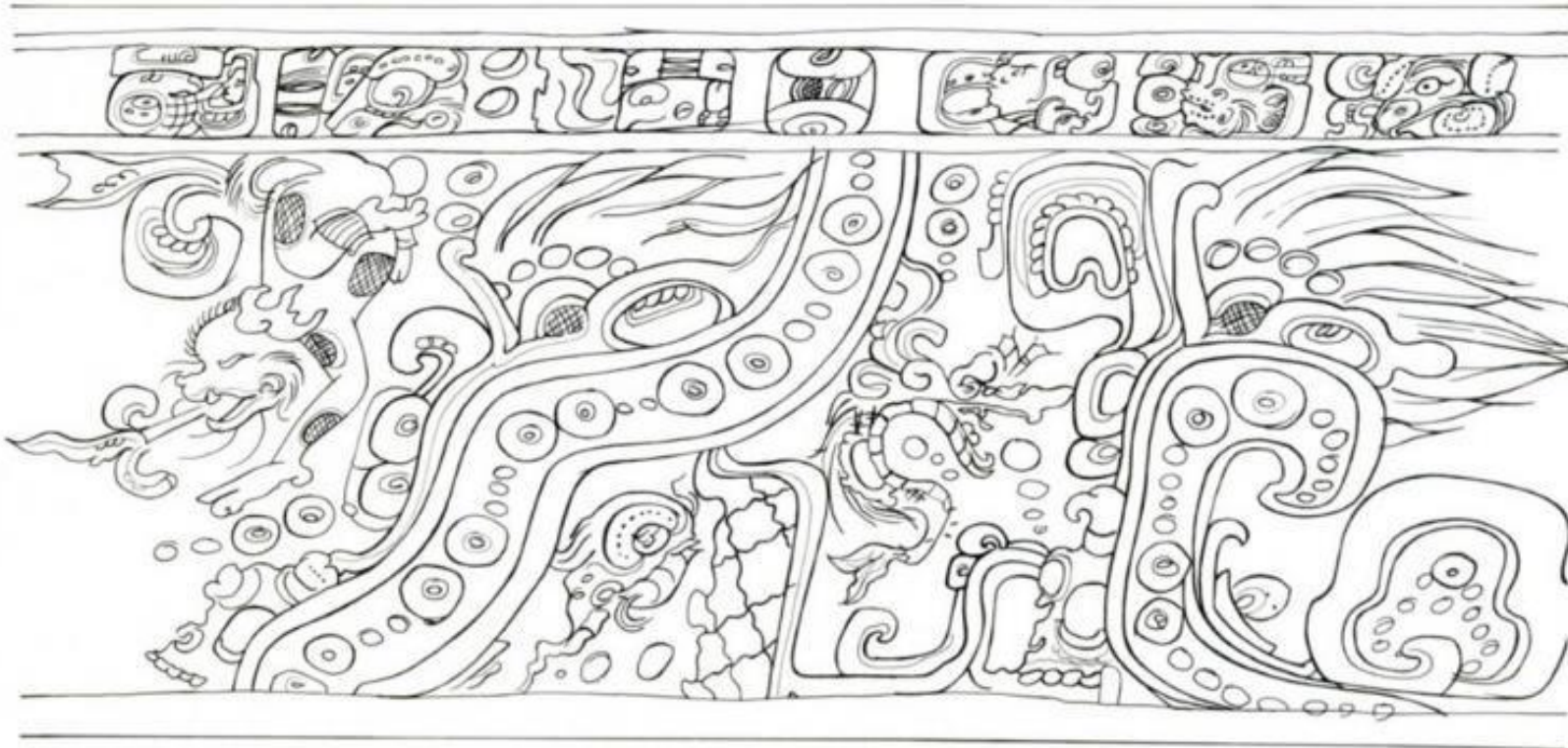
More than a dozen of these vases have been photographed.

The top banner features feline spots (margay or ocelot rather than jaguar).

The fish itself is a catfish, the fish featured in the stories of the Hero Wins of the Popol Vuh.

So these scenes will be helpful for school children to learn about the Popol Vuh and learn about Classic Maya art plus learn about different kinds of fish that are native to Guatemala.

Photo by Nicholas Hellmuth.



Two species of fish are visible in the middle.

You can tell this is fresh water because of the giant water lily flower at upper right and half hidden to the right of the falling dog. We can identify the animal as a dog by its incomplete ear (eaten away by chiclero's ulcer (leishmaniasis) resulting from an insect). This animal is also recognizable as a Maya dog because of the tuft of hair at the end of its tail.

For many years artist Barbara Van Heusen and other illustrators did detailed rollout drawings of Maya vases my research.

These rollout drawings can be turned into coloring books for school children.

At least 50% of the fish pictured in Classic Maya art are in scenes with water lily flowers. So I estimate most fish in Maya art are inland, fresh water fish. That said, ocean or Caribbean Sea fish are also pictured (murals of Chichen Itza show the sea with creatures swimming around).

Another "50%" of fish in Classic Maya art are being caught by waterbirds. Since most of these birds are along rivers, lakes, and marshes, most of the fish are fresh water fish. Yet there is brackish water inland from Amatique Bay; and I estimate some brackish water inland from the Pacific Ocean. Plus the fish being caught by pelicans and all the other flying and floating water birds are marine fish (or fish washed out into Amatique Bay by Rio Dulce when it floods).

It is also useful to at least raise the question of whether the Maya raised and harvested fish (or turtles or snails). What about "swamp farms"?

This PowerPoint will also show the incised bones from Tikal Bu. 116 that show deities fishing from a small canoe. Still today fish are a healthy aspect of diet in remote areas.

**SHARKS & STINGRAY SPINES
Stingray Spines or Sharks' Teeth?**

Iconography and Anatomy of Stingray Spines and Sharks' Teeth

Hellmuth discovered two stingray spines in the pelvic area of the King of Tikal in the Tomb of the Jade Jaguar (his Harvard undergraduate thesis after discovering this tomb at Tikal in 1965). Plus in his PhD dissertation (Karl-Franzens Universitaet Graz, Austria) Hellmuth studied shark teeth in God GI in Early Classic Maya cache vessels. In the Quadripartite Badge headdress you can find examples that look like wide stingray spine or a long shark's tooth. Or is this motif a composite of the two?

This conference will discuss:

- Sharks in Maya art (Bull Shark can swim up the Rio Dulce all the way to Lake Izabal!
- Stingray spines
- And the central motif in the Quadripartite Badge Headdress (is it a short blunt stingray spine or an enhanced shark's tooth?).



Pure 100% shark's tooth up front. This is an Olmec shark, centuries before Maya renditions of sharks. San Lorenzo. Photo by Nicholas Hellmuth in Mexico City's Museo Nacional de Antropología.

Iconography and Symbolism of Iguanas in Classic Maya Art

Iguanas swim as readily as a frog or crocodile. When we traverse rivers and streams in remote areas we see iguanas hanging out on the ends of tree branches over the edge of the water. So no surprise that the iguana is often a water-related creature in Classic Maya art.



I estimate this is a stylized, modified, composite Maya creature, but based on an iguana (because of the raised “sail” across the backbone). Sometimes a drawing that shows the different colors (albeit in B&W); or sometimes a drawing that shows just the motifs is better. So illustrator Luis Molina (FLAAR Mesoamerica) does both when requested. The original polychrome plate is on exhibit in the Museo Popol Vuh, UFM.





Iguanas come in many colors, depending on whether male or female; depending on whether mating season or not; depending on species. We have photos of all of these, so will be great for students to learn to draw them, paint them, etc.

Photograph by Nicholas Hellmuth, Dec. 18, 2017. This iguana is two meters from a lagoon.

This lecture will show all the iguanas and composite iguana monsters as lid handles of large polychrome basal flange bowls. We will also present our several decades of photographs of baby iguanas and parent iguanas throughout Guatemala.



Our team (FLAAR from USA and FLAAR Mesoamerica in Guatemala) has been accomplishing field trips where we find wild iguanas in their natural habitat. We will show you lots of photos of iguanas out in the wild.

We will show you all the Iguanas pictured in the Post Classic Maya codices and every iguana shown on vases, bowls and plates of the Late Classic Maya (plus a peek at an Early Classic example).

This iguana is on branches that hang out over the Arroyo Petexbatun, a tributary of Rio la Pasion, near Sayaxche, Peten.

Photograph by David Arrivillaga, FLAAR Mesoamerica, Dec. 3, 2019.

When young these iguanas are bright green. Children will love this color. FLAAR has an ample photo archive of iguanas from many areas of Guatemala, especially resting on branches over rivers in Peten and Izabal.



Ballgame hacha with design of an iguana. Hachas are primarily from Veracruz but also from where they had trade networks for centuries. So yokes and hachas are found in the Costa Sur trade route area of Guatemala.

Frogs and Toads in the Fields, Forests, and Wetlands of Guatemala
Uo Underground, Bright-colored Frogs of Trees and Bufo Toads near rivers or lakes,

Uo (often called frog; often called toad) live underground. So as an archaeologist at age 19, working for a year at Tikal, I saw lots of these Uo creatures when excavating underground. They look like a fresh wobbly blob. Once a year they come up to the surface for mating. The males sing a song, Uoooooooo UWOOOOOOO, so loud that you can't sleep that evening. In the morning vultures are happily hopping around on the ground gobbling up male Uos that collapsed due to too much singing or dancing with their partners (in other words many of the Uos are still alive but just motionless blobs on the surface). Amazing experience to hear them and see them the next morning; this is why I prefer living and working in the rain forests rather than just using the Internet to see videos.

The poison dart frogs are well known for their remarkably bright colors, but are not present in Guatemala; we prefer to show you frogs and toads that are native to Guatemala.



Although not as colorful as poison dart frogs of lower Central America and adjacent South America, the non-poison non-dart frogs of Guatemala have eye-catching colors nonetheless.

Agalychnis callidryas, red-eyed tree frog. FLAAR Photo Archive of Fauna of Guatemala.

There are two main species of poisonous toads (that secrete a toxin from their parotoid glands behind their eyes). *Bufo marinus* is the largest; zoologists have renamed it *Rhinella marina*. *Bufo valliceps* is a tad smaller (we have seen this along the shore of Rio San Pedro, Parque Nacional Laguna del Tigre (PNLT), Reserva de la Biosfera Maya (RBM). Mayan people in really remote areas keep at least one Bufo inside their homes so that this toad can hop around at night and clean insects out of the house. This is a reason it helps to have been hiking to remote areas with local friends and guides for over 20 years. We learn things not mentioned in zoological reports. Although “poisonous” this toad never attacks anyone; it never even secretes the toxin unless it feels threatened (so only if a dog bites it, or comparable).

Bufo Toad
(formerly *Bufo marinus* now named *Rhinella marina*):
one of the Top 10 Sources of Chemical Exuberance for the Classic Maya

Iconography of Bufo Toad with Sky Band Symbol on its Back
Iconography of Bufo Toad, Turtles, and Iguanas: Water-related Creatures



©La Ruta Maya Conservation Foundation



The Maya used this toad to put into their jug of cacao chocolate drink to get an added “mental enhancement.” This is documented by people who saw it. However back in the 1960’s-1970’s lots of hippies have died (or wished they would die due to the convulsions this toxin gives out). We do not recommend you mix bufo toads with your chocolate!

Once you see how many 3-dimensional sculptures and 3-dimensional ceramic figurines show these Bufo toads you soon realize that these toads were much esteemed by the Classic Maya and people elsewhere in central Mexico.



This *Rhinella marina* is shown in blue because blue is the main pigment in the murals of Cacaxtla and Bonampak. The poison sacs to the right of the eye are pictured clearly in every scene.

For studies of art history, these toads are presented in Classic Maya art, already in the Preclassic and Protoclassic: Izabal stelae and sculptures (Chiapas, Mexico, near the Guatemala border); Kaminaljuyu, and a multi-ton Late Classic stone sculpture at Quirigua. Two-dimensional giant stone renditions are known from Los Sapos, a few kilometers from Copan Ruinas, Honduras.

Rhinophrynus dorsalis is the burrowing toad, common in the Peten and elsewhere. At the height of the rainy season it rises above ground one day of the year and the males sing their love song to attract females. “Millions” can be heard if you live in the Peten (so noisy you can’t sleep that night but the Uoooooo songs are a great rain forest experience). The next day vultures hike around the ground eating male Uo toads that exhausted themselves (from singing all night and then dancing with female toads as often as possible). It is amazing to see all this in front of you (from having lived literally an entire year at Tikal, in 1965, as a student intern in architectural recording and photography for the Tikal Project).

Iconography and Symbolism of Turtles in Maya Art Land Turtles, Fresh Water Turtles and Giant Marine Turtles



You could write an entire PhD dissertation if you had a chapter on each aspect of this scene: the Hero Twins are perfectly distinguished (Hunapu with widely spaced black spots and Xbalamque with jaguar spots and beard). There is a water lily deity (with water lily flower stem wound around a lily pad headdress).

There is so much in this scene that I will have segments in four different lectures.

At least two drawings exist: by FLAAR illustrators and then by Linda Schele. The FLAAR drawing has thinner line so you can see more details; the database with the Schele drawing results with the black color covering up details.

Turtles are best documented for the “housing” of God N, and for the mythical creature out of which the Maize God rises when assisted by the Hero Twins. Both land turtles, fresh water turtles and Caribbean and Pacific Ocean marine turtles were available to the Classic Maya as inspiration.



Close-up photos with a Leica camera and soft lighting help document the fresh water and marine creatures of the murals of Cacaxtla. There are more turtles in these murals than in any other mural of Mesoamerica (that I know of).

Cacaxtla was on an “international” trade route between Central Mexico and the Maya Lowlands far far to the south-SE.

Water Lily Flowers & Water Lily Pads in Classic Maya Art

There are more water lily flowers in Classic Maya art than all other flowers and plants combined. Kings wore water lily flowers and lily pads featured on their headdresses. Hellmuth's PhD dissertation (Surface of the Underwaterworld) provides helpful documentation but since that research of the 1970's-1980's, we have accomplished several decades more research on water lilies: studying them above water and underwater in rivers and lakes of Guatemala. And finding more Classic Maya scenes showing these flowers. A recent book published by the leading university in Mexico suggests that chemicals from the water lily were utilized (we advise that you NOT attempt to taste test this flower, pad or root).

This lecture also raises the questions of to what degree were water lily chemicals ingested by the Classic Maya. But the primary focus is showing all the known examples of Water Lily in the art of Palenque, Copan, dozens of other sites, on bas-relief sculpture, ceramic plates, bowls, vases, especially carved/incised bowls.

FLAAR has the largest photo archive in the world of *Nymphaea ampla* water lily flowers and pads of Guatemala. We have enough material for a coffee table book on the biodiverse ecosystems where these water lilies grow plus all the bas-relief stone carvings, stucco, and painted or incised vases, bowls and plates. A significant part of 1987 publication of Hellmuth's PhD dissertation was on water lily symbolism. In the following decades, and still today in remote areas of Peten, we are studying and photographing water lilies.

A Mexican scholar has suggested that ingredients in water lilies were used as hallucinogenic ingredients by the Classic Maya. The new 2023 presentation by FLAAR will discuss the pros and cons of whether, or not, water lilies were used in this manner.



Photograph by Nicholas Hellmuth with Hasselblad camera, Zeiss lens, Phase One P25+ medium format digital back (photographed over a decade ago). *Nymphaea ampla*, white water lily native to Guatemala, here in marshes and lagoons, near Monterrico, inland from Pacific Ocean. We appreciate the assistance of CECON lanchero on over a dozen field trips here in those past decades. Now his children and grown up and lancheros for us there.

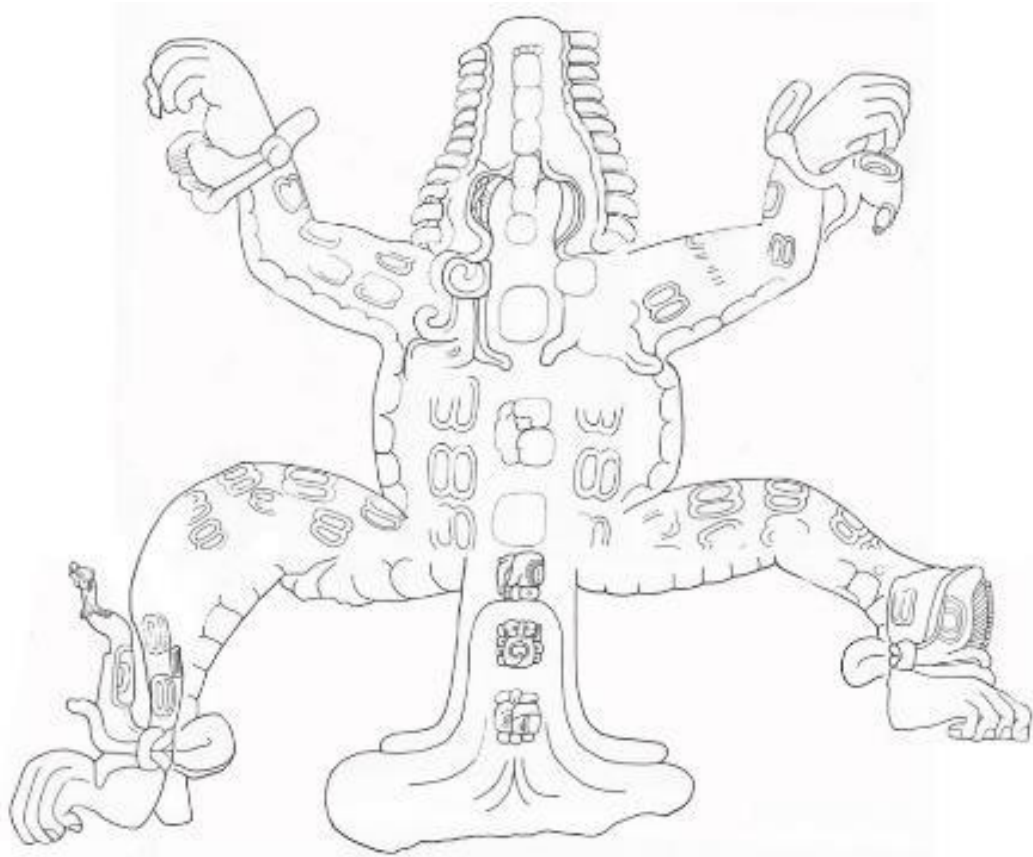


There are so many flowers, fish, reptiles in the well-preserved sculpture of Copan Ruinas, Honduras, that you could do an entire conference or symposium on each aspect. But for the present discussion of water lily flowers, you see the fish touching the flower (that's because he wants to eat some part of it). The row of teeth in the other creature at the right is a whole separate iconography and ethnozoology research project. Photo by Nicholas Hellmuth with permission courtesy of IHAH. It helps to have a ladder and a portable lighting studio.



Everything here is stylized, so a challenge to recognize what is really being shown. But if you study Maya paintings and incised and carved scenes for half a century, it is easier to understand what a stylized motif is actually representing. So this lecture will decipher and explain each aspect of this painting of 7th-8th century Surface of the Underwaterworld. The lecture will also reveal what is in the middle of this scene (and what is on the other side of this bowl/vase).

**Iconography and Ethnozoology of Crocodiles in Classic Maya Art
(no alligators in Mesoamerica; two species of crocodile and one species of caiman)**



Every year that we hike into swamps and aguadas we see crocodiles often surrounded by water lilies. So the Classic Maya show stylized water lily flowers on each limb of Copan Altar T (CPN 33, drawing by Linda Schele). There is also a water lily flower above the tip of the nose of the crocodile headdress (drawing by Martin 2015: Fig. 16,c).

Lots of wild crocodiles waiting for you in the Rivers, Lakes, Lagoons, Swamps, Marshes of Guatemala and in the mangrove swamps of the Caribbean coast. Lots of wild caiman to see in the mangrove swamps of the Pacific Ocean coast.

We mention *Crocodylus acutus* in our discussion of marine creatures but in reality it is more inland a bit than swimming out in the Caribbean Sea. During our field trips hiking into remote areas we see *Crocodylus moreletii* all over Peten; found almost a dozen baby crocodiles floating in a water lily filled pond in the middle of Savanna #13 of Parque Nacional Laguna de Tigre (PNLT) of the RBM area of Peten. I have counted about one *Crocodylus moreletii* every several hundred meters when going up or down the Rio San Pedro (in the same park). Plus lots of crocodiles in Lake Yaxha of Parque Nacional Yaxha, Nakum and Naranjo.

Caimans are more in the alligator branch of the Crocodilians; they are in the mangrove swamps of the Pacific Coastal area (inland, so not marine creatures).



We study every aspect of each species of crocodile, because to identify which species is pictured on a 3rd century stone stelae or an 8th century painting on a ceramic plate it helps to know all aspects of the local crocodiles



Each species of crocodylian has teeth and “fangs” in different size and arrangement, so I wanted to accomplish macro photography of each part of the jaw. Here is one of my dozens of photos of *Crocodylus moreletii*; it also shows the reptilian pattern of the jaw and the skin under the jaw.

Crocodylus acutus, I prefer to call it salt water coastal crocodile

Crocodylus moreletii, Morelet's crocodile, inland rivers, lakes and swamps (especially Peten)

Caiman crocodilus, Spectacled caiman (inland rivers, lakes and swamps (Pacific coast).

To prepare this lecture we have studied crocodiles up close and in-person. We will show you photos of Nicholas on the ground, at the edge of a water hole, taking photos of the crocodile(s) coming out of the water towards him.

The most memorable photography was when we found ten tiny baby crocodiles in an aguada in a savanna in Parque Nacional Laguna del Tigre. Fortunately neither mommy nor pappy crocodile were anywhere near, so the FLAAR photography team could wade up to within a few feet to take close up photos (the photos above are of adult crocodiles elsewhere; the jaws are of a living crocodile; not a skeleton!).



There are “crocodile trees” pictured on several Proto-Maya stelae of Izapa (Chiapas, Mexico, near the border with Guatemala). We will show you all the crocodile trees of Maya art from 4th to 14th centuries. Plus, we will show you the trees whose bark pattern looks so much like a crocodile that the trees are named Palo de Lagarto (lagarto is local word for crocodile; not lizard).

This presentation will show you all three species of Guatemala (two crocodiles and one caiman). Hellmuth has found dozens of 3-dimensional Classic Maya portraits of crocodiles (ceramic figures). So you will be an expert in crocodiles of the rain forests and ancient art of the Maya areas.

Snakes: Pit Vipers and Boa Constrictors in Classic Maya Art

Snakes are not all water-related, but the Maya created composite mythical monsters that were long entangled coiled body of a large snake but with head a mixture of crocodile and snake fangs. So we include the snake monster topic after crocodiles, since often they are intermixed.

Serpents, venomous but also potential boa constrictors, are the most common “animal” featured in Classic Maya art, on pottery and sculptures (especially of Yaxchilan).

Most people are as terrified of snakes as they are of tarantulas and scorpions. But snakes are part of the biodiversity of fields and forests and deserve to be studied. The Feathered Serpent (Quetzalcoatl) is best known for the Aztecs but the thousand-year earlier Teotihuacan empire had feathered serpents (and feathered-serpent-felines). The Classic Maya also had lots of snake monsters, snake-crocodile composite deities, demons, so it is helpful to learn about snakes for herpetologists, iconographers and epigraphers. I estimate that snakes are in the top three of most frequently pictured creatures in Classic Maya art (then jaguars and monkeys; then deer).

It helps to live and work in Peten year after year, month after month: to see an unfortunate full-sized fox being swallowed whole by a mazacuata (boa constrictor). Yes, there are snakes large enough to swallow a fox. The Aztec emperor had a gigantic zoo with several hundred zookeepers. There are many 7th-9th century paintings that show live jaguars as trained pets in Maya ceremonies (yes, most “jaguars” in Maya dances were men in jaguar costumes, but most dancing monkeys were trained; and jaguars were trained to assist in human sacrifice). So obviously snakes of all sizes and species were also kept by the Maya to be shown in rituals and ceremonies.



Snakes are common in the architecture of Teotihuacan and Chichen Itza (and elsewhere). Clearly this row of snakes (with GIANT exaggerated fangs) is a message from the ruler, High Priest and military leader(s).



Seibal Stela 13 (in Spanish, Ceibal Estela 13). This site was one of the last Maya sites to continue to erect stelae during the decades of collapse of Maya city-states. Their iconography is often very innovative. This ruler was obviously trying to use giant venomous snakes to strike fear into his subjects and especially his enemies. These snakes are relatively naturalistic and don't include features of other animals as a headdress: these are not composite creatures typical elsewhere in Classic Maya art. This photograph is over four decades old.

Snakes, usually composite creatures mixing features of crocodiles, birds and other aspects to create a monster even more frightening than a mere snake by itself. So lots of art to learn about in Maya and Teotihuacan. Aztec art is impressive but the Maya people learned from Olmec art so I study Olmec art; the Maya had a barrio in the imperial capital of Teotihuacan and Teotihuacan had a barrio in the south part of Tikal (and in most Classic Maya cities, even after the fall of the Teotihuacan capital itself). The Aztecs had trade routes and interacted with the 14th-15th century Classic Maya but my focus is on 1000 BC to 1000 AD (2,000 years keeps me busy). The snakes of the murals of Teotihuacan and the murals of Cacaxtla are worth learning about. Cacaxtla was a far northern trade post of the Maya deep into the heartland of Central Mexico, far from the Maya Lowlands. The snakes of the Cacaxtla murals are associated with water.



A true work of art, in the Museo Popol Vuh, UFM. Digital rollout by Nicholas Hellmuth, FLAAR Photo Archive.

Feathered Serpents in Murals of Teotihuacan and elsewhere

Quetzalcoatl is best known for the Aztecs but Teotihuacan also had feathered serpents. And although the two snakes we show above are not feathered, serpent monsters in Maya art come in every size and shape (especially at Chichen Itza).

Waterbirds
of the Sea Coasts, Mangrove Swamps, (Caribbean & Pacific Ocean)
Marshes, Lakes, Rivers, Aguadas in the Rain Forests of Guatemala
Waterbird Iconography on Early Classic and Late Classic Art

Cormorants, Ducks, Egrets, Herons, Ibis, Pelicans, Storks, etc.



This happy bird just caught a fresh meal (the fish trying to swim away).

We were the first iconographer or ornithologist to identify the 3-dimensional sculpture of this waterbird in the museum at Copan Ruinas, Honduras.

We will explain how we identified the bird and where this bird can be found in the Maya Lowlands out in the wild.

Our PowerPoint will show more of this Copan sculpture; it is 3-dimensional sculpture of the bird and the fish.

Photo by Nicholas Hellmuth with portable lighting studio courtesy of permission of IHAH and the hospitality of the park administrators.



From our recent years of field work in Lake Yaxha (Parque Nacional Yaxha, Nakum and Naranjo) we have photos of lots of other waterbirds. Same with the wetlands inland from Monterrico: we have photographed here more than a dozen field trips within the last 12 years. So lots of photos of waterbirds for this presentation. Our project of 17 months in the Caribbean and inland area of Canyon Rio Dulce, El Golfete and Rio Sarstun to the north has resulted in an impressive photographic archive of waterbirds, especially the Brown Pelican, *Pelecanus occidentalis*.

Same with the 3-dimensional sculpture of a waterbird at Copan: it is either simply called a bird (with no attempt to identify it) or it is automatically assumed to be a heron. A key archaeologist in Honduras thanked me for identifying it as a male white pelican and said this was the first time he had seen documentation (a photo of the actual bird out in a lake and the same bird in the sculpture).



Within this lecture we have one “chapter” on water birds of Tzakol (Early Classic) lids of tetrapods and basal flange bowls. Most (but not all) of these 3-dimension bird renditions are grabbing onto a fish. These are drawings done many decades ago (we have been studying waterbirds for a long time). There will also be one “chapter” on waterbirds pictured on Tepeu (Late Classic) vases, bowls and plates.



We can also give tips on what cameras and lenses are best for bird photography. These photos are from a decade ago, March 18, 2013, Petaxbatun area, Peten. With more experience and improved camera and lens technology you can achieve even better photos today.



Water birds were a major chapter in my 1980's PhD dissertation so I visited museums around the world to find ancient Maya paintings that showed these birds.

Boat-Billed Heron: Sacred Bird of the Olmec

Boat-Billed Heron or Ducks? associated with Women in Teotihuacan-related Ceramics of the Costa Sur

The waterbird most commonly shown in Olmec, Teotihuacan colonial art is the boat-billed heron, *Cochlearius cochlearius*. A thousand years later, despite being not known at Teotihuacan imperial capital itself, this bird or a wide-billed duck is present in Teotihuacan imperial trade route area of Tiquisate and thereabouts of the Boca Costa area of Guatemala.



The Tuxtla Statuette is clearly a Boat-billed Heron (definitely not a duck). Drawing from Wikipedia cropped to the wide long bill with the raised area down the middle.

Because boat-billed heron hides all day in thickets in swamps (and comes out only at night) we had no photos of this bird in our year 2013 monograph on Maya Ethnozoology. But in recent years we focused on finding and photographing the boat-billed heron so now we have a good photo archive. Sadly, half of the archaeological discussions of the Olmec bird deity call it a duck (because any bird with a wide sort of flat beak is assumed by North American and European scholars simply to be a duck. Obviously other scholars realize the Olmec bird logo is a boat-billed heron but this needs to be shown to the entire world so the copy-and-paste assumption of a duck is replaced by correct identification.



Every archaeology museum in Guatemala City has at least one of these large ceramic figurines (Fundacion la Ruta Maya, Museo Nacional, Museo Popol Vuh). In each example, the unidentified bird is shown in stylized three-dimensional presentation, held by a seated female. I now believe I can identify the bird species; next step is to find where we can photograph these birds in Guatemala. Our goal is to show the details of their wide bill, with the raised area at the front (not in a complete line as on the Boat-billed Heron).

Because boat-billed heron hides all day in thickets in swamps (and comes out only at night) we had no photos of this bird in our year 2013 monograph on Maya Ethnozoology. But in recent years we focused on finding and photographing the boat-billed heron so now we have a good photo archive. Sadly, half of the archaeological discussions of the Olmec bird deity call it a duck (because any bird with a wide sort of flat beak is assumed by North American and European scholars simply to be a duck. Obviously other scholars realize the Olmec bird logo is a boat-billed heron but this needs to be shown to the entire world so the copy-and-paste assumption of a duck is replaced by correct identification.



This boat-billed heron we were able to photograph because it had been injured in previous months and a local family saved it. So the bird lived with the family (along the edge of the Canal de Chiquimulilla near La Avellana, upstream from Monterrico).

is the email for the general manager to communicate with both FLAAR and FLAAR Mesoamerica.

Dr Hellmuth has lectured in German, English, and Spanish. He has lectured in Japan, China, Taiwan, Saudi Arabia, Abu Dhabi, Dubai, Slovenia, Croatia, Germany, Austria, Greece, UK, Canada, USA, Guatemala, Mexico, El Salvador, and Panama (plus many other countries).

In addition to iconography and symbolism of flora and fauna in Maya art, we have two more sets of abstracts:

- Lectures on rituals, ceremonies, deities, celestial symbols, ballgame, etc.
- Lectures on every aspect of Maya architecture from corbel vaults, windows, doors, roof-combs, throne rooms, of monumental pyramid-temples, palaces and acropolises.

We also can speak on Neotropical plants and wetlands ecosystems of Guatemala. We currently have a 5-year permit for continued such research in remote areas.

The lecture topics included in this Part I (and included in the upcoming Part II: Archaeology; and Part III: Architecture of Palaces, Temples and Ballcourts) are based on several goals:

- to make material available to students that is fresh and new; especially so students can have material for their theses or PhD dissertation that is not available on-line or in old-fashioned books
- to make material available to other professors and other researchers that they can use for their own research and their own reports
- to make full-color high-resolution photos available to the general public to show the flora, fauna, ecosystems, architecture and art to the general public.

“Material available” means high-resolution digital images plus documentation, citations, and fresh insights. So each topic has color images that are not in books or articles or on-line.

Hellmuth was a Post Graduate Research Fellow for three different appointments at Yale University, starting in 1968 for archaeology of Peru. Next with Dr George Kubler for art of Teotihuacan; then appointed by Dr Michael Coe for honorary Visiting Research Fellow position at Yale’s Peabody Museum of Natural History (especially to research and document jaguars (and other felines) in Classic Maya art). These appointments are primarily to share research with the professors but also includes giving occasional lectures to students. Hellmuth was also a consultant at the University of Malta (the Island of Malta) and was awarded a 6-month position as research professor and consultant in digital imaging at MINPAKU (Japanese National Museum of Ethnology).

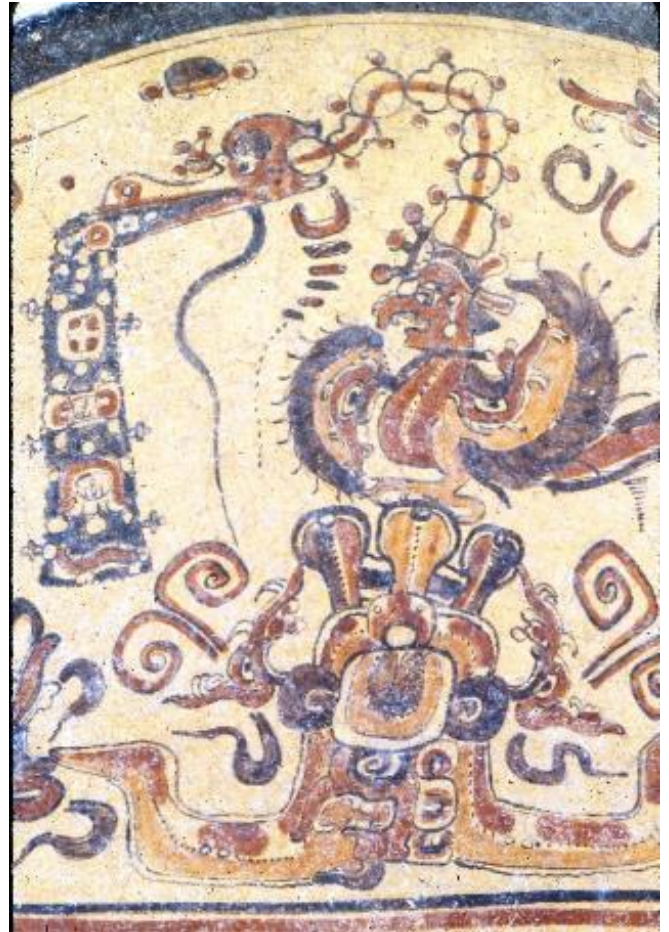
When you are a Visiting Guest Research Professor, you give more lectures than when a Research Fellow. Hellmuth was a Guest Research Professor at:

- Universidad Francisco Marroquin (Guatemala)
- Rollins College (Florida)
- Brevard Community College (Florida)
- Bowling Green State University (Ohio)

Each university provided the position, modest salary, medical coverage but most importantly, ample space for Hellmuth’s library, mammoth photo archive, desk/office space, plus an average of 3 to 5 student assistants.

Dr Hellmuth was also a lecturer at Karl-Franzens Universitaet, Graz, Austria; in art, iconography, architectural history of ancient civilizations of Mesoamerica, for a semester after receiving his PhD there in 1986.

Final Comments



Neotropical flowers and waterbirds are an example of flora and fauna as deserving of dedicated Powerpoint presentations. That is the present Part I. Demons, Devils, Deities, Rituals, Ceremonies, & Sacred Symbols are Part II.



Monkeys are a logo of the rain forests of Mesoamerica for thousands of years. Lots more research can be achieved when we images are available.



First we introduce each animal, and help you see what features allow identifying each species (Rabbit, Armadillo and Deer in this scene). Then in Part II we study in which rituals does each animal participate (obviously these are 8th century Maya actors dressed as sacred animals). We will identify each musical instrument being featured in this band.





Water, water, everywhere. Rio Escondido with water lilies lining both sides and wetlands marsh alongside. No hills, no forests. FLAAR is documenting wetlands in a manner not accomplished before.



In February 2023 one of the most important Maya symposia was at the University of Texas with a theme *WATERSCAPES in Maya Art, Cosmology and Environment*. In mid-July the Museo Popol Vuh will have a Maya symposium at UFM also on WATER SYMBOLISM in the Maya World.

And the annual Simposio de Investigaciones Arqueológicas en Guatemala is also on WATER: *AGUA DIVINA: SIMBOLISMO, MANEJO Y CONTROL HIDRÁULICO ANCESTRAL*.

So clearly the topic of Hellmuth's 1987 PhD dissertation, *The Surface of the Underwaterworld*, is now a topic that dozens of other scholars now have fresh new information on. Plus hydraulic studies in Peten have lots of capable archaeologists and water specialists with fresh research results. So what FLAAR has been busy on (since August 2018) is to document as many wetlands ecosystems as possible, so all these photos are available to geographers, soil scientists, geologists, archaeologists, iconographers and epigraphers. Above is an example: a good resolution digital aerial photo of wetlands parallel to Rio San Pedro, between town of Naranjo and the Peten:Tabasco border.



Our goal is to achieve telephoto photography (at high resolution) of every waterbird species of the wetlands of Guatemala and make these photos available via FLAAR Reports and lectures and symposiums.



Water lily flowers, pads, and seedpods are the plants most often featured in ritual, ceremonial, and mythical scenes. We have the largest photo archive of *Nymphaea ampla* in the world; crucial to have available to iconographers.

We also have complete series of lectures on the following topics:

Iconography of Deities, Rituals, Ceremonies

God D, Itzamna and the Sacred Animals that render homage to him. In many ways Itzamna is one of the Top Ten most powerful deities of Maya sacred spaces.

The Principal Bird Deity is often interchangeable with Itzamna, but we have a separate lecture on each (since there are hundreds of scenes of God D and hundreds of scenes with the Principal Bird Deity. You can ask for both lectures the same day (with coffee and tea break between, or one lecture before a meal and the second lecture after the lunch or dinner).

God L, the Merchant God, once the most powerful god of Xibalba, but defeated and shamed by the Rabbit Companion of the Moon Goddess.

God N: God of many cosmological regions, but especially the Surface of the Underwaterworld. God N interacts with other deities, with fish, water lilies, crocodiles and takes part in the resurrection of the Maize God rising from a giant turtle.

For a weekend symposium on *One Thousand Years of Maya Deities*, you can have all four presentations in sequence.

Monumental Architecture: Palaces, Temple-Pyramids

How to build a Classic Maya pyramid? Based on Hellmuth's 12 months of excavations at Tikal in 1965. As a student of architectural sciences at Harvard, working as an architectural excavator and researcher on pyramid construction, Hellmuth was inside several pyramids (literally, with tunnels to learn what was inside a Maya pyramid of Tikal).

Roof Combs of Maya Temples: Tikal, Nakum, Palenque, Tonina, Uxmal, Rio Bec area and at other Maya sites.

During the 1970's, 1980's, and 1990's, Hellmuth studied architecture of pyramids, palaces, acropolises, and ballcourts throughout all Mexico, Guatemala, Belize, and Honduras. This lecture is one of the few available in the world specifically on roof combs atop Maya temples. In this lecture, Hellmuth will show you the inside of the roof combs.

The Corbel Vault of Maya Temples and Palaces: FLAAR has one of the ten largest photo archive of Classic Maya architecture in the world. Plus the photos by Hellmuth were taken with Leica, Hasselblad and Linhof cameras, using a tripod, and using portable lighting (so you can see details inside palaces and temples).

Did the Classic Maya have a Round Arch in their Temples or Palaces? You and your family and friends will definitely be surprised to see the photos that Hellmuth will show you of inside and outside Maya temples and palaces that you have probably never seen.

Ballcourt Architecture for Rubber Ballgames: Size, Shape, and Function of each side (front, central playing alley and back).

Puuc Architecture Style: Palaces and Temples, and Stone Mosaic Façade Decoration

Rio Bec regional Architectural Style: Twin-Towers (occasionally three towers). Palaces and Temples

Chenes Monster Mask regional Architectural Style: Palaces and Temples where the front door of the temple is the mouth of a Xibalba monster: you walk into Hell on Earth.

Maya Architecture of Santa Rosa Xtampak, a Classic Maya multi-story palace that has all three regional styles in one acropolis: Rio Bec façade decoration; Chenes Monster Mask doorways, and Rio Bec Towers. Hellmuth and FLAAR had INAH permit to accomplish field work in 1989.