

Crocodiles in Stone Sculptures at Copan, Honduras

Altar T, Stela C, CPN 25 (Altar of Stela M), Los Sapos

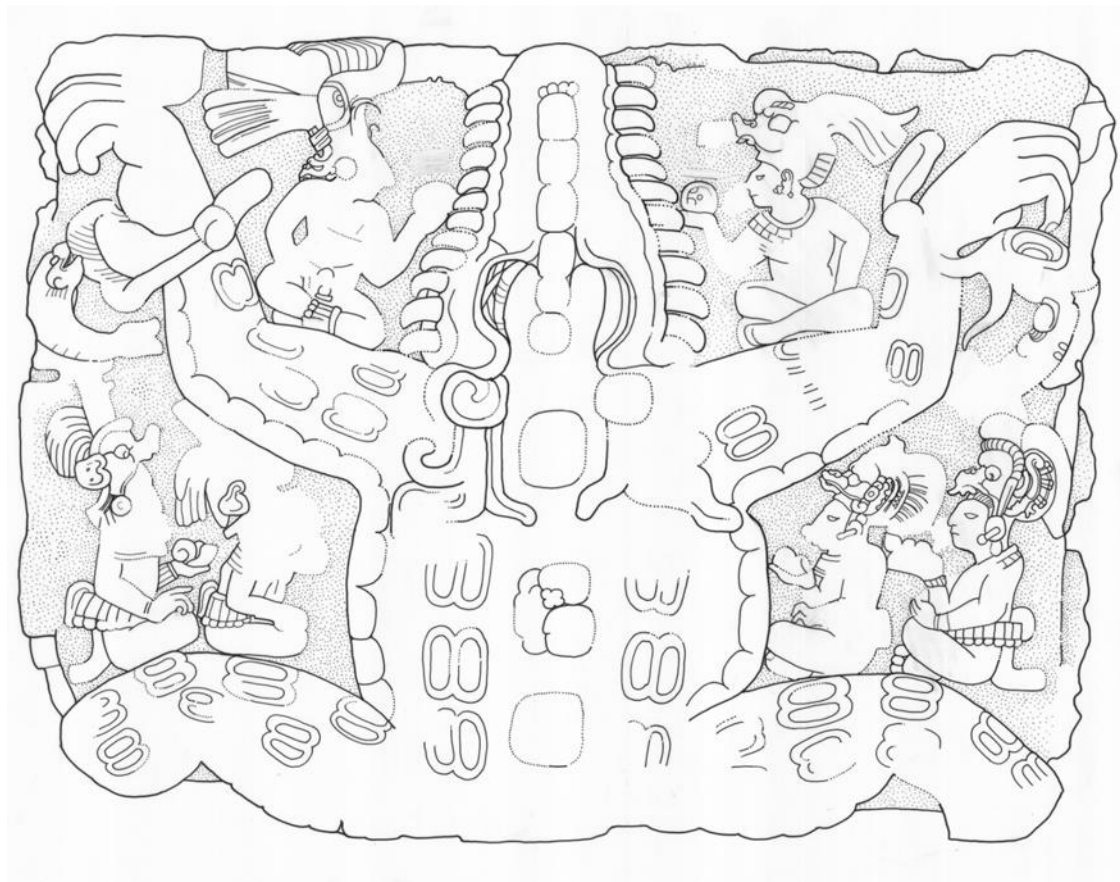
Chapter 4

For presentation to The Pre-Columbian Society, Dec. 14, 2024

Iconography and Ethnozoology
of the Crocodiles and Caiman
of Mesoamerica
and their relation
with the Cosmology of the Underworld and the Heavens

Nicholas Hellmuth

Crocodiles in Stone Sculptures at Copan, Honduras



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Acknowledgements

We sincerely appreciate the permission from IHAH to photograph at night. You can get better photographs at night with a portable electric generator. We will donate these photos to IHAH. We also appreciate the access to photographing in both the village museum and the sculpture museum at the site.

We sincerely appreciate the assistance of the park rangers and local guides. Parque Arqueológico de Copán is a great place to visit; local people are hospitable and I have enjoyed visiting the park, the sculpture museum and the village museum in the town of Copan Ruinas in the late 1960's, 1970's, 1990's, and again when digital cameras became available, to return with higher resolution.

I thank the capable team of FLAAR Mesoamerica who assisted with setting up the portable photo studio, lighting, etc.

Helpful and capable bibliography assistant, Flor Morales Arroyo (FLAAR Mesoamerica), found and downloaded in PDF format several crucial articles. Byron Pacay and Norma Cho Cu (FLAAR Mesoamerica) accomplish the digital rendering to show details of the sculptures.

For further information on the iconographic aspects and epigraphic aspects of crocodiles and caimans of Mesoamerica, these have been covered by the capable iconographers, epigraphers and archaeologists that we include in the introductory bibliographies at the end of this report.

There are probably hundreds of photos of Copan Altar T and the crocodiles adjacent to the Bufo Toads at Los Sapos. I would estimate that the various Copan projects have plenty of photos, including 3-dimensional scans. But to study details it helps to have photographs at larger size and in good resolution. In a peer-reviewed journal article the images are often never in color and tend to be very small. I recently was reading a book on Maya iconography by two capable epigraphers / iconographers and the illustrations were so tiny you could not see details whatsoever. This is the fault of the publishers, not the authors. So we prefer not to publish in commercial books; our goal is to show the Maya sculptures in good details (which starts with using professional portable studio lighting and using a tripod so the camera is not vibrating). And publishing at full-page size in good resolution.

www.digital-photography.org shows our camera equipment over the years.

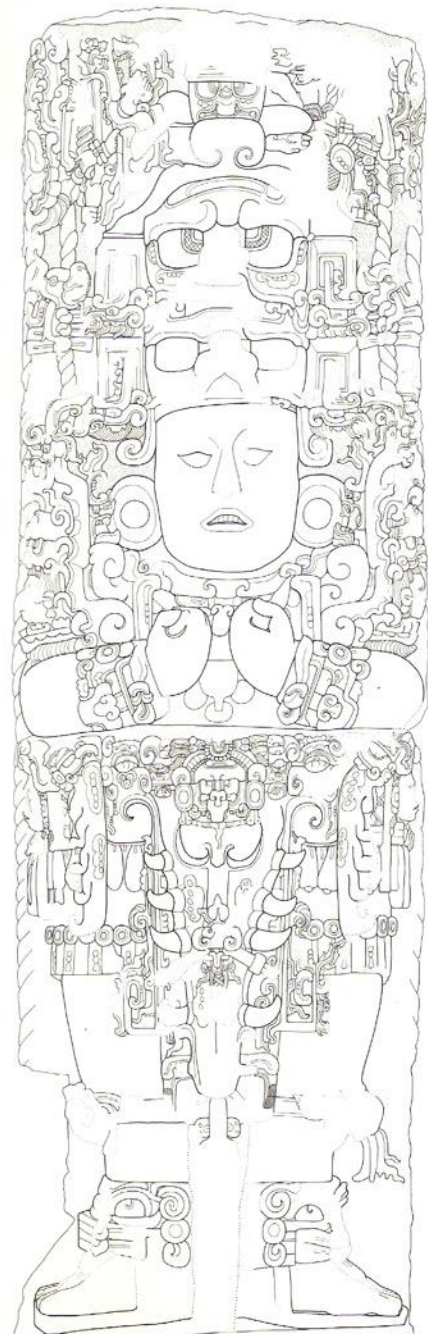


Crocodile Sculptures at Copan, Honduras

I first visited Copan by the late 1960's and in subsequent years brought a complete photography team along with portable studio lighting and an electric generator, because the best way to document bas-relief sculptures is with portable studio lighting. IHAH kindly provided permits for photographing at night. In return we provided photos and during those past years our photos were used on posters to show visitors what they could see at Copan. The last time I went to Copan I noticed that our photos of Altar Q were still displayed in at least one of the museums.

The various projects at Copan of capable archaeologists have also resulted in their excellent photography including 3-dimensional [scans](#).

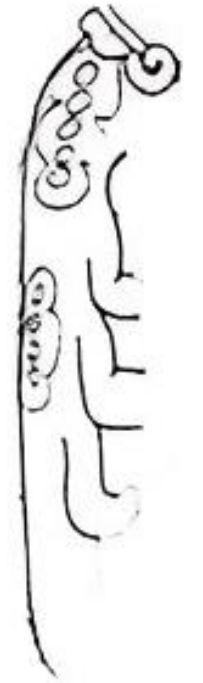
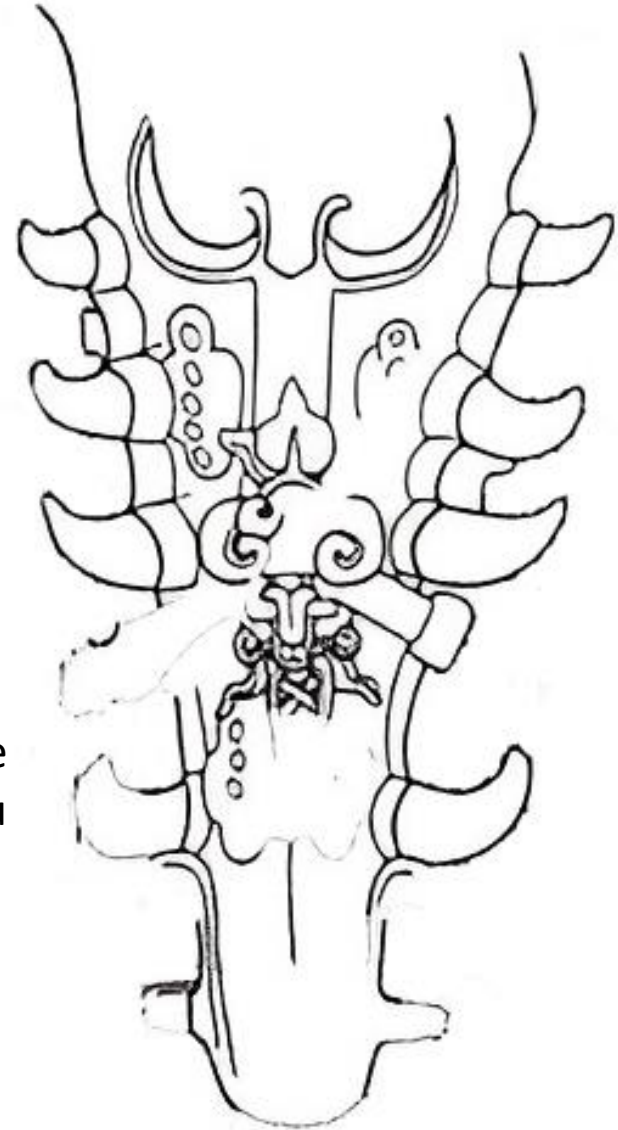
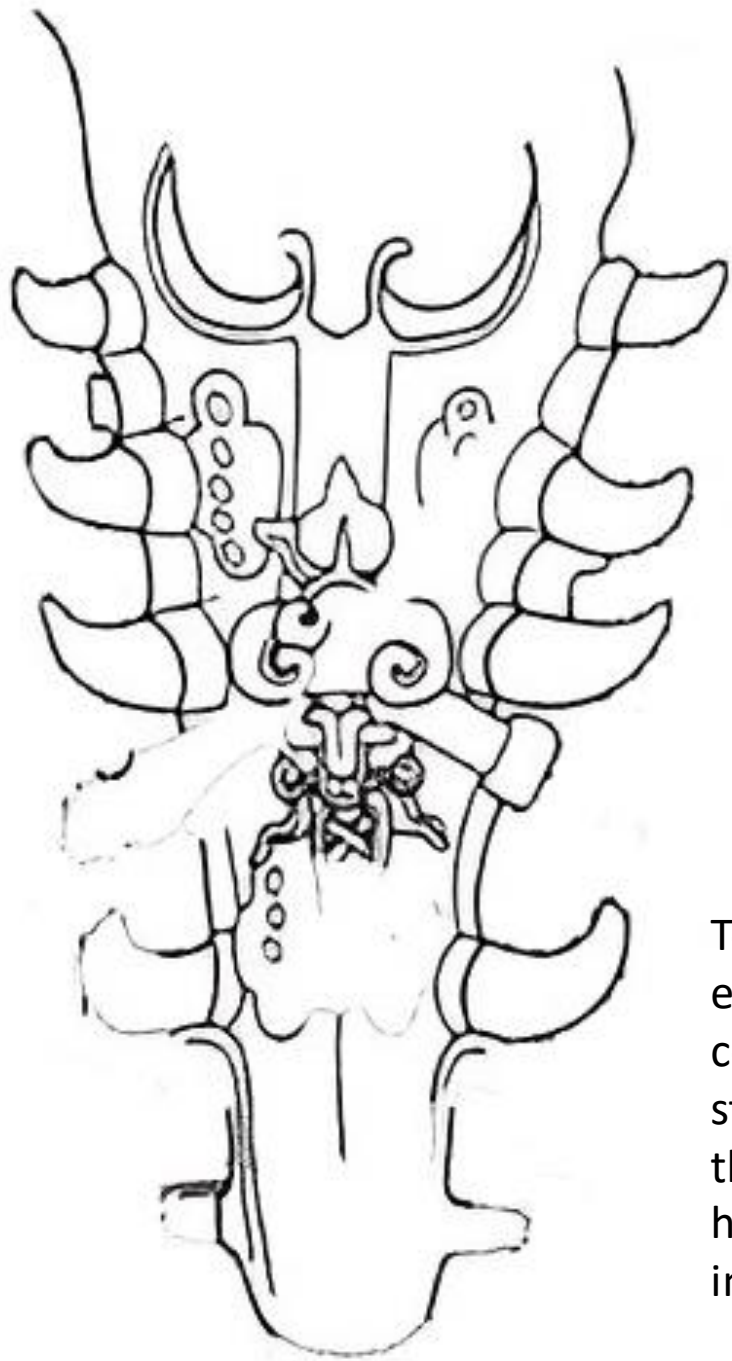
The present lecture chapter on crocodiles in stone sculpture at Copan Honduras shows several of our photos that bring out detail.



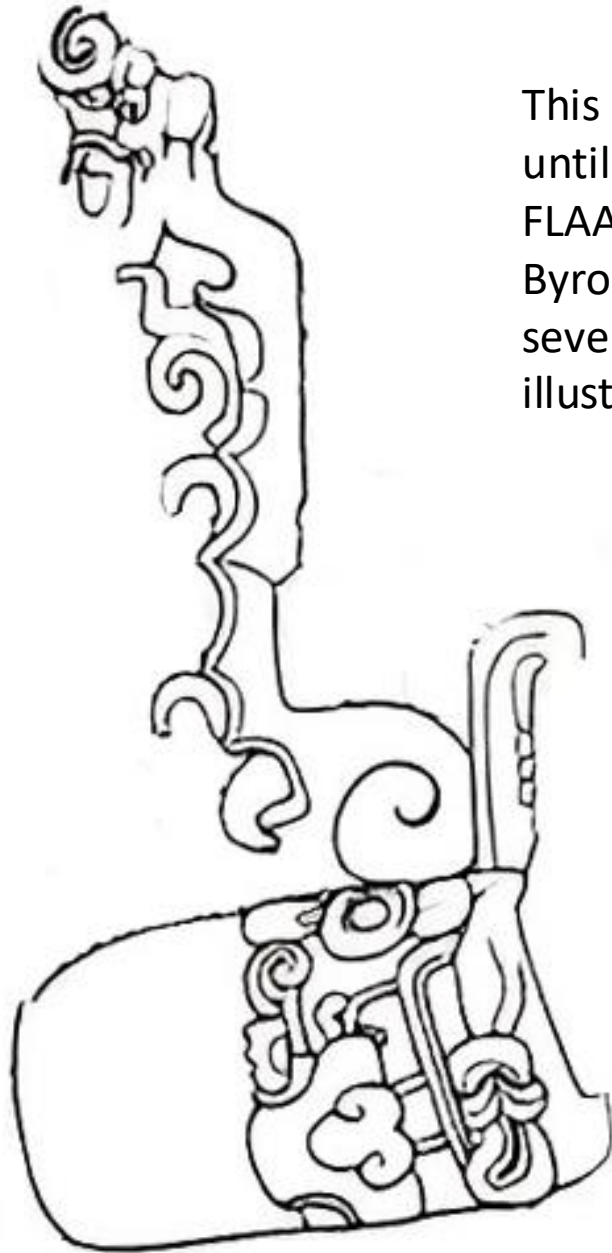
Copan Stela C, CPN 4
Baudez 1994: Fig. 7.
Excellent drawing by
Barbara Fash.

Photo by Nicholas
Hellmuth of
crocodile part.

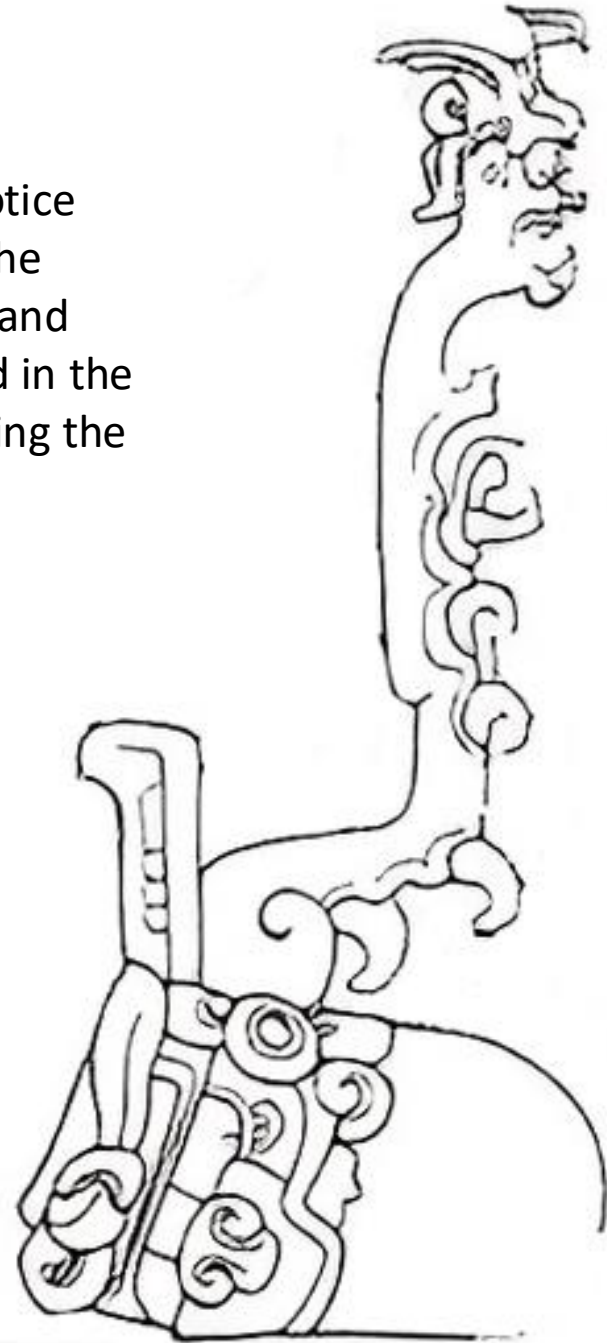


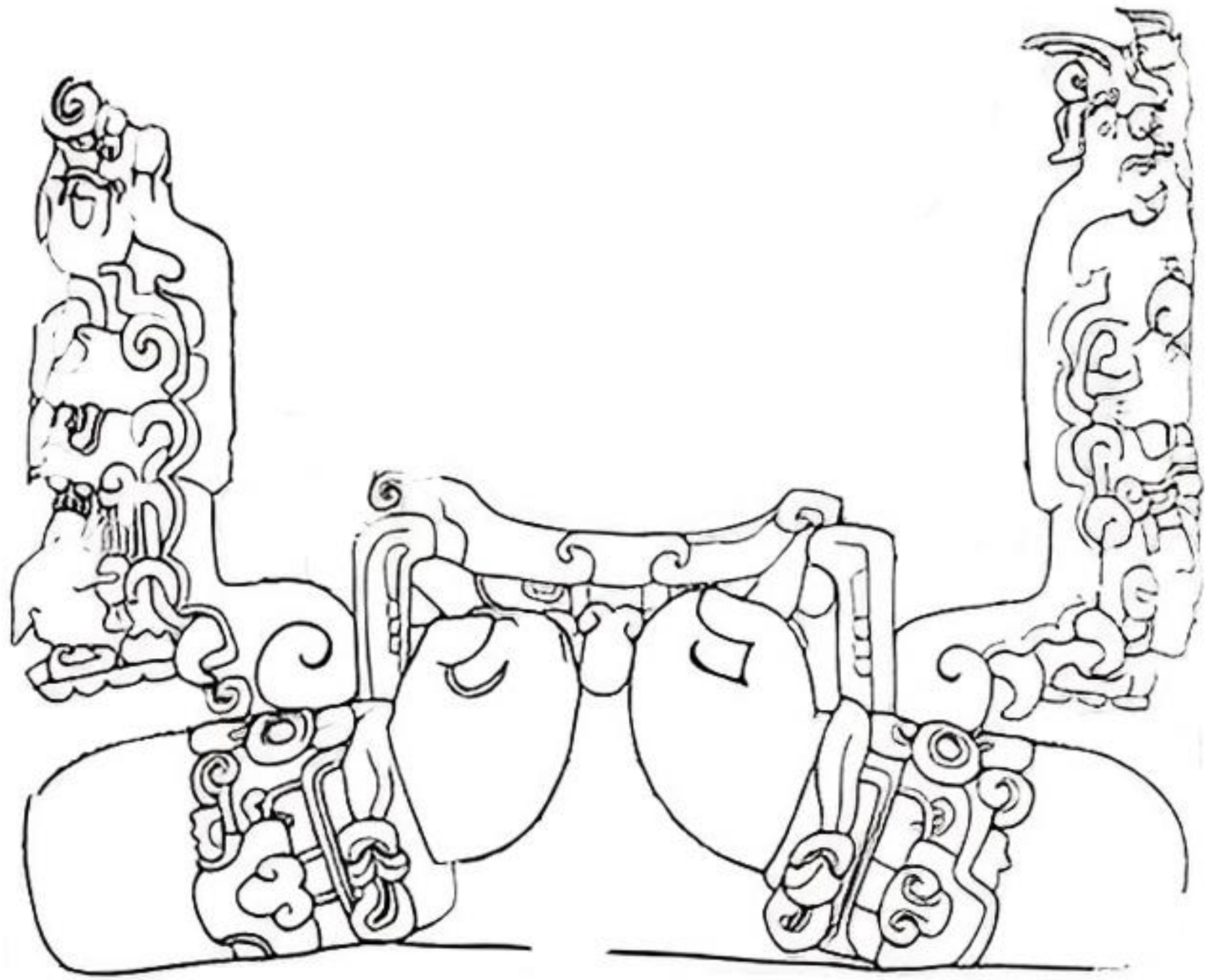


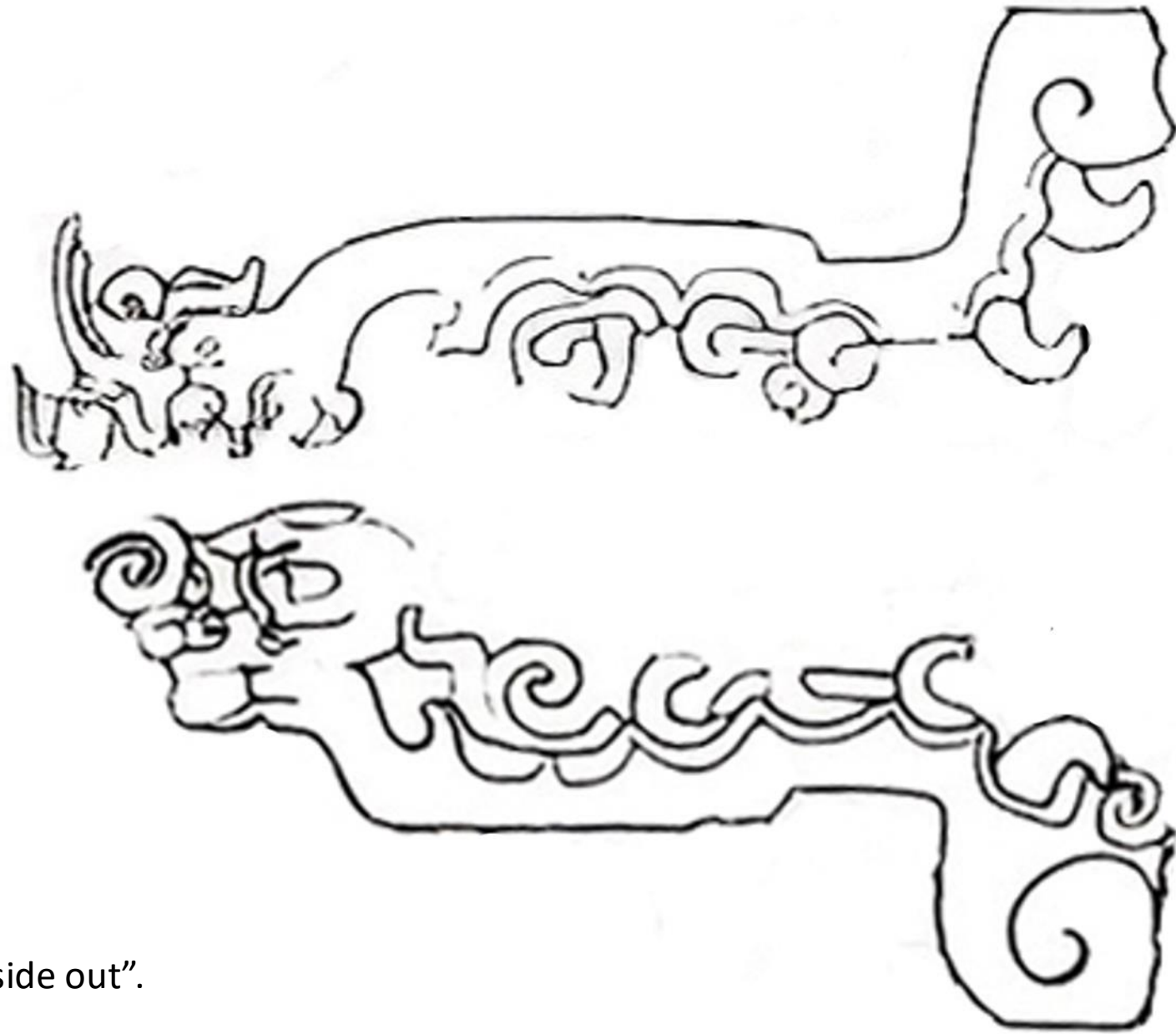
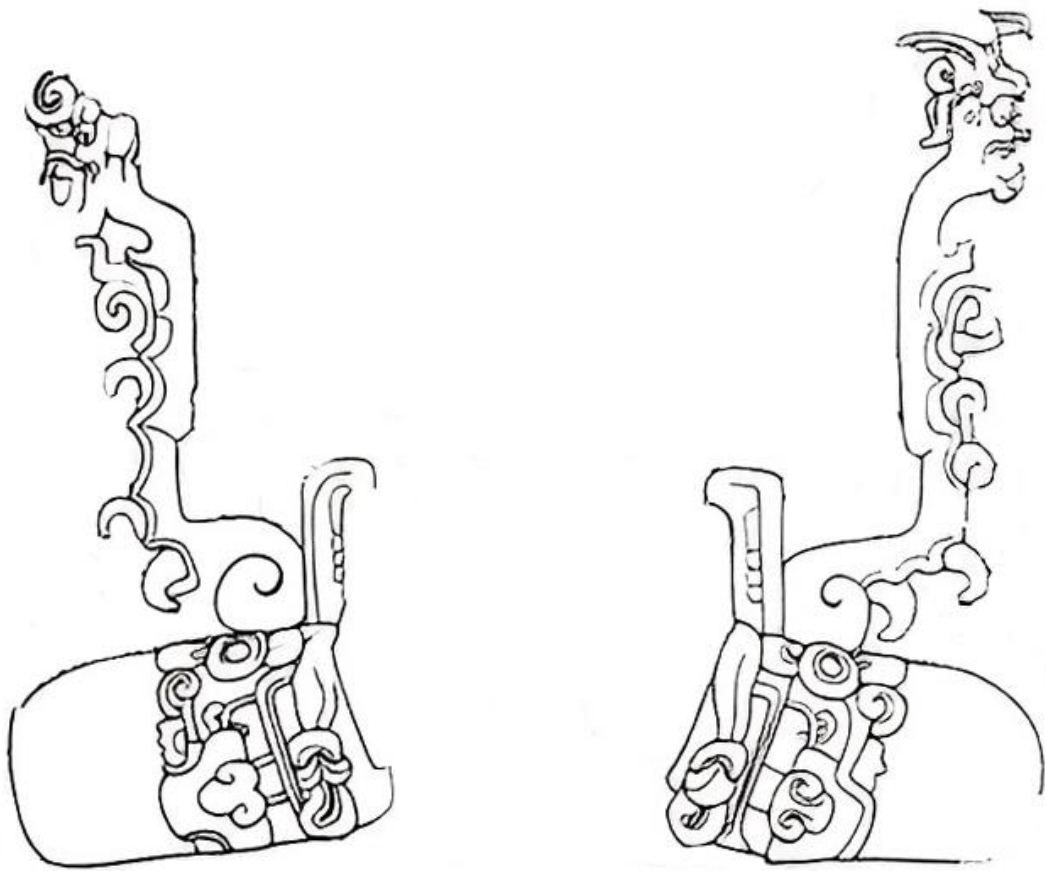
To see the details it helps to pull each individual creature out of the complex illustration. And once you start looking at details, you notice there are actually two crocodile heads (one frontal and the other in two separate profiles).



This crocodile I did not notice until I was working with the FLAAR team (Norma Cho and Byron Pacay) that assisted in the several months of preparing the illustrations.







This Classic Maya sculptor really “turned this crocodile inside out”.

Having a deity head at the end of a reptilian snout is common, but usually it is a variant of the Loincloth Apron Face. But here it’s a different supernatural face.



This Copan sculpture has lots of teeth but all are of identical triangular shape and all the same size. No fangs, so not like a snake or crocodile. Some iguanas and Bufo Toads have identical dentition (triangular, and in a row) but this head is not a toad and not expected shape for an iguana. So we show this head but it's identification needs further research.

Photos by Nicholas Hellmuth in past decades.



A monster head on Copan CPN 26, Stela N, has the same triangular dentition (photo at the right). Both photos by Nicholas Hellmuth, FLAAR Photo Archive

Long mouth is obviously a crocodile.

Decoration atop end of the nose area is also a bit crocodile-like

Slight crest over the eye.

Eye itself not a celestial symbol but the row of teeth make this an obvious crocodile.

Copan, Honduras, photo by N. Hellmuth.



But this is more easily identifiable as an actual crocodile, albeit stylized as usual. Obviously the large teeth that are most visible are what are featured.



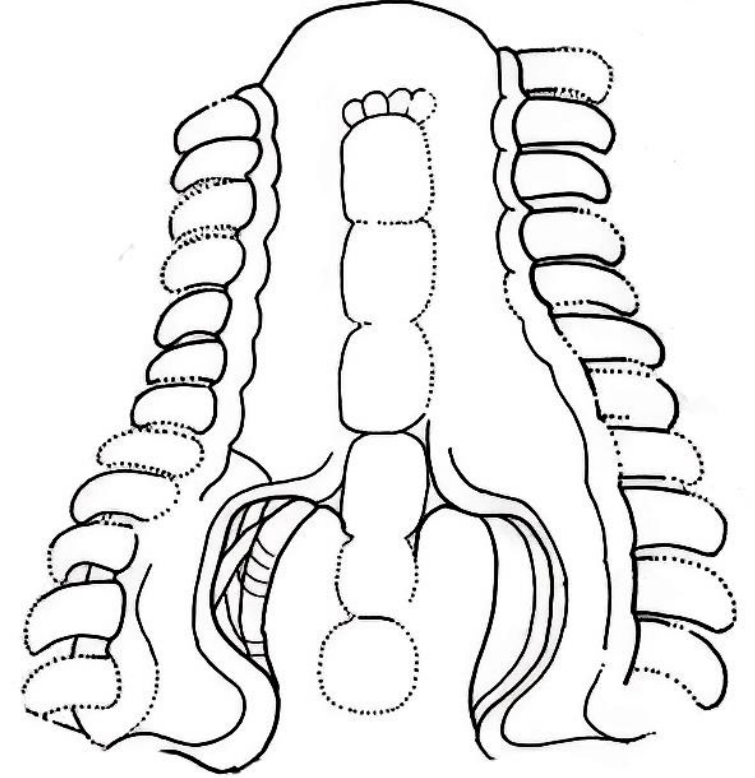
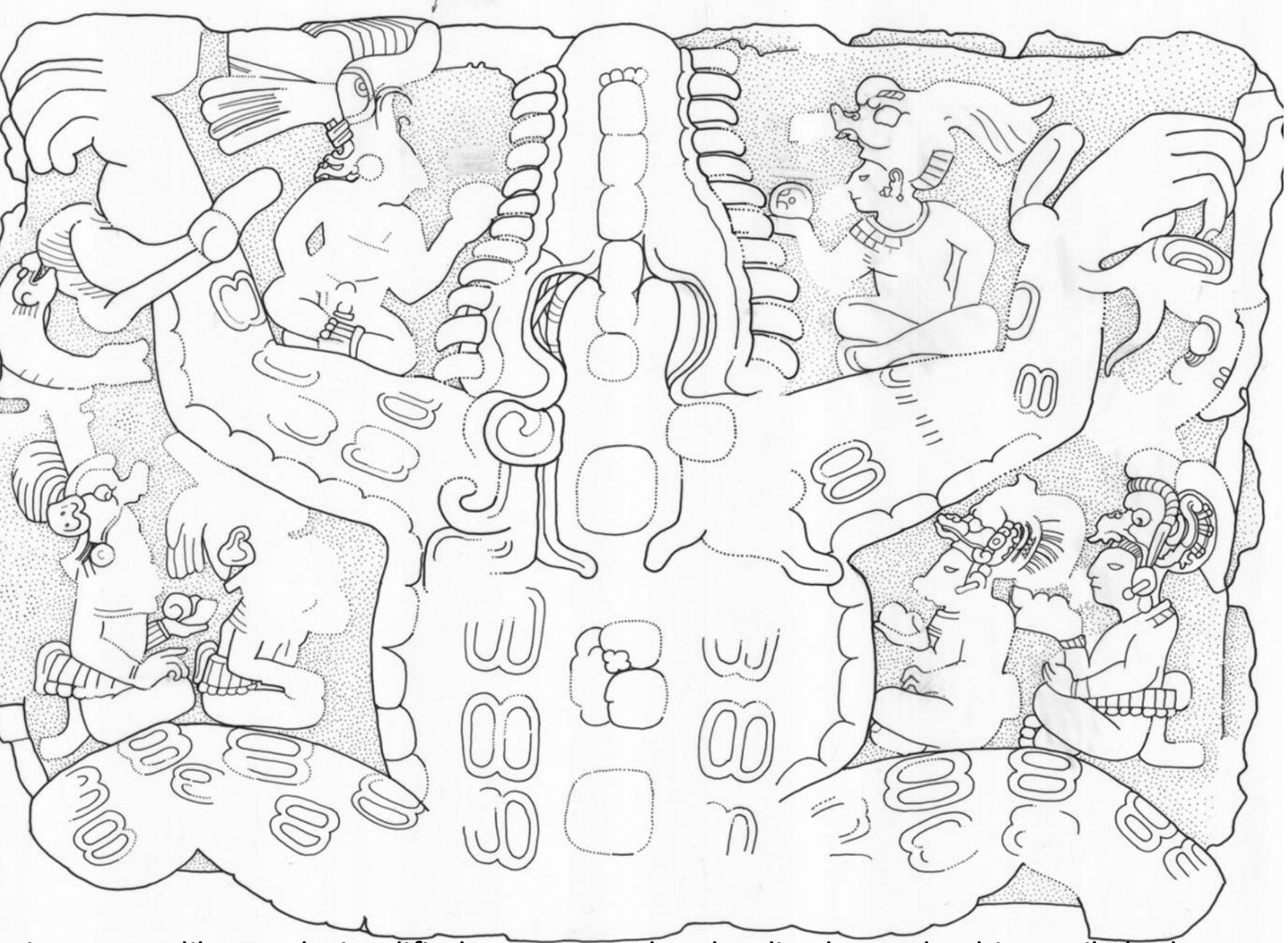
Here are the actual teeth of a *Crocodylus moreletii*, posing for me.

Los Sapos is best known for the impressive 3D sculpture of a Bufo Toad. But there are also crocodiles in this area of rock outcrop sculpture.

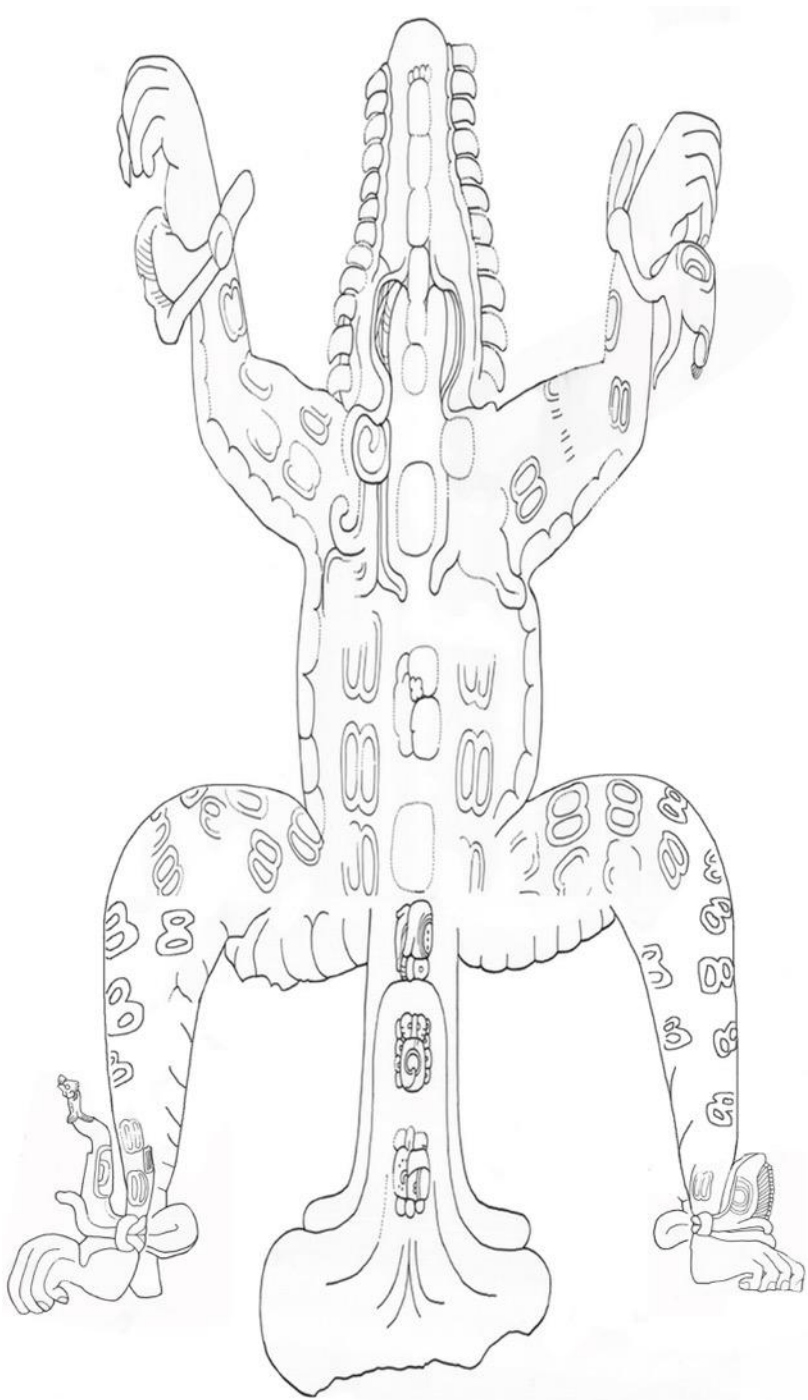
I have not yet found line drawings of these crocodiles. I would appreciate if someone knows these drawings and could send me a link.

This is on a hill overlooking the valley of Rio Copan. A nice hotel is nearby.





obvious crocodile. Teeth simplified, exaggerated and stylized to make this reptile look more dangerous. Pattern on hide also simplified. Copan Altar T, CPN 33. Drawing by Linda Schele, SD-1021, © David Schele. Drawing courtesy Ancient Americas at LACMA (ancientamericas.org).

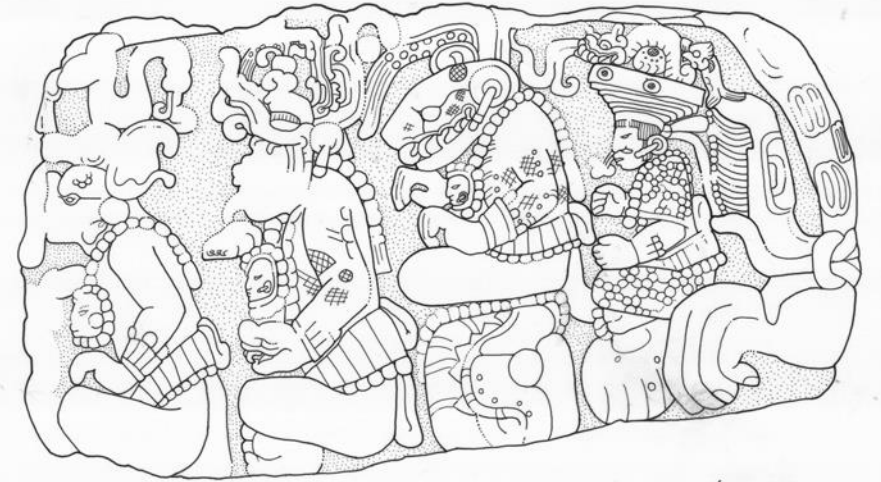
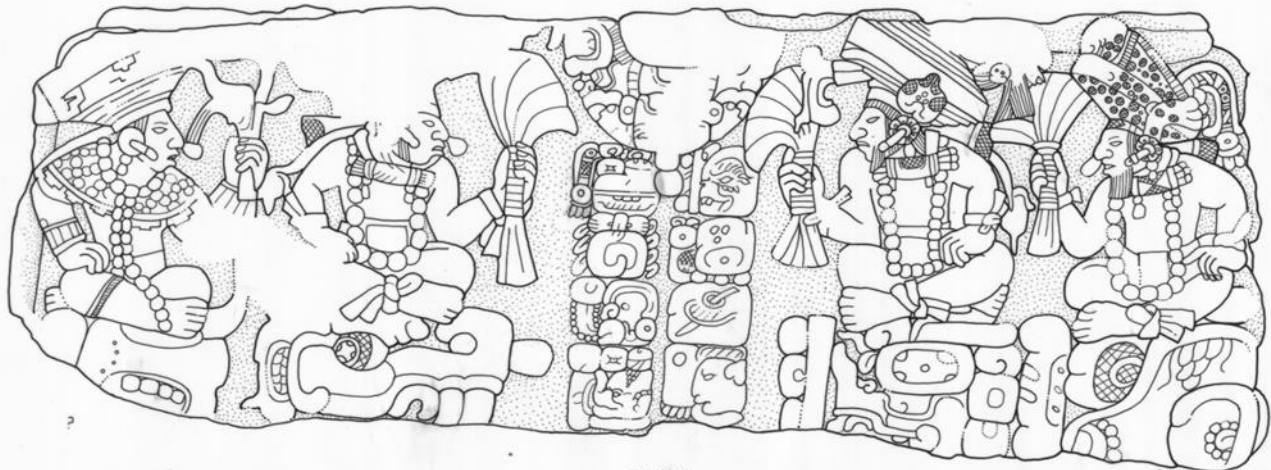
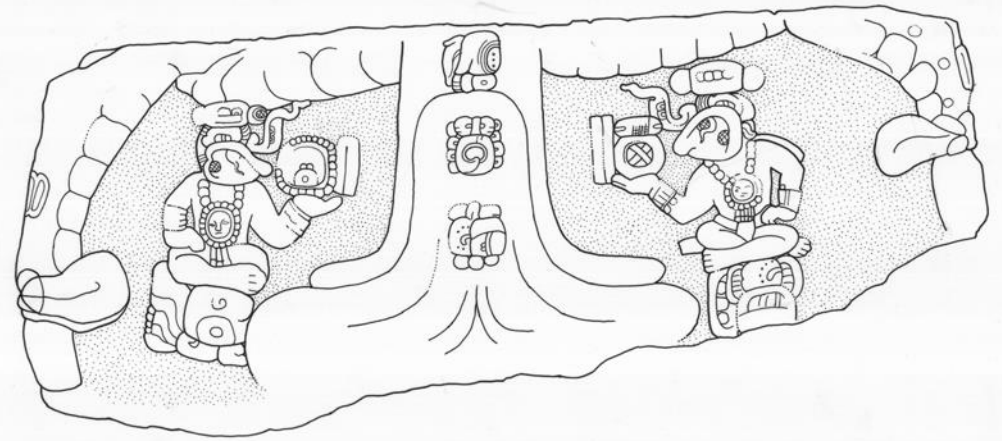
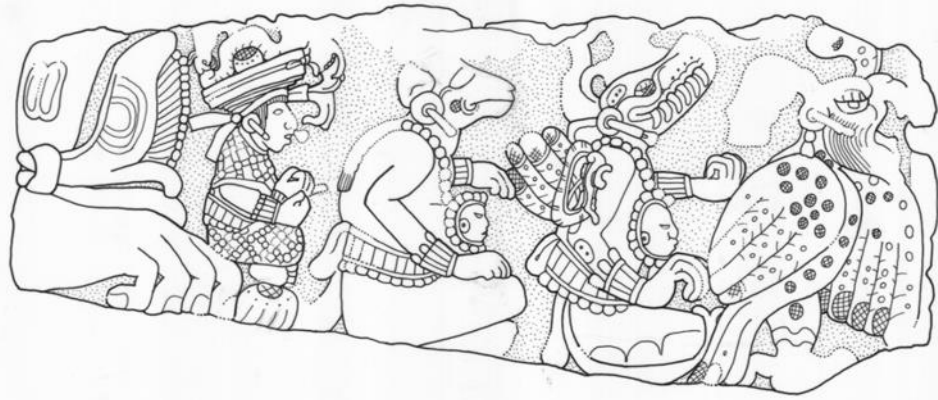


To show the hand-like claws and to show which aspect are stylized, it helps to digitally prepare a slightly more realistic body size and shape. Rendition by Byron Pacay, FLAAR Mesoamerica, based on Linda Schele drawing SD-1021. Copan Altar T, CPN 33.

As is common the arms and legs are slightly anthropomorphic, especially the front “hands and fingers”.

The water lily flower stems wrapped around the ankles and wrists are common in Maya art. But the spayed almost bird-like tail is unexpected. Tail was enhanced, modified. So this tail needs ethnozoological and iconographical research to learn what was its intention.

A team of several people help prepare each FLAAR PowerPoint presentation. Total time is about two to three months for a 1 hour lecture. But FLAAR is a research and educational institute, so we like to make our material available (it is easy to copy drawings from our unlocked PPTx file).



SD-1019

CPN 33/ ALTAR T / LSchde 51
 corrected from LS drawings of
 B.M. casts. M. Van Stone 1977

LEFT SIDE, T. BEHR

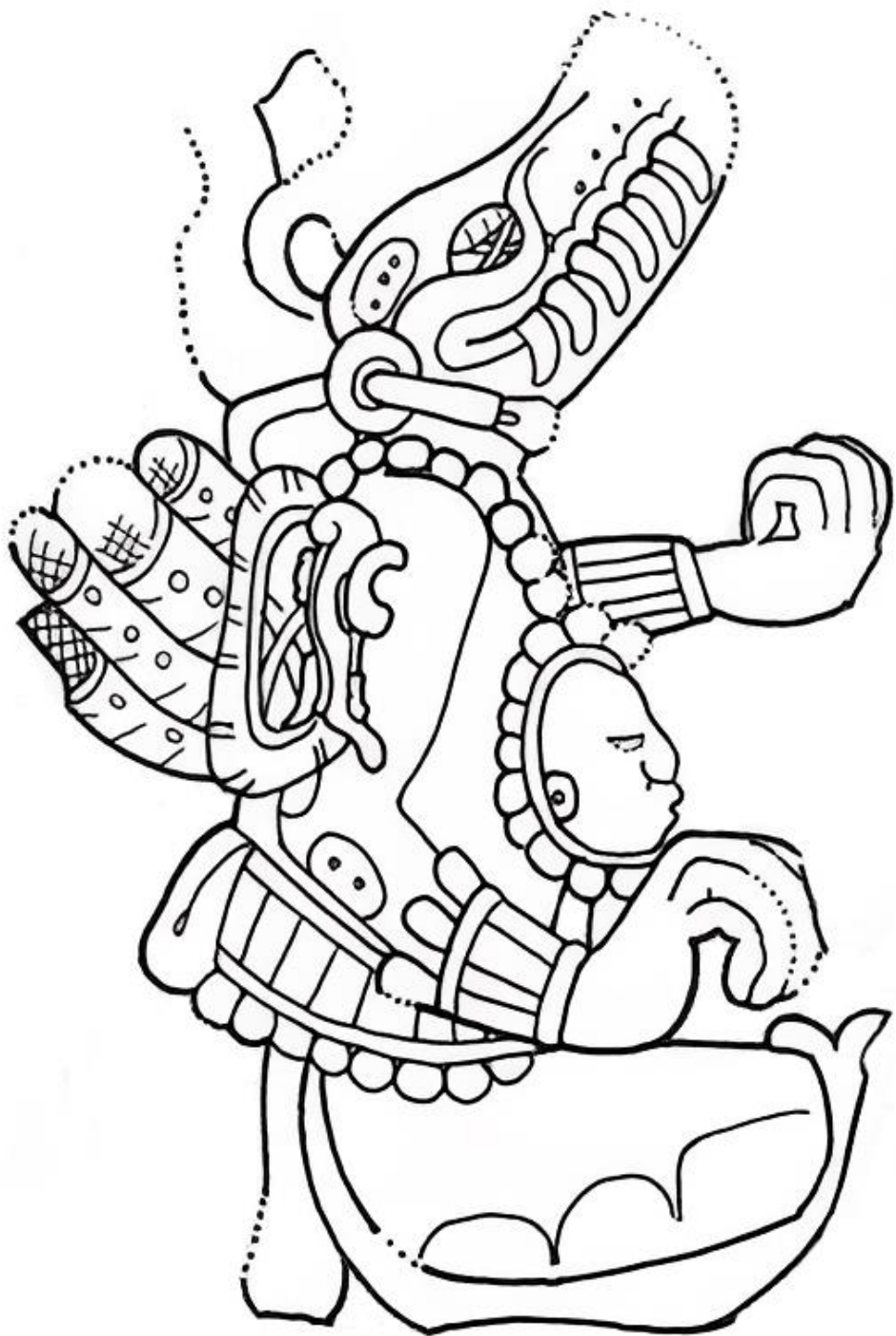
CPN-33/ALTAR T
 L Schuder '87/'96
 M. Van Stone inked
 corrections from LS
 drawing of casts in
 British Museum of Man
 18 Sept. 77

RIGHT SIDE, L. BEHR
 SD-1020

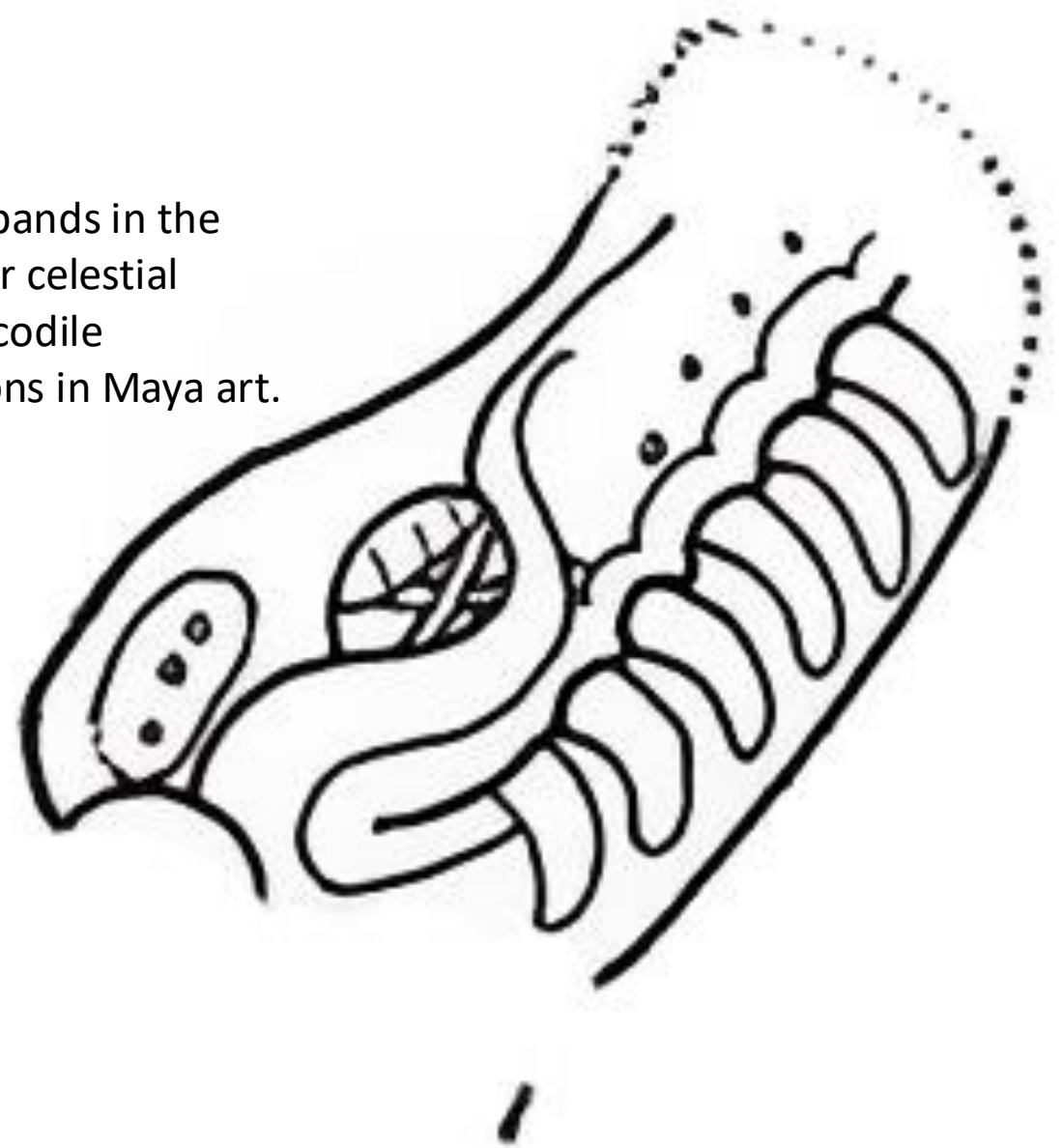
The sides of Copan Altar T, CPN 33, also have an obvious crocodile (headdress) plus a second reptile. Drawings by Linda Schele, SD-1019 © David Schele. Drawing courtesy Ancient Americas at LACMA (ancientamericas.org).



The giant “paw” of the crocodile (on top; one “paw” seen here at left) has human fingers and even fingernails. The headdress of the seated figure is an obvious crocodile. His hands have abnormal fingers and his thigh has reptile design. He has winged feathers on his back. Drawing by Schele updated by Van Stone, SD-1019 © David Schele. Drawing courtesy Ancient Americas at LACMA (ancientamericas.org).



The crossed-bands in the eye is another celestial aspect of crocodile representations in Maya art.

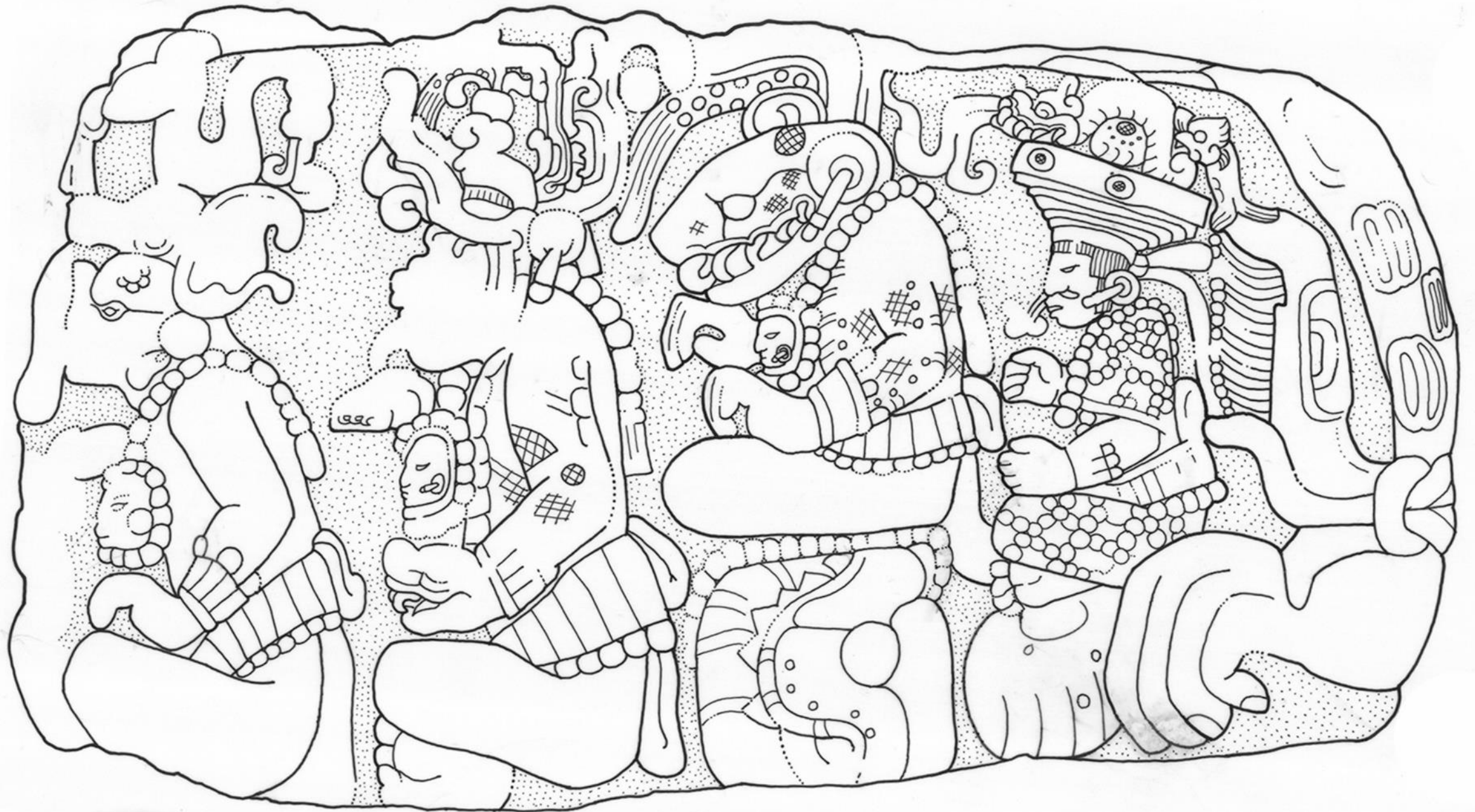


It helps to learn which symbols are in the eye, because some crocodiles are composite monsters with the Starry Eyed Deer, so it's eye is different.



To compare the stylized teeth it helps to see the actual teeth close-up. So whenever a crocodile poses for me, I get down on the ground so I can get a good view of the size, shape and arrangement of the teeth.

Crocodylus moreletii at Tikal, January 2013, photo by Nicholas Hellmuth.



Copan Altar T, CPN 33, Schele drawing SD-1020. © David Schele. Drawing courtesy Ancient Americas at LACMA (ancientamericas.org).

This face lacks any bump or curl at the end of its “snout”. So no “crocodile snout end.”

Teeth are stylized, as on the obvious crocodile across the top of this Altar T.

Cross-hachure on the body may help ethnozoologists, iconographers and epigraphers ID this as iguana or composite iguana-crocodile. No celestial symbol in the eye; no crest. So only the teeth are mas o menos “crocodile like”.

The teeth on the upturned animal head are found on Bufo Toad and on Iguana. But no Bufo ear or Bufo glands are shown.

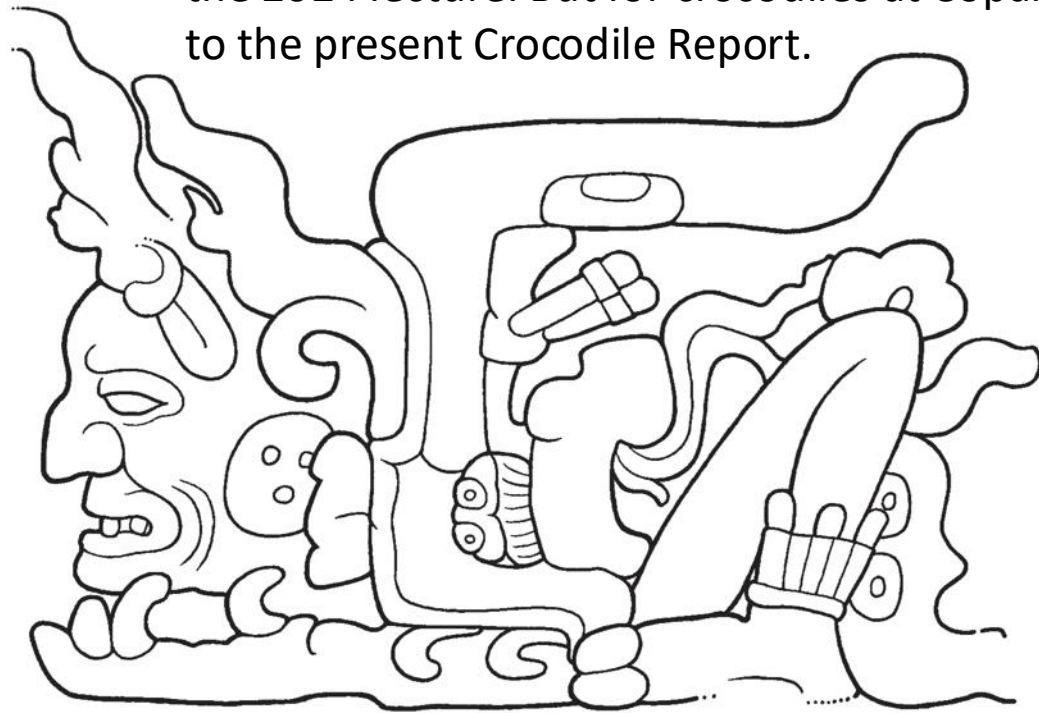




Each sculptor had their own style. The swirl as superorbital plate is not common. The dentition is not crocodile-like but size, shape of head is acceptable and the Crossed-Bands in eye is when the crocodile aspects are featured. This drawing is from half-a-century ago and needs to be found again on a more recent drawing of this Copan CPN 26, Stela N. This drawing is from my 1970's-1980's library research from Maudslay Volume I, Plate 82, in preparation for my PhD dissertation and is published in the Surface of the Underwaterworld, the English edition (Hellmuth 1987a: Fig. 166,d).

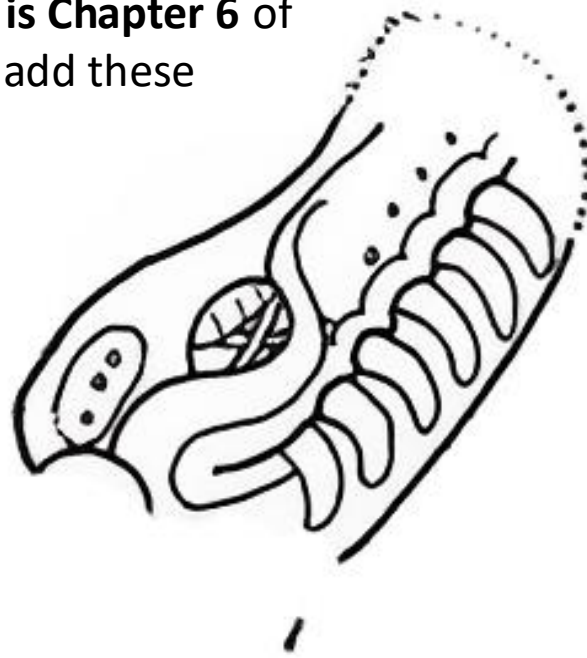
This crocodile and many other parts of the lower section of Stela N are no longer extant. Would help to do a new drawing of the lower part from cast's taken by Maudslay and stored in the UK to rescue this crocodile.

Cosmic Monster Crocodiles & Starry Eye Deer is Chapter 6 of the 2024 lecture. But for crocodiles at Copan I add these to the present Crocodile Report.

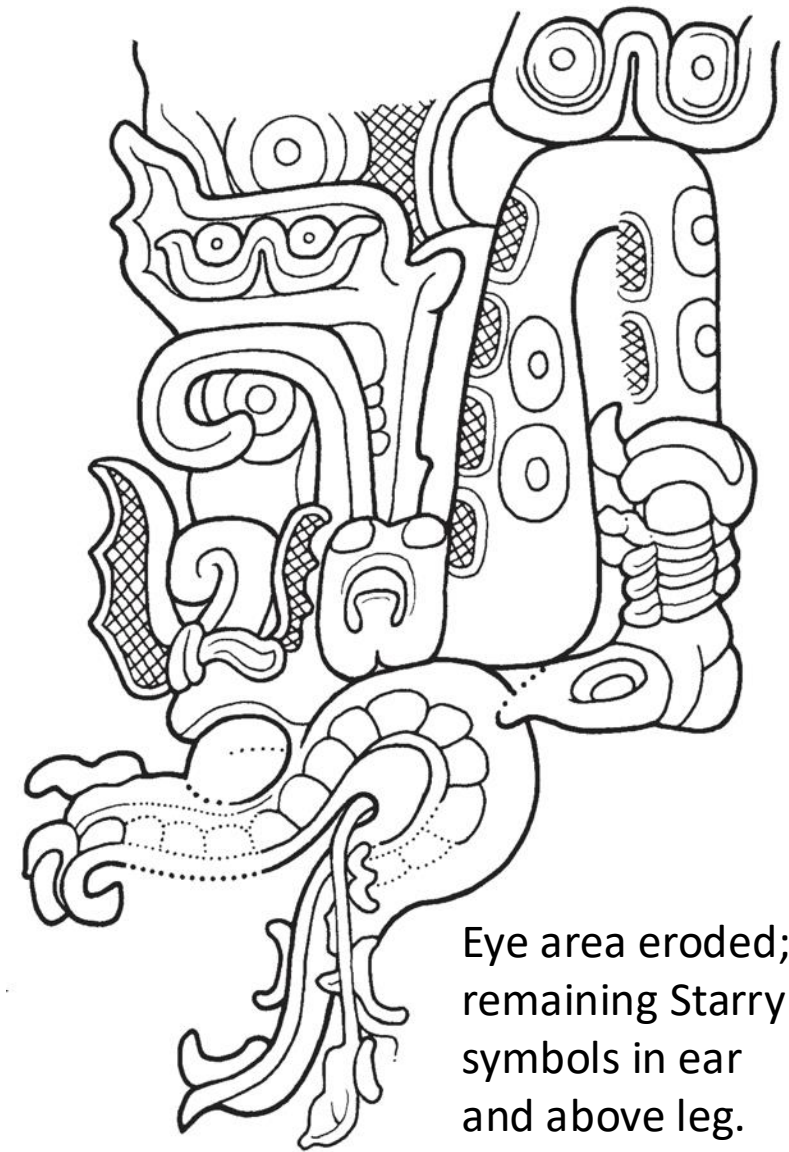


There are also crocodiles and Starry Eyed Deer Crocodiles of Cosmic Monsters at Copan. I show one above and the rest of these in the chapter on Cosmic Monsters.

Copan, Structure 9N-82, bench, far left side, drawing by Simon Martin (Martin 2015: Fig. 12a).



Crocodile with Crossed-Hands in its eye. Crossed-Bands are very common in Crocodiles not inside a Cosmic Monster (but exceptions do occur). Copan Altar



Eye area eroded; remaining Starry symbols in ear and above leg.

Starry Eyed Deer Crocodile, left end of Cosmic Monster Copan Str. 22, drawing by Simon Martin in Martin 2015: Fig. 12a.

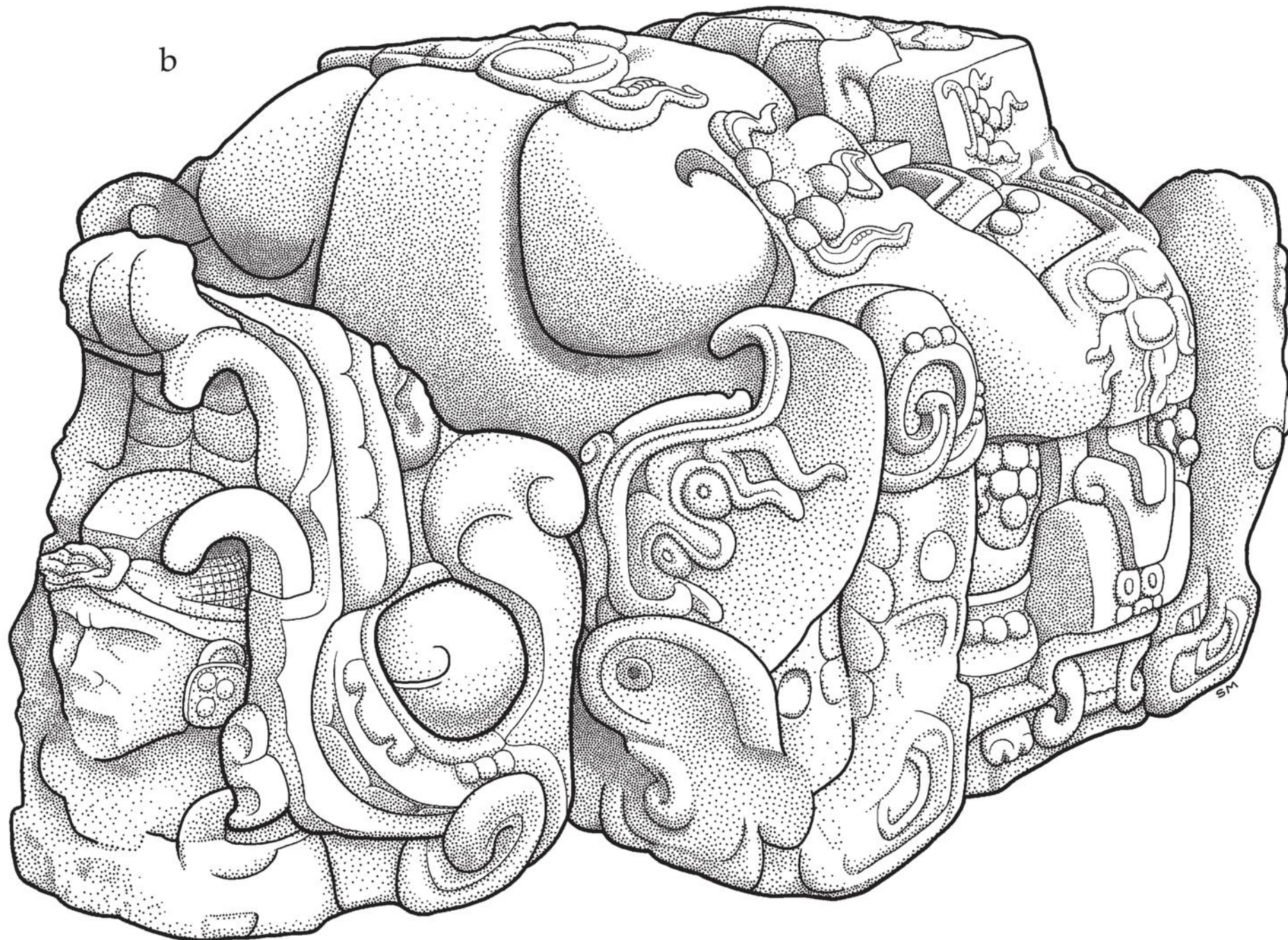
Crocodile, with clearly defined God N head coming out. CPN 25, Altar of Stela M, excellent drawing by Simon Martin in Martin 2015: Fig. 39,b.

There is a Quadripartite Badge Headdress deity at the other end, so this is a COMPLETE Cosmic Monster.

Deer symbol is on the ear, instead of the usual position in the eye. So this is a crocodile head with deer ears, with Cauac Monster on top and on both sides.

This Cosmic Monster image ends our presentation of crocodiles at Copan. There is a separate volume in our ongoing Copan FLAAR Reports specifically on this sculpture CPN 25, Altar of Stela M.

The style of illustration by Simon Martin is the best I have seen to show the 3-dimensional aspects of this altar. Hopefully someday he will do all the other sides in the same style.



List of Suggested Reading on Sculptures of Copan

AGURCIA-Fasquelle, Ricardo and Vito VELIZ (editors)

2010 Volumen I: Los Monumentos de la Plaza Principal – Peter Biro y Dorie Reents-Budet. Vol. I of Manual de los Monumentos de Copán, Honduras. Asociación Copán, Copan Ruinas, Honduras. 387 pages.

So far I have found on-line only this helpful Volumen I. I have not yet found:
Volumen II: Monumentos de la Acropolis
Volumen III: Monumentos del Valle

BAUDEZ, Claude-François

1994 Maya Sculpture of Copán: The Iconography. University of Oklahoma Press. 300 pages.

FASH, Barbara W.

2011 The Copan Sculpture Museum, Ancient Maya Artistry in Stucco and Stone. Peabody Museum Press. 216 pages.

FASH, Barbara W.

2004 Early Classic Sculptural Development at Copan. Pages 248-264 in Understanding Early Copan, edited by Ellen E. Bell, Marcello A. Canuto & Robert J. Sharer. University of Pennsylvania Museum of Archaeology and Anthropology.

FASH, William L.

1991 Scribes, Warriors, and Kings: The City of Copán and the Ancient Maya. Thames and Hudson. 192 pages.

There is now a year 2001 revised 2nd edition.

ROBICSEK, Francis

1972 Copan: Home of the Mayan Gods. Heye Foundation. xvi + 168 pages.

Has helpful photographs of lots of sculptures and the enthusiasm of Francis Robicsek. But the books by Baudez and Fash are more recent and focus more on archaeology, epigraphy and iconography.

List of suggested Reading on the Two Species of Crocodiles and one Species of Caiman in Mexico, Guatemala and Honduras

It is best never to use the word alligator when discussing the crocodylians of Mesoamerica. Yes, caiman is a relative of alligators, but call it a caiman. Besides, most of the reptiles pictured in Maya art are more likely crocodiles than caiman.

Many entries are annotated, to assist authors, book layout designers, and publishers to realize what can be improved in a second edition or a new book on another topic.

ALDERTON, David

2004 Crocodiles & Alligators of the World. Facts on File. 190 pages.

I have not bought this since I have learned "...of the world" means the Nile crocodile and Africa, Asia, and Brazil and for alligators mainly Florida and nearby states. These "... of the world" books do not have much on the caiman and crocodiles of the Maya and Olmec areas of Mesoamerica.

ALVAREZ Del Toro, Miguel

1974 Los Crocodylia de Mexico Estudio comparativo de los crocodylia de Mexico. Ed. Inst. Instituto Mexicano de Recursos Naturales Renovables, A.C. Mexico. 70 Pages.

Miguel Alvarez del Toro was the leading zoologist of the Chiapas area of Mexico in the 1970s. This 1974 monograph, *Los Crocodylia de Mexico* covers primarily the Mexican aspect of this reptile. Unfortunately, the photographs vary from bad to awful.

ALVAREZ Del Toro, Miguel and Luis SIGLER

2001 Los crocodylia de Mexico. IMERNAR, PROFEPA, Mexico, D.F. 134 pages.

An update of the earlier edition with additional photographs, now all in color (though quality still varies from so-so to awful). However most of the text is the same as the original edition. The new material is at the back, by Sigler.

However despite the lack of quality in the photographs, the text has helpful information. No one else has accomplished anything better on crocodylians of Mexico, or even comparable, in the last fifteen years. Same with Guatemala: no monograph that I know of on all three species in Guatemala. Same issue with Honduras and El Salvador: no monograph on crocodylians.

BEHLER, John.

1998 Alligators & Crocodiles. Voyager Press, Montreal.

CAMPBELL, Jonathan A.

1998 Amphibians and Reptiles of Northern Guatemala, the Yucatan, and Belize. University of Oklahoma Press. 380 pages.

GRECARD, Steve

1991 Handbook of Alligators and Crocodiles. Krieger Publishing Company, Miami.

KELLY, Lynne

2006 *Crocodile: Evolution's Greatest Survivor*, by

KÖHLER, Gunther, VESELY, Milan and Eli GREENBAUM

2006 The Amphibians and Reptiles of El Salvador. Krieger Publishing Company, Malabar, Florida. 238 pages.

Helpful book but photographs are typical of professional biologists: not using adequate equipment and not using lighting (nor really anything to improve what are otherwise merely snapshots).

Even if they only made the effort to have a simple reflector. Or a flash (with a light modifier to keep down the overexposure). Plus you need to understand a polarizing filter.

Merely because a creature is important and you are taking a photo is no help to your reader that the photo will offer adequate visual documentation.

LEE, Julian C.

1996 The Amphibians and Reptiles of the Yucatan Peninsula. Comstock Publishing Associates.

LEE, Julian C.

2000 A Field Guide to the Amphibians and Reptiles of the Maya World: The Lowlands of Mexico, Northern Guatemala, and Belize. Cornell University Press, 416 pages.

PRINGLE, Laurence (author), **Meryl HENDERSON** (illustrator)

2009 Alligators and Crocodiles!: Strange and Wonderful. Boyds Mills Press. 32 pages.

ROSS, Charles A., consulting editor

1989 Crocodiles and Alligators. Facts on File. New York and Oxford. 240 pages.

Although the publisher touts “including photographs from world-leading photographers” in fact the front cover is too low a resolution, as are too many other photos. Possible cause is scanning of ancient 35mm slides (with a low-end scanner), or simply old digital photographs when megabyte file size was in the Ice Age. However since the book was published in 1989, most of the photographs were from the 1970’s and 1980’s, and hence none were digital.

We scan our photographs with a Scitex or Creo Scitex or Kodak Creo Scitex scanner. These are of the highest flatbed technology (but no longer made since after Kodak bought Creo which had bought Scitex; Kodak failed totally to know how to market such a high-end scanner.

But the photograph on pages 12-13 is a wonderful example of taking an old color negative or old color slide, and scanning it on a crude scanner, and then enlarging it too much. It is amazing that publishers accept this low-end lack of quality. Too bad since the image itself was outstanding for showing the teeth in both jaws.

However, if your interest is in crocodiles of Africa, this book has plenty of photographs. And if you don’t look too closely (to see the low-resolution on a few of them) you will find over a hundred nice photographs.

Probably 90% of the book is on Nile crocodile, Africa and Asia in general. Hardly zip on crocodiles of Mesoamerica.

Fortunately, some of the photos were really nice: pages 5, 7, 8, 11.

SIMON, Seymour

2001 Crocodiles & Alligators. Harper Trophy, New York.

Books or Articles on Maya archaeology or iconography which discuss, show or include crocodilians

In Maya art some crocodiles are clearly renderings of crocodiles. But often the monsters are composite: crocodile+snake, or a bicephalic Cosmic Monster which is a composite of crocodile+Starry Eye Deer. If you want to see 90% of the known representations of crocodiles in the art of proto-Classic Izapa and the Classic Maya, Hellmuth 2023 has 192 pages of photos, drawings and documentation for you.

Check also publications on figurines of Lamanai (Belize) and other sites not far from the coast.

Two items we have seen floating around the Internet, but have not yet found where they are housed or where they come from.

- Eccentric flint of “diving” crocodile as cosmic canoe.
- Incised shell of crocodile facing one direction with a different head at its tail end. Pinterest; no documentation.

BAUDEZ, Claude-Francois

1994 Maya Sculpture of Copan: The Iconography. University of Oklahoma Press. 300 pages.

There are more crocodiles and crocodile-composite monsters in the monumental stone sculpture of Copan than at any other site. This is curious since Yaxchilan, Piedras Negras, El Peru, and dozens of other Classic Mayan sites are also on major rivers which were full of crocodiles. Plus there are *Crocodylus acutus* in coastal swamps in Belize and elsewhere. But Yaxchilan does have at least two long live-sized 3-dimensional stone sculptures of crocodiles.

FINAMORE, Daniel and **Stephen D. HOUSTON**, editors

2010 Fiery Pool: The Maya and the Mythic Sea. Peabody Essex Museum, Salem and New Haven.

There are a few of the crocodile artifacts in this book. Several illustrations in this book are from Hellmuth 1987b PhD dissertation; most are cited but many others are not.

HARRISON, Peter

2006 Animals as Royal Family Names at Tikal, Guatemala & Some Considerations at Kalakmul. Prepared for *Maya Hieroglyphs & History: An Archaeological Perspective* at International Congress of Americanists - Seville, Spain.

It is rare for a field archaeologist to recognize misidentifications in the work of other archaeologists and epigraphers. He correctly points out what is a deficiency in Maya studies: archaeologists, iconographers and epigraphers who are great at hieroglyphs or sculptures but don't know the difference between an alligator and a crocodile (or what a caiman is).

My personal feeling for the last decade is that archaeologists, epigraphers and iconographers could save themselves from repeatedly misidentifying flowers, insects, feline pelage spot patterns and all the other errors if they would co-author with a botanist or zoologist who knows the flora or fauna of the Maya areas or co-author with a Mayanist who knows plants and animals first-hand (a polite way to saying a Mayanist who has studied plants and animals in the Mayan areas (so more than just in books or zoos or herbariums)).

Peter Harrison's helpful article is a free download on

www.academia.edu/4510445/Animals_as_Royal_Family_Names_at_Tikal_Guatemala_and_Some_Considerations_at_Kalakmul_prepared_for_Maya_Hieroglyphs_and_History_An_Archaeological_Perspective_at_International_Congress_of_Americanists_-_Seville_Spain

HELLMUTH, Nicholas M.

1987a The Surface of the Underwaterworld. Iconography of the Gods of Early Classic Maya Art in Peten, Guatemala. FLAAR 306 pages of text (Volume 1) and hundreds of pages of illustrations (Volume 2).

Revised English original of PhD dissertation (auf Deutsch) for Art History, Karl-Franzens-Universitaet, Graz, submitted and accepted 1986.

The actual PhD in the German translation (by Susanna Reisinger) was also updated and published the same year, as a hard-cover coffee-table book, *Monster und Menschen in der Maya Kunst*, by ADEVA.

HELLMUTH, Nicholas M.

1987b *Monsters und Menschen in der Maya-Kunst*. ADEVA, Graz.

This is the coffee-table book edition of my PhD dissertation at Karl-Franzens Universitaet, Graz, Austria, based on eight years research on iconography and cosmology.

Many representations of stylized crocodiles among the 727 illustrations (lots of photographs, but mostly line drawings).

We have original hardcover copies of this book, which are available to benefactors and corporations or foundations which are able to donate to continuing research. We would especially like to make the PhD both in English and auf Deutsch and en español available to the world.

Hellmuth, Nicholas

2023 *Iconography and Ethnozoology of the Crocodiles and Caiman of Mesoamerica and their relation with the Cosmology of the Underworld and the Heavens*. English edition updated August 2023 from lecture on 27 de julio del 2023 *VI Seminario Internacional de Epigrafía Maya en Guatemala Museo Popol Vuh, Universidad Francisco Marroquin*, Organized by Camilo Luin. This PowerPoint lecture is available as one file with all 192 pages or as six separate files, one-chapter-at-a-time. The bibliography is so complete that it is a separate file.

- Chapter 1: Crocodiles are obviously associated with Water
- Chapter 2: Classic Maya portraits of Crocodiles as 3-dimensional ceramic figurines or stone sculptures and deep-relief renditions
- Chapter 3: Full-bodied Crocodiles as Roof of Throne Rooms
- Chapter 4: Crocodiles in Bas-relief Sculptures at Copan, Honduras
- Chapter 5: Crocodile Trees, Jicara/Morro Trees, Loincloth Apron Face Trunk-base Trees
- Chapter 6: Crocodile and Composite Deer-Crocodile as Bicephalic Cosmic Monster
- Crocodile Iconography of the Olmec and of the Maya References Cited and other Suggested Reading

LOOPER, Matthew

2013 The Maya "Cosmic Monster" as a Political and Religious Symbol. In *The Ashgate Research Companion to Monster and the Monstrous*, Asa Simon Mittman and Peter J. Dendle, editors. Pp. 197ff.

This article focuses on the Starry Deer Crocodile, which is highly stylized (meaning that the crocodile is not shown naturalistically). Plus the creature's body are planetary band symbols.

ORREGO Corzo, Miguel and Christa SCHIEBE de Lavarreda

2001 Compendio de monumentos expuestos en Tak'alik Ab'aj. (versión digital). *XIV Simposio de Investigaciones Arqueológicas en Guatemala, 2000* (edited by J.P. Laporte, A.C. Suasnívar y B. Arroyo) (Guatemala: Museo Nacional de Arqueología y Etnología): 786-806. Retrieved 2009/02/01.

PARSONS, Lee Allen

1969 Bilbao, Guatemala: An Archaeological Study of the Pacific Coast Cotzumalhuapan Region, *Volume 2. Publications in Anthropology*, No.12, Milwaukee Public Museum, Milwaukee, Wisconsin.

PARSONS, Lee Allen

1986 Monumental Stone Sculpture of Kaminaljuyu, Guatemala, and the Southern Pacific Coast. *Studies in Pre-Columbian Art and Archaeology, Number 28*, Dumbarton Oaks Pre-Columbian Art and Archaeology Studies Series.

QUIRARTE, Jacinto

1973 Izapan-Style Art, A Study of its Form and Meaning. *Studies in Pre-Columbian Art and Archaeology, No. 10*. Dumbarton Oaks, Trustees for Harvard University, Washington, D.C.

VARGAS Pacheco, Ernesto and Teri ARIAS Ortiz

2005 The Crocodile and The Cosmos: Itzamkanac, The Place of the Alligator's House. In *XVIII Simposio de Investigaciones Arqueológicas en Guatemala, 2004*, edited by Laporte, Juan Pedro, Arroyo, Bárbara, and Mejía, Héctor, pp. 14–26. Museo Nacional de Arqueología y Etnología, Guatemala City.

Reprint on-line by FAMSI. www.famsi.org/reports/03101/02vargas_arias/02vargas_arias.pdf

The use of the word alligator is a typical result of Spanish language using informal terms such as lagarto. Itzamna is either a crocodile, or a caiman. Unless it is a composite he can't be both. And there is a 66% chance he is a crocodile and only 33% chance he is a caiman (which in theory would make it allowed perhaps to be called, informally, an alligator).

WRIGHT, Lori E.

2005 In Search of Yax Nuun Ayiin I: Revisiting the Tikal Project's Burial 10. In *Ancient Mesoamerica* 16. Cambridge University Press, pp. 89-100.

This burial had a complete skeleton of a crocodile but the head is not shown as that was excavated a year or so before by another archaeologist.

Significant web sites on Crocodiles, Alligators or Caimans

<http://agrigator.ifas.ufl.edu/gators>

Facts and tips from the University of Florida.

www.Crocodilian.com

This web page has disappeared.

<http://crocodilian.com/cnhc/csl.html>

Helpful list of all 23 species of the crocodilian species around the world.

This web page has disappeared.

www.msu.edu/user/urquhart/rainforest/Content/Spectacled-Caiman.html

By Dr. Gerald Urquhart. Has good photos; basic text. But is missing *Crocodylus moreletii*.

In the future we will update this research with a bibliography on the Crocodile Trees, especially of the pre- or proto-classic stelae of Izapa, Chiapas, Mexico. I worked on this iconography for my PhD dissertation and circa 2000-2010 I did field research all over Guatemala studying trees to learn which was “the” Crocodile Tree. FLAAR has indeed found the trees which inspired the Crocodile Tree (and it is more than just the spines of *Ceiba pentandra*).