

## Investigation Report

Pelt, 2020 december 26<sup>st</sup>

Laboratory RALF KOTALLA  
Kätzling 2  
D-72401 Haigerloch – Weildorf  
Germany

Report # 28\_7\_94

Concerning: Mexican Stone mask



### Description

Brown colored burial mask of stone with narrow chin, flat at the top and open eyes and mouth. The depressed eyes and mouth are oval carved with drilling marks at the edges. The brows are geometrically horizontal rendered, and the nose is triangular. At the underside, the nose is domed and has two drilled nostrils.

Both ears are rectangular lobbed cut with drilled holes. With thickening at the right and left sides, the rear is hollowed in the center in a trapezoidal shape. At each side on top of the back is a hooked hole to hang up. The surface is weathered and darker than the inside of the mouth and eyes. So, for a long time, they were probably filled up.

The surface is not embellished with engraved decorations.

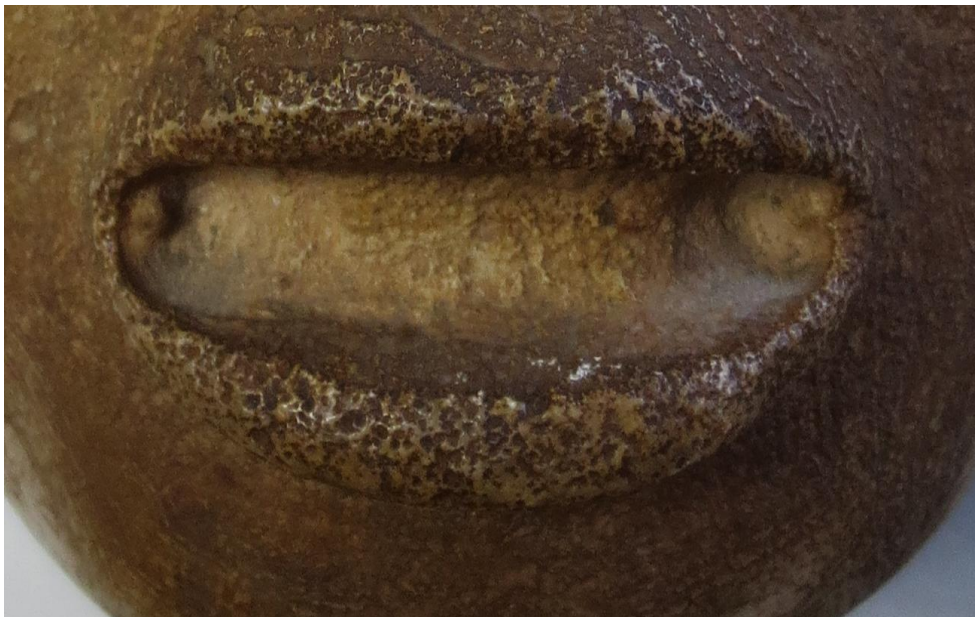


Right eye



Left eye

Both eyes are oval cut with drilling marks and cores into the corners.



Oval cut mouth with drilled marks and cores into the corners.



The underside of the nose is curved and has two drilled nostrils.





Front view of the lobed rectangular ears with drilled holes into the lobes. On both ears, above the lobe, there is a rectangular carving on the surface. At the left ear, the earlobe is partly broken off.



Backside view: hollow in the center in a trapezoidal shape.  
The holes on both sides at the top (see arrows) are contemporary additions.

**Origin :**

### **Teotihuacàn culture**

Teotihuacan is an ancient Mesoamerican city located in the Valley of Mexico, located in the State of Mexico, 40 kilometers northeast of modern-day Mexico City. Teotihuacan is known today as the site of many of the most architecturally significant Mesoamerican pyramids built in the pre-Columbian Americas. At its zenith, perhaps in the first half of the first millennium (1 to 500 AD), Teotihuacan was the largest city in the pre-Columbian Americas. A population estimated at 125.000 or more, making it at least the sixth-largest city in the world during its epoch. The great civilization of Teotihuacan met its untimely end around 700 AD, by the hand of invaders. After the collapse of Teotihuacan, central Mexico was dominated by the Toltecs of Tula until about 1150 AD.

It was designated a UNESCO World Heritage Site in 1987.

There was no tradition of portraiture at Teotihuacan, but masks depicting the human face are abundant in the style associated with the site. With its geometrically rendered horizontal brow, triangular nose, and oval mouth and eyes, these masks depict the idealized facial type that seems to function as a symbol, similar to other standardized motifs present in the art of Teotihuacan. The depressions of the eyes and the mouth suggest that this mask might have possessed an initially inlaid shell or stone to depict eyes and teeth like many of its counterparts.

Although this mask is carved out of stone, it may have been painted like other masks of this type in its original state. Perforations at the sides suggest that it was intended to be attached to another object, but given the stone's weight and the lack of holes for the eyes and mouth, these masks were probably not worn by living people. Instead, they may have been attached to sculptures of human figures or mounted on mummy or deity bundles.

Stone masks are perhaps the most notable works of Teotihuacan art. Mystery surrounds these masks, as they are believed to have been part of funerary furniture, yet none have been found in burial chambers. Instead, they have been discovered near temples and complexes aligning the Street of the Dead. Scholars speculate they were attached to wooden armatures in temples to represent deities who are in the process of becoming gods. Hence the drill holes that are commonly present in these masks. They may also have been worn on the arm as an insignia of an important person. They were prestigious objects that were both ceremonial and functional. From 250 AD onwards, items made from clay increased dramatically, serving various purposes and functions.

The stone mask reveals Olmec's influence on the Teotihuacan style, most notable in the facial features. The mouth is wide open as if exhaling. The almond shape of the eyes is echoed by the curve of the brows above them. The eyes may have been inlaid initially with colored stones or shells to heighten the illusion. This particular mask is a masterwork of craftsmanship and symmetry exhibiting rendered linework and delicate contours.

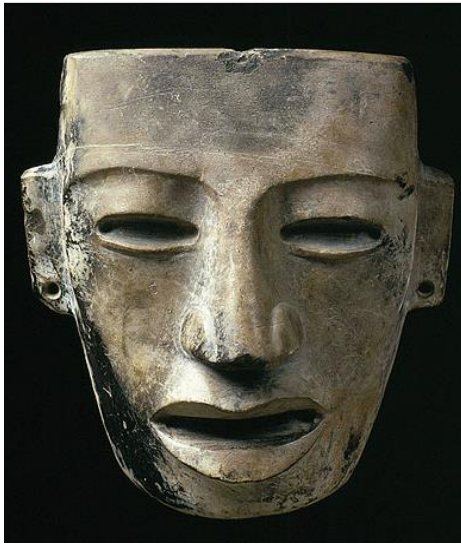
References:



Date: 3rd–7th century AD  
Geography: Mexico, Mesoamerica  
Culture: Teotihuacan  
Medium: Greenstone  
Dimensions: H. 9 1/2 × W. 9 3/4 × D. 4 5/8 in. (24.1 × 24.8 × 11.7 cm)

Note the drilling marks with core into the left eye





#### Stone Mask

Teotihuacan, 250 – 650 AD

Height: 19,3 cm Width: 18,3 cm Depth: 11,3 cm

Col. Uhde, 1862 - Museum number: ID IV Ca 3017

Etnological Museum, Berlin



#### Greenstone Mask

Teotihuacan culture, Mexico

150 BC – 700 AD

Museum number: Am,1994,Q,1

British Museum, London, UK

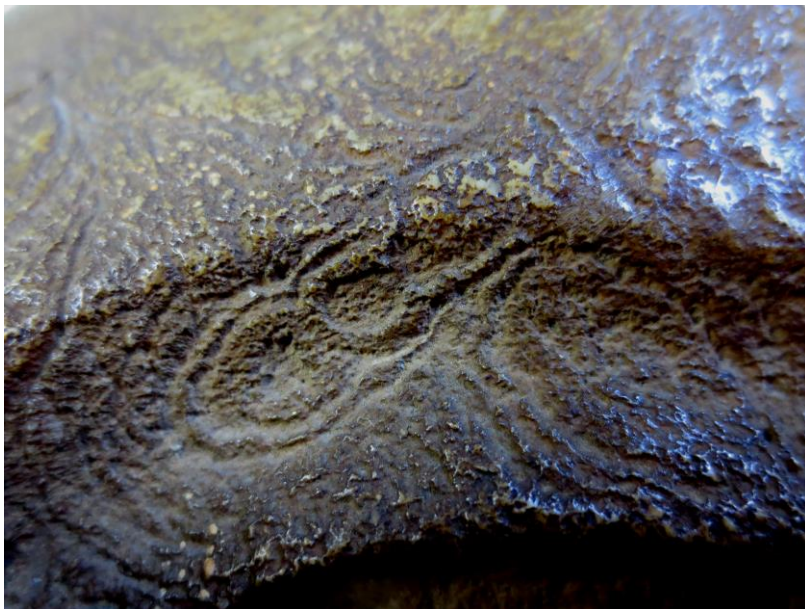


Details of the greenstone mask (Am,1994, Q,1) in the British Museum.

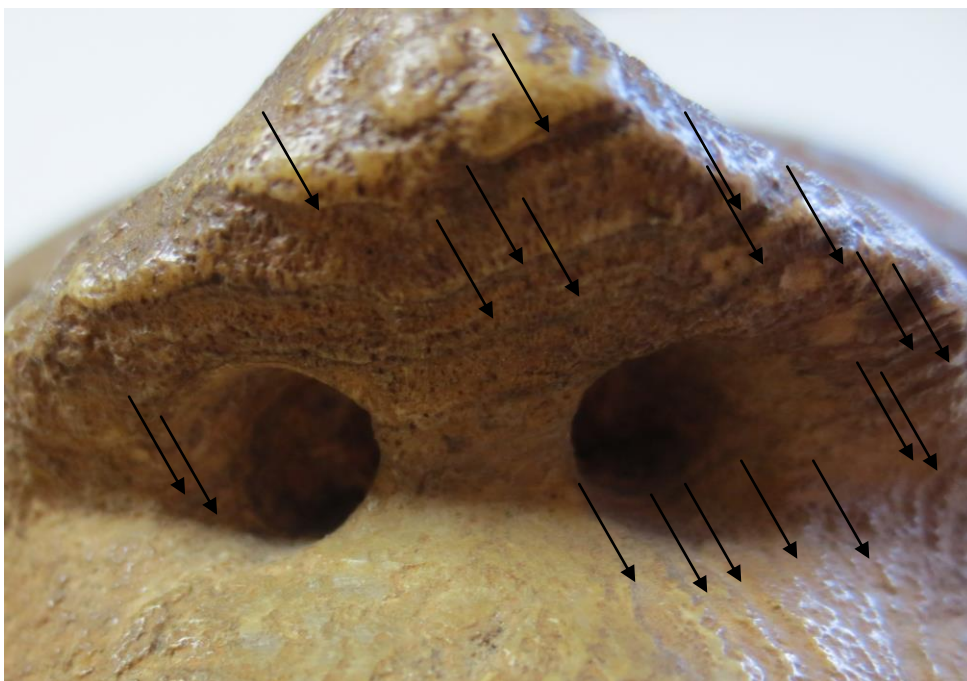
Note the drilling marks with the central core into the corners of the eyes and mouth.



## Observations



Details: rough surface due to weathering.





Detail underside nose: note the manually carved strokes (see arrows)



Detail of the broken lobe (left ear): note the surface of the "fresh fraction" (last 200 years). There is no weathering of the stone on the fraction surface.

Also, note the hole's coarse inside surface, drilled anciently with a hollow pipe and quartz sand.



Detail of a curved hole (two drillings at the top of the back): note the signs of manual drilling on the inside.

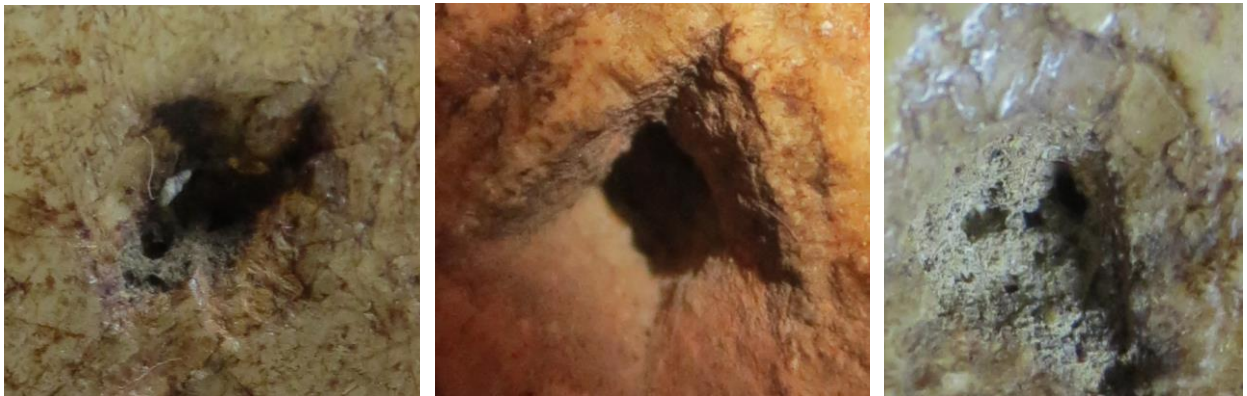




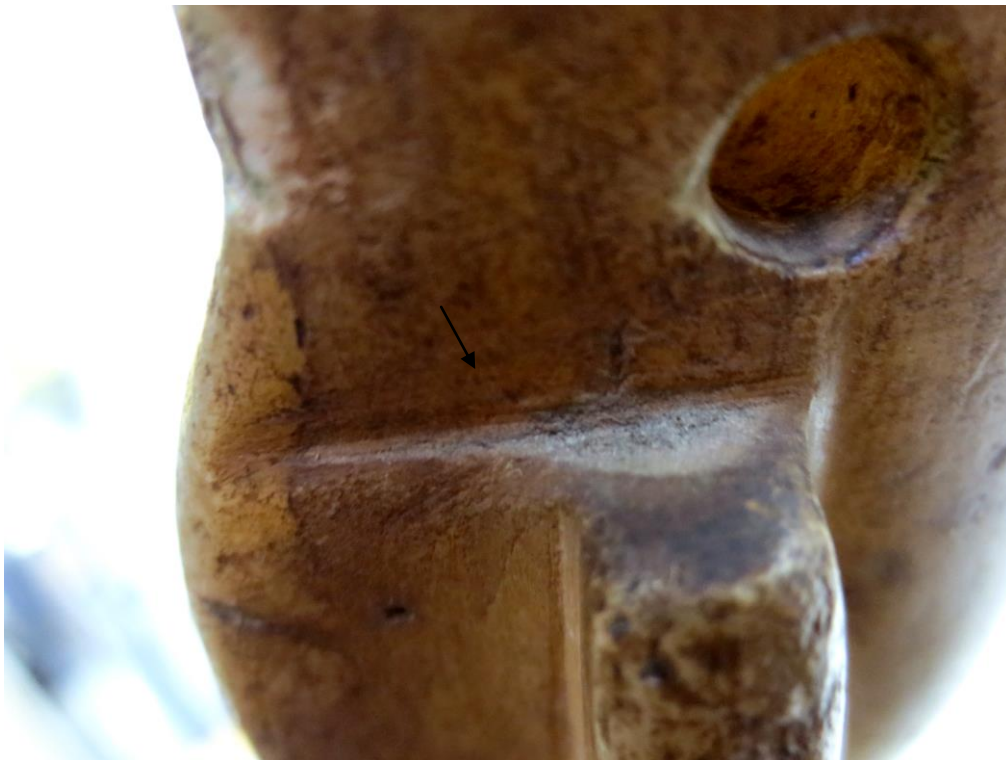
Details of drilled holes in the eyes: note the manual hollow pipe drilling's inner core (arrow). This type of drilling is typical for the Teotihuacan culture at the beginning of our era. Also, manually carving strokes are easy to recognize.



The nostrils are connected inside. Also, this is typical for Teotihuacan stone masks.



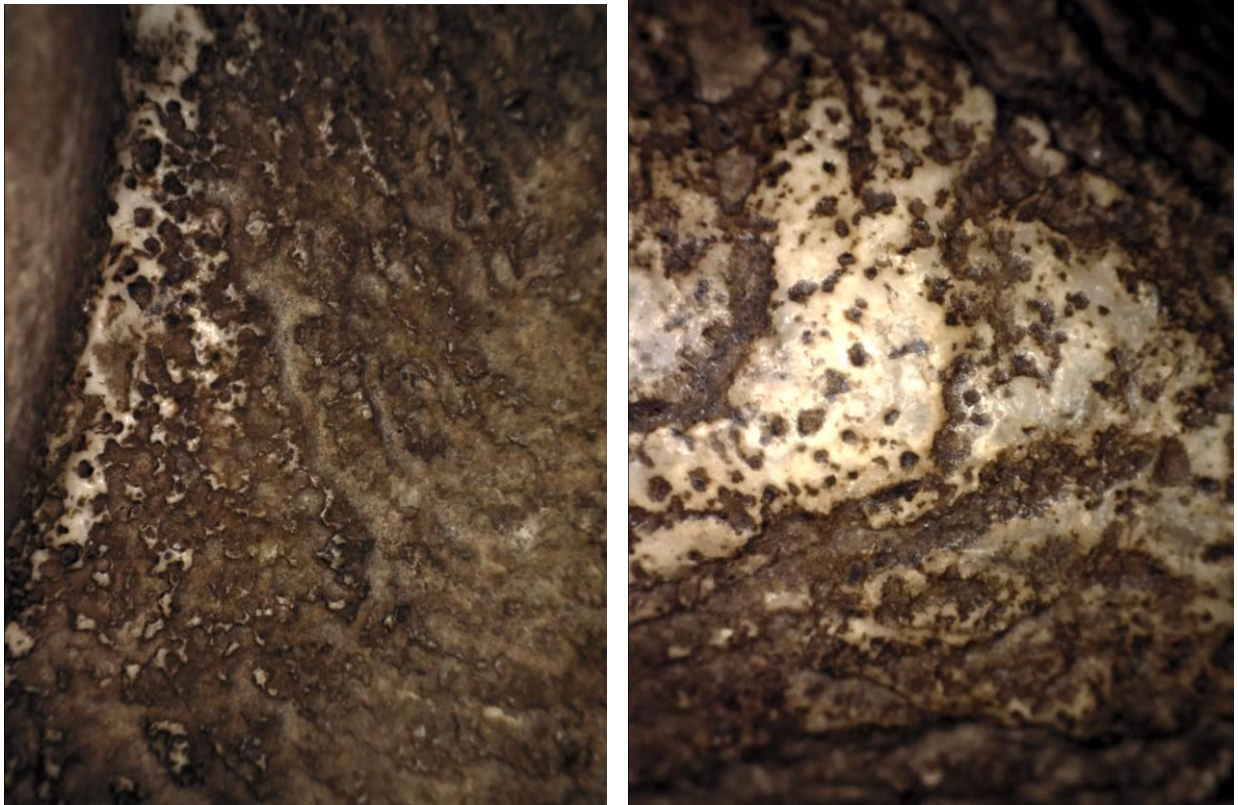
Details of nail holes caused by handmade square nails.



Detail of the manually carved upper edge (arrow) of the right ear.



## Microscopic Observations

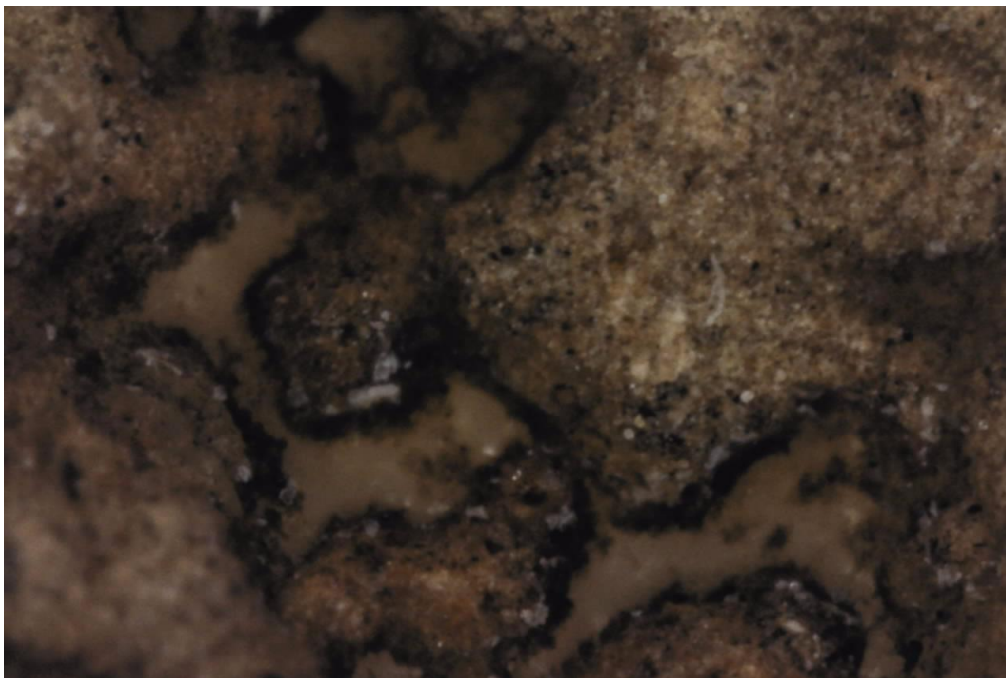


Details of surface corrosion (x50, incident light) caused by weathering.

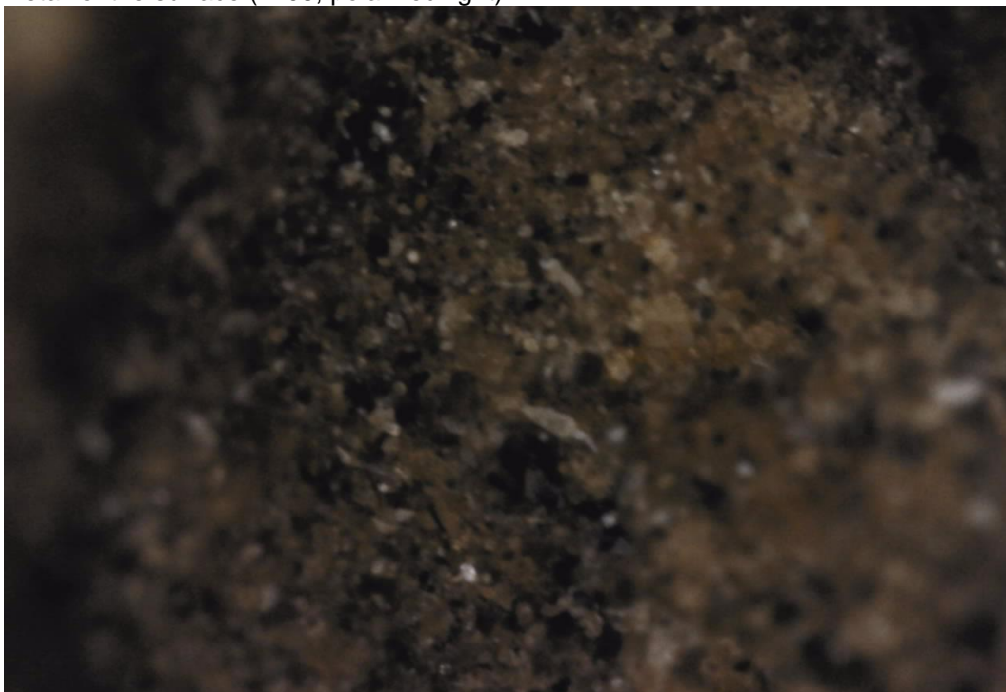


Detail from the surface inside the left eye (x50, incident light): note the by hand-carved strokes.





Detail of the surface (x100, polarized light)



Detail of the surface (x400, polarized light)

Note the Incrustations of soil particles into the stone's weathered surface due to very long term burial.



Detail (x200, polarized light): the fracture plane on the left ear is recent ( $\leq 200$  years).





Detail view of the stone structure on the surface (x25; x150): The stone structure is layered in parallel veins. This structure is typical for chalcedony and agate. These minerals are both found in Mexico.

Most of Teotihuacan stone masks are made of greenstone, serpentinite, limestone, travertine, chalcedony or agate and jadeite

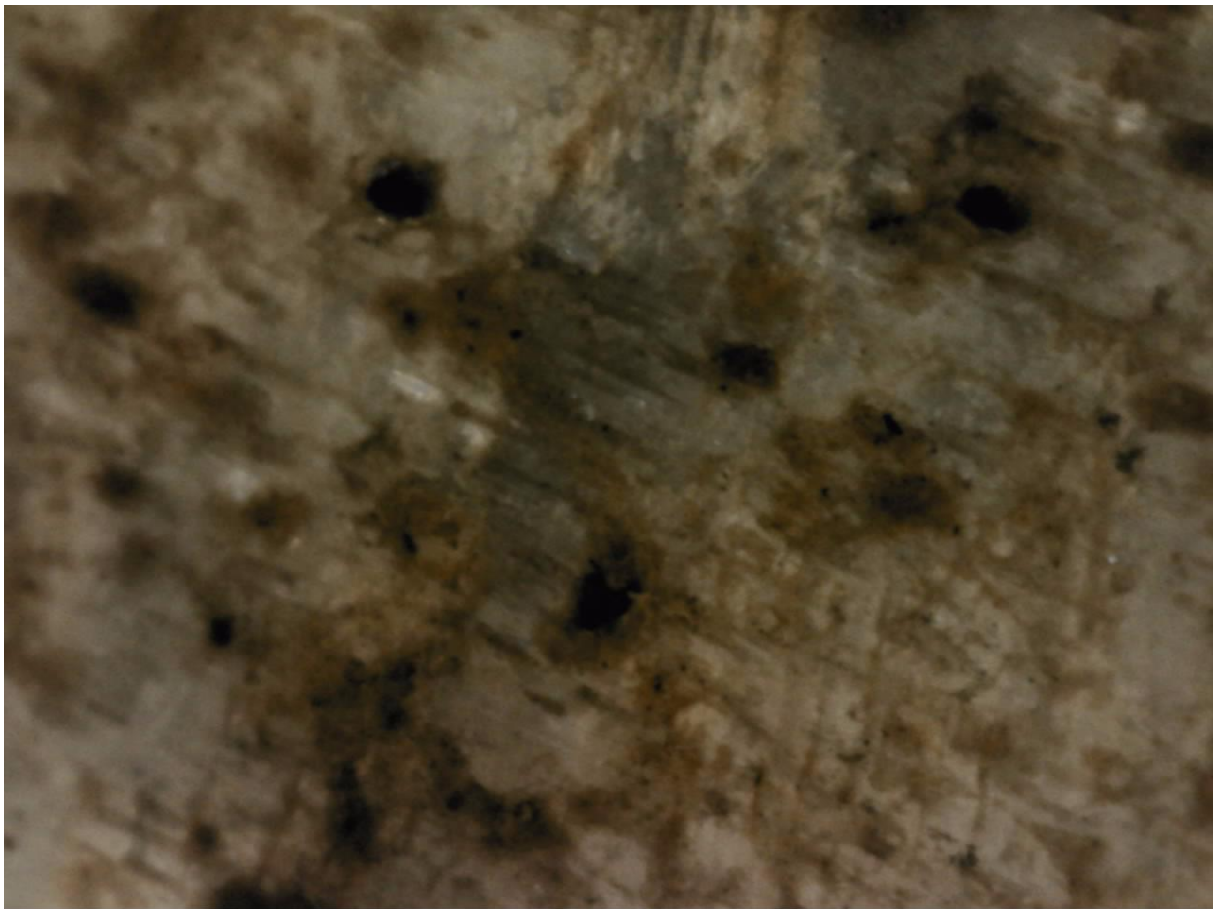


Detail of the surface structure (x 150, incident light): the direction of surface polishing can be observed at the upper parts ( note the horizontal polishing marks).





Quartz area at the right side of the mask with the less weathered surface. (x50, incident light)



Quartz area with grinding and polishing marks of manual treatment. (x150, polarized light).





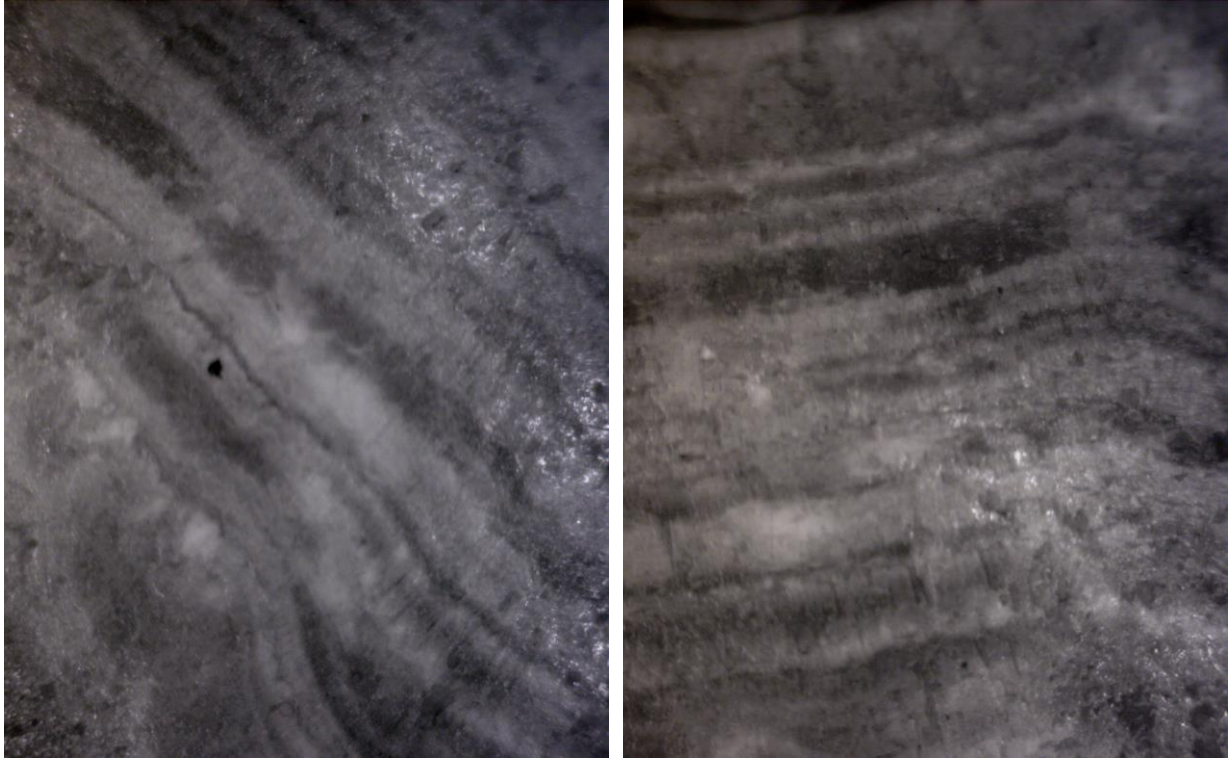
Detail of carvings (x150, incident light): hand-engraved pin-gouge marks.



Surface structure detail (x150, incident light): handmade random polishing marks.



## IR-observation



The parallel veins structure of the stone is typical for chalcedony and agate, both quartz type minerals.

## Observations with transmitted light



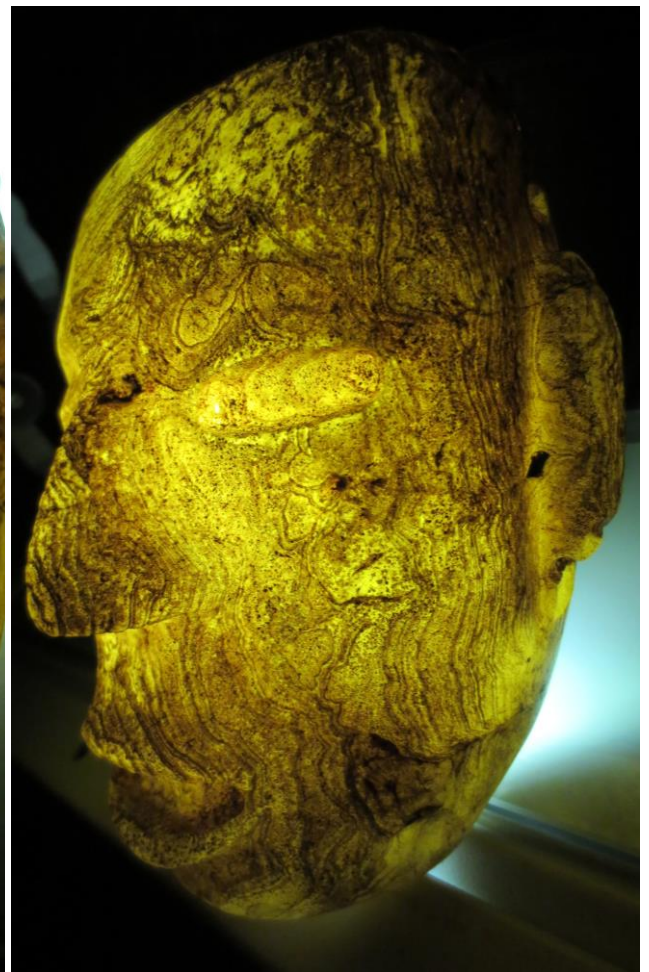
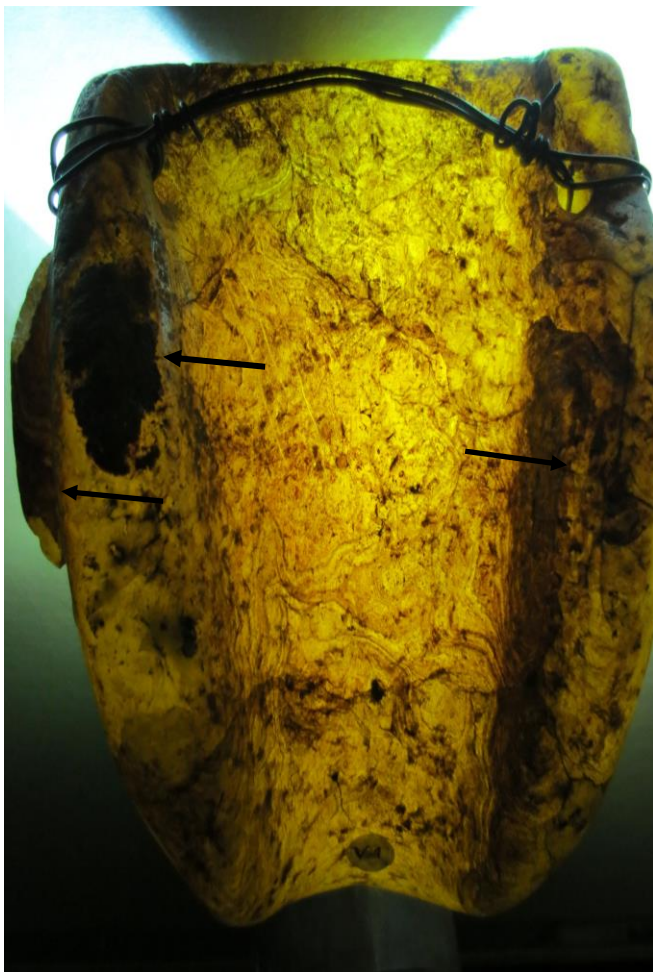
Front view



Right side view

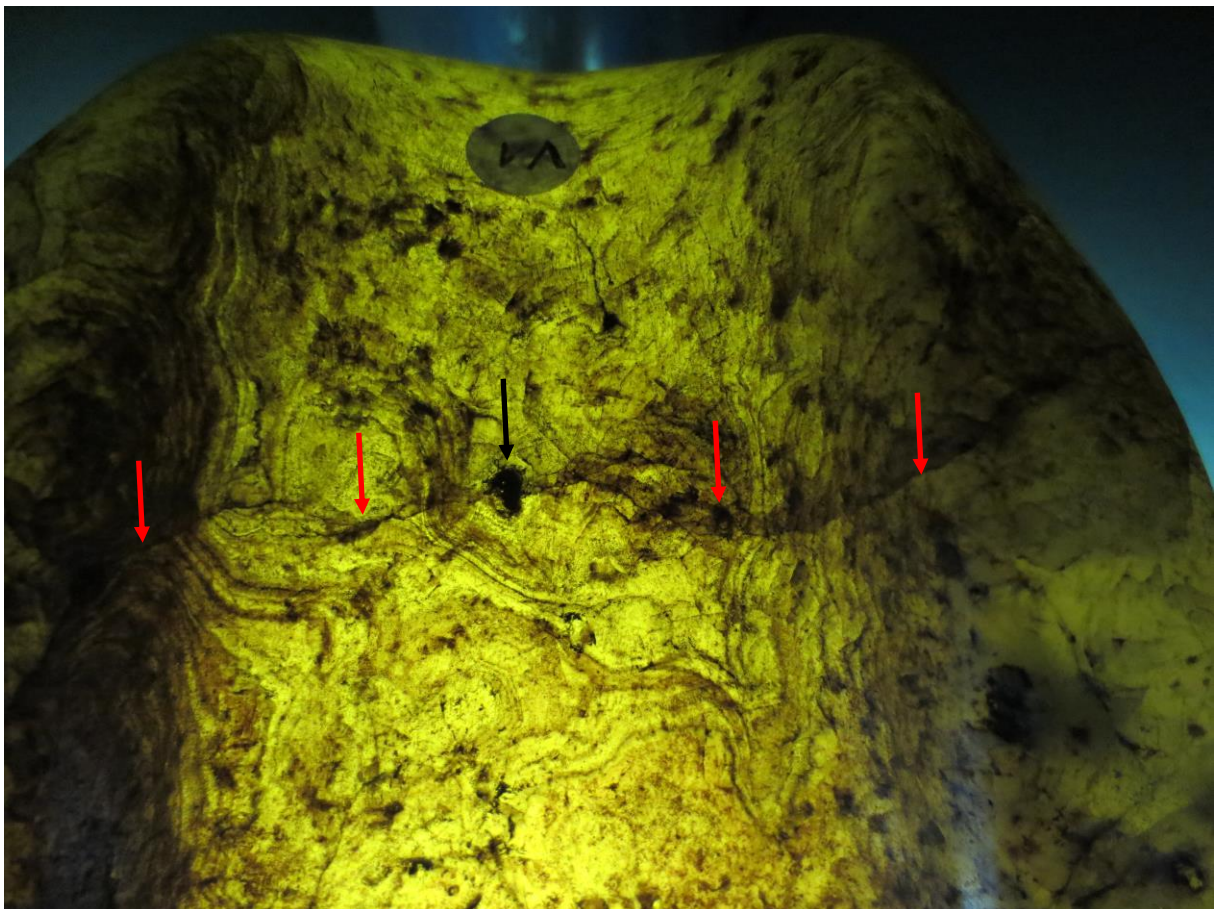
The concentric banded structure of Mexican agate can be well observed. The same design can be observed at the surface due to weathering during tens of centuries.





Back side view  
The black spots (arrows) are opaque chalcedony or quartz.

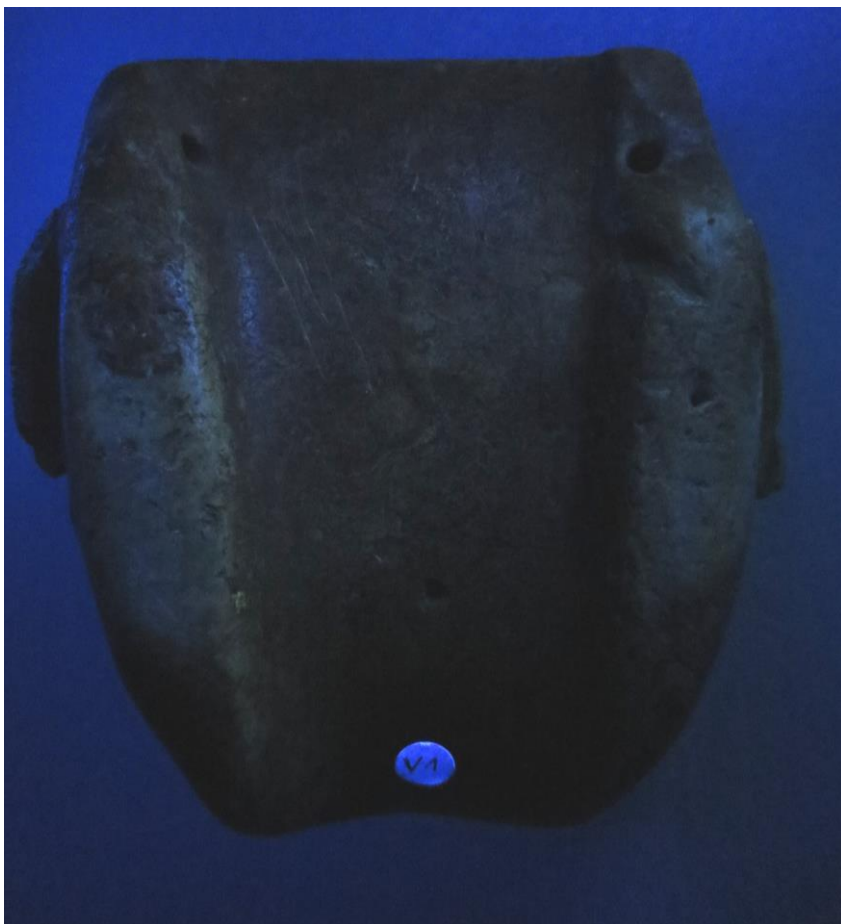
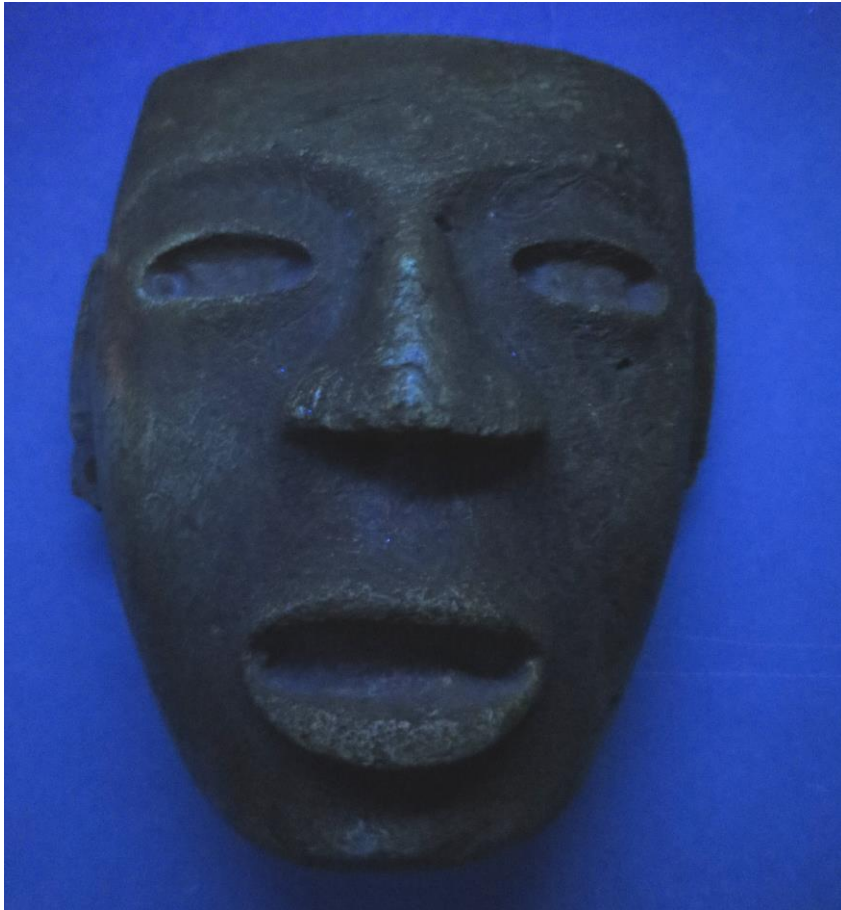
Left side view



The impact of a nail (see black arrow) has caused a crack (red arrows) in the stone.  
To date, this has not led to a break. ( caution in handling )



UV- absorbance / fluorescence observations (385 nm)



Evaluation: Full UV-absorbance by the stone.  
The stone has not been treated at the surface or into the core by dyes, conservation compounds, varnishes, glues, ...

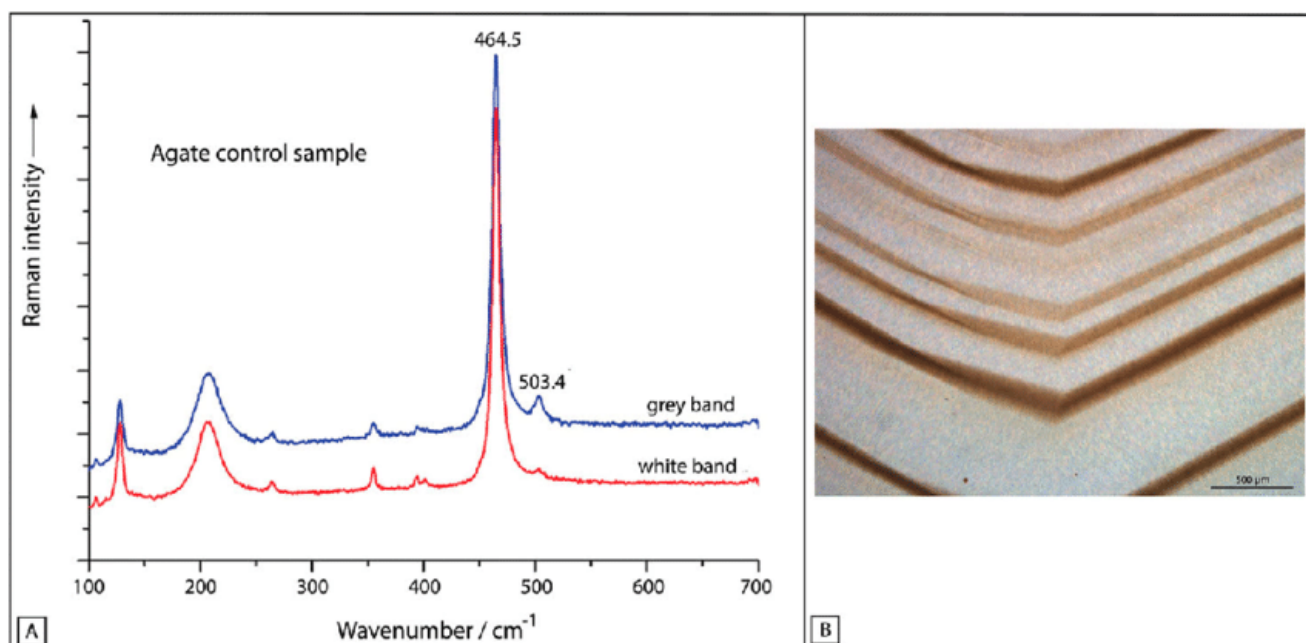
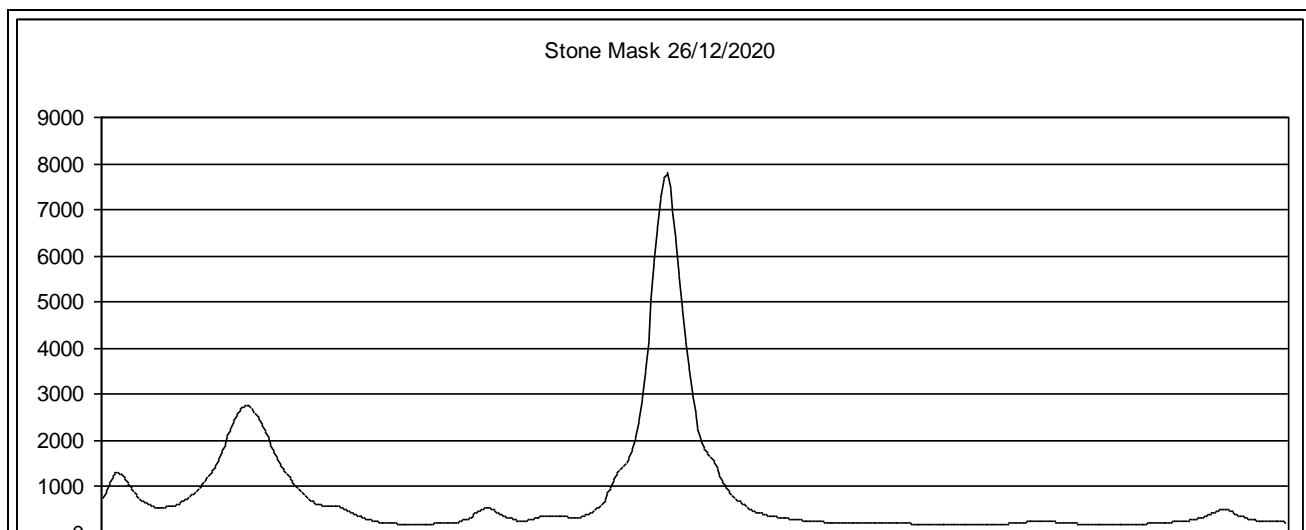


## Dimensions

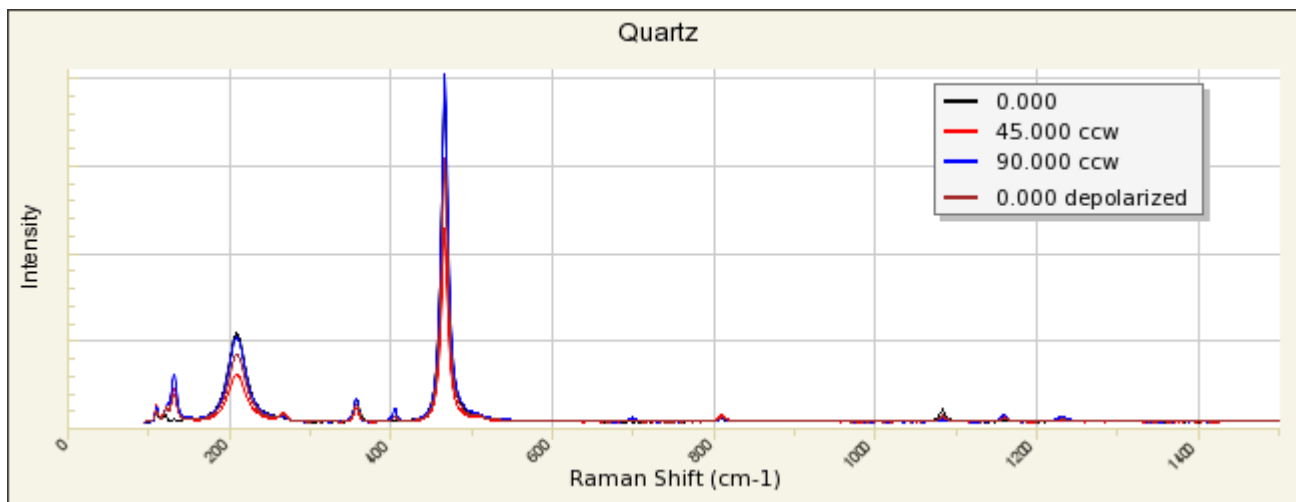
Height	173 mm
Width	158 mm
Depth	97 mm

Weight	2717, 7 g
Volume (1Atm, 20°C)	1021, 5 cm <sup>3</sup>
Density	2,661 g/cm <sup>3</sup>
Hardness (Mohs scale)	6,5

## Identification of the stone by Raman spectrometry (Ahura)







RRUFF database R040031.3

**Elemental analysis:** by EDXRF (Innov Olympus) and ICP-OES spectrometry (Varian)

Element	unit	Conc.
Si	%	46,7

Al	ppm	292
Fe	ppm	106
Na	ppm	181
Other	ppm	≤20

Evaluation:

The stone is identified as concentric banded Mexican agate (density = 2,60 – 2,67 g/cm<sup>3</sup>).

The surface has naturally been weathered. Carving, grinding, and polishing are entirely hand made. There are no signs of machinal or mechanical treatments.

The mask belongs to the Teotihuacàn culture period of Mexico (first half of the first millennium AD)

#### Statement

None of the observations or analyzes give rise to a suspicion of forgery or contemporary copy.

This agate mask has all the masks' characteristics from the Mexican Teotihuacàn culture during the first half of the first millennium.

**This statement is an opinion and therefore gives no right to redress or liability of any kind.**

Pelt, 2020 December 26<sup>st</sup>

RJM. Bové



*Only a sealed print with an original blind stamp is recognized as a valid and unchanged report.*