



Patere and Formelle

towards an astronomical reading



Gloria Vallese

Accademia di Belle Arti, Venice



Layers

Google





'Arch of the Venetian Trades'
1260-70?

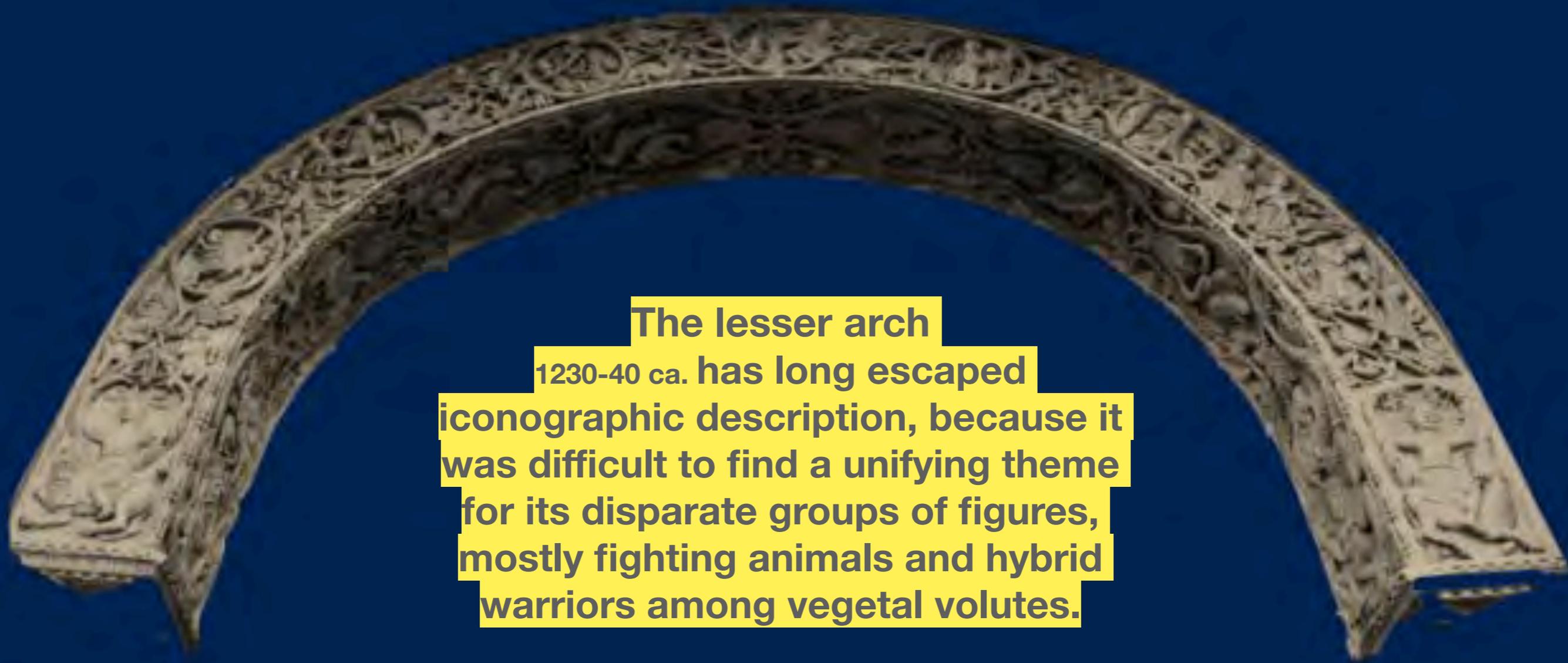
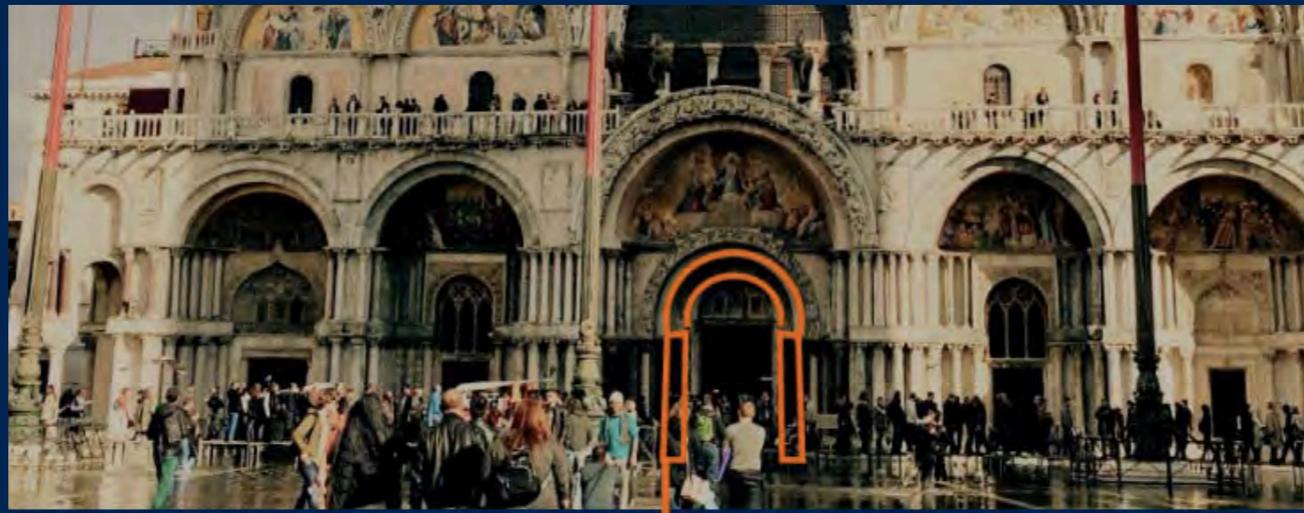
'Arch of the Twelve Months'
1240-60 ca.

**Lesser arch
'Arch of the Firmament'**
1230-40 ca.

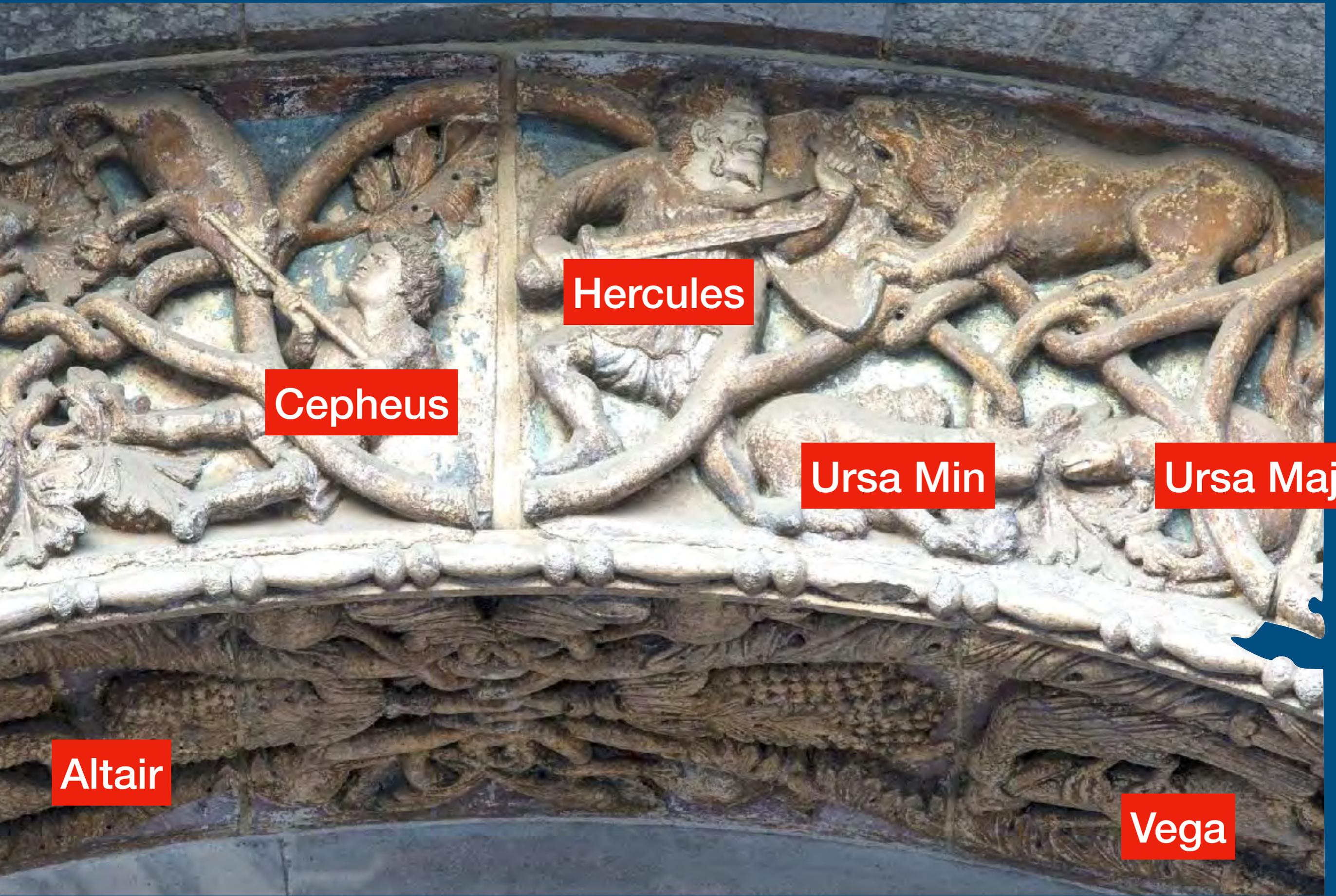


The original gold and blue polichromy made the tiny figures better readable from afar.

Gentile Bellini, *The Procession in St. Mark's Place*, 1496, part.
Venice, *Gallerie dell'Accademia*



**The lesser arch
1230-40 ca. has long escaped
iconographic description, because it
was difficult to find a unifying theme
for its disparate groups of figures,
mostly fighting animals and hybrid
warriors among vegetal volutes.**



Cepheus

Hercules

Ursa Min

Ursa Maj

Altair

Vega



PATERA (pl. PATERE)

FORMELLA (pl. FORMELLE)

- **Patere and formelle** appear on religious and civil buildings in Venice from the 9th to 14th century, then fall out of fashion. There are about 2000 still extant in Venice, 2/3 of which in their original locations.
- Their subjects are: fighting animals and (rare) humans and hybrids, among foliage.
- They are considered decorative or apotropaic, since their rediscovery in the 19th century.

PATERA

round

FORMELLA

rectangular, often
shaped like a small
window

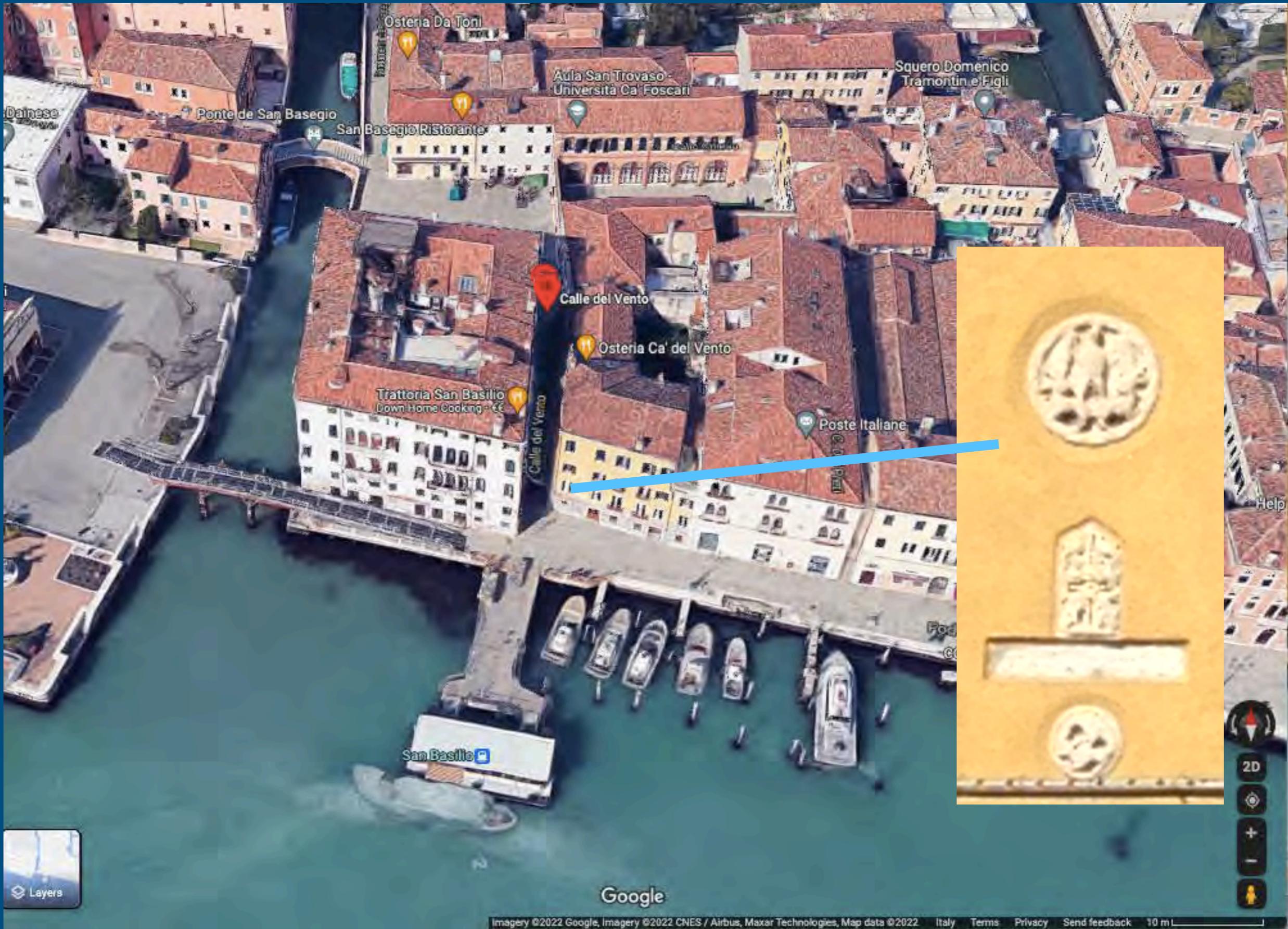


Venezia, Ca' Da Mosto, 13th c.
Photo: Pino Usicco



The project 'Stars and travels' (2016-ongoing, www.stelleeviaggi.org), has highlighted the connection between the main portal of the Basilica of San Marco and the paterae and formelle

Since the iconographic subjects are identical, it is likely that **paterae** and **formelle** too were meant to depict **stars and constellations**.



Osteria Da Toni

Aula San Trovaso -
Università Ca' Foscari

Squero Domenico
Tramontin e Figli

Dainese

Ponte de San Basegio

San Basegio Ristorante

Calle del Vento

Osteria Ca' del Vento

Trattoria San Basilio
Down Home Cooking - €€

Poste Italiane

San Basilio

Google

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Help

2D

Layers



CANCER

LEO MINOR

URSA MAJOR

LYNX

GEMINI

DRACO

URSA MINOR

HERCULES

Vega

LYRA

CAMELOPARDALIS

CERKEUS

CYGNUS

SERPENS

105°

8°

5°

Mars

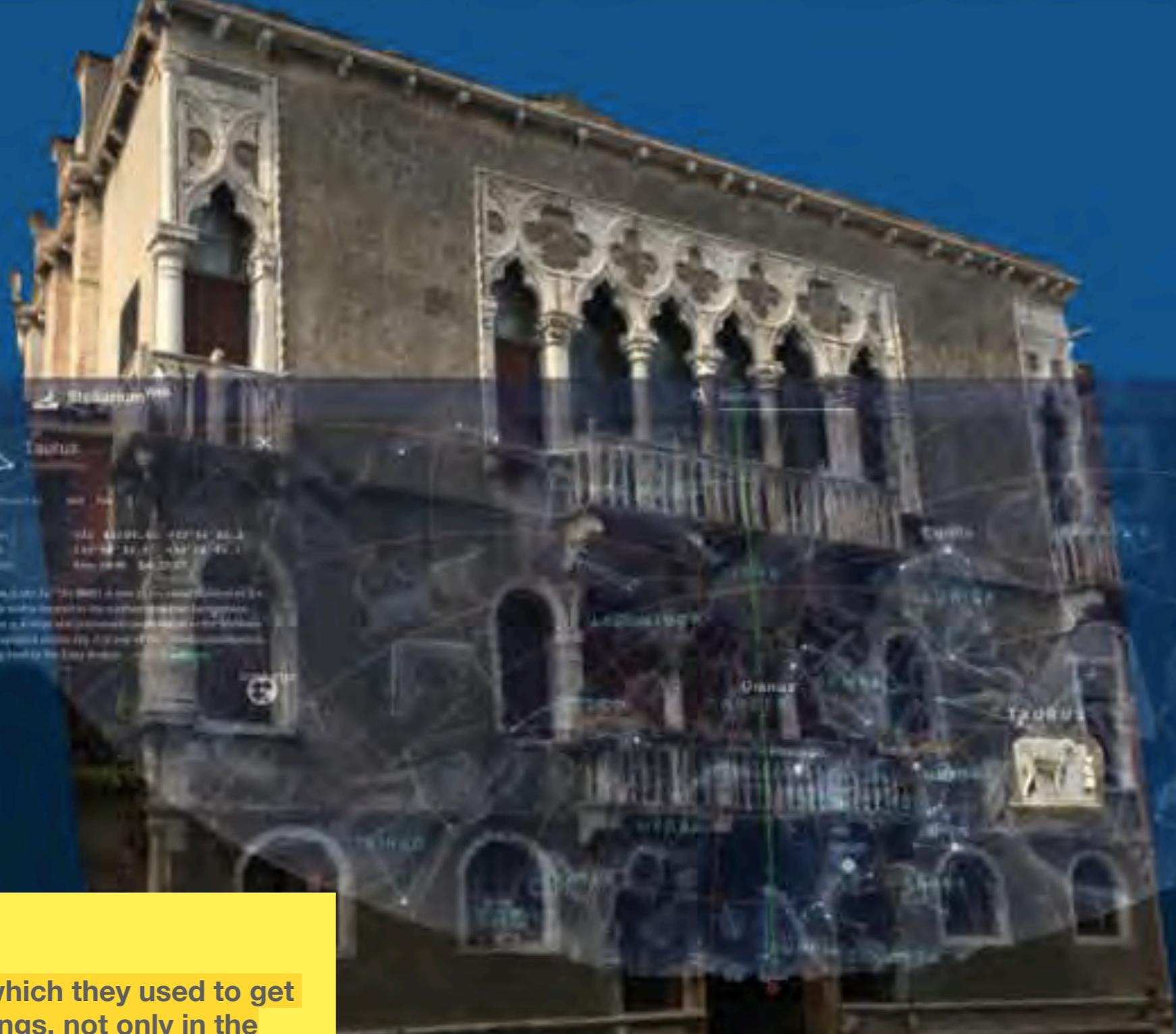
N

..for a general population accustomed to see the buildings against a sky all “written” with stars and constellations

1249-12-21

05:52:52

Navigation icons: back, forward, search, play, stop, volume, battery.



... from which they used to get their bearings, not only in the long distance travels which are characteristic of Venice in this age, but also for the short everyday displacements.

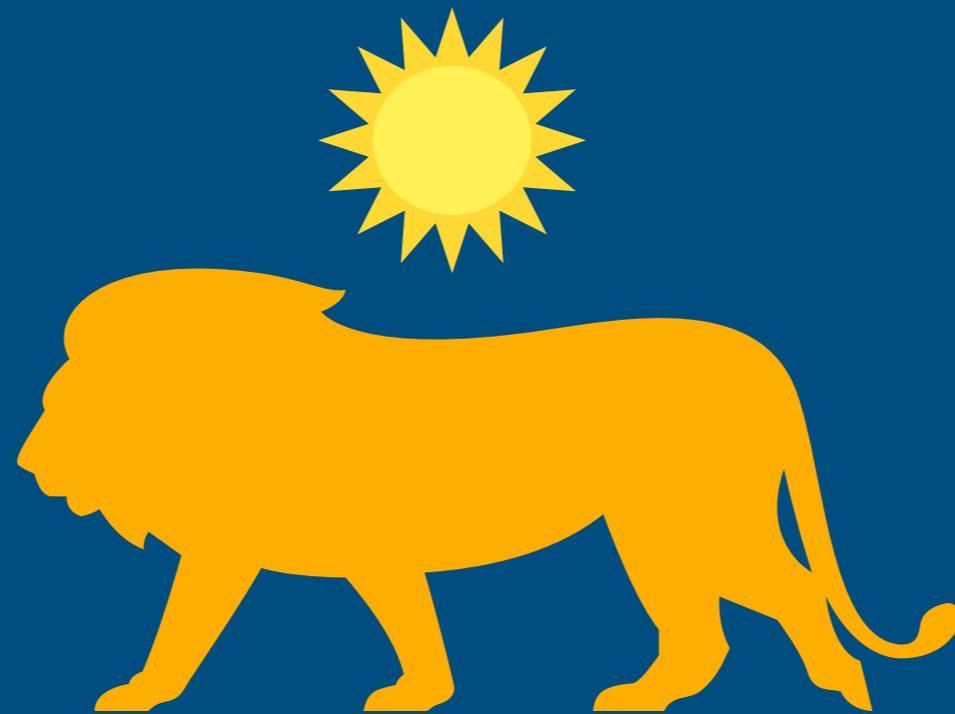
1200-03-21 19:31:44

Today we have tools that make this research possible: such as **virtual planetariums**, **solar calculators**, and **Google Maps**, here in its 'satellite' view.

Combining these and other tools with direct observation, I compared **buildings having the same orientation**, expecting to find the **same groupings of symbols** (patere and formelle) for the **same orientations**.



In the patere and formelle language, the **Sun** is represented by a **Lion**...



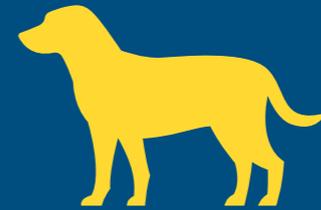
...all the other animal/constellations play, so to speak, in the role of themselves:



ARIES



LEPUS



CANIS (MAIOR)



PISCIS AUSTRINUS

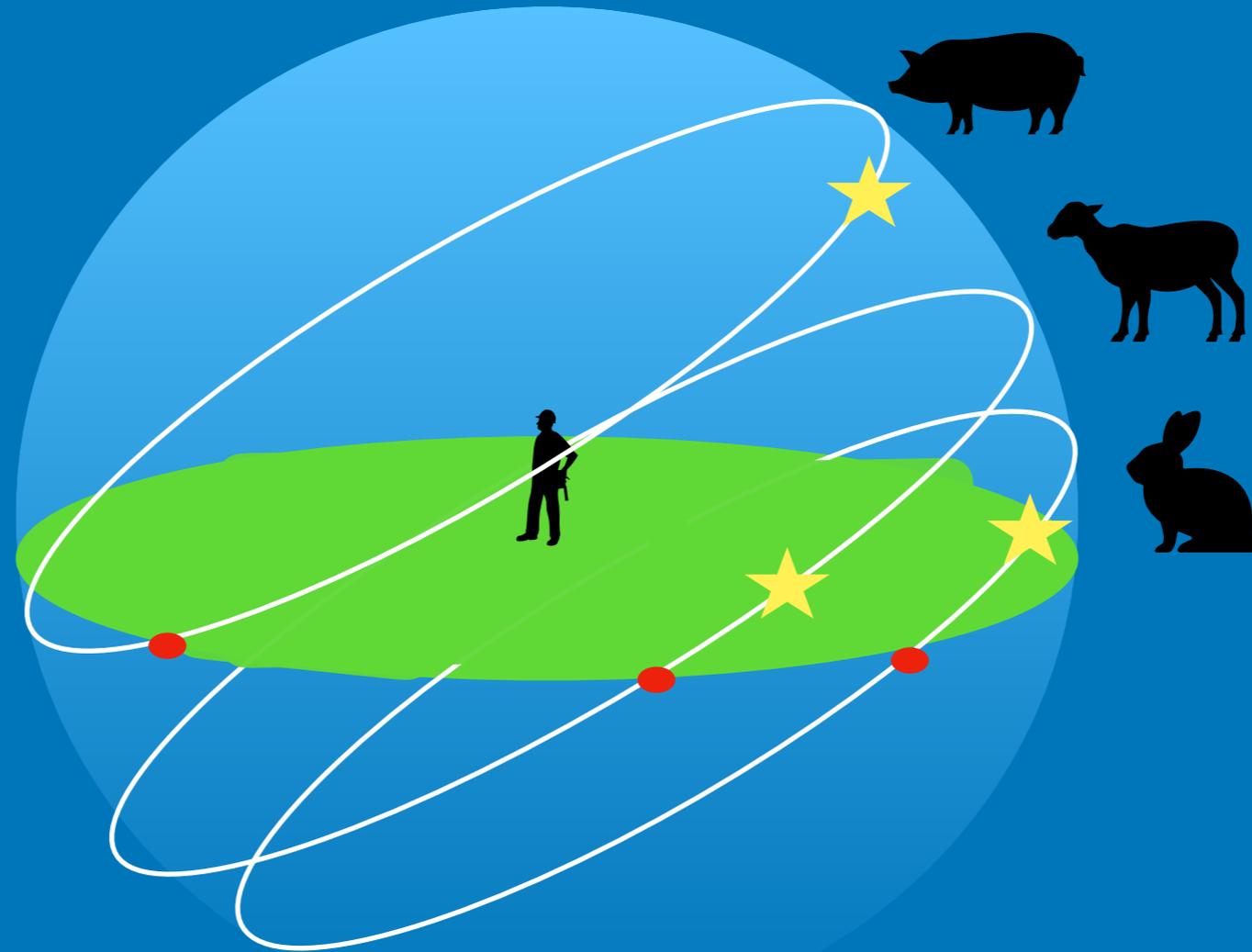


GRUS



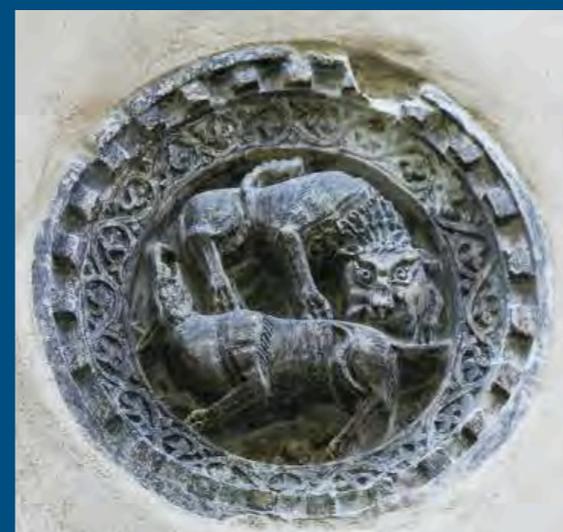
AQUILA

Each celestial animal, or constellation, has its own den along the horizon....

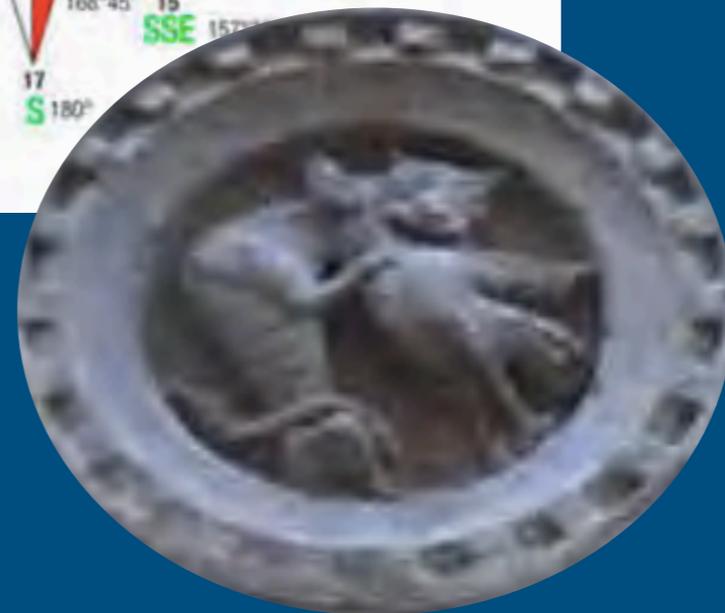
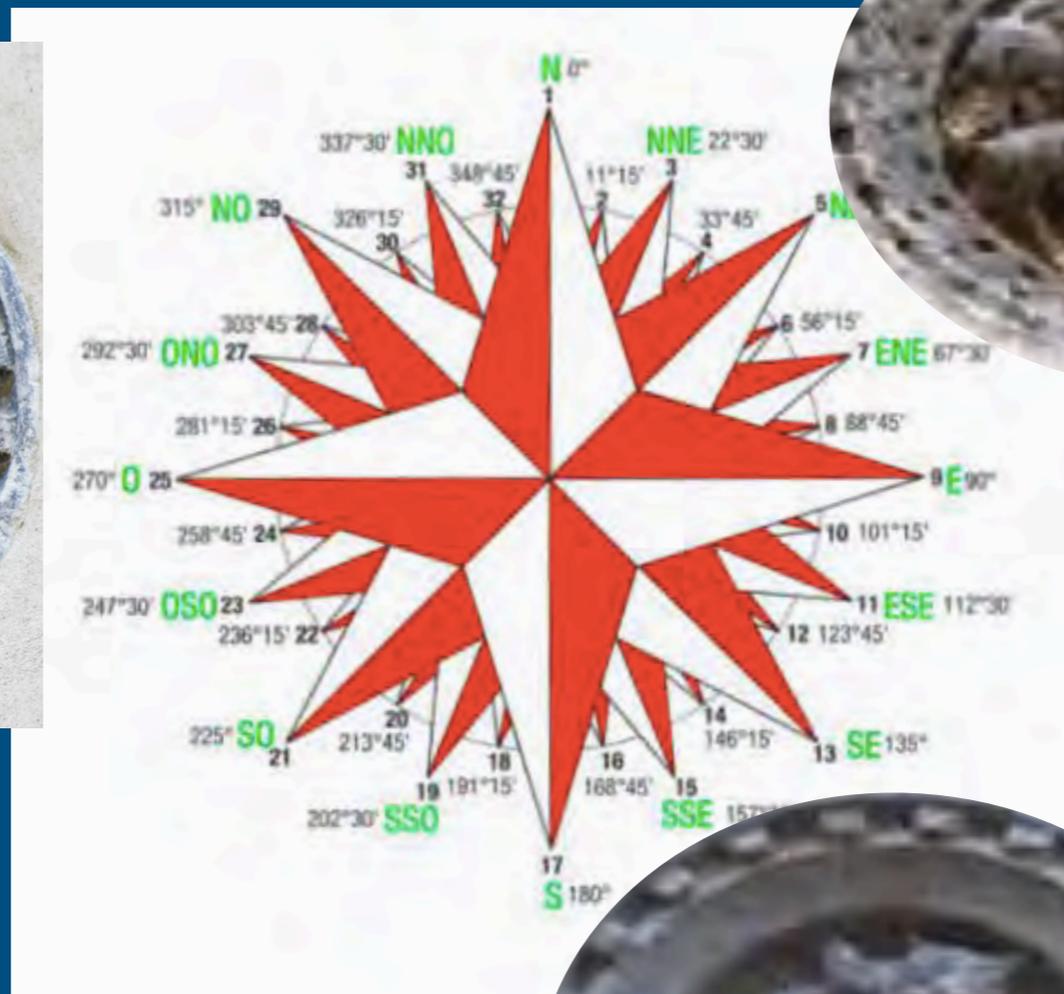
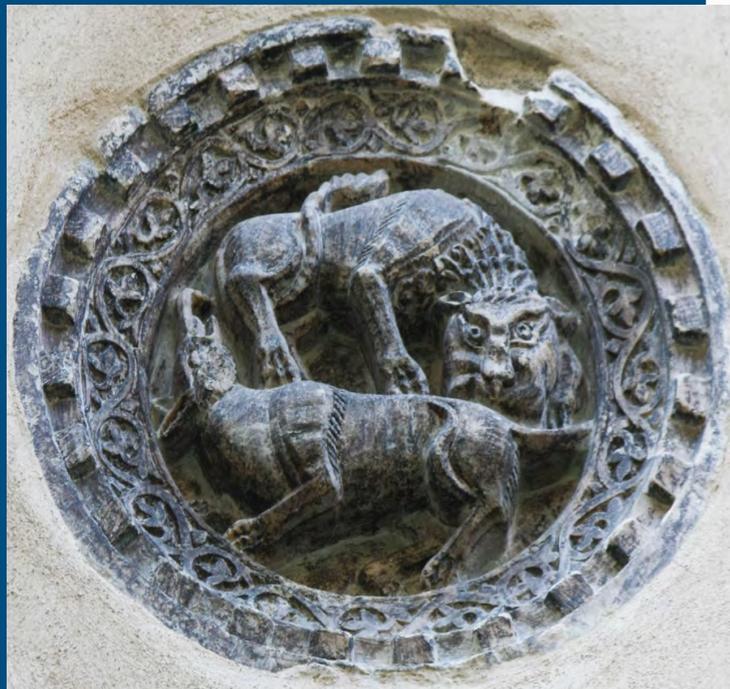


...along its annual path back and forth along the horizon, the Sun/
Lion visits one after the other the 'houses' or 'dens' where each
celestial animal rises and/or sets.

The **patere** indicate the point on the horizon where the Sun / Lion is at
a certain time of the year



Some points of the **Rose of the Winds** can be designated by a patera with the combination of a **Lion** and a different **animal**



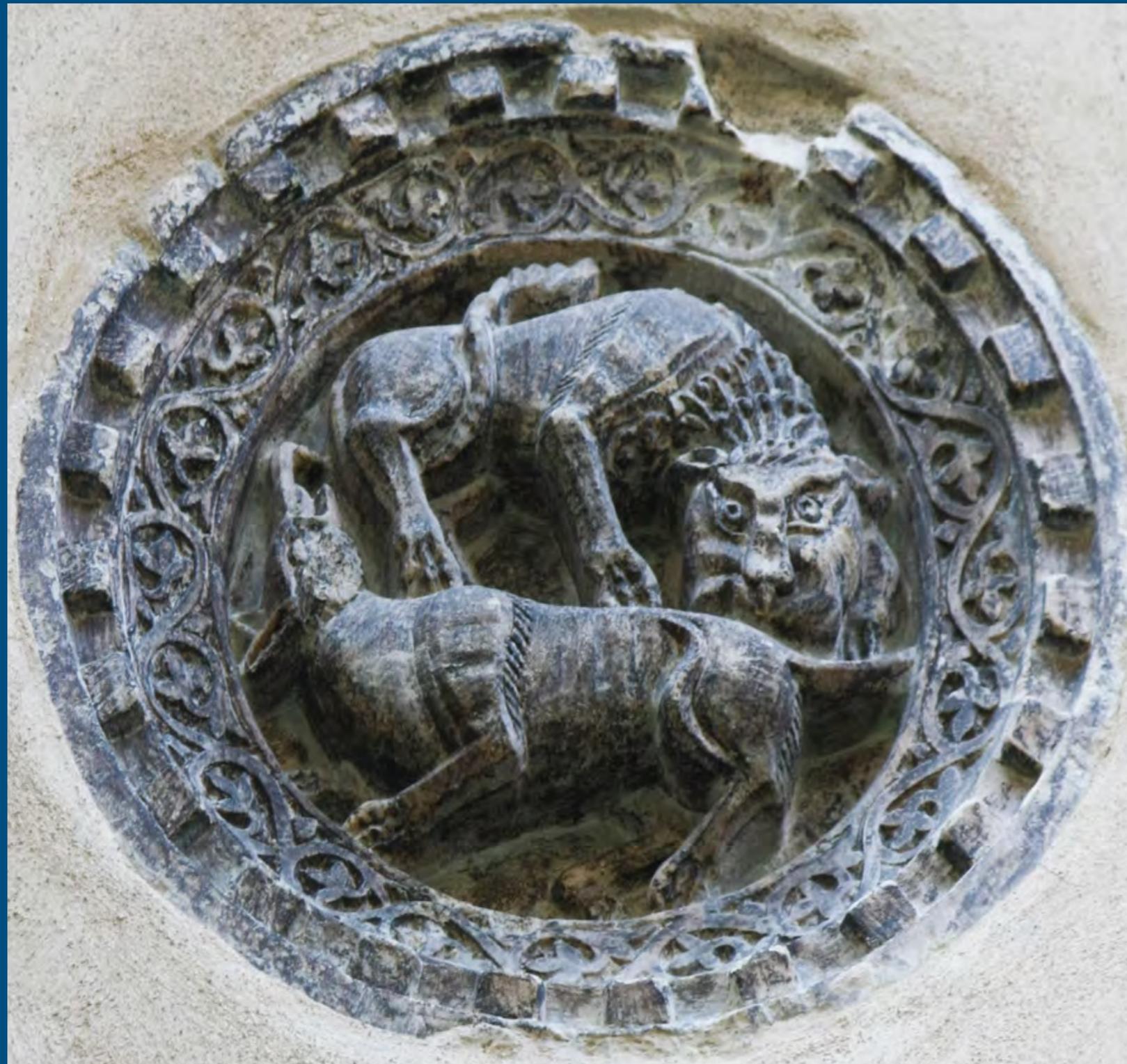
Other predators: THE TWO EAGLES, the GRIFFIN...



Vega “The plunging Eagle” or “The Eagle with the closed wings” ...
(Constellation: LYRA)



Altair “The rising Eagle” or “The Eagle with the open wings” ...
(Constellation: AQUILA)

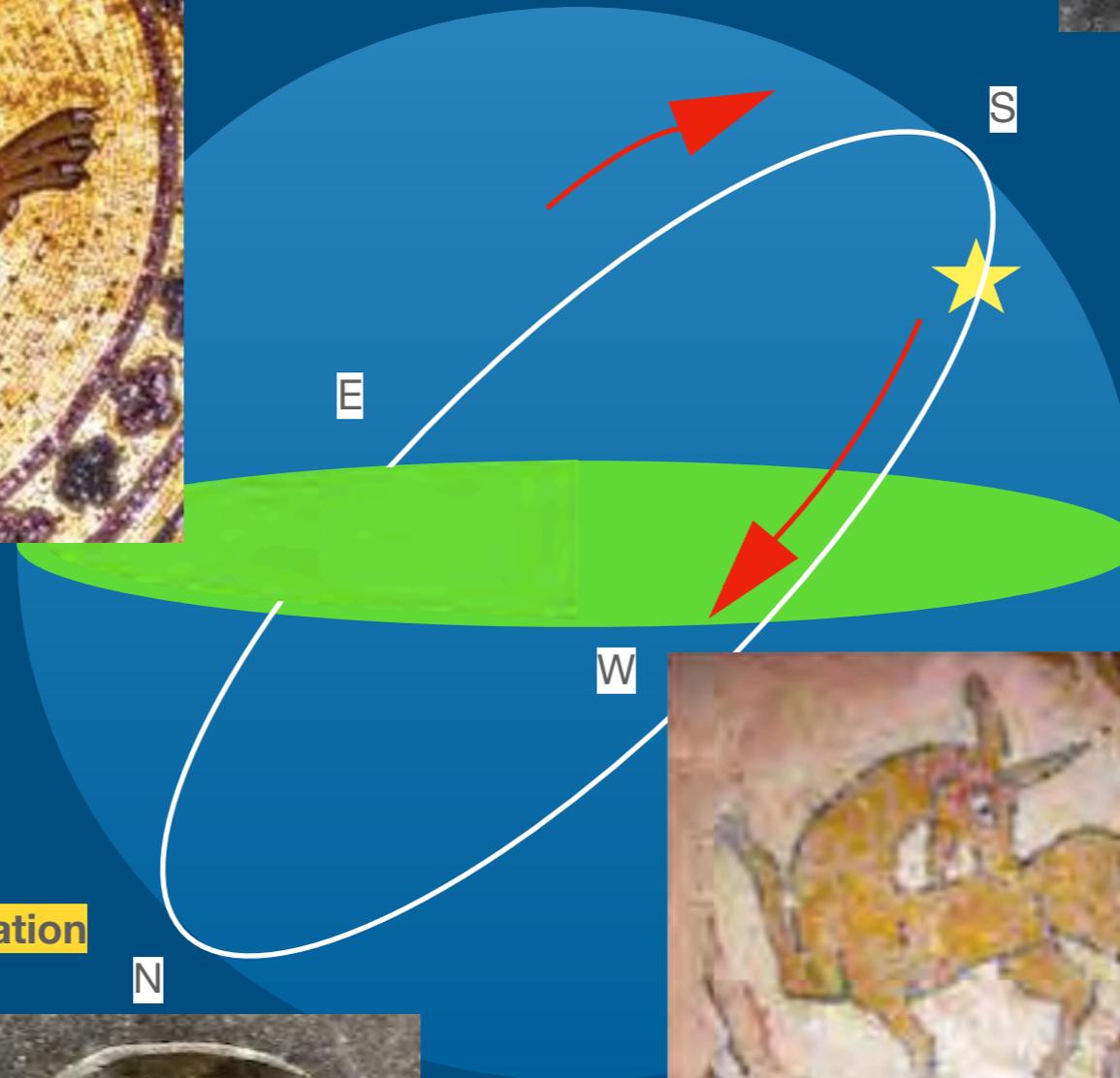


An animal can be bitten on its head, as he rises (“emerges from its den”), or on its rump, as it sets (“plunges into its den”)...

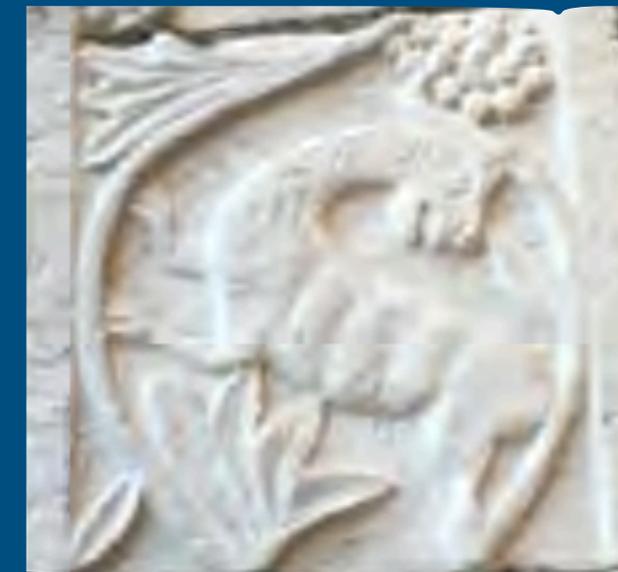
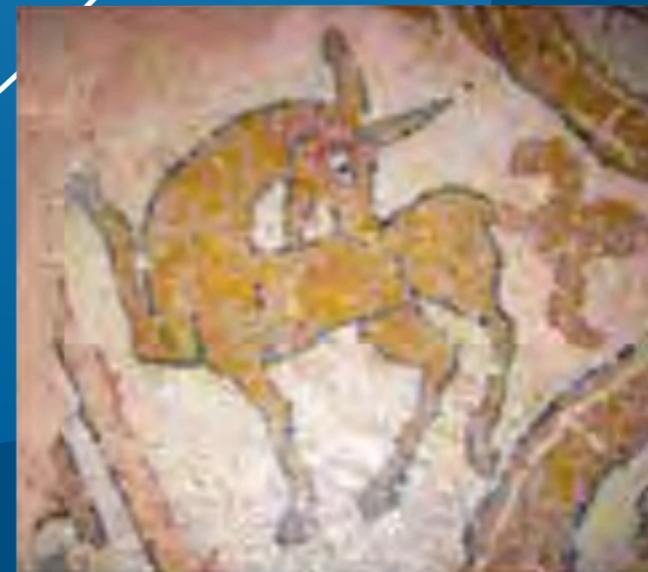
Upper culmination



Ascent



Lower culmination



Decline

VEGA BACK TO BACK, with
its **HEAD TURNED BACK**,
=**LOWER**
CULMINATION=MIDNIGHT
=**NORTH**

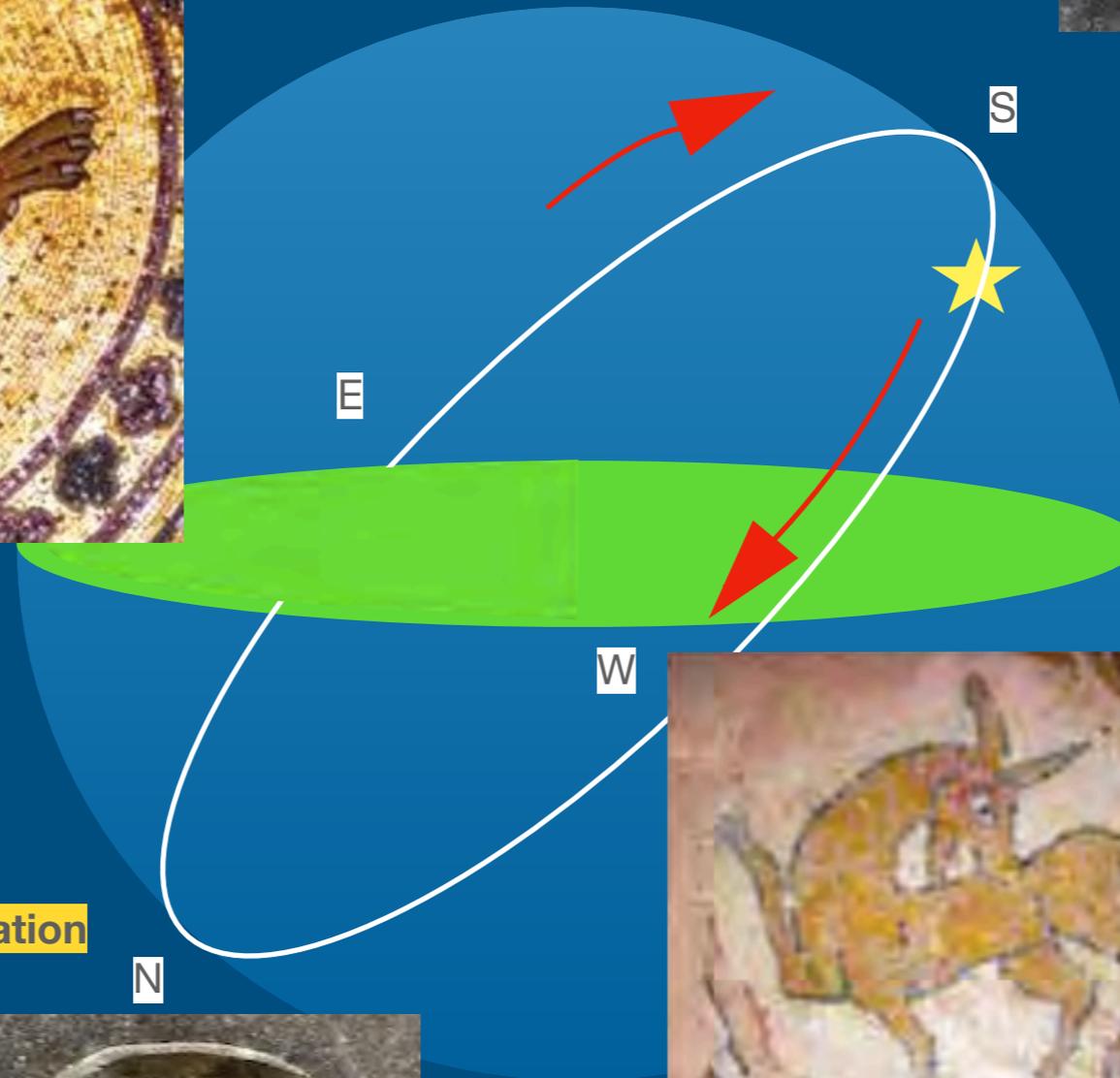


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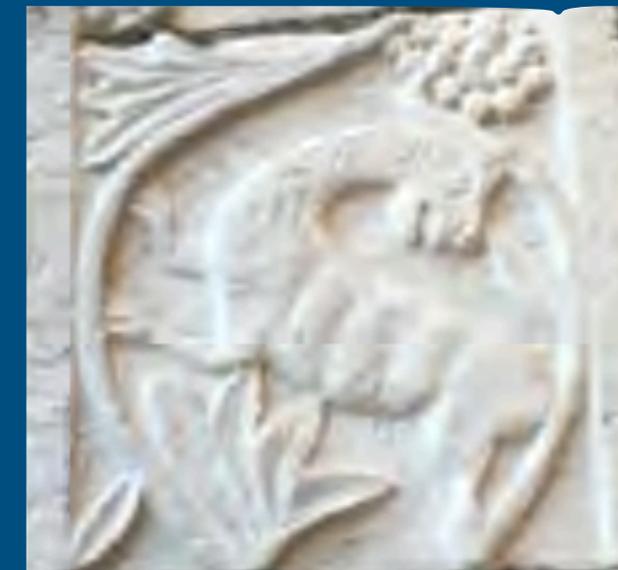
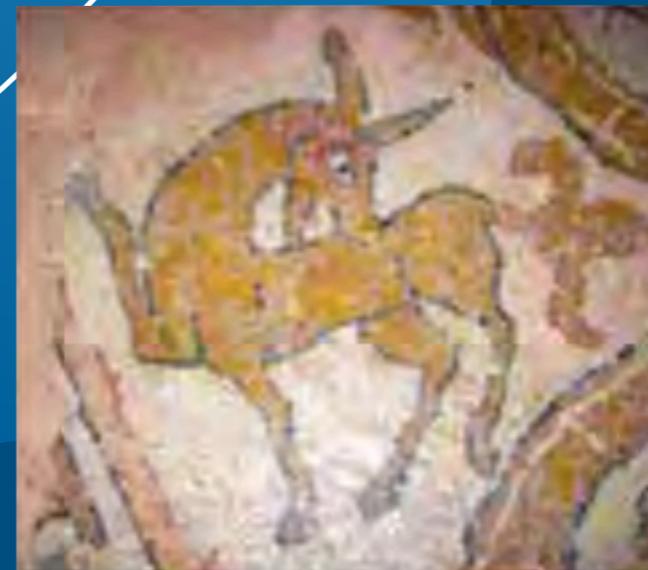
Upper culmination



Ascent



Lower culmination



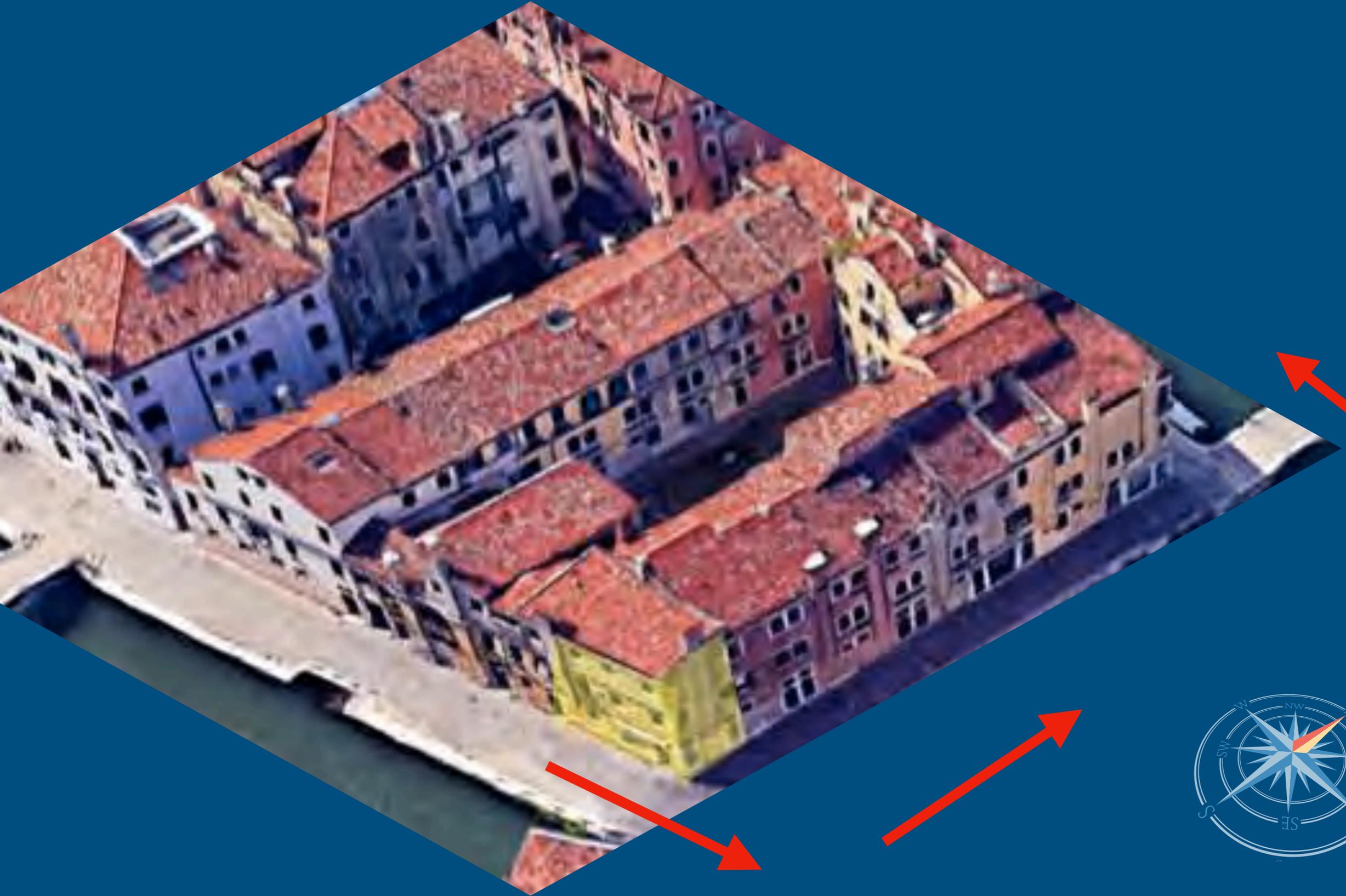
Decline

VEGA BACK TO BACK, with
its **HEAD TURNED BACK**,
=**LOWER**
CULMINATION=MIDNIGHT
=**NORTH**

To summarize:

Each point of the Rose of the Winds can be designated by a patera, representing a cardinal point or an intermediate







NORTH



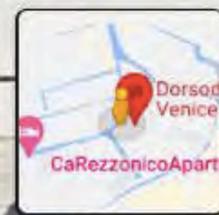
NORTH



NORTH-EAST



Cannaregio Canal
Google
Street View - Aug 2013



Google

Image capture: Aug 2013 © 2021 Google Italy Terms Privacy Report a problem



Patera: Lion biting the spread wing of a a lying Eagle

= You are facing NORTH-EAST

WHY THAT?



SUN/LION biting wing of constellation **AQUILA** lying horizontal = **CARDINAL POINT EAST**

Stellarium map shows us Venice, at the dawn of the Winter Solstice, looking North: the constellation Aquila rises in a characteristic lying posture, with one wing above the horizon, which is 'bitten' by the light of the rising 'Sun / Lion'.

Stellarium Web

Search...

FOV 185° OBSERVE

Aquila
Constellation

Also known as Eagle Aql

Fig_2C

Ra/Dec 18h 57m26.3s +04°36'48.9"

Az/Alt 085°53'14.5" +02°40'47.7"

Visibility Rise: 05:32 Set: 20:42

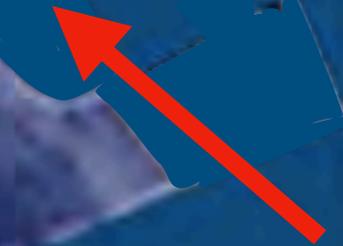
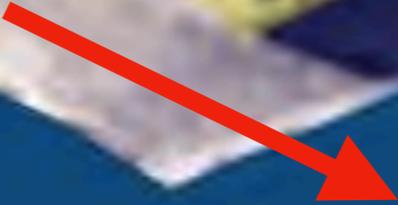
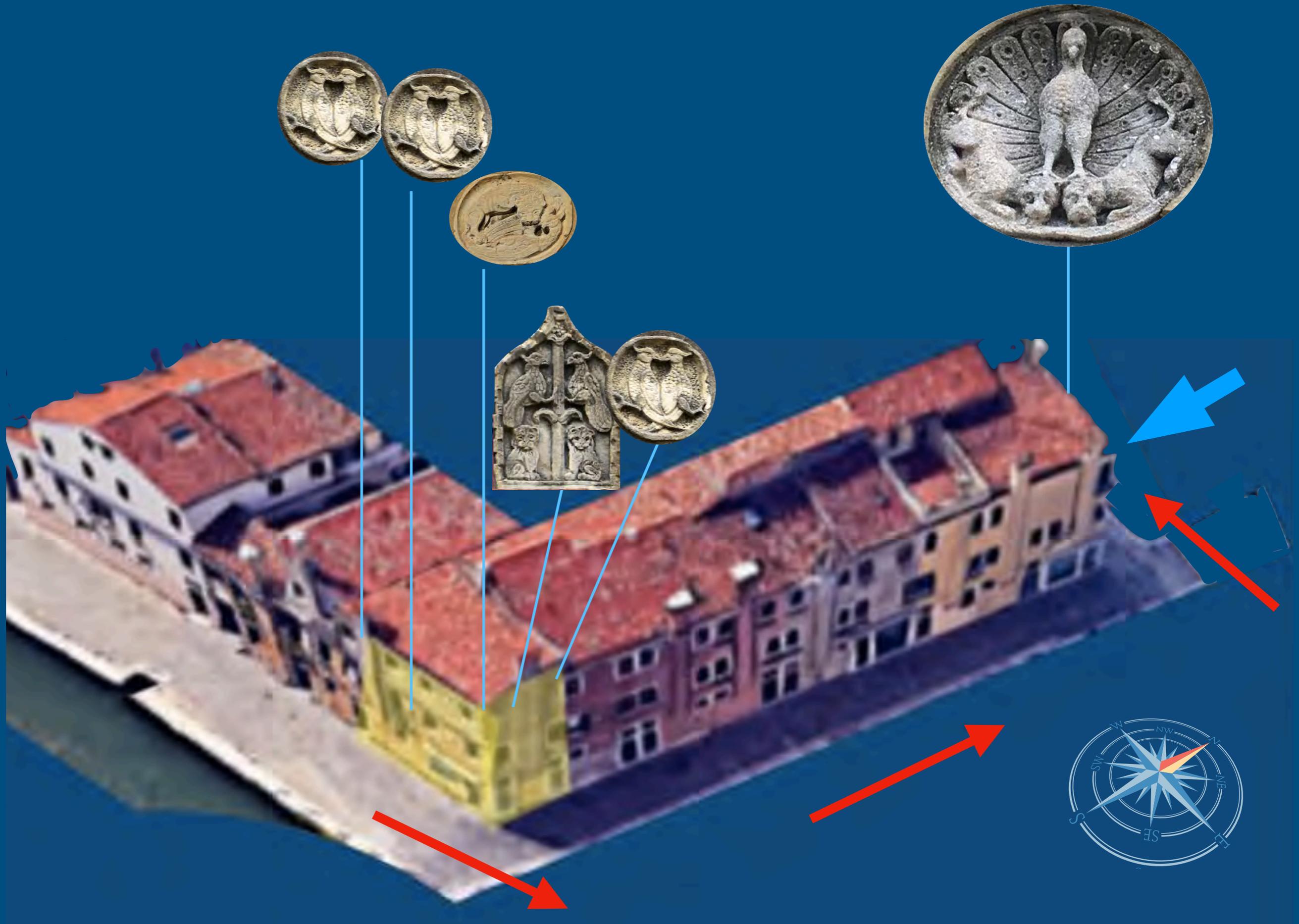
Aquila is a constellation on the celestial equator. Its name is Latin for 'eagle' and it represents the bird that carried Zeus/Jupiter's thunderbolts in Greek-Roman mythology. Its brightest star, Altair, is one vertex of the Summer Triangle asterism. The constellation is best seen in... [more on wikipedia](#)

VENICE

1250-12-22 06:50:52

Dawn

06:49:56 1250-12-22



PEACOCK, FRONTAL,
FANNING TRAIN
STANDING on LIONS
FACE TO FACE
=**POLLUX** (GEMINI)
CULMINATING
=**YOU ARE FACING
SOUTH**





Upper culmination of the Sun/Lion

In alto: Palermo, Sala di Ruggero, sec. XII; a destra: Madrasa Yakutiye a Erzurum (Turchia), AD 1310 (Foto: fpolat69/shutterstock.com)



Culminazione inferiore: Due leoni controdorso intrecciano le code ai piedi di un fusto di cardo, che simboleggia il Meridiano/Asse del Mondo.

Patera, sec. XII-XIII, Venezia, Chiesa di San Giacomo dell'Orio.

Foto: Paolo della Corte



Venice, Corte Seconda del Milion.
Houses of the Polo family,
12th-14th century.

SOTOPORTEGO
DEL MILION

The main private and religious buildings in Venice, present **alignments** of patere and formelle. They give the orientation of the building with the astounding approximation of one degree. The constellations are denominated not only in the Western fashion, but with references to India, and the East, or the North, to show how far the family of merchants-explorers who owned the house had traveled. If the common passer-by doesn't understand this second level, no problem. It was not to him that this level was meant...





Venice, Corte Seconda del Milion.
Houses of the Polo family,
12th-14th century.

SOTOPORTEGO
DEL MILION

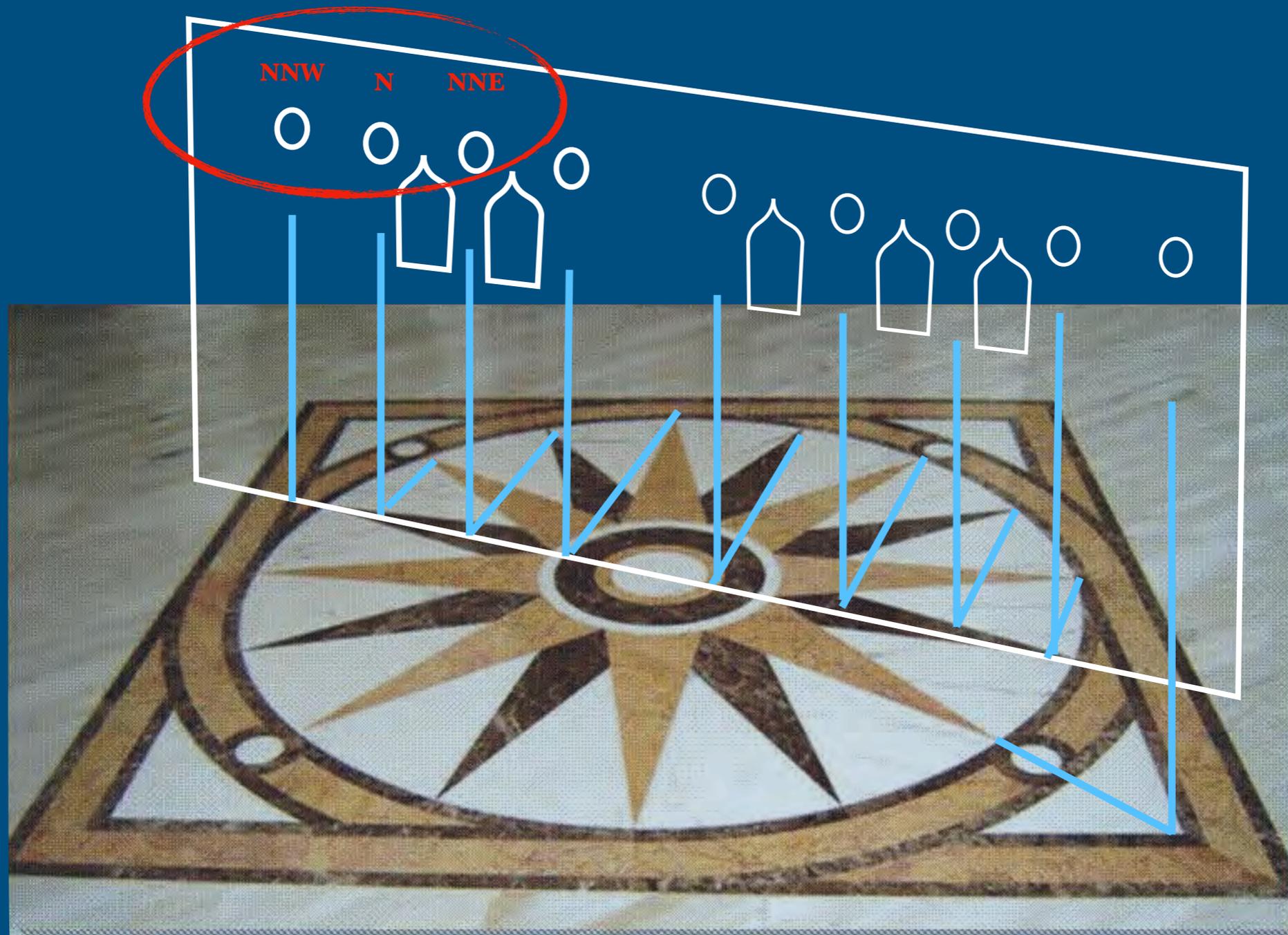
The system, as simple as it is refined in its mathematical accuracy, is based on the wind rose.

The building is placed ideally on a giant wind rose, which touches the horizon.

Each point of the wind rose, in form of a patera, is projected onto the facade.

and I will understand from the order in which they appear how much the facade is rotated, and, therefore, in which direction exactly I am looking.

The thirteenth-century houses of the most important merchant-explorers of Venice show off not only geographical knowledge, but also mathematical and stylistic elegance in the creation of these alignments.





At the two extremes of the Polo alignment, left and right, two IDENTICAL patere: **FRONTAL PEACOCK FANNING ITS TRAIN**, standing on a globe= Culminating Pollux in GEMINI.

One of the two must be South, and the other North, but which is which?
I cannot tell for now.

Anyway, being culminations, both must happen along the Meridian; so this blue line indicates a North-South direction, and I must be facing East or West.

Which one?





GRIFFIN, HEAD
TURNED BACK,
tips of the wings
touching
=**PEGASUS**
TRANSITING THE
CARDINAL POINT
WEST
=**YOU ARE**
FACING WEST

The answer comes from the
second patera from left,
**TWO GRIFFINS BACK TO
BACK, HEAD TURNED BACK,
TOUCHING BY THE TIP OF
THE WING.**
=**PEGASUS CONSTELLATION
IN DECLINE**, transiting at W
with the tip of his wing, the
star **ALGENIB (Gamma
Pegasi)**.



Pegasus

Constellation

Also known as: Winged Horse Peg

Ra/Dec: 22h 14m 51.5s +17° 11' 05.9"
Az/Alt: 288° 36' 54.4" +05° 59' 33.5"
Visibility: Rise: 06:48 Set: 02:20

Pegasus is a constellation in the northern sky, named after the winged horse Pegasus in Greek mythology. It was one of the 48 constellations listed by the 2nd-century astronomer Ptolemy, and is one of the 88 constellations recognised today. With an apparent magnitude varying between... [more on wikipedia](#)



PEGASUS the Griffin is a very useful celestial feature, as it touches the four cardinal points in four different, well recognizable positions. As in this patera he has his head turned back, and is **PIVOTING THE POINT** with **THE TIP OF ITS WING**, he can only be transiting **WEST**

Uranus

Jupiter
AQUARIUS

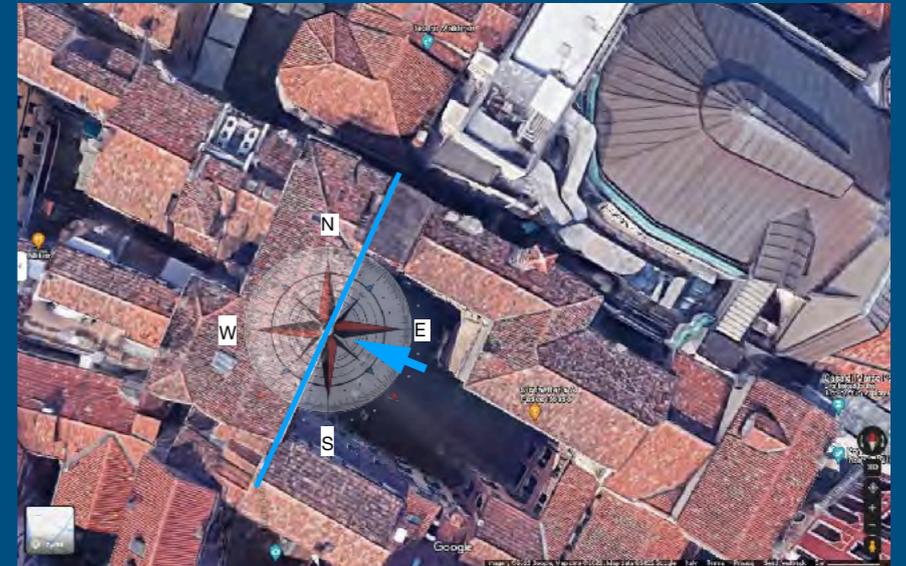
Venus
CAPRICORNUS

1250-12-21 23:01:00

Moonlight

23:01:00
1250-12-21





Since WEST is not in the middle between NORTH and SOUTH, but displaced on the left, this means that the building is slightly rotated, and I am actually facing NORTH-WEST.







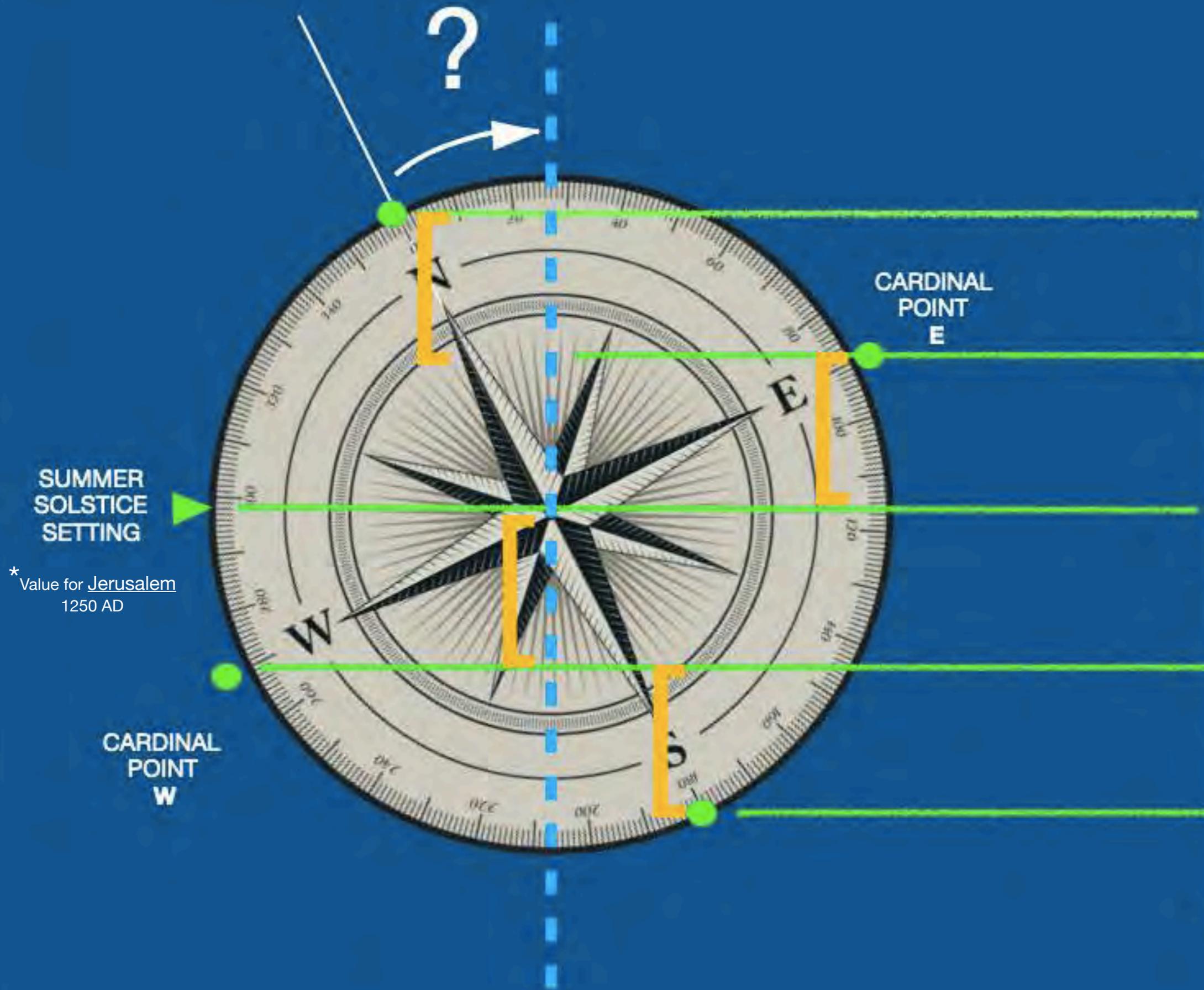
Now, if I am a generic passer-by, this is more or less all that I need to know to continue navigating the town.

SOTOPORTEGO DEL MILION



If, instead, I am anavigationally skilled person, then I may be willing to take the riddle proposed here by the Polo family. I examine the two last paterne in the alignment. which differ only for some tiny details...







Venice, Grand Canal
House of the Da Mosto
family, 12th-14th century.

At a glance, reading the two extremes, I note a dissimmetry: between the two last patere on my right, there is a cross; on the left, in the corresponding position, there is nothing, a gap.

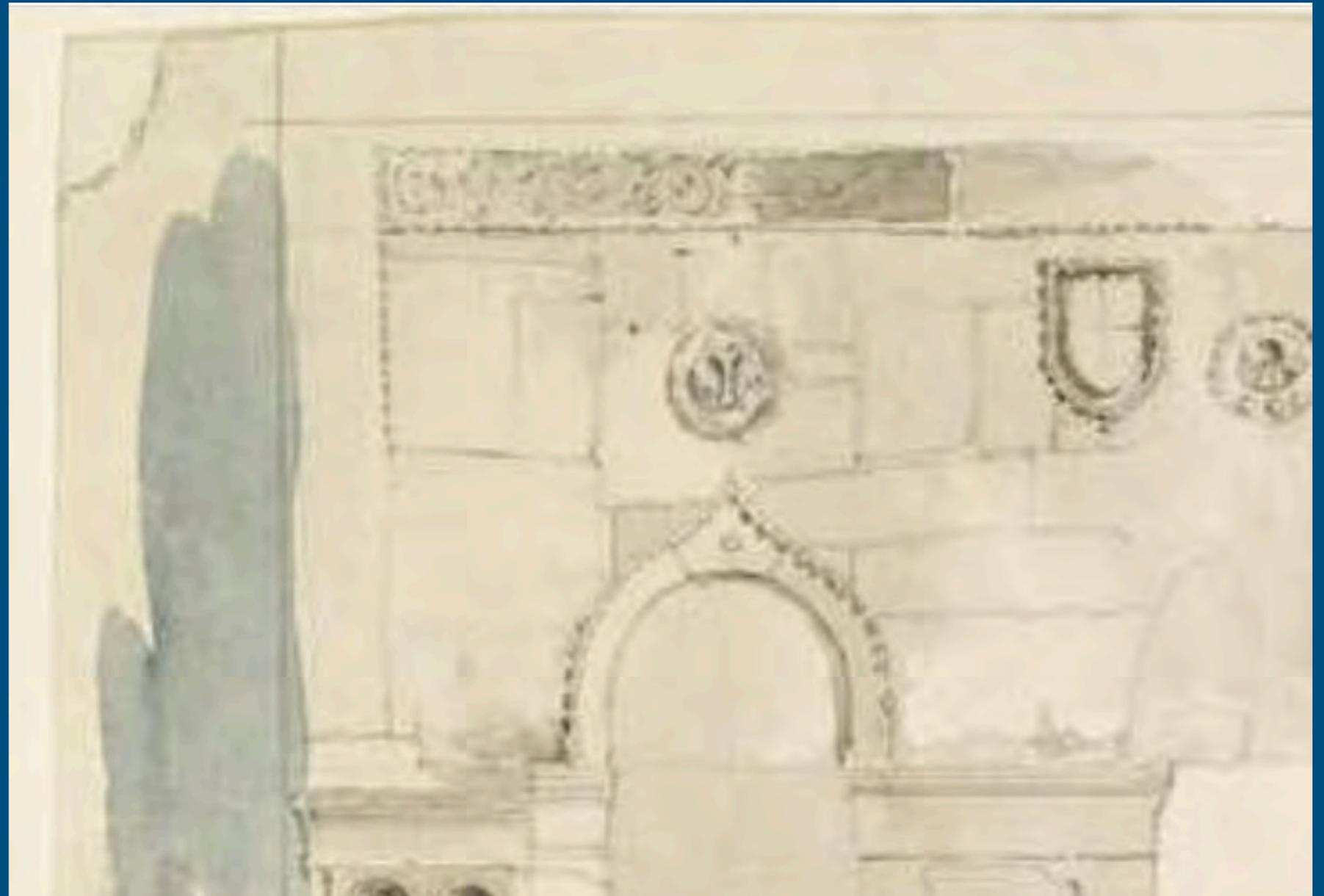


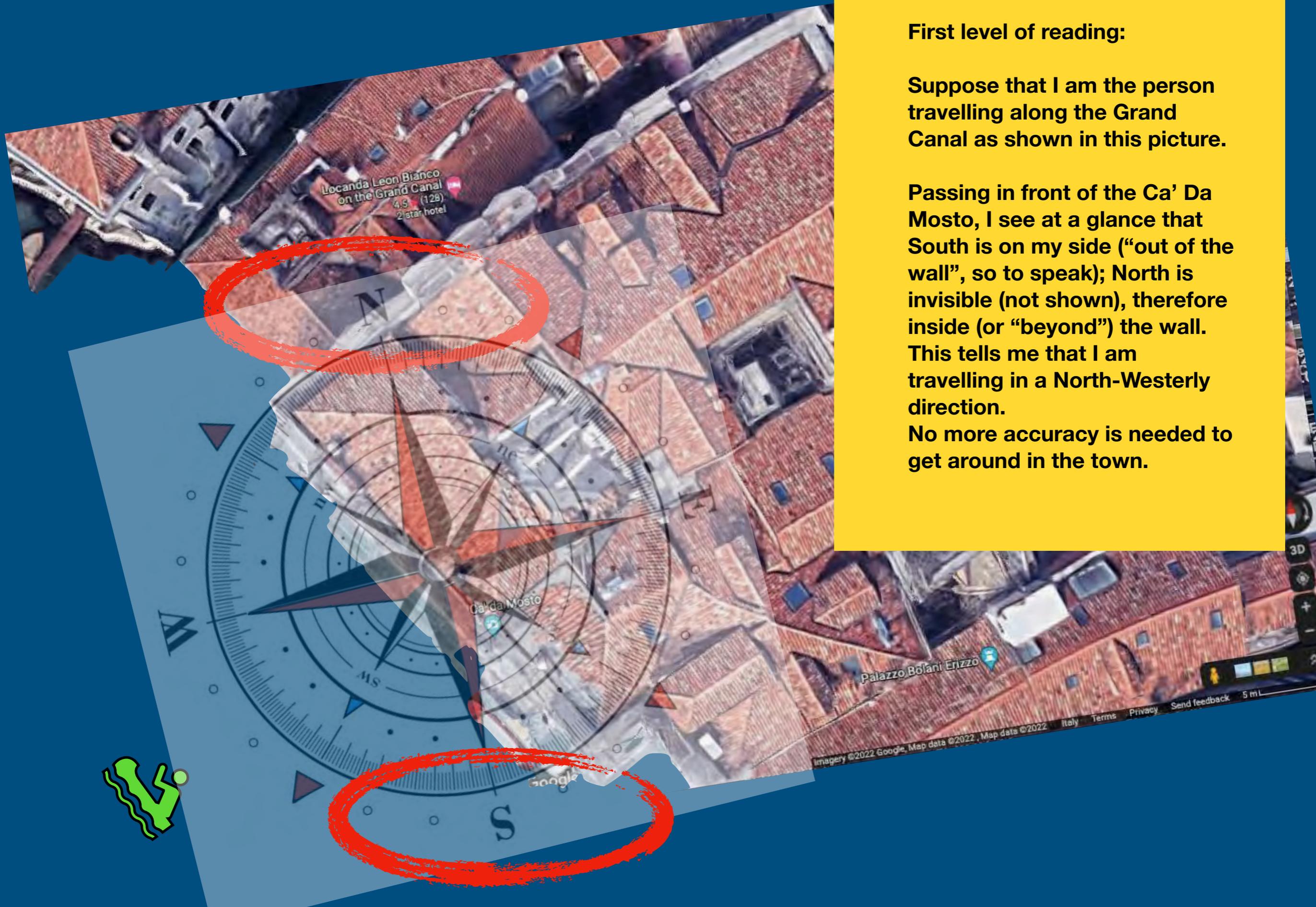


The cross, with in the middle
the Hand of God between Sun
And Moon, represents
Midday and South



John Ruskin, *Details of the Palazzo da Mosto, Venice, 1852*
Gouache and pencil on paper
Birmingham, Museum of Art





First level of reading:

Suppose that I am the person travelling along the Grand Canal as shown in this picture.

Passing in front of the Ca' Da Mosto, I see at a glance that South is on my side ("out of the wall", so to speak); North is invisible (not shown), therefore inside (or "beyond") the wall. This tells me that I am travelling in a North-Westerly direction.

No more accuracy is needed to get around in the town.



QUI PERO' parte il livello secondo della lettura, quello destinato ai raffinati, agli intendenti; quello destinato a mostrare quanto profonde e raffinate erano le conoscenze geografiche e astronomiche della famiglia. Ricordiamo che astronomia e viaggi andavano insieme, perchè si viaggiava guidati dalle stelle.



Second level of reading:

If, on the other hand, I am knowledgeable in matter of geography and astronomy, from the sixteen symbols of the alignment I can desume the exact orientation of the building, with the stunning approximation of one or two degrees!

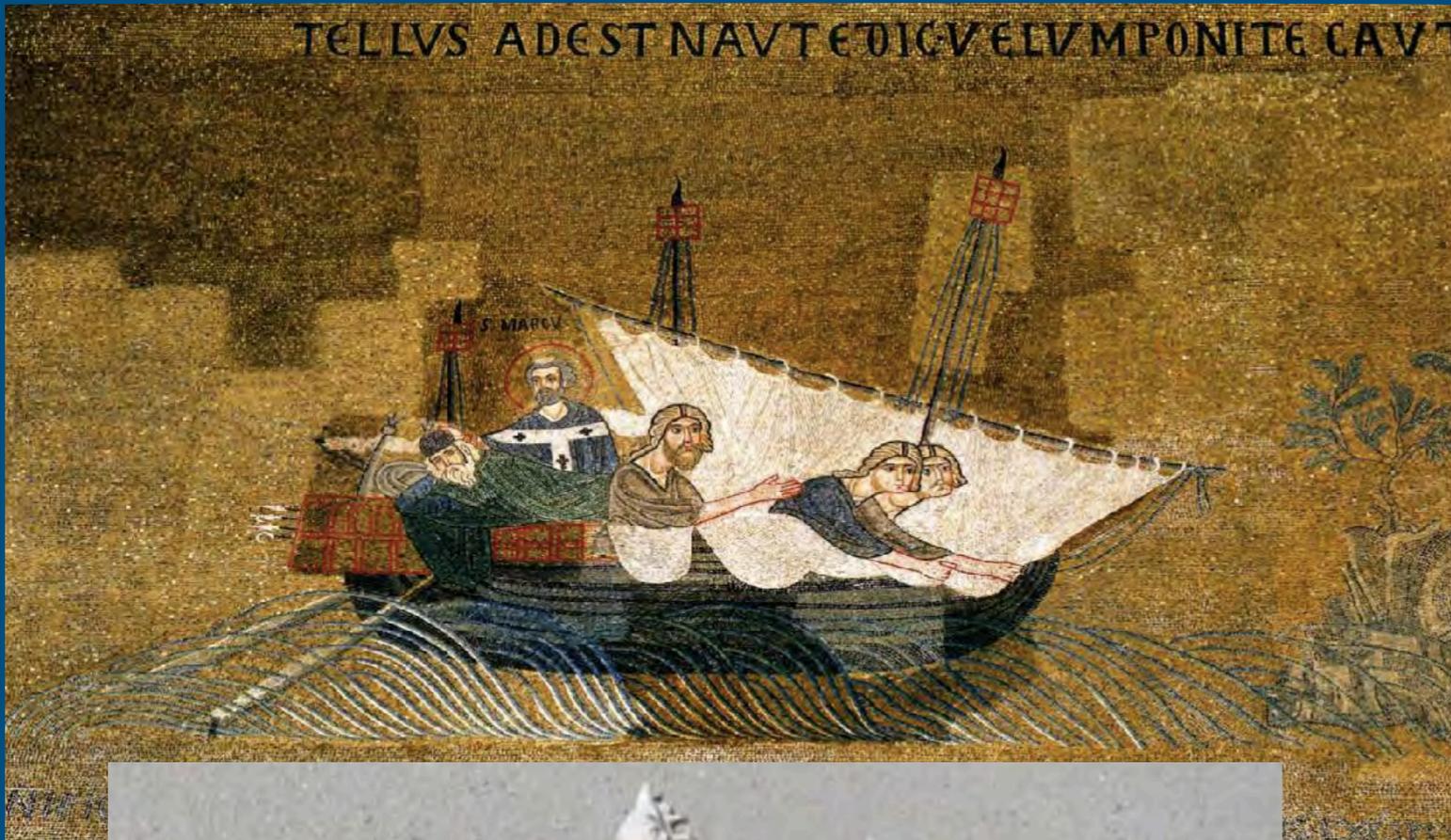
I also can gauge the competence in the same matter of the family owning the house, and even, from the symbols that have been used for the constellations, how far they have traveled.



The image shows an aerial satellite view of a building complex, likely in Venice, Italy. A semi-transparent compass rose is overlaid on the image, with various colored lines (red, black, yellow) extending from its center to different parts of the building. The lines represent alignments with celestial bodies. The building is labeled 'Ca' da Mosto' and 'Palazzo Bolani Erizzo'. A 'Locanda Leon Bianco on the Grand Canal' is also visible. The bottom of the image features a white banner with text and a yellow cross symbol.

La facciata della Ca' da Mosto presenta un orientamento NO-SE $322,5^{\circ}$ - $152,5^{\circ}$

TELLVS ADEST NAVT ET DICV ELVMPONITE CAVT



The Polynesian Voyaging Society

founded in 1973 to recover and perpetuate the art and science of traditional Polynesian voyaging.



The star compass

From the official site of the Polynesian Voyaging Society
<https://www.hokulea.com/education-at-sea/polynesian-navigation/the-star-compass/>

