Patere and Formelle

towards an astronomical reading

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Arco dei Mestieri
Venetian Trades
1260-70 or first half of the 14th century

Arco dei Mesi
1240-60 ca.

Arcone inferiore
('Arch of the Firmament')
1230-40 ca.

(Mosaic not original, 18th century)

'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.

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.
Altre costellazioni sono riconoscibili nell'arcone marciano nei pressi delle 'Due Aquile': Ercole 'Geniculatus', le due Orse (Ursa Maior e Ursa Minor), Cepheus. Tutte appaiono disposte in un certo ordine, che corrisponde alla loro posizione reciproca sulla sfera celeste.
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 patere and formelle.

Since the iconographic subjects are identical, it is likely that patere and formelle too were meant to depict stars and constellations.
..for a general population accustomed to see the buildings against a sky all “written” with stars and constellations
... 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.
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*.
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)

Other predators: THE TWO EAGLES, the GRIFFIN…
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”)...
VEGA BACK TO BACK, with its HEAD TURNED BACK, = LOWER CULMINATION = MIDNIGHT = NORTH
VEGA BACK TO BACK, with its HEAD TURNED BACK, = LOWER CULMINATION = MIDNIGHT = NORTH
Upper culmination

Lower culmination

Ascent

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

Decline
To summarize:

Each point of the Rose of the Winds can be designated by a patera, representing a cardinal point or an intermediate...
Patera: Lion biting the spread wing of a lying Eagle

= You are facing NORTH-EAST

WHY THAT?
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’.
Questa patera, collocata all'inizio del Rio di Santa Maria Maggiore, convoglia il messaggio 'Stai guardando a Sud'. Rappresenta la culminazione di uno dei due gemelli zodiacali (Pollux) che ha luogo alla mezzanotte del solstizio estivo sul Meridiano a Sud.

La costellazione Gemini, i Gemelli, è rappresentata come 'I due Pavoni' secondo la denominazione araba. Uno dei due Gemelli/Pavoni, quello da noi denominato, alla greca, Pollux, alla mezzanotte ha un piede al di qua e uno al di là della linea meridiana (vedere cartine Stellarium), proprio nell'istante in cui il Sole (in basso, all'imò cielo), attraversa il Meridiano alla sua culminazione inferiore.
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.
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.
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?
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 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.
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.
If, instead, I am navigationally skilled person, then I may be willing to take the riddle proposed here by the Polo family. I examine the two last patere in the alignment, which differ only for some tiny details...
Value for Jerusalem
1250 AD
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
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.
La facciata della Ca’ da Mosto presenta un orientamento NO-SE 322,5°-152,5°

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 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/