

SYRIA, DOG SIRIUS AND THE JOURNEY TO THE AFTERLIFE ✨

We hear many stories about dogs who know at a distance that their master has died - perhaps the most dramatic being Lord Caernarvon's dog who at the family seat in England is said to have howled on the day his master died in Cairo. Other stories tell of pets pining on the grave of their lost owner in mourning, faithful even after death. In my research, the catalogue I am working on at the moment threw up a huge amount of information focusing on the Mycenaeans, their love of dogs, and the fact that several warrior graves held dog remains amongst the grave goods - at a period the dog's association with Sirius was common. In the Second Millennium we have evidence across the Ancient Near East of Sirius the Dog Star being seen, not only as Guardian of the Underworld, but also as pointer to the journey each soul takes to its last resting place 'amongst the imperishable stars', as the ancient Egyptians expressed it. (In the light of modern theories of Physics that we on Earth contain the same chemical Elements that constitute the matter of the galaxies, the concept is not mere fancy.)

Cut off from the primary Cosmos as western society tends to be today, we trivialise Sirius: Sci-Fi takes over and the modern view put Sirius as background to *Star-Trek* or as home-star of visiting Aliens. As a foil to this attitude I give below a slightly adapted section from *Catalogue E* of my *Layish* research¹ covering Sirius because we live in a time when people are dying in their hundreds every day in the Middle East, in the very region my research covers - and I would like to think those taking the time to read this will at the end of it remember to pray for safe passage to the daily procession of souls of the dead following the route that begins at Sirius (centre of our galaxy) as they pass over to join the stars - and actually look up at the sky to find that brightest of all stars and imagine them locking onto that initial rung on the ladder to heaven, nudged by your helping thoughts, prayers or simple memorials. *Who remembers that the Star and Crescent, seen everywhere on the flags and mosques of the Middle East represents the alignment of Moon, Venus and Sirius cycles?* These are cycles whose nature is crucial for an understanding of the following narrative.

During the 2016 summer of slaughter in Aleppo and the rest of Kurdish territory formerly known as the Mitanni Empire, my immediate symbol for remembrance of the dead was the oleander bush in my front garden that comes into flower just at the time Sirius traditionally rises when the Sun is in Leo, from late July. It is covered in red buds that blossom in the heat - and I counted them as the blood of Syrian souls opening out under the gaze of Sirius as they spiralled up to their final goal, much as in Europe we use poppies to remember the World War I fallen. As revealed below, the Sirius influence is traditionally both benevolent and malevolent.

What now follows is a quick view of the underpinning of a perennial tradition which I explore as art historian and archaeologist - with much of the focus centring on the Trojan War (I have not tried to change the illustration numbers, and some cross-references will only be available if you look at the whole of *Catalogue E* on the *Layish* website from early 2017 (access is through the centre squares of levels 1 and 2).

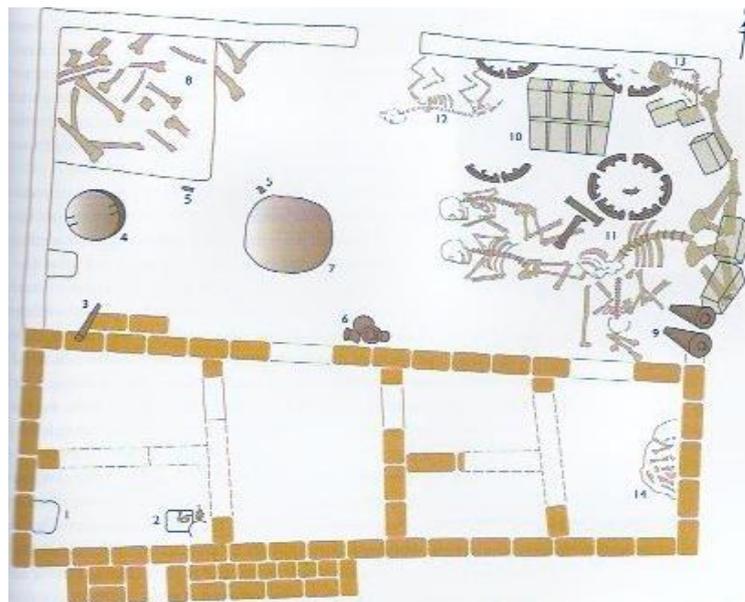
¹ Some cross-references mentioned will only make sense within the context of the full catalogue, and some have had to be left out, since meaningless when truncated.

ForAtt-01/2, etc. are catalogue entries - another reason for referring to the full document on-line - illustrations will usually be of better quality in the original on-line document.

Archaeologists and art historians who have studied Syria going all the way back to the earliest millennia know that if there is one thing history has taught us, it is that conflict in the greater Syria area is unending, and although heartbreaking in its current form, the inevitability of its geography and clashing peoples causes it - made worse by those trying to turn the clock of history backwards, whether to a Caliphate or Solomonic rule. The account that follows deals in particular with Mycenaeans and the situation in the *Ancient Near East 1450-1275* (wars between East and West have a long and repetitive pedigree).

THE EARLIEST DOGS IN THE ARCHAEOLOGICAL RECORD

Rice² tracks the first wolf-dog remains to Palaeolithic Europe, and the earliest dog-with-human burials to Natufian Israel (c.10,000BC), which means steps towards making the dog a pet and enabling their increasingly reliable use for guarding domesticated herds *and* hunting their predators was a slow genesis seemingly pursued as much in Europe or the Neolithic Levant as in North Africa. Recently there has been more confirmation of earlier evidence for dogs in Neolithic Egyptian society (perhaps due to better preservation conditions there than for 4-3M Eurasia or Central Asia), since the history of the hunting hound and guardian dog in Egypt can certainly be traced through many remains to Prehistoric times.



III.9- 1: Simplified plan of the Dog Mausoleum with skeleton of a dog in the doorway at 12, camel bones at 8 and 11 and horse bones in the corner at 13 (marked in the top wall) - Cunliffe³ 2015 fig. 4.12

Before making sense of the Mycenaean evidence, however, we start with precedents in Central Asia and at how, long before them, dogs were used in the combined role of hunters, guardians and pets as in prehistoric Egypt and 3M Sumer. Although our main focus for our understanding of dogs and astronomy in 3-2M cultures will be the Mycenaeans – our closest European ancestors - I lean on Rice's information gathering on the immediate post-Natufian picture in Syria/Sumer, leaving it to the reader to follow up on his more

² M Rice *Swifter than the Arrow: the Golden Hunting Hounds of Ancient Egypt* London 2006

³ Sir Barry Cunliffe *By Steppe, Desert and Ocean: The Birth of Eurasia* Oxford 2015

detailed references if they wish. He conveniently tells us canid remains have been disinterred at Jericho and Tepe Gawra, and describes a touching burial at Eridu of a young boy with pet dog provided with its own bone to take with it to the Afterlife. As for Egypt, in the 5-4th Millennia slender hounds start to appear on the rock carvings of North Africa and Egypt's Western and Eastern deserts - as well as Nubia and Arabia - and appear to have included not only their own type of hunting hound but also the Saluqi, 'associated more with Mesopotamia, Persian lands and Arabia'. Then in the Middle Kingdom they start to be represented as pets in the tomb paintings of the court officials of Nilotic Egypt.

THE DOG TOMBS OF GONUR IN THE BMAC, CENTRAL ASIA

In the *Art History* section we mentioned the chieftain's pet dog under the tripod table in relation to the Karashamb goblet (**ForAtt-13**), at the time cross-referring to a Neolithic Orkney tomb with 24 dog skulls in it to indicate Eurasian cultural cross-reach of the kind described and taken for granted by Cunliffe. To support the idea they were predominantly developed as pets useful in the hunt by Āryans, as much in the East as to the West, we find there are precedents to the Mycenaean Vapheio and Perati tombs and their dog remains (just teeth at Vapheio and an entire skeleton at Perati) in three 2M burials from the Gonur necropolis in Central Asia, the first two simply involving a dog skeleton presumed to be a former pet and guardian. Thus Grave 1172⁴ had a full dog skeleton laid under a 9-10 year-old human dwarf skeleton, while the second was found in what came to be known as the Dog Mausoleum. This was of high status like the Vapheio tomb,



III.9- 2: Composite photo of main items of the Dog Mausoleum cache – from Francfort and Rossi-Osmida⁵

being one in a circle of élite mausolea dating c.1800-1600BC built to imitate small houses (an Aryan tomb custom). Though partly plundered, it was one of a handful still containing rich grave goods, and inside its entrance was a small grave with the skeleton of a dog (at 12 on the plan above), clearly to be understood as guarding the doorway.

⁴ Dwarves featured often in the archaeological record of prehistoric Hierakonpolis, and were represented in bone/ivory carvings –*Nekhen News* passim.

⁵ H-P Francfort & Gabriele Rossi-Osmida 'The Dog Mausoleum' in *Margiana, Gonur-depe Necropolis* Venice 2002, 121-31

This particular mausoleum initially contained a woman of around 35, beside whom was added later the body of a man of around 45. The grave goods remaining (aside from ceramic or alabaster vessels) came in one small cache overlooked after four lootings (many of them illustrated above) and included a strainer for the sacred drink (presumed to be Soma – from plant remains at Gonur this was probably a mixture of brewed ephedra, poppy and cannabis plants, all available in the area); a jar with bridge spout for pouring and skimming the liquid from the lees; a box lid for a mirror case with inlaid stone mosaic pattern on it, a silver pin for applying makeup with crouching lamb at the top - and slender silver bottle to contain colourant – a silver vase of tortoise-shell shape⁶ and silver gored sphere like a poppy head; a small flared gilt-silver bowl and goblet (plain – but of elegant, stream-lined form) and a more humdrum chlorite container of the type churned out at Tepe Yahya. Evidently from or for a necklace, there were also seven carnelian beads which must have come from India, two spheroid beads of lapis lazuli from nearby Badakhshan, and ten spheroid beads covered in gold sheet (gold dust being available in all the local rivers of the Oxus basin). In relation to other female burials at Gonur in general, in our SEMI-PRECIOUS STONES DIVERSION we give samples of the necklaces found at Gonur, uncannily similar to the earlier jewellery of the Ur tombs. The richness of the woman's possessions in the Dog Mausoleum indicates the same special status accorded to this high-class priestess or queen as to her counterparts in the Mycenaean Shaft Graves, or at Uruk – often a pointer to Aryan attitudes (certainly in Hittite culture the Queen Mother ranked after the King).

As to the dog skeleton, we do not know whether in fact it was buried at the door after the body of the man was later put in, or before. All the man's grave goods – if any – were looted, so we do not know if he had corresponding warrior accoutrements such as swords and daggers, which from other male graves at the site looks likely. We also do not know how much later than the woman he was inserted – whether by a decade or so - or generations later.

It is the third, most recently excavated Gonur tomb (Great Pit 3900 – 5m in diameter and 2m deep – illustrated next) found to the south of the royal necropolis proper, that is truly thought-provoking (on a par with the Orkney example (not shown) or the Hierakonpolis dog graves discussed later (III.9- 5)). This is how Sarianidi⁷ described it:

Remarkably, in different parts of the large pit, but mainly in its western section, there were found skeletons of seven people (different ages and sex) together with seven big dead dogs like modern Turkmenian sheep-dog 'alabays'. At the upper edge of the pit there was a skeleton of the eighth dog that bore signs of deliberate murder, its head was undoubtedly broken and the impression is formed that it was carelessly thrown down at the last moment. It is worth mentioning that at the main necropolis of Gonur we found pits burnt inside that contained dead dogs carelessly thrown down at

⁶ P Blomberg (his papers on Minoan astronomy are cited in due course) interprets tortoise/turtle shells at sanctuaries or graves with lyres or the Lyra stars.

⁷ V I Sarianidi *Long Before Zarathustra* Moscow 2010

the edge of a grave – that makes us believe it was most probably not just an accidental position but on the contrary had deep symbolic meaning.

Coming across this information quite late on in my pursuit of this theme, I felt increased justification in proposing this DIVERSION when I read Sarianidi had no hesitation himself in devoting a section to *The Dog Cult* in which he reminds us of their central role in Zoroastrian culture - though their attitude was two-sided. Dogs were the hunter's and shepherd's companion and faithful guardian – sufficiently adored (as described in the *Bundahishn* – see our **Chapter 19**) to be equated to the star Sirius, Orion's Companion (a theme we shall see accords with the Mycenaean perspective). In Zoroastrian culture there were severe punishments for killing a dog (even the death penalty) and feeding a dog 'was meant for the souls of dead relatives or



III.9- 3: (Left) View of Great Pit 3900; (right) closeup of one dog covered with remains of a beaded textile –Sarianidi *ibid.*

friends'. Indeed, the inclusion of a dog (*sagdid*) was 'an integral part of every Zoroastrian burial ceremony' (compare with further details on Patroclus' funeral dwelt on in our HORSE AND CHARIOT DIVERSION). In the *Avesta* the different personalities of dogs are minutely described much as camels are for Arabs today. But equally, in other contexts dogs were viewed as unclean, since along with the vultures they were used to strip the flesh off dead bodies in the *dakhkma* before the skeleton's eventual burial, earning their keep through carrion disposal - guardians of the dead in the fullest sense - thus leaving the earth uncontaminated. The



III.9- 4: (Left) Night sky with Orion, Sirius top left – and above Orion the rectangle of Auriga with the fainter stars of Perseus cascading alongside, the brightest stars only of Taurus and Aries lining up with the top of Orion; (right) Blomberg's⁸ interpretation of clay figurines from Crete's Petsophas peak sanctuary (note Orion as the double axe and the Sirius dog figurine, upside down) of southern constellations mostly below the horizon, except when they rise in the Northern Hemisphere Winter night sky

⁸ P E Blomberg 'An Attempt to Reconstruct the Minoan Star Map' in *Astronomy of Ancient Societies* (SEAC 2000) Moscow 2002 99-101

Iliad is full of mentions of the wretched end feared by all soldiers – that of their corpse being gnawed to pieces by scavenging dogs.

When we come to chart their background in the archaeological record of ancient Egypt, we find dogs - and Sirius – were again central to the culture – but in a different way. To fully make sense of the oldest remains we will sometimes need to jump forward to Roman times to fill in telling intermediate stepping stones in dog iconography as shared or re-articulated in the light of the later Egyptian, Syrian, Mesopotamian or East Mediterranean experience.

PROTOHISTORIC AND EARLY DYNASTIC DOG BURIALS IN EGYPT

The earliest skeletal canid remains in burials in Egypt come from Merimde in the Delta, dating to c.4800, at a time when other individual domesticated animals such as cats, jackals or sheep were also sometimes buried alone in their own graves (at Matmar for instance one dog had its own coffin, and at Badari and Adaima over the next millennium buried dogs had first been wrapped in mats). Overall it appears such dogs were coming into Egypt via the Levant as well as from Punt (several mass graves of dogs are known from Nubia over the centuries). Those of thickset, mastiff appearance would have been of West Asiatic origin, figurines of which



III.9- 5: (Left) Two entwined dogs from a group of at least ten found in Tomb 48; (centre) closeup of the jumble of nine dogs in a pit burial in the HK6 area; (right) detail – all from Hierakonpolis (see Nekhen News vols 23 and 20)

have been found at Hierakonpolis indicating immigrants had brought them in. We remember that the Master of the Beasts on the Gebel el-Arak knife-handle, itself a West Asiatic motif, is flanked by two dogs with pointed ears and muzzles, and on the wall painting of Hierakonpolis Tomb 100 (also with a Master of



III.9- 6: The wild African dog of Namibia with large ears and bushy tail: they hunt in packs - and are impervious to domestication

the Beasts group) it looks as if two dogs are harrying oryx at the top right of the panorama. The dogs framing the Dog Palette have bushy tails, so we should not rule out the possibility that, rather than being hyaenas as suggested in our entry for **ForAtt-3**, they could be representations of the wild African Dog, that still survives in Namibia today (above) - on the palette possibly even a conscious reference to *Canis Majoris et Minoris* as a way of flagging up Sirius as a binary star. From a conference on Hieraconpolis⁹ held at the University of London, dramatically updating the overall picture of the site from past decades (that had formerly centred on finds such as the Narmer Palette and the golden Horus head), we now know of a host of newly discovered animal tombs and sacred enclosures which will bear proper assessment in our SYNTHESSES – for the time being we simply take cognizance of the discovery of new Naqadan mass dog graves there (**III.9- 5** above).

Although certain single Gerzean/Naqadan/Badarian dog burials had already been recorded in Egypt during the time Petrie worked there, we now have a much fuller picture of how common dogs already were at the earliest large-scale cult centre of Hieraconpolis in Protohistoric Egypt. By the time of the Middle Kingdom we see how fond the Egyptians became of showing themselves with their pet dogs sitting under their chairs - as



III.9- 7: Skeleton of the dog buried at the entrance to the 1D tomb of Queen Horneith at Saqqara – Rice fig.8

on the reliefs of court officials (Rice fig. 15), and on into the New Kingdom. Yet even as early as the 1D favourite dogs buried round their masters were sometimes individually portrayed and named by some early pharaohs on *stelai* over individual graves at Abydos (Rice fig. 11) – and at Saqqara a hound was buried at the entrance of the Queen Horneith mastaba c.3000 (above).

SIRIUS

EGYPT'S DOG GODS: POSSIBLE ASTRONOMICAL EXCHANGE BETWEEN ELAM, SUMER & EGYPT

From relevant – but rare - textual sources we know that not only did Āryans find dogs amenable to domestication, creating uses for them in human society in a number of roles, but also that in astro-mythological terms they imagined the star Sirius as a Dog chasing behind Orion, the Hunter. From myth we know the Egyptian 'take' on the symbolism of their dogs took on a slightly different allocation of duties - yet with similar meanings associated with the same region of the sky, known as the *Duat*. Bearing in mind that

⁹ Held on 20 June 2016 at University College, London chaired by project leader Dr Renée Friedman and including a leading contribution by Liam McNamara, Curator for Ancient Egypt and Sudan, Ashmolean Museum Oxford

pure Egyptians are in fact Hamite, related in race to the Tuareg of North Africa and quite different in temperament from the Semite mentality, we gain in depth by taking into account not only the long back history of the dog in Egypt but also their attitude to its Dog God roles concerning the Afterlife. As in Āryan cultures, for Egypt the dog or jackal-headed therio-anthropoid Gods *Wepwawet* and *Anubis* guard the routes and entrance to the Underworld¹⁰ and were thought to be in such close contact with it that, ready to show the way to lost souls, they are permanently crouched at its entry-point.

SIRIUS AND THE PROTOHISTORIC SOTHIC PERIOD BEGINNING 4240BC

Sirius observation was central very early on, as much for the Zoroastrian calendar as to the ancient Egyptian one - from the very period there is artefactual evidence of contact between Protohistoric Sumer, Elam and Egypt. This perhaps explains how this star remained the foundation of both calendars despite totally differing local geographical observation conditions (a contrast of Iranian mountains or manmade ziggurats as against flat desert and low rocky outcrops). The one outstanding event in the Egyptian Year was that of the Nile Inundation, early on associated with the dawn rising of Sirius heralding the event on day one of the Flood, slipping backwards to a few weeks beforehand as the Sothic Period progressed. The association made between geography and star behaviour I think explains why a Nile animal, the Hippo/*Taweret*, was also named a form of the Goddess Isis, since the hippo living in that river represented not only the Inundation itself, but its massive body suggested pregnancy and the abundant fertility brought by that river. The Milky Way in the sky seemed to correspond to the Nile on earth below, so that the Water Monster Cepheus in the Circumpolar region they identified with Taweret aligns down it with the star Isis at the foot of the Milky Way, under her name of Sopdet/Sirius. This needs much fuller explanation in coming pages, but for the time being it should not be underestimated that this unique correspondence between the annual Nile Inundation and the astral round provided the dramatic and tangible benchmark that underpins the presumed opportune Protohistoric cooperation between Susa and Egypt - at both Abydos and Saqqara. This seems to have involved a deliberate mission from Susa via the Zanzibar Triangle route seeking optimum observational conditions (flat, far horizons and a Nile running N-S) to observe Sirius behavior, entailing observation points at both the Upper and Lower Egyptian ends of the Nile that made it possible to precisely measure the interaction of Sirius risings with the Sun's solstitial cycle at a time when the two coincided – thus to establish a reliable calendar – more of which later). Cunningham¹¹ wrote, 'I am firmly convinced that the founders of the Monarchy came from Babylonia and brought with them the astronomical knowledge acquired from the Chaldeans, and that the priests became observers of the heavenly bodies in the Temples of Egypt as they had been in Chaldea – and proofs are not wanting to substantiate this position.' (His vocabulary is anachronistic, but he was writing before Protohistoric archaeology existed so we have to mentally update it – the main idea holds water). When we look at Sarianidi's view of 2M Protozoroastrianism in Central Asia we

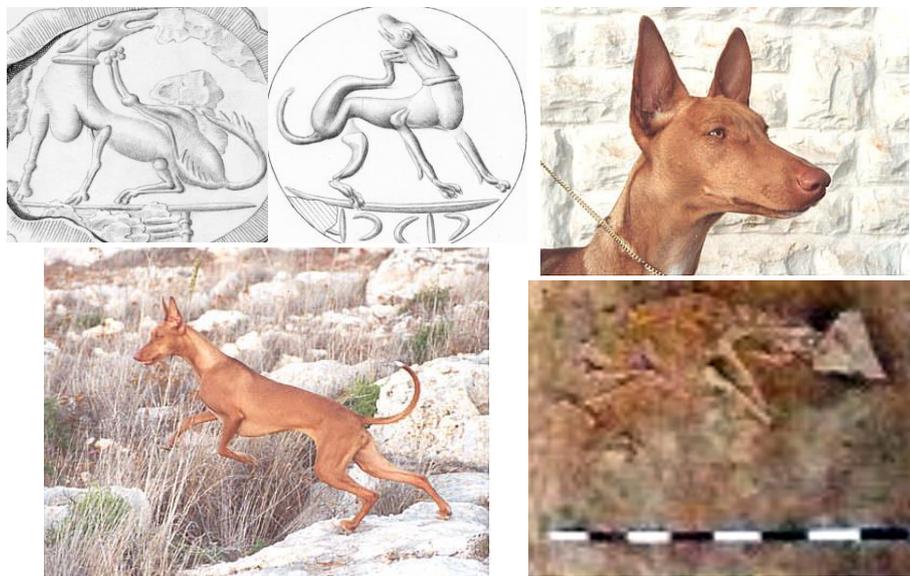
¹⁰ K Brecher 'Sirius Enigmas' in K Brecher et al. (eds) *Astronomy of the Ancients* Cambridge Mass 1979 91-115

¹¹ F A Cunningham 'The Sothic Cycle used by the Egyptians' *JAOS XXXIV* 1915 369-73

find, as in present academic fashion, he has a contracted view of the duration of the Zoroastrian tradition - whose beginnings some like myself still prefer to date back to at least 6000BC¹² since it makes much better sense of the Susa-Egypt contact (taking into account the first significant Protohistoric Sothic Period, given credence by Flinders Petrie as consciously operative, is calculated to have begun in 4240BC¹³).

KEY DOG TYPES IN EGYPTIAN AND MYCENAEAN ICONOGRAPHY

Compared to the thick-set physique of the shepherd dog mastiff with square face and flabby, wrinkled jowls (*Ill.9- 15* right) bred in Central Asia, two distinctive dog types take centre stage from the earliest period in Egypt. Later, in the Levant in the second half of the 2M, we can more or less predicate Mitanni presence from dog burials - as opposed to the donkey burials of Amorite rulers - at Alalakh, Qatna and Ebla (example given below right), either of the Central Asian mastiff type, or of breeds available via sources linked to Egypt.



Ill.9- 8: The two Vapheio dog seals compare well against the Kelb tal-Fenek - or Pharaoh Hound - from a Maltese website celebrating the breed; (bottom right) dog burial at Alalakh (sq. 32.57) made either as a 'termination ritual for the old building or foundation offering for the new'¹⁴ (such burials were also found at Qatna and Ebla – pointing to Mitanni presence)

THE TJESM, OR PHARAOH HOUND

The Egyptian *fenek*, or russet-pelted hunting dog with pointed face and ears known as the 'Pharaoh Hound', seen hunting in the **ForAtt-10** hunt relief (which dates to the time a new Sothic Period had begun in the Old Kingdom, in 2780) is still today bred in places like Malta, off the coast of Libya (illustrated above), not to mention by other specialist rare-breeders all over the world (more of its lineage shortly). From the seal pictures (re-illustrated above top left) it would seem the Mycenaean Vapheio warrior had round his neck images of this particular breed. Rice (*ibid.*), owner of a Pharaoh Hound/*Tjesm* himself, thinks the aristocratic look of the dog was the result of wolf interbreeding with the golden jackal – as he explains: 'The wolf and the golden jackal share territories in Greece, Turkey, the Levant, the Arabian peninsula, Iraq, Iran, Afghanistan

¹² G Gnoli *Zoroaster's Time and Homeland* Naples 1980

¹³ Interestingly, the present-day Yezidi calendar dates back to c.4750BC (possibly to be adjusted by a few hundred years if the numbering is for lunar years).

¹⁴ K A Yener 'Material Evidence of Cult and Ritual at Tell Atchana, ancient Alalakh: Deities of the Transitional Middle-Late Bronze Period' in P Ciafardoni et al. *From the Treasures of Syria* Leiden 2015 203-217

and down into India. The wolf is not indigenous to Africa, whilst the golden jackal certainly is'. Significantly, a more primordial Dog God with the title *Khentiamentiu/Foremost of the Westerners* was worshipped as guardian of the Abydos acropolis and ruler of the Underworld until the cult of Osiris/Orion succeeded there. Thus in Egypt, since Sirius and Osiris headed Middle Kingdom coffin Star Lists in the roles of Isis and Osiris (*III.9- 45*), the Dog Gods themselves were not linked to Sirius as star, but simply with the Underworld – the mythological reasons for which are explained via some Louvre Protohistoric objects shortly.

DOGS ON 2M AEGEAN JEWELLERY AND SEALS

Precedents for the paired dogs with short curly tails standing on monkeys in the earring design of the Aigina Treasure (*III.9- 10* centre left), now considered to be Mycenaean (Fitton et al. *ibid.*), are to be seen in the earlier Egyptian two-dog pendants (*III.9- 10* centre right). Fitton et al. think they were worn round the neck on an agate-beaded necklace (illustration below). It is no coincidence, I believe, that the Vapheio warrior wore his amethyst and rock crystal necklace with the two dog seals as its centrepiece in conscious imitation of this fashion. The dogs' association with monkeys¹⁵ could refer to the agitation of Egypt's baboons (usually thought of as Thoth's animal) at sunrise - as if the designs allude to Sirius' dawn rising. On the other hand, baboons in other contexts also stand for Moon activity, and on the Denderah Zodiac (*III.9- 12* at its top right)



*III.9- 9 (Left) Sets of polished agate beads found at Avaris (fitting into the context of our SEMI-PRECIOUS STONES DIVERSION); (right) suggested positioning of a dog pendant from Avaris as centerpiece of one such agate necklace - Fitton *ibid.**

Isis holding a baboon by the tail inside a circle is, according to Sylvie Cauville¹⁶, the hieroglyph for a solar eclipse (Moon covering the Sun), while the eye of Horus inside a circle just under it is the hieroglyph for a lunar eclipse (Sun covering the Moon) - which took place in 51 and 52 BC respectively, helping to date this particular Zodiac. If the paired dogs (here a hybrid of our two main dog-types) indicate awareness of Sirius as a binary star – this may be the reason, somewhere along the line, for separately assigning two different constellations – or Gods - to Dogs - Canis Major *and* Minor. It implies the Vapheio warrior knew this too. Compare this idea with the two-dog statue of Allāt (*III.9- 36*), one of whose dogs is smaller than the other,

¹⁵ In Egyptian funerary art dogs were often paired with monkeys as pets on separate leashes - as shown on officials' reliefs (Rice *ibid.* fig.12a/b) – in one instance one such pair was even mummified together in death –Rice fig.22

¹⁶ S Cauville *Le Zodiaque d'Osiris* Leiden 1997



III.9- 10 (Left) Monkey seal precedent to those on Aegina jewellery, Phaistos - CMS II,5-297; (left centre) one of four gold earrings in the Aegina treasure¹⁷ with carnelian beads centring on paired dogs on crouching monkeys surrounded by fly/owl tassels; (top centre right) two-dog gold pendant 1780-40 from Avaris - BBCat-62) ; (below centre right) MK two-dog silver pendant (1980-1640 - BBCat-63, now BM); (right) 2M stone monkey figure from Kar Tukulti-Ninurta – BM ME116388

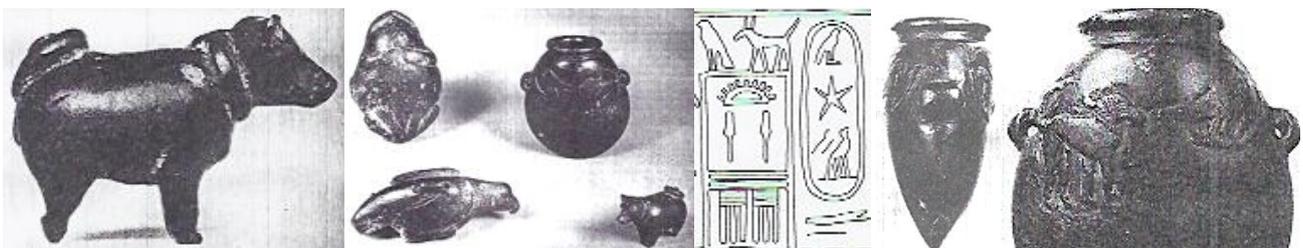
reflecting the fact that Sirius B is small and faint compared to Sirius A, round which it revolves, mostly occulted behind it, and appearing in view only briefly every 50-51 years - the Jubilee periodicity.

THE SMALL FAT DOG TYPE WITH CURLY TAIL

As early as on the 5-4M rock drawings of Egypt's Western Desert, another kind of dog favoured by the Egyptians sometimes appears with the Tjesm, this one with short legs, a squat body and tightly curled tail – as illustrated below left.

GROUP OF PROTOHISTORIC ARTEFACTS ACQUIRED BY THE LOUVRE

This usefully takes us to a group of objects acquired by the Louvre, worth closer inspection for information about Sirius which helps to square its Dog symbolism with Egypt's key star myth assigning it to both Isis and Horus. Due to the early and many archaeological enquiries led by Flinders Petrie during the time of the Mandate in Egypt, initially the British were the most closely involved in excavating the Predynastic sites of Egypt, such that most artefacts from places such as Hieraconpolis, Badari, Naqada or Abydos are to be found in British museums. However, in the 1970s a collection of four chlorite objects (below left centre) were presented to the Louvre by The Friends of the Louvre - consisting of the dog and three containers in the form



III.9- 11: Louvre acquisition of four chlorite objects likely to be from around Hleraconpolis: frog, vulture, pouch pot with dog and Horus falcon either side, and a small plump dog with corkscrew tail – Desroches-Noblecourt figs 11a, 1, 8a/c/d; (centre) detail from a cylinder seal of the 2D Pharaoh Khasekhemwy with both Horus and Seth standing on his serekh

of a frog, vulture with folded wings - and pouch pot decorated on either side with a long-legged hound and Horus falcon perched on crescent standard (two views of the latter shown above right) – a close-up of the figurine of the little fat little dog with collar and corkscrew tail is above left. These items had been obtained as a group from a collector operating, not in Upper Egypt, whence it would look they originated – but in the

¹⁷ For an account of the entire treasure see J L Fitton (ed.) *The Aegina Treasure: Aegean Bronze Age Jewellery and a Mystery Revisited* London 2009

'east Delta area' of Egypt (perhaps Alexandria). Desroches-Noblecourt¹⁸ in a Louvre bulletin describes with great expertise the implications of these items (examples of all of which she matches against similar Protohistoric pieces from other sites in other museums), beginning with the observation (tying in with our mentions above about Elam-Egypt interchange) that chlorite/steatite is a material usually associated with Protohistoric Iran.

As general background to understanding the choice of animals depicted on the pouch pot, Desroches-Noblecourt reminds us of slightly later Early Dynastic seals from Abydos that under a handful of pharaohs featured the jackal figure of Seth standing next to Horus on the royal serekh (as above centre), interpreting the duo on either side of the pouch pot as *precursors* of that same contrast made between opposing Gods Seth and Horus on the *serekh* - the pouch pot emphasizing more the dog aspect of Seth than the jackal (see Rice's description above of dog evolution as a mixture of jackal and wolf, and our description of the three main Dog Gods of Egypt as later officially formulated).

SIRIUS & SOTHIC PERIODS AT 4240, 2780, 1320 & 139AD SUMMER SOLSTICES

SIRIUS AND THE ROMAN SOTHIC PERIOD BEGINNING 139AD

To back up her Dog interpretation Desroches-Noblecourt jumps to Roman times for explanations – a device we resort to intermittently too. This is for Sothic Cycle renewal reasons, given that under the Roman Empire the implications of Sirius as Dog/*Canis* (Greek *Kuon*) were more publicly explicit, for reasons emerging here. She writes:

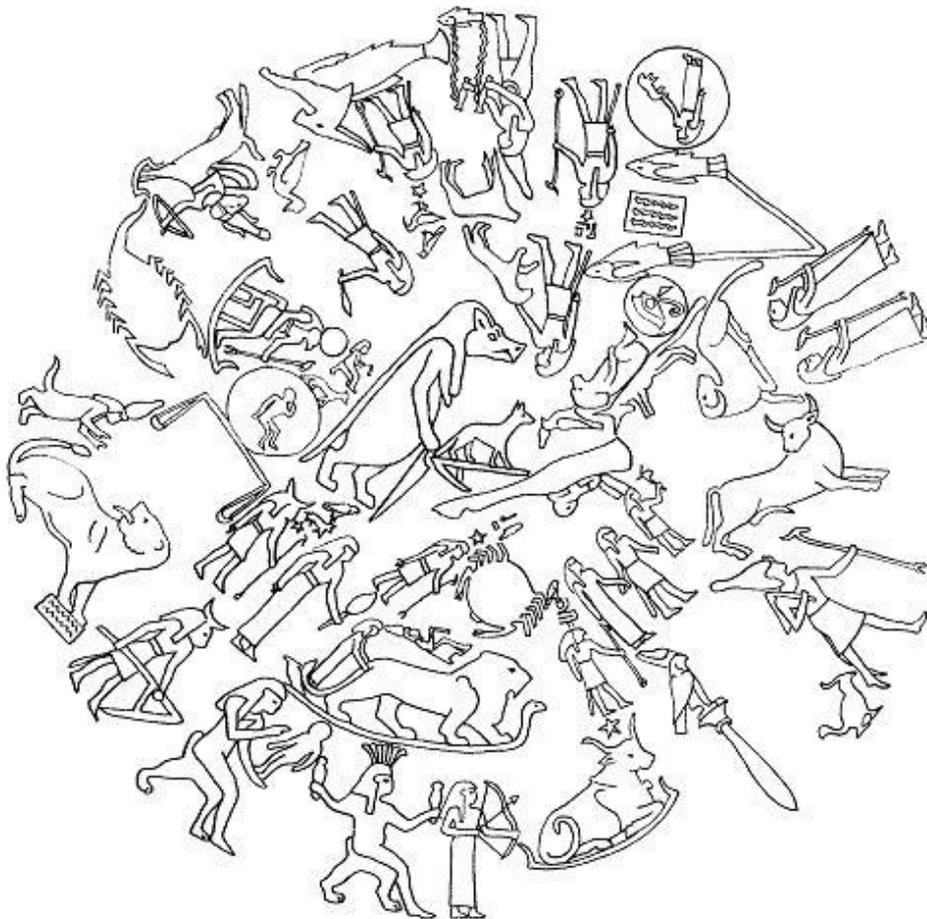
On se souvient aussi que près de la porte Catularia à Rome, au jour fixé par les pontifes, au moment où le grain se forme, on immolait un chien rouge qui procurait des présages sur la qualité de la future moisson (augurium canarium). Ce dernier chien symbolisait sans doute la contrepartie masculine de Sothis, car cette étoile si brillante... est double – Clément d'Alexandrie l'avait déjà observé – et cette contrepartie devait être rouge comme l'animal de Seth. On cherchait à deviner dans ses entrailles si ce serait Seth, la puissance desséchante, ou Osiris, la puissance productrice, qui triompherait.

Looking at the full Denderah Zodiac in outline on the next page, carved late in the Ptolemaic period, Horus/*Sopdu* perched on a standard (marking the 0° meridian) is still used 3,000 years later to mark the starting line of the New Year, while the star Sirius/*Sopdet* is represented as an Isis/Hathor Cow (not a Dog) on a barque behind it - with Osiris-Orion striding forward in front of it. From the positioning of the planets - and the two eclipses registered in circles in the Pisces region - it is now deemed to show the night sky at some time between 15 June and 15 August 50BC. Egypt was to become a Roman Province in 30BC under Octavian 20 years later following the death of Kleopatra and Mark Antony.

¹⁸ Christiane Desroches-Noblecourt 'Quatre objets protodynastiques provenant d'un "trésor" funéraire' *La Revue du Louvre* XXIX,2 1979 108-117

From Roman contact with Egypt the Latin writers knew Horus at the New Year was viewed by the astronomer-priests as the new-born Sun/Son of Isis (the male version of Sirius): if the same idea is intended on the pouch pot, the Dog behind Horus on the crescent standard, possibly an early *Doppelgänger* of Seth, may consciously represent the role of Sirius in Predynastic times, not just as herald of the Nile Inundation and the start of one kind of New Year (Egypt used up to five different calendars over the millennia). In the light of the separate dog figurine with the group they could even be seen as souvenirs marking the start of the *Protohistoric* Sothic Period.

We discussed the calculation of the Sothic Cycle of 1460 years in the *Catalogue A Chronological Focus*, whereby Meyer¹⁹ deemed prior Sothic cycles to have started in 1320, 2780 and 4240 BC. Desroches-Noblecourt, fully aware of the writings of Latin writers on astronomy, reminds us that 139 AD marked the start of yet another Sothic Period— with the anticipatory years leading up to it evidently just as momentous a calendar milestone as the movement of the Vernal Point into Pisces announcing the Christian era some 139 years earlier. And we can be sure the Romans at this time were able to gain direct knowledge on the Sirius



III.9- 12: Summary outline drawing of the Denderah Zodiac with Horus on standard beneath Gemini and in front of Sirius/Sopdet as Isis the Cow (due to her interface with Venus/Hathor) - more or less beneath Leo, both possibly intended to signal, not only the New Year fiducial point, but also the Sirius 0° meridian for the upcoming Sothic Period looming ahead

¹⁹ E Meyer *Ägyptische Chronologie*. Berlin 1904

cycle from Egyptian astronomer priests in their temples – including Denderah’s Temple of Hathor where the mysteries of the resurrected Osiris were celebrated and where, in one chapel on its roof, its recent Zodiac was placed to herald the coming of that next Sothic Period. It is no surprise, she writes, that it became the custom for the Romans to make figurines of dogs with a female head or full female figure representing Isis/Sirius on its back (like the one in the Berlin Museum below left), as well as ‘des lampes épousant la forme de la tête d’une femme sortant de l’échine d’un chien ... fabriquées pour servir à l’illumination de la nuit qui précédait le lever héliaque de l’étoile Sothis, au Jour de l’An égyptien, le 18 juillet Julien’.

Renewed interest in Sirius, perhaps attributable to public excitement at the dawn of a new Sothic Period – along with the whole-hearted adoption of Isis as one of their own goddesses - explains coins of Trajan (109-110AD) and Hadrian (134-38AD) showing Isis reclining on a dog²⁰. Hadrian also erected a kiosk on the Island of Philae, long revered as the terrestrial sanctuary of Isis and Osiris, in the middle of the Nile down-river from Denderah. Desroches-Noblecourt writes that the type of dog chosen by the Roman populace for their clay dog figurines celebrating Sirius and the New Year tended to be the small dog with pointed ears and curly tail like the Protohistoric chlorite dog, while some statuettes were of a baby in nappy or with the Egyptian sidelock of youth (alluding to the New/Baby Year) holding the dog in their arms.



III.9- 13: (Left) Isis-Sothis mounted on the small dog-type with short curly tail and star on its head – Erman *Die ägyptische Religion* 1905 fig. 143; (right) Middle Kingdom funerary table sculpture of basalt showing Isis as Kite impregnating herself from Osiris, who is protected head and foot by more sacred kites or vultures – Cairo Museum (photo author)

Importantly, Desroches-Noblecourt reads the chlorite dog as female - and pregnant - due to the play on words recorded by the Classical authors between the Egyptian *sopedet* ‘to be pregnant, impregnated’, and the word used for Isis-as-Sirius, *Sopdet* (= *Impregnated*) the very name given to Isis in her role as Mother of the [solstitial] Sun of the New Year (Horus/*Sopdu*, male aspect of Sirius/Sirius as Sun – c.f. **III.9-247** right) – whose standard/meridian on the Denderah Zodiac is placed right behind his father Osiris/Orion (c.f. **III.9-45**). The myth recounts that, as the Old Year/the dead Osiris reached its dying days, Isis as a Kite hovered over the penis of the otherwise inanimate God in order to be impregnated with the New Year as Horus-the-Sun (an event poetically expressed in the Middle Kingdom funerary sculpture above). To her fluttering wings

²⁰ Clerc (fn.21) mentions several other brief coin issues featuring Isis-Sothis by Roman Emperors, to as late as Julian the Apostate (her pp. 260-265)

as She hovered over Osiris were attributed the winds of Summer that encourage the Nile flow on into the Delta (more on Winds shortly). We remember, too, that on the Egyptian side it was the hippo Taweret who was associated with pregnancy, embodying the fruitfulness of the Inundation.

SIRIUS, SUN AND ORION RISING IN THE DUAT

We can distinguish between two complementary solstitial benchmarks involving Sirius and its surrounding stars in the *Duat* – that are not only mapped on the Denderah Zodiac, but also occurs twice in *The Iliad*:

- ✧ Sirius rising *at dawn* as the Sun also rises at the end of Cancer/start of Leo, marking the SUMMER SOLSTICE – after which brief half hour *all* stars are rendered invisible by the brightness of the Sun, and
- ✧ Sirius rising in the *night sky* at midnight at the WINTER SOLSTICE (the Sun that day having risen at dawn in Capricorn/Aquarius, not visible thereafter) thus taking its place with neighbouring stars to shine brightly all night.

There is a third, overlooked, daytime variation on the *Duat* stars high in the sky during the day at Summer Solstice time but usually not visible - this comes into the picture when we deal with the Trojan War.

SIRIUS AND THE MYCENAEAN SOTHIC PERIOD OF 1320

When we deal with the *Chronological Focus* material in **Catalogue F** and as a consequence come to consider the mature Archaic Greek Calendar in **Chapter 20**, for the renewal of Sothic Precession cycle previous to the Roman one, we reach the date of 1320. For the development of the Archaic Greek Land and Island Zodiac centred on Delphi which Jean Richer suggests was laid down from c.800BC, he nonetheless makes much of the evidence of 'Bronze Age first steps' - in the form of the huge stone Lion carved in the hillside of Ioulis on



III.9- 14: (Top and centre left) Coin from Kea showing laurel-wreathed Aristaios/Apollo with radiating Sirius on the verso (and bee beneath): c.f. Minoan seals from Phaestos (bees and dogs are also in the repertoire of the Aigina Treasure): (lower left) CMS II,5-299; (lower centre left) CMS II,5-314; (centre right) Roman Isis as Sirius with Hathor sistrum riding on a dog – Clerc²¹ pl.XXXIII; (right) basic life cycle of bee or wasp, processed inside wax or clay hive cells (c.f. III.9- 31/III.9- 32))

the island of Kea just off the coast of Attica - as lying in the 'Leo sector'. Not until later in Kea's history do we have material evidence of the island's particular association with Sirius observation (rising in 'the Dog days' in July with the Sun in Cancer/Leo), but in myth Kea's legendary starry hero, Aristaios (compare with *Asterion*, the true name of the Minotaur, son of the bull that mated with Pasiphaë) is particularly associated with Sirius and was said to be responsible for the Pelasgic diffusion of apiculture and viticulture (he is even

²¹ G Clerc 'Isis-Sothis dans le Monde Romain' in M B de Boer et al. (eds.) *Hommages à Maarten J Vermaseren Vol.I/III* Leiden 1978

said to have travelled as far India's Hydaspes River). He is named a son of Cyrene (a North African Goddess who tames a lion), and on marrying Autonoe became son-in-law to Kadmos of Thebes (brother of Europa) and parent to none other than Actaeon, torn to pieces by dogs. It is only much later, on the Kean coins of the 3-2C BC (above top left) that we have material evidence of the particular association between Kea and the Dog Sirius, when Aristaios' head on the recto is sometimes replaced by Dionysos of the Grape, or Apollo, Lord of the Zodiac, with Sirius shown on the verso in *Fenek* form with pointed muzzle and ears, surrounded by rays and sometimes accompanied by a bee or bunch of grapes. Rather than the popular small fat dog, or shepherd mastiff type shown on the Phaestos seals above (and at the end of the row on the Halaï skyphos, **III.9- 23**) it seems the more aristocratic *Fenek* type was generally favoured by the Hellenes and Romans for official representations of Isis-Sothis riding on a dog – whether on coins or on the façade of the Temple of Isis in Rome's Champ de Mars – as also on the Iseum of Szombatheley, Hungary (above centre).

Laoupi²² sees in the account of the hero Aristaios (whose very name suggests starry matters) the mythologising of Kea's specialist function in Sirius observation (we come to Brauron's role with *The Bears* later). George Thomson's paper on the Classical Greek Calendar (see **Chapter 20**) mentions that the Athenian New Year was based on the first rising of Sirius (Kea and Athens both being in Attica). Thus we gain a sense from myth *and* artefact of how the division of astronomical activity in Greece – Sirius observation being fundamental – had been laid down in a Minoan/Mycenaean world that benefited from interchange with Syria, Mesopotamia and Egypt. As M Blomberg and Henriksson have argued in many papers over the years, the core of Aratos' *Phaenomena* relies on Minoan star-names dating to as far back as 2000BC, and P E Blomberg *ibid.*'s idea that the small clay figurines (**III.9- 4** right) found at peak sanctuaries such as Petsophas were used as 'visual aids' for those officiating at such observatories is plausible. As he points out²³ in a different paper, 'in Classical Greek ξώιδιον (diminutive of ξων) is used for a small figurines, a painted or carved statuette, as well as for a Sign of the Zodiac' – and especially for animals as Signs.

It is surely significant that it was in the 2M – in the decades either side of 1320 during the Mycenaean *floruit* - that the Sothic Period preceding the Roman Sothic Period reached its renewal point, for which surely there must have been a prelude of conscious effort - similar to the Roman run-up - towards pinning down that cosmic turning point through fine-tuned observation of all the planetary cycles (see our last few paragraphs for how this could have been done), and this could have lasted as long as two or three generations. This Sothic Period date swings the matter of the Mycenaean practice of astronomy round to an entirely new perspective: those Egyptian, Babylonian, Levantine and Aegean kingdoms in power 1500-1300 shown on our Chronological Table - notably the New Kingdom pharaohs, the Mitanni, Mycenaean and Kassites – must all

²² A Laoupi 'The Sirius Cult in Ancient Greece: Aristaios and the Formation of the Attico-Cycladic Mythological Substratum' *Mediterranean Archaeology and Archaeometry [Special Issue] VI* 2006 129-141

²³ P Blomberg 'An Astronomical Interpretation of Finds from Minoan Crete' in C Esteban & J A Belmonte (eds) *Astronomy and Cultural Diversity (Proceedings of the International Conference Oxford VI and SEAC 99* Laguna, Granada 2000 311-318

have been aware of its measurement and celebration. Where the Minoans had used mountain peaks as *points de repère*, the Mycenaeans offered control over a web of small island bases as observatories that made use of the reflective expanse of water ending in uninterrupted horizons offered by the surrounding sea. Kea and Mochlos were such islands – as also Motya which, despite its surrounding sea also constructed a ‘Kothon’²⁴, or rectangular pool of water, as the central feature of the contiguous temple complex near its SW shore, oriented to reflect the Age of Aries rising of Auriga²⁵/Perseus above the by then disappearing stars of Orion at the Spring Equinox (see next DIVERSION). Although known for its 6C temples with sighting baetylo dedicated to both Baal/Orion and Demetra/Astarte/Venus²⁶, the co-naming of the Baal temple with Poseidon²⁷ – and the fact that a Mycenaean dagger with rock crystal pommel was among the finds on the site (along with continuous Mycenaean pottery 1400-1100) - gives a striking and tantalizing token glimpse of some kind of interaction between Mycenaean Greece and the Levant extending all round the Aegean, not only in astronomical matters but also in the related cult of Underworld mysteries.

For a rounded picture we should therefore also take a quick look at the Sothic Cycle Period preceding 1320, which would have begun during the Old Kingdom in 2780BC, 1460 years after the Protohistoric Sothic Cycle start of 4240. This phase also provides us with interesting artefacts linked to Sirius, and new information.

THE MESOPOTAMIAN DOG GODDESS, GULA AND THE EARLY DYNASTIC SOTHIC PERIOD

The Dog God in Mesopotamia might appear to take back stage to the Bull God or Lioness Goddess, but most are familiar with the appearance of a dog on Kassite kudurrus crouching under Gula’s throne, as on the example below left. Indeed, dating to the 2M, several dog tombs were found in her main sanctuary at Isin²⁸



III.9- 15: Rare examples of dedicatory inscriptions against Gula’s image specifically naming Gula: (left) on a Kassite kudurrus of Marduk-Apluddin – Göhde²⁹ Fig.1; and (centre left) receptacle from Tello - Parrot Sumer fig. 357B; (centre right) Kassite clay dog in the Metropolitan Museum, NY; (right) Kassite seals often include dogs, as in this detail on one in Berlin with the symbols for the Sun and Venus above it and Cosmic Tree of interplanetary conjunctions below – VA6935

²⁴ This information initially given in a paper by L Nigro., ‘L’Orientamento Astrale del Tempio del Kothon di Mozia’ in E Antonello (ed.) *Il Cielo e l’Uomo: Problemi e Metodi di Astronomia Culturale* Rome 2010, repeated in a Palestine Exploration Fund lecture at the British Museum on 9 June 2016

²⁵ The choice of subject for the well-known Archaic sculpture of Charioteer of Motya may therefore be more than mere celebration of an Olympian victory. For a description of the sculpture, see Carlo Odo Pavese *L’Auriga di Mozia* Rome 1996

²⁶ F Spagnoli ‘Demetra a Mozia: Evidenze dall’Area Sacra del Kothon nel V Secolo A.C. *Vicinio Oriente XVII* 2013 153-164

²⁷ L Nigro *The so-called “Kothon” at Motya: The sacred pool of Baal ‘Addir /Poseidon in the light of recent archaeological investigations 2005-2013 Stratigraphy, Architecture and Finds* Rome 2014

²⁸ E Will ‘La déesse au chien de Palmyre: Note Additionnelle’ *Syria LXIII* 383-4

²⁹ H Göhde ‘Zwei altbabylonische Siegelabrollungen aus Tell ed-Dêr: Identifizierung von zwei weiblichen Göttheiten’ in O Loretz et al (eds) *Ex Mesopotamia et Syria Lux: Festschrift Manfred Dietrich* Münster 2002 159-168

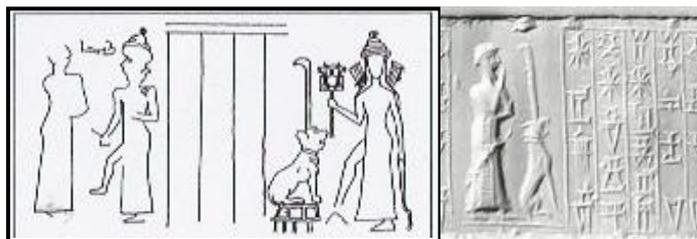
(she was sometimes simply known as The Lady of Isin). Gula/Bau, like Isis in Egypt, was the female Goddess especially associated with Sirius³⁰, signalled by the presence of her dog companion, usually with tightly curled tail and pointed ears as seen on the small dogs – but sometimes represented by the Central Asian mastiff type, as in the container figurine from Tello above centre left. Were such dogs imagined as female?

We have a hymn to Gula, ‘Mistress of Heaven’ from the Neo-Assyrian period translated by Ebeling³¹ which is interesting for the different roles she is praised for - as Star even governing the planets: ‘Ruler of the Rulers of Heaven’ and ‘Fixer of Festivals’ which certainly fits the role of Sirius as master regulator of the grand calendrical programme. In the kind of multitasking interchangeability we have seen in the case of Ninurta (sometimes named as her consort), like Inanna and Ninmah she is credited with deciding Fates and often appealed to as ‘Great Healer’. More than that, like Isis as Kite, She is ‘Resurrectress of the Dead’. Note on the Neo-Assyrian examples below that the mastiff type of dog is given the tightly curled tail that usually belongs to the smaller dog: its possible separate significance is pursued under our discussion of ‘The Bears’, but for the moment simply note the line-up between Sirius and Ursa Minor in *III.9- 38* (right).



III.9- 16: (Left) Neo-Assyrian seal c. 800 depicting the Mesopotamian dog type for Gula; (right) a late Babylonian gold dog amulet of gold, c.700, British Museum. Why Gula should appear with Ishtar and the Moon is discussed below.

When shown on its own, the type of dog most favoured in Old Babylonia in Sumer and Akkad at this period, and in Kassite Babylon and Assyria later, appears to have been the mastiff with straight tail and square head, clearly more readily to hand in NW Iran than the *Fenek*. In the rare instances it appears on Old Babylonian



III.9- 17 (Left) Old Babylonian seal from Sippar– possibly alluding to Venus rising conjunct Sirius- Göhde fig.3; c.f. (right) Kassite seal showing dog with a similar rod on its head

seals (as above), like the emergence of the Snake Lady on OB tablets it is another indication that Old Babylonia was open to certain Central Asian influences before the Kassites were in place. However, on more roughly carved seals or plaques dogs can often be confused with lions and should not be cited as examples. The appearance of Gula as enthroned Dog on the Old Babylonian seal from Sippar (above) analysed by Göhde shows the dog sat next to Ishtar in characteristic pose of stepping up onto a mountain peak

³⁰ Gula was also sometimes associated with the Rainbow and the number 7

³¹ E Ebeling ‘Ein Loblied auf Gula-Baba aus neuassyrischer Zeit’ *Orientalia XXIII,4* 1954 345-50

brandishing her double-lion mace. This is a trigger for us to look into why it is that in both Egypt and Mesopotamia Venus and Sirius were often considered as the same Goddess.

SIRIUS-VENUS WITH SUN-MOON OBSERVATION: THE LONG-TERM CALENDAR

I explained in full detail the astronomical reasons for the convergence of Sirius and Venus in one Goddess in a short paper written in 2011³², when the predictive Aztec calendar based on Venus cycles was about to end in 2012. For those not wishing to read the whole paper (though it is helpful for essential grounding) I will in the final paragraphs of this DIVERSION quote essential points from it on how the dovetailing of Venus and Sirius works in purely astronomical terms. Immediately to hand from astronomical texts of the time we already find some clues from Mesopotamia about that convergence from discussion of some calendrical texts lying behind the figure of Gula (**III.9- 15**).

Though she may sometimes have ceded Sirius powers to Inanna, daughter of Nannar the Moon-God – or to have leased them to Ninurta in male form, often cited as her consort, Gula was important enough much of the time to have a firm separate identity as Gula/Sirius, either when represented by a Dog alone - or in female human form accompanied by one. Here we quote an apt, if slightly contradictory, passage from Langdon³³ (his footnote references left out) regarding ‘the most important of all the Sumerian yearly feasts, that of Bau/[Gula]³⁴, in the first month of the year’, which in the case of Lagash appears ‘to have begun ... in July ... possibly based on the rising of Sirius’. The same seems to have been true of the Nippur and Ur calendars, whose barley harvest ended the year in May-June – which, in Langdon’s words (p.156) ‘certainly points to a system based upon the rising of Sirius and if so must be put back to before 4000BC’:

In the sixth month (December-Jan) fell the famous feast of the Mission of Innini, in earlier times the Feast of Tammuz, a festival which gave its name to the month. At Ur this month bore the name ‘Festival’ simply. The important text LEGRAIN 323 states plainly that in this month the feast of the Mission of Innini was held. In this period, then, the Descent of Innini to Arallu and the sojourn of Tammuz in the lower world were placed - in the period of nature’s lowest activity when the lord of life was supposed to be dead - and not in the hot season when the heat destroyed him. This seems to be at least one fact about the Nippurian and Lagash calendars which we can firmly lay hold upon. The identification of Innini with Sirius was already made and the myth of her descent probably connected with the heliac setting [?rising] of Sirius in the hot season but this astral mythology had not yet overcome the more ancient nature myth which placed the wailing for Tammuz at mid-winter’.

Like Isis in Egypt, Inanna (later known as Ishtar /THE STAR) - mainly equated to the planet Venus - is here by Langdon also identified with Sirius. We should perhaps see Gula, therefore, as a local variant of Inanna

³² ‘Babylonians, Mexicans and the Total Count’ <http://www.layish.co.uk/Venuscycles.pdf>

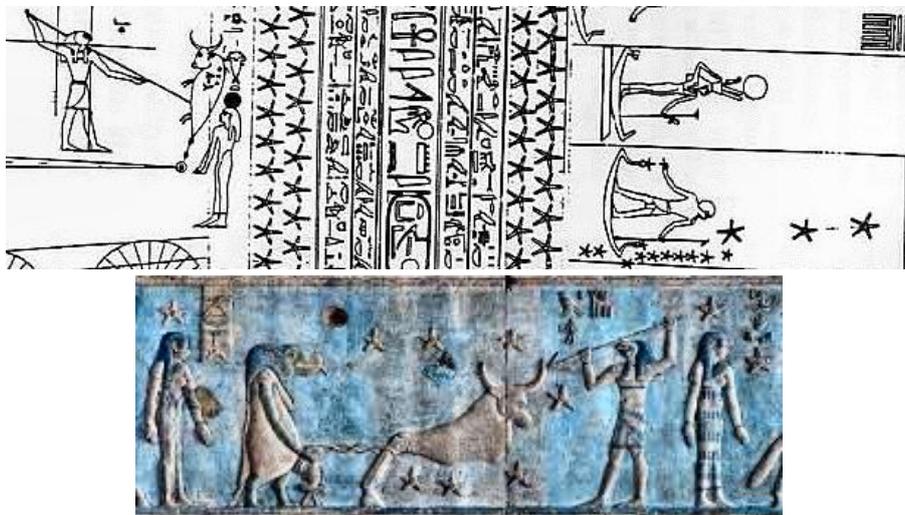
³³ S Langdon Review of B Landsberger’s *Der Kultische Kalender der Babylonier und Assyrer* in *Revue d’Assyriologie* XV 155-8

³⁴ She is cited variously as Ninurta’s consort, and as elder sister (or daughter) of Anu is head of the female pantheon. As mother of Ea she is progenitrix of plants and mankind and thus as healer Goddess with plants, known as ‘great doctor of the Black-Heads [the Sumerian race]’.

specifically embodying the star Sirius, and associated with the Āryan dog due to geographical and cultural contiguity to NW Iran/Central Asia.

LAST PHASE OF THE ED SOTHIC PERIOD AND LIKELY ANTICIPATION OF THE AEGEAN 1320 SOTHIC PERIOD

It might not be meaningful to try to associate the Isin dogs or the Avaris dog pendant as anything to do with celebrating the Sothic Period that had begun 2780BC, which takes us back to a start in the final dynasties of Egypt's Old Kingdom or Sumer's Early Dynastic period in the Third Millennium - though we may simply be lacking knowledge of subsequent linkage further in to that era. And if they do not qualify as anticipatory indicators of the new one - not due to begin until 1320 – at least it shows some cities in Sumer's proto-land zodiac gave primacy to the practice of Sirius observation that we know was founded in the region during the Protohistoric Sirius era when there was contact with Egypt.



III.9- 18: (Top) The detail either side of the ceiling centre on the Senenmut star ceiling with Horus no longer perched on a standard, but as therio-anthrope angling his spear at Ursa Major/Foreleg of the Bull, while on the side opposite Osiris/Orion on his barque (the three stars of Orion's belt emphasized) leads Isis/Sopdet at the head of a procession of the 36 Decans; (below) on the rectangular Denderah Zodiac, Taweret/Cepheus chains the Foreleg of the Bull as anchor, again aligned to Horus' spear to signify the start of a New Year, such that we might treat it as a BIVISUAL for the Forward Attack

In terms of anticipatory observational cooperation aiming towards what I presume to call the start-line of 'the Aegean Sothic Period', what *is* certainly worth asking is why the star ceilings of the New Kingdom - instituted by Hatshepsut's vizier, Senenmut, in his second tomb c. 1450 - emerged when they did, as if out of nowhere, in just the decades we know Egypt and Crete were cooperating on the Avaris palace bull-leaping and lion-hunt wall-paintings. From the time of Hatshepsut, such star ceilings were repeated long into the Ramesside period, following the same formula of framing the Duat stars in a rectangular centerpiece - with slight variations - ending in the ceilings of Ramesses VI at Medinet Habu and his Valley of the Kings tomb. An inscription of Hatshepsut's successor Tuthmoses III³⁵ mentions the heliacal rising of Sirius on 28 Epiphi, a year when it is thought a Sed Festival took place after a 30-year interval - a Sothic date which implies there was certainly some kind of monitoring of Sirius going on in the run-up to a new Sothic period that would be inaugurated in the coming century when Sirius would start to rise on the 1st of the *next* month.

³⁵ (cited by Cunningham *ibid.* p.372)

Certainly Tuthmoses (following notable battles there) instigated frequent exchange of knowledge with the Levant, seen in the case of the botanic samples recorded in his Festival Temple at Karnak – in the end laying the foundation for Amenhotep III’s diplomatic missions around the entire Aegean (documented in the well-known inscriptions on his statue base at Kom el-Heitan cited in our earlier narrative. The updating of Sirius information throughout the Levant and Aegean would just as much have been confirmed to participating Mycenaeans from Egypt, as direct by the astronomer-priests of Babylon through the Mitanni and Kassites – but initial pioneering cooperation with foreign astronomers appears to have initially been instigated through Senenmut. Looking especially at the central section of his star ceiling (above top) it shows Horus, not on a standard, but using a spear to line up to the Foreleg of the Bull/Ursa Major – while on the panel of the ceiling opposite, the figures of Isis and Osiris as Sirius and Orion leading the Decans represent the key *dramatis personae* of the *Duat*, persisting as the central focus of the sky all through the second half of the Second Millennium.

Indeed, on the *Rectangular Zodiac* of the ceiling of the Ptolemaic Temple of Hathor at Denderah centuries later (lower image above), carved chronologically at the threshold of an imminent Roman Sothic Period (as mulled over earlier), Horus with spear adopts the same stance. I would argue that *if a new Sothic Period was comparatively imminent for 1320 at the height of Mycenaean trading and administration*, the latter should not only have learned of it from their many Egyptian contacts – but because of their coverage of the Aegean *koine* are also likely to have been actively co-opted to help measure it in practical ways – perhaps explaining why there is no record of conflict between Greece and Egypt – nor for that matter with the Mitanni.

To test this theory, we now devote some time to gauging the Mycenaean ‘take’ on dogs and Dog Stars.

SIRIUS AND ORION

ASTRONOMICAL SIGNIFICANCE OF DOGS IN MYCENAEAN KṢATRIYA-WARRIOR GRAVES

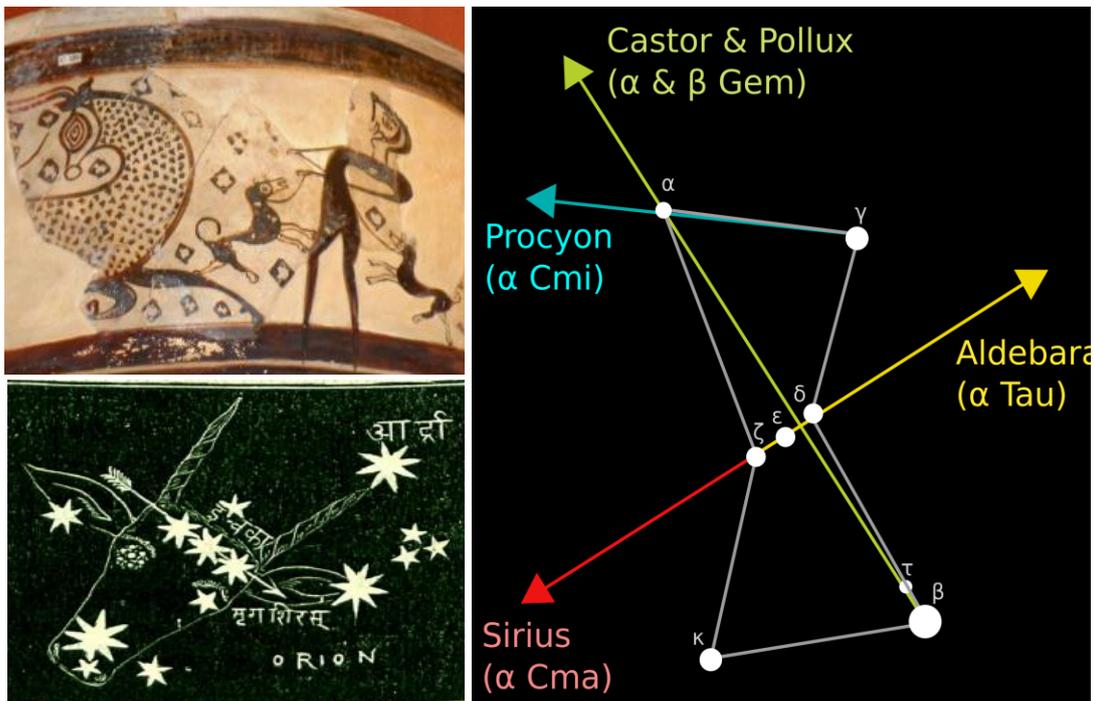
From the evidence of the New Kingdom star ceilings I believe the expectation of the start of a new Sothic Period was triggered in the Egyptian court - and then shared with opposite numbers in the Levant and Crete/Mycenae – in the process instigating an operation to extend all possible observational checks throughout the Aegean (clues for which we have already noted on the islands of Kea, Motya and Mochlos (*III.9- 20* right)). The impetus may not have all been one-way: certainly when several large-scale additions were made to the Karnak Temple at Luxor under Hatshepsut, a rectangular lake similar to the Kothon at Motya was added, presumably to be used in the same way, as a reflective surface for star observation.

Dog remains in Mycenaean burials have been assessed by Y Hamilakis³⁶ in a key paper, and their presence in the Perati (*ForAtt-25*) and Vapheio (*ForAtt-26*) tombs fits the picture we are building up of a core group of warrior graves that more or less bring together the qualifying status possessions of the high-level Mycenaean leader - in Indo-European terms understood as a *kṣatriya* or warrior-king - probably equivalent

³⁶ Y Hamilakis 'A Footnote on the Archaeology of Power: Animal Bones from a Mycenaean Chamber Tomb at Galatas' *BSA XC* 153-66

to the Mycenaean idea of the *wanax* – a tribal steppe convention holding sway for more than 250 years embodying far-flung cultural practices. These included the boar-tusk helmet, the bronze swords and daggers, consumption and display of valuable materials crafted into native or foreign-made luxury items from around their known world – and a dog or two buried nearby, if not also parts of horse and chariot (examples of all of which are found in Central Asian male burials too). In the tombs of relevance to our lion-prey study, dog remains (usually the skull, or just teeth) were found in the Vapheio tomb; Dendra Royal Tholos, Pit 2 Mycenae chamber tomb 533; Asine chamber tomb 1/1 - with a full dog skeleton in the tomb at Perati. Altogether Hamilakis cites eleven Mycenaean tombs with dog burials, most of the kind containing high-status grave goods - including large numbers of seals that probably belonged to personnel in the man's retinue that defined their now defunct roles, stripped of them at the ruler's death as substitute for their own demise, leaving it to the dog alone to be killed and buried with its master.

Hamilakis uses the account of Patroclus' funeral in the *Iliad* (already referred to above in relation to Achilles' hair lock) for textual backup on the significance of the dog in Mycenaean burials, since two of his nine



III.9- 19 (Top Left) Detail of kylix showing Mycenaean with two dogs next to Taurus (bottom left) Ancient Indian visualization of Orion as Deer Head pierced by an arrow c.f. (right and in Error! Reference source not found.) actual Orion, Dogs and Taurus star positions

favourite dogs were placed on the pyre with him (though Mycenaneans preferred inhumation, being in a foreign land they adopted the cremation ceremony following native Trojan practice). The main connotation drawn out by Hamilakis for inclusion of dogs in Mycenaean tombs was to see this as illustrating 'the strategy adopted by the élites to claim an association with hunting ... an activity which signified their ability to control distant, unfamiliar, and often dangerous realms...'. This might be a general social meaning but underlying that is the entirely Indo-European friendship of man and dog which – certainly to the Central Asian Zoroastrians – also had astronomical and spiritual meaning. Since Sarianidi from his earliest excavations at

Gonur (including the Dog Mausoleum just cited above) interpreted its occupants as 'Proto-Zoroastrian'³⁷, we tend more to favour his approach, and we keep it to the forefront of our mind throughout this catalogue.

The fact that *two* dogs are mentioned as buried with Patroclus - and that two dogs on leads feature on the figured Mycenaean pot in the British Museum (see the detail above, taken from the pot illustrated on the last page) – leads us to wonder if they are deliberately shown as a pair because of their association on star maps (Procyon and Sirius, as above right). We have already mentioned that dogs were revered by Āryans, including the Zoroastrians who we know visualised Sirius as Dog Star following on the heels of his master, the hunter Orion³⁸ who on clear nights can be seen with a line of smaller stars running in front of him forming an upheld bow aimed towards Taurus, as clearly captured in *III.9-21*.



III.9- 20 (Left) The Two Dogs in the Vedic vision of Orion, with Mrga-Shiras/Head of the Deer³⁹; (right) dog lid of steatite from Mochlos Tomb 1 (no container for it was found) – the cylinder seal of III.9- 43 was in the same tomb - Seager⁴⁰ figs 1/5

In contrast, in Semitic mythologies Sirius is called BAN/the Bow, and not identified with a dog at all, given this creature is regarded by them as unclean, like the pig. In purely Indian, *Vedic* astronomy on the other hand, the dogs are still dogs, while the arrow is retained as if fired from Sirius, but now identified with Orion's Belt - the full outline of Orion visualized, not as a man, but *Mrga-Shiras*/the Deer-Antelope Head pierced by that arrow, as above left (and detail at *III.9- 19* lower left). From this choice of animal we might loosely associate with it the Hittite deer cult scenes on the metal rhyta described earlier (and on the Trialeti Cup) – all Āryan pieces. Certainly if taking an astronomical angle on the Hittite Deer God - or the much later antlered Celtic God, Cernunnos - it is worth considering Garcia et al.'s interpretation⁴¹ of the higher-than-

³⁷ His *Margiana and Protozoroastrism [sic]* Athens 1998 is a case in point, obtainable now only from Greek booksellers.

³⁸ See, for convenience, W B Henning 'An Astronomical Chapter of the Bundahishn' in *Selected Papers: 2nd Series, Hommages et Opera Minora (Acta Iranica 15)* Teheran & Leiden 1977 229-248

³⁹ From Bal Gangadhar Tilak *The Orion: Researches into the antiquity of the Vedas* Bombay 1893

⁴⁰ R Seager *Explorations in the Island of Mochlos* Boston & New York 1912

⁴¹ ACG Garcia et al. 'Calendrical Deer, Time-Reckoning and Landscape in Iron-Age North-West Spain' *Archaeologia Baltica* 10 2008 66-70

usual number of horn-tips on stags depicted in Galician Iron Age rock art (c.1200-1000) as being mnemonics for Moon-counting up to the Solstice, with extra knobs to take into account intercalation every third year



III.9- 21: (Left) It is rare to see so clearly in the sky as here the figure of Orion with sword, belt and bow, the two Dogs below left, and lowest star of Gemini over Orion's right shoulder (Taurus is off-scene above his bow); (right) the Palaikastro Kouros (depending on the Moon position in relation to the Sirius-Orion line-up). Returning to Minoan/Mycenaean iconography, we later consider current interpretations of the ivory Palaikastro Kouros (above right) as possibly representing the figure of Orion (again assigned the slim physique favoured by the Mitanni *maryanni-kšatriyas*). Yet there is still room for Blomberg's interesting interpretation of the aniconic Double Axe outline made by the stars of Orion (**III.9- 4** right) as an alternative image, even if from the Mycenaean ring seal iconography coming up I temper that idea with one curvilinear adjustment.



III.9- 22: (Left) Cepheus/Tawaret is sometimes overlooked as a member of the Circumpolar stars; (right) location of Halai

From some centuries later at first sight we appear to have an interesting representation of both Canis Major and Minor on a cup recently unearthed in a pit on the 7C BC Acropolis of Halai, some 15 miles north of Thebes (see above map). Where the local museum label simply described it as a hunting scene, the decoration on the *skyphos* was recognized for what it is by John Barnes⁴². On what remains (a quarter is missing), *on initial interpretation* three of the four Cardinal signs are shown (the rear of Taurus, all of Scorpio over the Two Dogs, Cancer and Leo. His identification of the fish as Delphinus – a tiny constellation tucked in

⁴² J Barnes 'Asteras Eipein: An Archaic View of the Constellations from Halai' *Hesperia* LXXXIII 2014 257-76 (sadly, he does not transcribe the inscriptions)

and the forepart of Leo, in reverse order) with 'Delphinus' in front of Leo, and the Two Dogs and Krater either side of Hydra (c.f. their actual positions on the star map given earlier showing how it runs under or



III.9- 23: Skyphos from Halai, Lamia Archaeological Museum H91-648 , photos J Barnes - National Geographic June 2016

near Aquila and Pegasus and too insignificant - may rather refer to *Fom-el-Hut* under Pisces – or most likely Cepheus the Sea Monster near Cassiopeia (probably the equivalent of the Egyptian Hippo constellation Taweret, across from the Dippers (as rendered on the Denderah Zodiac (**III.9- 43**)) - the Mycenaean variation on which is the Minoan Genius, seen on two of the Vapheio seals. What is material to us here is the central place it appears is given to both Dogs on the skyphos, more convenient - in their role of lower paranatellonta to Orion - in marking the opposition to Scorpio on the other side of the firmament (on the cup Scorpio is placed right next to them). 'Convenient' since, thinking practically, for the design band all round the cup, the insertion of the human figure of Orion instead would have meant extending the height of the entire register, leaving empty spaces over the rest of the animal images. But there are alternative possibilities for both Barnes' and my readings which we should look at now.

ALTERNATIVE READING OF THE HALAI SKYPHOS

Having just gone over the Mesopotamian images of Gula's dog (see **III.9- 16** and **III.9- 36**), so often characterized as the Central Asia mastiff type, with pointed ears and square jowl, on reflection I came back to the animals on the Halai skyphos, realising the animal so far identified as Leo could not possibly be so –in fact, the head is that of a mastiff dog (lions have round ears – see detail in Barnes *ibid.* fig.7). If, therefore, this head is meant to refer to Sirius, it means the two running creatures identified as the Two Dogs (or Sirius and Lepus in Barnes' thinking) must instead refer to the *Two Bears* – who also play a huge part in Mycenaean and later Greek culture. Their placing between Taurus and Scorpio makes complete sense, as the two equinoctial Signs at exactly 180° in opposition to each other, with the Bears marking the Polar Centre that cuts that line vertically. The Hydra section of the design would refer to the Summer Solstice, opposite the Winter Solstice section which would be on the missing side of the cup. In fact, Barnes himself writes, 'The argument could be made that the two quadrupeds and the serpent on the skyphos represent the two bears and Draco in the sky' (see map, **III.9-22**) – the jury is out! Barnes points out that the temple in front of which the *skyphos* was buried was aligned directly east, and that 'this alignment would have allowed the eastern risings of the constellations depicted on the skyphos to be viewed from the entrance to the temple.' Test star observation from this viewing point might well help to clarify which interpretation looks right.

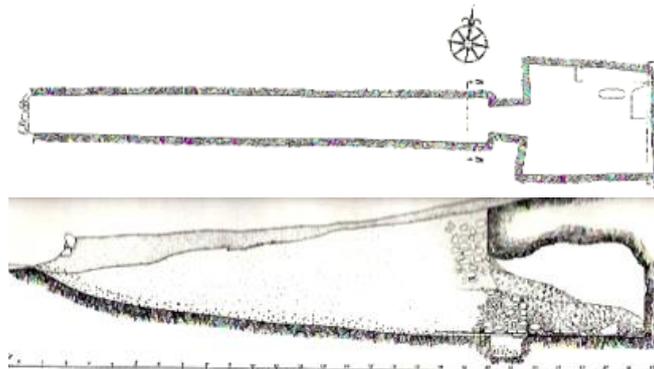
MYCENAEANS AND THE AFTERLIFE: THE DOGS, ORION AND ARKTOS

Making a new start at the New Year is symbolic, on a higher plane, of resurrection - and it appears that just like the Egyptian pharaohs the greatest Mycenaean *kṣatriya*/warriors were in death seen as taking on the role of Orion/Osiris to embark on a new cycle of existence involving the soul's last journey to its final resting place at the Polar Centre, the last signpost being Ursa Major/Foreleg of the Bull – known to the Greeks in Homeric times as the Wain/Wagon or Bear - circling in the sky above Winter Solstice constellations at night, and looking down on Sirius-Orion rising.

This is why the sky-zone mapping the star staging-posts in the journey to the Afterlife was known by the ancient Egyptians as the *Duat* (see the photograph of the *Duat* stars in *III.9- 52* repeated from **Chapter 19**). It covers the area of sky whose constellations we have already started to consider (see *III.9- 21*), which form out a rough hexagon marked by Gemini, the Two Dogs, Orion, Taurus-the Pleiades. These create a curtain marking off the Old Year – or Old Existence - from the New, with (in later Greek terms) the Milky Way as a river leading to it. Implicit in that star-map is a vision of Sirius at the foot of the Milky Way as Guardian and Gatekeeper of the Underworld, given it lies below the horizon most of the year. In other cultures, too, the Dog, burning brightly (*seirios* = *dazzling/scorching*), was understood as crouching over the entrance to the Underworld, waiting to guide souls at the start of the perilous journey like any hunting dog pointing the trail.

EGYPTIAN PRECEDENTS IN THE ROYAL THOLOS TOMB AT DENDRA

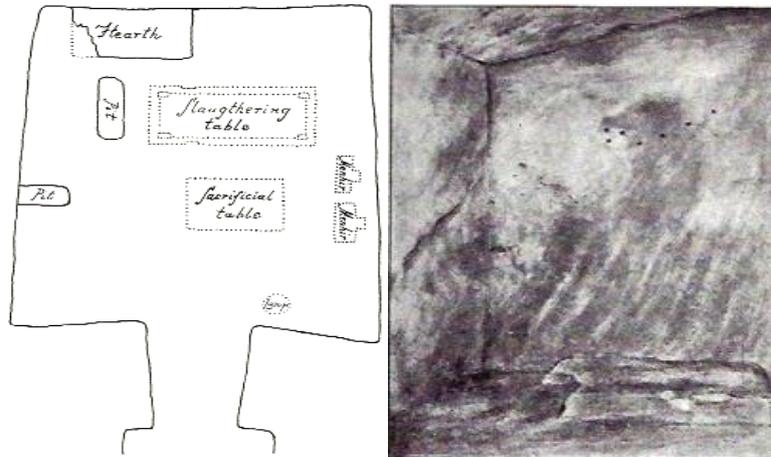
So far in this Catalogue from amongst the royal tombs of Dendra we have only mentioned the amber in Tomb 10 and the warrior's agate beads in the Tholos Tomb, since it is not until **Catalogue F: The Bilateral Attack** that we deal with Dendra's preponderance of *Bilateral Attack* seals. But here we should now bring Dendra to the fore in considering Mycenaean warrior graves overall because its excavator, Persson (*ibid.* 1931 and 1942), dwelt at length on links between Egyptian and Mycenaean afterlife concepts on the basis of evidence from Chamber Tomb 2 (below). Over the remains of the altar/hearth on the north side of its back wall - which at certain times of the year would be illuminated by any direct light coming down the entrance tunnel - were the remains of metal pegs forming the *upside-down* outline of Ursa Major (see Persson's less-



III.9- 24: Dendra Chamber Tomb 2 plan and section, the altar and the Ursa Major decoration being on the back wall

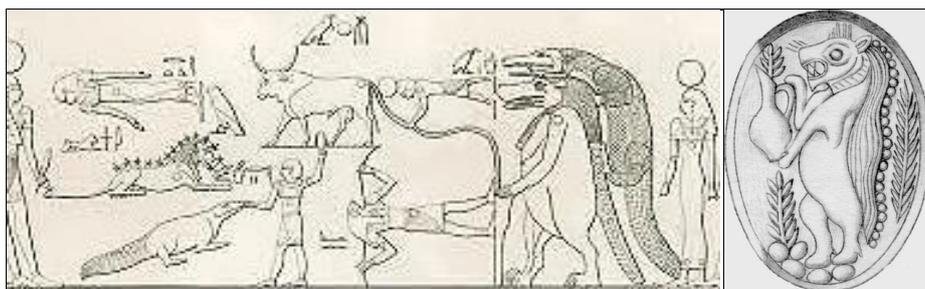
than-clear drawings below), no doubt indicating the Winter Solstice period – c.f. *III.9- 42*). Persson imagined metal stars would originally have been fixed on these pegs to make the image more striking, likening it to the

central position given to *Meskhethiu*/Foreleg of the Bull (Ursa Major) on Egypt's New Kingdom royal tomb star ceilings (as in *III.9- 18* and *III.9- 26*) – the Egyptian visualisation for this constellation that needs further investigation.



III.9- 25: Dendra chamber tomb no. 2 plan with outline of Ursa Major on back wall behind the hearth/altar – Persson figs 53/54;

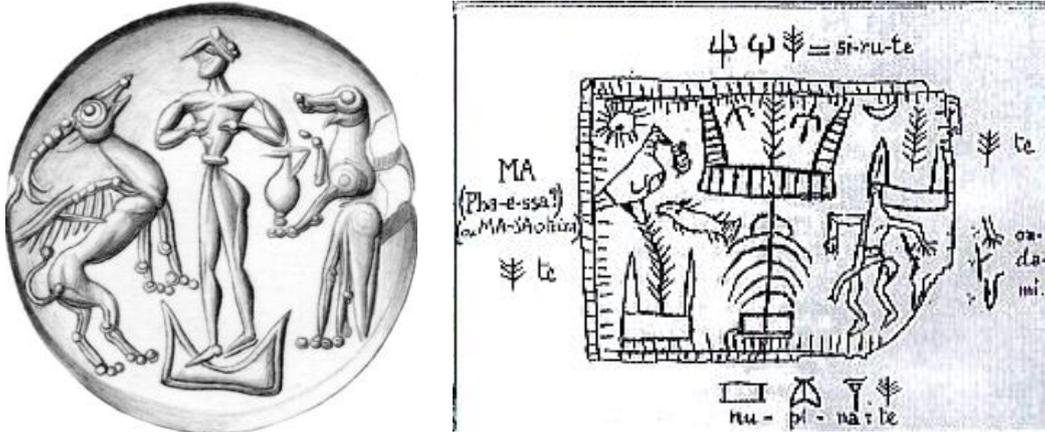
Along with the image of the man with two dogs standing next to Taurus on the krater which started off this line of enquiry in the first place, Dendra's Ursa Major iconostasis surely provides an irrefutably firm precedent for this vein of Egyptian astronomical-cum-eschatological interpretation as being adopted for warrior leader/*kṣatriya* burials within the Mycenaean cultural framework – and is another strong indication of cooperation between Egyptians and the top Mycenaens on such matters. Indeed, the use of the Minoan Genius on seals (like the example below right) is another clear instance of their adoption of Egyptian New Kingdom star ceiling iconography - based as it is upon the original Egyptian hybrid monster (shown in the centre of the Seti I star ceiling version, below) consisting of *Draco*/the Crocodile/*Sobek* draped down the back of Hippo *Tawaret*/*Cepheus* who, in aligning the chained Bull Foreleg/*Meskhethiu* at the Polar centre to Horus' spear, acts as upper paranatellon to Sirius-Isis further down (and still appearing as a hippo centuries later (without the crocodile) on the Dendereh Zodiac *III.9- 43*). This is confirmed on a seal from Khania (*III.9- 27* left), on which the Minoan Genius is given a dog head instead of the usual hippo-cum-lion head, thus turning it into a two-way reference to the Sirius-Orion line up to the Circumpolar Region. We will have cause to study more closely what is in essence a *fiducial meridian* between the two in star-map form shortly (*III.9- 38* right/*III.9- 41* left), as the pair repeatedly takes centre stage in Duat star scenes described in *The Iliad*.



III.9- 26: (Left) Centre panel of the Seti I star ceiling (here with Isis-Sopdet sideways over Leo- and Cancer as crocodile); Horus horizontal with spear pointing up to Meskhethiu/Foreleg of the Bull(the whole bull is shown, as if including Taurus) and Taweret-Sobek holding the Peg of the New Year to the right; (right) the Minoan Genius on a Phaistos seal with libation jug and plants – CMS II,5-322

ORION ON SEALS WITH OTHER SYMBOLS OF DEATH AND RESURRECTION

The image of Orion rising between sighting horns on the seal from Khania below left reminds us of similar representations of slim, athletic males (like the Palaikastro kouros in *III.9- 21*) on Mycenaean gold seal rings floating in the sky – possibly to be associated with the image on an offering inscription found in the sanctuary at Petsophas⁴³ (not far from Palaikastro, in fact) engraved on a copper plaque (below right, from Faure pl.IV). It shows the characters for Sirius (*sirute*, at that time also referring to the Sun) inside sighting



III.9- 27: (Left) Seal from Khania of lapis lacedaemonius that could well show Orion rising between sighting horns, flanked by the winged goat of the Cancer-Capricorn colure and a dog-headed Minoan Genius – CMS V-201; (right) the name of Sirius (si-ru-ti) for the Minoans, presumed to be carried over to Linear B (PS Zf1, Ashmolean Museum AE617) - both cited by Emilia Banou

horns, but since it is between Sun and Crescent symbols with what looks like an Orion figure under it, could well refer to Sirius alone. According to Faure, the two other main names on the offering plaque, *matesa* and *nupina ondami* seem to refer to New Moon and Full Moon Goddesses (note the character *pi* is represented by a fly – more of which below). In passing, we remind ourselves of precedents on Akkadian seals that represent the Sun rising between two mountain peaks, as on the two well-known examples below.



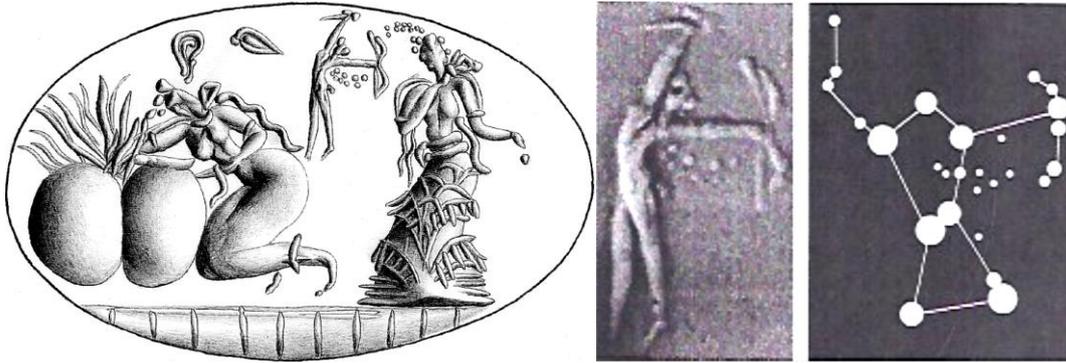
III.9- 28: (Left) Central scene on an Akkadian seal showing the risen Shamash, having cut his way through the mountain peaks with his saw, the dawn symbolized by the opening of lion and lioness gates – Louvre A139; (right) detail from the seal of Adda (BM89115) showing Inanna/Venus already risen with Shamash under her feet half-way up through the cleft flourishing his saw

MYCENAEAN GOLD SEAL RINGS AND CYCLES OF LIFE AND DEATH

Moving now to Mycenaean seal rings, Kyriakidis⁴⁴ comparison between floating warriors in the sky and the layout of Orion's stars is convincing, the most obvious of his examples shown below (to bear comparison with the outline of the constellation, it needs to be viewed as carved in the ring, and not from its reversed impression). Under Orion in the sky is a semi-nude woman against two rocks contrasted with a fully dressed

⁴³ See P Faure 'Écritures Préhelléniques dans dix Cavernes de Crète' *Cretan Studies VII* 75-88

⁴⁴ E Kyriakidis 'Unidentified Floating Objects on Minoan Seals' *AJA 109* 2005 137-54



III.9- 29: (Left) Image as on seal, rather than sealing, of mythological gold ring in Ashmolean Museum- CMS VI-278; (right) Kyriakidis fig.19 (c.f. also with the Khania 'Master Impression', III.9- 46)

lady (for which there are endless precedents on Syrian seals on which Ishtar is represented as two such contrasted figures, often melded into one figure half-clothed, half-dressed (as in **ForAtt-22**). The half-undressed woman here mourns at twin baetyloi, sexually suggestive with vegetation sprouting between, evoking the entrance to womb and tomb. In the sky near Orion float a heavenly eye and ear (there are 18D precedents in Egypt for the disembodied ear such as the 'Hearing Ear of Amun' on the outside rear of Karnak temple's perimeter wall and some Diyala seals show ziggurats with horns and ears on them). On other rings the floating male is depicted behind a warrior's figure-of-eight shield - as on the unmistakably astronomical gold ring from the acropolis at Mycenae illustrated below - from which a case can be made for the shield simply presenting a *circular version of Orion's star outline* (Orion was viewed as a warrior as well as hunter).

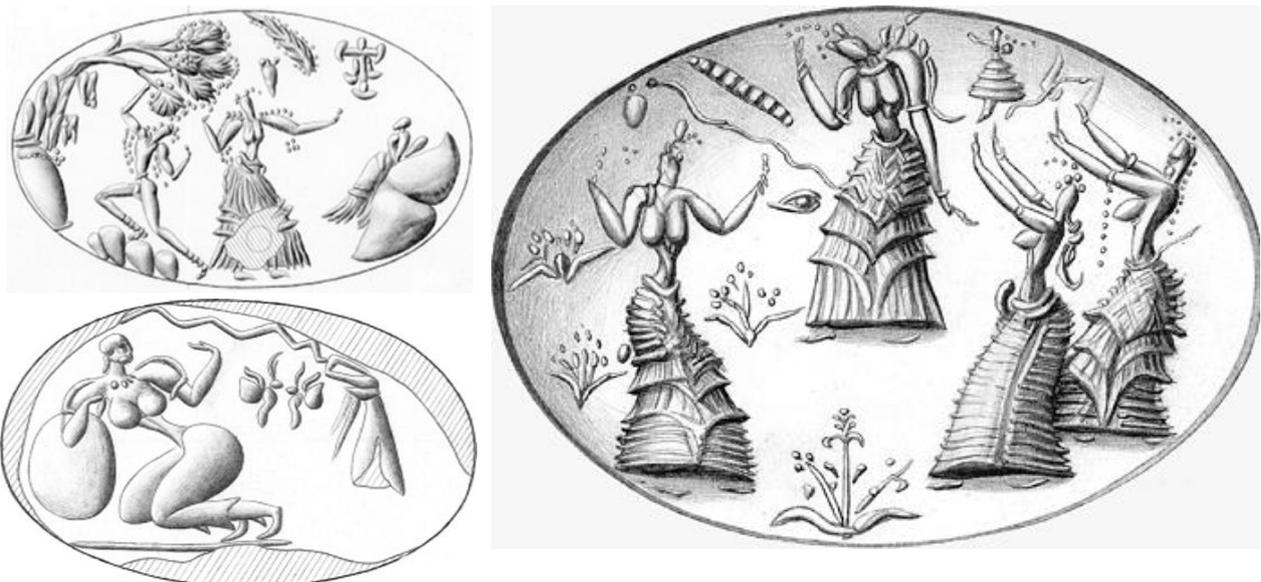


III.9- 30: Gold ring-seal from the Ramp House, Mycenae – CMSI-17

This means (*pace* Blomberg, III.9- 4 right) the four-fold double axe standard under the Sun and Moon embodies the solstitial extremes; the poppy-heads held by the Goddess allude to the Winter Solstice and Underworld period (at the time of Orion rising); the lilies and the small girl to Spring; and the fruit-laden tree to the Autumn equinox (here Hesiod's words fit the image well: *But when Orion and Sirius are come into*

midheaven and rosy-fingered Dawn sees Arkturus, then cut off all the grape-clusters, Perses, and bring them home). This leaves the drooping flowers in the woman's hand on the left next to the Summer months depicted as lion-heads signalling the nadir of the Year bringing drought and death.

Remembering that dog remains were found in the Vapheio burial – and that the warrior lying there wore a necklace with two dog beads (*III.9- 8*) as its centerpiece to me is a strong indication the man was an astronomer-king, being the only tomb apart from the Griffin Warrior's that gives us the full material context against which to assess his role. Similar iconography to the ring seals just looked at appears on the only gold ring found in the Vapheio hoard with him (below top left), and we contrast it with two more of the rings discussed by Kyriakidis, for some of whose readings for individual motifs I offer alternatives in the next paragraph. All three seals have symbols in the sky concerning changes in nature and the insect world that, along with the stars, evoke the promise of the New Year and new life. This lyrical iconography expressing aspects of the eternal story of life, death and immortality might on first viewing appear to be the special innovation of the Mycenaeans, being almost exclusively found on gold seal-rings clearly owned only by those initiated into knowledge of the Mystery of the Underworld Journey - an inevitable cycle to which the commemorative baetyloi, vegetative sprouting and insect transformation from caterpillar to chrysalis to butterfly or dragonfly all allude. On the Vapheio ring seal a chrysalis and ear of wheat (*Spica*) sail in the sky next to what Kyriakidis identifies as a 'tasselled double axe' (to me doubtful, but I cannot identify it better). In a clever visual *double entendre* an Isis Knot (symbolic of the idea of 'conjunction' and/or tally counting) is positioned on two baetyloi to make it look like a chrysalis turning into a butterfly, referring to the process of self-transformation, contrasting in anthropomorphic terms with the dying Adonis figure at the potted tree – all presided over by the mourning maiden in the centre, grieving on one side, joyful on the other.



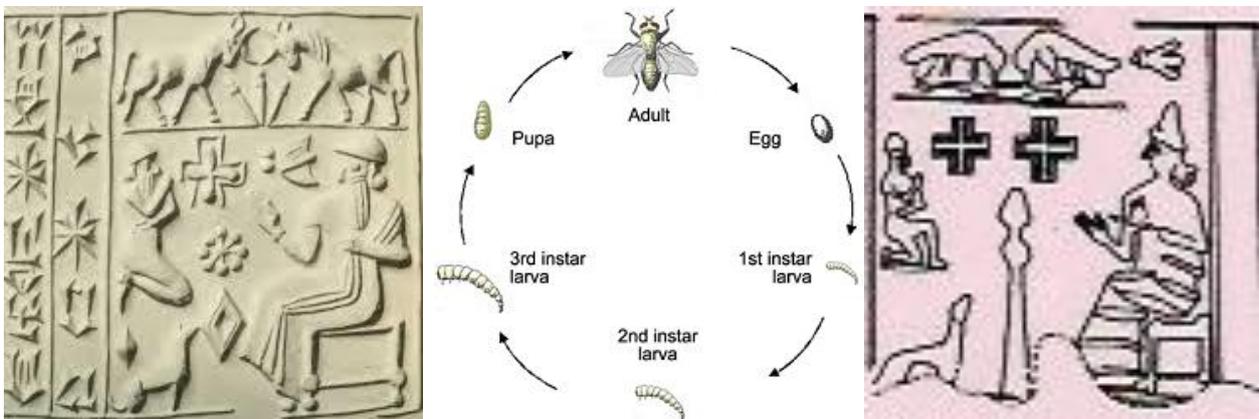
III.9- 31 (Top left) Vapheio ring - CMS I-219; (lower left) Hagia Triada sealing CMS II,6-4; (right) the Isopata ring, CMS II,3-51

The Hagia Triada sealing below it shows the maiden herself down in the Underworld, stripped of all her clothing but with the promise of transformation made by the pair of courting butterflies and Isis knot in the

sky under a serpent which, rather than representing the stars of Hydra, I think refers more to its ability to slough off its skin and emerge out of the ground in evolved form (though Kyriakidis' interpretation of it as Hydra is quite plausible). However, on the Isopata ring above right, a snake again appears in the sky, this time parallel to a caterpillar and flanked by a chrysalis - being stages in the life cycle of the butterfly – again suggesting transposition stages to higher levels of being. On the far side of the main presiding female are what may be representations of a tiny bee/beehive and a wormy-looking mayfly/dragonfly – all to be related to the Spring season along with the flowering lily plants in the spaces between the wailing and dancing maidens watched by the All-Seeing Eye of Eternity. The latter is yet another small detail that refers back to Egyptian precedents that intersperse mythological scenes with the all-seeing Eye of Horus or the Ankh of Hathor/Venus (where Syrians often put the Ankh on their seals, the Mycenaeans preferred the Isis Knot).

KASSITE USE OF INSECT SYMBOLISM

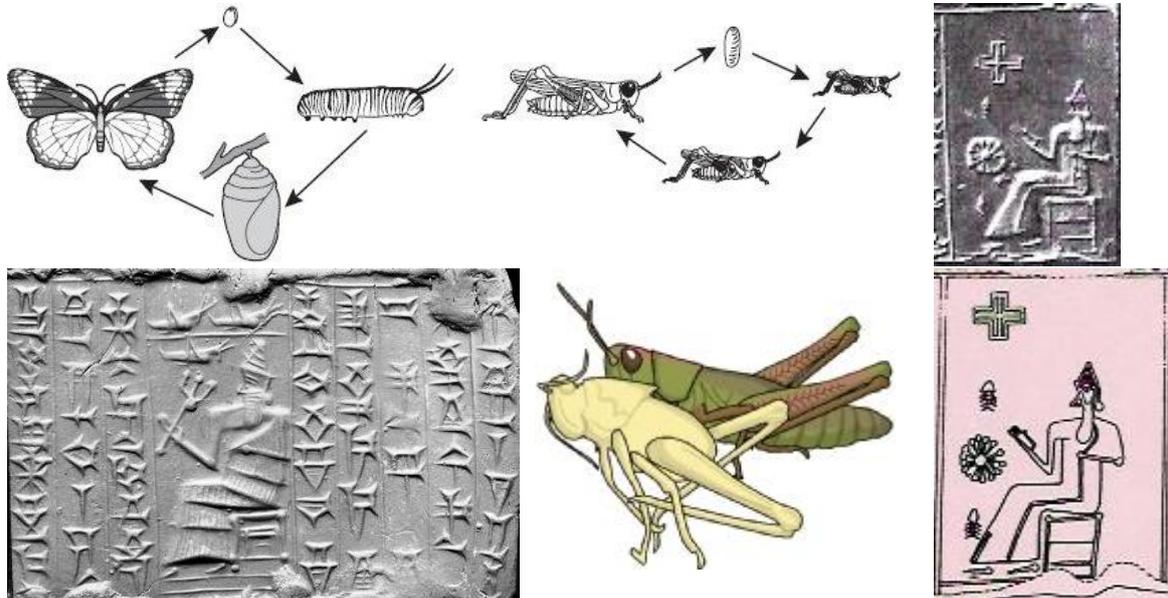
Interestingly, the Kassites, contemporaries of the Mycenaeans, also used insects on their seals, most notably flies and grasshoppers – both of whose life cycles spell out a similar message to the Mycenaeans' use of butterfly stages. The symbolic meaning of the fly has already been explored in relation both to the virtue of courage and ideas connected with the Underworld journey (the life cycle of the fly goes through maggot phases associated with putrefying flesh or faeces which the female fly seeks out to lay her eggs in). On the seal below left showing a Kassite God with a fly in front of him (and note the Sirius dog), I suggest he is being



III.9- 32 (Left) Seal in the Metropolitan Museum, NY showing a seated God with fly propitiated by a kneeling worshipper (c.f. ForAtt-23 for the kneeling mode), on the other side of a vertical line-up of cross, rosette and lozenge; (centre) basic fly life cycle; (right) another Kassite seal using the fly symbol – Hermitage 6516

propitiated in his role as Underworld Baal-Mars-Nergal (Lord of the Flies). I suggest also that the cross represents (as usual) the Sun; the 8-petalled rosette may at first seem to refer to Venus and the *oktaëteris* (other seals show 12 petals (next illustration) so could refer instead to the months of the year, if not year cycles), while the lozenge we attempt to interpret shortly. Between as a reminder we have placed a diagram of the basic life-cycle of the fly to remind us how, on breaking free of its hardened pupa and flying out of putrefaction, it might appear to have overcome death (in corroboration, above right we place another Kassite seal showing the fly next to two crows tearing an animal on its back to pieces). These days crime scene experts determine how long a body has been dead by the development stage of any maggots in it.)

However, it is the parallels between butterfly and grasshopper life cycles that I think are the most telling for our understanding of Kassite and/or Mycenaean seals using insect symbolism. We noted above how caterpillars, chrysalids and butterflies appear in the Mycenaean *pastorales* on gold seal rings – whereas on



III.9- 33: (Top) Life cycles of the butterfly and grasshopper compared; (lower left) Kassite seal showing a God with trident and three grasshoppers above; (centre) grasshopper sloughing off its carapace; (right) Kassite seal with Shamash, 12-petaled rosette and two possible grasshopper sloughs - BM89128-

Kassite seals the grasshopper/cricket seems to take its place as the more locally profuse insect –with a similar seasonal or transformational meaning in mind. In the case of the cricket, it does not go through a chrysalis or pupa stage but is born as a miniature complete insect from an egg deposited in a tube in the earth by the adult that overwinters and hatches in the Spring as a tiny grasshopper. The only way it can grow is to continually slough off its carapace when its softer body becomes too big for it (as above centre) – a process baby spiders and snakes also follow. Its increased presence through chirping or crop infestation is very much a signal of Summer – then they die in Winter when it gets too cold. The grasshopper may thus simply stand for the Summer season – but also, just like the fly, possibly also for ideas of transmutation and immortality in Kassite terms. Van Buren (*ibid.*) refers to one seal in the British Museum (show twice above right and right which has two small ‘bugs’ on top of and underneath a rosette that I believe are just-hatched crickets or even their sloughed-off skins, which she interprets as fish skeletons. In China, crickets are still traditionally kept as pets in tiny cages and changes in chirping are said to reflect the waxing and waning Moon – so either it is a land alternative to Cancer the Crab (also with hard, outer carapace), ruled by the Moon - or simply the Moon.

To conclude, thinking again of a Kassite seal studied in *Catalogue B: the Uruk Stance* (re-illustrated below) which juxtaposes the Uruk Stance lion-prey group against an upright grasshopper and dog placed either side of a palm tree. I now take the Dog to refer to Sirius rising in the Summer season at the start of the New Year, and the cricket as a Summer solstice marker - if not alluding to the Moon. So far the lozenge has defeated

interpretation, but I venture to suggest it may be shorthand for the female genitals (just as the penis stands for the word *lu/man* in Sumerian cuneiform). The Kassites very rarely represented female goddesses anthropomorphically (only a handful of seals show somewhat crude versions of the naked Ishtar) – and indeed the occurrence of the lion-prey group on pure Kassite seals - also Her symbol – is rare (there are fewer than 10). But just as the cross on Kassite seals must surely refer to the Sun-God Shamash so, I believe, we can now read our **Urusta-34** seal as a New Year announcement, with the lozenges standing for the naked Venus, the dog for Sirius and the grasshopper for either the Spring Equinox or Summer Solstice, with the palm tree itself representing the cycle of the Year.



III.9- 34: (Left) Painting delineating external view of concentric zones of female genitalia opened out; (centre) lion-prey attack (our Uruksta-34), with two lozenges as its BIVISUAL, and dog and cricket either side of a palm – Louvre A620; (right) drawing of A620

Having noted significant affinities between Mycenaean and Kassite seal iconography in the use of insect symbolism - which I don't see as coincidental - we can now proceed to look at Sirius and the *Duat* stars as described in the *Iliad*.

SIRIUS AND OTHER KEY DUAT CONSTELLATIONS IN THE ILIAD

Our DIVERSION on Dogs in Central Asian and Mycenaean life got us involved in discussing the *Duat* constellation group - including Orion - that on the goldrings points to the existence and enactment of a Mycenaean version of the Baal-Ishtar/Tammuz-Inanna/Isis-Osiris myth. In the light of only quite recent discoveries and discussions it is thus opportune while still in this DIVERSION to bring in the overall Mycenaean viewpoint on the other *Duat* constellations apart from Sirius, in preparation for the build-up to final conclusions by the end of this catalogue on the mythopoeia of Mycenaean astronomy. We at least now understand more about the significance of Orion and the Dog/Dogs as centerpiece of the *Duat* stars on Minoan/Mycenaean artefacts. Next - for the time being leaving aside the Gemini Twins and Milky Way at the top edge of that sky zone - we should spend a little time considering Taurus the Bull and the Greek and Egyptian nomenclature for Ursa Major/Minor which often also involves the Bull.

First, though, we pave the way by looking at Sirius descriptions in the *Iliad* that will lead to two further *Iliad* sky descriptions in which the Bears also feature during a brief period when the *Duat* stars appear above a battle fought under an eclipse near the end of the Trojan War - followed shortly after by the story of their appearance on Achilles' Shield as memorial to Patroclus.

SIRIUS IN THE ILIAD

Homer uses the image of Sirius in *The Iliad* three times as a simile for the glorious appearance of warriors Diomedes, Hector and Achilles in their glittering armour (here we use the Robert Fagles translation⁴⁵):

(DIOMEDES, V 1-6) Then Pallas Athena granted Tydeus' son Diomedes strength and daring – so the fighter would shine forth and tower over the Argives and win himself great glory. She set the man ablaze, his shield and helmet flaming with tireless fire like the star that flames at harvest, bathed in the Ocean, rising up to outshine all other stars.

(HECTOR XI 69-71) Hector bore his round shield in the forefront, blazing out like the Dog Star through the clouds, all withering fire, then plunging back in the cloud-rack massed and dark.

(ACHILLES XXII 31-38) And old King Priam was first to see him coming, surging over the plain, blazing like the star that rears at harvest, flaming up in its brilliance; far outshining the countless stars in the night sky, that star they call Orion's Dog – brightest of all but a fatal sign emblazoned on the heavens, bringing such killing fever down on wretched men – so the bronze flared on his chest as on he raced.

OMINOUS ASPECTS OF SIRIUS APPEAR IN TROY - AND LATER EXAMPLES FROM ROME AND PARTHIA

The passage on Achilles brings in the darker aspect of Sirius we had not considered so far – indeed, it is often referred to in the later sources more as a star of bad omen and grim disaster than this one mention in the *Iliad* might suggest. Whilst Achilles may look like Sirius rising, little does Priam realise at that moment that it is an omen of his son Hector's future destruction at the hands of this resplendent warrior, now intent on seeking vengeance for the death of his friend Patroclus wrought by Hector – with double indemnity for the looting of the armour Achilles had loaned to Patroclus. Built into that more ominous overtone from Sirius (the words 'fatal' and 'killing fever' set the mood) is the idea of Nemesis/Retribution, in Hellenistic times personified as a Goddess holding the 8-spoked wheel of the *Octaëteris*, fittingly worshipped as a hidden aspect of Athena-Allāt in Late Period Syrian iconography. Here the dark side of Sirius is clearly dwelt upon, tying in with the Zoroastrian view of Solar Zodiacal Precession (which can be subdivided into Sothic Cycle Units of 1460 years), at the end of which Aeon (Time) - in Indian terms, *Karma* - comes full circle to its starting point to call in its dues and mete out reward or revenge. Familiar is the story of the avenging dogs of Artemis who hunt down stag-headed Actaeon, son of Aristaeus of Kea, for looking at the Goddess naked – but let us consider some pieces of Parthian sculpture to learn more of Sirius *néfaste* – pieces that themselves tragically met destruction at the hands of Da'esh when the Mosul Museum was attacked in 2015.

NERGAL, DOG-GOD OF PARTHIA

From a period when Zoroastrian-type Central Asian beliefs of the 'Planet-worshippers' (later called Sabaeans) filtered through to Seleucid and Parthian Syria, the malevolence of the three-headed guardian dog⁴⁶ of the Underworld (Time Past, Present and Future) is conveyed in the relief below from the Nergal temple at Hatra, former Parthian capital near Mosul in Iraq. It brings out the terrible aspect of Sirius both through the

⁴⁵ Robert Fagles *The Iliad with Introduction and Notes by Bernard Knox (Penguin deluxe edition)* London and New York 1990 and numerous reprints

⁴⁶ The three-headed dog was taken on by the Romans as Cerberus in the same role

anthropomorphic form of Nergal, god of pestilence and sudden death⁴⁷, and the three-headed dog at his feet. On a broken statue of Hercules-Nergal in the same temple the God is addressed in an inscription as



III.9- 35 Relief from Parthian Hatra showing Nergal with Cerberus-type dog and consort Allāt/Sirius, surrounded by scorpions, snakes and a standard threaded with planetary symbols - Mosul Museum (now destroyed by Daesh)

*Nergal Kalb*⁴⁸ (Dog Nergal) and several specialists point out how, certainly on Commagene monuments, Hercules-Nergal, according with his Martial character, was approached as the equivalent of the Iranian God of War and Victory, Verethragna, so that the relief embodies a blend of the frightful stellar *and* planetary energies that can mirror each other – even if Dirven⁴⁹ underlines how ‘in the Iranian world dogs are intimately connected with the Underworld and as such have an emphatically positive connotation’. Inasmuch as the dire aspects of Sirius tie in with those of Mars/Pluto, it appears Nergal was propitiated both as Star God when with his dog - *and* Planet – though at times his astral nature is *transferred to Orion*. Thus, in a comment at the end of Al-Salihi.’s paper on Nergal, Segal⁵⁰ directs him to his own findings on the then Panthaeaia of the present Urfa region (Edessa and Harran in particular) where Hercules-Nergal from historians’ accounts sometimes appeared in milder form as ‘Lord Mar(i) of his Dogs’, taken by Segal to be Orion, the point being that the beneficent aspect of Nergal-Hercules as Sirius-Orion will also *protect against* fever and death, rather than dealing it out. (We remember that Gula - and presumably Allāt - had the role of healer goddess, and it is possible in the Sumerian context that temple dogs licked patients’ wounds better⁵¹).

⁴⁷ This version of the God seems to be a blend of Mars and Pluto/Hades (note the scorpions) – Mandaean texts associated the two, with no allusion to Sirius.

⁴⁸ W Al-Salihi ‘Hercules-Nergal at Hatra I’ *Iraq XXXIII* 1971 113-15 and Hercules-Nergal at Hatra II’ *Iraq XXXV* 1973 65-68

⁴⁹ L Dirven ‘A Goddess with Dogs from Hatra’ in A Peruzzetto et al. (eds) *Animals, Gods and Men from East to West* Oxford 2013 147-59

⁵⁰ J B Segal ‘Syriac Monuments in the Vilayet of Urfa’ *Anatolian Studies III* 1953 97-119

⁵¹ B Böck *The Healing Goddess Gula* Leiden 2013

In the background of the Nergal relief is a miniature Allāt seated on a two-dog throne – and two dogs (one fully grown, the other a puppy) also feature on a free-standing statue of Allāt (below) - also originally from Hatra - the subject of Dirven’s paper in which throughout she shows how often Nergal and Allāt are worshipped together, at times interchanging attributes. The free-standing statue of Allāt shown below is the only seated Goddess iconostasis from Hatra showing her with dogs rather than lions (as also in the Nergal relief) – where, it appears, the Sirius characteristics of the male God are here assigned to the Goddess – as happened between Gula and her consort, Ninurta, the latter also sometimes taking on Sirius functions. A second panel (below right) was lodged in the Istanbul Museum collection at the same time as the Allāt piece,



III.9- 36 Headless seated statue of Allāt of Mosul marble from Hatra showing details (left) of a large dog (?Canis Major) at her right hand and (right) a tiny puppy on the ground at her left (?Canis Minor) 100-140AD, Dirven *ibid.* figs 4/3/2; (right) Possible relief of Mar(i)/Orion and Dog with standard of the Seven Planets, Dirven fig.5 – both in the Istanbul Archaeological Museum

and is considered by Dirven to be a representation of Barmaren/Lord Mari of his Dogs (i.e. Orion – note the sword and staff) – on this relief set apart by the same Seven Planets standard⁵² as on the painted Nergal relief from a large Central Asian mastiff on a plinth (presumably Sirius). If, like the Babylonian/Kassite seals in **III.9- 17** that is the correct identification, then here it is obvious to equate the Dog/*Kalb* on its own with Sirius just as in the case of the Gula dog from Tello, the whole relief seemingly intended to represent Orion, Sirius and the Seven Planets.

SIRIUS AND THE WINDS

Bearing in mind Rome’s founding animal (officially going back to Rome’s foundation in 737BC) was the female Wolf who suckled Romulus and Remus – an animal already separately revered in Celtic and Central Asian societies, their adoption of Sirius as Dog would not have been an alien step – certainly there was public enthusiasm for the adoption of its Egyptian manifestation as Isis. For a wider view on Sirius in the folklore of the Classical world, which dwelt at some length on the fevers and windy conditions associated with Sirius, it is worth stopping to consider the link between Sirius and the Winds of the Aegean region, particularly as raised in Laoupi *ibid.*’s paper on the Sirius Cult in the Aegean, unusual both for its chapter and verse references to the Classical writers on astronomy, as for its references to modern scientific papers. Due to

⁵² S Downey ‘A Preliminary Corpus of Standards from Hatra’ *Sumer XXVI* 1970 195-226

their occupation of both Parthia and Egypt as provinces of the Empire, it would not have been difficult for the Romans, given one Sothic Period was ending and a new one starting (the first since the Mycenaean times) to lock into much useful information already taken for granted in Persia/Parthia or Egypt's long Sirius tradition. Blended with navigational knowledge inherited from the Mediterranean's earlier history, it is from the Hellenistic and Roman records that we gain a vivid picture of Sirius as being associated with the strong, Etesian winds blowing in the Aegean during July-August - caused by the interaction of high pressure over Thrace and low pressure over Anatolia – in Egyptian terms characterized as caused by the flapping wings of Isis/Sopdet in kite form (*c.f. III.9- 13*) urging on the rising Nile waters through every channel of the Delta. These winds are often described as hot, though, confusingly, sometimes as 'cooling'.

We should not forget that in Mesopotamia the God of Air and Atmosphere – Enlil - was also God of Winds (his first-born son being the Moon-God) and the importance of different regional winds is hinted at here and there in Bronze Age texts – a Priestess of the Winds (*hiera anemon*) is often mentioned in the Knossos offering lists as receiving honey, and in the *Odyssey (X 1-76)* Aeolus, King of the Winds, puts adverse winds in a leather bag and hands it to Odysseus to ensure his unimpeded journey home⁵³. It is mostly in the later texts that Sirius during high summer is associated with an uncertain climatic scenario of changes in wind patterns, warring wind directions, water currents and pestilence⁵⁴. For the run-up to the Mycenaean Sothic Period this is explained by modern climatologists by the fact that 'around 2200 BC in South Asia, the Indian monsoons that provide 80% of the Nile flow was deflected' (Shaowu Wang⁵⁵ et al.). Overall there is a statistically significant correlation between fluctuations in the Indian monsoons and meridional Mediterranean circulation⁵⁶, 'enhancing the Etesian winds', summed up by Laoupi in her summary that describes that interconnection as between *the intensity of the monsoons in the Indian Ocean, the rainfall in Central Africa, the Sahel boundary and the annual flooding of the Nile ... [and] the summer winds in the Eastern Mediterranean*⁵⁷ reversely detected in prehistoric and historic Greek tradition.

To paraphrase - drawing on specialist papers, some of which I have cited in the footnotes, she draws a picture of the knock-on effect of Indian monsoon rainfall inside the Zanzibar Triangle onto the Ethiopian highlands where the waters of the Nile first accumulate – with ultimate knock-on effects on the Inundation even impacting upon the East Mediterranean sub-climate. From the time Sirius was close to the end of one cycle and near the start of a new one, its rising in July to coincide with sunrise in Leo – always popularly associated in Egypt with the Inundation - and thus also with moisture and water generally - was as much blamed for these pestilential winds as praised for its benefits. From *ForAtt-22* we noted the first appearance

⁵³ A Laoupi et al. 'Odysseus' Journey in the archaeoenvironments of the Western Mediterranean' in S A Paipetis (ed.) *Science and Technology in Homeric Epics* Berlin 2008

⁵⁴ N Barquet et al. 'Smallpox: the triumph over the most terrible of the ministers of death' *Annual of International Medicine CXXVII* 635-42

⁵⁵ Correlation and anti-correlation of the East Asian summer and winter monsoons during the last 21,000 years June 2016 www.iap.ac.cn/html/qikan/aas/

⁵⁶ P Lionello et al. 'Mediterranean Wave Climate Variability and its links with NAO and Indian Monsoons' *Climate Dynamics XXV,6* 611-623

⁵⁷ F Reicich et al. 'Teleconnections between Indian Monsoons and Sahel Rainfall and the Mediterranean' *Intnl J. of Climatology XXIII* 2003 173-86 – and D A Metaxas 'The interannual variability of the Etesians frequency as a response of Atmospheric circulation anomalies' *Technical Report 109, University of Ionnina, Greece*

of the winged Snake Lady with wind-blown hair, and on another Babylonian tablet she is accompanied by a second windswept figure bending sideways that I have dubbed the 'Wind Gymnast'. These figures appear on the seals cleverly conveying ideas of the power of winds coming from different directions –looked into later.

SIRIUS, THE SPREAD OF INFECTIONS - AND SOCIETY BREAKDOWN

Stemming from our descriptions so far of Nergal and the intolerable *khamsin* winds known as the 'canicular winds'⁵⁸, earning for those restless days of Summer in Roman times the epithet 'Dog Days', the final baleful aspect ascribed to the darker side of Sirius is the disease spread by these winds blowing during that time, bringing fever. Sirius and the matter of the spread of disease and epidemic under its influence may be astronomically coincidental, but (separately from Sirius) is one of the factors to bear in mind when trying to explain the successive collapse of empires⁵⁹ leading to the Sea People migrations. Laoupi looks into accounts of the spread of different kinds of infection in the East Mediterranean in the 2M, originally introduced in her earlier paper⁶⁰ by the idea raised in the *Iliad* (I, 9-11) that the plague that hit the Achaeans at the very start of the Trojan War was taken as a sign of Apollo's wrath. In her overview of Sirius in the Aegean (note the closeness of date to 1320) she states that

epidemic diseases seemed to play a crucial role in the collapse of the Hittite empire and the problems of Pharaonic Egypt. The first known smallpox epidemic was recorded in 1350BC. During the Egyptian/Hittite war Egyptian prisoners spread the disease to their enemies. Even the Hittite king Suppiluliumas I and his heir fell victim to the virus in 1340BC. Later on, the pharaoh Ramesses V died of smallpox in 1157 at the age of 35⁶¹.

I mentioned in the METALS DIVERSION that the changeover from bronze (a tin and copper economy) to iron⁶² implements (the ores obtainable from quite different sources) leading also to changes in warfare⁶³ must have been another core reason for the overall crumbling of relations between the large empires⁶⁴, since markets – and economics – were affected. The spread of infections, interfaced by a huge third factor – climate change in the form of drought – triggered agitated population movement across the vast region described in the Laoupi quotation above (there are also records of epidemics spreading to India at this time⁶⁵) – and in divinatory terms these doom-laden aspects of drastic change were often laid at Sirius' door.

We move on now to the Sirius-v-Polar region meridian, involving a brief consideration of both the head and legs of Taurus.

⁵⁸ J Xanthakis 'Probable Periodical Variations in the Frequency of the Etesian winds' *In Memoriam Demetrios Eginitis* Athens 1975 305-17 – and B Ziv et al. 'The factors governing the summer regime of the Eastern Mediterranean' *International Journal of Climatology* XXIV 2004 1859-71

⁵⁹ For an overview see Peiser, B J et al. (eds) *Natural Catastrophes during Bronze Age Civilisations [BAR International Series 728]* Oxford 1998

⁶⁰ A Laoupi 'The Divine Fire of Creation: Homeric Hephaistos as a Comet/Meteor God' *Science and Technology in Homeric Epics* Olympia 2006 27-30

⁶¹ Specialists have identified small-pox scars on many mummies of the period.

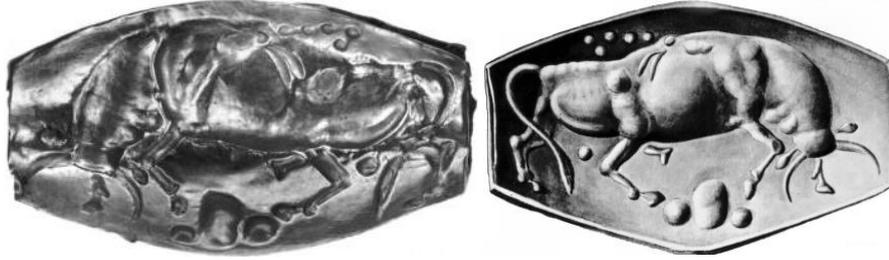
⁶² For an extreme view see, for instance, A de Grazia *The Iron Age of Mars: Speculations on a Quantavolution and Catastrophe in the Greater Mediterranean Region of the First Millennium BC* Princeton 2005

⁶³ R Drews *The end of the Bronze Age: changes in warfare and the catastrophe c.1200 BC* Princeton 1992

⁶⁴ B J Peiser et al. *Natural Catastrophes during Bronze Age Civilisations [BAR International Series 728]* Oxford 1998

⁶⁵ R N Iyengar 'Profile of a Natural Disaster in Ancient Sanskrit Literature' *Indian Journal of History of Science* XXXIX 11-49

THE BEARS AND TAURUS THE BULL



III.9- 37 Amygdaloid seal from the Rutsi tholos tomb (CMS I-283), the dots over the bull's back suggesting not only the main outline of Taurus (the Hyades) but, alternatively, possibly using the blobs on the back leg and front haunch of the bull - and even the testicle and penis beneath -as pointers to the constellations of the Thigh AND Foreleg of the Bull (i.e. both Bears)

Since in the detail on the Mycenaean krater in **III.9- 19** the man with two dogs on a lead is set against an enormous - we might say ritually decorated - bull, I believe the man with his pets portrays Orion with his Two Dogs in the vicinity of Taurus – the most important area of the sky in the season between the Winter Solstice and the Spring Equinox (fully discussed in **Chapter 19**). Bulls are the most common motif on Minoan and Mycenaean seals, but only in the rare case of the amygdaloid seal above (made of glass-covered wood plated in gold) do the dots over and onto the bull's back seem deliberately evocative of the V-outline of the Taurus stars – even if at first glance it simply shows a bull bleeding drops of blood from a spear thrust at its shoulder (always the penetration spot in later Mithraic taumachies and, as we will understand later, when the Foreleg is taken on its own, an allusion to Ursa Major). As the Vernal Point moved into Aries to initiate a new era lasting some 2,200 years, for kingdoms in the Second Millennium celebrating the New Year at the Vernal Equinox even the Sun rising in Taurus at dawn a few weeks before actual New Year's Day would still have held strong traditional significance from long-held custom, amounting to a reminder, for those in the know, of the state of the sky when urban measurement of Time had originally been initiated some 2,200 years previously. The question of whether the Mitanni and, indeed, the Mycenaeans, were aware of the shift in Vernal Point and its astronomical consequences – even if still adhering to earlier astronomical traditions - is crucial, since it directly bears on how they ran their calendars. Answers to this question can often be deduced from their seal iconography, and we will need to view the new constellations gaining prominence during the mid-2M stage of the Age of Aries following the next DIVERSION ON HORSES AND CHARIOTS.

George Banos⁶⁶ recently drew attention to a Minoan vase (below left) decorated with an off-white bull with red spots on its hide that appeared to him to intentionally represent the stars of Taurus - especially since the creature is surrounded by lush plants suggestive of Springtime (as on the Mycenaean krater). Unusually, the vase was found with the remains of a human sacrifice (a young man) at the shrine at Anemospilia on a northern hill of Mt Juktas (which in **Catalogue D** we showed was a key sighting reference for the Palace of Knossos calendar). The vase is similar in shape to that painted on the Hagia Triada sarcophagus used for collecting the blood of a sacrificed animal. But compared to the pretty good match to the V-outline on the

⁶⁶ G Banos 'A Taurus Map on a Minoan Vase?' *Mediterranean Archaeology and Archaeometry (Special Issue) VI* 2006 27-32



III.9- 38: (Left) Middle Minoan vase c.1700 cited by Banos – photo Y and E Sakellarakis; (centre) Etruscan mirror-back showing Orion, Sirius, Lepus, and crescent moon possibly inside the outline of Taurus⁶⁷; (right) inter-meridian corridor between Ursa Minor/Cynosura/'DogTail' and Canis Major/Sirius

Rutsi seal (c.f. possibly the same constellation over Orion on an Etruscan mirror back, above centre), really the pattern of dots on the vase does not at all correspond to the outline of the Taurus, whether 'right way' as painted on the vase, or in mirror image.

At a stretch, though, the main zig-zag of larger dots on Banos' Minoan vase *could* be laid over the outline of Ursa Major, which lead us to consider a constellation assigned so many different names in its history that it must be our next task to unravel them, since it has a direct bearing, not only on Homer's sky descriptions coming up shortly, but also on tracing Mycenaean star-lore connections with both Egypt and the Near East.

TEXTUAL AND VISUAL AMBIGUITIES IN NAMING AND IDENTIFYING THE BEARS

Although Ursa Major was called the Wain/Wagon by Homer, he also used for it the word *Arktos*, which at the time probably did not signify 'Bear', as such. There are historical phases in the coverage of this word, and from reading P Blomberg⁶⁸ we understand the Ursa Major Seven-Star outline did not, strictly speaking, have the connotation in the Aegean area of 'Bear' alone until the end of the Archaic period when the word *Arktos* started to be used, by association, in the more limited, animal sense - as by Aratos in his compendium of early astronomical knowledge gleaned from other sources⁶⁹. It was really only definitively named 'Bear' by Roman astronomers taking over the observational baton from Greece. From the order of key stars given in the introduction to Aratos' *Phaenomena*, the nomenclature is likely to have been copied, not just from descriptions of starscapes given in Homer's works (which interchange 'Wain' with *Arktos*), but in the sequence of presentation very much follows the Babylonian *Mul Apin* order (as pointed out in **Chapter 19**). It is also likely Mycenaean astronomers of the Homeric period somewhere along the line knew of the

⁶⁷ Roger Lambrecht *Corpus Speculorum Etruscorum (Royal Museum of Brussels)* – Cat.no.27 (analysed by me in a paper given at the Oriental Institute, Oxford and reproduced on my website at: http://www.layish.co.uk/astronomical_iconography_of_5_icons.pdf

⁶⁸ P Blomberg 'How did the Constellation of the Bear Receive its Name?' in Pásztor, E (ed.) *Archaeoastronomy in Archaeology and Ethnography* Kecskemét, Hungary 2007 (BAR Series 1647) 129-132 – a useful summary of his earlier papers on the subject, cited in the bibliography to this paper.

⁶⁹ For its text translated into English, see D Kidd *Aratos' Phaenomena* Cambridge 1997

Akkadian word *erequ*/wagon and associated it with *their* word for North, *Arktos* (which at the same time was etymologically a homonym for 'Bear').

In Homeric texts only one Wagon/Bear (Ursa Major) is referred to – though by Aratos' time he specifically mentions that while the Greeks commonly used Ursa Major as navigation guide, the Phoenicians sailed by Ursa Minor since it provided much greater accuracy in finding true North - to it the separate name of *Cynosura* was assigned. This word translates as *Dog Tail* - the puzzle being whether all seven stars were somehow seen as the tail of Sirius way below it - as on the seal below showing a dog seated over a Seven-



III.9- 39: Middle Minoan ring sealing on a nodule from Mikros Vouni, Samothrace – CMSVSIB-321

Star outline (the tail is not leonine). But the star map strip in the previous illustration (right) shows a corridor between two meridians that directly align Sirius with *Cynosura* at the Polar Centre, helping us understand the name, given the end of Ursa Minor's tail is almost exactly at the Polar Centre and Sirius the Dog such a bright marker at the other end of the axis. Indeed, could the dog with tightly curled tail on the seal and dog amulet in **III.9- 16** (and even all the way back to the Protohistoric examples) actually be intended to refer to Ursa Minor, with the dog itself referring to Sirius? Whilst pointing out that 'the [*Odyssey*] lines show that the Wain was an equally ancient name for the constellation', Newell thinks that since Ursa Major originally helped find the right direction to sail in, the later addition of *Cynosura* for more precise location of North could quite naturally have led to its epithet within the Greek World as 'Little Bear' (meaning 'Little/Precise North') - noting also that the stars circling between the two were likened to a serpent (Draco is not mentioned in the earliest Greek sources - but Aratos makes much of it – we quote him later).

Overall Blomberg *ibid.* shows that in many contexts the word *Arktos* was simply used to mean 'North' or 'the Northern sky', or even the Circumpolar Region as a whole, and that over the centuries this use of the word was (perhaps mistakenly) transferred to that region's main Seven-Star signpost and called Wagon or 'Bear – hence the ridiculous fact that the squarish body of the bear began to be depicted with the long tail they do not have (c.f. **III.9- 23**), true even of the pair on the Halai skyphos we are either calling Dogs or Bears!

EURASIAN 'PLOUGH' -V- NEAR EASTERN 'APIN' NOMENCLATURE

As we shortly see in our study of Achilles' Shield, in the *Iliad* Homer calls Ursa Major 'The Wain'/Wagon, a name we know was to reach England by mediaeval times as 'Charles's Wain'(in Scandinavia similarly known as *Karlawagnen*) yet probably derived far earlier as much from fellow Indo-Europeans along with its alternative, 'Plough', since it appears the idea of this agricultural implement in several regions started off as

a wheeled adaptation of the cart (indeed there are Indo-European vocabularies, as in French, which coined words for the plough as if an adaptation of the *chariot* - as in the French *charrue*/plough-share). In fact, the terminology for either nouns or verbs connected with the plough and its separate parts are not only legion, but highly variable, with the earliest names we know of going back not just to the vanguard of early farming in the Neolithic Near East, but also to its takeup, in separate vocabulary streams, by both the Indo-Europeans *and* Indo-Iranians (for instance, the root *ar*/to plough can be traced all through the Indo-European languages (as in the English *arable*) but is completely absent from Indo-Iranian vocabularies. On the other hand, as Puhvel⁷⁰ says, 'If the plough with seeder existed in India in Vedic times (the late 2M BC), the most likely source for its adoption was Northern Mesopotamia where Indo-Aryans controlled the Hurrian-Akkadian Mitanni kingdom during the middle of the 2M'. Perhaps the most interesting words in this connection are the Avestan *aēšā* for plough, and the Sanskrit *īṣā* for pole (of the plough, by association a double reference to the Polar axis). Puhvel points out that in Akkadian the root *ereš* referred to ploughing the land - as against the also attested Hurrian *ḫereš* - thus a likely word actually used by the Mitanni. Its root is seen in use in the name of the Sumerian Goddess *Eresh-ki-gal*, Underworld persona of Inanna, so that her name etymologically comes out as 'Great Plough[woman] of the Earth' (remember the link we referred earlier made by Langdon between Inanna and Sirius in connection with Gula).

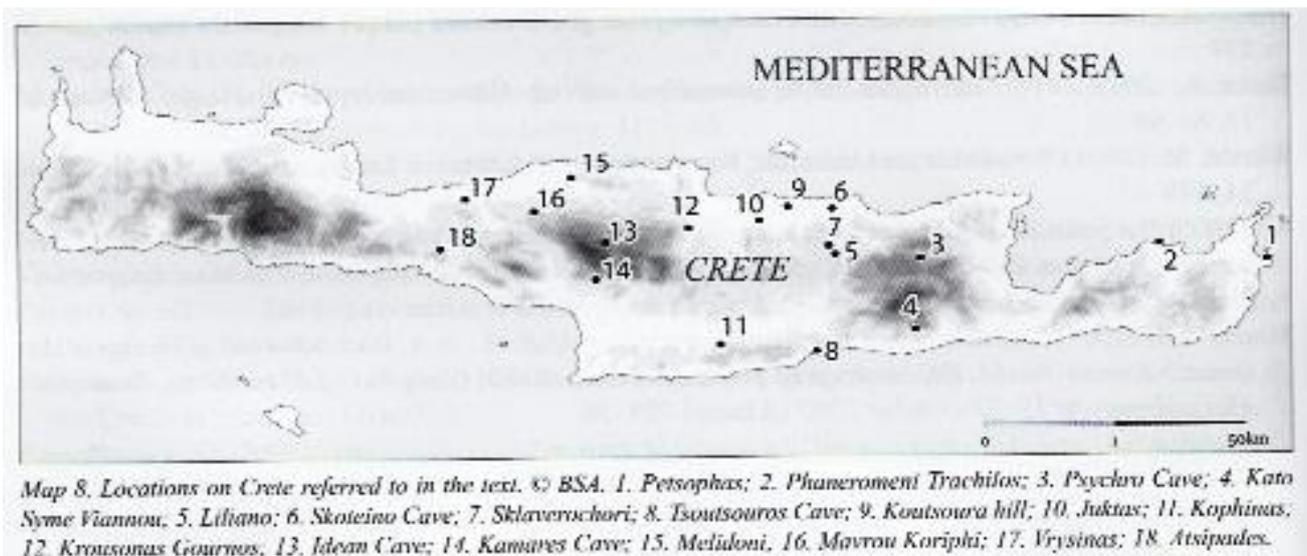
These are some of the main points made in Puhvel's dense paper on plough etymology, from which for our particular enquiry we can extract a handful of further signposts of significance for Ursa Major's nomenclature, though we must bear in mind that the vocabularies he discusses do not necessarily refer to asterisms alone. Old High German, especially, used words with the base, *plog* for plough, fitting well the general outline of Ursa Major as a long pole attached to square plough-share, inclusive sometimes of the small, supernumerary stars for the seeder pod - thus we also have Old High German *waganso*/Old Prussian *wagnis*, meaning 'ploughshare' (not wagon!) - whereas further north we have Lithuanian *arklas*, meaning plough! This gives but a taste of how very different words for the same tool, or action, could elide with different aspects of the central meaning in different languages.

APIN AND BOÖTES

Perhaps most significant in terms of precedence of image, Puhvel says quite clearly that, whatever the word for it was in the Hittite language, in *their* written records their word for plough was actually expressed on tablets by the cuneiform sign for *Apin*, the Mesopotamian word for plough - one reason why in **Chapter 19** I have argued for *Mul Apin* in the Mesopotamian star lists to be identified with The Plough/Ursa Major - rather than *Margidda*/cart which I see as an early name for *Auriga*/chariot. It is possible the Plough concept reached England via Āryan/agricultural diffusion routes in Mycenaean times, or even before. We have already discussed the depiction of the ordinary plough on a handful of Mesopotamian seals in **Chapter 19** -

⁷⁰ J Puhvel 'The Indo-European and Indo-Aryan Plough: A Linguistic Study of Technological Diffusion' *Technology and Culture* V,2 1964 176-190

assuming it to represent *Mul Apin*, and assuming the ploughman behind it to be Boötes⁷¹ (in contrast, the two ploughmen on a silver cup from Central Asia discussed outside this piece probably simply express a straightforward rural background to the celebrations above without being astronomical in content). À propos, Blomberg tells us 'Arcturus alone was itself circumpolar about 2000BC', pointing out that Boötes' nickname of *Arktophylas* not only means 'Bear-watcher' but, alternatively, 'North/Circumpolar-watcher' in general since the word *Arktikos* was the Greek word for 'Arctic Circle', under which in Homer's time Boötes was positioned, other than the bright star Arcturus on its very edge (hence Blomberg reckons the single standing clay male figurines from Petsophas with bowed legs must imitate the rhomboid outline of Boötes).



III.9- 40: Crete's non-urban sanctuaries (most have clay figurines) – Haysom *ibid.*

To place the Petsophas figurines in wider context, Haysom⁷² did a stock-take of all non-urban sanctuaries on Crete recently (see map above), including a non-interpretive muster of the clay figurine repertoire at each, and a useful bibliography for the archaeology reports on each sanctuary.

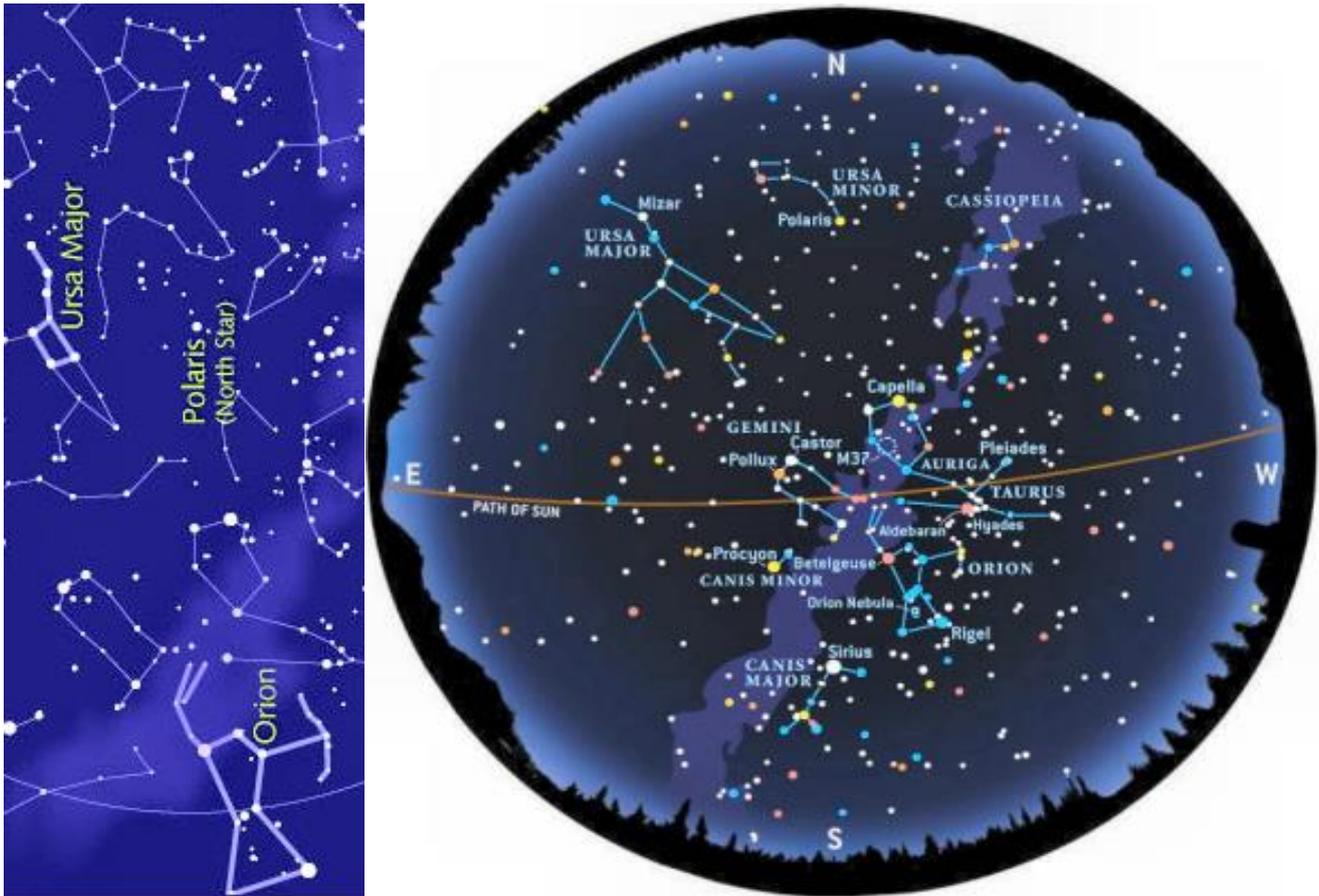
FLUIDITY OF THE WORD 'ARKTOS'

Taking into account Blomberg *ibid.*'s findings, let us track more closely now how Ursa Major could have come to be identified with The Bear. He thinks it occurred when the Greek word for 'North' was translated into Latin as *Ursa*, but adopted only with its animal meaning, agreeing with Newell⁷³ in seeing how easily the word *Arktos* (meaning North) could have transferred solely to the idea of 'Bear' even if the same word was used for both in Greek. Newell refers first to the story of how in *Odyssey V* 271-77 Odysseus follows Kalypso's instructions when leaving her island, by 'gazing on the Pleiades and the tardily setting Boötes, and *Arktos* also named the Wain, who yonder revolves and watches Orion – and alone bathes not in the Ocean'. Below we provide variations on close-up and full-view versions of the alignment running from Ursa Major's rectangle past that of Gemini and head-on down on to Orion, the very configuration described twice in **The**

⁷¹ See P.E. Blomberg 'Did Boötes Drive a Wagon with Oxen on the Minoan Star Map?' in *SEAC 2002* Tartu 2005

⁷² M Haysom 'Recent research into Minoan extra-urban sanctuaries' in *Archaeology in Greece 2014-2015* [BSA Archaeological Report 61] Cambridge 2015 94-103

⁷³ W W Newell 'The Bear in Hellenic Astral Mythology' *Journal of American Folklore* XIII, 49 1900 147-149



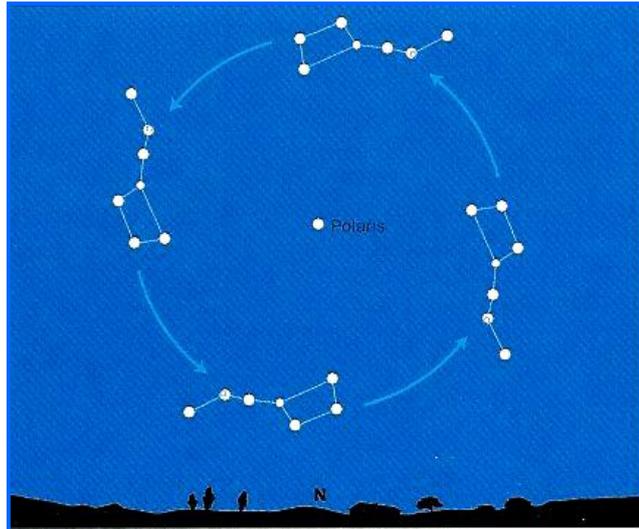
III.9- 41: (Left) Detail of the Ursa Major-Orion line passing between Gemini and Auriga; (right) overview of the entire sky showing that corridor, running at right-angles to the Milky Way, in relation to all the Duat stars

Iliad, too - as we will see. But Newell also points out that a good reason for the changeover to mean 'Bear' is connected to the myth of the Goddess Artemis who changed her nymph, Callisto, into a Bear as punishment for becoming pregnant with Arkas, eponymous hero of the Arkadians – a reason which surely takes us to the pre-Roman period, to tie in with the dramatis personae surrounding Aristaïos (*III.9- 14*). Certainly when we eventually look in **Chapter 20** at Richer's presumed Archaic Greek land zodiac, the sanctuary of Artemis at Brauron in Arkadia appears to have been placed at the heart of the territory designated to represent the Circumpolar Region geographically, so we are back to the retention of the meaning of *Arktos* as 'North/Circumpolar Region' (at the same time we know the young girls at the Brauron temple (known as 'little bears') enacted a 'Bear dance').

ARKTOS AS HELICE

Importantly, Blomberg further notes that *Arktos* is primarily associated with the idea of revolving – and that it is the entire Circumpolar Region that revolves over Orion and Taurus/the Pleiades as it looks down on them, never sinking below the horizon. Blomberg points out the ancient Indian word, *arkati*, meaning 'to be radiant', also refers (according to Huld⁷⁴) to 'the Proto-Indo-European root *H₂rtko-s [which can be identified as] the zero-grade Hret/roll,turn" (in turn related to the Sanskrit *ratha*/chariot and Latin *rota*/wheel). Homer,

⁷⁴ M E Huld 'PIE "bear" *Ursus Arktos*, *Ursa Major* and *Ursa Minor*' in K Jones-Bley et al. (eds) *Proceedings of the Tenth Annual UCLA Indo-European Conference [Journal of Indo-European Studies Monograph 32]* Washington DC 1999 117-130



III.9- 42: Ursa Major's position at midnight on any one night gives the time of year and sidereal time for that day, independent of the Sun, since its position turns by almost a degree every day, taking a year to make a complete circuit

too, in the *Odyssey* (in fact the oldest Greek text giving names for constellations) uses the word *strefo* to describe *Arktos*, which again conveys the idea of 'rotating on its axis'. Huld concludes that the adoption of this vocabulary on the basis of "the circumpolar motion of the Ursae is far more appropriate than alternative explanations that focus on the [appearance of the] mammal alone"⁷⁵ – leading Blomberg to reckon that 'the Proto-Indo-European background for the Greek word for Bear, *Aktos*, seems more to have its origin in the meaning, 'roll' or 'turn' than in the swaying gait also ascribed to bears, and explains the later Roman Manilius' choice of name also for Ursa Major as *Helice*. Huld also points out that of course bears in nature hibernate, reappearing from their hides in spring, so that idea of going round and round also implies 'coming back' so symbolic of resurrection, and again associated with the eschatology of Sirius and the Duat.

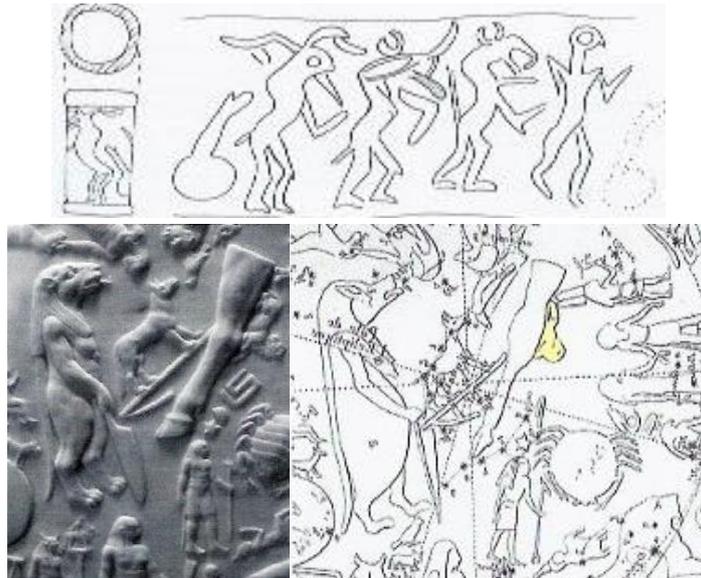
URSA MAJOR IN THE EGYPTIAN TRADITION AS BULL FORELEG

Ambiguity of a different kind concerns the representation of Ursa Major as a bull leg joint on an early silver tube seal (below top) found in a burial on the small island of Mochlos off the north coast of Crete (excavated by Seager⁷⁵) and rated by Joan Aruz⁷⁶ as Syrian). It shows a procession of upright therioanthropes (one fully human) ending in the 'Foreleg/Thigh of the Bull' – which by Egyptian convention would be Ursa Major⁷⁷. The rendition on the Mochlos seal can be compared most clearly with a late example of its representation as Bull Foreleg in the Ptolemaic Denderah Zodiac (lower row of pictures below). On it, the figure of Taweret, linked to the Foreleg via Peg and Plough with small Fox/Jackal on top - ?Ursa Minor - instead of the 18D form of Draco/*Sobek* down her back has a continuous sleek mane of long hair. The older type with crocodile (as in III.9- 26) served as prototype for the Cretan Minoan Genius (also shown in III.9-26) that in translation changed the crocodile component (an animal not known to Crete) into back cladding like a hard beetle carapace or cicada-like insect wings (taking us back to the Kassite seal imagery looked at earlier).

⁷⁵ R Seager *Explorations in the Island of Mochlos* 22, 111

⁷⁶ J Aruz 'Mitteilungen: The Silver Cylinder Seal from Mochlos' *Kadmos XXIII* 1984 186-8

⁷⁷ Aruz reminds us of sealings from Ur (Legrain *UEIII* pl.14, 239 and pl.21, 393) depicting bovine leg precedents also dating to the Sumerian ED period.



III.9- 43: (Top) Levantine tube seal of silver from Mochlos Tomb 1 c. 2200 (from the same tomb as the dog lid, III.9- 20) – Seager fig.36 and Aruz (ibid.) fig. 1; (below) Ursa Major as 'Foreleg of the Bull' on the Dendera Zodiac (photo of plaster cast and drawing) – note behind it Taweret/Cepheus holding peg and plough with small Dog on top (in Greece associated with Ursa Minor/Cynosura - c.f. III.9- 38 right)

On the Mochlos seal I read the figure after the Bull-Leg as Lepus/the Hare, a small star group under Orion's feet sometimes taken as an alternative to Sirius (see map, III.9- 44). In the crude Etruscan design recorded by Gerhard⁷⁸) (III.9- 38 centre), Sirius and Lepus are shown together engraved next to the outlines of Orion and Taurus, scrambled in order to fit into the circle of the mirror back. On the seal, I suggest therio-anthropes for Taurus and Leo then follow, led by Orion: I mention the seal not only as an example of Levantine mediation in promoting the Egyptian view of Ursa Major, but also because it focuses on more or less the same cast of *Duat* constellations that feature together or singly on Mycenaean artefacts and in Homeric texts – as borne



III.9- 45: Section of Middle Kingdom coffin lid from Chapter 19, showing (left to right) the Sky goddess Nut, the Bull Leg – and in the next column Orion/Osiris and Sirius/Isis holding hands – from R A Parker 1974 (and in colour); (right) drawn detail of the rendition of the Bull Leg in Egyptian terms showing its Seven Stars, also sometimes known as the Seven Sacred Kine

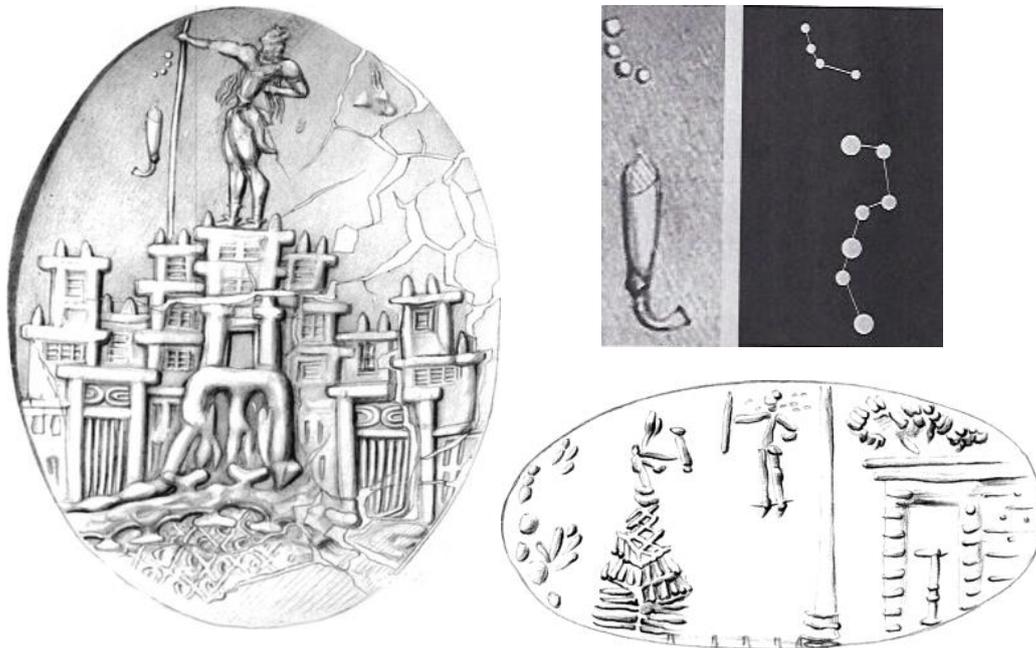
out by the end of this account. In a way the counterpart to the Mochlos seal is to be seen as early as the Middle Kingdom in the introductory decan columns painted on the underside of Egyptian coffin lids that were provided as maps for the deceased (example illustrated above). They begin with the hieroglyph for the Sky, the Goddess Nut holding it up in her arms, followed by the Foreleg of the Bull/Ursa Major. Then come Horus/Sopdu's parents, Sirius/Isis-Sopdet led by the hand by Osiris (identified absolutely without doubt with Orion because of the three stars of Orion's Belt often shown next to him, as in III.9- 18). The key triumvirate

⁷⁸ Eduard Gerhard *Etruskische Spiegel*. III, ccxliiiA, 3/*Paralipomena* 207** (lxxxiiig) – described in IV p.22 as 'ein pränestischer Spiegel des Herrn de Meester, welcher zuerst mit Brunn's text in den *Monumenti dell'Istituto* VI, 24,5/*Annali* XXX p.388 erschien'

of the Duat thus serves to introduce the lists of stars catalogued in sequence thereafter, in all their risings and settings⁷⁹.

MYCENAEAN AND MINOAN VERSIONS OF THE BULL-LEG

We have to wonder which name was used by the Mycenaeans for the Ursa Major outline in Vapheio Chamber Tomb 2: was it thought of as Wagon, Plough, Bear – or Meskhetiu/Bull-Leg? Given the tomb's other Egyptian associations, including the pair of bronze scales for the weighing of souls found amongst the grave goods (below), and seal with a very doggy Minoan Genius amongst the hoard, it could well have been the latter name they knew it by! In Roman times the Seven Stars of Ursa Major were called the *Dei Septem Triones*, or The Seven Threshing Oxen, imagined as moving round and round as if pulling a threshing board over grain, bringing Ursa Major back to its original association with the Sky Bull – its northern placing still alluded to in the English word *Septentrional*, meaning 'Northern'. In fact, Blomberg refers to one Scholiast commentating on Homer who writes of Boötes as in the vicinity of 'the bears - who look like cattle fleeing in panic from their herdsman'. In Egypt in one astro-theological text, the Seven Stars of Meskhetiu are called 'The Seven Sacred Cows', and in the tomb of Ramesses' II's chief wife, Nefertari, are shown on a wall-painting following their master, the Sky Bull (**Chapter 19, III.19-188**). Thus, given the whole sky was originally thought of as a Bull-hide stretched across the sky, associations had always been made between the Dipper stars and bull-legs, in the mists of the Palaeolithic still joined up with the head of Taurus.



III.9- 46: Minoan oval ring seal impression from a house in Khania, known as 'The master impression -- CMS VS1A-142: the original seal design would have been engraved the other way round – and if meant to show Orion, the staff replaces his bow, as (below right) on another ring sealing in the Ashmolean Museum – CMS VI-281 (c.f. III.9- 29); (upper right) Kyriakidis fig. 22

Probably it is Ursa Major shown looking down on Orion again on the famous sealing from Khania known as 'The Master Impression' (above) in which an athletic male figure again stands between sighting horns at the

⁷⁹ For the whole coffin lid underside decoration, see M Clagett *Ancient Egyptian Science II: Calendars, Clocks and Astronomy* Philadelphia 1995, pl.4!

top of a palace behind mountain peak and river, flanked on one side by what looks like the Bull Leg/*Meskhethiu*/ Ursa Major (thus interpreted in Kyriakidis' diagram above, top right) and on the other by a Capricornian goat head no doubt referring to the solstitial colure. The figure holds a sighting rod in place of Orion's more familiar bow (c.f. *III.9- 21*) and again possesses the same telling, athletic, slim physique and tight waist-belt we have often described as a universal Mitanni (*and* Minoan) hallmark for the God or hero. The arc of dots over the Bull-Leg has been interpreted as Corona Borealis, near Boötes, said to have been dedicated to Ariadne by King Minos.

THE BEAR AND DUAT STARS AS OMEN, MEMORIAL AND RESTITUTION

We have already mentioned how in different contexts Sirius had connections not only with Underworld soul travel, but also with ideas of cosmic retribution, and have above indicated some of the ways in which Sirius, Orion and The Bears in particular were clearly significant in Mycenaean cosmology, often dove-tailing in astral terms with the Lion-Prey group in announcing the New Year as part of the crossing line to the start of Afterlife Renewal. We are informed enough now to consider two instances occurring quite soon after each other – in *Books XVII* and *XVIII* of the *Iliad* – when Homer chooses to imply the presence of the Duat stars and some planets – or to describe them directly - as backdrop

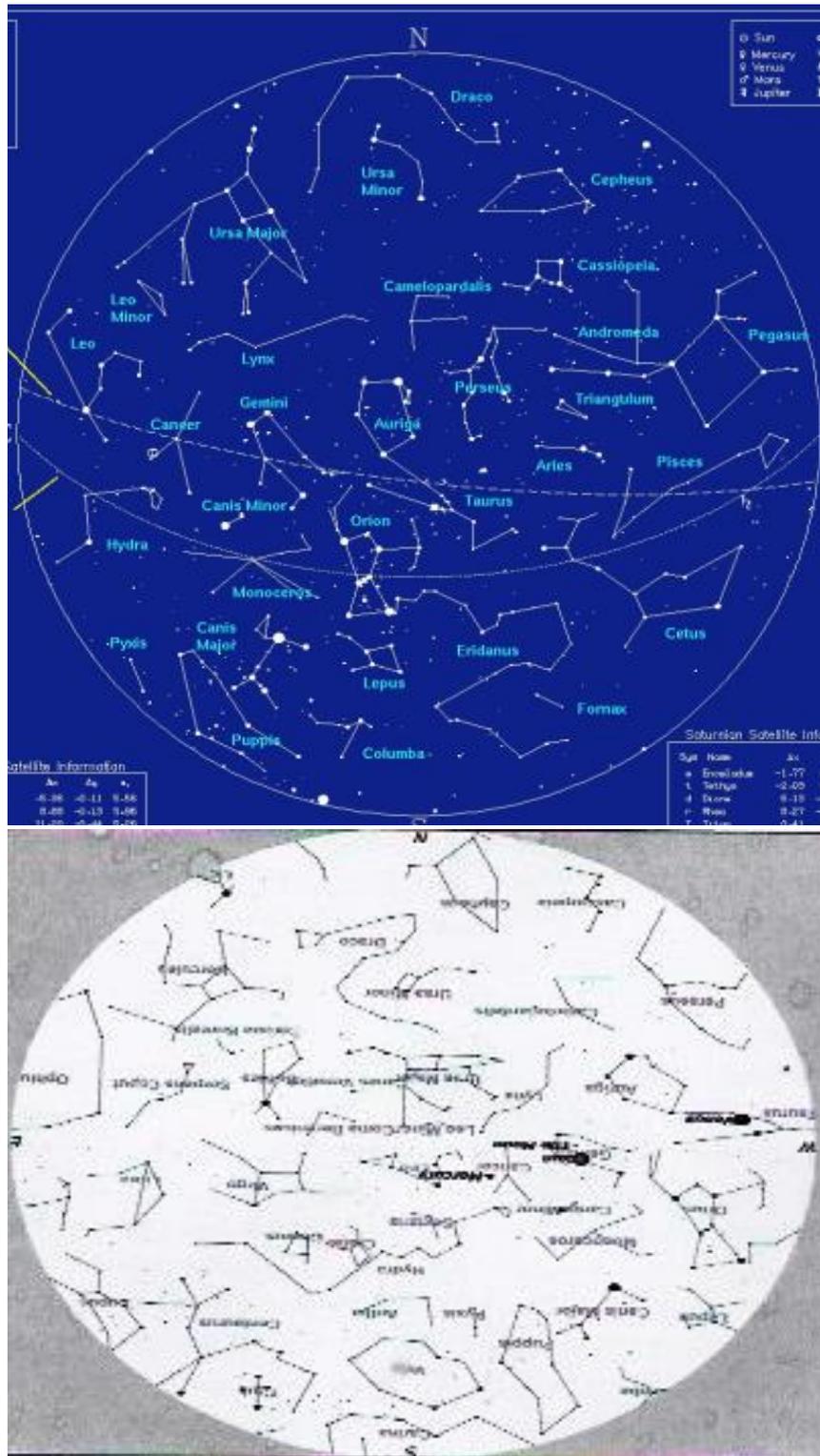
- ★ first, to the prolonged fight over Patroclus' body, during which an eclipse takes place (the *Iliad* mentions that he died at noon) and
- ★ second, to Achilles' return to the field of battle to avenge his friend's death, armed with a new shield decorated, amongst other scenes, with the Duat stars in memory of the time at which Patroclus was killed.

In both cases, from the sequence of preliminary material already laid down at the start of this DIVERSION, we will easily understand how the *Duat* starry background can be interpreted in the first case as both ominous yet suitably poetic reflection of the event (a momentous death during an eclipse) - and in the second as both a way of memorialising that death and a conjuring up of the machinery of Nemesis indicate the event will not be forgotten until restitution is made.

THE TROJAN WAR BATTLE OVER PATROCLUS' BODY DURING AN ECLIPSE

There are several stages in the battle over Patroclus' body after it had been abandoned by the Trojan warrior, Hector (thinking the man he had killed was Achilles), who had stripped it of the armour Patroclus had borrowed from his beloved mentor. Once aware he was dead, the Mycenaean army led by Menelaus was adamant to a man that they would not allow the body to be captured by the Trojans: various side-stories are woven into the gruelling encounters that ground on all day as both armies engaged in fierce vortices of fighting all across the plain below Troy. Then on the afternoon of 6 June 1218, by Papamarinopoulos et al.⁸⁰'s calculation culminating at 15.45 pm, a 75% partial eclipse was experienced over that part of the battlefield where Patroclus lay, placing the warriors there in darkness with Sun and Moon

⁸⁰ S Papamarinopoulos et al. 'A New Astronomical Dating of the Trojan War's End' *Mediterranean Archaeology and Archaeometry* XIV,1 2014 93-102



III.9- 47 (Top) Standard N Hemisphere star-map for midnight at the WINTER SOLSTICE showing the Ursa Major/Minor vertical alignment to Orion and the Duat stars; (bottom) position of the same stars temporarily visible in the afternoon during eclipse of 6 June 1218, two weeks short of SUMMER SOLSTICE (rotated to show both maps with North at the top (only Ursa Minor and Draco show) - Papamarinopoulos fig.1. The position of the Sun and Moon in eclipse in Gemini, of Venus in the Pleiades and Mercury in Cancer are also marked. Three days later Venus was to rise at dawn in the East (mentioned by Homer (XXIII 226-8), validating the 1218 date, Korfmann's date span for Troy Levels VI/VIIa is 1200-1180, a closer dovetail than to Henriksson's favoured 11 (24 corrected) June 1312 date, with an eclipse in Cancer -though the sky that afternoon, too, would have displayed roughly the same astral configuration – Henriksson fig. 2

appearing and disappearing out of view, unable to see clearly what they were doing - yet others beyond the zone still had a cloudless, bright sky over them, and clear view of each other. The eclipse event is posited on

the following description in the *Iliad*: **XVII**, 423-36 (Fagles translation) – summed up by Papamarinopoulos as describing ‘with exceptional clarity a partial solar eclipse’, noting in particular how tellingly different zones of the battlefield experienced differing phases of darkness or illumination are portrayed:

*So on they fought like a swirl of living fire – you could not say if the sun and moon still stood secure,
So dense the battle-haze that engulfed the brave who stood their ground around Patroclus’ body.
But the other Trojans and Argive men-at-arms fought on at their ease beneath a clear blue sky –
Sharp brilliance of sunlight glittering round them, not a cloud in sight to shadow the earth and
mountains. Men fighting at a distance worked with frequent breaks, dodging painful arrows that
showered side to side, but men who held the centre suffered agonies, due to the haze and carnage –
Ruthless bronze hacking their lines to pieces, there where the bravest fought.*

The Sun is later described as ‘shining again’, and the time sunset finally comes is then mentioned – two further indications that the above passage in step-by-step fashion describes a temporary state of affairs. Although this description was used by both Papamarinopoulos et al. - and Henriksson⁸¹ two years before them - to attempt to date the last year of the Trojan War⁸², I am focusing simply on the symbolism of the state of the sky at the time of the culmination of the eclipse. For this time of year this rare - and brief - day-time manifestation of the Duat stars over the dead body of Patroclus has divinatory meaning – as if a sudden showing of the usually invisible Gods looking down and noting what was happening, and an indication of how they would enable the score ultimately to be settled through Achilles. Henriksson took to this interpretation, saying, ‘The memory of this unique situation may have been considered as a proof of the intervention of the Gods in the battle and may have been the inspiration for the central motif of the new shield that Hephaistos made for Achilles’.

In Papamarinopoulos’ paper, his fig. 1 reproduced above (unfortunately of poor resolution and not amenable to further enhancement) maps with special software the state of the sky for that latitude during the eclipse. It originally showed Orion upside down with Ursa Minor and Draco under him (Ursa Major dipping below the horizon), so for the sake of comparison with a present-day star map I have rotated it through 180° so both maps face North. What we see, in a diagonal line running across the centre of the sky, are the Bears ‘looking down’ on Orion through the gap between Gemini and Auriga across the *Duat* zone as delineated in **III.9-41**. As I have said, those *Duat* stars would not have been visible in full daylight round Summer Solstice time, and we see Homer splicing the afternoon eclipse description into this stage of the story, as it turns out perhaps deliberately, to allude to the start of Patroclus’ soul journey at this baleful moment, not only during an eclipse, but an eclipse taking place against a backdrop of the canonical stars

⁸¹ G Henriksson ‘The Trojan War Dated by Two Solar Eclipses’ in *Mediterranean Archaeology and Archaeometry XII,1* 2012 63-76 (he had for different reasons calculated the partial eclipse as the one taking place in the summer of 1318, but Papamarinopoulos et al. brought in fine-tuned adjustments using NASA data including corrected Eclipse Tables going all the way back to the 5M BC and up-to-date ancient sky reconstruction software that in the end make their date more plausible. However, it is not our remit to attempt to square the respective dates they arrived at with the Greeks’ own convention of dating events in terms of ‘so many years since the Trojan War’, pointed out by Henriksson.

⁸² The *Iliad* itself (*II*,134-8) states it lasted ten years, meaning the account of the Trojan War in the *Iliad* only covers the final year of its duration)

usually only seen at night around the Winter Solstice, centring on Sirius and Orion. Indeed, the very disappearance of Ursa Major, just slipping below the horizon at that hour, suggests a level of detachment and lack of concern by the Gods at Patroclus' fate. Of course, Homer leaves the implications of the sudden presence of the Duat sky at the eclipse hour unspoken - since Papamarinopoulos and Henriksson only worked out it was there centuries later – but from Aratos' careful repetition of Homeric star descriptions in the Archaic Period it is highly probable Homer knew just what the starry background would have been at Summer Solstice time because it would have been the exact opposite of the Winter Solstice scenario.

It is worth mentioning at this point that current thinking amongst the archaeologists is that badly repaired Troy VI (with fragments of Mycenaean pottery) appears to have been the result of damage by an earthquake that weakened the defences (giving a novel slant on the possibility of the God Poseidon being the 'Trojan Horse' in divine form⁸³), making the final conquest of Troy VII possible (remains of arrow points and Mycenaean pottery sherds were found at this level)⁸⁴. Throughout the *Iliad* Homer allows us into the conversations of the Gods - usually Zeus, Hera, Apollo and Athena - as they bargain amongst themselves about who will be allowed to win and which side must lose for a time – though in the light of our mention of this God at Motya we should not leave the maritime Horse-God, Poseidon, out of the picture – both as Sea-God and Earth-Shaker. What the timing of the Level VI earthquake was in relation to the Level VII eclipse has not so far been worked out, but those collecting together the many cataclysmic events of 2M Crete, Greece and Anatolia have come up with several clues and suggestions that I am not competent to judge, some of which are probably too extreme to need to be brought into the picture of the Trojan War alone in any case. Papamarinopoulos himself offers further ideas on other eclipses - as well as comets – in a further intriguing paper⁸⁵ which I will leave to the reader to weigh up for themselves.

ACHILLES' SHIELD

Our familiarity by now with the different breeds of dog associated with Sirius-Orion - its mention sometimes with Taurus/Hyades/Pleiades, in Homer nearly always with Ursa Major mentioned high above crowning the Duat - now enables us to recognize a further reiteration of the same sky scene, overt this time, in the next book of *The Iliad* following the rescue of Patroclus' body and its washing by Achilles in preparation for his funeral. Patroclus had gone into battle wearing Achilles' armour (his noble friend had long refused to fight due to his quarrel with Agamemnon) but it had all been stripped off his body by Hector. On hearing that his friend was dead, Achilles was finally motivated to forget his sulks and enter the fray, and his mother Thetis rushes to Hephaistos to ask him to make Achilles a new suit of armour (was it something like the almost complete suit found in the Dendra Tholos?) - and was to include a new shield elaborately decorated with all kinds of scenes - starting from Cosmos at the centre to events in human daily life in the surrounding bands

⁸³ A Nur and E H Cline 'Poseidon's Horses: Plate tectonics and earthquake storms in the Late Bronze Age Aegean and Eastern Mediterranean' *JAS XXVII* 43

⁸⁴ See relevant papers in M Korfmann (ed. and contributor) *Troja, Traum und Wirklichkeit* Baden-Württemberg 2001

⁸⁵ S P Papamarinopoulos 'A Comet during the Trojan War?' in S A Paipetis (ed.) *Science and Technology in Homeric Epics* Berlin 2008 341-56



III.9- 48: Alexander Pope's sketch for the Shield of Achilles in his-written translation of the *Iliad* held by the British Library (BL Add.MS 4808 ff.81v-82 courtesy The British Library Board)

(a rough sketch giving its overall layout was made by Alexander Pope, above).

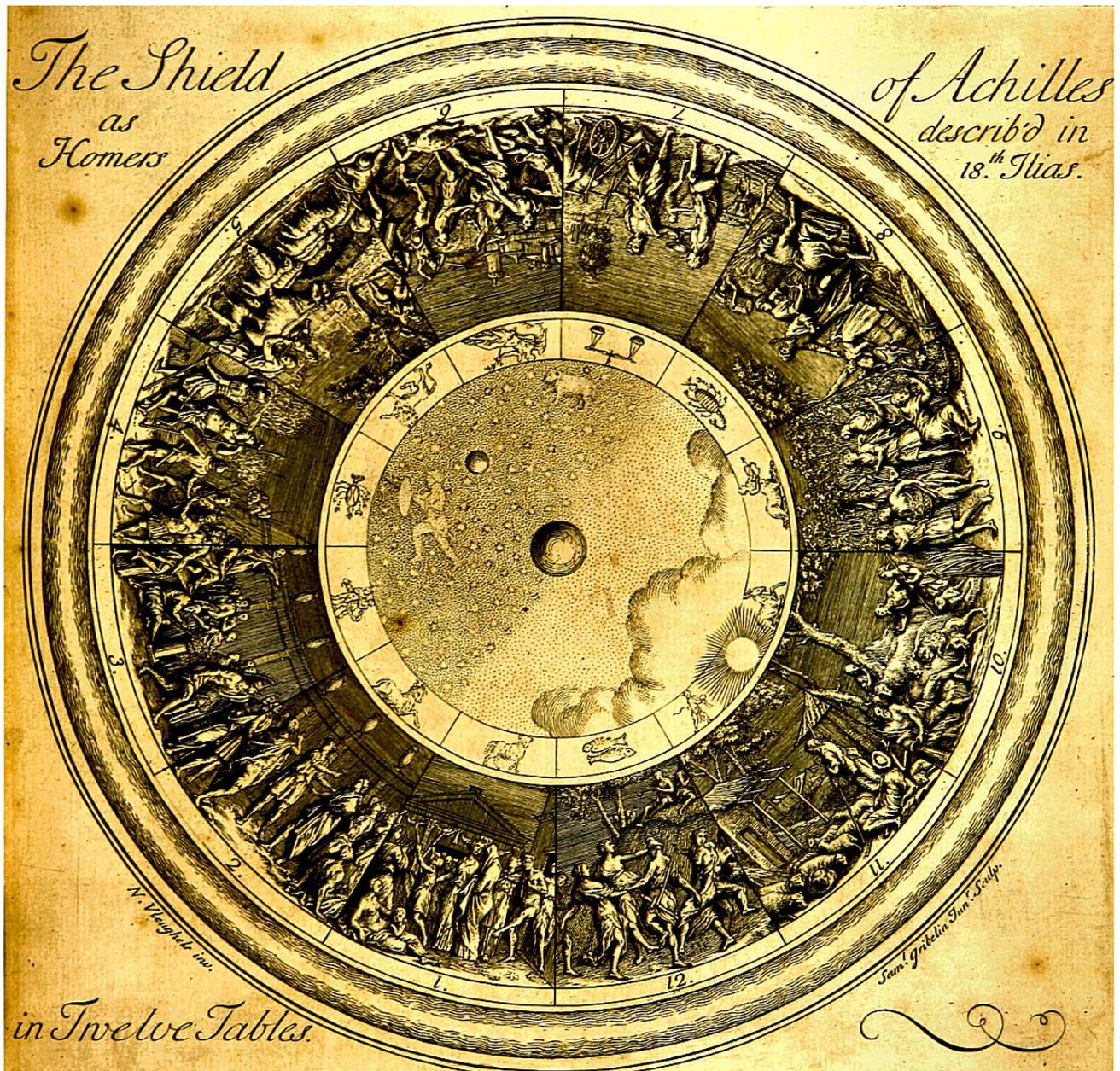
Here is how its fashioning by Hephaistos is described (in E V Rieu's translation):

[Hephaistos] cast imperishable bronze on the fire, and some tin and precious gold and silver. Then he put a great anvil on the stand and gripped a strong hammer in one hand and a pair of tongs in the other. He began by making a large and powerful shield adorned all over, finished with a bright triple rim of gleaming metal and fitted with a silver baldric. The shield consisted of five layers, and he decorated the face of it with a number of designs, executed with consummate skill and representing, first of all, Earth, Sky and Sea, the indefatigable Sun, and Moon at the Full and all the Constellations with which the heaven are crowned, the Pleiades/ the Hyades [Taurus' face and jaw]; the great Orion and the Bear, nicknamed the Wain, the only constellation which never bathes in Ocean Stream but always wheels round in the same place and looks across at Orion the Hunter with wary eye.
(*Iliad XVIII* 480-90)

A detailed account of all the scenes Hephaistos places on the outer bands of the shield, giving a picture of urban and rural society's activities through the year, goes on for another 200 or so lines – certainly worth a read, but not our focus of attention here. The general distribution of these outer scenes is shown in the astonishingly detailed engraving for Pope's translation of the *Iliad* (above) which can be used along with a recent, more clearly drawn reconstruction (for the outer rings at least) by Kalligeropoulos et al.⁸⁶ (III.9-50) in which one detail described by Homer of lions attacking bulls from a local herd of cattle is represented as a *Bilateral Attack* (arrowed), no doubt inspired by Classical prototypes! (the event is differently shown in sector 10 of Pope's engraving) Our interest is focused on the sky scene at the centre, much more poetically rendered in Pope's version than in the more recent attempt.

So much detail is devoted to the Shield by Homer that he has only a handful of lines left for the helmet and suit of armour themselves – indeed, one could imagine the design for the shield as appropriate for a typical

⁸⁶ D Kalligeropoulos and S Vasileiadou 'Interpreting the Representations on the Shield of Achilles' in S A Paipetis (ed.) *Science and Technology in Homeric Epics* Berlin 2008 443-50

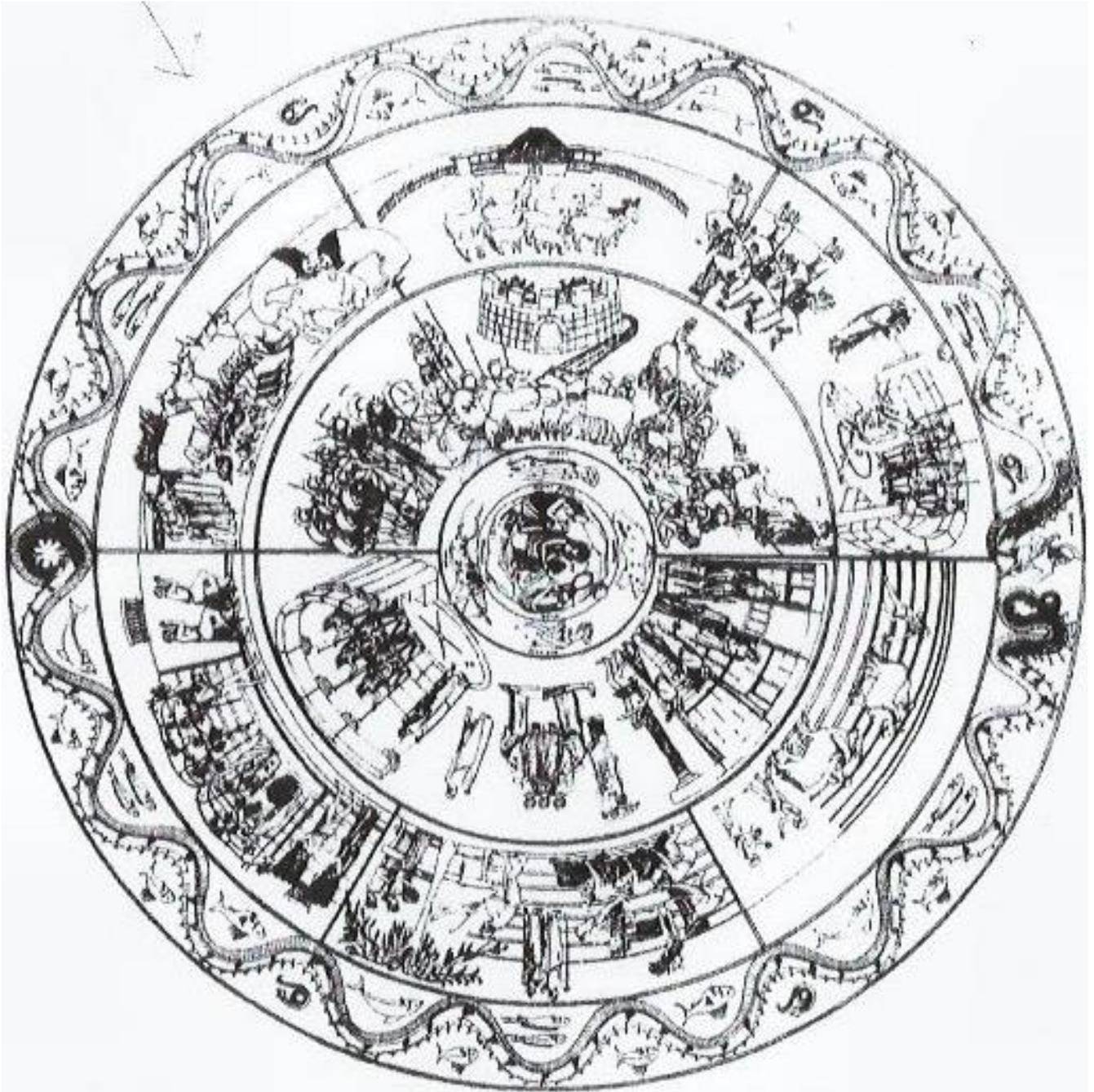


III.9- 49 Finished engraving of the Shield of Achilles for Pope's translation of Homer's Iliad, with Orion and Arktos appearing at the centre in the Night half of the sky from Taurus to Libra and including Moon and Sun (a finished mirror-image of his original sketch)

Levantine bronze bowl of the period – many examples of which we have analysed, and some of which also used them to take a cosmic perspective (in this catalogue see **ForAtt-30** which later we set against Homer's own description of such bronze bowls, prized as exotic Levantine products by the Achaeans).

THE NEW GOD HEPHAISTOS: METEOR/COMET/EARTHQUAKE - OR MASTER OF THE METALWORK WORLD?

In 21C astrology Hephaistos/Vulcan is associated with the planet only newly detected by modern scientific instruments *inside* Mercury's orbit - and so close to the Sun that it is misshapen by its blaze. The figure of Hephaistos that first so strongly emerges during the 2M at the heart of the Homeric tradition demands some attention here, given that already in myth he is allied to Athena as craftsman God, but specifically as the supreme master of metalworking - from



III.9- 50 Modern rendition of Achilles' Shield as usefully analysed in Kalligeropoulos et al.– their fig.2

whose all-embracing cultural impact (see our DIVERSION on metals) it appears there was a need to bring him to Parnassus as a new God. Laoupi⁸⁷, her disaster perspective close to that of Papamarinopoulos, usefully gathers together mentions of Hephaistos from the original sources, adding interesting angles on his high significance within the *Iliad* from the point of view of likely meteoric or cometary impact on the Troad. There is certainly no doubt that Troy Level IIG had an average thickness of more than 1m 'consisting mainly of ash, charred matter and burned debris', reaching as high as 6m in some places. Moreover, there was also 'the mysterious melted copper and lead which covered a large area, according to Schliemann'. This evidence,

⁸⁷ A Laoupi 'The Divine Fires of Creation: Homeric Hephaistos as a Comet/Meteor God' in S A Paipetis (ed.) *Science and Technology in Homeric Epics* Berlin 2008 325-40

along with the burnt red earths of Kea, Lemnos, Cappadocia and Sinope - read as hydrothermally altered rocks - if not pointing to past volcanic activity could also signify meteoric or cometary burning over this territory. But how far do we equate such phenomena with the essential Hephaistos?

Given his presence in the *Iliad* is almost as pervasive as that of Athena, Zeus or Hera, like Athena his genesis is unusual in that he is described as born parthenogenetically from Hera (*Iliad XVIII*,136) without the procreative participation of Zeus (thus appropriately assigned as Ruler of Virgo-Athena, born in the same way). Born deformed, he is hurled headlong out of Olympus by Hera and lands in the sea close to the island of Lemnos, spending 9 years under water in the company of the sea-nymphs, then comes up on land. From a Lemnian common origin he has parity with the Etruscan smith God, Techulka, and his sudden emergence shows him to be a newcomer God - like Kothar in the Levant - arising to fit the Second Millennium phenomenon of a metalwork universe in particular – as well as craftwork of all kinds in general. Associated with him are the Kabeiroi, his ‘little helpers’ at the forge who live in the mineral mountain depths – described as many, but often also simply as twin sons who ‘fought beside Dionysus in his war against the Indians’. During this war (according to Nonnos) ‘Hephaistos intervened to carry his sons to safety when the Indian River Hydaspes tried to drown them (again the mention of this river, already mentioned in connection with Aristaios). On Lemnos the Kabeirian Mysteries were celebrated every year for nine days (note the resonance with the idea of Minos Enneaoros) – and their rites, (thought to contain Hittite elements) were also followed at Samothrace and Thebes. The Lemnian Labyrinth was almost as famous as the Knossian one associated with the Bull and the Moon (Minotaur), and was said to be a ‘plan’ giving the intervals between the planetary cycles in relation to each other⁸⁸. Given Lemnos is a few miles across the sea from Troy, all this information bears the hallmarks of Hephaistos-in-Lemnos as being the stepping-stone for the pre-Greek introduction of Anatolian cosmological *and* metalworking knowledge into the Mycenaean world, arriving like a meteorite or comet as if out of nowhere – not belonging to past tradition and therefore ‘bolted on’ to the mainline Pantheon of the Gods.

There is no doubt that in many ways Hephaistos activity is associated with disaster in general (especially as associated with fire and volcanoes) but there is a counter-role as well to do with picking up fragments and harmoniously fitting them back together again. It is no accident that he created Pandora whose powers were fine as long as they were kept inside her Box but disastrous when released. Like Aristaeus, also emerging during the Pelasgian substratum alongside Kadmos of Thebes, Hephaistos fashions for Kadmos’ wife Harmonia (daughter of Mars and Venus) a necklace which included serpents and eagles in it, ‘designed to curse her and all her descendants’, described by Nonnos as ‘consisting of many colours.... breathing still of the furnace’ (see our DIVERSION on semi-precious stones – to the fashioning of which we can also associate Hephaistos).

⁸⁸ An age-old tradition survives of labyrinths being associated with the idea of ‘Troy Town’, still surviving in English folklore today in village turf mazes.

I can accept Laoupi's assertion that 'if the Homeric *Iliad* is deciphered from the standpoint of archaeoastronomy, Hephaistos is also related to the meteor swam of the Perseids' since we remember the central place Perseus' shield plays in overcoming the Gorgon – *Perseus* and *Al-Gol* were constellations given new prominence in the Age of Aries 'portfolio' (to be considered fully, with surprising connections, in the next DIVERSION). But to see him as God whose original existence *literally* was a meteorite or a comet event ending in the sea at Lemnos is to miss the point about his fiery and volcanic nature as an inner planet (proved by modern science only recently) – and in any case the physical core of his sphere of influence is still less important than his general powers as artificer – not only of metal artefacts, but, in fact, of all womb-like building processes that end in the birth of any complete creature – starting, as Laoupi suggests on the basis of the last few lines of *Iliad I*, with the Cosmos and the Gods' Olympian domains - or Signs - themselves:

At last, when the sun's fiery light had set, each immortal went to rest in his own house, the splendid high halls Hephaistos built for each with all his craft and cunning, the famous crippled Smith.

[Fagles translation]

Creation on such a high level is echoed in the description of the palace Kothar builds for Baal at the start of the Ugaritic version of the *Baal Epic* (which we went through in detail in *Catalogue D*).

It is certainly true that when Hera later requests Hephaistos to rescue Achilles from drowning in the Xanthus river (as he rescued his sons from the Hydaspes river), the description in *Iliad XXI*,390 onwards (Fagle's numbering) of how Hephaistos scorches the plain and dries up the river is suitably comet-like in its drastic fieriness but it does not mean we can pin down a comet phenomenon over Troy that would determine the origin of Hephaistos, since a real comet would have destroyed the area more permanently, and in the story Hephaistos withdraws his flames and the countryside returns to its former state.

It is interesting that Hephaistos' version of the sky on Achilles' shield describes its fiducial state in the Age of Taurus, since the stars mentioned are Orion with Taurus and Ursa Major – rather than Orion with Auriga, Perseus, Pegasus⁸⁹ and Aries – though in fact that corridor between Ursa Major and Orion still holds good for the Age of Aries constellations already beginning to feature on Mitanni seals (*ForAtt-22*) long before they feature in Greek art on the pediment sculptures of the Archaic Age. Indeed, Hephaistos could be regarded as the prototype for the formulation of the stars of Perseus, his Shield and the Gorgon – which is a lot more than the Perseid shower Laoupi refers to. But the constellations starting to enter the iconography at the start of the Second Millennium is another story: for the time being, through this diversion on the Mycenaeans and their Dogs that concentrated on Sirius, Orion, Taurus and The Bears from different angles, I trust we have provided a suitable prelude to *Chapter 20* which will cover Second Millennium Astronomy overall.

⁸⁹ The constellation Pegasus is mentioned in a quotation by Laoupi from Hong Fan Zhuan (1C BC) which states that 'The Ancient Zhuanxu calendar began at dawn in the beginning of Spring [c.2000] when 'the Sun, New Moon and all Five Planets gathered in the constellation Yingshi (Pegasus)'.

CODA: LONG-TERM CALENDAR RECONCILIATION

Our enquiry into the cultural importance of dogs for the Mycenaeans led us down several avenues - mainly astronomical - important to thrash out while the relevant artefacts were before us. Throughout the Dog DIVERSION we continually referred back to the Vapheio tholos burial and the warrior's *Forward Attack* ring (**ForAtt-26**) - and all the other seals with him, including the two dog seals (the subject of our SEAL GROUP STUDY 5). From the recurrence of the *Duat* star group and *Arktos* in the *Iliad* or on artefacts, we have established enough *points de repères* to back up Blomberg and Henriksson's assertion⁹⁰ that the Archaic and Classical Greeks inherited their earliest star maps from Minoan/Mycenaean beginnings. While only Ursa Major is mentioned on Achilles' Shield, other than also bringing in Draco (a longer but simpler star group replacing the Egyptian combination Tawaret/*Cepheus* with Crocodile/*Draco* down her back) – it is the *Two Bears* that are picked out by Aratos to begin his description of the heavens in his book on stars written some centuries later. As one of the bridges leading to the Archaic Greek astronomy we will be dealing with in **Catalogue F: The Bilateral Attack**, we take the opportunity to quickly assess the content of his short treatise, hopefully mentally referring, in our mind's eye, back to all the artefacts and star maps we have looked at.

ARATOS

Aratos assembled and combined several sources, which included the earliest star descriptions in Homer's *Odyssey* and *Iliad*, and is known to have spent time in Syria – whilst the quotation below *confirms in his own words his debt to Crete*. After a short prologue in praise of Zeus as Progenitor of the Heavens, these are his opening lines:

The numerous stars, scattered in different directions, sweep all alike across the sky every day continuously for ever. The axis, however, does not move even slightly from its place, but stays for ever fixed, holds the earth in the centre evenly balanced, and rotates the sky itself. Two poles terminate it at the two ends, but one is not visible, while the opposite one in the north is high above the horizon. On either side of it, two Bears wheel in unison, and so they are called the Wagons. They keep their heads for ever pointing to each other's loins, and for ever they move with shoulders leading, aligned towards the shoulders but in opposite directions. If the tale is true, these Bears ascended to the sky from Crete by the will of great Zeus because when he was a child then in fragrant Lyctus near Mount Ida they deposited him in a cave and tended him for the year, while the Curetes of Dicte kept Cronos deceived. Now one of the Bears men call Cynosura by name, the other Helice. Helice is the one by which Greek men at sea judge the course to steer their ships, while the Phoenicians cross the sea relying on the other. Now the one is clear and easy to identify, Helice being visible in all its grandeur as soon as night begins; the other is slight, yet a better guide to sailors, for it revolves entirely in a smaller circle: so by it the Sidonians sail the straightest course.

⁹⁰ G Henriksson & M Blomberg 'New Arguments for the Minoan Origin of the Stellar Positions in Aratos' PHAINOMENA' in C Esteban & J A Belmonte (eds) *Astronomy and Cultural Diversity (Proceedings of the International Conference Oxford VI and SEAC 99)* Laguna, Granada 2000 303-310

Between the two Bears, in the likeness of a river, winds a great wonder, the Dragon, writhing around and about at enormous length; on either side of its coil the Bears move, keeping clear of the dark-blue ocean. It reaches over one of them with the tip of its tail, and intercepts the other with its coil. The tip of its tail ends level with the head of the Bear Helice, and Cynosura keeps her head within its coil. The coil winds past her very head, goes as far as her foot, then turns back again and runs upwards. In the Dragon's head there is not just a single star shining by itself, but two on the temples and two on the eyes, while one below them occupies the jaw-point of the awesome monster. Its head is slanted and looks altogether as if it is inclined towards the tip of Helice's tail: the mouth and the right temple are in a very straight line with the tip of the tail. The head of the Dragon passes through the point where the end of settings and the start of risings blend with each other.
[PHAENOMENA ll.45-62]⁹¹,

Having begun in the Circumpolar Region thus, Aratos very much takes the approach of a beginners' guide to star-orientation by then methodically moving round the sky indicating how different constellations can be sought out by their alignment to different stars in the Bears, beginning at *Hercules, Corona* and *Ophiuchus* (perhaps worth bearing in mind for the Palmyrene and Snake Man sculptures considered in this catalogue) and *ending* with *Taurus, Sirius* and *Orion*, meaning they now mark the *end* of the Year and not its beginning:

Aslant from the truncated figure of the Bull lies Orion himself. Anyone whose glance misses him when he is positioned high up on a clear night may be sure he can never sight anything better to identify when he gazes up at the sky! Such is also his guardian Dog, seen standing on its two legs below the soaring back of Orion, variegated, not bright overall, but dark in the region of the belly as it moves round; but the tip of its jaw is inset with a formidable star that blazes most intensely: and so men call it the Scorcher [Seirios]. When Sirius rises with the Sun, trees can no longer outwit it by feebly putting forth leaves, for with its keen shafts it easily pierces their ranks - and strengthens some but destroys all the growth of others. **[PHAENOMENA ll.322-36]**

Then Aratos systematically goes round the sky again, in its upper and lower circuits, identifying the constellations that touch the northern and southern Tropics (what the Sumerians would call the Ways of Enlil and Ea) as also the placing of the Signs themselves along the Ecliptic (the Way of Anu). After that, on the ***Mul Apin*** pattern he ranges round the sky yet again, enumerating which pairs of stars set when their opposite number rises (and *vice versa*), ending with observations on activities of the seasons through the year that reveal which Zodiac Sign the Sun must be in. For the naked-eye observer, whether amateur like a shepherd or professional like an astronomer-priest, Aratos provides a non-technical, succinctly comprehensive treatise on star geography, as usable today as the time it was written – and both Blomberg and Henriksson are both very clear that it rests on Bronze Age foundations (see next page).

⁹¹⁹¹ As translated by D Kidd *Aratos' PHAENOMENA* Cambridge 1997

SUSPECTED ASTRONOMER ROLE OF THE VAPHEIO WARRIOR AS REVEALED BY HIS GRAVE GOODS

Since the Vapheio Seal bezel showing a lion attacking a bull triggered this entire section, how far have we now deepened our perspective on the Vapheio warrior's background? It is a significant pointer to his activity and beliefs that the two Dog seals in the Vapheio Hoard, re-illustrated in **III.9- 8**, were the centrepiece of his amethyst and rock crystal necklace, possibly separated from each other by the *Forward Attack* bezel ring (**ForAtt-26**) which to me is a deliberate allusion to the intercalary gap in the *Duat* down the meridian between Old Year and New that only a court administration sponsoring astronomical observation would concern themselves with and know how to reconcile. Such regulation would keep the kingdom's calendar in line with the stable, fixed background order of the stars, against which to measure fluctuating planetary cycles - like the many different hands on an unchanging clock-face.

IMPLICATIONS FOR MYCENAEANS OF THE SOTHIC PERIOD BEGINNING 1320: MEASURING SOLAR PRECESSION BY INTERLOCKING SIRIUS-VENUS/LUNAR-MERCURY GRAND CYCLES

On his necklace the planetary meaning of the lion-prey/Sun-Moon group, juxtaposed with the stellar meaning of The Two Dogs, points to the Vapheio tomb occupant being more an astronomer-*wanax* than mere warrior, whose equivalent in Indo-European terms we might think of as a *Brahmin-kṣatriya* or priest-king. This is an idea recently backed up by Blomberg and Henriksson⁹² in their discussion of the passage in the *Odyssey* (**XIX**, 178-80) in which Odysseus describes himself to Penelope as 'the grandson of Minos Enneaoros of Knossos who talked with the Great Zeus'. This tradition, involving knowledge of the *oktaëteris* and a 'reset' of the calendar every Ninth Year start, is looked at in fuller context in **Chapter 20**. Suffice it to say here that knowledge of the almost exact reconciliation of Sun/Moon/Venus cycles every eight years (which becomes more and more precise the more multiples of eight are involved – computed in the following paragraphs) would, they say, have required 'a long tradition of systematic observations' started by the Minoans and 'conveyed via the Mycenaeans'. But as well as making their own particular discoveries through long experience of navigation throughout the Aegean and Mediterranean, we should take into account how time taken to build that tradition was probably shortened by buying into already-discovered bodies of knowledge built up over the centuries by older civilisations in the Levant and Egypt. I must leave it to the reader to follow up Blomberg and Henriksson's references to other well-known evidence they call upon regarding the sacred role of the Mycenaean *wanax* they give as backup on a mostly non-astronomical basis, already well-known.

What is critical to follow up here while the above discussion is still in mind is why Sirius - and the milestone of a new Sothic Period start - should have been such a golden opportunity for stabilizing the accuracy of long-term *oktaëteris* calculations. During the changeover to a new Vernal Point in Aries, the question of the Sun's Precession becomes critical. Solar Precession is the slippage of the Sun backwards through the Zodiac

⁹² M Blomberg and G Henriksson 'Minos Enneaoros: Archaeoastronomical light on the priestly role of the king in Crete' in P Hellström et al. (eds) *Religion and Power in the Ancient Greek World* Uppsala 1996 27-39

Signs taking roughly 2,200-2,600 years per Sign. Clearly it is helpful to be able to track progress of Precession by cutting up that generations-long process into shorter stages. On the grand scale this can be done by keeping a record of Sothic Periods and accumulated Venus Synodic cycles – into which Lunar and Mercury grand cycles can be fitted as smaller units. We try to describe succinctly below how this works.

THE VENUS-SIRIUS INTERFACE

The reason Sirius and Venus should be so closely associated was fully discussed in my paper on the ending of the Mexican predictive calendar in 2012⁹³ with a Transit of Venus – which I need not reiterate here. For those unaware of the basic Venus and Sirius numbers, it provides the step-by-step foundation that builds up to two key round numbers that are the crux of the matter for Mycenaean astronomy, the first being that:

ONE SOTHIC PERIOD OF 1460/1 YEARS IS NEARLY EQUAL TO 6 GRAND SYNODIC PERIODS OF VENUS = ROUGHLY 1500 YEARS

- Astronomers tracking Venus movements across the sky measured in terms of its return to conjunct with any fixed star - Sirius being an obvious example - would notice a slippage from the original starting point of only 0.94° in every 8-year synodic period, such that for every generation the constancy of Venus returns would be felt as all but fixed, though in terms of Solar behaviour against the entire Zodiac, Sirius itself follows a precessional cycle, rising successively earlier each year and taking 1460/1461 years to come back to its original position, but at least is shorter than the Sun's stay in any one Sign (c.2,200yrs).
- The starting point for the calculation of Venus' synodic period was probably originally taken either from the ancient Egyptian benchmark of her rising with Sirius at dawn in Leo in July, or rising with it at night at the Winter Solstice at Mesopotamian New Year. Certainly in Egypt we have already noted Isis was identified with both Hathor/Venus and Sirius, just as in the Mesopotamian tradition Inanna/Ishtar (Ish-shtar simply means The Star) can include both Venus and Sirius. Both are close also in scintillating brightness, doubly earning the title of 'Queen of Heaven'.
- Venus' own precessional cycle (or full revolution around the zodiac back to its precise starting point) takes 243 years, thus:

SIX VENUS PRECESSIONAL CYCLES OF 243 YEARS (ROUGHLY 250 YEARS = 1500 YEARS APPROX.) ARE ALMOST EQUAL TO ONE SOTHIC CYCLE OF 1460 YEARS⁹⁴.

Thus the Venus and Isis/Sirius measures are so closely interlocked that it is not without reason they were treated as one and the same Goddess.

SOLAR PRECESSION -V- SIRIUS PRECESSION

Very close to 2000BC (technically 2004), the Sun moved out of Taurus into Aries – and knowing

- one and a half Sothic Periods are roughly equal to the time it takes for the Sun's Precession through one Zodiac Sign, it means

⁹³ <http://www.layish.co.uk/Venuscycles.pdf>

⁹⁴ Herbert Chatley in his review of I E S Edwards' The Pyramids of Egypt, *JEA XXXIV* 1948 126-8

- the new Sothic Period beginning in 1320 started roughly one-fifth of the way into the Age of Aries. Astronomers (most notably the Magoi, guardians of a tradition based on 3,000-year and 6,000-year aeons) would already be looking ahead to pin down the start of the Age of Pisces).

My view is that the Diyala cylinder seals showing the Sun as a Boat (one of them reproduced again below left), since not repeated very often may be celebrations not simply of the Sun's daily round (corresponding to Ra's boat journey in Egypt), but of his much longer and infinitesimally gradual Precessional journey through the Signs that takes a full 26,500 years - on it the Sun-God is accompanied by the marker constellations of Scorpio, Leo and the Plough. There are Minoan versions of this boat, such as the one on the gold seal ring from Mochlos originally discussed in *Catalogue D/III.8-154* (repeated below right).



III.9- 51: (Left) ED Diyala seal (SCSCat 499) depicting a celestial scene where the group showing Sky Eagle clutching beasts over Plough and Leo complements the other half of the scene with Scorpio accompanying the Sun-God in his long sky journey; (right) seal design from Mochlos showing priestess, shrine, baetyloi and other apparatus familiar from the mythological gold rings, on an animal-headed sky boat

Clearly the established ancient near eastern observatory temples would have aimed at the greatest possible precision for these turning points, and the intermediate large and small cycles of the other planets would have provided intermediate stepping stones for rule-of-thumb checks on what would become inter-generational calculations. The faster, shorter cycles are provided by the Moon and Mercury, as if second-hands to the hour hands of Sirius/Venus.

MOON AND MERCURY SYNODIC CYCLES USED TO TRACK LONGER VENUS OR SIRIUS CYCLES

- Taking the cycle of the Moon as 29.2 days adds up to 1460 days over the 50 weeks of the Lunar Year, 1460/1461 being the number of days in a four-year cycle, including the Leap Year day. This total is the same as 5×292 Venus half-synodic periods = 1460 days. Thus tracking the Moon's behaviour over long periods helps to break down the vast precessional cycles into 'bite-size' pieces that, with meticulous record keeping of the type maintained at Babylon, adds up to the ability to gauge the stage the much longer precessional cycle has reached.
- The exactitude of a precise triple conjunction of Sun/Moon/Venus (to the day and hour) is increased over longer periods if the Metonic (just over 18 Solar years) and Saros cycles (just under 19 years) of the Moon are taken into account: a 47-year period allows an even closer dovetailing of Venus: Moon: Sun to less than a day.

- This 47-year period ties in almost exactly with Mercury's great return cycle of 46 years once every generation (a single Mercury synodic period is 116 days, such that $5 \times 116 = 580$ days, only 4 days short of the Venus synodic period).
- The Moon's Saros period of 19 years (the repeat cycle for eclipses) fits into the Sirius cycle of 1460 years 71 times, a way of measuring the smallest intermediate steps in the Sun's Precession through the Zodiac in 1° intervals.



III.9- 52 Photo of the actual Duat zone centred on Sirius-Orion (his belt, bow and arrow all clearly seen), surrounded by Gemini and Auriga in the Milky Way and looking up towards Perseus, the Pleiades and Taurus – by Robert Bauval

In line with colleagues in other kingdoms – especially with the Mitanni - there is no reason why the Mycenaean priest-kings and their officials should not have been aware of these computational factors. The fact that in two important instances described in *the Iliad* –the Achilles Shield design and the state of the sky during the eclipse that occurred in one of the last battles of the Trojan War – the keynote heavenly bodies mentioned are just those that were emphasised in ancient Egyptian eschatological astronomy is to me evidence in itself that at the very highest level the astronomer-warriors of the Mycenaean world were also working in cooperation with their opposite numbers at the Pharaonic court. Their relationship with the Mitanni and Kassites centred at Babylon is more elusive, but I am sure was operative.

Can we go so far as to say that if the eclipse took place at just the time the same sky layout became briefly evident even during daytime this event also constituted an overwhelmingly powerful omen of the dawn of the new Sothic Era of 1320? Even though the most plausible dating *archaeologically* for the eclipse given by Papamarinopoulos is 1218, Henriksson's date of 1312 - only one *octaëteris* on from the start of the new Sothic Period - is tempting, and poetically appealing. We have to wonder whether Homer was aware of this Sothic turning point – and whether his repeated choice of the same star descriptions celebrated that

momentous benchmark – making the conflict with the Trojans almost amount to a calendar battle with the Hittite-controlled world - which in the end the Greeks won, because they were more amenable to moving with the times and updating their systems.

Sunrise at dawn had at first only imperceptibly moved into Aries at the Spring Equinox at the start of the Second Millennium, but by the middle of the millennium all kingdoms running state calendars would be brought by the events of nature to see they had to ‘take a grip’ on new sky conditions now the Vernal Point was lining up (and more viewable) down Auriga and Perseus to the end of the meridian passing through Aries on the Ecliptic beneath them. It is the new combinations of Gods and Goddesses featuring on their seals that signal how the encroaching astronomical priorities of the time were being taken on board – but that is another story.



Mycenaean krater in the British Museum showing Taurus and Orion with the Two Dogs

The main idea behind this piece is to point out that there is enough evidence to suggest the Mycenaeans joined with other kingdoms in operations of interplanetary checking to establish the start of the Sothic Period, in the process enabling the new benchmarks of the Age of Aries caused by Solar Precession to be identified and secured.

May the living and the dead find solace in the enduring framework of the stars. If we can do nothing to stop wars we can at least find the time to act as ushers by praying for the souls of the dead, helping them to lock into the beneficial power of Sirius and climb the Duat stars homewards.