MITHRAS AND THE BULL

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I was first introduced to Aydın Sayılı by Willy Hartner, who, if I am not mistaken, had long before introduced him to the history of science at Harvard. Here were two scholars with whom it was a privilege to be acquainted. Both took a very broad, cross-cultural view of their subject, and wrote books that will long be consulted. While I am not in a position to expand on Sayılı's contribution to history, I am honoured to be associated with a volume dedicated to his memory. What follows is a summary of my views on a question of Mithraic iconography. It concerns the ancient history of a district that is now a part of Turkey, but the story neither began there not did it end there.

At the centre of Mithraic ritual, at least in the Roman world, there was an icon of a reasonably standard sort. In a typical instance the scene it portrayed, usually carved in stone but occasionally painted, shows a man kneeling with his left (far) knee on the back of a bull, and thrusting a knife into its throat or shoulder. The figure, identified with Mithras, almost always wears a Phrygian cap (pileus) and 'Persian' dress (trousers and loose blouse). He looks over his shoulder and away from the bull's head. In some cases he seems to be looking at a crow, perched above him, or even on his cloak, which billows behind him. As the bull expires, a dog stretches towards the wound and tries to lap up the bull's blood. A snake looks on, the head often raised as though it has had the same idea. A scorpion is either attached to the bull's genitals or is representative of them. The tail of the bull usually terminates in one or more ears of corn or barley. The whole scene, was often surmounted by an arch displaying all twelve signs of the zodiac, or surrounded by a full zodiacal circle. Other common symbols are a cup or vase, and a lion, both of them below the bull and alongside the snake. Stars occur often above the figure or on its cloak, and while there may be many stars depicted, there are usually precisely seven given prominence. Busts for the Sun and Moon are often shown overhead, and two human figures are usually present, flanking the scene, both of them

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with torches, one held up and one down. The scene of the action, despite this cosmic imagery, is a cave, the prototype of the temple (*speloeum*).[1]

Most of the symbols I have now listed have a potential affinity with conventional constellation images, but there are many constellations, and even the statement by the late third-century neo-Platonist Porphyry, to the effect that Mithras 'carries the sword of Aries, the sign of Mars, and straddles the bull of Venus' is not very helpful, since we cannot be sure that Porphyry was not reading his own interpretation into what he had seen.[2] The link with astronomy in the form of the commonly portrayed zodiac, however, is unambigous, while there is a patently obvious hint of astrology in the placement of the Scorpion. These facts alone, which were pointed out by K. B. Stark in 1868, justify a search for a similar reading of the entire scene.[3] Stark saw the bull-slaying as representing a constellation map rather than a Persian myth. Franz Cumont was aware of much Mithraic cosmic symbolism, but he was sceptical of Stark's simple account, and his weighty authority for long helped to suppress any instincts other historians might have had to look closer into the possibility.

In the last twenty years new attempts have been made to read more astronomical detail into the image, but I do not find them convincing.[4] The initial tendency was to look for ecliptic constellations, but then Michael Speidel identified Mithras with the constellation of Orion, and shifted attention away from the zodiac (ecliptic), on the grounds that Cancer and Gemini were absent from the scene. (He conceded that Gemini might be represented by the two torchbearers, Cautes and Cautopates. I shall later show that this was very probably the case). Of course whether it is true also depends on the *date* for which the scene was portrayed, since precession may move constellations on and off the equator.

Orion's right arm is raised, on the usual interpretation of the constellation pattern, but that of Mithras is generally lowered, plunging the

[1] The literature of Mithraism is very extensive, but two classic sources are F. Cumont, *Textes et Monuments Figurés Relatifs aux Mystères de Mithra*, 2 vols, 1896, 1899, and M. Vermaseren, *Corpus Inscriptionum et Monumentorum Religionis Mithriacae*, 2 vols, Den Haag 1956, 1960. It is always advisable to consult Vermaseren's comments where his illustrative material is used by other, since many monuments have been erroneously restored in recent centuries, and the fact often goes unremarked.

[2] *De antro Nympharum*, 24 (A. Nauck, ed., 1886, p. 73).

[3] K. B. Stark, 'Die Mithrassteine von Dormagen', *Jahrbücher des Veriens von Altertumsfreunden im Rheinlande*, 46 (1869, 1-25).

[4] For a fuller account of my reasons, see my article in *Centaurus* (1991), of which this note is a bare summary.

knife into the bull. Broadly speaking, in the Greek tradition Orion holds a club aloft whereas in the Latin he holds up a sword. There are some sculptures where the hand holding the knife is raised, and Speidel suggests that they indicate a survival of a generally forgotten tradition. The Mithras figures with raised arms show him not in Persian but in Greek dress, not in trousers but chiton. Since the best example (from Ostia) is from the second century of our era, and shows no dog, no crow, no cup, no scorpion, and no lion, it would be incautious to give much weight to this argument.[5] There are good and independent reasons for introducing Orion into the scheme, as we shall see. There is no other obvious character for the constellation to represent than Mithras himself.

The topology of the constellations does not remotely approach that of the component parts of the icon. David Ulansey, however, in a recent book, is so convinced that the symbolism must concern that stretch of the celestial equator between Taurus and Scorpio (the constellations, not the signs) that he makes use of the precession of the equinoxes to project backwards to a point in time when this was so. The period he requires, on his own estimate, lies between 4000 and 2000 B.C. He believes that the constellations were supposedly *chosen* as symbols for their equatorial character; and so were chosen at a time when there was an awareness of the fundamental astronomical character of equator. The calculation must have been done, on his account, not long before our era. Since the Mithraists of the Roman Empire lived after Hipparchus had effectively discovered the slow separation of the stars from the equinoxes, he decides that Hipparchus' theory of this phenomenon was at the root of the bull-slaying iconography.

There are many improbabilities in this argument, and it seems preferable to begin the search anew. In the Mithraic bull-slaying icon we are confronted by a series of symbols which almost without exception have counterparts among the stars. Their arrangement in the heavens does not in general conform to that in the icon. The bull is dying, suggesting setting. The scorpion clearly represents the constellation Scorpio opposite Taurus, or a star in that constellation. If the scene represents any precise event in the heavens then we must expect more attention to be given to individual stars rather than constellations. Antares is the brightest star in Scorpio and Aldebaran in Taurus. The brightest star in Leo is Regulus. We concentrate in the first place on these three stars. The Pleiades in

[5] Vermaseren, *op. cit.*, item 230, fig. 69; cf. item 2327.

Taurus are faint, but always attracted much interest in ancient and prehistoric times, and must eventually be considered too. With the dog we have no difficulty in naming a star, but first we have to choose between the constellations. Canis Major (with the star Sirius) and Canis Minor (with the star Procyon). In the same way we encounter ambiguities with the other constellations possibly or seemingly represented, namely Hydra, Crater, Corvus, and Orion or Perseus. The choice between the last two is best deferred. Even with the corn symbol there are problems, for although Spica usually corresponds to an ear of wheat, *e* Virginis is found on some Arab globes in Virgo's hand in a similar form, and in Ptolemy's *Almagest* this star is called 'harbinger of vintage [or fruit picking]'.

For a geographical latitude and an epoch we are heavily dependent on historical sources, and must begin from the hypothesis that the Cilician area around Tarsus is the best place to begin our search— it happens to be roughly on the latitude of Rhodes—and that the first two centuries B.C. are not far removed from the basic composition. The epoch is not as critical as the latitude. The times of a star's rising, setting, and culminating depend on the season of the year, but for convenience we may quote them in *sidereal time.* (To all intents and purposes, we may take this to be same as solar time at the spring equinox). We shall be concerned more with intervals of the time than absolute times of day.

When we consider the three stars we are taking as fundamental, we find somewhat to our surprise that *the intervals between their settings are more or less in round numbers of hours:* from Aldebaran to Regulus six hours, and from Regulus to Antares four hours. Changing the latitude appreciably ruins this relationship, which we make the basis of our search for other time intervals in similarly round numbers of hours. An hourly pattern with ten or twelve intervals emerges. It is known that Hipparchus investigated the selection of stars culminating at hourly intervals, but *culmination* does not offer much that fits into this pattern.[6] This is amply demonstrated in one of the lines of the accompanying graphs (the least regular line of Figs. 2 and 3). Although *risings* could be made the basis of the alternative sheme, the *appearances* of one or two constellations on setting make it much more likely that their setting was intended. The sideral times quoted below are for latitude 36° N and 200 B.C. They are

[6] *In Arat.*, iii. 5. See C. Manitius, *Hipparchi in Arati et Eudoxi Phaenomena Commentariorum, libri iii*, Leipzig 1894.

all calculated for the stars at the appropriate horizon altitude of extinction corresponding to their magnitudes at the epoch in question.[7]

Object	*Obs.*	*h m*	*Phenomenon*
knife	0	7 05	Triangulum has set;
bull (kneels)	1	8 01	Taurus, the Bull, on its knees above the horizon;
bull (eye)	2	8 58	Aldebaran (*a* Tauri) sets;
Mithras	3	10 05	Betelgeuse (*a* Orionis) sets;
wind	4	11 12	Capella (*a* Aurigae) sets;
dog	5	12 04	Procyon (*a* Canis Minoris) sets;
twins	6	13 00	Castor and Pollux (*a* and *b* Geminorum) set;
snake			head of Hydra begins to set;
snake	7	13 56	main (first) section of Hydra) settles on horizon and sets;
lion	8	15 04	Regulus (*a* Leonis) sets immediately
vase			after *d* Crateris (15.03);
crow	9	16 12	the Corvus quadrangle has set;
lion	10	17 05	Denebola (*b* Leonis) sets;
cereals	11	18 08	*e* Virginis, 'harbinger of vintage', sets;
scorpion	12	19 18	Antares (*a* Scorpionis) sets;
bull			Pleiades have just risen.

These astronomical facts require a longer commentary than is possible in this summary account. Some unexpected results emerge. It seems to me probable, for instance, that the knife is Triangulum, that the wind that blows Mithras' cloak is Capella, and that Cautes and Cautopates, with their torches, are the stars Castor and Pollux (Gemini). The basic truth, however, is that by the time Orion has set, the Scorpion has risen. Although we can only guess as the theology invested in this fact, it very probably included the themes of recurrent death and rebirth, with sacrifice and fertility as agents ensuring the continuation of the cycle. This last theme seems to be very aptly symbolized by the icon from Rome that is now in the Townley Collection in the British Museum: the blood gushing from the bull's wound takes the from of *three ears of wheat.* It is hard to overlook the fact that Triangulum— the knife of Mithras— was for the Babylonians a part of a small constellation representing a *plough.*

[7] For fundamental star positions I use *FK5.* Formulae for extinction angles are taken from B. E. Shaefer, *Archeoastronomy,* 10 (1986), pp. 32-42.

Regarded as a keeper of time-stages, the scheme would not of course in practice have allowed for the observation of all twelve hour-divisions in any night. At Cilician latitudes in spring it would have been possible to see nine of the phenomena, and so to mark out eight complete hours. In late October virtually no usable setting phenomena would have been seen. Such schemes of setting stars carry with them possible calendar schemes. No matter which way we look at our example, whether as timekeeper or calendar, it was primarily of use in spring and summer. If the stars on our list were used for cosmical settings (first visibility of the setting star at daybreak) they would take us in *unequal steps from late October to late May* (Julian calendar for the early first century B.C.). If used with heliacal settings (last visibility of the setting star after sunset) the situation is very different. We are taken (still in unequal steps, of course) *from the vernal equinox to the autumnal equinox,* rather precisely. Of course how precisely we cannot say, unless we make some presupposition as to the date.

It is impossible to pronounce on the sequence of historical events that gave rise to the symbolism of the Mithraic icon. Perhaps it was grafted directly on a scheme like Hipparchus'. Perhaps calendrical procedures first provided a framework dividing the half-year into stages. Perhaps an earlier stage still was the division of the sky into nakṣatras, half the circuit of the sky containing 13 or 14 of them. When it was realised that several of the stars used in this half of the sky were capable of dividing the night into round numbers of hours, they would have been supplemented so as to provide a more complete set. It is possible that the imagery was first attached to a system of two-hour intervals, and that the full set of icons was long in coming.

The evidence here presented is that the bull-slaying icon was a product of latitudes not far from those of Cilicia-Rhodes (36.4°), Tarsus (36.9°), or Nineveh further east (36.4°). In date it was probably within a century or two of 200 B.C., but we cannot be precise. There are parallels enough with Iranian and other Near Eastern astronomical practice for us to be wary of a wholesale rejection of connections with a place further east than even Nineveh (near modern Mosul). In entertaining the possibility of influence from Iranian myth and ritual one has to recognize that this might have been utterly distinct from a later Greek 'astronomical' phase in its history; and that both probably had little to do with the subsequent Roman phase in its history.