

GLIMPSES OF THE AMAZING ASTRONOMY  
OF THE RIG - VEDA

The Rig Vedic verses form a code. If properly interpreted they reveal an amazing amount of astronomical knowledge which is unbelievable when we consider their antiquity: 1500 B.C. being a conservative estimate. In fact, the *Rig Veda* shorn of its allegory and camouflage is the oldest textbook of modern astronomy.

A glossary of certain Rig Vedic terms with their proposed meanings can be compiled. Such a scheme, — (i) makes several unintelligible verses meaningful; (ii) is consistent, that is, makes several verses meaningful with a minimum of hypotheses unlike the present ad hoc explanations; and (iii) is a natural consequence of the verses themselves.

It follows from such a scheme that:

(i) The Rig Vedic seers were scientists in the modern sense, having performed experiments and acquired knowledge comparable with that of recent times. Pre-Rig-Vedic astronomers had, in fact, measured the sphericity of the earth, established the helio-centric theory in the modern form and explained the seasons astronomically. Advanced concepts like the cause of auroral displays were understood.

(ii) The Rig Vedic seers were inhabitants or had visited very high Northern latitudes, upto about 80 degrees North. That is, Bal Gangadhar Tilak's conjecture is strongly vindicated on astronomical grounds.

(iii) The *Rig Veda* is more than 5000 years old.

Without going into the details of the code, but in the light of the above remarks, we can get glimpses of the advanced astronomy of the *Rig Veda*.

Several hymns in the *Rig Veda* are attributed to the twin Asvins, but there has been some doubt about their identity. A scrutiny reveals that the Asvins are the planets Mercury and Venus.

The twin Asvins are repeatedly invoked at the morning and in the evening. Mercury and Venus are seen either as « Morning Stars » —

in the Eastern sky before sunrise — or as « Evening Stars » — in the Western sky after sunset.

The Asvins, « Seek mid air by a path that leads aright (i.e. East to West) as by a path that leads direct (West to East) » (*Rig Veda* I.CXXXIX; IV. This and all subsequent translations are by R. T. H. Griffith).

Mercury and Venus frequently move in the direct and retrograde sense, unlike the outer planets which have only occasional retrograde motions.

« Ye as ye (Asvins) travel overtake the courser » (*R.V.* I.CLXXX; II). The courser is the Sun which is frequently referred to as such. Mercury and Venus move faster than the Sun and frequently overtake it.

The Asvins are described as charavaka (chakwa) birds. (*R.V.* II.XXXIX; III). The male and female chakwa birds, according to legend, are condemned to spend the nights on the opposite banks of a river. Thus the reference is to one of Mercury and Venus appearing as an Evening Star in the West while the other appears as a Morning star in the East.

The Asvins are said to share a common brotherhood. In fact, Mercury and Venus are the only two planets that fall into one category: they both always appear close to the Sun, within 46 degrees of it.

Sometimes the Asvins are « ... standing still in Vishnu's striding places » (*R.V.* VIII.IX; XII). The *Rig Vedic* Vishnu is, as all scholars accept, the Sun. « Vishnu's striding places » means the zodiacal belt. This is clearly a reference to the stationary points as Mercury and Venus change their direction of motion in the zodiacal belt.

That the heliocentric theory was known can also be seen from the explicit statement that the Asvins, « ... compass round the Sun when afar... » (*R.V.* I.CXII; XIII). When afar means those positions of Mercury and Venus when they are farther away from the Earth, i.e. near about superior conjunction.

Let us now consider this obscure line: « High on the forehead of the Bull one chariot wheel ye (Asvins) ever keep » (*R.V.* I.XXX; XIX). The « Bull » here is Dyaus (the sky), who is referred to as « Bull » in the *Rig Veda*. The sun as identified with Agni is the forehead of the sky. For, Agni is described as the « forehead of the sky » (*R.V.* I.LIX; II). Wheel is to be identified with an orbit or orbital motion. The above impossible statement then means, « the Asvins (Mercury and Venus) orbit the Sun ».

(N.B.1.) This is a very good example of the deliberate obscurity of the *Rig Veda*. Noting that the Sun is also described as an eye, we can see the origin of the concept of the sky-clothed Digambara (Siva) with a third eye on his forehead.

(N.B.2.) The helio-centric theory of the Asvins was propounded by

the three Ribhus, the sons of Sudhanvan, who are described in the Rig Veda as having built a chariot for them.

(N.B.3.) This is also an example of how the Rig Vedic deities are really very definite and subtle scientific entities and not tribal or semi-tribal gods. Thus, as pointed out, the Rig Veda ante-dates 1400 B.C., the date of the Boghoz-koi inscriptions which is a treaty between the Mittani and Hittites where the Gods, Indra, Varuna, Mitra and Nasatya (Asvins) are invoked as witnesses.

Finally, « Where are the three wheels of your (Asvins') triple chariot... » (R.V. I.XXXIV; IX). The three wheels refer to the three circular motions Mercury and Venus exhibit: rising and setting which is common to all celestial bodies, the sun's annual motion which they share owing to their being within 46 degrees of it always and lastly their own orbital motion about the sun.

The following verses also summarise the advanced state of knowledge of the seers (R.V. I.CLXIV): « Upon this 5 spoked wheel revolving ever, all living creatures rest and are dependant, Its axle, heavy laden, is not heated: the nave from ancient times remains unbroken ».

The wheel upon which all creatures rest is the earth itself. The five spokes are the 5 geographical zones of the earth: the 2 frigid zones, the 2 temperate zones and the tropical zone. The revolution refers to the rotation of the earth. « Its axle heavy laden is not heated » refers to the fact that the North and South Poles where the axis of rotation cuts the earth, remain frozen.

The rotation of the earth is also implied in another line, « Those that come hitherward they call departing, those that depart they call directed hither », which refers to the opposite hemispheres of the earth, e.g. the setting sun for one hemisphere is really the rising sun for another.

The following line is very significant: « Who hath beheld him as he sprang into being, seen how the boneless one supports the bony? ».

Less literally the boneless and the bony are translated as the unsubstantial (or feminine) and substantial (or masculine). That is Nature supports the manifested or material world. On the other hand Hillebrandt (*Vedische Mythologie* I) makes the conjecture that the boneless is the sun, the bony being the moon.

Let us rationalise: « The boneless » is the sun — which is gaseous — while « the bony » is the earth, which in contrast is solid and rocky. That is, « The sun supports the earth ».

It has been mentioned earlier that any interpretation apart from being meaningful should be consistent. Not only does the heliocentric theory follow as a result of the proposed de-coding scheme, but this can be checked from other straight forward statements. We have already seen that the heliocentric theory was known to the Rig Vedic seers as far as Mercury and Venus are concerned; as also the rotation

of the Earth. Let us consider now the following verse (R.V. III.LIV; V): « What pathway leadeth to the Gods? Who knoweth this of a truth, and who will now declare it? Seen are their lowest dwelling places only, but they are in remote and secret regions ».

Gods (deva, literally bright ones) are in fact the stars. All the stars appear to be at the same distance, that is as if they were attached to a sphere owing to an inability of the human vision to gauge the differences in actual distances along the line of sight. Actually they are at inconcievably widely differing distances. The above verse means:

While only the lowest dwelling places of the stars are seen, that is while they all appear at the same distance (more technically their projections on the celestial sphere are seen), actually they are at different distances.

This statement is very significant. Till after Copernicus, 1543, all the stars were supposed to be attached to a sphere. How do we know that they are not? By meaursing their distances. This is done by observing what is called their parallax *which arises due to the motion of the earth* round the sun. Thus the above verse itself proves that the Rig Vedic seers knew of the earth's annual motion and had, moreover carried out very penetrating observations.

On the other hand, the Greeks had thought that Venus as the evening star and Venus as the morning star were two different objects, Hesperos and Phosphorus. Then around 550 B.C. Pythagoras suggested that they were one and the same.

Philolaus of Thebes, 450 B.C. a pupil of Pythagoras first attributed motion to the earth in a rather absurd theory. Herakleides of Pontus around 350 B.C. suggested that the earth rotated on its axis while Mercury and Venus orbit the sun, not the earth. He even probably proposed that the earth went round the sun. Archemedes and Plutarch testify that Aristarchus of Samos, 280 B.C., suggested both the diurnal rotation and revolution of the earth. It was again only towards the end of the 15th Century that Nicolaus of Cusa began wondering if the earth did not go round the sun. By 1543, Copernicus had propounded the helio-centric theory.

But even Copernicus had supposed, like all his predecessors, that all the planets, the moon, the stars etc. were attached to transparent material spheres, so that they would not fall down. These spheres were smashed only after Kepler had introduced, in 1608, the elliptic orbits. The stage was then set for Newton to ask that momentous question: Why don't the heavenly bodies fall down? Thence the theory of Gravitation.

In this context and in view of the statement « the sun supports the earth », the question in the *Rig Veda* is significant (R.V. IV.XIII; V): « How is it that unbound and not supported he (sun) falleth not although directed downward? ».

Did the Rig Vedic seers know of gravitation too?