

## The whole world put between to shells: The cosmic symbolism of tortoises and turtles

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### **Abstract**

*Since the Bronze Age turtles and tortoises were related to a cosmic symbolism by ancient cultures in different parts of the world, with a certain concentration in the northern hemisphere. The paper attempts to categorize aspects of the cosmic turtle symbolism, using mainly an ethnoastronomical approach, partly supported by archaeological evidences. As a result a set of concepts can be identified, which are related to cosmologic, cosmogonic, biological, and psychological aspects.*

**Keywords:** *tortoise/turtle, symbolism, myths, cosmology, cosmogony, cross-cultural analysis.*

### **The turtle as symbol of cardinality, centrality, axiality and a kind of grid**

Archaeological records confirm the motive of the cosmic turtle/tortoise in Bronze Age China (Allan 1991) and there are some hints that certain medicine wheels in North America are tied to the cosmic symbolism of the tortoise, dated back to ca 2,300 BC (Kelley and Milone 2005, 208-209, 493). But the symbolism of the animal is much older and can be traced to Nevali Cori (37° 35' N, 38° 39' E, Eastern Anatolia, Turkey; 490 m msl), which is dated to the Pre-Pottery Neolithic B, 8,200-8,800 cal BC (Hauptmann 1991/92). Furthermore it has been speculated that the idea of a cosmic tortoise symbolism may be present in the Upper Paleolithic epoch (Larichev 1978).

People in Africa, Asia, and North America deliver archaic conceptions about a giant turtle, which symbolize the structure of the world (Andrian 1994, 50-51). The animal embodies cardinality, centrality, and axiality, and illustrates the shape of the world (Chevalier and Gheerbrant 1996, 1016). The plastron symbolizes the flat and square earth, while the carapace stands for the upper, dome like sky. During the Shang Dynasty (ca. 1600-1046 BC) the Chinese made models of turtles, which always are decorated with sets of circles on the carapace. These might represent the stars in the sky (Allan 1991, 107-108). The air as a third plane of the world is given by the body of the tortoise/turtle in between the two shields. Thus the animal illustrates a basic division of the cosmos into two or three, e.g. in India or China (Kirfel 1920, 6,

Andrian 1994, 44-45). In ancient Chinese myths the tortoise bears a magic square, the four cardinal points, and the centre of the world inscribed on its back (Haudricourt and Needham 1963-66: 161-177, Andrian 1994, 43-45, Allan 1991, 107, 173). Similar ideas are known for example from the Dogon in Africa (Griaule 1980, 123) or the Balinese (Willis 1994, 303).

According to the people of Asia and North America the feet of the tortoise signify the cardinal directions. In addition the legs support the cosmos in the corners of the world. The middle of the animal's body symbolizes the centre of the world. The old Tibetans told that once a huge tortoise fell on its back (Hermanns 1955, 32). Since that time the animal bears the world on its plastron. The right side signifies east, the left west, the head south, the tail north, and the four legs all intermediate directions. Similar the Skidi Pawnee, North America, build the fireplaces in their earth lodges shaped as a turtle, which symbolizes the world (Von Del Chamberlain 1982, 160-161). The head of the animal looks east, the tail points west. The four legs are gods, which in the corners hold the cosmos up.

Finally a much elaborated bronze astrological tablet and additional descriptions of unknown age have come down to us from ancient Tibet, which give a good idea of this archaic turtle-cosmography. Similar examples partly modified, can be found in Tibet and India (Hermanns 1955, 32, Schwartzberg 1994, 632-633, Milone and Kelley 2005, 490-491). The rectangular tablet shows a very stylized tortoise. The parts of the body symbolize not only the cardinal points but also the elements of the cosmos. The centre of the carapace denotes the nadir of the vertical cosmic axis. On the back shield, consisting of 22 horny plates, a magical square of order 3 is depicted. Around these are grouped the eight threefold signs of change, then the twelve signs of the zodiac. The moon and the sun are engraved in the upper left and right corner. The directions are each related to a certain colour.

The carapace of a turtle is formed from bony and horny plates which have grown together resembling a grid-like regular pattern. The cosmos, in the shape of a turtle, offered a basic model, which for people in

Africa, Asia and South America (Berny 1913, 208-209, Menon and Filon 1932, 67-68, Granet 1980, 128-135, Stevens-Arroyo, 1988) sets up a grid of reference to cover the heavens and similar the earth, partitioning the regions geometrically and allowing them to be identified according to number and figure (Kelley and Milone 2005, 489-493, Andrian 1994, 43). The division frequently is related to special magic squares, e.g. those of order 3 or 5, from which other cosmological significant numbers are derived.

Following ancient Chinese ideas, the grid consisted of nine fields (Granet 1980, 128-135, Andrian 1994, 44): Eight are ordered symmetrically around a centre creating a magical square. The centre is the celestial pole or the middle of the earth. The whole image is surrounded by a primal cosmic sea. The magic square refers to the nine cauldrons, brought by the female turtle of the north, which create order and balance in the whole cosmos. On each, the emblems, living beings, products and maps of the particular country were depicted. In ancient India the turtle is also connected with a cosmic reference grid (Menon and Filon 1932, 67-68), which seems to have been centred at the celestial pole.

According to the ancient conceptions of the people in Asia, and both America the reptile carries the pivot of the cosmos, represented by a tree, a lotus, a column, an island, a mountain, a man, or a god (Kelley and Milone 2005, 488-494). The motive of the tortoise/turtle, bearing the whole cosmos with its body, is derived from the hard and protective shell of the animal together with its strong and short legs, which show perseverance, solidity and strength as well as invulnerability. In addition a tortoise' slow movements and indolence led to the idea that the reptile is responsible for the 'stability and 'immovability' of the world and guarantees the order in space and time.

In the traditions of many peoples from North America and Asia a very tall tree can be seen growing out of the back of the turtle that is from the earth's space into the sky (Schmidt 1929, vol. 2, 422-423, Müller 1982, 103, Schwartzberg, 1994, 711-712, Fn. 39, Sinaga, 1981, 127-132; Keller 1995, 139, Stein 2001, 24). The top of the tree reach the highest parts

of the sky, the pole or zenith. There they take up the life giving waters of the upper cosmic sea. In some versions the world tree pierces the animal like a stake (Hewitt 1903). An example for the turtle carrying the world tree and an associated cosmography comes from an ancient Chinese tomb. It is dated back to the Eastern Han Dynasty, 2nd c. AD. The object is called the 'The candlestick of the one hundred flowers' (Wiedenhage 1995). A turtle swims in the ocean on its back. The huge tree of the world, crowned by the mythic phoenix bird, showing the shining pearl of the sun in his beak, is rooted on the animal's plastron. The composition turtle/tree itself is supported by the world mountain. It is thought that the turtle bears the 'island of immortality'. Here tree and mountain act together as symbols of the axis mundi.

In place of a tree, a pole, shaped as a lotus, signifies the cosmic axis in a representation from the southwest pavilion at Angkor Wat (Cambodia), 12th c. AD (Mannika 1996, 32-49, 161-172). In a Totonac version a flower stem replaces the tree and another substitution is a ladder as in the case of a Batak cosmogram of the world-turtle (Kelley and Milone 2005, 489). The Toba-Batak (Indonesia) and other people buried a tortoise, representing the Underworld, beneath the sacrificial pole, which symbolizes the tree of life (Sinaga 1981, 127-32). From the earliest times it has been the custom in Asia, e.g. in Northern Mongolia and China, to construct square world columns on the base of a turtle shaped foundation (Holmberg 1922, 24-25, Maringer 1963, Andrian 1994, 50). The model of a tortoise, signifying the intended stability of the building, plays an important role in the foundation rituals of ancient India (Gonda 1989, 328-329): The foundation stone of a building had to be centred in the site at the point through which the polar axis passed. On top of this a vase, filled with vital forces, was placed. Then a stone lotus and a stone turtle representing the earth, a silver lotus and a silver turtle, symbolizing the heaven came in successive levels.

Tree, ladder, column, and mountain are symbolic synonym to each other. Thus it isn't casual that there exist traditions in Asia, which speak of a giant turtle supporting the cosmic primeval mountain (Sch-

leberger 1986, 173-176, Kamp-Linfort 1994, 147-151, Stein 1994, 93, 215, 233-236).

## The turtle and the polar axis of the world

The turtle as a carrier of the cosmic axis of rotation plays an important role in the detailed story of the ancient Indians of churning the white milky sea (*amrita-manthana*), which is the Milky Way and the celestial sphere (Schleberger 1986, 173-176, 272-274). The 28 gods and 92 demons wind the king of the snakes, Vasuki, being the world snake that is the zodiac with the ecliptic, like a rope around the mountain. While Vishnu embraces with his pair of arms the world mountain Mandara, the others turn the hill, pulling alternately at both ends for a hundred years, until the sea of milk is stirred. The mountain however is without support and sinks to the bottom. Vishnu therefore changes himself into a turtle dives into the sea of milk and on reaching the floor, takes the mountain onto its back shell and raises it up to the surface of the sea. So the gods and demons can continue with their whisking. The huge, cosmic mountain whirls around in the milky sea making a terrible noise, surrounded by fire and flames and by thick clouds. So the sea of milk is churned into an intoxicating drink of nectar. The gods and demons are strengthened by the drink, which ensures eternal life. The whisking process separates the solid and liquid parts of the sea of milk and raises treasures (8, 9, or 13), which are certain natural features and forces, to the surface. The nine stones embody the Sun, Moon, the five planets, and the lunar nodes, Ketu and Rahu. They are imagined as life-giving urns. The sea monster and the turtle belong to the eight jewels. These seem to refer to certain constellations.

Furthermore the myth of churning the Milky Way is very likely to have been illustrated in Angkor Wat (Cambodia) (Mannika 1996). There are very similar traditions of the narration (Kelley and Milone 2005, 487-489) handed down in Balinese and Indonesian, and much more surprisingly, in Maya culture (De Santillana and Von Dechend 1993, fig. 50).

## The 'turtle': an ancient constellation close to the northern celestial pole

Peoples throughout the world have recognised a turtle shape in certain constellations (see e.g. Allen 1963, 109, 283-284, Scherer 1953, Levi-Straus 1971, 295-297, Kelley and Milone 2005, Graebner 1920/21). It is often unclear, which constellations are meant. Considering the confirmed cases, most of these are all located in or near the zodiac. Very often Orion's Belt is said to be the 'turtle' asterism (Kelley and Milone 2005, 489, 493).

But the Chinese, the Indians, and the Greeks, later the Romans located the constellation of the 'turtle' far away from the ecliptic close to the northern celestial pole. The Chinese perceived the head of the animal originally in some stars, which belong to the today's asterism of the Big Dipper (Andrian 1994, 44, 50). The Indians also identified the 'tortoise' with the pole star (Attenborough, 1987, 86-87).

The Greek, and later the Romans, had a certain tradition, which associated the constellation of Lyre with a tortoise (Scherer 1953). They referred the Kithara to 'he chelone', the tortoise, because the instrument was built out of the animal's shell that together with a goat's or bulls horns formed the frame, to which was added a cross yoke and 7 or 9 strings.

The nine string lyre and the constellation of the Great Bear were both called 'helike' by the Greek, meaning 'twisted'. The name of the world mountain polar axis Helucon, the abode of the nine Muses can also be derived from 'helike' (Fol 1991, 230). It is strange that nine Muses have made the cosmic mountain their home. Nine cauldrons also play an important role in the creation of the universe according to Chinese myths (Andrian 1994, 44, Granet 1980, 128-135). Nine treasures are mentioned in the Indian stories of sea whisking (Schleberger 1986, 272) and in African cosmogonic stories (Baumann 1936: 201). Nine fields are shown on the magical square of order 3, just as on the back shell of the turtle in the constellation Lyre. This doesn't seem to be casually.

At around 11,600 BC Vega, the  $\alpha$ -star in the Lyre was located only about  $3.4^\circ$  from the northern celestial

pole, being a really striking polestar. From a Chinese myth (Jockel 1990, 208) it can be derived that the cosmic turtle was 12,000 years old, indicating the time when Vega was close to the pole. Moreover it is very strange to notice, that the Chinese used a dry-plate magnetic-compass equipped with a turtle-needle in the 13th c. AD for mantic, particularly geomantic purposes, and for navigation (Lin Wenzhao 2001, 146-152). It may be that the very old idea of a cosmic turtle, pierced through by the world axis, is reflected in that device. In addition it is interesting to note that turtles orientate themselves excellently in the magnetic field of the earth (Lohmann et al. 2001). If the hypothesis holds true that Vega signifies the originally turtle constellation at the celestial pole at around 11,600 BC, then people surely had noticed another impressive feature: The Milky Way as a fiery circle, generated by a fire-driller, which is the world-axis, piercing in the centre of the deep cosmic ocean, moved by a slowly rotating 'turtle'-constellation like an 'engine'.

## The fire-drilling turtle at the celestial pole produces the milky way as a fiery circle

The ancient Bulgarian called the constellation of the Lyre (Vega) 'svredel', meaning 'driller' (Kolev and Koleva 1997, 73, 77-78). According to the ancient view this tool was used at the creation of the world and so it was suggested that this conception dates back to the end of Upper Paleolithic time (Kolev and Koleva 1997, 77-78). Myths concerning a cosmic drilling of fire or whisking of milk, related to a cosmic turtle, generating and owning the fire, are so far known from North America, Mesoamerica, and Asia (Kelley and Milone 2005, 487, 492-494, Seifert 1990, 71, Wiedehage 1995, 392, 394). The New Year fire ceremonies seem to be often correlated (Kelley and Milone 2005, 494). This is reminiscent of the Indian story of whisking the milky sea. The process results in fire around the world mountain and churning the milky sea, both being images of the Milky Way. Interesting is a myth of the Nkutschu in Africa (Baumann 1936, 362): The turtle possesses the se-

cret of making fire at a time when it was bitterly cold on the earth, which may be a hint on the late ice age.

## The turtle and cosmic music

At that time the cosmic turtle had a ruling position, being the foundation of the polar axis. It appeared to produce the Milky Way, to control all important circles in the sky and the movements of the fixed and wandering stars, to establish the grid of heaven, and thus to guarantee and harmonize cosmic order. From this it is understandable why peoples thought the turtle would 'call the tune' in the world. That may be the reason why they often related the turtle to a musical instrument, which played the music of the spheres (see e.g. Danckert 1963, 43-44, Zender 2006, 8, 10). Significant is the Greek myth of Hermes (Creese 1997, 60-66). After killing a turtle and removing the internal organs, he covered the shell with a bull's fur and nerves. The first lyre, which had seven keys, according to the movements of the wandering stars, was created.

## The turtle tells the time

Because the turtle/tortoise was thought to be responsible for the rotation of the world around the polar axis, it seemed obvious that it would also predominate the cycles of time. In Asia, Mesoamerica, and North America the animal has come to embody calendrical periods. The Delaware e.g. considered the box turtle to be an earth bearer (Müller 1982, 103). The edge of its shell consists of twelve plates, interlocking on all sides, which represented the succession of the 12 months along the horizon. Comparable ideas exist in China (Eberhard 1985, 253). From the Late Postclassic Maya a stone turtle is known, which shows a Katun Wheel on its back (Miller and Taube 1993, 174-175).

Often the reptile was associated with the moon and its course (Graebner 1920/21, Kunike, 1925; Baumann 1936, 279, Wiedenhage 1994, 394, Chevalier and Gheerbrant 1996, 1017, Kelley and Milone 2005, 487, 493). The turtle was also associated with the planet Venus (Carlson 2005). Furthermore the turtle

had been related to the zodiac or to the lunar mansions (Menon and Filon 1932, 67). In ancient India e.g. the turtle altar shows a plastic shape of the cosmos, in particular of the zodiac. The turtle/tortoise in the traditions of the people is often associated to one (or two) special snakes or dragons, sometimes equipped with 5 or 7 heads, probably the planets with or without the moon and the sun. The rope-like reptiles, intertwined or one wrapped around the (polar) world axis in coils (Kelley and Milone 2005, 487-491), seem to stand for the ecliptic or zodiac and to serve as a kind of transmission belt.

## The turtle creating and restoring the cosmic order

Many peoples in North America, Asia, and Africa deliver certain sets of earth-diver-myths, in which a turtle acts as the creator of the world (Schmidt 1912-1955, Hermanns 1955, 13-14, 32, Wheeler-Voegelin 1984, Waida, 1987, Carpenter and Spieß 1988): Swimming in a kind of primal sea or living at its bottom, that are the cosmogonic waters, the turtle dives down to the floor and secures mud. This material germ firms the earth, shaped as flat land or a stone ball, surrounded by the sea. The new land starts to expand, generating the world. In addition there might be a biological background of the mythic image (Garfield 1986, 301-302): After hatching, young turtles swim far away from the coast and ride at rafts, built by seaweed and drift-wood. These 'floating islands' are 'continuously' growing (up to 100 miles in length) and provided the reptiles with food.

As an aquatic animal, people considered the turtle to predominate and to guard the water in the cosmos, producing and maintaining life (Cooper 1986, 159, Andrian 1994, 47-48). Because the reptile lays many eggs it is associated with fertility. Thus people of Africa and Asia thought that the turtles lay eggs in the primal sea, from which the elements, the living creatures (mankind and animals), and even gods of creation are born (Baumann 1936, 18, Hermanns 1955, 15).

It is clear from the circumpolar or even pole position of the cosmic turtle asterism, as well as from the

longevity of the reptile and its water/earth-symbolism (Cooper 1986, 159), why the animal was thought to start, maintain, and sometimes to destroy the creation of the world. Furthermore it embodies immortality (Chevalier and Gheerbrant 1996, 1017, Cooper 1986, 159, Andrian 1994, 47-50). Myths coming from Asia tell that one or many turtles carry the home of the blessed immortals, which is mostly seen as one or more islands swimming in the centre of the cosmic ocean or the Milky Way (MacKenzie 1994, 106-112, Wiedenhage 1994, 394). Moreover the preparation of the heavenly elixir of life (water, milk) is related to the animal's location at the rotational centre of the world (Schleberger 1986, 173-176).

In stories coming from North America and Asia the turtle helps to restore the cosmic order after a great cataclysm, e.g. a flooding of the world, which is related to the uprooting of the world-tree (Hewitt 1903, 284-296, Baumann 1936: 31, 231) or the destruction of the world-mountain (Allan 1991, 68-70): In a Chinese myth (Keller 1999, 178-194) for example the heavens main support, the imperfect mountain, that is the oblique polar axis, in the northwest corner, collapsed, and a huge hole appeared in the sky. "A huge sea turtle or black dragon was killed. Then its four legs were cut off and put at the four corners of the sky replacing the imperfect mountain." So order and harmony was restored to the universe.

Maya and Indian myths tell that it was possible to create the cosmos only after killing and breaking up the cosmic turtle, setting free a god (Zender 2006, 8-10). A Tibetan myth described how the turtle was killed by a golden arrow, which pierced it on the right side (Hermanns 1955, 10-12, 32). Then the animal was lowered into the depths of the sea and turned on its back, so that the underside could carry the world.

## **The cosmic turtle as a divination device, a model of cosmic energy, and of the human brain**

Ancient people used the turtle/tortoise, which they thought to be a model of the cosmos, for purposes of

magic, mantic, and oracles (Adrian 1994, 43, 51-52), for example the Chinese sacred turtle bearing the Lo-Shu pattern (Kelley and Milone 2005, 492). The Chinese also delivered the divination by burning turtle shells, which follow an exact outline and division of the sky and earth (Granet 1980, 131-135, Allan 1991, 113-123).

Moreover the Desana in South America used the tortoise as a model of the productive forces of cosmic energy in space and time and of the structure of the human brain (Reichel-Dolmatoff 1979, 117-128). The horny plates with six sides from the carapace are considered as a sacred space, in which all basic changes and transformations occur. The pattern of hexagons on the turtle's shell was read helically anti-clockwise and gave basic information about life and the whole world. In addition the Desana perceived in the hexagonal structure of a tortoise shell the same structure as in the brain. The Dogon (Africa) had a similar conception (Griaule, 1948: 128).

## **Conclusion**

People of different cultures and epochs used the tortoise/turtle as a symbol to illustrate the spatiotemporal structure of the cosmos and archaic ideas of cosmogony. It served as a model of the interaction of matter and mind for purposes of magic, mantic, and oracles. Furthermore the animal symbolized the functionality of the human brain.

## **References**

- Allen, R.H. (1963) *Star Names: Their Lore and Meaning*. Dover Publications, New York
- Allan, S. (1991) *The Shape of the Turtle: Myth, Art, and Cosmos in Early China*, State University of New York Press, Albany.
- Andrian, F. (1994) *Die Schule des I Ging. Hintergrundwissen*. Diederichs, München.
- Attenborough, D. (1987) *The First Eden: the Mediterranean World and Man*. Collins, London, Glasgow, Sydney.
- Baumann, H. (1936) *Schöpfung und Urzeit des Menschen*

- im Mythos der afrikanischen Völker. Reimer/Steiner, Berlin.
- Berny, Ad. (1913) Der astralmythologische Inhalt der Brett-Spiele. *Memnon*, Vol. VI, Book 1/2, 204-212.
- Carlson, J. B. (2005) Transformations of the Mesoamerican Venus Turtle Carapace War Shield: A Study in Ethnoastronomy. In *Songs from the Sky: Indigenous Astronomical and Cosmological Traditions of the World*, V. D. Chamberlain et al. (eds.), Ocarina Books/Center for Archaeoastronomy, College Park/Bognor Regis, 99-122.
- Carpenter, E., and Spiess, L. (1988) Materials for the Study of Social Symbolism in Ancient and Tribal Art: A Record of Tradition and Continuity Based on the Research and Writings of Carl Schuster, Vol. 3, Books 1-3. Rock Foundation.
- Chevalier, J. and Gheerbrant, A. (1996) Dictionary of Symbols. Penguin, London.
- Cooper, J.C. (1986) Illustriertes Lexikon der traditionellen Symbole. Drei Lilien Verlag, Wiesbaden.
- Creese, D.E. (1997) The Origin of the Greek Tortoise-Shell Lyre. MA, National Library of Canada, Ottawa.
- Danckert, W. (1963) Musikgötter und Musikmythen Altchinas. *Zeitschrift für Ethnologie*, Vol. 88, 1-48.
- De Santillana, G. and Von Dechend, H. (1993) Die Mühle des Hamlet. Kammerer & Unverzagt, Berlin.
- Dockstader, J. (1969) The World on the Turtle's Back. In *I am an Indian*, K. Gooderham (ed.). Dent, Toronto, 148-150.
- Eberhard W. (1985) Lexikon chinesischer Symbole: Geheime Sinnbilder in Kunst und Literatur, Leben und Denken der Chinesen. Diederichs, Köln.
- Fol, Al. (1991) The Thracian Dionisus. Book one - Zagreus. The Sofia University Publications, Sofia.
- Garfield, E. (1986) The Turtle: A Most Ancient Mystery. Part 2: Unanswered Research Questions. *Essays of an Information Scientist*, Vol. 9, No. 40, 3-11.
- Gonda, Jan (1978) Die Religionen Indiens I: Veda und älterer Hinduismus. In *Die Religionen der Menschheit*, C.M. Schröder (ed.), Vol. 11, Kohlhammer, Stuttgart.
- Graebner, F. (1920/21) Alt- und neuweltliche Kalender. *Zeitschrift für Ethnologie* 52,1, 6-37.
- Granet, M. (1980) Das chinesische Denken: Inhalt, Form, Charakter. Dtv, München.
- Griaule, M. (1975) Dieu d'eau, entretiens avec Ogoteméli. Librairie Arthème Fayard, Paris.
- Hauptmann, H. (1991/92) Nevali Cori: Eine Siedlung des akeramischen Neolithikums am mittleren Euphrat, *Nürnberger Archäologische Blätter* 8/9, 15-33.
- Haudricourt, A. and Needham, J. (1963-1977), Ancient Chinese Science. In: *History of Science*, 4 vols., ed. Rene Taton, trans. A. J. Pomerans (London: Thames and Hudson, 1963-1977), vol. 1, Ancient and Medieval Science from the Beginnings to 1450, 161-177.
- Hermanns, M. (1955) Mythologie der Tibeter: Magie, Religion, Mysterien. Magnus, Stuttgart
- Hewitt, J.N.B. (1903) Iroquoian Cosmology. *Bureau of American Ethnology*, Vol. 21. Washington, 127-339.
- Holmberg, U. (1922) Der Baum des Lebens: Göttinnen und Baumkult. *Annales Academie Scientiarum Fennicae / Suomalaisen Tiedeakatemia Toimituksia*, Sar. B, 16,3, Helsingfors.
- Jockel, R. (1990) Die großen Mythen der Menschheit. Götter und Dämonen. Pattloch/Weltbild, Augsburg.
- Kamp-Linfort, V. (1994) Mythen von der Erschaffung der Welt. Friedemann, Hamburg.
- Keller, A. (1995) Kosmos und Kulturordnung in der frühen chinesischen Mythologie. In: *Das Alte China: Menschen und Götter im Reich der Mitte 5000 v.Chr.-220 n.Chr.* Kunsthalle der Hypo-Kulturstiftung München, Hirmer, München, 136-146.
- Keller, A. (1999) Weltkatastrophen in frühchinesischen Mythen. Akademischer Verlag, München.
- Kelley, D. H. and Milone, E.F. (2005) Exploring Ancient Skies: An Encyclopedic Survey of Archaeoastronomy. Springer, New York.
- Kirfel, W. (1920) Die Kosmographie der Inder nach den Quellen dargestellt. Schroeder, Bonn, Leipzig.
- Kolev, D. and Koleva, V. (1997) The Stellar Sky in Bulgarian Folk Traditions. In *Actas del IV Congreso de la SEAC, 'Astronomia en la cultura'*, C. Jaschek, C. and F.A. Barandela (eds.), Universidad de Salamanca, Salamanca, 69-79.
- Kunike, H. (1925) Nordamerikanische Mondsagen. *Internationales Archiv für Ethnographie*, Vol. 15, 27-54.
- Larichev, V. (1978) Skulptura cherepakhi s poseleniya Malaya Siya i problema kosmogonicheskikh predstavleniy verknepaleoliticheskogo cheloveka. In: U

- istokov tvorchestva, R.S. Vasil'evskiy (ed.), Nauka, Novosibirsk, 32-69.
- Levi-Strauss, C. (1971) *Mythologica I: Das Rohe und das Gekochte*. Suhrkamp, Frankfurt a. Main.
- Lohmann, K. J. et al. (2001) Regional magnetic field as navigational markers for sea turtles. *Science*, Vol. 294, 364-366.
- MacKenzie, D. A. (1994) *Myths of China and Japan*. Gre-sham, London.
- Mannika, E. (1996) *Angkor Wat: Time, Space, and King-ship*. University of Hawaii Press, Honolulu.
- Maringer, J. (1963) Vorgeschichtliche Grabbauten Ostasiens in Schildkrötenform und ihr mythischer Prototyp. *Antaios*, Vol. 5, 368-374.
- Menon, C.P.S. and Filon, L.N.G. (1932) *Early Astronomy and Cosmology: A Reconstruction of the Earliest Cosmic System*. George Allen & Unwin, London.
- Miller, M. and Taube, K. (1993) *An Illustrated Dictionary of the Gods and Symbols of Ancient Mexico and the Maya*. Thames and Hudson, London.
- Müller, W. (1982) *Amerika die neue oder die alte Welt?* Reimer, Berlin.
- Reichel-Dolmatoff, G. (1979) Desana Shamans' Rock Crystals and the Hexagonal Universe. *Journal of Latin American Lore*, Vol. 5, No. 1, 117-128.
- Scherer, A. (1953) *Gestirnnamen bei den indogermanischen Völkern*. Carl Winter Universitätverlag, Heidelberg.
- Schleberger, E. (1986) *Die indische Götterwelt. Gestalt, Ausdruck und Sinnbild. Ein Handbuch der hinduistischen Ikonographie*. Diederichs, Köln.
- Schmidt, W. (1912-155) *Der Ursprung der Gottesidee. Eine historisch-kritische und positive Studie*, 12 Vols. Aschendorffsche Verlagsbuchhandlung, Münster.
- Schwartzberg, J. E. (1994) *Maps of Greater Tibet*. In *The History of Cartography*, J. B. Harley and D. Woodward, (eds.), Vol. II, Book II, The University of Chicago Press, Chicago and London.
- Seiffert, B. (1990) *Die Herkunft des Feuers in den Mythen der nordamerikanischen Indianer*. Holos, Bonn.
- Sinaga, A.B. (1981) *The Toba-Batak High God: Transcendence and Immanence*. Anthropos Institute, Saint Augustin.
- Stein, R. A. (1994) *Le Monde en petit. Jardins en miniature et habitations dans la pensée religieuse d'Extrême-Orient*. Flammarion, Paris.
- Stevens-Arroyo, A.M. (1988) *Cave of the Jagua: The Mythological World of the Tainos*. Alburquerque, University of New Mexico Press.
- Waida, M. (1987) *Turtels and Tortoises*. In *Encyclopedia of Religion, M. Eliade (ed.)*, Vol. 15, Macmillan/Collier, New York, London, 96-97.
- Wenzhao, L. (2001) *Magnetismus und der Kompass*. In: *Wissenschaft und Technik im Alten China: 4000 Jahre Entdeckungen und Erfindungen*. Albatros, Düsseldorf, 146-158..
- Wheeler-Voegelin, E. (1984) *Earth Diver*. In *Standard Dictionary of Folklore, Mythology, and Legend*, M. Leach (ed.), vol. 1, Harper and Row, New York.
- Wiedehage, P. (1995) *Kat.-Nr. 98: „Ein-hundert-Blumen-Leuchter“ (baihuadeng)*. In: *Das Alte China: Menschen und Götter im Reich der Mitte 5000 v.Chr.-220 n.Chr.* Kunsthalle der Hypo-Kulturstiftung München, Hirmer, München, 392-394.
- Von Del Chamberlain (1982) *When stars come down to earth. Cosmology of the Skidi Pawnee indians of North America*. Ballena Press Anthropological Papers No. 26, Ballena Press, Los Altos, California.
- Willis, R. (1994) *Bertelsmann Handbuch Mythologie: Ursprung und Verbreitung der Mythen der Welt, Motive, Figuren und Stoffe von der Arktis bis Australien*, Bertelsmann, Gütersloh/München.
- Zender, M. (2006) *Teasing the Turtle from its Shell: AHK and MAHK in Maya Writing*. *The PARI Journal*, Vol. 6, No. 3, 1-14.