

CAMBODIA'S FOUR ELEMENTS

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While on a trip to Siem Reap near Angkor (Fig. 1), the former capital of the tenth-twelfth centuries Khmer Empire, I was surprised when my young guide showed me around the Four Elements Temple, known locally as “Neak Pean,” founded by Buddhist King Jayavarman VII, who reigned from 1181 to 1220. The temple seems to have served as a place where pilgrims could go and take the waters, both physically and symbolically—the Khmer equivalent of a spa (1).

The temple is set in a large man-made square lake, 70 meters each side, bordered by steps and surrounded by four smaller square ponds (Fig. 2). A small circular island with a stepped base is in the center of the lake (Fig. 3). Each pond has a vaulted roof and is connected to the lake. The interior of the vault is decorated with panels of lotus and a central waterspout in the form of an animal or human in the center. The four buildings served a ceremonial function where pilgrims could meditate. They anointed themselves with lustral water, which flowed from the spout connected to the lake. Each waterspout is different: the elephant's head symbolizes Water, the human head symbolizes Earth, the horse's head for Air, and the lion's head for Fire. Each pilgrim knows to which vault he belongs—

the priest had already assigned this to him at birth. The Cambodian four elements is said to be described in the Sanskrit books and is well known to the people. They also believe that on cremation, fire and air transform the body to water (vapor) and earth (ash). Rebirth is believed to be the reverse of cremation.

Neak Pean means in local language the “coiled serpents;” this refers to the two sculptured serpents encircling the base of the island whose tails entwine on the west side. The heads of the serpents are separated to allow passage on the east. Serpents are extensively represented in the ancient Egyptian *Book of the Dead*, which contains many illustrations of serpents that were considered to be the symbol of any force that was hostile to the dead and was usually represented by being attacked by the wise man Ani with a spear. Serpents are also represented in many alchemical texts. Ihde (2), for example, shows a page from a

Greek alchemical manuscript with a serpent. Partington (3) also shows the front page of the Latin translation of the Pseudo-Demokritos book *Abderita de Arte Magna*, published in 1572, in which a serpent is coiled on the anchor of a ship.

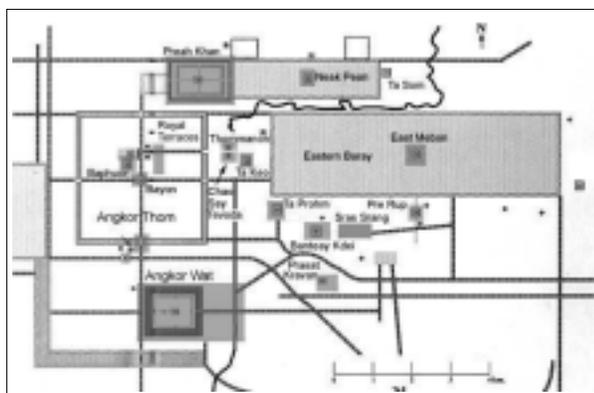


Figure 1. Plan of Angkor, the largest religious temple complex in the world showing the location of Neak Pean at the top.

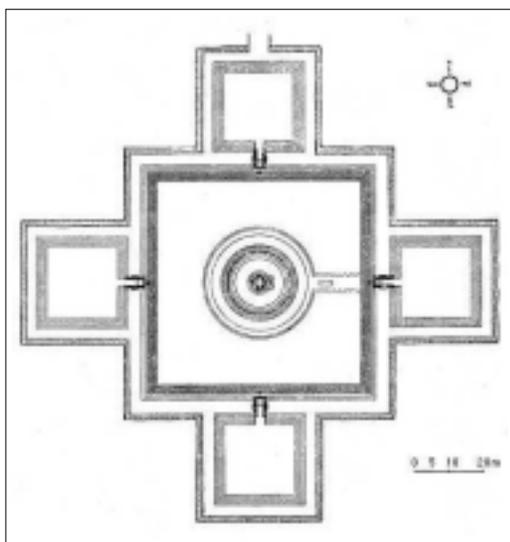


Figure 2. Plan of the Temple Neak Pean showing the central island and the four small lakes symbolizing the Four Elements: water, air, earth, and fire.

The fact that water, earth, air, and fire are the essential religious components of the temple recalls to the historians of chemistry the Theory of Four Elements, usually attributed to Aristotle (384-322 B.C.). In exploring this theory a few years ago, this author came to the conclusion that it originated in Persia from Zoroaster (630-553 B.C.), at least two centuries before Aristotle (4). According to Zoroaster air, water, earth, and fire are “sacred elements.” Humans and animals need air to breathe, water to drink, fire for cooking food, and earth for growing plants for their survival. Earth, air, and water are to be kept from defilement. To till the field and raise cattle are parts of one’s religious requirements. Rainwater, when it falls in abundance to irrigate the fields, is a blessing from God. When it is scarce, famine may result. Fire creates warmth and comfort



Figure 3. A view of the central island at temple Neak Pean showing the central sanctuary.

when the weather is cold, but when it burns uncontrolled it results in a catastrophe and loss of life.

The fact that Cambodian rulers were also familiar with these ideas suggests that the theory may have reached the Khmer kings from Persia via India by Buddhist monks who migrated to Cambodia to preach the new faith. Warder (5) mentions that, according to the Lokayata school in India which flourished during Buddha’s time (563-483 B.C.), the universe is composed of four elements: earth, water, air, and fire (6). All phenomena consist of combinations of these four. Further, when the Arabs conquered Persia in 636 A.D., they overthrew the religion of Zoroaster; and many of his followers escaped to Bombay, where they are known as the Parsees.

The theory of four elements was one of the most powerful in the history of science. It dominated the thought of scientists, philosophers, theologians, artists, poets, and others for about two thousand years. Although Robert Boyle in 1661 wrote a definition of an element in his *Sceptical Chymist*, yet a number of chemists continued to experiment with the four elements and propose theories about them (7). Studying Sanskrit texts with this in mind should be rewarding to historians of alchemy.

REFERENCES AND NOTES

1. D. Rooney, *Angkor. An Introduction to the Temples*, Odyssey Guides, Hong Kong 2002, 186-189.
2. A. J. Ihde, *The Development of Modern Chemistry*, Dover Publications, New York, 1984, 12.
3. J. R. Partington, *A Short History of Chemistry*, Macmillan, London, 1948, 21.
4. F. Habashi, “Zoroaster and the Theory of Four Elements,” *Bull. Hist. Chem.*, **2000**, 25, 109-115.
5. A. K. Warder, *Indian Buddhism*, Motilal Banarsidass Publishers, Delhi, 1980, 41, 115, 153, 308, 323.
6. In the text heat is mentioned instead of fire.
7. F. Habashi, *From Alchemy to Atomic Bombs*, Métallurgie Extractive Québec/Laval University Bookstore “Zone,” Québec City, 2002, 23-46.

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