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22. A Prehistoric View of the Thermal Springs of India

by
D. Chandrasekharam

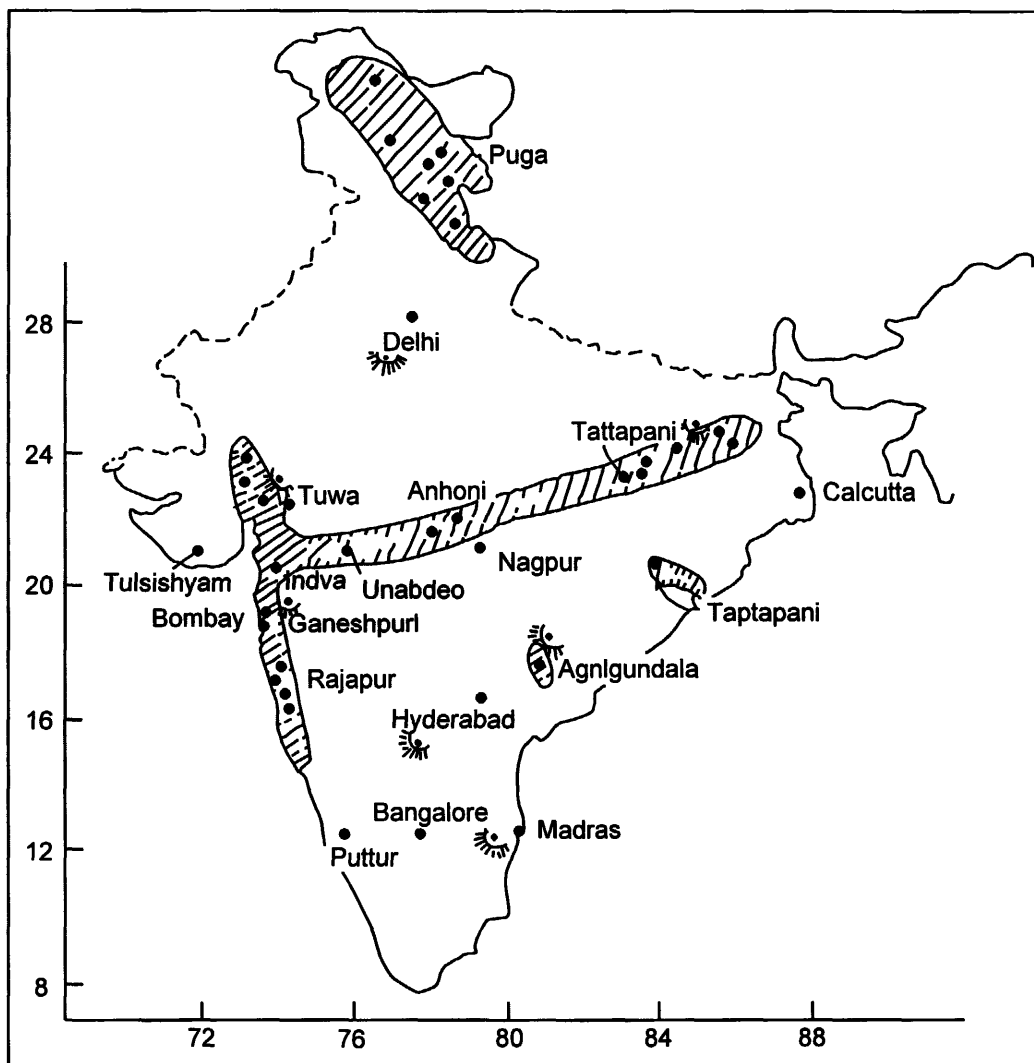
Abstract: Indian geothermal springs are the centers of myths and religious beliefs for ancient as well as modern Indian civilization. The ancient culture and mythology of India are still alive, and Indian geothermal spring sites bear testimony to this belief. Shiva, the god who tamed Ganga (“the water”) during her descent from Heaven, is the ruling deity at the spring sites. Ancient Indian civilization’s valuable contribution to modern India is recognition of the medicinal powers of thermal spring waters.

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INTRODUCTION

THE INDIAN SUBCONTINENT HOSTS NEARLY 320 THERMAL springs, which are found along major faults and subduction zones. Indian history does not refer to the ages of the springs. However, since these springs are associated with basaltic volcanism and rifts, we may assume that they started flowing before the arrival of human civilization.

Ancient Indian civilization, one of the oldest in the world, is beset with myths and religious beliefs. Its mythology is entirely different from that of the western world, centering on gods, demigods, and spirits that remain part of the living culture in both scientific and nonscientific society. This becomes clear on visiting any of the 320 thermal springs in India. These thermal springs are considered to have divine power, to be gifts from God.



Map showing the location of thermal springs (dots) and certain important archaeological sites (half circles) in India. Hatched areas represent rift and collision zones.

Indian historical literature refers to the magical powers of “rarified waters.” Megasthenes, a Greek ambassador who visited India in the 3rd century B.C., used this term to refer to Indian waters with extraordinary powers (Kalota, 1978). The medicinal value of thermal springs and the beliefs and myths associated with these holy waters also are recorded in Indian history, and available historical information is included in this chapter.

ARCHAEOLOGICAL EXCAVATIONS

MANY INDIAN ARCHAEOLOGICAL SITES ARE NEAR THERMAL SPRINGS, AS IS SEEN ON THE MAP. The excavation in Devnimori, a village in Gujarat State, is one such site, located northeast of the

Tuwa thermal springs (*Lat: 22° 45-22° 50 N; Long: 73° 22-73° 29 E*). Archaeological excavations in the area have unearthed several ancient Shiva temples (Shivalinga temples, to be precise) and Buddhist *stupas* (“tombs”).

From information collected by the author during interviews with pilgrims visiting the springs, a legendary belief among the villagers and pilgrims was that when exiled *Pandavas* (characters from the epic *Mahabharata*, the storehouse of myths) were passing through the area, Draupadhi requested one of her husbands to fetch some water to quench her thirst. In response to her request, Bhima, not finding any



The descent of Ganga from Heaven. The snake represents Shiva’s head (7th century sculpture). *D. Chandrasekharam*



Ganga, consort of celestial gods, brought to earth by the saint Bhagiratha (12th century sculpture). *D. Chandrasekharam*

source of water in the area, punctured the earth with his arrow, making a hole through which water started to flow. The discovery of a Hanuman temple during the excavations lends support to this belief. Hindu settlers thus considered the place a sacred place of worship, and they constructed Shiva and Hanuman temples here (Hanuman and Bhima were *Vayu Putras*, sons of Vayu).

The reason for making Shiva the deity of worship at this site (and at almost all thermal spring sites in India) is that the *ganga* (“the water”) flows through the Goddess Ganga sitting over Shiva’s head. Hindu mythology states that when Ganga, the consort of celestial gods and the daughter of *Himavan* (“the mighty Himalayas”), descended from the great Himalayas, Shiva stood below the mountains to break her fall and allowed the water to flow through his matted locks, dividing it into seven rivers. Thus, in Hindu mythology, Shiva and Ganga are inseparable.



Mask of Shiva covering Shivalinga, with Ganga on top of Shiva’s head. *D. Chandrasekharam*

Four Shivalinga temples were excavated in Devnimori (Mehta and Chowdhary, 1966). Subsequent to Hindu settlers, the Buddhists who migrated to various parts of the country also considered Devnimori sacred, and they established camps there. Thus, Bimbisara, an ancient Indian ruler who held his first counsel after



Buddhist temple near Rajgir thermal spring, Bihar. The spring is at the lower right side. *D. Chandrasekharam*

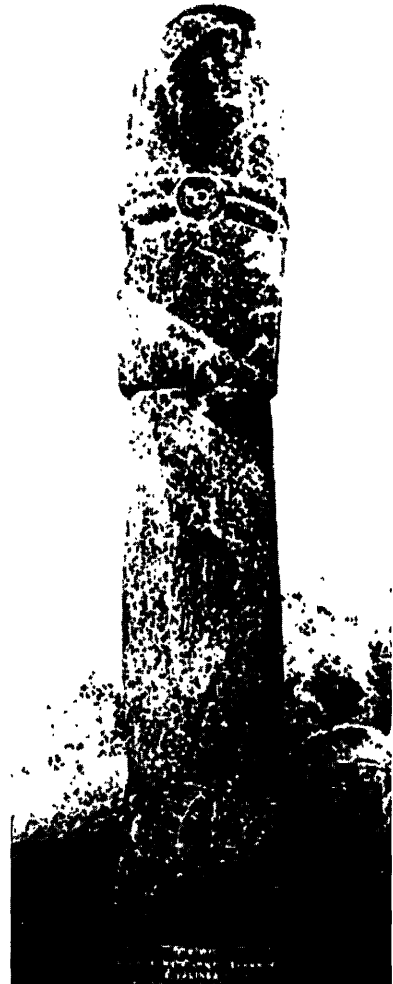
Buddha's death, constructed a Buddhist temple near the site of Rajgir thermal springs.

The sacred beliefs held by ancient Indians maintain strong roots in modern Indian civilization: all the thermal spring sites have become sites of worship and centers of pilgrimage today, and at each spring site, a Shiva temple is built. Both ancient and modern Indian civilizations worship Shiva as *Linga*, an erect phallus symbolizing power and creation. The Shivalinga temples lend support to these beliefs at Vajreswari, Ganeshpuri, and Rajapur in Maharashtra; at Manikaran in Himachal Pradesh; and at Taptapani, Orissa.

THERAPEUTIC VALUE OF THERMAL SPRINGS

BESIDES GIVING HOLY STATUS TO THERMAL SPRINGS, ancient Indians realized their therapeutic value and considered the waters cures for certain diseases. Megasthenes mentioned the medicinal value of Indian waters, calling them "rarified waters" that gave Indians intellectual powers in the fields of arts and crafts and long lives in comparison with the Greeks. Though he did not define "rarified waters," we may interpret them as waters rich with minerals and gases. Thermal springs can be considered such waters, and this could be the reason thermal spring sites were used extensively for bathing. Ancient kings, including the Mughals who invaded India, constructed tanks for bathing at the springs. Thus the belief that the waters cure certain diseases is not new to modern India, and the therapeutic powers of some Indian springs are listed in the following table.

The ancient Indian medical science of *Ayurveda* describes water as the main component for curing many diseases. Similarly, the Hindu *Vedas*, four ancient sacred books of Hindu knowledge and belief written as psalms, chants, and sacred formulae, consider water as one of the *Panchabhutas*, or five divine elements: *ap* ("water"), *prithvi* ("earth"), *tejas* ("fire"), *vayu* ("air"), and *akasa* ("sky"). One of the four *Veda* texts was called the *Rigveda*, and in this volume water was recognized as the first element of the *Panchabhutas*. Eventually the theory of



Shiva worshiped in the form of *Linga* (1st-4th century sculpture). D. Chandrasekharam



Pilgrims having a holy bath in Rajgir thermal spring. *D. Chandrasekharam*

Indian thermal springs and their therapeutic value

State	Location	Therapeutic value
Maharashtra	Vajreswari	Cures leprosy, gout, goiter, paralysis
Maharashtra	Ganeshpuri	Cures leprosy, gout, goiter, paralysis
Maharashtra	Rajapur	Cures rheumatism
Orissa	Taptapani	Cures skin ailments
Madhya Pradesh	Anhoni	Cures skin diseases
Bihar	Rajgir	Cures rheumatism, paralysis, dyspepsia, leucoderma

the *Panchabhutas*, which is Upanisadic in origin, became the doctrine of the integrated concept of the Hindu orthodox system, one also followed by Buddhists and Jains, as is seen in the paintings from Bali, Indonesia (Subbarayappa, 1970).

Ancient Chinese civilization adopted a concept similar to *Panchabhutas* that was known as the "Five Elements": soil, water, fire, wood, and gold (Wang Ji-Yang, 1995). Thus the idea of water as the primary component in curing diseases and in keeping the body healthy was recognized since Vedic times and is still followed by modern Indians.

The Mughals, who invaded India in 1398, paid less attention to the medicinal and religious values of the thermal springs, preferring to develop beautiful gardens with all available sources of water (Rawlinson, 1954; Jellicoe and Jellicoe, 1975). After the fall of the Mughal dynasty, the Hindu faith in thermal springs revived and it continues today.

Post-independent India, too, realized the medicinal value of thermal springs and performed extensive chemical analyses of the waters (Gosh, 1954; Chaterjee, 1958; Banerjee, 1967). The curative powers of the waters lie in their high radon (about 9 millimicrocuries per liter) and sulfur concentrations (Banerjee, 1967).

The idea of exploiting Indian thermal springs for commercial purposes emerged in 1940 with the Geological Survey of India, which realized that the quality of water from Indian thermal springs was comparable to spring water imported from European countries (Chaterjee, 1958). Springs without religious significance were selected for commercial development and the waters from them classified as to medicinal or table use. Waters from Surajkund and Kawa Gandhawan in Bihar were medicinal waters; and waters from Phillips Kund, Rishi Kund, Rameswar Kund, and Lachmiswar Kund in Bihar were table waters. The last table shows Indian thermal spring waters with chemical and medicinal properties similar to those of European waters imported before World War II. M/s G. F. Kellner and Co. started bottling Indian thermal spring waters prior to World War II but later abandoned the project (Chaterjee, 1958).

Indian waters equivalent therapeutically to imported European waters

Name of thermal spring in India	Equivalent therapeutic value to European water
Rajgir, Bihar	Cure metabolic disorders
Bridkhal, Uttar Pradesh	Table water
Kawa Gandhawan, Bihar; Anhoni, Madhya Pradesh	Hyperacidity
Suraj Khund, Bihar; Sahasra Dhara, Uttar Pradesh	Dry eczema, neuralgia, catarrh of the lungs
Vajreswari, Bombay; Unhavre, Maharashtra	Blood pressure, arthritis, neuritis, urinary infections

CONCLUSION

THOUGH MODERN SCIENCE CAN EXPLAIN THE ORIGIN OF THESE THERMAL SPRINGS AND THEIR mystical powers, modern Indian civilization still considers them as divine manifestations of God. This religious belief, together with the therapeutic powers of the thermal springs, made ancient Indians choose the sites as pilgrimage centers. The belief remains deeply rooted in modern Indian civilization, as confirmed by the large numbers of pilgrims visiting the sites today.

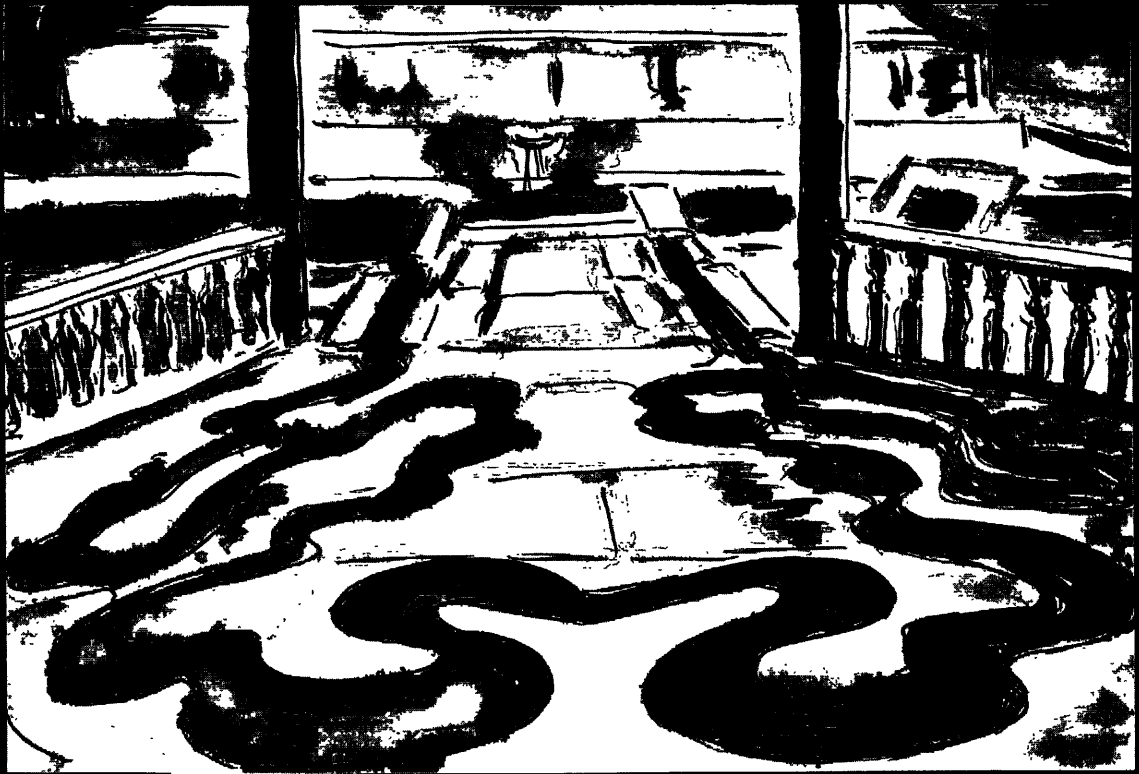
One of the remarkable features of Indian mythology is its homogeneity over the entire continent, a fact that is evident from the presence of Shiva temples at almost all of the thermal spring sites. Because India retains its ancient beliefs and myths, these sites continue to be centers of worship and pilgrimage. The depth to which these beliefs have penetrated all Indians can be seen from the number of people visiting the springs. The therapeutic powers of the springs further strengthen these beliefs among Indians, and the beliefs have spread to other Indian religions.

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Liubeiting ("floating cup pavilion"), where hot spring waters move through gracefully undulating stone channels. A cup of liquor or wine, placed in the channel on one side of the pool, would be warmed by the time it had floated to the other side. *Drawing by V. Svalova*