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## SMELTING ZINC AND HOUSING THE DIVINE AT JAWAR

In examining temples, scholars often focus on the historical processes – military victories, the development of new cultic centers, the evolution of dynastic styles – that led to their creation. Yet temple construction was often related to expanding economic networks and the development of new technologies. The site of Jawar, in southern Rajasthan, is a case in point. Jawar contains a number of temples that were built between the fifteenth and seventeenth centuries CE. What makes these temples interesting is that their emergence coincided with Jawar’s increasing importance as a site for the mining and smelting of zinc. Furthermore, a specific patronage pattern can be traced in the architectural production, a pattern that links the age of the temples to their geographic proximity to zinc smelting sites.

The temples in Jawar have never been the subject of scholarly investigation, perhaps because of the tendency to focus on royal patronage at state religious centers. The town is located along the Gomati River, some forty kilometers from the city of Udaipur. Tribal groups such as the Bhils and the Meenas have traditionally inhabited the area, at the southern reaches of Mewar. Traces of pilgrimage both to and from Jawar mark the site as an important Jain center from the end of the fourteenth century into the seventeenth century.<sup>1</sup> Once settled at Jawar, the Jain community built temples and installed both Jain and Vaiṣṇavite deities. A prominent Jain named Dhanpal is remembered for sponsoring a lavish *pratishta* (installation ceremony) in the town in V.E. 1478, replete with multitudes of learned monks.<sup>2</sup> Jawar lay along water routes used for trade with Gujarat, but was bypassed by the land routes that were more often used for the spread of politics and armies, with their foot soldiers, horses, and elephants.

Jawar began to grow rapidly as a commercial center with the invention at the site of zinc smelting on a large scale in the fourteenth century. In the medieval period zinc had become a key component in the production of icons, at times comprising up to 30 percent of the metal content of religious icons.<sup>3</sup> Jain financiers were the first to profit from this lucrative resource. Over time mining grew beyond a source of metal for luxury goods, household items, and religious icons, and became a way to finance war and provide metal for weapons. Jawar’s heyday coincides with the period when Turko-Afghan Sultans, Rajputs, and Mughals were vying for territory in Malwa, Mewar, and Dungarpur, at

1 For Jain accounts, see John Cort, *Open Boundaries: Jain Communities and Cultures in Indian History* (Albany, N.Y.: SUNY Press, 1998), 85–110.

2 Ibid., 221; *Vijaydharma Suir* 118; *Vir Vinod* 1, appendix.

3 For a chart showing the percentage of zinc in icons, see J.S. Kharakwal and L.K. Gurjar, “Zinc and Brass in Archaeological Perspective,” *Ancient Asia* 1 (2006): 12–13. Kharakwal and Gurjar also report (p. 13) that the Mughals had *kharkanas* (metal factories) for the production of “utensils, decorative pieces, guns, mortars,” and other items with zinc from Jawar. Finbarr Barry Flood has described the ritualized melting of icons as a measure of conquest in the medieval period across modern-day Iran, Afghanistan, Pakistan, and India; he argues that items were destroyed based on their monetary and symbolic value, not as a result of the indiscriminate destruction of all figural sculpture. Flood, “Gifts, Idolatry, and the Political Economy,” in *Objects of Translation: Material Culture and Medieval “Hindu-Muslim” Encounter* (Princeton, N.J.: Princeton University Press, 2009), 26–37.

the close of the Sultanate period and the dawn of the Mughal era. It was a time when Rajput kingdoms were often roving centers of polity rather than centralized state administrations. As the increasingly prosperous Jains began financing Rajput political projects and military campaigns, the Rajputs built Hindu temples in close proximity to those of the Jains, thus building upon a sacred center whose foundation was primarily attributable not to kings but to an industrial and mercantile community. This medieval pattern indicates that patronage was not merely a history of the elite, but was tied to broader relationships between cultural production and industry.

#### THE DEVELOPMENT OF ZINC SMELTING TECHNOLOGY

Carbon-14 dating has revealed Jawar as the site of “the earliest dated zinc mines in the world,”<sup>4</sup> estimating that mining took place there as early as two thousand years ago.<sup>5</sup> Zinc smelting is described in four South Asian alchemical texts ranging in date from 500 BCE to the late thirteenth century CE.<sup>6</sup> It wasn’t until the reign of Maharana Laksh Singh Mewar (r. 1392–97 CE), however, that India’s first zinc mine began smelting and isolating the metal on an industrial scale,<sup>7</sup> just a few decades before the first appearance of religious architecture and the birth of a sacred center in Jawar.<sup>8</sup>

The thirteenth-century text *Rasa-ratna-samuccaya*, written by Vagabhatacarya,<sup>9</sup> “gives two detailed accounts of zinc distillation. In one the zinc ore was mixed with turmeric, Chebulic myrobalan

- 4 P. T. Craddock, L. K. Gurjar, and K. T. M. Hegde, “Zinc Production in Medieval India,” *World Archaeology* 15, 2, *Industrial Archaeology* (October 1983): 216.
- 5 Lynn Willies in association with P. T. Craddock, L. J. Gurjar, and K. T. M. Hegde, “Ancient Lead and Zinc Mining in Rajasthan, India,” *World Archaeology* 16, 2 (1984): 231.
- 6 D. P. Agrawal dates the texts as follows: *Rasarnavam Rastantram* (500–100 BCE), *Rasratnakar* (2nd century CE), *Rasprakash Sudhakar* (12th century CE), *Rasratnasamuchchaya* (late 13th century CE). D. P. Agrawal, *Ancient Metal Technology and Archaeology of South Asia: A Pan-Asian Perspective* (New Delhi: Aryan Books International, 2000).
- 7 H. W. A. Sommerlatte, “Messing und Zinck: Alte Berichte aus China und neuere Ausgrabungen in Indien,” *Kultur & Technik* 1 (1988): 46–52. This places Indian zinc production at a remarkably early date, since it was only after 1450 CE, when Jawar’s sacred center was already flourishing, that the Chinese were able to isolate zinc during the Ming dynasty. At that time, the Indian market for zinc was so strong that it was not exported; in fact, zinc was imported from China to keep up with the demand for brass in India. George B. Souza, “Ballast Goods: Chinese Maritime Trade in Zinc and Sugar in the Seventeenth and Eighteenth Centuries,” in *Emporia, Commodities, and Entrepreneurs in Asian Maritime Trade, c. 1400–1750*, ed. Roderich Ptak and Dietmar Rothermund (Stuttgart: Franz Steiner Verlag, 1991), 294.
- 8 According to contemporary metallurgist Arun Kumar Biswas, “As regards the recovery of zinc from the ore, the crucible reduction/distillation method was put to large scale commercial practice in the thirteenth century AD . . . Indirect and circumstantial evidences suggest that the distillation method was in vogue much earlier, probably from the fourth century BC onwards, although not on a large scale, as we find in the thirteenth century AD context.” Arun Kumar Biswas, “The Primacy of India in Ancient Brass and Zinc Metallurgy,” *IJHS* 28.4 (1993): 314.
- 9 The *Rasa-ratna-samuccaya* is the primary alchemical source for Jawar, since its date parallels the rise of industrial zinc production and the ensuing efflorescence of multi-sectarian temple production. The *Rasa-ratna-samuccaya* lists three different forms of distilling zinc, including the most complex with bays of inverted retorts. The Craddock mission in Jawar dated honeycomb-like clusters, each comprising thirty-six inverted retorts, as far back as the second century BCE in Jawar. Arun Kumar Biswas, “Brass and Zinc Metallurgy in the Ancient and Medieval World: India’s Primacy and the Technology Transfer to the West,” *IJHS* 41.2 (2006): 159–74; Arun Kumar Biswas, “*Rasa-Ratna-Samuccaya* and Mineral Processing State-of-Art in the 13th Century A.D. India,” *IJHS* 22.1 (1987): 29–46.

(cherry-plum), resins, salts, soot, borax, marking nuts (cashew family), and acid juices. In the other recipe the ore was mixed with lac treacle, white mustard, the myrobalans, natron, borax, boiled with milk, clarified butter, and made into balls.”<sup>10</sup> The *Rasa-ratna-samuccaya* also provides a plan for an alchemical laboratory (fig. 2) that demonstrates an interweaving of geomancy and the architectural placement of deities with directionality akin to that seen in a Hindu temple. The rectangular structure has two east-west rows of equipment. In the exact center of the four directions, a Śiva *liṅgam* is placed. On one side of the *liṅgam* is the raw materials and products storage area and beyond that a transmutation bay. On the other side of the *liṅgam* is a station for sharp instruments, another for stone instruments, and finally a furnace bay. The entrance on the western wall is flanked by a washing bay and a drying bay. The eastern wall is left for Bhairava, a malevolent form of Śiva. This deity, beloved of the *lohar*, or iron-workers caste, and the tribal Bhils who still live in the Chhapan region today, is not only on axis with the central Śiva *liṅgam* but also adjacent to the transmutation bay on the north wall and the furnace bay on the south wall. Does the placement of the most fearsome aspect of Śiva in between the transmutation bay and the furnace suggest something about his liminal role in the fiery transformation of metals in thirteenth-century Jawar?

The process of isolating and distilling zinc on a large scale was invented at Jawar in the fourteenth century.<sup>11</sup> Zinc production on a large scale is quite difficult since zinc ore, when heated, produces zinc oxide, and there is a risk that the oxide will evaporate before it can be used.<sup>12</sup> To produce zinc in kilns such as those at Jawar – with banks of between three and seven furnaces, each with thirty-six retorts (vessels that hold the substances being subjected to distillation or decomposition by heat) – it was essential to maintain a consistent temperature range of 1,100 to 1,250 degrees Celsius for five hours straight. Metallurgists here developed a process by which the zinc oxide could be retained successfully for the first time. An organic material such as cow dung was used to bind the ground and calcined ore into balls so it wouldn’t fall out of the retort when inverted. A clay condenser was sealed to the retort with more clay. Then a stick was placed through the condenser into the sticky ball and allowed to burn away during the heating process. A pyramid of retorts was inverted towards a cooler chamber below, where the condensed zinc would drip into collection vessels.<sup>13</sup> These retorts still litter the hills adjacent to the first cluster of Jain temples built in Jawar (fig. 3).

“The scale of production at Zawar [Jawar],” according to Craddock and others, “was enormous. The many hundreds of thousands of tons of debris suggest production of many tens of thousands of tons of zinc.”<sup>14</sup> Approximately “a million tons of ore was exploited” at Jawar roughly during the thirteenth through the seventeenth century.<sup>15</sup>

10 Craddock, Gurjar, and Hegde, “Zinc Production in Medieval India,” 211–17.

11 Agrawal, *Ancient Metal Technology*, 205.

12 Ibid., 210.

13 Ibid., 210–11.

14 Craddock, Gurjar, and Hegde, “Zinc Production in Medieval India,” 215.

15 Willies, Craddock, Gurjar, and Hegde, “Ancient Lead and Zinc Mining in Rajasthan,” 213.

## PATRONAGE AND STYLISTIC PLURALISM AT JAWAR

Within one hundred years or less of the implementation of this improved zinc smelting technology in Jawar, temple building began. Six temples can be grouped chronologically into three clusters: (1) an early fifteenth-century Jain cluster, sponsored by Jain merchants and industrialists; (2) the sixteenth-century Ramanatha temple and tank, sponsored by a noblewoman named Ramabai as part of her dowry; and finally (3) the seventeenth-century Jawar Mata temple and Śiva temple, possibly sponsored by a Rajput king of Mewar and/or by his Jain finance minister. They were built approximately at fifty- to one-hundred-year intervals, following the settlement of miners, bankers, and nobles who began to populate the site.

Although many sacred centers in medieval northwestern India share this general patronage sequence – the Jain temples built first, followed by Vaiṣṇava and Śaiva temples sponsored by Rajput nobles, and then by Śākta goddess temples sponsored by Rajput Mewari royalty and their Jain ministers<sup>16</sup> – Jawar presents a model of how that sequence may have come to fruition.

### The Jain Temples

As a community that did not till the land for fear of destroying precious plant and animal life, the Jains had a long history in commerce. This group naturally profited from new types of industry invented in the heart of the Jain homelands in northwestern India (modern-day Gujarat and southern Rajasthan). The early Jain role in financing development in medieval Mewar may be one of the reasons their monuments were often the first to be built in multi-sectarian centers.

Jain inscriptions shed light on population migration due to droughts, famine, war, and shifting centers of power and wealth. An early reference to mining in southern Rajasthan reveals a climate of uncertainty that led to migration and temple patronage within Mewar. From the Samoli inscription of 646 CE, we learn that:

The Mahajana community, headed by Jentaka who had migrated from Vatanagara [modern Vasantgadhi is in Sirohi State, sixteen miles from Samoli], started an *agara*, or mine, in Aranyakupagiri. Jentaka founded at this place a temple (*devakulas*) of Aranyavasini, which was noted for its eighteen *vaitalikas* [bards], hailing from different parts of the country, and was always crowded with rich and wealthy people.<sup>17</sup>

<sup>16</sup> The site of Nagda, near the sacred political center of Eklingji, began with many Jain temples, followed centuries later by the construction of a temple to the state ruler of Mewar, the god Śri Eklingji. Osian, on the other hand, lay on important trade routes, and also displays the evolution of a multi-sectarian dialogue between Jains, Vaiṣṇavas, Śaivas, and Śāktas through architectural patronage.

<sup>17</sup> R.R. Halder, "Samoli Inscription of the Time of Siladitya, [Vikrama-Samvat] 703," *Epigraphia Indica* 19 (1929): 97.

Mining provided a source of wealth that was independent of weather conditions, agricultural disaster, or political whim. The Jains expressed their gratitude for this stability through temple building and the sponsorship of ritual, providing for religious luxuries such as eighteen resident bards hailing from different parts of the country.

The Jain community produced at least five temples in Jawar. These structures closely skirt a long hill littered with zinc retorts still ensconced in neat rows and grids denoting large-scale production (fig. 4). At the base of the ridge with the zinc retorts lie two ruined temples which date to the early fifteenth century (Jain temple 3 and Jain temple 5). Two well-carved sculptures of Tirthankaras (Jain saints) lie to either side of the entrance to the sanctum of Jain temple 5 (fig. 5). Although their heads are missing, their clothed bodies and an inscription dating to 1438 CE provide evidence for both the sectarian affiliation of the temples and the specific time when they were built. Jawar may well have been dominated by the Swetambara Murti-Puja, a sect that held sway throughout medieval north-western India. The larger Jain temple 3 (figs. 6a–c) was previously dated to 1577 CE because of an inscription on the *mandapa* column.<sup>18</sup> However, new evidence found in inscriptions in both Jain Vira Nirvana Samvat (on a lintel inside the *mandapa*) and Vikram Samvat (on an oddly incorporated stone element high above the entrance) suggest activity in 1482 CE and 1489 CE, respectively.

Across the road to the west, within an Archaeological Survey of India (ASI) gated compound, stand a brick, three-spired temple (“tripartite temple”) and two large stone temples (the Shantinath temple and a Śiva temple with an older Jain inscription). The latter two have been restored by the ASI within the past five years. The Shantinath temple (fig. 7) may date to 1421, according to an inscription that gives credit to Saha Naha of the Pragyvat family.<sup>19</sup> A large open-air *mandapa* gallery seems casually joined to a small shrine. The large airy collection of columns joined to the *garbhagrha*, the small inner sanctum that can be entered only by priests serving a deity, recalls earlier buildings such as those at Chandrabhaga in the Upamamala territories to the east.<sup>20</sup> The tripartite temple (fig. 8) displays Tirthankaras on all three interior lintels.<sup>21</sup>

18 AHS online photo archive, [http://dsal.uchicago.edu/images/aiis/aiis\\_search.html?depth=Get+Details&id=71489](http://dsal.uchicago.edu/images/aiis/aiis_search.html?depth=Get+Details&id=71489) (accessed 20 March 2009).

19 “Jawar Shantinath Temple Inscription, dated Pos Sud 6, V.S. 1478 (A.D. 1421) engraved on a lintel of the temple. It is published in Prachin Jain Lekh Sangrah, Vol. II, p. 22, by Muni Jin Vijaya. A summary of it is given in the Report of the Rajputana Museum for 1924–1925, p. 3. It records that the temple of Shantinath was erected by the descendants of Saha Nana of the Pragyvat (Porvad) family.” Harbilas Sarda, *Maharana Kumbha: Sovereign, Soldier, Scholar* (Ajmer, 1932), online at [http://www.archive.org/stream/maharanakumbhao35247mbp/maharanakumbhao35247mbp\\_djvu.txt](http://www.archive.org/stream/maharanakumbhao35247mbp/maharanakumbhao35247mbp_djvu.txt), ch. xx, n. 8 (accessed 25 March 2009).

20 Carol G. Lin-Bodien, “The Chronology of Chandrāvātī, Kūsmā, Chitorgarh: A Case Study in the Use of Epigraphic and Stylistic Evidence,” *Archives of Asian Art* 33 (1980): 49–64. Meister suggests that an open-air gallery attached to a closed shrine may have its origins in the natural environment. Michael W. Meister, “Forest and Cave: Temples at Chandrabhaga and Kansuan,” *Archives of Asian Art* 34 (1981): 56–73; Michael W. Meister, “Style and Idiom in the Art of Upamamala,” *Muqarnas* 10, *Essays in Honor of Oleg Grabar* (1993): 344–54.

21 Unlike the tripartite temple at Menal, which seems to have been built either before or after other structures on the site, the tripartite Jain temple at Jawar seems to have been constructed at the same time as the other two Jain temples in this location. Michael W. Meister and M. A. Dhaky, eds., *Encyclopedia of Indian Temple Architecture (EITA)*, vol. 2, *North India, Part 2: Period of Early Maturity, c. AD 700–900* (New Delhi: American Institute of Indian Studies, 1991), 277–84, pls. 616–28.

Like many fifteenth-century architectural sites across southern Rajasthan, the temples in Jawar have a tendency to quote architectural elements from a broad geographic region in order to establish political and cultural legitimacy. An almost lacy colonnade remains along one side of the Jain temple 3 *mandapa* and firmly roots viewers in a fifteenth-century paradigm (fig. 6b), thus ensuring the ceilings serve as a stylistic citation rather than actual early medieval architecture. Although the ceiling of the *mandapa* displays rich ornamental variation, as seen relatively nearby at Mount Abu, the carving style is thick, heavy, and deep in the rich tradition of tenth-century Medapata, which at times recalls wooden architecture (fig. 6c). Tenth-century Mewari architecture was often deeply carved with thickly and richly ornamented ceilings and standardized sets of *dikpalas*, *apsaras*, and *vyalas* (guardians, celestial maidens, and leonine figures, respectively) on the temple walls; fifteenth-century Mewari architecture, in contrast, was often less deeply and finely carved, and yet busier. Mewari temples from this later period tend to have two registers of sculpture instead of one on their exterior walls. The auxiliary figures exceed the formulaic early medieval combinations of *dikpalas*, *apsaras*, and *vyalas* to include a crowd of other figures and genre scenes as well. In general these two (or more) registers of sculpture were made possible by larger, higher *mandapa* galleries, which required more intricate combinations of small radial and multistorey elements, as seen at the Śri Eklingji temple or in the double-storied temples of seventeenth-century Bengal described in Pika Ghosh's book *Temple to Love*<sup>22</sup> – changes that began to take place in northwestern Indian temple architecture in the twelfth century. Yet unlike many North Indian temples of this date and even temples built hundreds of years earlier, Jain temple 3 shows wall recesses and protrusions that are devoid of sculptural ornament. Jain affiliation has little to do with this paucity of figural form since famous Jain temples from Khajuraho to Mount Abu to Ranakpur are known for their intensely ornate figural sculpture. This visual language is more likely the result of aesthetic trends rather than any sectarian ritual requirements.<sup>23</sup>

Architecturally, Jawar's tripartite temple and the adjacent Jain temple 3, with its *sikara* (clustered spire) towers, recall the tenth-century temples at Menal, in the Uparamala territories close to Chittor to the west. The spires of Jain temple 3 suggest a hybrid of the classic North Indian four-sided *nāgara* temple spire and the rhythmic undulations of miniature spires seen in *bhumija* architecture.<sup>24</sup> Though the sectarian affiliation is Jain and not Pashupata Śaiva, as at Menal or at the Hindu temple at Ranakpur, the stylistic similarities suggest the power of geography over the visual expression of religion.

22 Pika Ghosh, *Temple to Love: Architecture and Devotion in Seventeenth-Century Bengal* (Bloomington, Ind.: Indiana University Press, 2005).

23 Like the Jain cluster at Jawar and just to the north of Jawar in the Medapata territories, the fine masonry of the tenth-century Lakulisha temple at Eklingji and the eleventh-century Sas-Bahu Vaiṣṇava temples at Nagada exhibit increasingly complex recesses and protrusions in the medieval temple wall, with few or no external figural forms.

24 Near Rana Kumbha's fortress of Kumbhalgarh to the north, the *bhumija* style also appears in the fifteenth century at Ranakpur, where the king of Mewar sponsored a *bhumija*-style Hindu temple on the grounds of an existing Jain temple complex. *Bhumija* style is covered in many medieval architectural treatises; among the most relevant for northwestern India are King Bhoja's *Samarangana-sutradhara* and the *Aparajitapriccha*. Pushpendra Kumar, *Bhoja's Samarangana-sutradhara* (Delhi: New Bharatiya Book Corporation, 1998), 510–27; Lal Mani Dubey, *Aparajitapriccha: A Critical Study (Encyclopedic Manual on Art and Architecture)* (Allahabad: Lakshmi Publications, 1987), 201–4; Krishna Deva, "Bhūmija Temples," in *Studies in Indian Temple Architecture*, ed. Pramod Chandra (New Delhi: American Institute of Indian Studies, 1975), 90–113. I would like to thank Dr. Tamara Sears for her ideas on *bhumija* style.

## The Ramanatha Temple

Slightly further away from the zinc retorts is the first non-Jain temple at Jawar – the late fifteenth-century Ramanatha temple dedicated to Viṣṇu (fig. 9). The temple follows a *pancha rāṭha* (literally “five-chariot”) plan consisting of a main structure in the center of four smaller subshrines. This architectural pattern is generally associated with Viṣṇu, as seen in the famous Gupta-period Datoreshvara shrine in Deogarh, Madhya Pradesh. In contrast to the majority of architectural stylistic features, in which regional style trumps any sectarian orientation, the *pancha rāṭha* plan seems to span a long time period and a wide geographic area, possibly due to a specific mode of Vaiṣṇava practice. The Ramanatha temple quotes architectural elements from Shamlaji in Gujarat to the southwest, to the Guhila dynastic heartland at Nagada to the north, to the temples of upper Malwa (Uparamala) to the east. The combining of these styles not only indicates aesthetic diversity and visual cosmopolitanism on the part of the artists, but may also have been driven by the temple’s female patron, Ramabai, daughter of Maharana Kumbha.

Unlike the temple’s Vaiṣṇavite *pancha rāṭha* plan, its central Viṣṇu icon in the form of Ramanatha definitely reflects a regional style and choice of materials. Black schist was common for medieval icons in this region (fig. 10) and was often reserved for special icons placed within inner sanctums, whether Śaiva, Śākta, or Vaiṣṇava. The tenth-century black icons of the goddesses Chamunda and Mallar Mata in neighboring Jagat provide the geographically closest example of this medieval phenomenon; other examples include the eighth-century four-faced Śiva *lingam* of Kalyanpur to the south and the gigantic Lakuliśa icon in the inner sanctum of the tenth-century Lakuliśa temple at Eklingji to the north. The black icons of the inner sanctums in medieval Medapata, including the Ramanatha icon of Jawar, suggest a rudimentary folk style predicated on basic forms rather than ornate ornamentation.

Perhaps the most important architectural project found at Jawar, the Ramanatha temple can be precisely dated by inscription to 1489 CE. The inscription tells us that the Mewari princess Ramabai sponsored the temple, since Jawar was part of her *jagir*.<sup>25</sup> Is this, then, an example of the power of women as property owners or, alternatively, of women *as* property tied to lands, holdings, and wealth? Certainly the temple’s history merits further investigation as we learn more about gender and property in fifteenth-century Mewar.<sup>26</sup>

Adjoining the Ramanatha temple and its four subshrines is a large tank (fig. 11), which serves as a gathering place for the public and indicates the growth and importance of this sacred center with the expansion of the zinc industry. Ramabai’s inscription once stood at the entrance to this tank, suggesting a desire to control, celebrate, and take credit for the economic success of the zinc mining and the rich social fabric that had grown around this natural resource.<sup>27</sup>

25 R. C. Agrawala, “An Inscription from Jawar, Rajasthan,” *The Indian Historical Quarterly* 34, ed. Narendra Nath Law (Delhi: Caxton, 1998), 215–25.

26 Ramya Sreenivasan has begun the historical investigation of women during this period in *The Many Lives of a Rajput Queen: Heroic Past in India, c. 1500–1900* (Seattle: University of Washington Press, 2007).

27 In 2002 the inscription was in the framed niche to the right of the stairs descending towards the tank. As of February 2009, this inscription was no longer at the tank.

## The Jawar Mata Temple

Further upriver from the Jain temple cluster and the Ramanatha temple stands a very large temple dedicated to Jawar Mata (fig. 12), which can be dated through style and oral history to the reign of Rana Pratap, a sixteenth-century contemporary of the Mughal emperor Akbar.<sup>28</sup> Additional inscriptional references indicate renovation during the reign of Jagat Singh in the seventeenth century.

Local legend suggests that Pratap Singh's devoted Jain finance minister, Bhama Sah,<sup>29</sup> built a Jain temple and dedicated it to the goddess after a dream,<sup>30</sup> an interesting parallel to both the medieval epiphanies associated with Jain biographies of temple builders and to the rhetoric of Jain goddess transformation at sites such as Osian.<sup>31</sup> The Bhama Sah interpretation would date the temple to Maharana Pratap's reign, between 1572 and 1597, less than one century after the work of Mandana, perhaps the best-known architect in Indian history. The broad, two-tiered *mandapa* definitely shares a Sompura guild style with the twelfth-century, three-tiered *mandapa* of Deo Somnath, near Dungarpur to the south, and the two-tiered, late fifteenth-century Śri Eklingji temple near the Mewari capital of Udaipur to the north.<sup>32</sup>

The Jawar Mata temple also displays a sculptural style found in medieval Mewar. From the fourteenth-century Vindhavasini temple in Eklingji on, Mewari sculptures are often characterized by broad, squarish faces that seem to come together in two flat sides somewhat awkwardly joined by a seam at the bridge of the nose, almost as if a bust were bifurcated and the sides pushed forward to make the visage flat like a mask. This signature face occurs on the Jawar Mata temple figures as well. Based on style alone, the Jawar Mata temple could originally date as early as the late fifteenth or early sixteenth century, contemporaneous with the Śri Eklingji temple. However, the scale of the building and the sculptural carving suggest a style well canonized in the regional vocabulary, almost stale at the end of an era. In contrast with the timeless sectarian plan of the Ramanatha temple, the Jawar Mata temple architecture and sculptural style speak in a multi-sectarian language of dynastic power and royal patronage. We can imagine the financially powerful Jain patron articulating his power in the

28 One of the mines in Jawar is even named after Pratap. Arun Kumar Biswas, "The Primacy of India in Ancient Brass and Zinc Metallurgy," *IJHS* 28.4 (1993): 319.

29 Bhama Sah is listed as Maharana's treasurer in James Tod, *Annals and Antiquities of Rajasthan* (1829; 1832; London: Routledge & Kegan Paul Ltd, 1957), 275. I would like to express my gratitude to Joanna Williams, John Stucky, and the Rajasthan Studies Group for their assistance in tracking down references to Bhama Sah.

30 According to a retired engineer who had begun working in the Zawar mines in 1979 and who revisited the area sometime prior to 2008, "This temple [Jawar Mata] was said to have been built by Sri Bamashaw a Jain trader who was famously known to have financed Maharana Pratap Singh. The legend is that Sri Bamashaw saw a female deity in his dream, because of which he changed his mind and made this a Mata Ji Temple instead of a Jain temple." *The Metallurgists of Mewad*, online at <http://dmrsekhar.sulekha.com/blog/post/2008/06/the-metallurgists-of-mewad.htm> (accessed 25 March 2009). The engineer's name is not specified in the story.

31 Phillis Granoff, "The Householder as Shaman Jain Biographies of Temple Builders," *East and West* 42 (1992): 301–17; Michael Meister, "Sweetmeats or Corpses? Art History and Ethnohistory," *Res: Anthropology and Aesthetics* 27 (1995): 118–32.

32 The Sompura guild style seems to have thrived from the twelfth through the sixteenth century. The Mewari royals were known for their use of the Sompura architectural style to reify their kingship.



visual language of the royal architectural guild in a way that even Maharana Kumbha's own daughter had not done less than a century earlier with her Ramanatha temple.<sup>33</sup>

If we are to believe a 1647 CE inscription of Jagat Singh referring to the Ambika temple of Jawar and the silver mines there, the Jawar Mata temple may have been a royal commission or renovation.<sup>34</sup> The dizzying two-tiered later medieval frenzy of sculptural ornamentation and the flat, squarish faces also recall the well-known Jagannatha temple in Udaipur, which dates to the reign of Jagat Singh. Despite folktales of Bhama Sah's Jain dreams, the inscriptional mention of the Jawar Mata temple dates its dedication to the goddess at least as early as 1647. The exterior of the temple does not, as one might expect, display Durgā killing the buffalo demon. Instead, calm, stiff, standing figures with conical crowns grace the *bhadras* and appear more Vaiṣṇavite than Śākta or Jain. A modern icon of Jawar Mata in the inner sanctum leaves the question of the original icon and even the original affiliation of the temple unanswered.

### The Śiva Temple

Furthest from the site of medieval zinc production and just across the Tiri River from the Jawar Mata temple lies a Śiva temple that is unrecorded and undated (fig. 13). Thick layers of paint, inaccessible inscriptions, and a rather generic North Indian architectural style make this temple very difficult to date. An inscription in Jain Vira Nirvana Samvat to the left of the sanctum dates to 1691 CE, but the marker is barely legible under the yellow paint beyond the deeply carved numbers. Could this indicate that the temple postdates the Jawar Mata temple? Does it suggest that the temple vacillated between Jain and Śaiva affiliations? Even through a thick layer of meritoriously-sponsored whitewash, a very even progression of protrusions and recesses unfolds. With just one niche on each wall of the outer sanctum, the basic architecture recalls Jain temple 3.<sup>35</sup> Perhaps we have evidence here of the relationship between Rajput royalty and their Jain finance ministers: the Rajputs could offer protection for trade and religious expression in exchange for the economic support that saved the kingdom from ruin on more than one occasion.

33 "As bankers and financiers, the Jains had significant impact on Muslim rulers, but they were rarely able to enter into a political discourse which was framed in Islamic categories." Cort, *Open Boundaries*, "Jain Narratives of Kingship in Medieval Western India." Cort warns against taking this as evidence that Jains were apolitical. In fact, he argues that Jains had considerable influence on the shaping of Brahmanical polity. It makes sense that Jains were able to stage their own power in a place such as Jawar, located halfway between the trading centers of Muslim-controlled Gujarat to the southwest and the Mughal Empire to the northeast.

34 Akshaya Keerty Vyas, "Jagannatharaya Temple Inscriptions at Udaipur," *Epigraphia Indica* 24 (1937–38): 63.

35 In contrast to Jain temple 3, which exhibits the *bhumija* style, the Śiva temple has a roof in a North Indian *nāgara* style called *anekandaka* according to the *Aparajitaprccha*, a medieval architectural treatise from western India. The *Aparajitaprccha* describes an *anekandaka śikara* as multi-spined with leaning half spires, as seen on four sides of the Śiva temple spire. Dubey, *Aparajitaprccha*, 193–94.

## CONCLUSION

The surviving remnants of zinc production and the temples of Jawar provide tangible evidence for the negotiation of economic relationships – relationships initially built between mercantile Jains and the landed gentry, and later between Rajput kings and their Jain finance ministers.

The mines and the ensuing religious center brought together people from a broad geographic region and multiple religious backgrounds. If we track the construction dates and geographic location of the temples at Jawar, we find a temple patronage pattern that indicates the growing importance of trade and exchange as a prerequisite in the twelfth through the fifteenth century for state-sponsored architecture in the fifteenth through the seventeenth century.

The pairing of industry and architectural production in Jawar reveals how style forms a complex visual language that surpasses the limitations of dynastic hegemony or sectarian affiliation. For example, the early Jain cluster chooses to quote a Medapata regional style found in the Sas-Bahu and Lakuliśa temples near the Mewari spiritual and political center of their tenth-century dynastic capital of Nagda/Eklingji. Yet, from the multiple types of wall program found at that important center, the Jains chose a more monastic focus on fine masonry and reduced figural imagery over the more common, outwardly ritualistic formulas of highly figural programs of early medieval temples. In contrast, we find that by the time we travel further from the zinc retorts both geographically and temporally, we are confronted with two-tiered figural extravagance in a clear political salute to the Sompura guild's architectural aesthetic associated with the royal architecture of the Mewari ruling elite, in a building possibly sponsored by a Jain finance minister rather than a Rajput king.

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