



Iron Working as Spiritual Inquiry in the Indonesian Archipelago

Author(s): Stanley J. O'Connor

Source: *History of Religions*, Vol. 14, No. 3 (Feb., 1975), pp. 173-190

Published by: [The University of Chicago Press](#)

Stable URL: <http://www.jstor.org/stable/1061940>

Accessed: 21/06/2014 08:53

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at
<http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



The University of Chicago Press is collaborating with JSTOR to digitize, preserve and extend access to *History of Religions*.

<http://www.jstor.org>

Stanley J. O'Connor

IRON WORKING AS
SPIRITUAL INQUIRY
IN THE INDONESIAN
ARCHIPELAGO

Under the pressure of modernization the demand for iron and steel has increased enormously in Southeast Asia, and, paradoxically, the same impulse that transforms the earth into automobiles, office buildings, and armaments has everywhere eroded the craft and art of the traditional iron worker. His is a world that is literally on the wane. This has been so for a very long time. First to be displaced was the small-scale smelter, faced with the rise of the modern secularized and rationalized industrial manufacture of iron and its increasing availability. Then the master armorer, dependent on the court and aristocracy for patronage, found himself either reduced to smithing agricultural tools or forced to abandon his craft altogether. Early in the present century, scholars were charting the decline of this great tradition; and today it is exceeding difficult to find a master armorer who still practices his craft on a full-time basis and according to traditional ritual prescriptions and standards of quality.

It is not unexpected that competition with a fully rationalized and efficient technology would drive out the products of hand industry. But to view the displacement of these traditional skills as merely the logical outcome of a competition at the level of unit cost, quality control, and distribution is to obscure completely the fact that the symbolic gestures and the ritual of these ancient crafts were profound ways of endowing the world with meaning.

Iron Working in Indonesia

When iron came to Southeast Asia, it opened a world of quite unexpected possibilities both material and imaginative, and these were reflected in institutional patterns and intellectual assumptions. It is the impact of science today on these institutions and assumptions that is the essential feature of modernization, and it is the universality and velocity of this change in the intellectual landscape, rather than merely the competition of superior technology, that has diminished the significance of the iron worker.¹

In an inflection of Rilke's good phrase, the landscape of Southeast Asia had a "persuaded" look significantly before the cultural impacts associated with contacts between the area and Han China and Mauryan and post-Mauryan India. And one of the great engines of this persuasion was metallurgy, which, we have recently learned, had a long history in Southeast Asia. Bronze technology has been traced in Thailand to the third millennium, which means that bronze working was developed there before it had become important in China.² While bronze was important for ceremonial use, it was the appearance of iron that quite literally opened a world of new possibilities for man in Southeast Asia, in fact altered a way of being in the world; and this now appears, on the basis of evidence from Thailand, to be an accomplishment of the first millennium B.C.³ There are very few detailed studies of iron technology in Southeast Asia, at least in its precolonial period, and local practice in mining and smelting of ores and the smithing of tools must be recovered from scattered reports.⁴ Industrial archaeology in the area is only just beginning, and it is safe to say that the whole empirical study of metallurgical history is undeveloped.⁵

Almost unbroached, however, is the symbolic world that brought man and metal into rich and mutual implication with the emergence of iron technology. This essay is addressed to that zone beyond the bright precincts of technology, where the power of

¹ For an interesting discussion of modernization by a historian, see C. E. Black, *The Dynamics of Modernization* (New York, 1966).

² Donn Bayard, "Excavations at Non Nak Tha, North Thailand: Some Interim Interpretations," *Asian Perspectives* 13 (1970): 139.

³ W. G. Solheim, "Northern Thailand, Southeast Asia, and World Prehistory," *Asian Perspectives* 13 (1970): 154. This would correlate with the date for iron at the Tabon Cave complex in the Palawan Island site in the Philippines, where at the Manunggul Cave iron is dated by C-14 to about 200 B.C. (R. B. Fox, *The Tabon Caves* [Manila: National Museum, 1970], p. 117).

⁴ The great exception here is Wolfgang Marschall, "Metallurgie und frühe Besiedlungsgeschichte Indonesiens," *Ethnologica* 4 (1968): 29-263.

⁵ Tom Harrisson and Stanley J. O'Connor, *Excavations of the Prehistoric Iron Industry in West Borneo*, 2 vols., Data Paper 72, Cornell University Southeast Asia Program (Ithaca, N.Y., 1969).

History of Religions

religious and aesthetic expression gives visibility to the world's body. It is necessarily speculative and exploratory, and it will be confined to some evidence drawn from art and archaeology. What these scattered data reveal, I think, is that iron technology, which early was practiced on an industrial scale because of the ready availability of ores, was also a spiritual discipline. The smith and the smelter in Southeast Asia, as master of process, change, and the transformation of matter, were also actors in a drama of spiritual salvation and release. Unless this dimension of experience, articulated with brilliance by Mircea Eliade in *The Forge and the Crucible*, becomes part of the concern of the cultural historian and the archaeologist in Southeast Asia, a profound way of figuring the world will be lost to us, and we will ask of this great revolution only questions circumscribed by a narrow positivist focus. It may be worthwhile to reflect that both the Javanese poet and the smith are given the same title, *mpu*; and for a guide in the labyrinthine ways by which the smith works his power over both the animate and the inanimate the example of Orpheus may prove useful—that is, Orpheus who through his art makes natural objects become subjects as under his song rocks and trees move, and who holds a strange commerce with time and death.⁶

THE KRIS AS ART WORK

Iron working in the island world of Indonesia and Malaysia reached its greatest expressive form in the kris, a knife or rapier of such immense symbolic importance in traditional society that it could be said to be inseparable from the conception of person. The kris is the subject of solemn ceremony, and it figures in innumerable myths. Its form and decoration are minutely classified. There is a large literature on the manufacture of the kris and detailed catalogs of its iconography and morphology. Its sacred character is emphasized by the fact that it is a revered heirloom, or *pusaka*, and it also functions as part of royal regalia. Remarkably, the focus of all this attention is modest in size and not, apparently, of great antiquity. This last point is problematic, but the earliest dated kris is A.D. 1342, and its period of prominence in Javanese life is thought to begin, at the earliest, only after the shift in power from central to east Java toward the end of the tenth century. Its spread throughout the archipelago appears to reflect the cultural example and expansive power of the Majapahit

⁶ Elizabeth Sewell, *The Orphic Voice: Poetry and Natural History* (New York, 1971).

Iron Working in Indonesia

empire (A.D. 1294–1478?).⁷ It is considered to have been in use in Malaya before the founding of the Malacca Sultanate in about A.D. 1400.⁸ While the chronology here is unfixed, it is clear that iron and its working, both craft and industry, were a feature of life both as technology and as magico-religious complex in island Southeast Asia hundreds of years before the kris; and it is to be expected that so rich a symbolic complex will reverberate with the echo, or perhaps better, the “sedimentation” of a primordial way of figuring a world altered by metallurgy. Process and meaning are inextricably fused in the traditional kris. The blade is strikingly decorated and textured by a process of mixed metal forging and etching. The forging together of iron of different chemical properties allows the smith to exploit the differential structure of his materials for aesthetic effect and symbolic meaning. What comes to play in this craft is a speculative investigation into the hidden structure of matter that precedes by centuries the scientific understanding of metallic crystallinity.⁹ It is this mysterious power and knowledge that gives the smith, as master armorer, his extraordinary status in traditional Java and elsewhere in Southeast Asia; and at the center of the entire system of meaning is *pamor*. *Pamor* is both the decoration on the surface of the kris blade and the meteoric iron that is the substance from which the surface phenomenon originates. It is often confused with the texture of watered steel that is found on the beautiful “Damascus” steel sword of Persia. That process is, however, very different from the pattern welding of the kris; and the issue is even further complicated by the fact that the “Damascus” steel was actually smelted in southern India and only then shipped to Damascus, where it was smithed and where Europeans first encountered it. Damascus steel should be more appropriately called “wootz” steel from the traditional Indian process of steel making that involves filling a refractory clay crucible with low-carbon iron sponge and some wood, leaves, or other organic material. After heating in a small hearth or furnace, the resulting product would be a cake of high-carbon steel which displays a crystallized pattern on its surface.¹⁰ This ancient process may have been a part of the world of the iron smelter in Southeast Asia. That is problematic, but insofar as the

⁷ F. A. Wagner, *Indonesia: The Art of an Island Group* (New York, 1959), p. 157.

⁸ Mubin Sheppard, *Taman Indera* (Kuala Lumpur, 1972), p. 124.

⁹ Cyril Stanley Smith, *A History of Metallography* (Chicago, 1960), p. 2.

¹⁰ *Ibid.*, p. 14. For a summary of the “wootz” process drawn from a number of travelers’ accounts, see Harrison and O’Connor, 2:319–30.

History of Religions

smith functioned to create a kris, he employed a different technique of mixed-metal forging involving ordinary steel and meteoric iron high in nickel content.

Pamor, which can be said to be synonymous with the kris, is meteoric iron. Without *pamor* a kris could not be regarded as complete or function as an heirloom. Some forty years ago, when J. E. Jasper and Mas Pirngadie were writing their valuable volumes of Indonesian crafts, the most highly revered meteoric iron was a block of iron kept in the Kraton at Surakarta. It was known as *Pamor Prambanan* and was said to have fallen from the heavens in the eighteenth century. Whenever the Susuhunan of Surakarta wished to have a weapon made, he gave a piece of the block to the armorer. Another variety of *pamor*, and one that was less prestigious, was *Pamor Luwu*, found in the Celebes and traded widely throughout the archipelago by Buginese ships.¹¹

In his work on the kris, W. H. Rassers emphasized that *pamor* is not "a mere ornament." He attached considerable importance to the *pamor* motifs which are minutely classified in Javanese literature.¹² These motifs are considered to bring certain qualities to the owners such as wealth, knowledge, bravery, or patience.¹³ They are closely related to questions of rank and status. Javanese manuscripts also classify iron on visual characteristics of color and texture or sound when struck, and suggest that possession of a kris manufactured according to a special mix of these qualities will bring the owner luck, wealth, or power.¹⁴ All this is very important, especially since it reveals that the kris is radiant with a polyvalued meaning in its form and decoration. But it rather obscures the essential point about *pamor*—that it is an iron that is given to man from the heavens and thus is associated with the celestial and with the original ancestral order of the universe. It is this primordial substance that the kris maker marries with ore drawn from the maternal body of the earth, transforming both through the fire.¹⁵

It is unnecessary here to go deeply into the actual smithing of

¹¹ J. E. Jasper and Mas Pirngadie, *De Inlandsche Kunstnijverheid in Nederlandsch-Indië*, vol. 5 (The Hague, 1930), p. 156; and Soepardi Prawirodipoero, "Volkssmederij en Cultuur," *Djawa* 18 (1938): 253.

¹² W. H. Rassers, "On the Javanese Kris," in *Panji: The Culture Hero* (The Hague, 1959), p. 233.

¹³ J. J. Meyer, "Een Javaansch Handschrift over Pamor-motieven," *Nederlandsch Indië, Oud en Nieuw* 1 (1916-17): 107-14, 158-69.

¹⁴ *Wesiadji* (Solo, 1935). I am indebted to Mrs. Savitri Scherer for this reference and for a summary of the manuscript.

¹⁵ For a discussion of meteorites and their symbolic significance, see M. Eliade, *The Forge and the Crucible* (New York, 1971), pp. 19-26.

Iron Working in Indonesia

the kris, since there are several detailed accounts available of the practice in both Java and Malaya.¹⁶ Several kinds of iron and steel are cut into strips and sandwich-welded together, one on top of another, until the block looks like a many-layered torte. The object, of course, is to spread the layer of nickel-bearing iron throughout the blade; and in the making of a complicated pattern such as *kembang pala*, this can lead to about 100 layers. According to Jasper and Pirngadie, Balinese and Celebes smiths considerably simplified the spreading of *pamor* layers, indicating that the craft clearly had developed in Java and was a much more complex enterprise there.¹⁷ After the laminated bars were finally beaten out to form the body of the blade, then a variety of operations, including grinding, filing, and punching, finished the form and the surface of the kris. The last step was the etching with acid to bring out the pattern which, incredibly, the smith was able to envision through his long series of operations. As the blade reveals its hidden structure, disclosing slowly the sacred marks of *pamor* pattern, the smith himself is disclosed as an artist who, in Merleau Ponty's words, is present at the "fission of Being from the inside."¹⁸

It would, I think, be fruitful to suggest, following Heidegger, that through his work the smith gives embodiment to truth as the creative disclosure of a world.¹⁹ The kris opens up or constitutes a context of significance which paradoxically was already there as an encompassing but prereflective understanding. Insofar as we recover this world illuminated by the art work, we enter an implicit realm of shared affirmations about reality. In the light of the kris as an art work, we understand suddenly the solemnity and gravity that flows from the nineteenth-century pictures of smiths and their assistants as they stand in the smithy. Within the accepted meaning of a world, ritual offerings precede the manufacture of a kris, and the armorer meditates and purifies himself. The smithy is decorated in ceremonial fashion before forging a kris.²⁰ In Bali, the smith says special mantras before the use of each tool. From

¹⁶ R. O. Winstedt, *Papers on Malay Subjects: Malay Industries*, pt. 1 (Kuala Lumpur, 1925), pp. 33–43; Jasper and Pirngadie, vol. 5, chap. 10.

¹⁷ Jasper and Pirngadie, 5:180.

¹⁸ Merleau Ponty, *L'oeil et l'esprit* (Paris, 1964), trans. Carleton Dallery as "Eye and Mind," in *The Primacy of Perception*, ed. J. M. Edie, 2d ed. (Evanston, Ill., 1968), p. 186.

¹⁹ Martin Heidegger, "Der Ursprung des Kunstwerkes," trans. Albert Hofstadter as "The Origin of the Work of Art," in *Martin Heidegger: Poetry, Language, Thought* (New York, 1972).

²⁰ Rassers, pp. 224–25.

History of Religions

this behavior on the part of the artist, all of which indicates a ceremonial and religious concern, we come to understand the prescriptions of the miner that govern the transgression against the earth and surround mining. The ores are taken from the womb of the earth, where they are believed to be subject to cosmic laws of birth, death, and decay. The miner interferes with the gestation of ores in the body of the earth, and the smelter and smith, as masters of fire, speed up this process of growth. As Eliade has pointed out, the smelter intervenes in cosmic process, and he accelerates those processes in the transformation of ores. He manipulates time.²¹

Fundamental to this complex of interrelated meanings and intentions is a monistic conception that all being shares in one common vital process. It is a point of view that Benedict Anderson describes when he observes that in Java things such as heirlooms are considered to have a vital power.²² The porousness of boundaries between the categories of animate and inanimate, between nature and culture, subject and object, are obvious in this realm of thought. And it is very clear that in the view of the audience that participated in the truth made visible by the kris, there is a fusing of the kris and the revered and powerful ancestors.

This is especially apparent in the annual ritual cleaning, the *njirami* ceremony for the kris and other sacred heirlooms, such as lances and gongs, by Javanese princes. According to Groneman, these objects were looked upon as ancestral heirlooms, and the ceremony had a solemn character. Special offerings were made to the spirit of the weapons, and even the remainder of the liquid that had been employed for the cleaning was regarded as precious and was saved to be reused by individuals of modest rank on their heirloom weapons.²³ Rassers, in his interpretation of the kris, draws attention to the fact that the sacred heirlooms are kept in that portion of the traditional house that is reserved for the cult of the ancestors.²⁴ If we turn now to some archaeological evidence, I believe it will be possible to demonstrate even more dramatically that there is a strong connection between metallurgy and the

²¹ R. J. Forbes, *Studies in Ancient Technology*, vol. 8, 2d ed. (Leiden, 1971), pp. 58, 78; Eliade, pp. 43–52; W. W. Skeat, *Malay Magic* (1909; reprint ed., New York, 1967), pp. 250–71.

²² Benedict R. O'G. Anderson, "The Idea of Power in Javanese Culture," in *Culture and Politics in Indonesia*, ed. Claire Holt (Ithaca, N.Y., 1972), p. 7.

²³ J. Groneman, "Het Njirami of de Jaarlijksche Reiniging van de Erfwapens en andere Poesakas in Midden-Java," *Internationales Archiv für Ethnographie* 17 (1905): 81–90.

²⁴ Rassers, p. 241.

Iron Working in Indonesia

realm of the ancestors, the sacred mountains where they may be contacted, and that the smith is instrumental in the release of the soul from its earthly bonds.

MOUNTAINS, DEATH, AND THE SMITH

Mountains in Southeast Asia are regarded as the powerful manifestation of the boundless creative power that irradiates the cosmos and links all being, animate and inanimate, in one field of diffuse, unstable, and pulsating energy. The same force that buckled the earth's crust and drove the mountains to shoulder the clouds is seen at work in the endless flux that marks the visible spectacle of the world's processes, natural and cultural. Within this "seamless web," to use Stanley Burnshaw's phrase, all being is linked in the figure of a cosmos, and the landscape can be read as a text rather than an assemblage of matter that is opaque and inert.

In this perspective, mountains are part of the topography of Being. They are regarded specifically as the abode of the dead, the powerful ancestors who may be contacted on their slopes. Across Java and Bali and elsewhere in the archipelago, the flanks of great mountains carry terraced sanctuaries often built of rough, unworked stone. These are believed to be constructions that reflect original, pre-Hindu ritual practice, and they are often compared in form and meaning to the *marae*, the ritual stone terraces of Polynesia. They continue to be venerated even today, as in Bali, although the religious context has an altered look.

Mountain worship was, of course, a feature of life over vast regions in the ancient world. The Minoan mountain sanctuaries of Petsofa and Mount Juktas were succeeded by the Greek focus on Mount Olympus. Henri Frankfort describes the Ziggurats of Mesopotamia as a mountain "where the mysterious potency of the earth and hence of all natural life is concentrated."²⁵ In India, Mount Meru is a profound cosmic symbol as the axis of the universe and the home of the gods. And in Japan, mountains and their veneration are a theme that drifts from prehistory through Buddhism and Shintoism and into the landscape prints of Hokusai. For the Japanese there was a relationship between the mountains and the dead, which would appear to have analogies with traditions in Southeast Asia.²⁶

In Southeast Asia the importance of mountains can scarcely be

²⁵ Henri Frankfort, *The Birth of Civilization in the Near East* (Garden City, N.Y., 1951), p. 56.

²⁶ Ichiro Hori, "Mountains and Their Importance for the Idea of the Other World in Japanese Folk Religion," *History of Religions* 6, no. 1 (August 1966): 22.

History of Religions

overestimated, whether, for example, it is Mount Poppa, which enjoyed the veneration of the Burmese at the time of the founding of the city of Pagan,²⁷ or Vat Phu in southern Laos, which was sacred to the early Chenla kingdoms of Cambodia.²⁸ Today the Buddhist sanctuary of Doi Suthep outside Chiang Mai in northern Thailand probably continues an ancient custom of mountain veneration, and indeed, the famous inscription of the Thai ruler Rama Khamhaeng of Sukhothai dated 1291 refers to the spirit of a hill to the south of that town who was superior to all other spirits of the country.²⁹ Within this widespread disposition in the area generally, there is in the fourteenth-century literature of Java such an importance attached to the "Lord of the Mountains" that it is this god, rather than Siva or Buddha, who may be the absolute and ultimate god of Java. It is this "Lord of the Mountain" who, according to S. Supomo, is the god Parwataraja, invoked in the first stanza of the Arjunawijaya as the guardian deity to whom the poet Tantular offers the poem and whom he describes as "the life of all the vital spirits of the world."³⁰ In his interesting article, Supomo associates the cult of the mountain deity with offerings to gods of Mount Agung on Bali, where Besakih, the most important temple of Bali, is located, and also with Sukuh, the terraced sanctuary of Mount Lawu in Central Java. Both these great mountain sanctuaries are linked directly to the world of the iron smith, and it is, in my view, a relationship that reveals the connection between metallurgy and the redemption and release of the soul through the mysteries of the armorer's art.

Sukuh is located on the western slope of Mount Lawu approximately thirty miles from Surakarta. It is a triple-terraced sanctuary that is crowned by a truncated pyramid, and it is located high on the mountain. The whole ensemble, including a variety of obelisks, sculptured reliefs, and an enormous gateway, has a startling, almost megalithic scale, and the sculptures are forceful and massive. Various authorities have noted the relationship that both this monument and the associated terraced structures at Tjandi Tjeta, which lies still higher on Mount Lawu, bear to pre-Hindu monuments devoted to ancestor worship.³¹

²⁷ G. Coedès, *The Indianized States of Southeast Asia* (Honolulu, 1968), p. 106.

²⁸ *Ibid.*, p. 66.

²⁹ *Ibid.*, p. 207.

³⁰ S. Supomo, "Lord of the Mountains in the Fourteenth Century Kakawin," *Bijdragen tot de Taal-, Land-, en Volkenkunde* 128, nos 2/3 (1972): 282.

³¹ A. J. Bernet Kempers, *Ancient Indonesian Art* (Cambridge, Mass., 1959), pp. 101-4; C. Holt, *Art in Indonesia* (Ithaca, N.Y., 1967), pp. 29-33; W. F. Stutterheim, *Gids voor de Oudheden van Soekoe en Tjeta* (Surakarta, 1933), p. 11.

Iron Working in Indonesia

While the monuments on Lawu seem to come out of an indigenous tradition that can be traced to beliefs surrounding megaliths, ancestors, and feasts of merit, they are actually products of the late fifteenth century. They were built during the declining years of the last great Hindu-Buddhist empire of Java, and they would be associated chronologically and in religious intention with many (but not all) of the altars, hermitages, and terraces erected on Mount Penanggungan, the Yang Plateau, Argopuro Mountains, and Mount Wilis, all in Java. The religious mood would seem to warrant F. M. Schnitger's phrase "megalithic-tantrism." The dominant theme, insofar as it can be deciphered, is the deliverance of the soul from its material and terrestrial bounds.³²

It was Willem Stutterheim who, in exploring both Sukuh and Tjeta and examining a variety of sculptures from other mountain sanctuaries of central and east Java, was able to discern a common theme. He identified a cult centering on Bhima, the great warrior hero of the Indian epic, the Mahābhārata. In Java, Bhima's role was given a variant inflection, so that the athletic, forthright, and physically powerful Bhima of the epic became a savior figure who through esoteric knowledge could release the soul from its bounds. Stutterheim cited literary evidence to support his analysis, but he also drew heavily on relief sculpture in the mountain sanctuaries which focuses on the release of a figure from an evil spell. This was an appropriate theme in the mountains, where the souls of the ancestors repaired after death and where the gates of heaven were located.³³ A. Johns has recently reexamined Stutterheim's interpretation of Bhima's spiritual adventures. Basing his analysis on a wider group of literary texts, both traditional Hindu-Buddhist and later Islamic, Johns sees Bhima as a central symbol for a traditional and fundamental Javanese conception, a radical monism, that everything "is the product of One Mind, the Microcosmos is the macrocosmos, Nirvana is Samsara, there is no duality."³⁴

Within this context of mountains and esoteric literature may be found the meaning of an especially enigmatic relief at Sukuh that shows a blacksmith shop with three figures. In the center there is a man or god with an elephant's head who appears to be

³² Piet Zoetmulder, S.J., "Les grandes Religions d'Indonesie," in *Les religions d'Indonésie*, ed. W. Stohr and P. Zoetmulder (Paris, 1968), p. 311.

³³ W. F. Stutterheim, "An Ancient Javanese Bhima Cult," in *Studies in Indonesian Archaeology* (The Hague, 1956), p. 125.

³⁴ A. Johns, "The Enlightenment of Bhima," in *R. C. Majumdar Felicitation Volume*, ed. H. B. Sarkar (Calcutta, 1970), p. 146.

History of Religions

dancing ecstatically while he holds a small animal, perhaps a dog or a horse. He is flanked by two figures, one of whom is working a double-piston bellows and the other is working in a portion of the smithy that is filled with weapons, many of them krises. The two smiths are dressed as *wayang* figures. Given the strong possibility that the convention of continuous narration is being employed, the bellows operator and the smith may actually be the same figure repeated at two successive moments in time. If they are read as the same figure separated in time, then the dancing elephant-headed figure in the center, who may be Ganeśa, would be seen as mediating between the two operations. What comes between the wind of the bellows and the forging and shaping of the kris is the fire with its power of transformation. The very mixing of two orders of existence, in the paradox of an elephant-headed man, suggests strongly some principle of divine transformation of duality into a higher unity. It is tempting to see the small animal figure in the hands of the elephant as a representation of the soul being released or reforged, a common theme in the myth of Borneo and Celebes, while on Bali Hooykaas has encountered a myth that the iron smith, Mpu Gandring, was granted the power to deliver "his forefather's spirits."³⁵ While all of this is clearly very speculative, it remains a fact that the blacksmith is a central figure in a relief at a sanctuary that is devoted primarily to the release of the soul through esoteric knowledge. The existence of this sculptured panel helps us to understand the many references in myth to the presence of blacksmiths in the mountains. For example, L. Adam mentions a popular myth in the region of Mount Lawu that there was a smithy on that mountain associated with the last ruler of the Majapahit empire.³⁶ In Bali, P. de Kat Angelino pointed out that the smiths traced their origin to Mpu Brahmā Wisesa, an incarnation of Brahmā who lived separated from mankind as a pious hermit in the midst of the silent hills in Java. He had great supernatural might and was able to forge weapons by using his fist as a hammer and his thigh as an anvil, while the fire that he required appeared from the palm of his hand.³⁷ Another piece of evidence that links the smith to the

³⁵ C. Hooykaas, "The Balinese Sengguhu—Priest, a Shaman, But Not a Sufi, a Saiva, and a Vaisnava," in *Malayan and Indonesian Studies: Essays Presented to Sir Richard Winstedt*, ed. J. Bastin (London, 1964), p. 274.

³⁶ L. Adam, "Geschiedkundige aantekeningen omtrent de residentie Madioen, Bergheliddommen op Lawoe en Wilis," *Djawa* 17 (1938): 100.

³⁷ P. de Kat Angelino, "Over de smeden en eenige andere ambachtslieden op Bali," *Tijdschrift voor Indische Taal-, Land-, en Volkenkunde* 60 (1921): 216.

Iron Working in Indonesia

realm of the ancestors in the mountains may be found in the ritual ceremony in which the armorer calls on supernatural help before he undertakes the manufacture of a weapon. After purifying himself, he then makes offerings or *sadjèns* to various spirits. Among the *sadjèns*, according to Huyser, are *tæmpèng robjong*, a pyramid shaped from rice and dedicated to the Lord of the Mountain and red rice pudding dedicated to the ancestor spirits.³⁸

Finally, and in some ways most persuasive, is the living testimony on Bali where the smiths are the only occupational group that has a shrine on the island's most important state temple, Besakih, 3,000 feet up on the southwest slope of sacred Gunung Agung. This great temple complex is a terraced sanctuary whose origin stretches into the prehistory of the island long before Hinduism. From about 1400, it served as a temple for ancestor veneration for the Princes of Gelgel and later for the princes of Klungkung as well.³⁹ It remains today perhaps the most important temple in Bali, and it clearly links the sacred mountain, which is the focus of worship itself, the ancestors, and the smiths.

It is apparent that much of this constellation of evidence refers to the iron worker in his very special capacity as armorer. While the mining of ore, the smelting of ore, and the manufacture of agricultural tools were vocations touched with profound mystery, the central actor in this drama of release and salvation during the Majapahit empire was the smith or *mpu* who fabricated the kris. He emerges from this complex of difficult industrial operations as something approaching an artist hero. Within a context of developed tantrism, as revealed in such esoteric texts as the Bhimasuci and the Tantu Panggelaran, the mystery of pattern welding, *pamor*, and etching proved to be a language that disclosed both the artistry of the smith and the spiritual truths of the community. From the dark and inarticulate ores and the difficult words of the tantric texts, there was a fusion of the earth and the world. The recessive earth disclosed its properties in the hardness and brightness of the blade and its mystery in the *pamor* marks. With the kris, the paradoxical insights of the tantric texts were given lodging in a plastic form. These ideas were "the other side" of the physicality

³⁸ J. B. Huyser, "Het Vervaardigen van Krissen," *Nederlandsch Indië, Oud en Nieuw*, 1 (1916-17): 236, 547; 2 (1917-18): 27 ff.

³⁹ R. Goris, "Pura Besakih, Bali's State Temple," in *Bali: Further Studies in Life, Thought, and Ritual* (The Hague, 1969), pp. 77-88; "The Position of the Blacksmiths," in *Bali: Studies in Life, Thought, and Ritual* (The Hague, 1960), pp. 291-97; and Hooykaas, p. 272.

History of Religions

of the blade, that invisible presence in expression that resists language.⁴⁰

Before the smith can work his art, however, he must rely on the iron worker who extracts the liquid metal from the primary ore. While these operations, smithing and smelting, may originally have been performed by the same person in the early development of the craft, the very concept of the master armorer suggests a high level of specialization, and it seems unlikely that he would also work in a sustained industrial enterprise. It may therefore be helpful to turn our investigation to the industrial aspect, and here the great iron-working sites around Santubong Mountain in the Sarawak River Delta of southwestern Borneo afford us another perspective on iron and its mysteries. There, in and around the present-day village of Santubong and spreading widely through the wet, webbed mass of mud, vegetable matter, and river mouths that form the delta, there is a vast dark stain of iron slag. This residue of forgotten enterprise has been intermittently under study since 1947 by Sarawak Museum teams directed by the former curator Tom Harrisson. During 1966, I joined Harrisson in a last season of work on a number of these sites. While our joint publication has treated the iron industry at considerable length and depth,⁴¹ it will be useful to summarize some of this material as it sheds light on our investigation of the *univers imaginaire* of the iron worker in ancient Southeast Asia.

BOWL HEARTHS, PETROGLYPHS, AND IRON SLAG

There is a view of Santubong Mountain, a lithograph published in 1848, that is curiously faithful to the feel of the place—curiously since, with its conventions of the European pastoral landscape, it is at some remove from the actual prospect, having been translated onto stone in London by J. W. Giles from a sketch made in Sarawak by a Mr. H. Williams.⁴² But it captures the steamy instability of the delta, an irresolute landscape, unfocused except for the mountain. In the middle ground there is a slow, looping turn of

⁴⁰ For an illuminating exploration of the tension between idea and artwork, see Merleau Ponty's discussion of Proust in "The Intertwining—the Chiasm," in *The Visible and the Invisible*, trans. Alphonso Lingis (Evanston, Ill., 1968).

⁴¹ Harrisson and O'Connor, *Excavations* (n. 5 above). For a further study of the Santubong material, see Tom Harrisson and Stanley O'Connor, *Gold and Megalithic Activity in Prehistoric and Recent West Borneo*, Data Paper 77, Cornell University Southeast Asia Program (Ithaca, N.Y., 1970).

⁴² James Augustus St. John, *Views in the Eastern Archipelago, Borneo, Sarawak, Labuan* (London, 1848).

Iron Working in Indonesia

river and a scatter of Malay houses hovering on poles at the outermost reach of dry land. The present village of Santubong straggles along the river in a similar way, and the flow of village life is regulated by tidal rhythm, the movement of fish, and variations in water level. The emblems of this intimate merging of village and water are the net-hung palms and the fishing boats pulled up on shore or drifting down river at night like a flight of fireflies. But the prospect in the print is distant and from a vantage that fails to record the position of the estuary mouth. The village shelters there under the sheer wall of the mountain and follows down the true right bank of the river until it loses itself in the South China Sea. High out over the estuary mouth on headlands opposite each other are two excavated cemeteries laid out over 1,000 years ago. Above the village, the river bank is a wavering line of gray mud and mangrove trees standing out into the main trench on silt roots. Small tidal creeks cut back from the river, running through nipah and pandanus back into dry land. These are now silted and encroached by mangrove extension, but several, such as Sungei Buah and Sungei Jaong, once carried trading ships up to the great iron-working sites that are found half a mile upstream on dry land. Now the creeks merely lead up to ragged patches of rubber or fruit gardens. There are also spills of light and right angles cut into the forest where pruned pepper vines stand, and the precisions of Chinese speech rise from low houses roofed with corrugated iron.

It is altogether an unstable, intricate environment tended in complex ways by a human community that is mostly coastal and Moslem Malay. It is a zone of mud flat and water with work shifting through the seasons and weathers, mixing labor in swamp, garden, and river.⁴³ The boundaries between land and water dissolve and shift, but above it all, pinning the place to the horizon and organizing the landscape around its flanks, is the mountain. It is perhaps best to refer here to St. John's letterpress which accompanies our lithograph: "Any picture, therefore, which I may now draw will speedily become obsolete, save where Nature has erected her imperishable monuments, as in Mount Santubong, which will continue to look down on all the changes and chances of civilization among the Dayaks till time shall sweep their remotest descendants from the scene."⁴⁴ These words were written

⁴³ For a detailed and sustained socioecological study of the Santubong village and region, see Tom Harrison, *The Malays of South-West Sarawak before Malaysia* (London, 1970).

⁴⁴ St. John.

History of Religions

only ten years after the Rajah James Brooke had arrived in Sarawak to begin the imposition of a new kind of order in this coastal zone. Since that time great change has come to Santubong, and it is difficult to reconstruct, even at this short interval, the kind of world that was lived under the mountain when St. John wrote. It follows that the texture of ancient existence is only dimly caught and recorded in three dimensions in the archaeologist's net of platonic cubes. The time scale for the sites taken as a whole, and on the basis of a C-14 date and associated materials such as Chinese coins, pottery, and Buddhist artifacts, indicates a beginning in the T'ang dynasty and a definite cessation before the Ming. More narrowly circumscribed, the principal activity involving iron may be put, roughly, between A.D. 1100 and sometime around 1350.⁴⁵

Slag, the residue of iron working, is scattered over literally miles along the coastal swamp. It is spread in drifts, dribbles, even single pieces, and it is also concentrated, impacted in the earth in dense reefs down past 100 inches deep at such manufactory sites as Buah, and to somewhat shallower depths at Jaong and Bongkissam. The actual total of all this slag can only be estimated on the fraction either excavated or visible above ground, but a rough working figure is around 40,000 tons. This quite unexpected quantity, together with a large tonnage of associated clay cylinders that functioned as tuyères (possibly also as crucibles), indicates a principal concentration on primary smelting rather than merely the fabrication of tools and weapons by smithing. Although very few tools were recovered in the excavations, some were doubtless fabricated; but we are clearly a distance from the master armorer and his patrons in the rarefied world of the Kraton. Instead, it is the demands of jungle-clearing tools and agricultural implements that are probably being served in the Sarawak delta complex. Here at Santubong, the slag itself is regarded as full of magic potency. This can be seen in its wide spread at places where there were no firing points, and there are features of the Jaong site that are especially significant in revealing a magico-religious aspect of iron manufacture.

It is the earliest of the iron-working sites, in main use before A.D. 1000, on the basis of the ceramics and Chinese coins. It is about two miles upriver from Santubong village at the foot of the mountains where a stretch of open dry land of about 43,500 square

⁴⁵ Harrison and O'Connor, *Excavations* 1:17–20.

Iron Working in Indonesia

yards extends over a small hillock and down to the swamp and tidal creek. Sandstone boulders here have been worked into a series of relief carvings, some figures, others nonfigurative, all of them enigmatic in iconography. The best-known carving is a spread-eagled figure, half life size, called locally Batu Gambar. He wears a curious headdress, and he is linked by position to the mountain, almost certainly regarded as sacred, and, in the ground at the base of the boulder, to the iron slag, Chinese trade ceramics, soft earthenwares, and glass beads that are found so widely in this and other delta sites. The other carved boulders are similarly linked to the iron operation in what seems a curious mixing of the sacral and ritual space with the industrial.⁴⁶ It is as if one stumbled on the great stones of Carnac but in the rain forest where the ground was densely carpeted with slag.

The kind of thinking made visible in the large boulders is also exhibited at a different scale under the ground. In a very irregular plane covering about 1,000 square feet (700 square feet densely) of the Jaong site, there are beds of pebbles, selected and positioned by human agency. The phenomenon was first noted by Harrisson in 1952, and since that time a tilting, discontinuous plane of variable thickness, composed predominately of hornfels pebbles, has been traced out in a concentrated area. Beneath the pebbles almost fifty whole, Chinese, high-fired ceramics have been recovered along with gold-foil amulets, glass beads, bronze bangles, and other value objects.⁴⁷ This deposition is clearly ritual in character and presumably associated with funerary practice. There is a considerable quantity of iron slag above the pebbles, apparently spread there because of its magical efficacy, joining its potency to the potency of the pebbles. This interpretation is given support by the fact that pieces of iron slag were also found three to six inches below the surface of a ritual platform excavated at the neighboring site of Bongkissam.⁴⁸ It should be added that a piece of iron slag was found in a burial cave in the Niah complex almost 300 miles north up the coast from Santubong.

This whole constellation of evidence linking slag to pebble beds, to petroglyphs, to an excavated shrine, indicates clearly that, even in its reject and waste, iron manufacture in the delta was both a

⁴⁶ Harrisson and O'Connor, *Gold*, plates 2–14, 32–44, and chap. 18.

⁴⁷ *Ibid.*, chap. 19.

⁴⁸ This mixing of iron slag with a sacral or ritual area was observed by L. Malleret in his excavations at the Funanese port city of Oc-Eo, located in the Mekong delta; he found slag at the two monuments which he designated K and A, (*L'archéologie du Delta du Mekong* (Paris, 1960), 2:255–60.

History of Religions

pragmatic industrial enterprise *and* a magical activity. The association of slag and pebble beds points to funerary and ancestor concern. So, as we shall see, do the myths of Borneo peoples, the Dayaks and Dusuns. The very choice of Santubong as a great iron-working site may very well derive in part from the merging of beliefs about iron working, ancestors, and the great mountain rising bright and sharp-faced from the low tangle of mud and swamp. This is not to suggest that pragmatic concerns—the protected estuary, good supply of potable water, mineral-rich hinterland, ready availability of fuel from mangrove, sufficient flat land—were not an important factor. But, at the very foot of the mountain, the silent presence of the worked boulders of Jaong and the megalithic shrine at adjacent Bongkissam seem to participate in a subtle current of meaning linking the landscape into a system of signs or revelations of the sacred that is dominated by the mountain. Any true understanding of the sites must be sufficiently complex to embrace both the pragmatic and the sacred.

Finally, it should be added that work by Harrisson and Sandin on Iban Sea Dayak writing, genealogies and myths, discloses that a principal creator figure is Selampandai, who is closely associated with metal. His symbol on the writing boards (*papan turai*) is the bellows forge. He is described in a chant of the Festival for the Sick as being able to make the souls of the dead live again.⁴⁹ This is very much like the myth of the Toradjas of Celebes, who have a smith god who reforges the souls that have failed.⁵⁰ The Dusuns, the hill people of Sabah in Borneo, also have a myth of a creator figure, Kinorohingan, who is a smith. He welds the human soul that goes up to him when a person dies to a soul of the same person that is already in heaven.⁵¹

Industry and the sacred are indissolubly linked at Santubong. The world of the iron workers is a compound of the fabulous and the pragmatic. The sheer weight and extent of the slag indicates an industry of long duration and significant scale, fixed in space, repetitive in procedure, empirical in process but touched with sacred meaning and liturgical in action. The iron worker assumes the role of time as he transforms the earth's substances into metal. With fire and the bellows' urgent breath he brings ores to ripeness,

⁴⁹ T. Harrisson and B. Sandin, "Borneo Writing Boards," *Sarawak Museum Journal*, Special Monograph no. 1 (November 1966), pp. 32–286.

⁵⁰ E. D. Baumann, *De Mythe van den Manken God*, quoted in R. J. Forbes, *Metallurgy in Antiquity* (London, 1950), p. 89.

⁵¹ I. H. N. Evans, *The Religion of the Tempasuk Dusuns of North Borneo* (Cambridge, 1953), pp. 15–17, 75.

Iron Working in Indonesia

substituting his knowledge and human time for the pulse of life that moves transparent, a river of cosmic breath, through the rocks, the brooks, and the great mountain, linking the ancestors and the living through the transforming power of fire.

AN EMPTIED LANGUAGE

These rather scattered notes merely cut a few short trails out onto a vast continent. Any sustained exploration of this terrain soon finds, as Anaximander of Miletus knew, that everything is part of everything else. Iron is both metal and a meaning: expansive, elusive, part of the fabric of a cosmos in which even the silence of stone rings eloquent. When he first reached into the density of this world as metallurgist, the iron worker drew human and natural powers together into a new metaphor. His work itself was fully ambivalent, as, in one direction, he faced life as forger of agricultural tools and, in the other, just as surely aided death in his capacity of armorer. There is probably no other traditional craft that is more mysterious than his, combining as it does the utterly banal with the astonishing happening of daily, natural process.

By lifting a corner of this vanishing world, one comes to see in a new light the precisely fabricated steel unloaded today in the ports of the island world. Purged of the intuitive and accidental, a product completely rationalized and subsumed in its function, iron becomes objectified, a substance that may be manipulated to dominate a neutral environment. Its production has been emptied of the metaphysical and the sacred. It is as if speech were to be stripped of all its allusiveness, its strange potency, as if metaphor were banished in favor of the precise sign, the hard-edged, totally efficient unit of basic communication. Metal tools are now bare inarticulacies, closed in their being, stacked for use on the inert body of the world.

It does not follow, however, that no trace of traditional iron belief lingers. While science as an explanatory myth has displaced the old craft mysteries in industrial production, crises are still acquired, venerated, treated as heirlooms. The truth of the kris is still preserved actively by an audience. Esoteric knowledge still functions as a form of power, but the exercise of that power by the metallurgist has receded from the lived world.

Cornell University