

Metallurgy between Myth and Production: Cognized and Operational Craft in the Northeastern Aegean

Sandra Blakely

What are the heuristic potentials for Rappaport's cognized and operational models when applied to craft at the intersection of cultures – specifically iron metallurgy between Greeks and Thracians on the northeastern Aegean shores? And what are their implications for rethinking the 'economic' aspects of metal production? The southern Thracian shore was exceptionally rich in ores and local skills. Distinctions among local ores demanded different operational approaches to production. Kostoglou has used the material evidence to demonstrate that these operational models also constructed local community identities, among which production remained at the household and workshop level, even through the Roman period. Rappaport's models help us recover some of the complexities in indigenous frameworks for the industry whose cultural function went far beyond production and trade. The Greek economic partners of these Thracians made both cosmological and ritual use of the daimones they constructed as the non-Greek, pre-Greek inventors of metallurgical craft in this region. The integration of these uses into our understanding of the evidence for emic, Thracian uses of metal production as a second level signifier helps move us toward a more complex model of that craft's social function as simultaneously a locus of indigenous identity, and a means of enabling interaction with their non-Thracian economic partners in the region.

An exploration of metallurgy beyond the economic engages naturally with the intersection of economy and religion. Sanctuaries are locations of financial transactions, production, the concentration of imports and competitive display, making them direct analogues for fora as markets and gathering places. An archaeology of sanctuaries foregrounds the question of communication: the messages between men and gods create the stamp of divine authority that renders sanctuaries markets for the information flows that impact negotiation, exchange, and the quest for profit. This focus on communication raises the stakes for a more nuanced attention to the question of how – the different forms of communication, from the verbal to the visual to the material – as well as how well, the question of persuasiveness and legibility. Bernstein's model of restricted and elaborated codes reminds us that the most powerful communications are often precisely those which require the listeners to exercise their knowledge of local cultural traditions in order to understand them.¹ This casts down a powerful warning for us, as investigators etic to our subject cultures, not to appeal to commonsense or intuition, particularly when approaching something as apparently universal as the spectacle of ore transformed into metal. Positioning metallurgy in this conversation offers light on the triangulation of men, gods and metals on the Samothracian *peraiá* of

Aegean Thrace, and offers a new page in the discussion which extends from Eliade to ethnography and materiality.

In the mid-20th century, Mircea Eliade confidently asserted, in accordance with the anthropologies of his day, a universal cognitive response of awe at the spectacle of metallurgy, which transformed raw material – at great risk – into the objects of highest cultural value.² The human category into which this wonderment fell was magic. He built in this on Malinowski's definition of magic as *apotropaia* at the edges of technological competence, and thus the intellectual limitations of the practitioner, however high their practical skills. The model implies homogeneity between meaning and embodied experience, the cognized and the operational, when it comes to the translation of crafting into the ritual sphere. African archaeometallurgical studies, combining excavated materials with ethnographic interviews, offer an opposing model, as they revealed the long history of the simultaneous production of metals and cultural meaning. These demonstrate how the processes of production – the removal of the ore from the bloom, the process of hammering and refining – become metonymous for critical cultural concerns of kingship, ancestors, the landscape and its fertility. Thus the king in his investiture, in the Congo, is 'hammered' like a bloom of ore to separate the dross from the metal. The transformation of the ore into the bloom is metonymic, among the Fipa, for female gestation and fertility.³ Access to the meaning of these metaphors is strictly limited, so that they serve as the boundaries of group membership: there are as many iron metallurgies, and symbolic systems connected to them, as there are cultural groups.

Archaeological theories of materiality recognize these functions of group formation and information flow, but foreground the role of material substances themselves as agents in these processes. They build on Bourdieu's concept of *habitus*, and on Merleau Ponty's phenomenology, which outlined the role of the embodied and the experiential, rather than the merely cognized, human interactions with the world.⁴ Central to these theories has been the proposal that objects are not the passive recipients of human action, but actively shape human society in ways that go beyond ownership or creation, and that extend beyond the formally, critically cognized.⁵ Brought to metallurgy, these foreground how the sequences of production create communities of practice in the workshop, in whose technological choices lurk the world views of their larger ethnic and national groupings. The *chaîne opératoire* signals identity as concretely as the iconography and style of the finished product.⁶ This casts down, on the one hand, the gauntlet to recover those workshop processes in archaeological contexts, and has tended to generate an opposition between social constructionism and semantic approaches. Pfaffenberger notes that "a symbolic anthropology that pays no attention to technological activities is liable to advance interpretations that are gravely erroneous." Symbolism in artifacts arises from the technological activities that generate society, but is not the cause of shared meanings.⁷ Killick has noted that the most committed social constructionists tend to reject any explanations invoking market forces, adaptation,

or the inevitability of progress, in favor of the human factor behind the choices in the workshop, which are shaped (mysteriously) by the objects themselves.⁸ In the competition between those who know how, and those who know that, the former emerge as the most genuine indices of their social world.

These workshop-generated meanings are argued to be relevant across the subject culture, which raises several important problems.⁹ It foregrounds the distance between emic/etic, since investigators, especially in archaeological contexts, are only able to access the processes of production through archaeometry, using microscopic material analyses. And the assertion of legibility within the subject culture raises the question of the permeability between contexts of production and the contexts of use: on what bases can we gauge how the identities that emerge in the workshop function in the public square?

An exploration of that question in these North Aegean contexts will suggest that a bifurcation between the cognized and the operational worlds is less heuristically productive than the model offered by Roy Rappaport. In *Pigs for the Ancestors* (1968) and *Ecology, Meaning and Religion* (1979), Rappaport explored the ecology of the Tsembaga of New Guinea, and proposed a relationship between intellectual and practical spheres which maps onto the fundamental distinction proposed by materiality studies.¹⁰ His, however, hypothesizes a value specific to ritual contexts for the explicitly intellectual lens. Rather than a simple dualism, Rappaport offers a morphology of these two types of knowledge. He proposes five different levels, according to the degree to which a model referred to an instrumental, empirically testable context, or was generalized. The ultimate sacred propositions at the apex of his system were concepts about ancestral spirits. Precisely their distance from operational realities suits them to the cultural work they do, which is to sanctify an entire system of understandings. The unfalsifiable yields the unquestionable, and thus transforms the dubious into the natural.¹¹ His morphology bridges the scientific and the poetic realms, and suggest a cultural effectiveness for models of craft within ritual and mythological realms that is directly proportional to their distance from practical knowledge.

Aegean Thrace, between the Nestos river in the west and the Evros in the east, the Rhodope mountains and the Aegean coast in the south, offers a case study for iron as a signifier that translates into social constructions. From the first Greek arrival in the 8th century BC, the region is characterized by interactions with the non-Greek cultural groups, and the quest for metals: over half of our extant texts that mention Thracians connect them with access to metals.¹² Geomorphological fieldwork has now emphasized the extent to which interactions across ethnic and cultural boundaries, spurred by economic interests in materials as well as transport routes, make Aegean Thrace as much a model of connectivity as the rest of Horden and Purcell's Mediterranean.¹³ This is an intensely rich, multi-period industrial landscape, in which almost all sites have yielded iron remains: the earliest was a 9th century burial near an iron age dolmen in the Rhodope mountains – jewelry, an iron ring and chain and the context make this ev-

idence for the symbolic use of iron in early times. This iron production remained in the hands of Thracians, at the level of household and community-based workshops, rather than Greek colonists or Roman overseers, in contrast to the precious metals in Thasos and Pangaion.

Maria Kostoglou has conducted archaeometric analyses of archaeological iron in the region, the details of which lie far beyond this brief paper. Her results highlight a consistent pattern of diversity at a regional scale, continuity at the local scale, and high levels of competence overall, with the exception of Avdera. Each community maintains its own metallurgical style in choices of ores, fuels, and technologies. Thus at Avdera, only surface carburization or welding of low carbon to high steel is in evidence; Kalyva Kastro yields steeled tools and weapons, but only one smelting technique, iron oxides in bowl furnaces. Messemvria-Zone shows both wrought and cast iron, and all known techniques for steel manufacture used successfully. The ores alone range from titanium rich magnetite sands, oxides, pyrites and manganese to copper rich iron deposits. While these traditions may in part be a response to the demands of different local ores, they also reflect conscious technological choices which articulated and perpetuated local identities. Kostoglou proposes that we should imagine metalworkers mastering their craft in house-based workshops and transferring their empirical knowledge to pupils of the next generation, assuring the continuity of tradition.¹⁴ That knowledge sharing distinguished not Thracian from Greek or Roman, but one Thracian community from another. This can be seen as a strong affirmation, on the one hand, of the capacity for operational knowledge generated in workshops to apply directly to issues that are relevant within the community as a whole.

As for whether these local practices of production, however, translate into publicly legible messages, Kostoglou is cautious at the best, noting that iron technologies manifest social ideology differently than ceramics. Of the objects that were made specifically for display in sanctuaries, and which thus are explicitly meant to function as second level signifiers, she notes the existence of votive iron and steel currency bars, dedicated in the 6th c BC temple of Apollo at Zone. This site also yielded significant amounts overall of votive iron objects, including knives, scissors, weapons, bells, rings. The exceptional elongated iron bar is of the type used as currency in continental Europe, and offers analogies to the use of bars and obeloi as gifts in other sanctuary contexts.¹⁵ The publicly accessible semantic weight of these finds, however, derives entirely from their form and the location, and not from the process of production. The absence of any offering of slag or tools is further indication that the processes of the workshop proper are kept separate from the realm of the gods. The operational meanings, for all their socio-genic force, seem to remain locked into the community of the workshop, not the larger society of which the workshop is a part. This is despite the degree to which the quest for iron played a historical role in their interactions far beyond the workshop.

There is one exception to Kostoglou's hesitation about a more broadly spread social constructionism associated with Thracian iron – iron rings as gifts to the dead, two from

Messembria-Zone, found along with iron strigils, and two from Avdera. These were inclusions in high status burials that suggest that they were objects valued by the elite.¹⁶ The inspiration for possible sacred weight is their analogy to the iron rings associated with Samothrace, objects which exemplify Rappaport's version of the cognized as completely as Kostoglou's workshop signatures exemplify the operational.

Samothrace shares, with its Thracian counterpart, a multi-level investment in successful exchanges between Thracians and Greeks.¹⁷ The Samothracians established their mainland *peraia* shortly after they arrived on the island. Casson deemed them the pioneers of Odryssian trade, and their financial success is indexed by their magnificent city wall.¹⁸ Interactions between Thracians and Samothrace's mainland emporia, including Messembria, were collaborative rather than hostile. Samothrace's Greek settlers had encountered Thracians on the island itself when they arrived. They joined in their celebrations of Bendis on the slopes of Mt. Saos, assimilating her to their own Artemis.¹⁹ The mysteries show considerable energy devoted to enabling the Greek-Thracian interactions that were key to financial success on the mainland. These include the use of the Thracian language in the rites themselves, an abundance of ritual pits, and the invocation of a cave of Hekate. Thracians joined the Greeks in these celebrations: Seuthopolis yielded the earliest inscription attesting the Samothracian rites, and Thracian names, including royalty, appear in the island's initiate lists.²⁰

The iron rings of the cult as known to Lucretius, Pliny, and Isidorus were not merely iron, but magnetic, appropriate for Samothrace's status as one of the inventors of magnetism. Lucretius wrote that a Samothracian ring danced, and iron filings moved, when they were placed in bronze basins and a magnetic stone was applied underneath.²¹ Thirty-two iron rings have now been recovered from the site; twenty-one of these have large flat bezels that show no signs of holding a stone but would very likely bear an image or inscription. All of the rings but two were found in archaeological fill, and so elude dating from any means other than style. The style may reflect a Ptolemaic period; the majority of these came from the West Hill, an area given over to the comforts of the initiates after the completion of their ritual cycle. Here were found a stoa with inscriptions recording initiation, dining rooms, and the bulk of Samothracian coins; it seems that this is where the initiates ate, slept, and perhaps purchased tokens of their initiation, the famous iron rings, to take home with them.

A magnetized ring invites discussion, and the multiple mythic possibilities for these, within the island's tradition, takes us to the top of Rappaport's hierarchy, as far away from the operational realities as possible. If the iconography of a silver ring reflects how these bezels may have been decorated, they may have borne the image of two snakes and two stars, possibly recalled in the two-fold Kourete and the *δίφωες κάβειροι* of Orphic hymn 38.5–8. The importance of these Kabeiroi is confirmed in an epitaph for a Samothracian initiate, found in Kavala, who saw the 'doubly sacred light of Kabiros'.²² Lehmann identified the snakes with Hermes and the stars with the Dioskouroi who were appropriate figures for the rites' promise of maritime aid.²³ And

the Idaian Daktyloi, daimonic inventors of iron on Crete and in Phrygia, magicians and goetes, have multiple points of contact with the rings.²⁴ The fourth-century historian Ephoros credits them with establishing the Samothracian rites, introducing the islanders to incantations, initiations, and mysteries (*BNJ* 70 F 104); they may also echo the Thracian tradition of sacred caves.²⁵ In a tale known to Zenobius and to Sophokles, one such cave was where the Daktyl Kelmis, at the hands of the Great Mother goddess and his brothers Damnameneus (Hammerer) and Akmon (Anvil), was turned into iron. This fate recalled in the phrase ‘kelmis en sidero’ as a proverbial expression for a difficult personality. If a Daktyl is a daimon in the stone, he embodies one of the multiple explanations offered for magnetism. Throughout their ancient attestation, moreover, the ‘finger’ name of the Daktyloi invites endless punning, making them the natural patrons of a token worn on the hand.

The rings also engage, however, with Rappaport’s lowliest form of cognition – the operational and physically experienced. What is relevant in the ritual context is not the manufacture of the rings, or even the process of magnetizing them, but the experience of the wearer as he or she uses the ring as a token of the rites, offering a demonstration of its magnetism as Lucretius described. The phenomenon of magnetism in antiquity was the object of endless debate; its actual mechanism remained unknown, making it a topos for inscrutability.²⁶ This suits these magnetic rings for the aesthetics of secrecy which, as Simmel proposed, relies on the paradox that the sociogenic force of secrecy demands that the secret must not simply be kept, but its possession made known. For me to have a secret has no social force; for me to let it be known that I have it, articulates the social boundary between those who know, and those who do not. This capacity to generate the secrecy on which the rites relied is replayed again at Rappaport’s highest cognitive levels of the mythic and unproveable. The very abundance of possibilities for the divine force in the rings is one of the most effective routes to secrecy – obscuring not through silence, but through the multiplicity of possible answers. The correct pathway through these options, or an understanding of how each of them resonated with a different aspect of the rites, would conceivably form a component of the rituals, for which the rings were a highly condensed, culturally specific sign. Such a sign would be powerful, as Bernstein would note, precisely because of its demand for specialized knowledge.

The Samothracian rings thus demonstrate how Rappaport’s model can bridge the most materially operational and the abstract cognition of a single phenomenon – in this case, metallurgy within a specifically ritual context. Kostoglou’s work on Thracian iron raises another critical point arising from the operational realm of iron metallurgy. In the larger cultural world in which Samothrace was operating, even if the identity of the workshop which produced a particular piece of iron remains unknowable beyond the workshop, the cultural practice of the creation of iron as simultaneously the creation of community was widely known. The knowledge that a given group was the producer yields here to the knowledge of how the practices of production craft identities. This

raises the possibility to see this exceptional use of iron on Samothrace as an additional means through which the cult bridged the Greek-Thracian divide, a crossing fundamental to economic success in the region. The operational knowledge of the crafter was, in the end, itself part of the cognitive categories of the culture who bought, sold, and marveled at his – or her – craft.

Notes

¹ Bernstein 1964.

² Eliade 1962.

³ Blakely 2006, 6.

⁴ Ponty 1945.

⁵ Dobres 2001; Gosden 2005; Joyce – Lopiparo 2005.

⁶ Hegmon 1998; Nanoglou 2009.

⁷ Pfaffenberger 2001, 80.

⁸ Killick 2004.

⁹ Hahn 2011, 5.

¹⁰ Biersack 2006.

¹¹ Wolf 1999; Rappaport 1979, 119–156.

¹² Kostoglou 2008.

¹³ Archibald 2010.

¹⁴ Kostoglou 2010; Kostoglou 2013, 3.

¹⁵ Kostoglou 2008, 43.

¹⁶ Kostoglou 2008, 41 f.

¹⁷ Ilieva 2005; Tiverios 2008; Graham 2002.

¹⁸ Casson 1971, 92 f.

¹⁹ Matsas 2007; Matsas et al. 1993.

²⁰ Cole 1984, 146–148.

²¹ Lucretius DRN 6.1043–1047; Pliny Nat. 32.33; Isidorus *Origines* 19.32.5; *Etymologicum Magnum* s.v. *magnetis*; Zenobius IV.22; Blakely 2012.

²² Karadima and Dimitrova 2003

²³ Lehmann-Hartleben 1940, 355; Lehmann-Hartleben 1939, 138.

²⁴ Blakely 2006: 13–32, 79–98.

²⁵ Ustinova 2002; Ustinova 2009.

²⁶ Blakely 2012.

References

Archibald 2010

Z. Archibald, Macedonia and Thrace, in: J. Roisman – I. Worthington (eds.), *A Companion to Ancient Macedonia* (Malden 2010) 326–341.

Bernstein 1964

B. Bernstein, Elaborated and Restricted Codes: Their Social Origins and Some Consequences, *AA* 66, 1964, 55–69.

Biersack 2006

A. Biersack, Reimagining Political Ecology: Culture/Power/History/Nature, in: A. Biersack – J. B. Greenberg (eds.), *Reimagining Political Ecology* (Durham 2006) 3–42.

Blakely 2006

S. Blakely, *Myth, Ritual and Metallurgy in Ancient Greece and Recent Africa* (Cambridge 2006).

Blakely 2012

S. Blakely, Toward an Archaeology of Secrecy: Power, Paradox, and the Great Gods of Samothrace, in: Y. Rowan (ed.), *Beyond Belief: The Archaeology of Religion and Ritual*. Papers of the American Anthropology Association 21 (Hoboken 2012) 49–71.

Casson 1971

L. Casson, *Macedonia, Thrace and Illyria* (Westport 1971).

Cole 1984

S. Cole, *Theoi Megaloi* (Leiden 1984).

Dobres 2001

M. Dobres, Meaning in the Making: Agency and the Social Embodiment of Technology and Art, in: M. Schiffer (ed.), *Anthropological Perspectives on Technology* (Albuquerque 2001) 47–77.

Eliade 1962

M. Eliade, *The Forge and the Crucible: The Origins and Structure of Alchemy* (New York 1962).

Gosden 2005

C. Gosden, What do Objects Want? *Journal of Archaeological Method and Theory* 12, 2005, 193–211.

Graham 2002

A. J. Graham, The Colonization of Samothrace, *Hesperia* 71, 2002, 231–260.

Hahn 2011

H. P. Hahn, Words and Things: Reflections on Peoples' Interaction with the Material World, in: J. Maran – P. W. Stockhammer (eds.), *Materiality and Social Practice: Transformative Capacities of Intercultural Encounters* (Oxford 2011) 4–12.

Hegmon 1998

M. Hegmon, Technology, Style and Social Practices: Archaeological Approaches, in: M. T. Stark (ed.), *The Archaeology of Social Boundaries* (Washington D.C. 1998) 264–280.

Ilieva 2005

P. Ilieva, Greek Colonization of Samothrace: Problems of the Investigation and Interpretations, in: M. Milcheva (ed.), *Stephanos Archaeologicos in honorem Professoris Ludmill Getov* (Sofia 2005) 343–57.

Joyce – Lopiparo 2005

R. A. Joyce – J. Lopiparo, Postscript: Doing Agency in Archaeology, *Journal of Archaeological Method and Theory* 12, 2005, 365–374.

Karadima – Dimitrova 2003

C. Karadima – N. Dimitrova, An Epitaph for an Initiate at Samothrace and Eleusis, *Chiron* 33, 2003, 335–345.

Killick 2004

D. Killick, Social Constructionist Approaches to the Study of Technology, *WA* 36, 2004, 571–578.

Kostoglou 2008

M. Kostoglou, *Iron and Steel in Ancient Greece: Artefacts, Technology and Social Change in Aegean Thrace from Classical to Roman Times* (Oxford 2008).

Kostoglou 2010

M. Kostoglou, Iron, Connectivity and local Identities in the Iron Age to Classical Mediterranean, in: P. van Dommelen – A. B. Knapp (eds.), *Material Connections in the Ancient Mediterranean: Mobility, Materiality, and Mediterranean Identities* (New York 2010) 170–190.

Kostoglou 2013

M. Kostoglou, Manufacturing Techniques, Technological Traditions and Social Choices in Ancient Greece, in: J. Humphries – T. Rehren (eds.), *The World of Iron* (London 2013) 313–321.

Lehmann-Hartleben 1939

K. Lehmann-Hartleben, Excavations in Samothrace, *AJA* 43, 1939, 133–145.

Lehmann-Hartleben 1940

K. Lehmann-Hartleben, Preliminary Report on the Second Campaign of Excavation in Samothrace, *AJA* 44, 1940, 328–358.

Matsas 2007

D. Matsas, Archaeological Evidence for Greek-Thracian Relations on Samothrace, in *Thrace in the Graeco-Roman World: Proceedings of the 10th International Congress of Thracology, Komotini-Alexandroupolis 18–23 October 2005* (Athens 2007) 387–402.

Matsas et al. 1993

D. Matsas – C. Karadima – M. Koutsoumanis, Η αναγρασκαφή στην Παναγιά τ' Μάνταλ' της Σαμοθράκης το 1993. Το Αρχαιολογικό Έργο στη Μακεδονία και Θράκη 7, 647–655.

Nanoglou 2009

S. Nanoglou, The Materiality of Representation: A Preface, *Journal of Archaeological Method and Theory* 16 (2009) 157–161.

Pfaffenberger 2001

B. Pfaffenberger, Symbols Do not Create Meanings – Activities Do: Or, Why Symbolic Anthropology Needs the Anthropology of Technology, in: B. Schiffer (ed.), *Anthropological Perspectives on Technology* (Albuquerque 2001) 77–87.

Ponty 1945

M. Ponty, *Phénoménologie de la perception* (Paris 1945).

Rapport 1979

R. Rapport, *Ecology, Meaning and Religion* (Richmond 1979).

Tiverios 2008

M. Tiverios, Greek Colonisation of the Northern Aegean, in: G. R. Tsetschladze (ed.), *Greek Colonisation: An Account of Greek Colonies and Other Settlements Overseas 2* (Leiden 2008) 1–154.

Ustinova 2002

Y. Ustinova, Either a Daimon, or a Hero, or Perhaps a God: Mythical Residents of Subterranean Chambers, *Kernos* 15, 2002, 267–288.

Ustinova 2009

Y. Ustinova, *Caves and the Ancient Greek Mind* (Oxford 2009).

Wolf 1999

E. R. Wolf, Cognizing “Cognized Models”, *AA* 101, 1999, 19–22.