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“Catching the Light”: Technologies of Power and Enchantment in Pre-Columbian Goldworking

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The power of art objects stems from the technical processes they objectively embody: the technology of enchantment is founded on the enchantment of technology. Gell 1992: 44

In the “western gaze,” the history of the Americas is entangled with stories of gold. For five hundred years, this incorruptible metal symbolized the wealth of a continent and engendered an enduring, if often mercenary, fascination with the Pre-Columbian past. Yet the gaze obscured more than it revealed. By only skimming the surface of things, this historically constituted way of sensing and understanding the world subverted indigenous realities and pushed aside ancient value systems (Bender 1999: 31).

Since 1492, the power of Amerindian gold has stemmed from its Western commercial value, distorting other aspects of its nature and role in precontact societies. Even for archaeology, the lure of gold has proved a paradigmatic trap. The ways in which modern science analyzes ancient metallurgies adheres to Western conceptions of knowledge and “control” and has hitherto largely ignored the interplay between indigenous notions of power and the materiality of the pan-Amerindian “aesthetic of brilliance” within which gold and its alloys were variably located. The many legends and locations of El Dorado bear witness to Western civilization’s engagement with its own constructions rather than with physical or cultural realities (see Mason 1990; Whitehead 1997: 72–73, 75; Chapman 1967).

Indigenous Amerindians of today and the recent past conceive the world as a multisensory place, where spiritual valuations of matter integrate physical and spiritual aspects of phenomenological experience. Such valuations differ in kind and degree from sixteenth-century and modern Western attitudes, and it is debatable to what extent they may have diverged from Pre-Columbian ideas during five hundred years of cultural hybridization. Nevertheless, it is possible to suggest that, by and large, Amerindians in North America and the Caribbean, Mesoamerica, and South America possessed valuations of shiny matter derived from pan-Amerindian attitudes toward the spiritual and creative power of light. There seems to be ample evidence that brilliant objects—the “things” of nature and culture—were

indigenously regarded as concretizations of light and light-laden natural phenomena. In this way, all Amerindians saw shiny matter as charged with cosmological power, a view contradicted by Europeans, for whom only gold, silver, pearls, and emeralds had any real (commercial) value.

As elsewhere in the Americas, in the Intermediate Area gold and other kinds of shiny matter did not exist in inert and compartmentalized isolation, but within actively transformational and overlapping spheres of symbolic, ritual, and technological activity. This exploration of gold and power from a broad perspective adopts a material culture approach to the meanings attached to objects¹ and to the indigenous conceptions of objects as embodiments of worldview. This throws light on the indigenous nature of gold artifacts, which were the objectification of social being and whose manipulation allowed Amerindians to define themselves and their relationships with supernatural forces, a process that established a constantly changing dialectical relationship (Miller 1987: 81).

Shimmering Worlds

A wealth of ethnohistorical and ethnographic evidence suggests that indigenous Amerindians throughout the Americas perceived the world as infused with “spiritual brilliance.” This view manifested itself across a range of natural phenomena—sun, moon, water, ice, rainbows, and clouds; natural materials, such as minerals, feathers, animal pelts, pearls, and shells; and ceramics, textiles, and metals. Despite a range of differing cultural conventions and significances, each of these objects held an inner sacredness displayed as shiny surfaces (Saunders 1998a: 226–230).

Philosophies of Light

From the Amazon to the Andes and from Lower Central America through Mesoamerica and the Caribbean to North America, different philosophies, symbolic associations, technological choices, and materials bolstered or reflected Amerindians’ desire for the aesthetic of brilliance. Polished wood, iridescent featherwork, burnished pottery, greenstones, obsidian, crystals, gemstones, and a variety of metals and alloys were all favored variously, and to a greater or lesser degree, across space and through time. Each shiny material possessed meanings whose cultural specificity was determined by availability, historical contingency, and varying degrees of technological sophistication; each also therefore became differentially embedded in language, mythology, ideology, and socioeconomic reality. Each Pre-Columbian society attributed different values and meanings to the shapes, colors, and textures of their shiny objects (Hamell 1995: 47–49; Melgarejo 1998; Reichel-Dolmatoff 1978; Zajonc 1993: 14–15). While tight-fitting significances were rarely transferrable *in toto* between cultures, the objects themselves could move considerable distances, which is suggestive of a shared underlying significance accorded to brilliant media.

¹ Editorial, 1996, *Journal of Material Culture* 1 (1): 5–14.

Despite expected and complex differences among Amerindian outlooks, varying attitudes toward brilliant objects appear to have emerged from and cohered around a worldview that saw light, dazzling colors, and shiny matter as indicating the presence of supernatural beings and essence. The indigenous Amerindian world was a transformational place, a universe governed by symbolic analogical reasoning defined and controlled by individuals—whether shaman, priest, chief, or dynastic ruler—who had mastered its dangerously ambivalent forces through knowledge and ritual.

Unlike European societies, which were dominated by the sense of vision, Amerindians inhabited a multisensory world, where olfactory, auditory, and tactile elements of sensory experience formed a holistic phenomenological unity. This worldview appears to have possessed a synesthetic dimension, where what Europeans would have regarded as unfamiliar and illogical meanings were attached to the lights, sounds, smells, and tastes of life (Howes 1991: 3–5; Classen 1990, 1991). Under the influence of tobacco, for example, shamanic initiates of the Venezuelan Warao experienced multisensorial perceptions of serpents, where touching a snake’s shimmering scaly skin brings spiritual enlightenment (Wilbert 1997: 327; Helms 1993: 212–216). The articulation of this worldview had far-reaching consequences for the nature of power and for its symbolic and material expression.

Behind the physicality of existence for any society are guiding metaphysical principles that shape and give meaning to the technologies of material culture as well as to social and spiritual life. For Amerindian societies, these three aspects of culture appear not to have been separated or compartmentalized, but inextricably bound so that society, its technologies, and objects formed a unity. In this way, beneath a host of shiny objects lay the cultural significance accorded to light that itself is partly the consequence of the phototropic nature of human and most other kinds of earthly life.

As light hits the retina, the visual cortex of the brain is stimulated, and thought and perception are affected (Perkowitz 1996: 31–35). Something as everyday as sunlight glancing through trees can produce trancelike seizures in some individuals. As Zajonc (1993: 33) notes, the eye is a “strange crossroads” where objective processes become subjective responses. While archaeologists and anthropologists seek to explain cultures in their own right, in dealing with light and brilliant objects the existence of universals in human cognition must be acknowledged (Hamell 1992).

Aesthetic valuations and cosmological associations of light and brilliance in moral philosophies and materiality also appeared beyond the Americas, including in medieval Europe (Leddy 1997: 264; Saunders 1998a: 242). Analogues to Amerindian examples abound in Africa, Asia, and the Pacific and span thousands of years, extending the aesthetic of brilliance around the world. Morphy’s (1989, 1992) work on brilliance, beauty, and ancestral power among the aboriginal Australian Yolngu is a case in point, as are the comments by Coote (1992: 252–253, 255) on African Dinka and Nuer conceptions of the brilliant sheen of cattle hides, and Gell’s (1992: 45) observations on the light-trapping, dazzling designs of Pacific Island Trobriand canoe boards. Bayley (1986: 291–292), in his discussion of the symbolic dimensions of cloth in Indian society, comments on the divine qualities of light, gold, shiny fabrics, and mirrors in Indo-Persian philosophy and Islamic architecture (see also Betz 1995; Brill 1980; Rivers 1999).

What makes the Amerindian valuation system significant is its cross-cultural coherence, rich diversity of material culture expression, and survival until the mid-sixteenth century at least, and in some places and respects and in various syncretic forms through the colonial period in Latin America to the present day (de Mesa and Gisbert 1994; Gisbert 1994; Mauldin 1996; Reichel-Dolmatoff 1981; Stastny 1997; Scott quoted in Whitehead 1997: 81–82).

In general terms, indigenous Amerindians associated light with the mirrored realm inhabited by bright spirit beings who became visible to shamans, priests, and rulers in visions aglow with multicolored light. Many accounts of such visions describe the appearance of luminous supernaturals, regarded variously as souls, were-animals, and immanent forces (Furst 1976: 46, 131; Goldman 1979: 210, quoted in Harner 1978: 162; Kensinger 1995: 221; Taussig 1987: 322–323). Shamanic visions could be induced by tobacco smoking (Wilbert 1987), ingesting hallucinogens (Furst 1972, 1976; Harner 1978), abstinence, and music (Olsen 1975). The links are sometimes explicit: Venezuelan Warao light shamans derived their powers from the supreme Tobacco Spirit (Wilbert 1987: 160–161), and for Araweté shamanic initiates light-giving tobacco made the skin shine (Viveiros de Castro 1992: 219). More specifically, Warao shamanism had a symbolic dimension of light and brilliance associated with cosmic serpents that were based on shimmering, brightly colored, natural prototypes (Wilbert 1997: 318, 327).

The centrality of light to Amerindian conceptions of life is exemplified by two contrasting cultures—the contemporary Akawaio of Guyana and the Mesoamerican Aztec. For the Akawaio, the central concept of spirituality is *akwa* (light, brightness, life), and an individual's supernatural condition can be either *akwalu* (a spirit; lit., “a kind of light”) or an *akwalupö* (a ghost; lit., “without light”) (Sullivan 1988: 423). Similarly, for the Aztec an individual's soul, or *tonalli*, was conceived as hot and luminous. When a child was sick his reflection in water was observed; if the image was bright, his *tonalli* was intact, if dark, it had escaped (López Austin 1988: 204–206, 216; Ruiz de Alarcón 1984: 162). The wider semantic dimensions of light for the Aztec can be seen in the ethic of *chipahuacanemiliztli* (righteousness) which transformed the human psyche into a precious turquoise or iridescent quetzal feather (Gingerich 1977: 140). *Tlalocan*, the Aztec rain god's paradise, was a brilliant place full of divine fire where human beings appeared as shimmering gems (Burkhart 1992: 89).

For Amerindians, light permeated the world, linking earth, sky, sea, and atmospheric phenomena, infusing the whole with spirituality and morality and energizing it with cosmic power. They regarded places, objects, and phenomena that possessed shiny qualities as especially sacred. Rivers, lakes, the sea, mist, rain, and ice were all alive with spiritual essence. The Colombian Kogi conceived snow peaks as gleaming white crystals, prisms of light entered by the dead (Reichel-Dolmatoff 1981: 28). Rainbows and clouds glowed with spiritual energy for indigenous peoples of the Andes (Garcilaso de la Vega 1987 [1609]), Mesoamerica (Seler 1990: 195), and the Caribbean (Stevens-Arroyo 1988: 190–191). For the Mesoamerican Zapotec, the vital life force, *pèe*, dwelt within all living matter and was manifest in lightning and clouds, the former representing the powerful supernatural *Cociyo*, and the latter the metamorphosed ancestors of the Zapotec people (Marcus and Flannery 1994: 57–58).

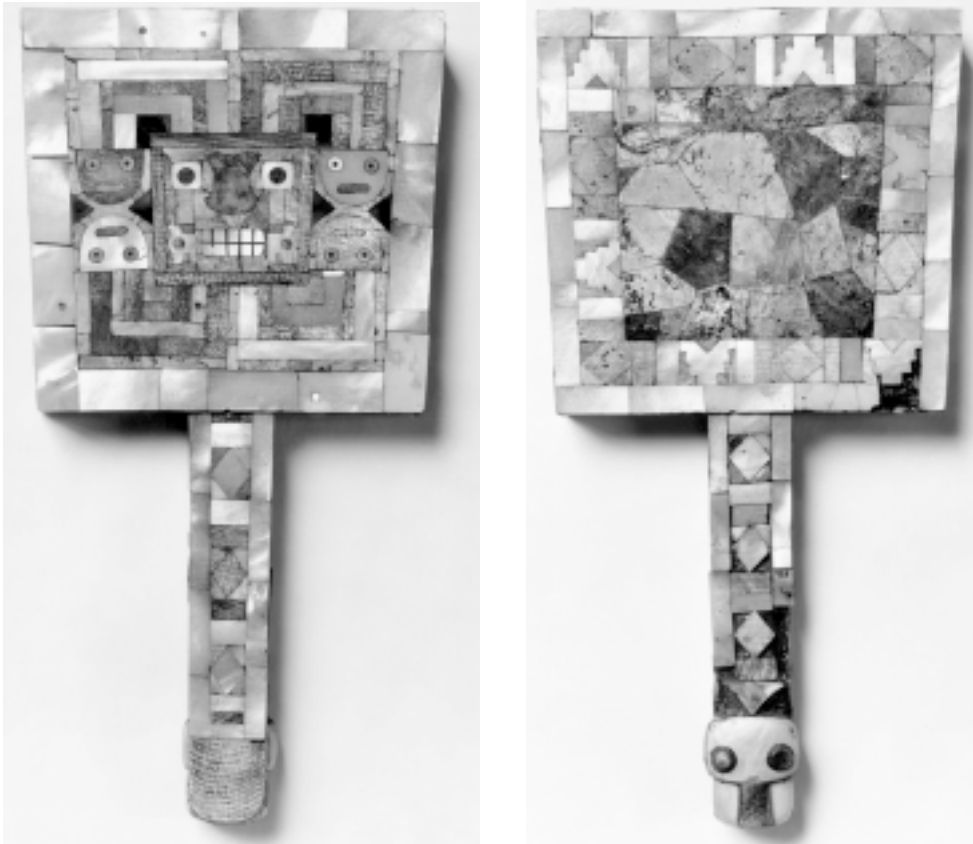


Fig. 1 Huari mosaic mirror, ca. A.D. 650–800. The reverse side shows a central face flanked by four heads and framed by cut shell and mother of pearl. The obverse side is similarly composed, but with the central part being a reflecting surface of pyrite inlay. (Courtesy of Dumbarton Oaks.)

Materialities of brilliance

The positive and supernatural qualities indigenous Amerindians ascribed to light and the light-infused world were materialized in natural and artifactual objects. Indigenous notions of light as cosmological energy appear to have validated its myriad material forms. Minerals can be used as an example, as they are ancient and widespread. Throughout the Americas, various minerals were made into mirrors of different kinds: polished iron ore among the Olmec (Carlson 1981); mosaics of pyrite and jade for the Maya (Kidder, Jennings, and Shook 1946: 126–131) and at Teotihuacan (Cabrera Castro 1993; Taube 1992); anthracite and jet (Burger 1995: 91, 121, 169; Quilter 1991: 404–413); pyrites and shell (Boone 1996: 181–186) in the Andes (Fig. 1); and slate and mica in North America (Ford 1969: 75–76; Saunders 1988: 1–10, fig.1).

In Mesoamerica, Bernardino de Sahagún (1950–78, bk. 11: 223, 229–230) makes reference to the translucence, preciousness, iridescent colors, and light-giving qualities of different minerals, many of which appear as items of elite tribute in the Aztec *Codex Mendoza*

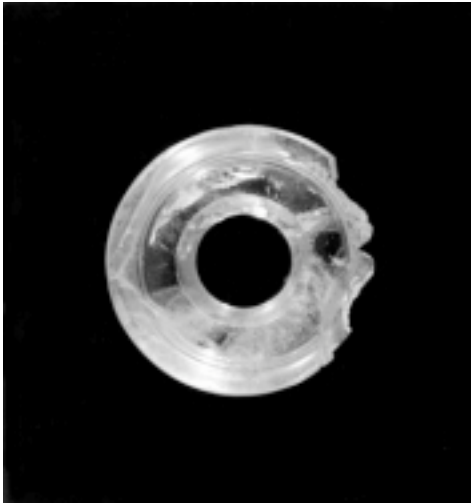


Fig. 2 Aztec crystal ear spool, one element of the Mesoamerican elite display of brilliance. (Courtesy of Dumbarton Oaks.)

(Berdan 1992: 310–312) (Fig. 2). Modern Nahuatl Indians regard the sky as a living (crystal) mirror filled with the sparkle of the sun and stars (Sandstrom 1991: 238; Dow 1986: 108–110; Brady and Pruffer 1999). In South America, crystals adorned Inka temples (Mester 1990: 206, 216) and were associated with pearls and rain. For the Amazonian Desana, a crystal's hexagonal shape represents an image of cosmic order related to concepts of energy, transformation, and fertility, with the crystal regarded as concentrated semen (Reichel-Dolmatoff 1975: 102; 1981: 23). The sun, as the ultimate source of light, is conceived as a huge rock crystal, and every earthly crystal is a miniature sun (*ibid.*; Hugh-Jones 1979: 121; Sharon 1978). In North America, the Chippewa-Ojibwa and Seneca Iroquois associated quartz crystals with shamanic curing, divination, and the human soul (Hamell 1992), and among the Navajo Athapaskans they symbolized “clear seeing” and consciousness (Witherspoon, quoted in Hamell n.d.: 58).

Greenstones also were especially valued and widely traded in lowland South America (Boomert 1987; Oliver 1989: 216–217; Reichel-Dolmatoff 1981: 29). In Mesoamerica, the Aztec saw greenstones as connoting fertility and glistening preciousness, not least in elite mortuary practices (Sahagún 1950–78, bk. 11: 221–222; López Austin 1988: 326–327). Mica, similarly, symbolized cosmic forces and was associated with elite burials and structures in North America and Mesoamerica (Armillas 1944: 123–124; Moorehead 1922: 91–92; Sahagún 1950–78, bk. 11: 235). Alongside shell, jade, and magnetite, mica signified high status in the early ranked society at San José Mogote in Mexico's Oaxaca Valley around 1150 B.C. (Marcus and Flannery 1996: 93, 101–103).

The translucence of shells and pearls appears to have been widely associated with the reflective surfaces and fertility aspects of the sea, rivers, and lakes. Shells possessed desired white shiny qualities as well as particular economic, ritual, and prestige values across the Americas (Cordy-Collins 1990; Kolb 1987; Suárez Díez 1989). For the Aztecs, *Spondylus princeps* resembled crystal, and they used it to make shamans' divinatory bowls (Berdan and Anawalt 1997: 84), while in the Andes this species had a long history of ritual importance

(Paulsen 1974). More generally, shells were a common offering at Andean water sources (Murra 1975: 257), and in the shape of beads (*chaquira*) were a prized offering to *huacas* (de Arriaga 1968:45). In Amazonia, shell jewelry was highly esteemed (Medina 1934: 411–412; Whitehead 1988: 54–55), and in North America shell beads were symbolically linked to saliva and semen (Hall n.d.; Ceci 1988). North American *wampum* (cylindrical shell beads) signified light and spiritual well-being (Hamell n.d.; 1995). Pearls also were highly regarded for their light-giving and spiritual qualities (Mester 1990: 198; Sauer 1971: 167; Saunders 1999: 247–249).

Many other materials served as conveyors of sacred brilliance. Burnished and slipped pottery (Coe 1960) and ceramics of clays and temper with sparkling inclusions (Arnold 1993: 113; Lunt 1988: 493) could dazzle with their shininess (Medina 1934: 201). As Mary Helms (1993: 240) observes, Samuel Lothrop noted the widespread distribution of polished and glazed pottery throughout Mesoamerica and South and Central America. Similarly shiny was polished black wood in the Caribbean (Helms 1986), and shimmering featherwork in lowland Amazonia (Howard 1991; Kensinger 1991) and Mesoamerica (Yturbide 1993). All appeared to resonate with the positive cultural valuations and associations of light.

This brief review suggests a pan-Amerindian symbolic coherence among myth, spirituality, conceptions of the natural and social worlds, and material culture, whereby the brilliance of whiteness and dazzling colors appears representative of fertilizing cosmic energies and positive and culturally approved moral behavior. Whatever medium was favored, there appears to have been an underlying structural ascription of sacredness and value on the basis of reflective and chromatic qualities. The Amerindian world was infused with brilliance.

The Location of Power

In the Amerindian worldview, materiality was invested with qualities abstracted from the cultural appraisal of the natural world. Material culture objectified these qualities while combining them into something new—revitalizing the individual and society through newly manufactured identities (cf. Hoskins 1998: 191). Objectification in this sense can be defined as “the serial transformation of matter into cultural form” (Shanks and Tilley 1992: 130). Making shiny objects was an act of transformative creation, trapping and converting—in a sense recycling—the fertilizing energy of light into brilliant solid forms via technological choices whose efficacy stemmed from a synergy of myth, ritual knowledge, and individual technical skill (Saunders 1999: 246). As Ana María Falchetti (in this volume) notes in respect to the Colombian Muisca, pregnant women offered figurines of *tumbaga* and emeralds to their Rainbow deity to ensure successful childbirth, an interesting symbolic equation of two different kinds of shiny materials—one cultural, the other natural—with human fertility and a god whose referent is an iridescent natural phenomenon produced by sunlight and moisture in the air.

Such evidence suggests that brilliant objects represented the accumulation of creative power that animated and regulated the universe, embodied a society’s mythic identity, symbolized the efficacy of rituals, and reinforced the powers of the elite who conducted them

(Helms 1993: 13–27; Reichel-Dolmatoff 1988). As such, shiny objects were the ultimate symbols of power and influence, and for this reason are found in myriad forms in physical and symbolic associations with elites in life and death. Jade, shells, pearls, crystals, brightly colored ceramics and textiles, human and animal bones, glossy animal pelts, and mercury are just a few of the shiny materials wielded by elites during public ceremonies and which also are consistently found in elite mortuary contexts throughout the Americas.

When the Spanish sought control over local chiefdoms in Oaxaca, they did so through a mutual exchange of prestige goods. Indigenous nobles gave gold and jewels in return for glass beads and steel knives (Romero Frizzi 1994: 232). Thus, indigenous conceptions of power favored the Spanish at least in part because their shiny goods were perceived as symbolic manifestations of esoteric knowledge and cosmic power. The Europeans therefore were understood to be (or to represent) a superior sacred power (Romero Frizzi 1994: 234–235).

A wealth of ethnographic evidence supports the Amerindian view that earthly power emanates from the shiny spirit realm where it characterizes (and is controlled by) ancestors, ambivalent spirits, and immanent forces. It is acquired or tapped into by shamans, priests, and rulers, who, through their privileged access to this domain, intervened in attempts to propitiate or cajole these supernaturals into acting in accordance with earthly desires. As the spirit world glows with light, and its inhabitants similarly are shiny beings, the shaman emulates their supernatural nature by becoming brilliant, by having mastered knowledge and techniques that were also glowing: the whole trance experience becomes enveloped in symbolic shininess and color.

Reinforcing the partial and temporary identification of earthly shamans with supernatural beings is the ritual manipulation of shiny matter, such as mirrors, bones, metals, jade, and polished wood. As “power objects” of the utmost sacredness and efficacy, such objects “catch the light” and become infused with its fertilizing cosmic essence and positive cultural qualities. Clifford Geertz comments on the power of such objects to operate simultaneously in the metaphysical and everyday spheres, noting that “religious symbols formulate a basic congruence between a particular style of life and a specific (if, most often implicit) metaphysics, and in so doing sustain each with the borrowed authority of the other” (1973: 90).

Equally important for understanding the power embodied in these objects is the nature of the technological processes involved in their production. As Pfaffenberger notes, “a design constituency creates, appropriates, or modifies a technological production process, artifact, user activity, or system in such a way that some of its technical features embody a political aim—that is, an intention to alter the allocation of power, prestige, or wealth” (1992: 505).

Shiny objects can be seen as definitive statements of social prestige, centrally located in the symbolic representation of political power and elite status (Blanton et al. 1993: 220–222). The classification of such matter as art is problematic in the Western view and has often deflected scholarly attention and blunted analytical precision. As Gell says of art objects in general, “They fascinate, compel, and entrap as well as delight the spectator. Their peculiarity, intransigence, and oddness is a key factor in their efficacy as social instruments” (1998: 23). This statement seems to catch a part of the essence of shiny (art?) objects in the Americas.

As elites dazzle in costumes and ceremonies, it is not just a visually stimulating event. Rather, they are “wearing light,” manipulating the cosmic energy from whence political power flows. It is hardly surprising that during Sir Walter Raleigh’s first expedition to the Orinoco, one local chieftain, Morequito, forbade his people to trade in gold because it undermined his authority (Whitehead 1997: 77).

So closely entwined are indigenous concepts of power, prestige, and light that gods and elites often have epithets and names that refer to shininess and brilliance. As Arrom (quoted in Oliver 2000: 205) observes of the Taíno of Hispaniola, one paramount chief, Bohechio, held the title Tureywa Hobin (Shiny as Sky-Brass), or “king as dazzling and heavenly as guanin” (Whitehead 1997: 88), while other chiefs had names such as Caonabo and Anacaona, which incorporate the word for gold, *caona*. As Warwick Bray (in this volume) points out, the Kogi personification of their highest moral principles is Búnkuasé whose name means “the shining one.” Mulkuexe, the Kogi lawgiver, is a solar figure whose name has the root *mul* and is associated with brilliance, light, and cosmic energy (ibid.).

Metallic Worlds and Symbolic Process

Nowhere in this view of power is there any hint that the complexities inherent in the symbolic equation of metaphysics and materiality originated with or depended upon the invention of metalworking. The prominence of metallurgy in the scholarly literature is largely due not to its universal predominance in Pre-Columbian America, but to the Western commercial value of gold and silver, the base-metal technological nature of Western civilization, and the facility with which modern science can analyse “primitive” metallurgical traditions (Saunders 1998a: 225).

Indigenous Amerindian valuations of gold, silver, and their alloys derived from already established ideas concerning the aesthetic of brilliance that hitherto had been connected to minerals, shells, plants, animals, and natural phenomena as they appear in nature and, transmuted through technology, as artifacts. From this perspective, metals were received into a preexisting, age-old, symbolic, analogical, and multisensory world of phenomenological experience that had little in common with fifteenth-century European or modern notions of commercial wealth. Amerindian attitudes toward metals and metallurgy were more akin to those of other traditional, non-Amerindian societies, including some in Africa. In the Cameroon grassfields, for example, the creation of iron objects was, by relational analogy, explicitly associated with the processes of pregnancy and childbirth (Rowlands and Warnier 1993: 524).

Metals nevertheless possess notable qualities that afford a unique potential for ritual marking and mystification. This is due partly to the complexities of the various technological processes that must be mastered in order to produce finished objects. These are matched in the symbolic realm by the nature of metals as something cold and hard made from something hot and liquid and something that can be shaped into an endless variety of cultural forms from lumps of raw material via technological ingenuity and the mediation of fire (Fig. 3). This mix of practical and ritual processes yields materials with peerless reflectivity, that is,

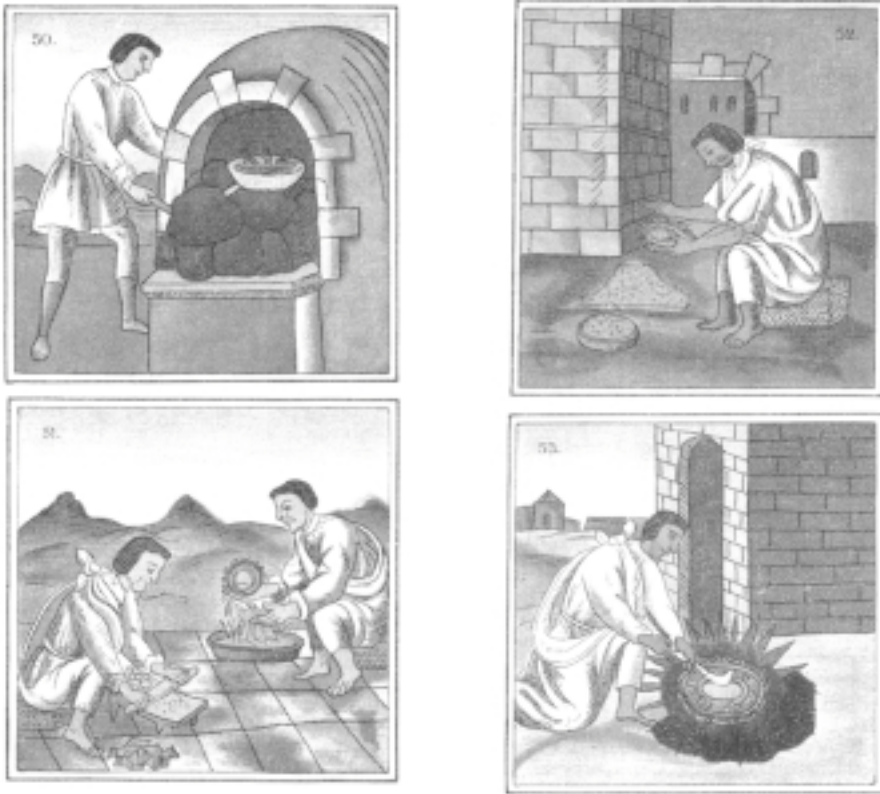


Fig. 3 Transforming fire. Aztec metalsmiths melting and casting gold. (From Sahagún, *The Florentine Codex*; Anderson and Dibble 1953: book 9, illustrations 50–57.)

the potential to contain, gather, and dispense light, and thereby symbolize in material form the cultural valuations bestowed on light itself.

Nevertheless, it is apposite to point out that cultural qualities associated with such transformations are not unique to metalworking. Water, similarly, can be acquired in solid form, as snow, hail, and ice, and reduced to liquid by heating. Clay starts as a pliable material and is transformed into hardened pottery by firing. Wood can be stretched, hardened, and shaped by the application of fire and water. While metalworking is more complex than these processes, it is, when reduced to its fundamentals, “of a piece” with many other cultural transformations of matter. In this sense, “the idea that a technical process recapitulates more general ideas about natural reproduction in a mythological and cosmological context reestablishes the link between magic, fertility and technology” (Rowlands and Warnier 1993: 512–513).

To the indigenous Amerindians, metals were sensorial stimulants used for decoration and adornment and to symbolize status and power by visually expressing elite connections to immanent powers (Reichel-Dolmatoff 1981: 22–23). The Amazonian Desana, for example, consider the true importance of metal adornments to be the symbolic associations of their

color, shape, and odor, and their ability to modify colorful hallucinogenic visions (*ibid.*; Hosler 1994: 235, 241–243). They associate copper ear pendants with male virility and relate their odor to sex and fertility (Reichel-Dolmatoff 1981: 22). In the Caribbean islands, the copper-gold alloy *guanín* was valued not just for its brilliance but also for its scent, said to be similar to the *taguagua* plant by which name it was also known and which may refer to a strongly odiferous plant with golden flowers known in Cuba as *guanina* (Whitehead 1997: 78; Falchetti, in this volume). The popularity among Pre-Columbian metalsmiths of the copper-gold alloy—known as tumbaga in South America and *guanín* in the Caribbean—was probably due to the indigenous preference for its color over that of pure gold (Lechtman 1993: 269; Sauer 1971: 60; Stevens-Arroyo 1988: 67–69).

The symbolic relationship between shiny metal objects and the celestial sphere is seen ethnographically where their inner, spiritual, essence was recharged with cosmic energy by exposure to light. The Colombian Kogi, for example, expose their gold and gilded copper ornaments to the rays of the sun, whose power is then transmitted to priests and participants during rituals (Reichel-Dolmatoff 1981: 26). The archaeological evidence for shamanically inspired metallic worlds as a variant or development of (rather than a departure from) prior notions of brilliant spirit realms lies in the use of metals to make mirrors. As Rex González (1992: 202–203, 259) observes in the extraordinary range of shiny metal disks from the Andes, there appears to be a physical and symbolic association between shiny copper disks, ritual snuffing, and hallucinogenic visions (1992: 39, pl. 5, 116, 116a). Helms (1981: 219–220) has commented upon the Inka use of sheet gold technology to adorn or “construct” the Coricancha temple in Cuzco as a physical and symbolic microcosm of the world. The capacity of metalworking to sheath such structures in gold and its alloys made physical the ancient metaphors of light to a greater and more impressive degree than previously afforded by textiles or incrustations of shells or crystals.

Metals were the most effective Pre-Columbian artifactual conveyors of light and brilliance, partaking of light’s sacred values, joining and complementing rather than supplanting the brilliant and translucent qualities of shamanic visions, crystals, feathers, lightning, and snow-capped mountains. In other words, the materiality of metal objects acted as a bridge between mental and physical worlds (*cf.* Miller 1987: 99). As with other shiny media, this overarching quality of metals is not incompatible with a multitude of nontransferable culture-specific meanings and values. Instead of being viewed first as something fundamentally new, metals should initially be assessed contextually, in relation to other brilliant materials and the nature of non-Western technologies.

Metalworking techniques are undoubtedly specialized technologies, yet they are not immune to the metaphysical principles that govern a society’s relationships with cosmological forces. Technological processes are social and cultural choices whose practical consequences—the finished object—are valued and legitimated by, and operate within, the spheres of mythology, religion, and ideology. Yet, although not apart from indigenous conceptions of the world, metalworking has the potential to develop and extend the structures and metaphors of the social world. As Pfaffenberger (1992: 500) observes, “People construct their social world using the social resources and structures at hand, but their activities modify the structures even as they are produced.”

As Hoskins (1998:195) has noted, individuals' social being is determined by their relationship to the objects that represent them. The recontextualization of indigenous shiny objects that presumably took place with the arrival of metallurgy, created new identities and relationships between different indigenous groups and individuals. This capacity of metallurgical technology to transform, re-create, and extend metaphorical allusions to other seemingly unassociated aspects of cultural life is seen particularly well in Hoskin's (1989) study of cloth making in Kodi, on the island of Sumba near Bali. Here, gold and other metals are part of a sacred patrimony for men, passed vertically through the generations of a single agnatic clan rather than horizontally through affinal exchanges between women. "The ancestry of men can be traced in the ancestry of swords, spears, and knives, a metaphorical skeleton of metal that symbolizes the indestructible relatedness of the patrilineage" (Hoskins 1989: 166). In the Americas, while all shiny things may share an underlying ascription of sacredness, metalworking appears to have been a uniquely male preserve, while pottery making, textile production, and perhaps other manufacturing processes could be either male or female. Metallurgy may have been the most technologically sophisticated form of the aesthetic of brilliance, but it may also have signaled a significant change in gender relations. Process is as important as the finished object.

The metaphorical associations of metal objects and metal making can be understood and expressed in terms of the fundamental processes of conception, birth, adult life, decay, and death. In this way, by analogy, the creation of metals, as with pottery, can be likened to new life growing within and emerging from the womb. Falchetti (in this volume) explores the symbolic dimensions of metallurgical processes associated by analogy with embryonic transformations inherent in solar and lunar mythology among the Colombian Desana and the notion of transformation as cooking process in a furnace or crucible. Regulating these powerful life forces is the responsibility of those individuals who bring order to matter through their knowledge of ritual.

The transformation of matter that is successful metalworking is a synergistic mix of technological expertise, ceremonial activity, and ritual knowledge (Rowlands and Warnier 1993: 535). The "mystery" surrounding metalworking as transformative creation is typical of the "secret" knowledge and activities of those engaged in curing, divining the future, or "creating socialized people" through directing rites of passage. Although these people were usually referred to as shamans, other elite individuals probably also possessed such specialized knowledge, at least in part. The Western obsession with viewing past realities through an ethnographically inspired shamanic lens blocks an understanding of the complexities of Pre-Columbian (indeed, any) sociotechnological situations (Saunders 1998b: 6). On the Orinoco, only caciques and their wives could take gold from its landbound sources, and then only after ritual observances designed to propitiate a guardian spirit (Domingo de Vera, quoted in Whitehead 1997: 79–80). Similar ritual caution, including sexual abstinence, was observed by the Taíno of Hispaniola when they acquired gold from river alluvium (Oviedo, quoted in Pagden 1993: 85) (Fig. 4).



Fig. 4 Liquid light. Amerindians panning for gold. (Theodore de Bry, in Sievernich 1990: 108.)

The Spread of Metalworking

One aspect of indigenous valuations of gold and its alloys lies in the nature of the spread of metallurgy in the Pre-Columbian world. It is clear that metals were not simply regarded as elements for improving the technical efficiency of everyday tasks as they were in the Old World. With perhaps a few exceptions, metals in the Americas had mainly symbolic and spiritual values and were used for adornment and elite display alongside other shiny media. Metallurgy spread from the Andes around 1800 B.C. to Mesoamerica by approximately A.D. 900 (Bruhns 1994: 174). The details of the mosaic of cultural imperatives that led to this transfer of knowledge remain unknown. Speculation on the topic is informed by the analogue of the initial attitudes and exchanges that characterized the encounters between Amerindians and Europeans during the fifteenth and sixteenth centuries.

European arrival dramatically changed the indigenous contextualization of what the foreigners regarded as precious metals. Amerindians traded gold and its alloys for shiny European objects on the understanding that the latter's brilliance embodied similar qualities, physical and spiritual obligations, and cosmic powers as the objects they already possessed (Saunders 1998a: 233–239; 1999: 249). It is ironic that Europeans opened the dialogue of encounter by expressing an interest in gold, which, for Amerindians, was a focus of exchange

between indigenous elites. Columbus admired the shiny copper-gold ornaments worn by Caribbean Taíno caciques and proceeded to set a continent-wide precedent by exchanging glass beads and base-metal artifacts for them (Columbus 1969: 55, 288; Sauer 1969: 131). For the local Amerindians, such shiny objects were signs that the strangers were (or were akin to) gods or spirits who “came from the sky,” the ultimate source of bright cosmic power (Chanca 1932: 64; Columbus 1969: 155; Helms 1988: 265). In typically indigenous fashion, the Taíno were especially attracted to Spanish brass, as its distinctive odor recalled that of the copper component of their own *guanín* (Stevens-Arroyo 1988: 69; Whitehead 1997: 78).

From an Amerindian perspective, in which the possession of shiny objects symbolized power and prestige, Europeans were perceived as immeasurably powerful (Romero Frizzi 1994: 234–235). To Europeans, Amerindians were foolish and gullible, incapable of appreciating true worth (Greenblatt 1992: 110). Europeans often traded such cheap, mass-produced baubles as copper bells, brass, and glass beads for great quantities of gold (Adorno 1993: 68–69; Bray 1978: 104; Saville 1920: 33, 38). The political dimension of the numinous power of shiny European objects in Amerindian perception is highlighted by Dominique de Gourges, who in 1567 sealed a Franco-Amerindian alliance against the Spanish by distributing mirrors, bells, and rosaries of glass beads to the Florida chieftain Saturiba (Bennett 1968: 202–227). A more famous, though not uncontested, example is the case of the Dutch purchase of Manhattan around 1626 in exchange for glass beads, ribbons, and brass ornaments (Francis 1986a, 1986b).

These instances of contact period exchanges illustrate the point that whatever their original European purpose or value, various shiny items entered the social and symbolic worlds of indigenous Amerindians on a broadly equal basis as expressions of sacred light, cosmic power, and elite status. The quantity and diversity of shapes and the mechanical aptitude displayed in these European objects were not only transformed from secular fragments to sacred “art” by Amerindians, but were also seen by them as proof of the superior supernatural power of Europeans and of “mystical” technologies beyond their comprehension (see Tabeau, quoted in Rogers 1990: 75). Gell (1998: 71) makes a powerful point in this respect: The “captivation or fascination—the demoralization produced by the spectacle of unimaginable virtuosity—ensues from the spectator becoming trapped within the index [i.e., the art object] because the index embodies agency which is essentially indecipherable.”

In light of the distinctive Amerindian response to European contact and exchanges of brilliant matter, it can be suggested that such events provide a model for Pre-Columbian attitudes toward the spread, that is arrival, adoption, and integration, of new kinds of shiny things, namely, metals, into long-established notions of sacred brilliance. Amerindians who traded their shiny objects for European ones did so on the understanding that they were trading like for like, the European materials being more abundant, shinier, and therefore more cosmically powerful than their indigenous counterparts. That Amerindians could not understand how glass beads, mirrors, cannon, or suits of armor were made only added to these objects’ supernatural potency and to that of the white men who brought them and regarded them so casually. Unless one wishes to suggest that such Amerindian attitudes were



Fig. 5 Moctezuma’s emissaries bring shiny gifts to Hernán Cortés. (From Sahagún, *The Florentine Codex*; Anderson and Dibble 1953: book 12, illustration 12.)

generated at the moment(s) of encounter, it must be admitted that these attitudes and valuations were Pre-Columbian in origin.

It is possible to suggest that during Pre-Columbian times, the spread of different kinds of shiny objects—for example, long-distance trade in ceramics, shells, shell artifacts, and greenstone axes—was motivated, in part at least, by the desire to obtain different and exotic kinds of shiny things whose glow signified spirituality and cosmic power per se, as well as the culture-specific meanings associated with particular materials’ color, texture, scent, and so on. The Amerindian aesthetic of brilliance that is so evident in contact period exchanges with Europeans in all likelihood characterized Pre-Columbian trade as well.

In this way, the ideologies of gold, so dependent on the level of the sociocultural complexity of the receiving culture, emerged from prior ideologies associated with nonmetallic brilliant matter. As noted above, the arrival of metals presumably also stimulated a new range of meanings and associations that could potentially, and given time, have led to the full or partial replacement of previous materials, such as jade. In Mesoamerica, where metallurgy arrived comparatively late, gold arguably had not been fully integrated into Aztec ideology at the time of the Spanish arrival, as can be seen in the panoply of nonmetallic shiny elite gifts that Moctezuma initially sent to Cortés in Veracruz (Sahagún 1950–78, bk. 12: 15–16) (Fig. 5). Gold was but one of a number of such brilliant materials among obsidian (Saunders 1994; 2001), shells, turquoise, jade, and iridescent featherwork deemed suitable to offer a god, or at least an unexpected and possibly supernatural stranger.

The earlier, Pre-Columbian, spread of gold objects and, later, of goldworking technologies from Colombia through Panama to Costa Rica and beyond should be seen in light of such non-Western valuations and contexts. Gold or gold alloy objects to those who had never seen metals before would have been as astonishing as European glass, brass, steel, and

glazed ceramics were to contact period Amerindians. The comparative rarity of early metal artifacts, the control of such trade by local elites, and their initially unknown and mysterious production processes combined to make them embodiments of cosmic power and elite status alongside such preexisting media as pearls, ceramics, jade, and featherwork. In this sense, the arrival of goldworking rejuvenated and extended the potentialities of social and political power of local elites by “revealing” (through costume and paraphernalia) a new and unsurpassed kind of “mysterious” brilliance. A further dimension of the “mysterious” nature of these “new” gold objects is one that resonates with ideas of geographical and symbolic distance (Helms 1988). Exotic items that appeared from beyond the physical horizon exemplified notions of sacred “space–distance–geography” so typical of the Amerindian worldview.

Metalworking in Colombia, Panama, and Costa Rica

The Pre-Columbian Archaeological Dimension

As noted, Pre-Columbian metalworking began in the Andes around 1800 B.C. It moved northward through Ecuador, Colombia, Panama, and Costa Rica, finally arriving in Mesoamerica around A.D. 900. The culturally diverse societies through which the technology traveled shared historically contingent social, economic, and political formations, religious ideologies, and mythologies. All embodied and encoded their identities and “essence” in material culture. All shared a similar worldview, where symbolic analogical reasoning underwrote the terms of existence, that is, an indigenous Amerindian system of explanation and being.

From this perspective of a shared worldview and other commonalities, the evidence from Colombia, Panama, and Costa Rica is significant in a number of ways. At a general level, there is no evidence to suggest that this region was in any way different from the rest of South America, Mesoamerica, and the Caribbean islands in terms of worldview, material culture repertoire, or in possessing notions of the aesthetic of brilliance objectified in shiny matter.

The case of greenstones, or jade, is instructive here. Throughout lowland Amazonia, greenstones were highly valued and widely traded as was also the case in the Caribbean islands (Boomert 1987; Oliver 1989: 216–217). In Mesoamerica, from at least Olmec times (ca. 1250 B.C.–400 B.C.), jade was a sacred material and remained so until the Aztec era (Fig. 6). While the Mesoamerican choice of jade to convey certain symbolic qualities in a variety of cultural and artistic styles for some three thousand years is another issue, its underlying significance is pertinent here.

Among the Aztec, greenstones connoted fertility and glistening preciousness, signaling their presence at dawn by emitting smoke and imparting greenness to the flora in their vicinity (Sahagún 1950–78, bk. 11: 221–222). This life-giving quality was signified by placing an “emerald,” *chalchihuitl*, in the mouth of a deceased emperor (López Austin 1988: 326–327). By A.D. 1519, Mesoamerica had practiced metallurgy in one form or another for at least five hundred years, yet metals had not displaced jade as the signifier of the elite or taken on fertility-related qualities associated with spiritual brilliance. In other words, jade was the



Fig. 6 Brilliant jade. Two polished Olmec celts.
(Courtesy of Dumbarton Oaks.)

established conveyor of brilliance long before metals arrived. When metals did arrive, they appear to have shared with jade at least some of the underlying symbolic qualities of shininess. The physical origin, appearance, and connotations of greenstones, as opposed to metals, however, suggest that the replacement (in terms of symbolic importance) of the former by the latter may have proved a long, drawn-out affair if the European conquest had not intervened.

In Costa Rica, the jade axe tradition and the corpus of reworked Maya jade celts have been seen variously as denoting an understanding by Costa Rican societies of the complexities of Maya (and pre-Maya) elite relationships and their appropriateness to contemporary Costa Rican societies (Graham 1993: 22–26; Bruhns 1996: 290; Lange 1992: 118; 1993: 303, fig. 9.19). Equally likely, however, is that Mesoamerican reworked and “imitated” jade artifacts were prime examples of brilliant objects, emanating from distant realms, at a period when metallurgy was little known or unknown further north, and had not yet displaced other shiny objects in Lower Central America. The earliest objects from the cenote at Chichén Itzá reveal an interesting and possibly transitional mix of such objects, including gold, tumbaga, and jade, whereas later deposits were dominated by metals (Graham 1993: 13, 15; 1996: 247–248).

In Costa Rica between 300 B.C. and A.D. 500, symbols of rank included carved jade pendants, necklaces, and polished jade axes (Snarskis 1992: 144–145), as exemplified by the elite burials at Severo Ledesma during the El Bosque phase (100 B.C.–A.D. 400) and at Talamanca de Tibas (*ibid.*: 147, and figs. 1, 2). The transitional coexistence of older and newer kinds of brilliant matter is evident in the physical association of local jades, slate mirror backs, and cast gold objects with El Bosque phase ceramics. Between A.D. 500 and A.D. 1500, gold casting replaced lapidary work in jadelike stones as a source of ritually significant symbols of elite status, such as the gold avian pendant found at Barrial de Heredia (ca. A.D. 700) (*ibid.*: 153),



Fig. 7 Cast gold anthropomorphic pendant from Costa Rica.
(Courtesy of Dumbarton Oaks.)

the anthropomorph pendant at Dumbarton Oaks (Fig. 7), and sheet metal, large disks, and bells from the Panteón de La Reina (Quilter 2000). As Michael Snarskis notes regarding Costa Rica from 300 B.C. to A.D. 500–700, “a vigorous, prolific, and idiosyncratic tradition of jade carving flourished. . . . [Yet] after A.D. 500, drastic shifts began to occur. . . . [M]etallurgy supplanted jade carving as the principal supplier of politico-religious badges of power and authority. Gold replaced jade as the most important symbolic material” (1998: 90).

Snarskis (1998: 89) also observes that the duration of the coexistence of jade and gold is currently impossible to determine, as the two kinds of materials have only rarely been found together in archaeological contexts. Although he is of the opinion that a similar level of skilled production was a feature of earlier jade and later gold production (Snarskis 1992: 144–145), it is possible that the arrival of the latter had the potential to significantly alter the gendered relations of production in the area.

Similar developments may well have occurred in Panama. As Cooke and Ranere note, there is little doubt that the arrival of goldworking had “a profound ideological impact on local society, as it did in Costa Rica” (1992: 286). The importance attached here to the aesthetic of brilliance is not at odds with their view that “metalwork artifacts in Sitio Conte epitomize what seems to be a rather sudden change in attitudes towards wealth subsequent to the introduction of the technology: a concern for extravagant display on both the living and the dead” (*ibid.*). In fact, the superior reflectivity of metal adornments over those of jade, combined with the mystique of such objects made by “unknown” (that is, socially restricted) processes might argue for an increase in the elite’s control of bright cosmic power and a furthering of social distance between rulers and ruled. Metal objects probably were worn not in isolation but in multimedia displays alongside jade, textiles, feathers, and shell (Fig. 8). The only certainty in this matter is that the physical appearance of elites would have been more blindingly brilliant than before.

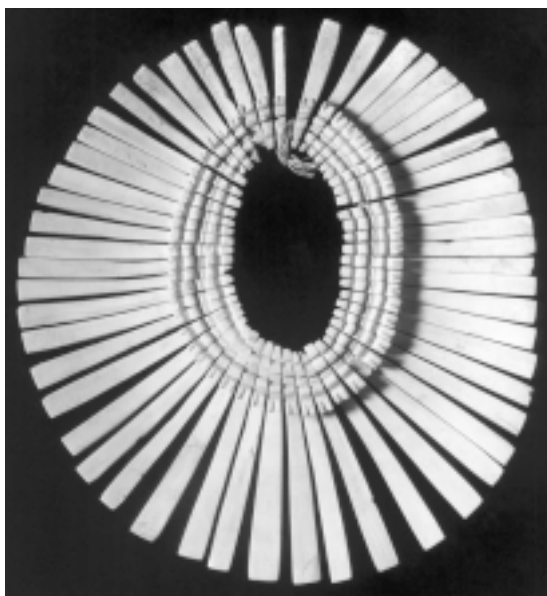


Fig. 8 Conch shell gorget from Venado Beach, Panama. (Courtesy of Dumbarton Oaks.)

The physical and symbolic association of gold with elites is well attested for Panama, where ethnohistoric and archaeological evidence reveals an extraordinary wealth of such objects, most famously at the burial site of Sitio Conte, dating to between A.D. 450 and 900 (Lothrop 1937, 1942). The earliest Panamanian examples (ca. A.D. 1–500) seem to derive from South American prototypes. Specifically, the sudden appearance of such sophisticated pieces points to Colombia; each of the diagnostic items—for example, spirals, curly tailed creatures, and twin eagles—appears in the various regional styles of Colombia (Bray 1992: 34). Given Gerardo Reichel-Dolmatoff’s (1988) work on the connections between Colombian goldwork and shamanism, it is plausible to suggest that such early trade items carried a symbolic load that conveyed at a generic level certain widely shared ideas about the nature of the world, even if there was a degree of mutually unintelligible culture-specific messages.

The phase known as the International Group (A.D. 400–900) is particularly interesting. During this time, it is widely accepted that the region from central Colombia to northern Costa Rica was one metallurgical province with a single goldworking tradition, albeit with local variations (Bray 1992: 35). At this time, the five major categories of objects, in the international style, were human figures, bells with cylindrical handles, crocodiles, Darién pendants, and animals with recurved tails.

Bray (1992: 35) theorizes that the widespread acceptance of such images might have been due, in part, to their neutral iconography, which displays no direct associations with any regional mythology or system of representation. This is a likely explanation, based on form, though it is perhaps not the only one. This geographically widespread, chronologically persistent, and culturally cross-cutting phenomenon could equally have been due, if only in part, to the widespread acceptance of highly polished metal as a conveyor of sacred brilliance (with all its symbolic connotations). The aesthetic of brilliance is arguably more likely to have been a widespread phenomenon than would a cross-cultural acceptance of diverse

views and representations of various objects and anthropomorphic and zoomorphic beings.

As material culture is a synergistic mix of matter and form, what was “new” was arguably less the iconography, inoffensive or not, than the material—the gold itself. Human or animal shapes would have been familiar from life and art, but their materialization in an unknown substance whose brilliance was unmatched by any other known material, and whose “magical” production was presumably surrounded by shamanic mystification, would have made as powerful a psychological impact around A.D. 500 (or before) as it did on Amerindians confronted by 15th- and 16th-century European metal objects. There is much contact period documentation that seems to suggest that it was brilliant matter itself rather than its often banal shapes that so impressed Amerindians at this time, and which stimulated initial exchanges (Saunders 1998a: 233–239).

There is a case to be made that the prehistoric arrival of gold in Panama and Costa Rica might have been more impressive to the local population than to later contact period Amerindians as the former by definition had never seen metals whereas the latter had long been familiar with them. The association of these two otherwise historically distinct and different episodes, separated by about a thousand years, arguably has as much, and possibly more, to do with (probably elite) acceptance and manipulation of metals and their inherent brilliance than the specifics of style or iconography, though the two are not necessarily mutually exclusive.

From this perspective, it is significant that Helms (1993) has identified a more specific example of the aesthetic of brilliance at work in polychrome ceramics of Panama during the period A.D. 500 to A.D. 1100, a period that matches almost exactly the dates for the International Group. Helms (1993: 210) looks “beyond style to consider underlying meaning and symbolism” in an approach that focuses on the potential linkages between color and brilliance in animal species, their encoding in mythology, and their manifestation as iridescent material culture (polychrome ceramics). One of her concluding remarks seems prescient: “metallurgy and polychrome ceramics expressed pure light and energy and the colourful constituent components of that light and energy, respectively” (ibid.: 245).

The Post-Columbian Ethnographic Dimension

The ritual, political, symbolic, and cosmological significance of gold and its alloys continued beyond the nominal end of the International Group around A.D. 900 (Bray 1992: 34). As Oscar Fonseca Zamora and John Hoopes (in this volume) point out, European accounts of the sixteenth century and subsequently emphasize the widespread use of gold throughout the region under discussion, and indeed to the present day in the wider Chibchan-speaking area, among the Guahibo (Betania 1964, quoted in Falchetti, in this volume), the Caribbean Kuna (Briggs 1993: 151; Nordenskiöld 1979 [1925]), and Andean Kogi (Reichel-Dolmatoff 1981: 22–23, 26).

Contact period accounts tell of the gold-wearing habits of local elites and their almost obsessive stealing and accumulation of such materials. Ferdinand Columbus (quoted in Cooke

and Ranere 1992: 286) observed the penchant of native leaders on the Caribbean coast for wearing “gold mirrors and eagles,” and Gaspar de Espinosa (quoted in *ibid.*) relates how one chief, Caubaco, wore a thousand *castellanos* of gold when raiding other tribes. Bray (1992: 33) similarly quotes Espinosa’s eyewitness account of the corpse of Chief Parita, laid out covered in gold. The nineteenth-century wearing of gold ornaments by Antonio Salddaña, last of the Bribri kings, is a more recent case in point.

Particularly notable is the similarity of these accounts to others relating to the wider region that are also concerned with gold, light, and the objectified aesthetic of brilliance. As Helms (1979: 87) notes, a Darién chief told the Spanish that his golden ornaments came “from the sky,” exactly the same way that the Taíno of the Greater Antilles regarded numinous shiny objects and the Spanish who wore them as “coming from the sky,” the ultimate source of bright cosmic power (Chanca 1932: 64). During Cabeza de Vaca’s 1534–36 sojourn in Texas, shamanic curing stones (possibly crystals) were associated by local Amerindians with the Spanish, and both were believed to have “come from the sky” (Adorno 1993: 62).

Another indicator that gold and its alloys were symbolically equated in indigenous conceptions of sacred power and cosmic energy lies in attitudes toward pearls, as revealed by their prominence in sixteenth-century exchanges between Amerindians and Europeans. European accounts record the apparent diffidence of Amerindians to the large quantities of pearls and gold that they were willing to exchange for European trade goods, especially the newest, “mystical” material in the form of glass beads. In 1515 Gaspar de Morales noted how local Amerindians in the Gulf of Panama were keen to exchange 880 ounces of pearls for some mirrors, scissors, and axes (Kunz and Stevenson 1993 [1908]: 236).

Conclusion

The geographical and cultural area encompassed by the modern political boundaries of Costa Rica, Panama, and Colombia offers a unique opportunity to explore the archaeological correlates of ideological activity in terms of the aesthetic of brilliance. The issues raised are fundamental to understanding indigenous attitudes toward shiny matter and to acknowledging the place of metallurgy in Amerindian conceptions of the world.

What were the cultural mechanisms that articulated the initial encounters of non-metal-using peoples with metal objects? Or, put slightly differently, what was the nature of (presumably variable) cultural responses to metals in terms of prior established attitudes toward nonmetallic shiny matter? What were the social, economic, and political consequences of the adoption of metalworking in terms of the potential increase in visual brilliance (that is, objectified sacred power) accessible to elites? Did metal objects transcend their status as the shiniest kind of matter by virtue of their technological complexities and thereby alter the gendered and politicized relations of production?

These are difficult questions. In attempting to answer them one must move beyond (though not ignore) descriptive analyses of form and technique and consider wider issues concerning the materiality of indigenous philosophies of light. Amerindian attitudes toward

this natural phenomenon structured cultural responses to all shiny matter, whether natural or artifactual, physical object or esoteric knowledge. All are potentially of a piece, or at least can usefully be considered as such in the quest to extend interpretive horizons.

In this sense, the power of gold stemmed partly from age-old notions of sacred brilliance and partly (and perhaps increasingly through time) from the unforeseeable economic and political consequences of the embedding and sedimentation of metallurgical technologies within social structures. If the ethnohistorical and ethnographic records are a reliable indicator of Pre-Columbian realities, the sacred brilliance of natural phenomena, ritual knowledge, glowing oratory, shiny matter, and technology were fused as one. Power, object, technological process, and enchantment were inextricably linked in the ebb and flow of cosmic forces in a universe conceived and governed by the symbolic propensities of analogical reasoning.

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Bibliography

ADORNO, ROLENA

- 1993 The Negotiation of Fear in Cabeza de Vaca's *Naufragios*. In *New World Encounters* (S. Greenblatt, ed.): 48–84. University of California Press, Berkeley.

ANDERSON, ARTHUR J. O., and CHARLES E. DIBBLE (trans.)

- 1953 *The Florentine Codex: General History of the Things of New Spain* [by Fray Bernardino Sahagún]. School of American Research, Santa Fe.

ARMILLAS, PEDRO

- 1944 Exploraciones recientes en Teotihuacán. *Cuadernos Americanos* 16 (4): 121–136.

ARNOLD, DEAN E.

- 1993 *Ecology and Ceramic Production in an Andean Community*. Cambridge University Press, Cambridge.

DE ARRIAGA, PABLO JOSEPH

- 1968 *The Extirpation of Idolatry in Peru*. University of Kentucky Press, Lexington.

BAYLEY CHRISTOPHER A.

- 1986 The Origins of Swadeshi (Home Industry): Cloth and Indian Society, 1700–1930. In *The Social Life of Things* (A. Appadurai, ed.): 285–322. Cambridge University Press, Cambridge.

BENDER, BARBARA

- 1999 Subverting the Western Gaze: Mapping Alternative Worlds. In *The Archaeology of Landscape: Shaping Your Landscape* (P. J. Ucko and R. Layton, eds.): 31–45. Routledge, London.

BENNETT, CHARLES E.

- 1968 *The Settlement of Florida*. University of Florida Press, Gainesville.

BERDAN, FRANCES F.

- 1992 Economic Dimensions of Precious Metals, Stones, and Feathers: The Aztec State Society. *Estudios de Cultura Nahuatl* 22: 291–323.

BERDAN, FRANCES F., and PATRICIA R. ANAWALT

- 1997 *The Essential Codex Mendoza*. University of California Press, Berkeley.

BETZ, O.

- 1995 Considerations on the Real and the Symbolic Value of Gold. In *Prehistoric Gold in Europe: Mines, Metallurgy and Manufacture* (G. Morteani and J. P. Northover, eds.): 19–28. Kluwer Academic Publishers, Dordrecht.

BLANTON, RICHARD E., STEPHEN A. KOWALEWSKI, GARY M. FEINMAN, LAURA M. FINSTEN

- 1993 *Ancient Mesoamerica: A Comparison of Change in Three Regions*. Cambridge University Press, Cambridge.

BOOMERT, ARIE

- 1987 Gifts of the Amazons: "Greenstone" Pendants and Beads as Items of Ceremonial Exchange in Amazonia. *Antropología* 67: 33–54.

BOONE, ELIZABETH H. (ED.)

- 1996 *Andean Art at Dumbarton Oaks*, vol. 1. Dumbarton Oaks, Washington, D.C.

BRADY, JAMES E., and KEITH M. PRUFER

- 1999 Caves and Crystalmancy: Evidence for the Use of Crystals in Ancient Maya Religion. *Journal of Anthropological Research* 55: 129–144.

BRAY, WARWICK

- 1978 *The Gold of El Dorado*. Times Newspapers, London.

- 1992 Sitio Conte Metalwork in Its Pan-American Context. In *River of Gold: Precolumbian Treasures from Sitio Conte* (P. Hearne and R. J. Sharer, eds.): 32–47. University Museum, University of Pennsylvania, Philadelphia.

BRIGGS, PETER S.

- 1993 Fatal Attractions: Interpretations of Prehistoric Mortuary Remains from Lower Central America. In *Reinterpreting Prehistory of Central America* (M. Miller Graham, ed.): 141–168. University Press of Colorado, Niwot.

BRILL, THOMAS B.

- 1980 *Light: Its Interaction with Art and Antiquities*. Plenum Press, New York.

BRUHNS, KAREN O.

- 1994 *Ancient South America*. Cambridge University Press, Cambridge.
1996 El Salvador and the Southeastern Frontier of Mesoamerica. In *Paths to Central American Prehistory* (F. W. Lange, ed.): 285–296. University Press of Colorado, Niwot.

BURGER, RICHARD L.

- 1995 *Chavin and the Origins of Andean Civilization*. Thames and Hudson, London.

BURKHART, LOUISE M.

- 1992 Flowery Heaven: The Aesthetic of Paradise in Nahuatl Devotional Literature. *RES: Anthropology and Aesthetics* 21: 89–109.

CABRERA CASTRO, RUBÉN

- 1993 Human Sacrifice at the Temple of the Feathered Serpent: Recent Discoveries at Teotihuacan. In *Teotihuacan: Art from the City of the Gods* (K. Berrin and E. Pasztor eds.): 101–107. Thames and Hudson, London.

CARLSON, JOHN B.

- 1981 Olmec Concave Iron–Ore Mirrors: The Aesthetics of a Lithic Technology and the Lord of the Mirror. In *The Olmec and their Neighbors* (E. P. Benson, ed.): 117–148. Dumbarton Oaks, Washington, D.C.

CECI, LYNN

- 1988 Tracing Wampum's Origins: Shell Bead Evidence from Archaeological Sites in Western and Coastal New York. In *Proceedings of the 1986 Shell Bead Conference, Selected Papers* (C. Hayes ed.): 63–80. Research Records 20. Rochester Museum and Science Center, Rochester.

CHANCA, DIEGO ALVAREZ

- 1847 *Letter to the City of Sevilla* (C. Jane, trans.). Hakluyt Society, London.

CHAPMAN, WALTER

- 1967 *The Golden Dream*. Bobbs-Merrill, Indianapolis.

CLASSEN, CONSTANCE

- 1990 Sweet Colors, Fragrant Songs: Sensory Models of the Andes and the Amazon. *American Ethnologist* 17 (4): 722–735.
- 1991 Creation by Light/Creation by Sound: A Sensory Analysis of Two South American Cosmologies. In *The Varieties of Sensory Experience* (D. Howes, ed.): 239–255. University of Toronto Press, Toronto.

COE, MICHAEL D.

- 1960 Archaeological Linkages with North and South America at La Victoria, Guatemala. *American Anthropologist* 62: 363–393.

COLUMBUS, CHRISTOPHER

- 1969 *The Four Voyages of Christopher Columbus* (J. M. Cohen, ed. and trans.). Penguin, London.

COOK, RICHARD G., and ANTHONY J. RANERE

- 1992 The Origin of Wealth and Hierarchy in the Central Region of Panama (12,000–2,000 BP), with Observations on Its Relevance to the History and Phylogeny of Chibchan-Speaking Polities in Panama and Elsewhere. In *Wealth and Hierarchy in the Intermediate Area* (F. W. Lange, ed.): 243–316. Dumbarton Oaks, Washington D.C.

COOTE, JEREMY

- 1992 "Marvels of Everyday Vision": The Anthropology of Aesthetics and the Cattle-Keeping Nilotes. In *Anthropology, Art, and Aesthetics* (J. Coote and A. Shelton, eds.): 245–274. Clarendon Press, Oxford.

CORDY-COLLINS, ALANA

- 1990 Fonga Sigde, Shell Purveyor to the Chimú Kings. In *The Northern Dynasties: Kingship and Statecraft in Chimor* (M. E. Moseley and A. Cordy-Collins, eds.): 393–417. Dumbarton Oaks, Washington, D.C.

DE MESA, JOSÉ, and TERESA GISBERT

- 1994 *Angels and Archangels*. In *Bolivian Masterpieces, Colonial Painting* (Teresa Gisbert et al., eds.): 105–133. Secretariat of Culture, La Paz.

DOW, JAMES

- 1986 *The Shaman's Touch: Otomí Indian Symbolic Healing*. University of Utah Press, Salt Lake City.

FORD, JAMES A.

- 1969 *A Comparison of Formative Cultures in the Americas: Diffusion or the Psychic Unity of Man*. Smithsonian Contributions to Anthropology 11. Smithsonian Institution Press, Washington, D.C.

FRANCIS, JR., PETER

- 1986a The Beads That Did Not Buy Manhattan Island. *New York History* 67 (1): 1–22.
1986b *Beads and the Discovery of the New World*. Occasional Paper 3. The Center for Bead Research, Lake Placid.

FURST, PETER T.

- 1972 *Flesh of the Gods: The Ritual Use of Hallucinogens*. Praeger, New York.
1976 *Hallucinogens and Culture*. Chandler and Sharp, San Francisco.

GARCILASO DE LA VEGA

- [1609] 1987 *Royal Commentaries of the Incas and General History of Peru*. University of Texas Press, Austin.

GEERTZ, CLIFFORD

- 1973 *The Interpretation of Cultures*. Harper-Colophon, New York.

GELL, ALFRED

- 1992 The Technology of Enchantment and the Enchantment of Technology. In *Anthropology, Art, and Aesthetics* (J. Coote and A. Shelton, eds.): 40–66. Clarendon Press, Oxford.
1998 *Art and Agency: An Anthropological Theory*. Oxford University Press, Oxford.

GINGERICH, WILLARD P.

- 1977 *From Dream to Memory: A Psycho-Historical Introduction to Nahuatl Myth and Moral Philosophy*. University Microfilms, Ann Arbor.

GISBERT, TERESA

- 1994 The Indigenous Element in Colonial Art. In *Bolivian Masterpieces, Colonial Painting* (T. Gisbert et al., eds.): 31–56. Secretariat of Culture, La Paz.

GOLDMAN, IRVING

- 1979 *The Cubeo: Indians of the Northwest Amazon*. University of Illinois Press, Urbana.

GONZÁLEZ, ALBERTO REY

- 1992 *Las placas metálicas de los Andes del sur: Contribución al estudio de las religiones precolombinas*. Verlag Philipp Von Zabern, Mainz am Rhein.

GRAHAM, MARK MILLER

- 1993 Displacing the Center: Constructing Prehistory in Central America. In *Reinterpreting Prehistory of Central America* (M. Miller Graham, ed.): 1–38. University Press of Colorado, Niwot.
- 1996 Merchants and Metalwork in Middle America. In *Paths to Central American Prehistory* (F.W. Lange, ed.): 237–252. University Press of Colorado, Niwot.

GREENBLATT, STEPHEN JAY

- 1992 *Marvelous Possessions: The Wonder of the New World*. Clarendon Press, Oxford.

HALL, ROBERT L.

- n.d. Pearls, Wampum, Sweat, and Tears. Manuscript on file, Department of Anthropology, University of Illinois, Chicago, 1976.

HAMELL, GEORGE R.

- 1992 The Iroquois and the World's Rim: Speculations on Color, Culture, and Contact. *American Indian Quarterly* (Fall 1992): 451–469.
- 1995 Wampum: White, Bright and Light Things Are Good to Think. In *One Man's Trash Is Another Man's Treasure* (A. van Dongen, ed.): 41–51. Museum Boymans-van Beuningen, Rotterdam.
- n.d. *Wampum among the Northern Iroquois: A Proposed Semantics of Color, Ritual, and Material Culture*. Manuscript prepared for the 1986 Shell Bead Conference, Rochester Museum and Science Center, 1986.

HARNER, MICHAEL (ED.)

- 1978 *Hallucinogens and Shamanism*. Oxford University Press, Oxford.

HELMS, MARY W.

- 1979 *Ancient Panama: Chiefs in Search of Power*. University of Texas Press, Austin.
- 1981 Precious Metals and Politics: Style and Ideology in the Intermediate Area and Peru. *Journal of Latin American Lore* 7 (2): 215–238.
- 1986 Art Styles and Interaction Spheres in Central America and the Caribbean: Polished Black Wood in the Greater Antilles. *Journal of Latin American Lore* 12 (1): 25–43.
- 1988 *Ulysses' Sail*. Princeton University Press, Princeton.
- 1993 Cosmological Chromatics: Color-Related Symbolism in the Ceramic Art of Ancient Panama. In *Reinterpreting Prehistory of Central America* (M. M. Graham, ed.): 209–252. University Press of Colorado, Niwot.

HOSKINS, JANET

- 1989 Why Do Ladies Sing the Blues? Indigo Dyeing, Cloth Production, and Gender Symbolism in Kodi. In *Cloth and Human Experience* (A. B. Weiner and Jane Schneider, eds.): 142–173. Smithsonian Institution Press, Washington, D.C.
- 1998 *Biographical Objects: How Things Tell the Stories of People's Lives*. Routledge, London.

HOSLER, DOROTHY

- 1994 *The Sounds and Colors of Power: The Sacred Metallurgical Technology of Ancient West Mexico*. MIT Press, Cambridge, Mass.

HOWARD, CATHERINE V.

- 1991 Feathers as Ornaments among the Waiwai: Fragments of the Heavens. In *The Gift of Birds: Featherwork of Native South American Peoples* (R. E. Reina and K. M. Kensinger, eds.): 50–69. University Museum, University of Pennsylvania, Philadelphia.

HOWES, DAVID

- 1991 To Summon All the Senses. In *The Varieties of Sensory Experience* (D. Howes, ed.): 3–21. University of Toronto Press, Toronto.

HUGH-JONES, STEPHEN

- 1979 *The Palm and the Pleiades: Initiation and Cosmology in Northwest Amazonia*. Cambridge University Press, Cambridge

KENSINGER, KENNETH M.

- 1991 The Meaning of Cashinahua Feather Headdresses: Feathers Make Us Beautiful. In *The Gift of Birds: Featherwork of Native South American Peoples* (R. E. Reina and K. M. Kensinger, eds.): 40–49. University Museum, University of Pennsylvania, Philadelphia.
- 1995 *How Real People Ought To Be*. Waveland Press, Prospect Heights, Ill.

KIDDER, ALFRED V., JESSE D. JENNINGS, and EDWIN M. SHOOK

- 1946 *Excavations at Kaminaljuyu, Guatemala*. Carnegie Institution of Washington, Publication 561, Washington, D.C.

KOLB, CHARLES C.

- 1987 *Marine Shell Trade and Classic Teotihuacan, Mexico*. BAR International Series 364, Oxford.

KUNZ, GEORGE F., and CHARLES H. STEVENSON

- [1908] 1993 *The Book of the Pearl*. Dover Publications, New York.

LANGE, FREDERICK W.

- 1992 The Search for Elite Personages and Site Hierarchies in Greater Nicoya. In *Wealth and Hierarchy in the Intermediate Area* (F. W. Lange, ed.): 109–139. *Dumbarton Oaks*, Washington, D.C.
- 1993 The Conceptual Structure in Lower Central American Studies: A Central American View. In *Reinterpreting Prehistory of Central America* (M. M. Graham, ed.): 277–324. University Press of Colorado, Niwot.

LECHTMAN, HEATHER

- 1993 Technologies of Power: The Andean Case. In *Configurations of Power* (J. S. Henderson and P. J. Netherly, eds.): 244–280. Cornell University Press, Ithaca.

LEDDY, THOMAS

- 1997 Sparkle and Shine. *British Journal of Aesthetics* 37 (3): 259–273.

LÓPEZ AUSTIN, ALFREDO

- 1988 *The Human Body and Ideology: Concepts of the Ancient Nahuas*. 2 vols. (T. and B. Ortiz de Montellano, trans.). University of Utah Press, Salt Lake City.

LOTHROP, SAMUEL K.

- 1937 *Coclé: An Archaeological Study of Central Panama*, pt. 1. *Memoirs of the Peabody Museum of Archaeology and Ethnology* 7. Harvard University, Cambridge, Mass.
- 1942 *Coclé: An Archaeological Study of Central Panama*, pt. 2. *Memoirs of the Peabody Museum of Archaeology and Ethnology* 8. Harvard University, Cambridge, Mass.

LUNT, SARAH W.

- 1988 The Manufacture of the Inca Aryballus. In *Recent Studies in Pre-Columbian Archaeology* (N. J. Saunders and O. de Montmollin, eds.) 2: 489–511. BAR International Series 421. Oxford.

MARCUS, JOYCE, and KENT V. FLANNERY

- 1994 Ancient Zapotec Ritual and Religion: An Application of the Direct Historical Approach. In *The Ancient Mind: Elements of Cognitive Archaeology* (C. Renfrew and E. B. W. Zubrow, eds.): 55–74. Cambridge University Press, Cambridge.
- 1996 *Zapotec Civilization: How Urban Society Evolved in Mexico's Oaxaca Valley*. Thames and Hudson, London.

MASON, PETER

- 1990 *Deconstructing America: Representations of the Other*. Routledge, London.

MAULDIN, BARBARA

- 1996 Lightbulbs, Watchbands, and Plastic Baby Dolls: Industrial Appropriations in the Corpus Christi Festival Headdresses of Highland Ecuador. In *Recycled, Re-seen: Folk Art from the Global Scrap Heap* (C. Cerny and S. Seriff, eds): 140–151. Harry N. Abrams, New York.

MEDINA, JOSÉ TORIBIO

- 1934 *The Discovery of the Amazon according to the Account of Friar Gaspar de Carvajal and Other Documents* (B. T. Lee, trans., H. C. Heaton, ed.). American Geographical Society, New York.

MELGARJO, LUZ MARÍA VARGAS

- 1998 *Los colores lacandones: La percepción visual de un pueblo maya*. Instituto Nacional de Antropología e Historia, México, D.F.

MESTER, ANN MARIE

- 1990 *The Pearl Divers of Los Frailes: Archaeological and Ethnohistorical Explorations of Sumptuary Good Trade and Cosmology in the North and Central Andes*. University Microfilms, Ann Arbor.

MILLER, DANIEL M.

- 1987 *Material Culture and Mass Consumption*. Blackwell, Oxford.

MOOREHEAD, WARREN KING

- 1922 *The Hopewell Mound Group of Ohio*. Field Museum of Natural History Publication 211, Anthropological Series 6 (5). Field Museum of Natural History, Chicago.

MORPHY, HOWARD

- 1989 From Dull to Brilliant: The Aesthetics of Spiritual Power among the Yolngu. *MAN* 24 (1): 21–40
- 1992 From Dull to Brilliant: The Aesthetics of Spiritual Power among the Yolngu. In *Anthropology, Art, and Aesthetics* (J. Coote and A. Shelton, eds.): 181–208. Clarendon Press, Oxford.

MURRA, JOHN V.

- 1975 *Formaciones económicas y políticas del mundo andino*. Instituto de Estudios Peruanos, Lima.

NORDENSKIÖLD, ERLAND

- 1979 [1925] *An Historical and Ethnological Survey of the Cuna Indians*. AMS Press, New York.

OLIVER, JOSÉ R.

- 1989 *The Archaeological, Linguistic and Ethnological Evidence for the Expansion of Arawakan into Northwestern Venezuela and Northeastern Colombia*. University Microfilms, Ann Arbor.
- 2000 Gold Symbolism among Caribbean Chiefdoms: Of Feathers, Çibas, and Guanín Power among Taíno Elites. In *Pre-Columbian Gold: Technology, Style and Iconography* (C. McEwan, ed.): 196–219. British Museum Press, London.

OLSEN, DALE A.

- 1975 Music-Induced Altered States of Consciousness among Warao Shamans. *Journal of Latin American Lore* 1: 19–33.

PAGDEN, ANTHONY

- 1993 *Ius et Factum: Text and Experience in the Writings of Bartolomé de Las Casas*. In *New World Encounters* (S. Greenblatt, ed.): 85–100. University of California Press, Berkeley.

PAULSEN, ALISON C.

- 1974 The Thorny Oyster and the Voice of God: Spondylus and Strombus in Andean Prehistory. *American Antiquity* 39 (4): 597–607.

PERKOWITZ, SIDNEY

- 1996 *Empire of Light: A History of Discovery in Science and Art*. Henry Holt and Company, New York.

PFÄFFENBERGER, BRYAN

- 1992 The Social Anthropology of Technology. *Annual Review of Anthropology*: 491–516.

QUILTER, JEFFREY

- 1991 Late Preceramic Peru. *Journal of World Prehistory* 5 (4): 387–438.

- 2000 The General and the Queen: Gold Objects from a Ceremonial and Mortuary Complex in Southern Costa Rica. In *Pre-Columbian Gold: Technology, Style and Iconography* (C. McEwan, ed.): 176–195. British Museum Press, London.

REICHEL-DOLMATOFF, GERARDO

- 1975 *The Shaman and the Jaguar*. Temple University Press, Philadelphia.
- 1978 Desana Animal Categories, Food Restrictions, and the Concept of Color Energies. *Journal of Latin American Lore* 4 (2): 243–291.
- 1981 Things of Beauty Replete with Meaning: Metals and Crystals in Colombian Indian Cosmology. In *Sweat of the Sun, Tears of the Moon: Gold and Emerald Treasures of Colombia* (Peter T. Furst et al.): 17–33. Natural History Museum Alliance of Los Angeles County, Los Angeles.
- 1988 *Orfebrería y chamanismo: Un estudio iconográfico del Museo del Oro*. Compañía Litográfica Nacional, Medellín.

RIVERS, VICTORIA Z.

- 1999 *The Shining Cloth: Dress and Ornament That Glitters*. Thames and Hudson, London.

ROGERS, J. DANIEL

- 1990 *Objects of Change: The Archaeology and History of Arikara Contact with Europeans*. Smithsonian Institution Press, Washington, D.C.

ROMERO-FRIZZI, MARIA DE LOS ANGELES

- 1994 Indigenous Mentality and Spanish Power: The Conquest of Oaxaca. In *Caciques and Their People: A Volume in Honor of Ronald Spores* (J. Marcus and J. F. Zeitlin, eds.): 227–244. Anthropological Papers, Museum of Anthropology 89. University of Michigan, Ann Arbor.

ROWLANDS, MICHAEL, and JEAN-PIERRE WARNIER

- 1993 The Magical Production of Iron in the Cameroon Grassfields. In *The Archaeology of Africa* (T. Shaw et al., eds.): 512–550. Routledge, London.

RUIZ DE ALARCÓN, HERNANDO

- 1984 *Treatise on the Heathen Superstitions That Today Live among the Indians Native to this New Spain, 1629* (J. R. Andrews and R. Hassig, eds. and trans.). University of Oklahoma Press, Norman.

SAHAGÚN, BERNARDINO DE

- 1950–78 *Florentine Codex: General History of the Things of New Spain*, 13 vols. (A. J. O. Anderson and C. E. Dibble, eds. and trans.). School of American Research and the University of Utah, Santa Fe and Salt Lake City.

SANDSTROM, ALAN R.

- 1991 *Corn Is Our Blood: Culture and Ethnic Identity in a Contemporary Aztec Indian Village*. University of Oklahoma Press, Norman.

SAUER, CARL ORTWIN

- 1969 *The Early Spanish Main*. University of California Press, Berkeley.
1971 *Sixteenth Century North America: The Land and the People as Seen by the Europeans*.
University of California Press, Berkeley.

SAUNDERS, NICHOLAS J.

- 1988 *Chatoyer*: Anthropological reflections on Archaeological Mirrors. In *Recent Studies in Pre-Columbian Archaeology* 1 (N. J. Saunders and O. de Montmollin, eds.): 1–40. BAR International Series 421, Oxford.
1994 At the Mouth of the Obsidian Cave: Deity and Place in Aztec Religion. In *Sacred Sites, Sacred Places* (D. L. Carmichael et al., eds.): 172–183. Routledge, London.
1998a Stealers of Light, Traders in Brilliance: Amerindian Metaphysics in the Mirror of Conquest. *RES: Anthropology and Aesthetics* 33 (1): 225–252.
1998b Icons of Power. In *Icons of Power: Feline Symbolism in the Americas* (N. J. Saunders, ed.): 1–11. Routledge, London.
1999 Biographies of Brilliance: Pearls, Transformations of Matter and Being, ca. AD 1492. *World Archaeology* 31 (2): 243–257.
2001 A Dark Light: Reflections on Obsidian in Mesoamerica. *World Archaeology* 33 (2): 220–236.

SAVILLE, MARSHALL H.

- 1920 The Goldsmith's Art in Ancient Mexico. In *Indian Notes and Monographs*. Museum of the American Indian, Heye Foundation, New York.

SELER, EDUARD

- 1990 The Ancient Inhabitants of the Michuacan Region. In *Collected Works In Mesoamerican Linguistics and Archaeology*, vol. 4 (J. E. S. Thompson, F. B. Richardson, and F. E. Comparato, eds.): 3–66. Labyrinthos, Culver City, Calif.

SHANKS, MICHAEL, and CHRISTOPHER TILLY

- 1992 *Re-Constructing Archaeology: Theory and Practice* (2nd ed.). Routledge, London.

SIEVERNICH, GEREON (ED.)

- 1990 *America De Bry, 1590–1634*. Casablanca, Berlin, and New York.

SNARSKIS, MICHAEL J.

- 1992 Wealth and Hierarchy in the Archaeology of Eastern and Central Costa Rica. In *Wealth and Hierarchy in the Intermediate Area* (F. W. Lange, ed.): 141–164. Dumbarton Oaks, Washington D.C.
1998 The Imagery and Symbolism of Pre-Columbian Jade in Costa Rica. In *Jade in Ancient Costa Rica* (M. M. Graham et al., J. Jones, ed.): 59–91. Metropolitan Museum of Art, New York.

STASTNY, FRANCISCO

- 1997 Plateria colonial: Un truke divino. In *Plata y plateros del Peru.*: 119–265. Patronato Plata del Peru, Lima.

STEVENS-ARROYO, ANTONIO M. P

- 1988 *Cave of the Jaqua: The Mythological World of the Tainos*. University of New Mexico Press, Albuquerque.

SÚAREZ DIEZ, LOURDES

- 1989 *Conchas prehispánicas en México*. BAR International Series 514, Oxford.

SULLIVAN, LAWRENCE EUGENE

- 1988 *Icanchu's Drum*. Macmillan, London.

TAUBE, KARL

- 1992 The Iconography of Mirrors at Teotihuacan. In *Art, Ideology, and the City of Teotihuacan* (J. C. Berlo, ed.): 169–204. Dumbarton Oaks, Washington, D.C.

TAUSSIG, MICHAEL T.

- 1987 *Shamanism, Colonialism, and the Wild Man: A Study in Terror and Healing*. University of Chicago Press, Chicago.

VIVEIROS DE CASTRO, EDUARDO

- 1992 *From the Enemy's Point of View: Humanity and Divinity in an Amazonian Society*. University of Chicago Press, Chicago.

WHITEHEAD, NEIL L.

- 1988 *Lords of the Tiger Spirit: A History of the Caribs in Colonial Venezuela and Guyana, 1498–1820*. Foris Publications, Dordrecht.
- 1997 The Discoverie as Ethnological Text. In Sir Walter Raleigh, *The Discoverie of the Large, Rich and Bewtiful Empyre of Guiana* (N. L. Whitehead, transcr. and anno.): 60–116. Manchester University Press, Manchester.

WILBERT, JOHANNES

- 1987 *Tobacco and Shamanism in South America*. Yale University Press, New Haven.
- 1997 *Illuminative Serpents: Tobacco Hallucinations of the Warao*. *Journal of Latin American Lore* 20 (2): 317–332.

YTURBIDE, TERESA C.

- 1993 *El arte plumaria en México*. Fomento Cultural Banamex, México, D.F.

ZAJONC, ARTHUR

- 1993 *Catching the Light: The Entwined History of Light and Mind*. Bantam Press, London.