

The Blooms of Banjeli:

Technology & Gender in West African Ironmaking



CONTENTS

P 1 Background

P 4 Furnace Construction & Rituals

P 9 The Smelting Process

P 10 Charcoal Making

P 11 Interpretation

P 13 About the Film & Filmmakers

The Blooms of Banjeli portrays the construction of an iron-working furnace by the Bassari of western Togo in 1985 and the attempt to smelt iron in it, using traditional techniques, materials and rituals. Its purpose is to document the process before all memory of it is lost and to show how technology reflects the belief systems of the culture, including those concerning the interrelationships of male and female.

BACKGROUND

The peoples of sub-Saharan Africa have produced iron and fashioned it into tools, weapons and ornaments for more than 2000 years. With iron they have cleared forests, hunted wild game, built mighty empires, and honored their gods. While iron ores are ubiquitous in Africa, it requires specialized knowledge, both technical and ritual, to work them. This knowledge has been carefully guarded by particular sub-groups of metallurgists-smelters and smiths-whose skills

have made them the right hand of kings and their products the cornerstone of African economies and social structures.

In the Bassar region of north-western Togo, near the Ghana border, iron making goes back hundreds of years, at least to the 12th century A.D., and was carried out on a semi-industrial scale by the nineteenth century. The local landscape is dominated by heaps of slag, the by-product of the smelting process, and by thousands of abandoned furnaces. It thus constitutes one of the largest industrial systems known in pre-colonial West Africa. When the Germans arrived in 1585 they were struck by the size and extent of smelting operations in Banjeli: to one writer, the noise of the blacksmiths' hammers and the fires from hundreds of furnaces burning through the night recalled his native Ruhr. At the turn of the twentieth century, a German official estimated the number of working furnaces in the area to be close to 500.



Regular smelting of local ores died out soon after the First World War in the face of competition from cheaper scrap metal imported from abroad just at a time when the cost of producing iron locally was increasing due to the depletion of hardwood fuels. The African iron industry had paid a high environmental price for the levels of production it achieved: each furnace consumed as many as three trees or 180 kilograms of charcoal per smelt. A single furnace could therefore consume 100,300 trees annually. If the German estimates were correct that the overall production of the region exceeded 400 tons of iron, this would have required some 1100 tons of charcoal or a minimum of 18,000 trees per year. Despite these rising fuel costs, however, locally produced iron was widely believed to make stronger and more durable hoes and axes than metal from abroad, a belief common to many African peoples.

As elsewhere in Africa, the industry was revived on a modest scale during World War II in an attempt to compensate for lack of imported metal, but the revival did not last beyond the war years, again because it could

The scale of the industry led to a high degree of specialization, so that individual villages specialized in different metallurgical processes: smelting, refining, smithing, mining, and charcoal making. Bassari iron was traded in the form of blooms, that is, raw iron in the characteristic horseshoe shape, and in the form of slugs for hoe blades, over wide areas, extending as far as Mango to the north, west to Dagomba, east to the interior of Dahomey, and south to Kete Krachi, Atakpame and even to the coast. So plentiful was it that it was sold every day at the Bassar market, its greatest consumers probably being the justly famous Kabye blacksmiths. As elsewhere in Africa, iron circulated not only as a raw material but also as a currency.



not compete with scrap metal. For some sixty years, therefore, the Bassari have not smelted iron on a regular basis, although there have been several attempts to carry out demonstration smelts in existing furnaces.

The earliest written record of Bassari iron working date from the German occupation was in the early 1890's. They are supplemented by a remarkable film of iron smelting in Banjeli made in 1914 by the German big game hunter and filmmaker, Hans Schomburgk, footage from which has been incorporated into the present film. Recent archaeological studies have reconstructed the evolution of the industry, while laboratory analysis of slags and furnace materials from excavated sites are providing technical data from different periods.

However, much of the knowledge of iron smelting survives only in the oral traditions of specialist families and villages. This is especially true of the rituals and medicines that accompany the technical procedures and that are an integral part of them. Although iron has not been regularly smelted since the 1920's, a few of the elders, now in their seventies and eighties, had observed or assisted smelters in their youth. When they die, the knowledge will

disappear completely since no young men are learning the craft; already, they have lost the skills that come with constant practice.



During the resumption of smelting in WW II, Bérard collected some of these traditions. Subsequently Robert Cornevin, a colonial administrator, and most recently Bruno Martinelli and others obtained more extensive information through interviews conducted in the early 1980's. None of them, however, seems to have actually watched iron smelting in progress. In fact, none of the writers on Bassari iron working at any

period appears to have seen a furnace being built and the rituals associated with this and with the initial smelt, so that all information on this phase of the process has been second-hand. This is not surprising in view of the fact that during the heyday of the industry, furnaces could be used over and over for a period of years, with relatively minor repairs. In addition, there is some evidence that in the past this operation took place outside the village, in seclusion, so that it would not have been readily visible to travelers or officials. Nevertheless, any attempt to understand the rituals surrounding iron working would be inadequate if

it did not include the building of the furnace and the practices that give it a social identity.

In January 1965, three of us—two historians and a filmmaker—went to Banjeli, in the heart of the Bassari iron country, to investigate traditional methods of iron smelting. We were all women, a circumstance that will require some comment in its own right. We undertook to have an entirely new furnace constructed in the village of Banjeli, earlier one of the foremost centers of Bassari iron smelting. The site chosen was adjacent to an older furnace, and smelting was carried out in both. We filmed the entire process, relying on two interpreters from the village to assist us in gathering information and vocabulary. Then we showed the raw footage to three Bassari in the United States who had not been involved in the project and who knew none of the people who were, asking them to provide translations for portions of the soundtrack that we had not been able to have translated at the time and to suggest interpretations for the rituals.

While we could compare the techniques with earlier accounts and with Schomburgk's film, the only extended comparison of rituals is with the accounts provided by Martinelli's informants: no older information appears to exist. The differences between what we observed and what Martinelli's informants described may simply be due to variation not only between villages but also even between different smelting clans who tended to keep secrets within the family group. In any case, both our reconstruction and Martinelli's information represent the outer limits of oral memory in the area. A reconstruction, arranged and paid for by outsiders, will always be an exercise in artificiality, and one can never be sure what may have been forgotten or what may be deliberately withheld. The same is true of information obtained

through interviews. In addition, there are no comprehensive ethnographies of the Bassari to aid us and no dictionary of the language.

These limitations of the data must always be kept in mind. Nevertheless, a comparison of Bassari techniques, rituals and beliefs with those of other African iron workers helps to buttress our interpretations, for the understanding of technology presented here is by no means unique to the Bassari: behind particular practices are patterns of greater universality.

FURNACE CONSTRUCTION & RITUALS

The project had of necessity to be submitted to the Chief of Banjeli, Sertchi Magnibo, himself a member of a smelting clan. Once he approved and money matters were negotiated, it was he who designated the master smelter, Belam Diyambo, and his three helpers, and agreed to the other arrangements. He was consulted at each stage of the process. When we asked him if the fact that we were all women would present a problem, he said it would not because we would be observers, rather than participants, an explanation that puzzled us. Nevertheless, we were under the same sexual interdictions as the men taking part, that is, we were forbidden to have sexual relations until the smelts were completed. In a sense this gave us the status of provisional males, since women were otherwise excluded from the smelting site.

The site selected for the new furnace (kpai; pl.m'pampu) lay within the compound of the chief, not far from a furnace already standing. Earlier, it appears that clusters of furnaces were often built in the bush, within walking distance of the village, as at Nangbani M'pampu (furnaces) or Belemele. However, that may not always have been the case since

our new furnace was to be constructed on the site of a pre-existing one, and the 1914 film shows furnaces in close proximity to a cluster of houses.

Bassari iron-making, like iron-making elsewhere in Africa, was family-based. A man and it was exclusively a male occupation-became a smelter by being born into a smelting lineage and then by lengthy apprenticeship under a master smelter. His training consisted of learning the practical details of the craft plus the rituals and medicines that were essential to the process. Formerly the entire team building and operating a furnace would have been smelters; the head of the team would customarily have been the oldest member of the family using the furnace. Mining and charcoal-making were also family affairs.

Once the site was chosen and cleared it was marked off with a leafy branch, *lienaboul*, that protects against bad spirits.

But before construction could begin, the master smelter performed rituals on the site itself. Kneeling beside a small pile of fragments from old furnaces, he offered libations of *chakpa* (millet beer) to drive away evil spirits and to bless the enterprise. He first called upon *Ounimbote*, the high god, then on his ancestors (his grandfather and great-grandfather), then on various spirits, pouring a drop of beer on the ground with each name:

“Grandfather Tangma, this is your drink. Receive it.”

“Father of my grandfather, Fandi, I have heard your name, but I do not know you. This is your drink. Receive it.”

“The spirits called Banja, this is your drink...”



At the end he repeated three times: “All the ancestors whose names I have forgotten, this is your drink. All the spirits whom I have forgotten, this is your drink. We want the fire of the furnace to be a real fire, not just smoke. You all come and build this fur-

nace. It is not we who build it.” The enterprise would involve not just spirits but also the owners and metallurgists of pre-existing furnaces on this site. Indeed, bits of old furnace were incorporated into the new one. Like a living being, the furnace would have a genealogical connection with earlier ones.

The master smelter and his helpers then made a shallow circular trench, using a string as compass and marking it with small stones and bits of old furnace. This would be the base of the new furnace, with the dimensions taken from the neighboring furnace. Next the master smelter performed a ceremony to attract customers from near and far. Standing in the middle of the circle and casting sand mixed with medicines in each direction, he repeated:

“All buyers, come and buy this iron.”

In a small calabash he mixed a potion made from shaved bark (n'yoo) used to protect the future furnace, and daubed the hands and feet of all the participants with it, ourselves included. It was to keep away the bad spirits. Henceforth no one was allowed on the site who had not been purified with this, and once purified, everyone had to refrain from sexual relations until the smelt was completed. It was a sacred male domain, taboo to women of childbearing age.

Next the smelter placed medicines with the pebbles in the shallow trench outlining the base of the furnace. The vegetable medicines (a melon-like fruit, lepotadjur; and the dried leaves and wood of the boufobo tree) had been gathered by the medicine man (inoxodjal) (who was not one of the smelters), going out naked in the middle of the night to the surrounding mountains. To these he added ground porcupine skin and small chunks of hippopotamus hide. Ail of these were intended to strengthen and to protect the furnace from contact with those who were having sexual intercourse, and were also added to subsequent levels of the walls under construction: at the point where the bloom would fall at the end of the smelt, at the level where the “stomach” of the furnace meets its “chest”, and near the top of the furnace. Once the furnace was completed, medicines were also smeared on the interior surface and shelf.

The incorporation of plants, trees and animals into the furnace--the incorporation of the living world--reflects a holistic view of the unity of creation and a complex understanding of correspondences between domains of living matter. As the furnace was transformed into a living being it would assume some of the characteristics of the materials embedded into it. The leaves may also be similar to those used

“All buyers, come and buy this iron.”

medicinally in comparable contexts, for example, those given to new mothers to increase the flow of milk.



The fact that the fetisher went out to gather plants entirely nude is also relevant: nudity is often associated with key undertakings in Africa, representing unmediated contact between man and the powers and spirits that control the world, as well as an identification with the first ancestors. Formerly Bassari smelters were required to work bare-chested and to wear only a leather loin cloth and a hide apron; elsewhere they might be required to work entirely naked.

The furnace was constructed of clay mixed with grass (n'som), formed into flattened loaves and placed vertically next to each other in courses, an extremely common building tech

nique in West Africa. The exterior and interior were then smoothed over with additional clay and the outside dusted with dry earth. The completed furnace was between 2.5 and 3 meters high, cylindrical in shape but narrowing toward the top. At Nangbani the furnaces were larger which may be related to the lower quality of iron ores in that region and the need for higher temperatures to reduce them. On the inside perimeter a shelf was built just above the air intake holes (tewels) to hold the heavy charge of ore and charcoal and to separate it from the layer of sand and broken bits of furnace below until the metal had been reduced. This can also be observed in old furnaces in the region but has never been noted in the literature.



Once the new furnace was underway, a celebratory meal was prescribed. Since menstruating and sexually active women posed a grave danger to the furnace and to the future smelt, it was prepared and brought to the furnace site by Yamimbe Sakare, a widow well past child-bearing age who was also the only woman present during palavers with the chief. She was assisted by two girls whom she had kept with her the previous night to make sure they were “safe.” They had also been purified with the protective liquid. We were invited to share this meal with the master smelter and his fellow workers.

As the furnace took shape, it was regarded more and more as a human being. The bosh or mid-portion was referred to as spa, the belly; the stack was debend, the chest; and the top was the head or dyerekan(se)kem with its mouth through which the charge was fed. The interior with its charge is known as m’poyo, the lung, and when the smelting had begun, mfomfotem, respiration, was said to be taking

place--the furnace was breathing. The mastersmelter was regarded as the “father” of the furnace; he and his assistants would also become its husbands as the furnace became more explicitly a female being who would deliver the iron bloom from her womb.

The Banjeli furnace relies on natural draft rather than the forced

air produced by bellows. Air enters through holes bored evenly around the lower wall of the furnace, with a cluster of these holes in its walled up mouth. In this case there were 9 holes, although as many as 12 holes have been observed in archaeological contexts. During smelting, the hot gases inside the furnace rise, drawing a constant supply of cooler air from the outside. The holes are fitted with plugs (mpulu) fashioned from wooden poles covered with wet clay: the poles can be inserted or withdrawn to control the volume of induced air, and hence the heat of the furnace, during different phases of the smelting pro-

“Give birth to good iron; give birth to good iron,”

-cess. While the natural draft furnace is not as fuel-efficient as the bellows furnace, it requires less manpower, undoubtedly an important consideration given the scale of Bessari smelting operating bellows is very laborious work while the induced air furnace can be operated by a single smelter who adjusts the flow of air according to the progress of the smelt.

The last element to be added to the furnace was a low, curving retaining wall built out to the left of the furnace mouth to hold back slag that might run off. At the same time the area immediately in front of the furnace was dampened and pounded smooth to give it a hard surface, and the interior furnace floor was built up with broken pieces of old furnace and sand gathered from a nearby river bed that provided a bed on which the bloom and slag would fall. While much was made of the special qualities of the sand by the smelters, its main purpose seems to have been to make it easy to remove the slag without damage to the furnace floor.

The construction of the furnace was completed in 5 days. While the weather was very hot and dry at this time of year, the thick clay would take some time to dry thoroughly. To speed up the process, dried grass was burned inside it. Nevertheless, it may not have been sufficiently dry to operate properly—at least one informant suggested that the first smelt in a new furnace was rarely expected to be successful.

RITUALS OF THE FIRST SMELT IN A NEW FURNACE

The furnace was loaded with ore, charcoal and wood and lit from above. But before smelting proper could begin, further rituals were necessary to enable the furnace to “breathe.” The master smelter painted a circle of white ash mixed with water (lurekpai) around the “chest” of the furnace, adding a loop above its entrance. Then a sprig of a plant (budu), was placed in the center of the loop, held in place by red clay. The circle represents the “person” of the furnace, with two arms and mouth. Such circles are also found on furnaces in northern Ghana and more generally serve as forms of symbolic protection.

Yamimbe Sakare arrived with a special meal of fufu and mudfish. The master smelter placed a gourd of food in front of the entrance to the furnace. Holding a handful of food, he addressed the furnace:



“Give birth to good iron; give birth to good iron,”

then smeared some of the fufu and mudfish on the sprig in the ashen loop. He called upon the furnace to be fertile as the tree that produced the leaf, to bring forth “bracelet iron,” that is, iron of the very best quality.

Next he beat a young boy with a switch until he cried, brought him around to the front of the furnace and left him with a bowl of food while he joined the others with the meal (the only event that we were excluded from, along with Yamimbe Sakare). The child may represent a surrogate sacrifice, intended to drive away evil spirits and invoke the aid of ancestors and spirits. The cries of the child may also correspond to those of a newborn, carrying through the analogies of smelting and child-birth. They signal that respiration has begun; the furnace breathes.

THE SMELTING PROCESS

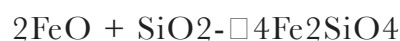
Smelting is the process by which iron ore is heated in a reducing (oxygen-free) atmosphere to the point where the raw metal separates from the rocky matrix in which it is found and metallic iron is released from other compounds found in the ore. The chemical reaction occurring is customarily expressed as:



To achieve this requires a careful knowledge of the ores and fuels at hand and an ability gained only by long experience to monitor what is going on inside the furnace through sound and sight: the sounds of the slag dropping and the color of the gases formed at various stages of the operation. The smelter is constantly listening, peering inside the draft holes, and tapping slag (tukur) through them,

all the while controlling the temperature by means of the plugs according to his sense of what is happening.

Ideally, the heat should build gradually to c.1200-1200°C to successfully separate metal from slag and produce the horseshoe-shaped “bloom” (nkuyeke) of raw (unrefined) iron characteristic of Bassari smelting. The slag consists primarily of silica in the ore which combines with iron oxide. This melts at a lower temperature than iron and runs off as molten fayalite:



Iron ore (apetan) In the form of ferric oxide (hematite) was abundant in the Bassar region. According to Hupfeld, the richest ores were found in the mountains and valleys near Banjeli; they contained as much as 69% iron. It was mined especially by women and children, and possibly by slaves as well. Usually they dug it out of surface pits, but sometimes also out of underground shafts. In 1914, Meg Gehrts, travelling with Schomburgk, described the women miners:

“It was pitiful to see some of them, with babes at their breasts... digging out the ore with a curious hoe-shaped tool. Besides being a hard occupation, it is also a dangerous one. Only a day or so before our visit, one of the miners had been killed owing to a shaft falling in.”

Yamimbe Sakare, who came of a smelting family and who had mined as a child, located the are and directed its preparation: it was broken up with a stone and sorted to winnow out impurities. Ideally, it was mined the same day it would be used and kept “moist” under a covering of green leaves. It was loaded into the

furnace in a small calabash, used only for this purpose, which served to measure the amount of ore added to the charge.

CHARCOAL MAKING

In the past women also prepared the charcoal (nko), whole villages such as Dimouri specializing in the craft. In 1985, however, the Chief assigned the work to men because they wanted to earn the wages. Ntube Dichiyou, a woman over seventy, recounted how as a little girl she had helped her mother make charcoal for her smelter-father:

“As a young girl I cut down trees with my mother. On the second day, we burned them in the pits, and on the third day, we carried the charcoal and left it at my father’s furnace.”

Not all types of wood could be used to produce charcoal for smelting, which differs from that used for smithing or for cooking. Ideally it should be a hard, dense wood with high alkali and silica content, slow-burning and capable of achieving high temperatures. The preferred species here, as across the savanna regions from the western Sudan to Malawi and southern Africa, was the oussidja (*Burkea Africana*). This tree grew slowly, however, so that charcoal makers had to range farther and farther to find choice trees: Ntube Dichiyou described having to go as far as Kabou (20 km. away). In the past it was even imported from the Asante region of Ghana to the southwest and by Hausa caravans from the north. Where the exhaustion of charcoal woods in England in the seventeenth and eighteenth century led to the adoption of new fuels, namely coke and coal, West Africans, with no suitable substitute, were forced to rely on inferior wood fuel and ultimately on imported metals.

The charcoal was measured in standard basketfuls, alternating with ore and sticks of green wood in loading the furnace. In the past a single furnace charge would have been expected to produce a bloom of 25-30 kg.

The smelt lasted about 45 hours during most of which the master smelter stayed close to the furnace, constantly checking the progress of the smelt and tapping the small amounts of slag that began flowing on the second day. He was also concerned to guard it against contact with people who might not be abstaining from sexual relations. As time passed he listened for the thud of the bloom falling to the base of the furnace, which, like the fetus dropping in the womb, would signal that the smelt was complete. Once this happened, his assistants would be released from the prohibition against sexual activity, but he would have to wait until the bloom was extracted from the furnace. Once the bloom dropped, too, women could freely approach the furnace; their presence was no longer a danger.

The smelt in the new furnace, like that carried out in the old one, was only partially successful: instead of the traditional horseshoe of raw iron, the bloom came out as an amorphous mass containing a great deal of slag, charcoal, and furnace clay still adhering to it. A number of theories were offered to explain the disappointing result. The smelter himself concluded that the taboos against sexual relations must have been violated. The Chief suggested that too much sand at the base of the furnace may have lowered the temperature so that the ore was not fully reduced. Possibly, oral memory erred as to the exact proportions of ore, charcoal, wood. Or, the furnace may still have retained too much moisture which would have adversely affected the temperatures achieved and thus the separation process. More funda-



mentally, it is obvious that without constant practice smelters cannot be expected to maintain their skills at their earlier level, to sharpen the almost intuitive sense of what is happening inside the furnace and to adapt to this. Like cooking, smelting is both a science and an art. Then, too, it is possible that some of the rituals have also become hazy through lack of usage. Even the prohibition against sexual relations seemed to be regarded with ambivalence, at least by some of the participants. While certainly the subject of a great deal of joking, it was difficult to know how seriously it was taken.

And what about the presence of three foreign women, a condition that was never put forth to explain the failure of the smelt?

While the local iron industry still flourished, blooms would have been sold in the market to neighboring smiths. Some would have been taken to Bidjabe which specialized in further refining the metal before it was worked into hoes, axes, knives, spears, bracelets, and the

like. These blooms would have been broken up and enclosed in clay crucibles (lokokol) which would then be heated in small furnaces using goatskin bellows. We were not able to document the refining process because there was no one able to repair the bellows, a sad testimony to the disappearance of the craft.

INTERPRETATION

Technologies of radical transformation, of which iron-making is a prime example, involve not only complex skills but a necessary framework of explanation. In pre-industrial societies a constant point of reference is the human, the lived world of the body. And because that body is genderized, gender becomes a means by which the world is experienced and categorized. The analog of human processes becomes the bridge to understanding the natural world.

To the Bassari, as to many other African smelters, the furnace becomes a living being, created by the metallurgist both through his control of “natural” forces and his ability to summon “supernatural” powers: his own ancestors and the spirits whose assistance is deemed indispensable to all major enterprises. Ritual and technical knowledge are insepa-





Such prohibitions and exclusions are extremely common, not only in Africa but elsewhere in the world, as Mircea Eliade and others have shown. They often affect other areas of activity that are considered equally dangerous and that are equally dependent on the control of natural forces, for example, hunting, warfare, ceremonies surrounding death, and even the assumption of political power. The reasons are undoubtedly complex and multiple, and are so much a matter of custom that those concerned are rarely able to explain them. This was largely the case with our Bassari informants so that our interpretation is drawn in part from other peoples who share the same exclusions and prohibitions.

rable in the process by which the furnace, like a woman, breathes and eats in order to gestate iron in its womb. The smelter thus usurps the creative power of the woman, becomes in a sense and for a moment, a woman himself—directly through his ability to build a functioning furnace and vicariously through the furnace’s ability to deliver workable bloom.

Why then the exclusion of women, and especially menstruating women, from the smelting site and the prohibition against sexual relations by those participating in the operation? As one aged informant put it, “If a smelter slept with a woman while the smelt was going on, he would not return to the furnace until it was finished. Otherwise, he would risk his life and the success of the smelt.” As we have seen, protection against women and against those who were having sexual relations was one of the main purposes of the medicines used and of the invocation of ancestral and other spirits. In the past women were not even supposed to look at the flames spewing out of the furnace.

On the most down-to-earth level, the presence of women always represents a distraction and a temptation to men, best avoided by keeping them at a distance. It is a common assumption that sexual activity simply diminishes one’s energies for other tasks, energies that are especially vital to difficult or dangerous undertakings. More specifically, the view that sexual activity on the part of anyone coming into contact with the furnace can ruin the smelt seems to be intimately related to the notion that the furnace is analogous to a pregnant woman. Sexual relations on the part of those who are her symbolic husbands would be equivalent to adultery, and adultery during pregnancy is widely believed to cause a difficult birth or a malformed child, in this case, an aborted smelt. Similarly, women’s menstrual blood represents a failure to conceive and could cause a similar failure on the part of the furnace. It may be also that sexual activity and menstrual blood are thought to be dangerous because they are hot, and control of heat and fire are of the essence in the smelting process.

The exclusion of women from smelting operations and from the site itself is then a logical corollary: since men are functioning as both male and female in replicating women's reproductive capacities through the act of smelting, women are unnecessary, Indeed dangerous according to the common belief that like is dangerous to like. In the symbolic enactment of copulation, gestation, and birth that smelting represents--most graphically exemplified by the phallic function of the air hole plugs (mpulu)--the presence of another woman would itself carry connotations of adultery. On the most fundamental level, smelting taboos represent the profound ambivalence men may feel towards women. Fears of pollution, of danger are at the same time an acknowledgment of men's sexual dependence on women and their envy of women's procreative powers. The exclusion did not apply to older women such as Yamimbe Sakare because they were no longer sexually active, no longer menstruating, in sum, no longer essentially female and hence no longer a "danger" to men.

The exclusion of women from all but the preparatory stages of the smelting process also



serves as one means by which they are barred from access to economic wealth and thus political power. It might be argued, too, that the exclusion of wives and daughters helps maintain proprietary and industrial secrets, functioning much like a patent system for the protection of valuable technical information from loss to outside groups via exogamous marriage or kinship ties. The same purpose would have been accomplished by the exclusion of slaves, reported by early observers. Ironically, such discrimination may inadvertently have also protected them from the hazards of industrial pollution, including exposure to the fumes, gases and heavy metals spewed from the tops of furnaces into surrounding areas.

Bassari iron-making, like iron-making in many other pre-industrial societies, is therefore far more than a technical exercise or a matter of abstract chemical reactions. Technological practices are not distinct from spiritual ones. In all major enterprises, success depends not only on human skills but also on the intervention of ancestors and spirits who are a part of the natural world. At the same time, this world is humanized: acts of transformation are expressed in terms of the relationship between the sexes, the complementary but often asymmetrical interplay of male and female. Iron smelting reflects both positive and negative views of femaleness simultaneously: creativity and danger. By insisting on the exclusion of women from it, the male smelter reaffirms his control of a fundamental source of power and wealth.

ABOUT THE FILM AND FILMMAKERS

The film was shot on Super 8 film in Togo in January-February 1985 by Carlyn Saltman. It was transferred to 1" video by Brodsky and Treadway in Somerville, MA. and edited by Saltman. The script was written by Herbert

and Goucher, edited by Saltman. The 1914 excerpts are taken from *Im deutschen Sudan* by Hans Schomburgk, Institut für den wissenschaftlichen Film, Göttingen, and used with the kind permission of Frau Margarete Schomburgk. This film was originally shot in 35 mm.

Carlyn Saltman is an independent filmmaker, currently studying at the National Film and Television School in Beaconsfield, England. She has made several other films on Africa, including “Danced Faiths: Two Bamileke Funeral Dances” and “Lost-Wax Casting in Cameroon” (both with Eugenia Herbert), and “We’re on Our Way!” with a small enterprise development organization. She has received a grant for a film on young people in an African capital.

Eugenia Herbert is E. Nevius Rodman Professor of African History at Mount Holyoke College, South Hadley, MA. She is the author most recently of *Red Gold of Africa: Copper*

in *Precolonial History and Culture* (1984) and is currently working on a comparative study of

technology and gender in African metallurgy.

Candice Goucher is Assistant Professor of History and Black Studies at Portland State University, Portland, OR. She completed her Ph.D. dissertation with Merrick Posnansky at UCLA on “The Iron Industry of Bassar, Togo: An Interdisciplinary Investigation of African Technological History” (1984) and is currently revising it for publication. She is also conducting research on Afro-American iron technology in the New World.





Film Credits

A Film by Carlyn Saltman

Edited by Carlyn Saltman

Script by Eugenia Herbert and Candice Goucher

Script Edited by Carlyn Saltman

1914 Excerpts taken from Im deutschen Sudan by Hans Schomburgk Institut für den wissenschaftlichen Film, Göttingen

Purchasing Information

Color, 29 mins, 1986

Institution sale \$195.00

Consumer sale \$ 49.95

DVD/VHS

Contact DER for 16mm

sales and rentals

Study Guide Credits

Study Guide written by
Eugenia W. Herbert & Candice Goucher

Edited and compiled by
Razan Alzayani

Study Guide design by
Razan Alzayani

Contact Information

Documentary Educational Resources

101 Morse St.
Watertown MA 02472

800-569-6621 or 617-926-0491

<http://www.der.org>
docued@der.org