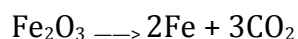


## *Chikunga*

With the exception of hunter-gatherer and pastoralist societies, iron working was quasi-universal in sub-Saharan African Africa, beginning as early as the middle of the first millennium BCE in some places. The red crust that makes such a vivid impression on travellers coming by air to the continent is laterite, an abundant source of iron oxides that could be smelted and forged into all manner of tools and weapons. Katanga in the southern part of what was formerly the Belgian Congo was exceptional in having significant deposits of both native iron and copper. Thanks to Herman Philips we now have films documenting both in the region, although only *Chikunga*, the film on iron working, is currently available. Philips came to Africa in 1937 as an engineer with the Union Minière du Haut Katanga, the Belgian mining company exploiting Katanga's copper resources during the period of colonial rule from 1907-1960. His films date from 1957 and 1959, just before independence. He also left a cache of photographs and brief talks explaining the processes involved in indigenous metallurgy. What is especially valuable is his mapping of metal-producing regions within Katanga and their particular specializations.

The two parts of *Chikunga* are devoted to iron smelting and forging. The first shows the construction of the smelting furnace, the preparation of the iron ore and the charcoal, and the sequence of feeding them into the furnace as bellows force air into the back. The large opening in front is blocked with balls of clay but has four holes bored into it at the bottom through which flames escape. The ore must be 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 impurities. The basic formula for this is



The heat must rise gradually to c. 1200-1300° C to separate metal from slag. The slag usually consists largely of silica that combines with iron oxide, melts at a lower temperature, and runs off. When the smelt is judged complete, the front wall is torn apart and the bloom, the metallic iron, drawn out from among the charcoal embers.

To achieve a successful smelt requires a careful knowledge of the ores and fuel 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 each stage. More is involved than technology, however. Success depends on actions and rituals that reflect a profound

understanding of how to control the forces involved in all creative activities. The Dembo Lunda furnace is similar to those found in a wide band across Central Africa with its breasts, navel, and birth canal. It symbolizes—embodies—a woman giving birth, in this case not to a child but to iron; like children, iron is indispensable to the survival of society. Smelters and their helpers can only be males and are seen as surrogate husbands of the furnace and fathers of the bloom—controlling or even usurping woman’s monopoly of procreation. While the smelt is in progress participants are kept to a strict code of behavior and women of childbearing age are customarily excluded from the site. We see the furnace brought to life by invocations and offerings to ancestors whose help is believed indispensable to a good outcome. As is common elsewhere, music plays a key part: the smelters and bellows operators sing or chant throughout the operation. Like all work songs, the rhythms make the tedious and strenuous work of manipulating the bellows more palatable, but also the music itself, like the words of the invocation, pleases the ancestors and wins their help.

While the reduction process involved in smelting separates most of the bloom from slag, the bloom still retains impurities. These are removed in the forge, often by pounding it with a heavy stone. Then it is ready to be shaped by repeated tempering in the charcoal hearth heated by the bellows-driven oven. The most common implement produced by the smith is a hoe blade, hafted onto a wooden handle, but in fact the repertoire of objects is almost infinite: knives and axes, currency, weapons of war, items of regalia and social status, and even religious and ritual panoply. Philips provides a useful list of Lunda vocabulary relevant to smelting and forging, with drawings of typical blades and the parts of the ubiquitous axe.

A postscript: two charming short films by Philips show his two young sons, barefoot, absorbed in the work of the smith. They try some forging themselves and end up with happy smiles on their charcoal-besmudged faces.

*Chikunga* is narrated by Père Placide Tempels, a good friend of Philips. Tempels spent many years in the Congo as a missionary, developed a close relationship with local people, and became more and more interested in African

systems of thought. He published his groundbreaking book *La Philosophie bantoue* in Lubumbashi in 1945 and the following year in Antwerp. In it he argued that African worldviews should be studied and valued on their own terms, not compared to European philosophy, as had been the case up until then. His book was not intended as a definitive exposition, something he was too humble to claim, but rather as a provocative introduction. It had an enormous influence on the nascent field of African Studies. It was undoubtedly due to both Philips' and Tempels' unusual rapport with village chiefs that filming was permitted.

Philips had long been fascinated by photography and film. For the latter he used 16mm Kodak chrome. He was careful to record the songs sung by the metal workers, recognizing their importance. They were, he noted "old traditional smelters' songs." Like all Bantu music, "to our ears they sound monotonous, but this monotony is more apparent than real. They are indeed built on short tunes that repeat themselves rhythmically, but the repetitions themselves are melodically full of improvisation, and for those who already have acquired an ear for it, there sometimes is really a lot more to find than one would suppose at a first listening." This observation from a lover of classical music and self-taught flutist!

Soon after his return to Belgium in December 1961, Philips joined a steel company recently founded in Ghent. Here he deposited a copy on VHS of three films. His son Pieter was later employed by Sidmar and its successors. Along with fellow employees Karl Buttiens and Louis Jacobs, Pieter showed *Chikunga* to Julian Allwood, a Cambridge engineer interested in the history of metalworking. Recognizing its importance and that of the others made by Philips, Allwood worked with these colleagues and with Eugenia Herbert, a historian of African metallurgy who has filmed iron and copper technologies in Togo, Zaïre (now the Democratic Republic of Congo), and Cameroon, to have the films restored and made available to a wider public. The Ghent plant is now a subsidiary of ArcelorMittal, the international steel-producing conglomerate, and we are deeply grateful to them for their keen interest and support of the project.