

New Carbon 14C Datings of Iron Metallurgy in the Central African Dense Forest

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ABSTRACT

This paper presents new dates for iron reduction structures in the rainforest of south-western Central African Republic, contributing detailed information to broader debates about human habitation and transformations of these forests over time. The first site, in the town of Nola, dates from the beginning of our era. It is considered here within the context of iron working's progression throughout the rainforest toward the southeast, probably through Bantu migration. Two other sites date from between the 13th and 14th centuries AD, on the Baboungué plateau (not far outside Nola, near the northernmost boundary of the Dzanga-Sangha Dense Forest Reserve) in an area with high concentrations of furnaces, but where unfortunately we have not yet found settlement sites.

The archeological research projects conducted by members of the CURDHACA program include two master's theses on the Central African Republic's¹ forests (Zana 1994; Ndanga 1996). The results of these research projects fit within the more general framework of studies of iron metallurgy and the study of Bantu minorities. Thanks to these studies, new iron-age sites have been discovered, excavated, and dated.

REGIONAL CONTEXT AND BACKGROUND

An evaluation of the central African context was presented by Lanfranchi and Schwartz (1990) at a 1996 ECOFIT² symposium improved our knowledge, particularly about the Holocene era in these forests. The Holocene era is generally described as dominated by forests. However, it is worth shedding further light on its ecological characteristics. In the inferior Holocene, the forest underwent a maximum expansion. But from circa 5000 BP (Schwartz 1997) a dry tendency, revealed by 14C datings from around 3500-2800 BP, took hold in Central Africa. The most sensitive environments reacted first, and most clearly. During this relatively dry period, we see the origin of the savannas that are found today in the midst of central African forest regions, for example in the Chaillu, Mayombé, Ogoué, Impfondo region, and Congo/CAR border. These savannas were created by combined edaphic, climatic, and anthropic factors, although climatic factors remain, first and foremost, the condition of their appearance (Schwartz *et al* 1995). It is also within this time margin that a series of archeological sites in central Africa is located, with the appearance, first of ceramics, then of iron metallurgy. The whole wave of forest structure and human technological change may

¹ Center for Historical and Archeological Research and Documentation (CURDHACA) created at the University of Bangui in 1980 by P. Vidal.

² Ecosystèmes des Forêts Inter-tropicales, or Ecosystems of Inter-tropical Forests, (ECOFIT) is a research initiative for studying the long-term dynamics of tropical forest ecosystems through a blending of archeology and other fields.

thus be related to the Bantu migration from what is now the Niger-Cameroon border (Bouquiaux 1980; Lanfranchi and Clist 1991; Schwartz 1992).

Over the past 500-1000 years (Vincent *et al* 1994; Elonga *et al* 1996), we have witnessed forest regrowth because of more humid climatic conditions (the explanation for which remains to be specified). The savannas in the southern Congo, where erosion is occurring, are disappearing today. Yet despite annual fires, we are witnessing a slow forest increase under favorable conditions of human activity, for example, in the Mayombé in Congo, and in the Tikar land in Cameroon. All the central African forests appeared during a period of mild drought which began around 5000 BC. Iron metallurgy appeared in the forests quite suddenly, and undoubtedly expanded rapidly among people living in the forest zones, starting around 500 BC. The impact of these populations on the forest is not well known, as few large sites have been excavated. The soil is not favorable to the conservation of remains. However, we can assume that, aside from some horticulture, these forest inhabitants would have maintained their hunting and gathering subsistence patterns.

GEOGRAPHICAL LOCATION

The archeological results presented below (Figure 1) come from Nola district and Salo in the Sangha-Mbaéré administrative region (between 3°35' N and 3°10' N and between 16°E and 16°15' E). This area is where the Sangha River forms from the confluence of the Kadeï and Mbaéré rivers at the town of Nola, whose administrative center and commercial neighborhoods are situated between these two rivers. Salo, situated a bit further south, is the extreme point of navigability of the Sangha River during high water.

The geological substratum consists of precambrian formations composed of quartz, schists, and doloritics in the western area and of the Carnot sandstones in the eastern area. The climate is the typical Guinean forest climate, and has only one dry season, in March. The region is covered with a dense forest of *Caducifolous mesophile*. However, this forest includes numerous scattered savannas, mostly in the Baboungué region, where it has developed on the Carnot sandstones. The arbustic stratum consists of *Crossopteryx febrifurga*, *Hymenocardia acida*, *Annoma senegalensis*, while the herbacious stratum consists of *Imperata* and *Loudetia* (Boulvert 1986). In those savannas there are also many dead ant-hills caused by *Macrotermes bellicosus ruelle* (ex. *bellicositermes rex*) similar to the ones found further to the south within the forest towards Ouesso (Lanfranchi and Schwartz 1990) but also along Oubangui river, for example, in the Alindao and Mobaye regions.

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1) BÉCARÉ II SITE (3° 31' 37" N, 16° 01' 43" E)

Bécaré II is situated in Nola center, Bécaré district, within the concession of Martin Mowe. The site is at the border of an ant-hill of *Macrotermes bellicosus* which served as a clay quarry during the building of two huts. It is this exploitation that has contributed to both the discovery and destruction of part of the vestiges.

2) SABÉLÉ I AND II SITES (3° 20' N AND 16°10'52" E)

These sites are situated near the crossroads of Salo and Bayanga roads, and is called "Beya" (which means "pale grass" in the Gbaya language). On the plateau of Baboungué is the savanna zone, inhabited for some years by Mbororo pastoralists who use fire in their system of savanna subsistence to create pasture for their cattle. In

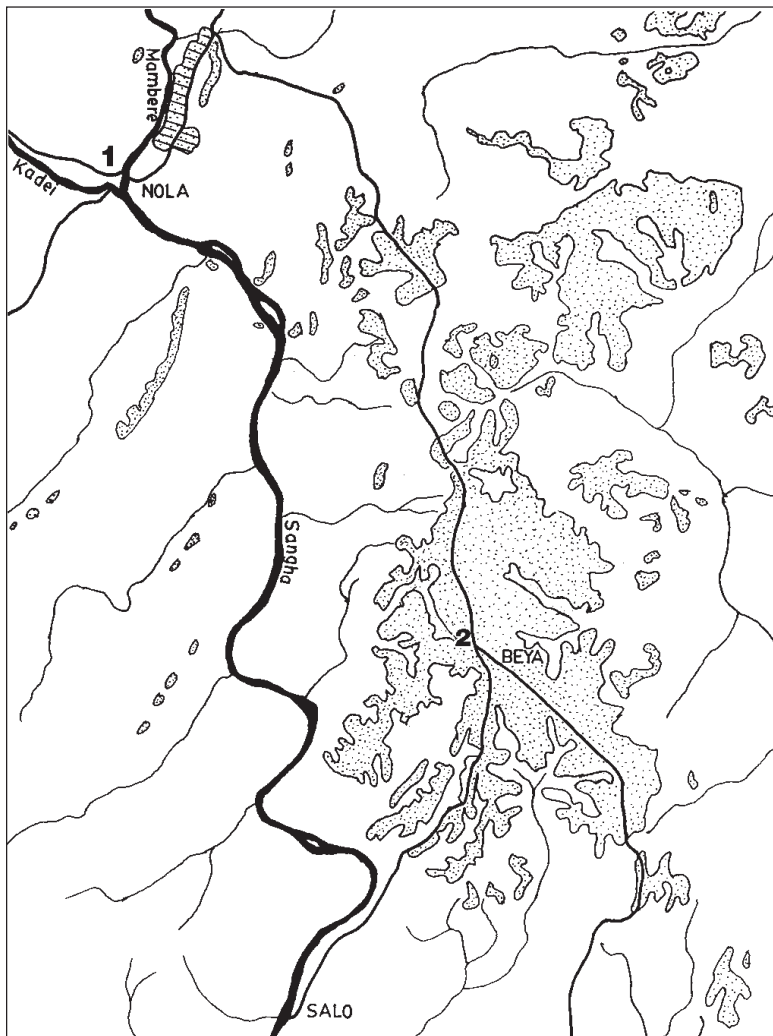


Figure 1 Map of the dated site localities: 1: Bécaré 2: Sabélé (NB: dots represent the savannas).

this savanna, besides *Eutermes fungifaber sjöst* (ex. *cubitermes spec.*) ant-hills, are found numerous knolls of *Macrotermes bellicosus*. But our archeological prospecting has demonstrated that some of these knolls were in reality an accumulation of slags, with fragments of twyers and the remains of furnaces. Nineteen of these iron containers have been recorded within a radius of four kilometers around Beya, concentrated especially at the top of streams or along them. An excavation has taken place in two of them situated on either side of the road.

DESCRIPTION OF SITES AND RESULTS

BÉCARÉ II

The site is wedged in the middle of several huts. A cross-section of four meters was dug, following a north/south axis. Along the edges of the site is termite mound material. Four m² have been excavated, each approximately one meter deep. A scouring at the level of 5 cm, from a depth of 10 cm, created an archeological level, darkly colored and sandy in some places, with numerous fragments of scoria. In the squares C1 and D1, the densest scoria surround blocs of reddish soil as well as twyer (or pipe-like) fragments. In C1, the layer is funnel-shaped under the bloc of reddish soil, about 40 cm deep (Figure 2). Above the blocs and on the top of that small pit, fragments of decimetrical twyers are scattered within its periphery. Here we found the bottom of a circular furnace, so destroyed that there is only a pit left, a part of crown pipes around it, and atop the rest, brick colored blocs, fragments from the inside surface of a furnace.

Wooden coals have been removed from the inside pipes of the furnace. They were often found in connection with the pipes, suggesting an association with iron production. The coals have been dated as Beta-88067=1870+/- 70 BP (that is dated 2 sigma, or 95% probability); ca. AD 55 to 390, placing iron metallurgy from 1st to 4th century AD (Stuiver and Reimer 1993).

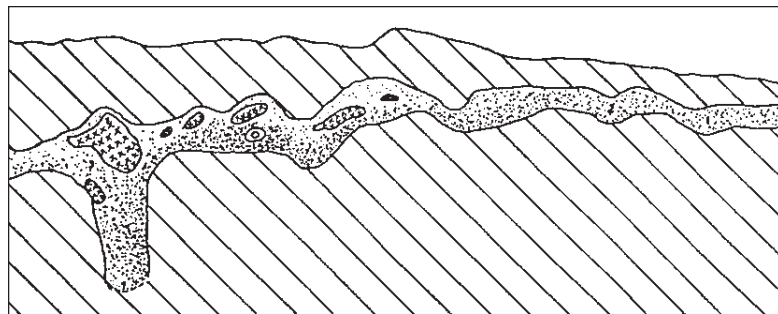


Figure 2 Cross section of the Becaré site.

SABÉLÉ I AND II

Sabélé I is a sub-circular hillock, 12 m in diameter and 1.5 m in maximal height. The center of the hillock is low-lying, and it is in this hollow of about 4 m diameter that one finds pipe fragments of black earth and pieces of brick-colored earth which demarcate a circular form (Figures 3a and b). The entire hillock is eroded due to being trampled by cattle. Tiles were installed on the central part of the site. The excavation revealed the base of a furnace, which was totally destroyed. Since the wooden coals from that part of the excavation were at risk of being contaminated (through flooding, bush fire, grazing), a cutting in the ring of scoria around the furnace was made by cutting the hillock along its height. Thus, four layers have been observed:

- **Layer 1:** the deepest layer, 50 cm thick, is composed of a large quantity of scoria mixed with brick colored earth as well as brown earth;
- **Layer 2:** 15 cm thick, is composed of black earth, and is poor in scoria but rich in wooden coal;
- **Layer 3:** 40 cm thick, is similar to layer 1;
- **Layer 4:** 20 cm thick, is black and poor in scoria; it is connected to a superficial horizon which cannot be distinguished from it.

Layer 2, with plentiful wooden coal and situated between two layers mostly rich in scoria, has been chosen for dating. The strata have been dated as follows. LY-5921=630+/-45 BP (that is dated 2 sigma, 95% probability): ca. AD 1278-1411, which places metallurgical activity of the site from the end of the 13th and from the 15th centuries AD.

Sabélé II, 600 m from the site described above, is also a hillock. However, it is oval-shaped and has no depression in the middle. It is 75 cm high, and measures 5 m and 3.5 m along its axis. There is no apparent trace of a furnace, and only the scoria and blocs of reddish earth testify to the presence of activity. We drilled in the center of the furnace and coal from wood has been taken at 20 cm in depth. The strata have been dated: LY-5922=715+/-35 BP (that is dated 2 sigma, 95% probability): ca. AD 1222-1387, that is (as for Sabélé I) from the end of the 13th and from the end of 14th centuries AD. These two sites are therefore perfectly contemporary and testify to substantial metallurgical activity on the plateau of Baboungué, although corresponding habitat sites remain to be discovered.

INTERPRETATION

These dates are important within their regional context. The date of Bécaré II is related to the ancient Iron Age. In this part of central Africa, iron metallurgy is linked with the expansion of Bantu populations whose origin is thought to be the Grassfields on today's Niger-Cameroon borders (David 1980; Bouquiaux 1980). The most ancient dates come from near Yaoundé, and they are classified between the 5th and 2nd century AD (Essomba 1989; de Maret 1992). Further south in Gabon, similar ancient dates are found in the

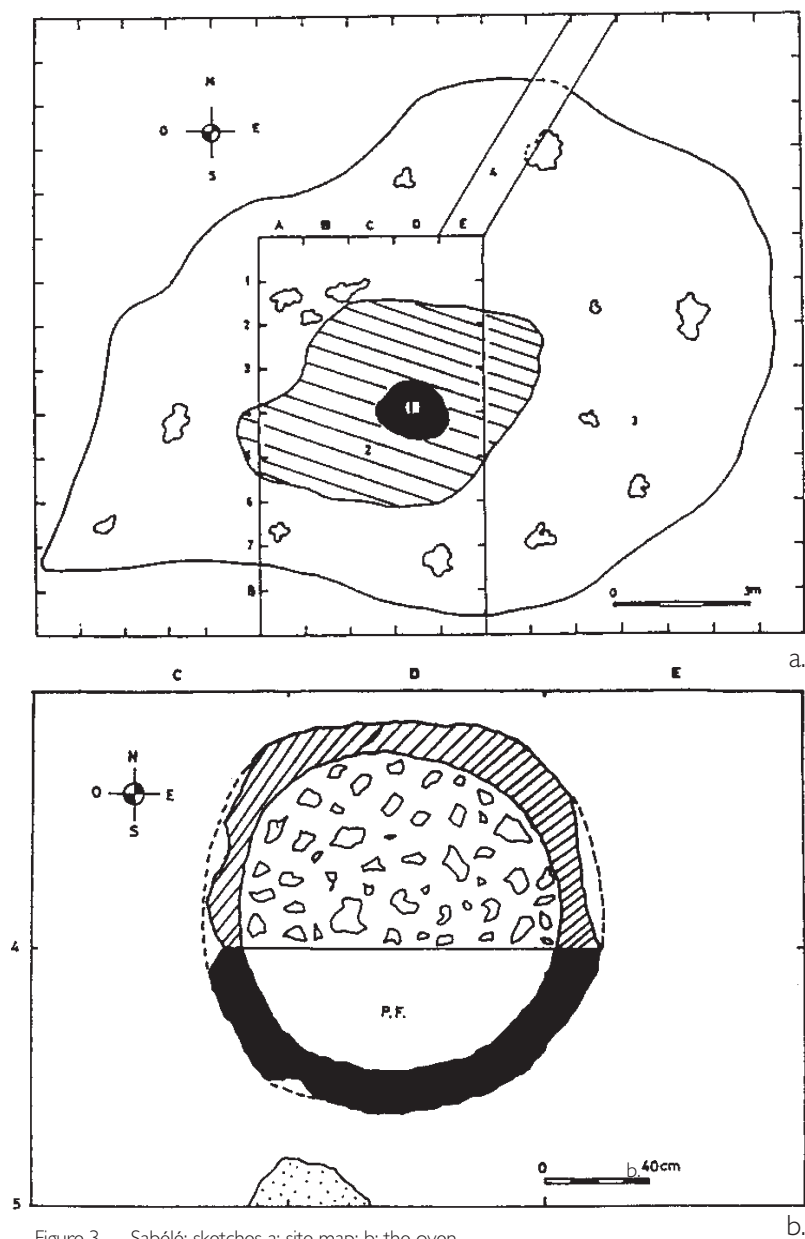


Figure 3 Sabélé; sketches a: site map; b: the oven.

Woleu Ntem, and in the mid- and high-Ogooue (Peyrot and Oslisly 1987; Digombe *et al.* 1988; Clist 1990). Metallurgy is also widespread between 2200 and 2100 BP (Clist 1990).

Around this ancient cradle, one could then distinguish an extension towards the south with the dates of Congo and the Democratic Republic of Congo (or DRC, formerly Zaire). In Congo, metallurgy appears a bit before our era on the coastal front and in the Mayombe area (Denbow *et al.* 1988; Denbow 1990; Schwartz *et al.* 1990) and early in our era on the Batéké plateaus (Pincon 1990). In lower-Congo the oldest dates do not go back any further than the first century AD (de Maret 1986).

The Imbonga group (in DRC) is considered intrusive to the forest world (Eggert 1984; 1987) and their ancestors appear to have been the most ancient population to have used ceramics (first half of the first millennium, BC). With very little connection to other ceramic traditions of the region, particularly that of Obobogo (Wotzka 1990), it has as yet furnished few clues for a better understanding of metallurgy in the area. The Batalimo-Maluba group has shown no evidence of metallurgy in Malube (fourth century BC through the second century AD). But perhaps we find traces at Batalimo a bit later (4th century AD; Lanfranchi and Gotilogue, in press). In the Batalimo region, iron is only known to be present since the beginning of the 17th century AD (Vidal 1992; Kote 1992). In Congo, on the other hand, the Pikunda-Munda horizon dates from the 3rd century BC to the 2nd century AD, and has produced an original ceramic form, apparently in relation with iron working (Eggert 1992). To the north, in the Bouar region (at Ndio) is an iron reduction structure dated from the 1st century BC to the 7th century AD (Zangato 1991).

The Bécarré II dates thus reveal the presence of iron *between* the Cameroonian region of Yaoundé and the CAR region of the Lobaye, at the beginning of our era. The Sabélé I and II sites, a thousand years younger than Bécarré II, correspond to what is conventionally called the recent Iron Age. This shows that there must have been a continuum of human occupation in these forest regions in the great African Forest belt. Regrettably, further research is necessary to find habitation remains from which ceramic fragments might tell us more than these high densities of iron-working sites do about the mysterious metallurgists of the Baboungé Plateau.

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JEAN NDANGA currently resides in Bangui, Central African Republic, having successfully completed his studies. Because of political troubles in that city since 1997, news of M. Ndanga's activities has been unfortunately scarce, although we encourage network members to contact him through the address below.

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HENRI ZANA has relocated to the village of Bayanga in the Dzanga Sangha Dense Forest Reserve since completing his master's degree in archeology. He has, from there, collaborated with several other Sangha Network members on a variety of research projects. He participated in Mark Freudenberger and Zéphirin Mogba's MARP study (1997), assisted Anna Roosevelt with her archeological field research (1998) and translated the Sangha Network Working Papers Series "Research and Rural Development Work Sessions" Report into Sango for Melissa Remis (1998).

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