

Saving 1,000 years of African history: there is no evidence of a population collapse in Congo rainforest from 400 to 600 CE – 2. The pottery styles.

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Response to the published paper “Seidensticker (D.), Hubau (W.), Verschuren (D.), Fortes-Lima (C.), de Maret (P.), Schlebusch (C.M.) & Bostoen (K.), 2021, Population collapse in Congo rainforest from 400 CE urges reassessment of the Bantu Expansion, *Science Advances*, Published online: 12 February 2021, Vol. 7, no. 7.”

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Seidensticker et al. ‘compiled a dataset of well described styles of pottery groups’, marking the expansion of Iron Age villagers, probably Bantu-speakers, recorded over the last 40 years. These groups, however, are not yet correctly published. There are major differences between insufficient descriptions, text and figures versus a well described and illustrated analysis.

The S2 table, listing pottery styles, contains inaccuracies that impact our understanding of the evolution of styles, their true cultural representation and association with radiocarbon dates. For example, the 5 pottery types found at Dibamba (Cameroon) do not yet constitute individual style groups (1). Certainly, they are not equal to the Okala Group (southern Cameroon and Gabon), identified at several sites and positioned by 44 dates. Similarly, Seidensticker et al. misrepresent the 4 pottery types in the Kongo Group as four different styles (2). It is also difficult to consider the 59 styles from the Inner Congo Basin (zones D to F), 40 of them undated, together with the 56 from west of the Congo River (zones A to C) of which only 2 are undated, or the 16 ethnographic and modern styles in the D to F zones, while ignoring similar styles identified in zone C. The authors also overlook other styles: for instance, styles in the Bouar area (CAR) as well as the Nkang style in Cameroon, the Lindili in Gabon and the Kazu or Muanda in the Lower Congo (DRC) (2, 3).

Only three styles are thought to continue after AD 600, representing ‘scattered populations’ (Ilambi in the DRC; Nandá in Gabon; and Spaced Curvilinear in Congo). In contrast to that interpretation, Muanda and other styles found along the coast of the DRC date to between AD 400 and 800 and provide a more comprehensive picture (4).

In the three areas where complete pottery sequences are available (Gabon: northwest and center; DRC: Upemba Depression and Inner Congo Basin; Congo: Kouilou River), we find continuous sequences, broken every few centuries by changes in “chaînes opératoires” and styles (5); on the coast of Gabon, they are c. 2,500, 2,000, 1,400, 950 and 450 BP, the latest being the contact with the Portuguese, in Katanga (DRC), c. 1,600, 1,300 and 800 BP. It is particularly important to distinguish between internal shifts and complete stylistic changes. Complete change, or transitions, is strong evidence for new people, and of a spread-over-spread process. This has been followed by archaeologists mainly by PhD studies carried out in Cameroon, Gabon and the DRC since the mid-1980s (6).

The “Late Iron Age” (LIA) has been less studied, thus yielding fewer dates and pottery descriptions than for the Early Iron Age (EIA). For instance, the styles in Cameroon (Table S2) provide an incomplete sequence. Only 12 are listed for the whole of southern Cameroon and for the entire “Iron Age” or 3,000 years. By removing the 5 Dibamba ‘styles’ discussed earlier, we are left with only Neolithic and EIA styles and none for the LIA. In Gabon, the continuous or nearly continuous Neolithic-EIA-LIA sequences extend from c. 2,500 BP to c. 200 BP in the northwest and center, while the northern and southern parts are poorly known

(5). Most recently, new LIA fieldwork has dramatically increased the number of 14C dates and specific style groups (7, 8).

Since 2014, the cultural sequences slowly obtained west of the Congo River have given us a renewed understanding. Neolithic styles subdivisions exist and suggest that the so-called regionalization process was not specific to the Iron Age. Furthermore, we understand the onset of the EIA is characterized by a new expansion spreading from Cameroon-Gabon, interacting with the first villagers, and extending over the border of Angola c. 2100-1800 BP (5). The LIA remains inadequately known, but other dynamics are illustrated.

For several decades, researchers have recognized a stylistic split between the EIA and LIA periods based on technological and stylistic aspects. While a ‘fossile directeur’ such as round-based vessels may indicate such a split in the Inner Congo Basin, it does not apply to other areas. Round-based vessels are well known along the Atlantic coastline of Equatorial Guinea, Congo and the DRC between 2,000 and 1,500 BP neighbors to EIA flat-based pottery groups, and in Katanga (DRC) round-based vessels are there since the inception of the EIA c. 1,600 BP. Moreover, stylistic distinctions between the EIA and later pottery date to different times. In Gabon, it occurs at about 950 BP, but in Bas Congo (DRC) it is probably 300 years earlier, at about 1250 BP, while in Katanga it is more fluid without major discontinuities in the EIA-LIA pottery. Thus, the break is not as sharp as the authors claim.

Seidensticker et al. use the “Justinian plague” of the 6th-8th centuries to strengthen their unconvincing claim of a demographic crash from AD 400 to 600. Nowhere in the Sahara, Sahel, West Africa, nor East Africa, however, is there archaeological evidence for a demographic collapse. Furthermore, M. Green’s genetic identification of *Yersinia pestis* in Central Africa shows it is an offshoot of the Middle Ages plague (9), which may have entered Africa in the late 15th or early 16th century (10). In Central Africa, the higher number of LIA sites document an important demographic boost, supported by genetics for Gabon, a result inconclusive to the presence of a plague.

Last, the early stages of the Bantu expansion relate to the pre-metallurgy phase and the EIA. By c. 1500 BP (roughly AD 500), Iron Age farmers had moved through southern and eastern Africa, settling into South Africa. In Central Africa, the period after AD 500 is about multiple local reshuffling of the established and already settled communities, which has drawn less attention by archaeologists.

We agree with Seidensticker et al. that the present distribution of Bantu languages does not reflect the early stages of expansion; this is a different situation from archaeology. Quite recently it was possible to indicate that “As is often the case in West-Central Africa, linguistic and archaeological evidence do not always match.” (11: 25).

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RE: Clist et al.: Saving 1,000 years of African history: there is no evidence of a population collapse in Congo rainforest from 400 to 600 CE – 2. The pottery styles

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The comment by Clist et al. (1) on our work (2) is puzzling, as it digresses in archeological details that are hardly relevant to the main points we brought forward. Their principal objections seem to be that our “compiled dataset of all well-described styles of ancient pottery” (data S2 in (2)) contains inaccuracies, is partly based on “not yet correctly published” materials and that “[t]here are major differences between [...] descriptions, text and figures”. We compiled the first-ever comprehensive overview of published information on Central African types of ancient pottery from a massive volume of archeological evidence (data S3 in (2)). We encountered several differences among researchers in whether to group, or discriminate between, different types of pottery. Given the inherent fragmentary nature of the archeological record, there will always be differences among researchers in whether to stress the continuity or the discontinuity in the cultural traditions represented by that pottery. Contrary to what Clist et al. (1) appear to suggest, our demonstration of a distinct period of low human activity (600-1000 CE) is robust against this variation of interpretation. Apparently highly sensitive to semantics, Clist et al. (1) also negate our full recognition of the existence of archeological sites during this so-called ‘gap’ in the archeological record. In fact, we present data from a total of 61 sites during this time interval. Scattered across the Congo rainforest, we consider these sites to represent relic forest-dwelling populations (see fig. S4 in (2)).

Focussing on the ceramic evidence, contrary to Clist et al. (1), we see no reason to dismiss the five pottery types documented from the site of Dibamba in Cameroon (3). We consider this site to be highly significant, because its oldest pottery (group E) shows clear connections to Early Iron Age (EIA) material from both Obobogo and Malongo, while its younger pottery (group D) shows resemblances to that from Campo (all in Cameroon) (4). The youngest three groups of pottery from Dibamba offer a rare glimpse into the ceramics of the Late Iron Age (LIA) in western Cameroon.

We wonder why Clist et al. refer to a specific ‘Nkang’ style of pottery from Cameroon, while the authors who originally described the ceramics from the Nkang site have always considered them to be affiliated to those from Obobogo and other nearby sites, and referred to them as belonging to the Obobogo ‘tradition’ (5, 6).

Consequently, we included this pottery as such in our data S2 (2). Clist et al. also mention a ‘Lindili’ pottery style in Gabon, which we included into the Okanda pottery in our data S2 (2) because the principal excavator of the related sites always found it together with Okanda pottery (7), and discusses it in close relation to the latter type. The ‘Muanda’ style from the coastal region of the DR Congo, to which Clist et al. refer, has not been published yet and could therefore not be included in our study. We also wonder why Clist et al. refer to ‘Kazu’ pottery, as the pottery from this site has never been explicitly conceptualized as a ‘group’ or ‘type’, in contrast to others from the same region, such as Kindoki, Mbafu, and the four pottery types from the Kongo kingdom period (8). We can only reiterate that to compile data S2 (2) we “took into account the interpretation of the original authors and the results of subsequent analyses” (2).

Clist et al. also claim that “complete pottery sequences” are available from three regions and that these regions provide “continuous sequences”, but then contradict themselves by stating that these sequences are “broken every few centuries by changes in ‘chaînes opératoires’ and styles”. A comprehensive and detailed review of all chronological considerations of the archeological sequence from the Inner Congo Basin (9) indicates that the notion of a continuous sequence should be revised. Bokuma and Lindonga, the last pottery types from that region pertaining to the Early Iron Age (EIA), end around the 5th-6th century CE. The undisputed onset of the Bondongo type cannot be dated earlier than the beginning of the 10th century CE, and only the Longa type has been proposed for the intervening period. But none of the three available 14C-dates for this pottery falls within the 600-1000 CE period of low human activity. Two of them are considerably older, while the third is dated to a wide interval encompassing the 11th to 14th century CE. Also, while Longa pottery retains some aspects of the mentioned earlier styles, the bulk of its stylistic attributes links it to Bondongo pottery (9). Based on the currently available data, it is therefore more likely that Longa is contemporaneous to Bondongo rather than dating from the 6th to 10th century CE (see data S2 in (2)). We could similarly dispute most of the other archaeological claims made by Clist et al.

However, it is important to stress that our lines of evidence based on ceramic analysis are fully consistent with the clearly bimodal temporal distribution of all reliable and relevant 14C dates from across the Congo rainforest (Fig. 2 in (2)), the near-simultaneous occurrence of a prominent setback in human activity in its eight distinct regions (fig. S5 in (2)), and our estimates on past effective population sizes based on genetic data (Fig. 4 in (2)). Irrespective of any possible shortcomings of each line of evidence when considered in isolation, our integrated assessment of all relevant data undeniably points towards major population collapse.

Finally, contrary to what Clist et al. claim, we do not use the widespread Justinian plague of the 6th-8th centuries CE to support our claim of a demographic crash in the Congo rainforest from 400 to 600 (i.e., the 5th-7th century) CE. We discuss it only as one possible explanation for the population collapse and explicitly admit that at this point there is no direct evidence for its presence in Central Africa at that time. In fact, also Green (10) does not claim that the *Yersinia pestis* strain closely affiliated to the Black Death and still attested in the region today, which we refer to in our paper (2), is the first presence of *Yersinia pestis* in Central Africa. Moreover, contrary to what Clist

et al. (1) suggest we obviously also do not use the genetic data presented in our paper as evidence for the occurrence of a plague.

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