

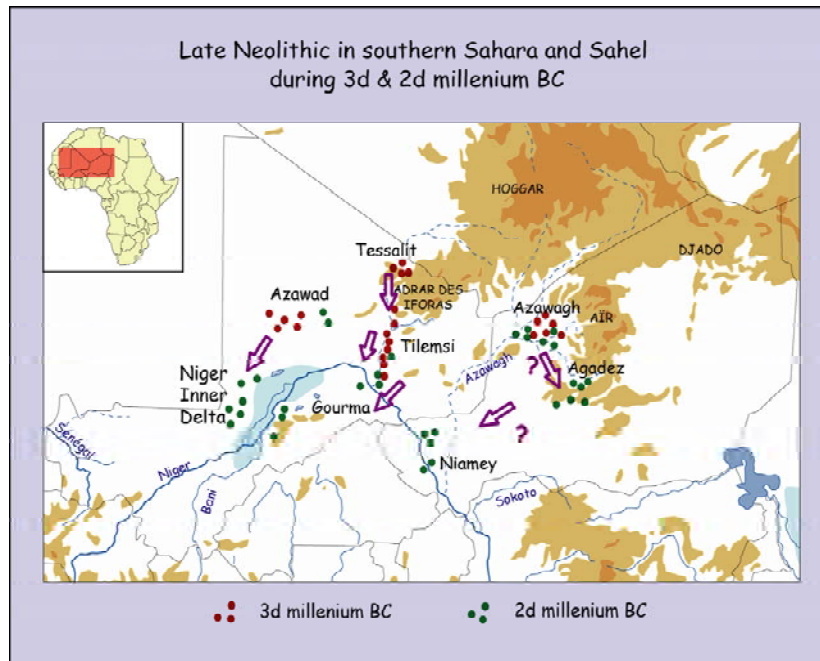
# Peopling of the Sahel during late Neolithic

New data from Kobadi (Malian  
Sahel, 1700-1400 BC)

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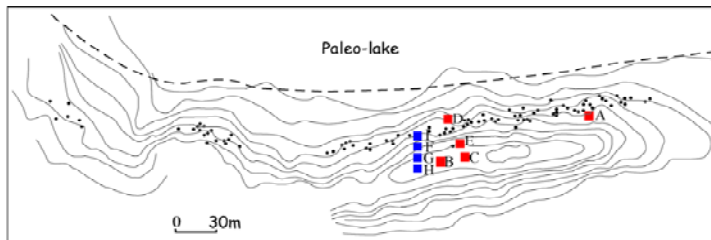
The topic of my communication is the peopling of the Sahel during late Neolithic and more precisely the new data concerning this phenomenon provided by the study of Kobadi ceramic corps I performed during my doctoral research.

# Migrations from Sahara to Sahel during late Neolithic



During 3d and 2d millenniums BC, the increase of aridity caused the modification of settlements in southern Sahara as more late Neolithic sites appeared in Sahel. Thus, the hypothesis of migrations due to climatic pressure has been set.

# Kobadi: an important late Neolithic site



■ test pits 1989 ■ test pits 1995 • tombs

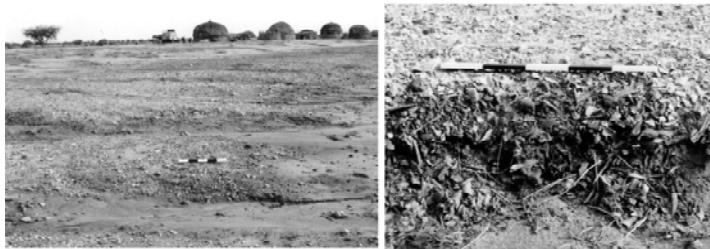


Fish and mammal bones deposit

± 100 tombs

Abundant pottery

Rare lithic tools and harpoons



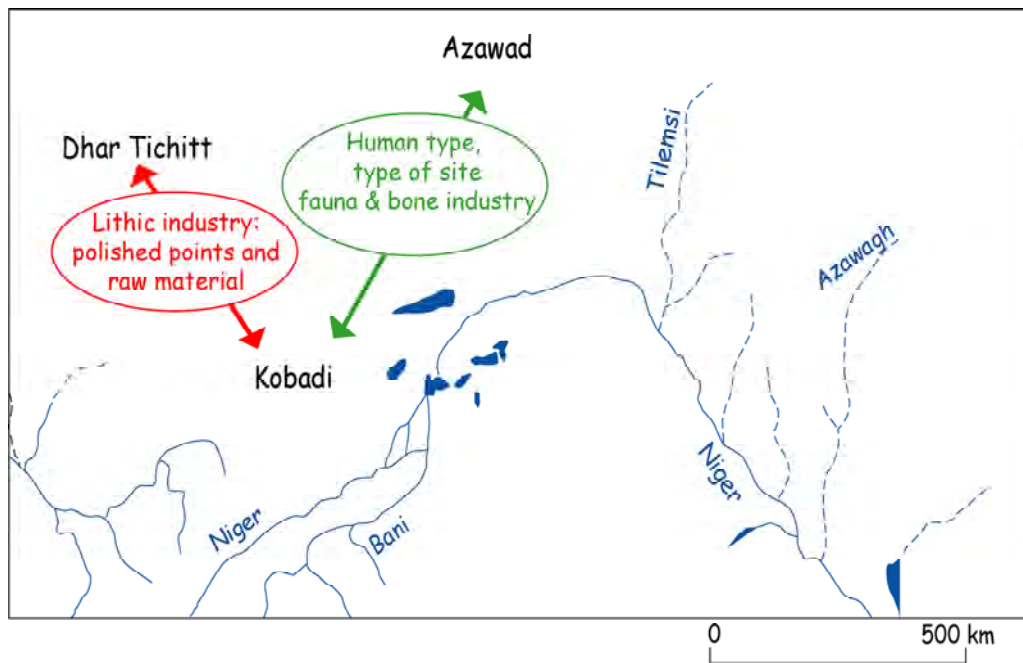
View of the site

Detail of the deposit

In this context, Kobadi, a huge bone deposit site located in Méma area, has been considered as a major example of this migration because of its size (300m long, 60m large), its numerous artefacts (especially ceramic) and human burials.

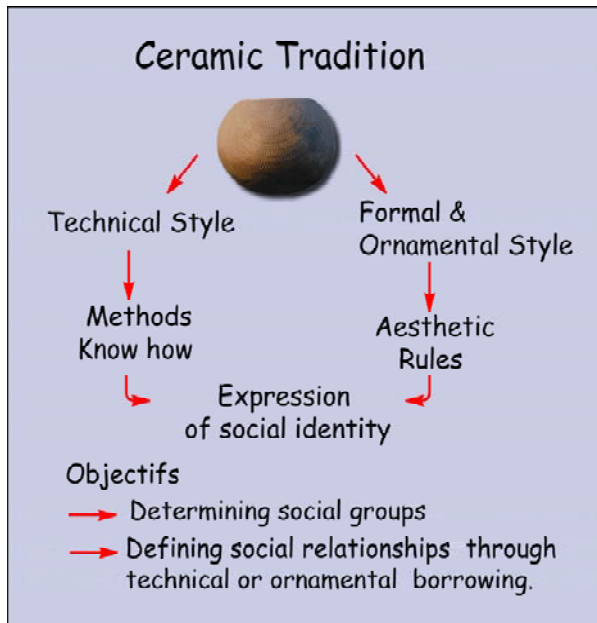
But most of all, it is regarded as one of the first Neolithic settlement of the area as it is dated 1700-1400 BC.

# The origins of Kobadi peopling: hypothesis



Considering Kobadi people origin, M. Raimbault (who excavated the site) proposed that they were the descendant of the Azawâd former fisher and herders (because of the similarities in human type [Mechtoid], in the site nature and structure [large fishbone deposit] and the presence of bone harpoons). The presence of a lithic industry whose raw material seems to come from Dhar Tichitt area enabled him to link these two late Neolithic complexes.

# Ceramic study

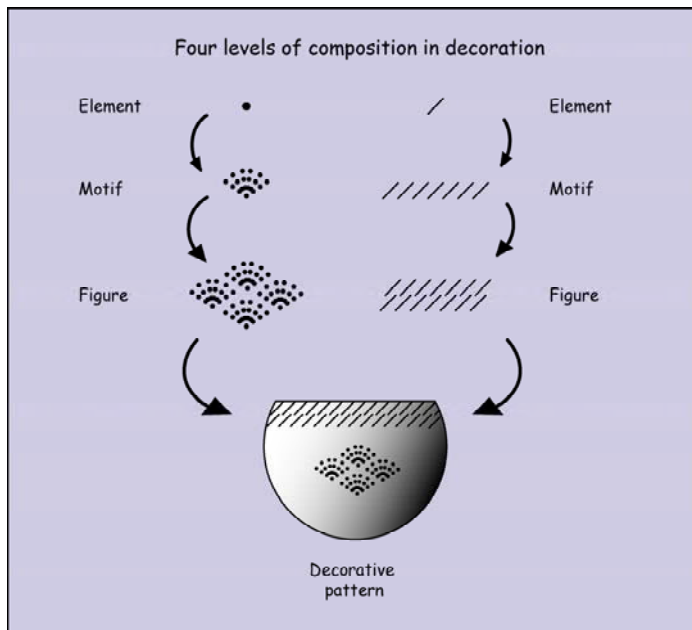


- Determining each production on a technical basis
- Characterising the formal style (morphometry)
- Defining ornamental styles (grammatical analysis)

Nevertheless, former studies of Kobadi ceramic didn't allow to confirm these hypothesis as it appeared the corpus was heterogeneous in its technical and stylistic characteristics.

That is why I tested another method for the ceramic study trying to link technical production with formal characteristics and ornamental style.

# Analysis of ornamental styles



The grammar of an ornamental style

- An index for each level of decorative composition
- Rules of composition
- Rules of association

The decoration of Kobadi ceramics is complex and well-preserved enough to define ornamental style on both technical and grammatical basis. The four levels of composition of the decorative patterns are represented and a grammar can be determined: the index of each level, the principles that rule their composition and their association.

# Three ceramic productions

- Production 1: Clay with few spicules and bone temper

34% corpus

- Production 2: Clay with 80% spicules and no temper

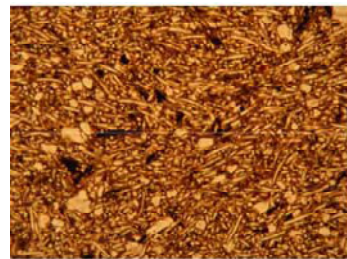
65% corpus

- Production 3: Clay with vegetal temper

1% corpus



Bone temper



Spicules (x100)

Three technical groups were defined:

Production 1 which paste is composed with clay including few sponge spicules and bone temper

Production 2 which paste is composed with clay including a high percentage of sponge spicules and no temper

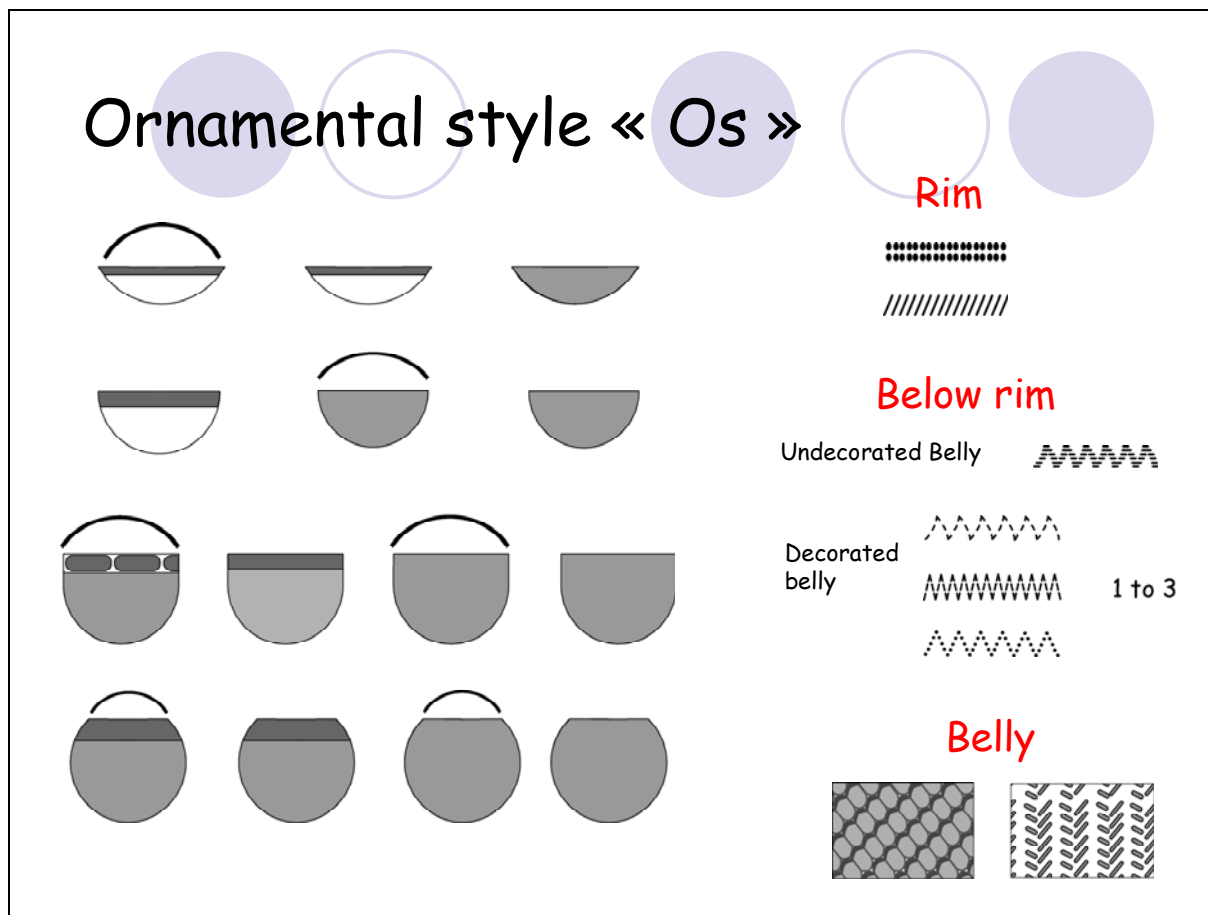
Production 3: whose paste includes vegetal temper

# Formal and Ornamental styles

- Hemispherical and globular forms
- Specific ornamental styles in each ceramic production
  - Production 1: « Os »
  - Production 2: « SpicA » & « SpicB »
  - Production 3: « Vegetal »

All the vases found in Kobadi are bowls shaped (hemispherical) or globular.  
Each technical group has its own ornamental style, except Production 2 that has 2.

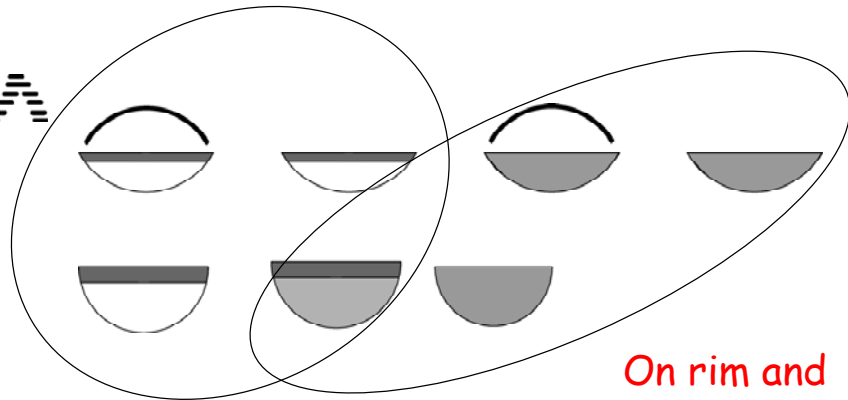
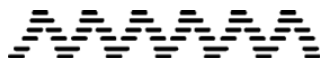




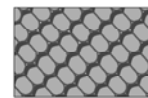
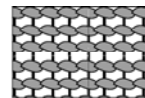
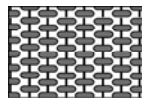
The ornamental style of production one (bone tempered) is simple. The band figure below the rim is made with 1 to 3 zigzags, belly may be undecorated on bowls and always is always covered with twisted string roulette or braided string roulette motifs.

## Ornamental style « SpicA »: Bowls

On rim and  
below rim

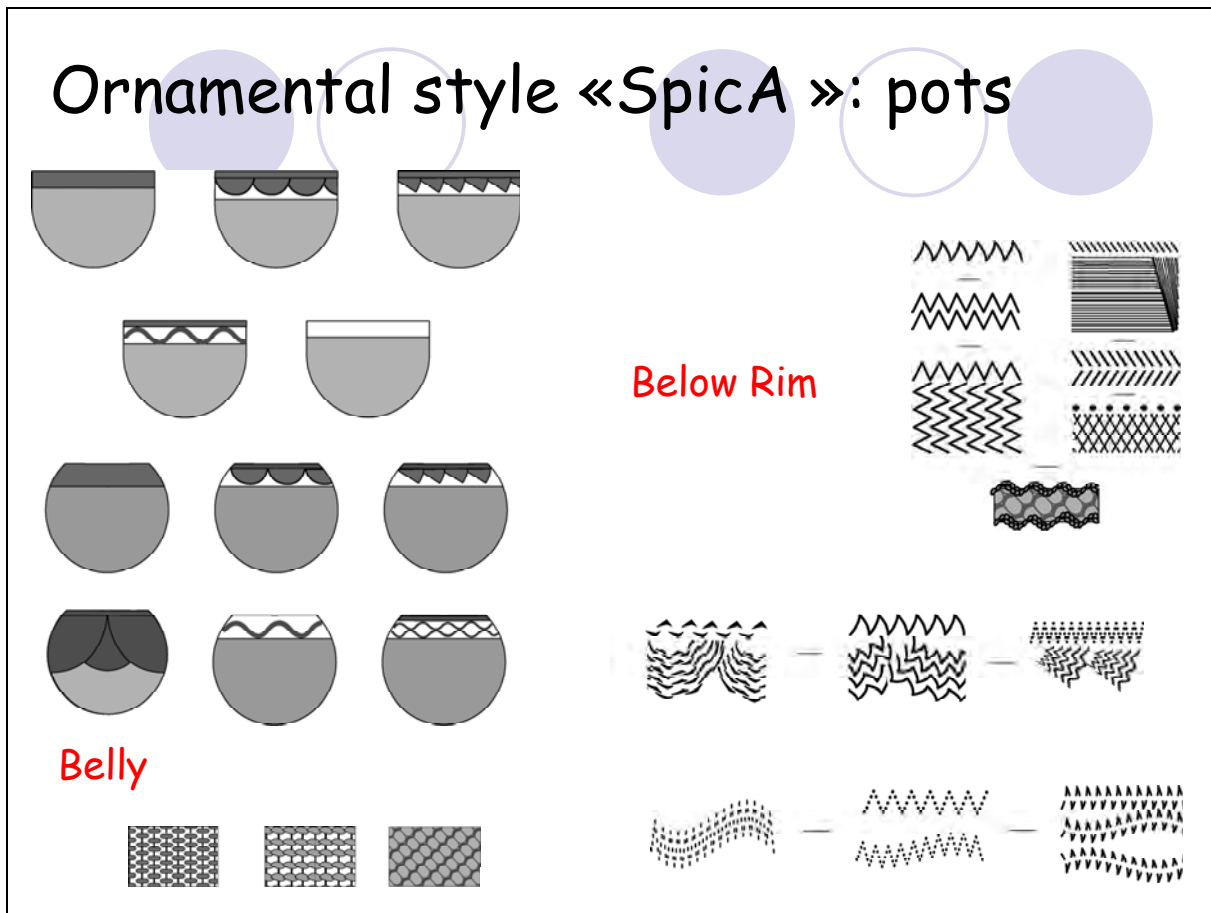


On rim and  
body



The spicA ornamental style is quite similar concerning bowls, except that in this ornamental complex the rouletted motifs present on the lower part of the vases are generally composite roulette (multiple sticks with interlaced string).

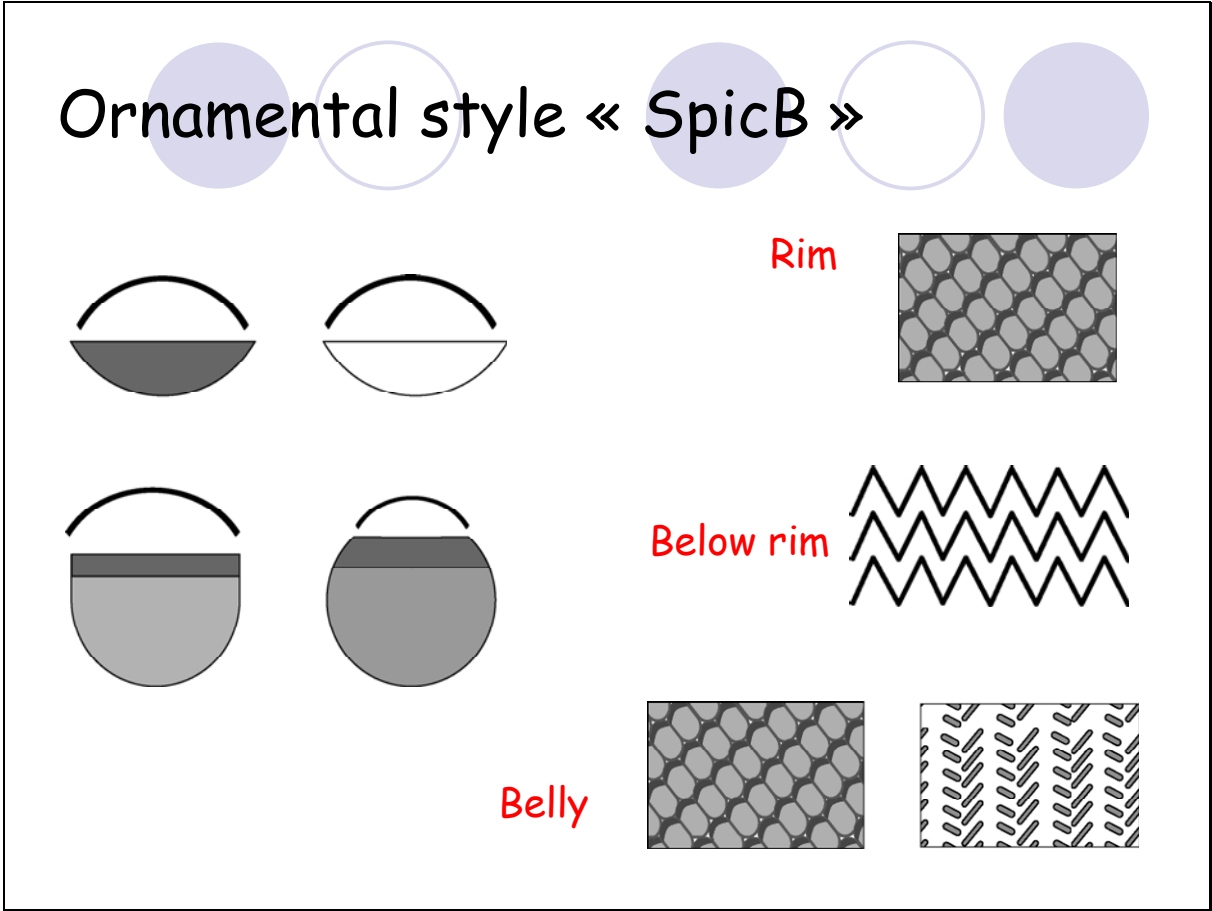
## Ornamental style «SpicA»: pots



On globular pots the decorative patterns get more complex: below the rim motifs can be arranged in several figures (band, sections of disks and wavy band) that can be combined in various ways.

The composition of the figures is more complex too: zigzag are present in each kind of figures, but in different forms (band, arcs, wavy lines). Lines of dashes, band of rouletted motifs are present too.

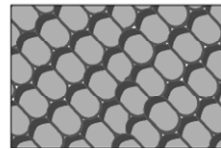
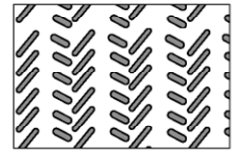
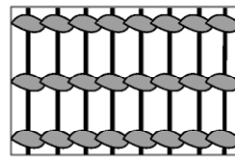
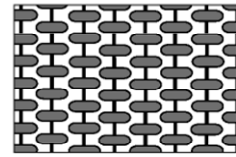
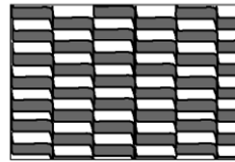
The lower part of vases is always covered with rouletted motifs, the same than bowls.



The spicB style differs from spicA because of the presence of a decorated rim and because the rouletted motifs that cover the belly of pots are rare in spicA.

## Ornamental style « Vegetal »

- No rim sherd
- Only motifs made with roulettes



Finally, the vegetal ware is only composed of un-oriented small sherds that only show rouletted motifs. The most frequent one is a folded strip roulette motif that is absent in the other ornamental styles.

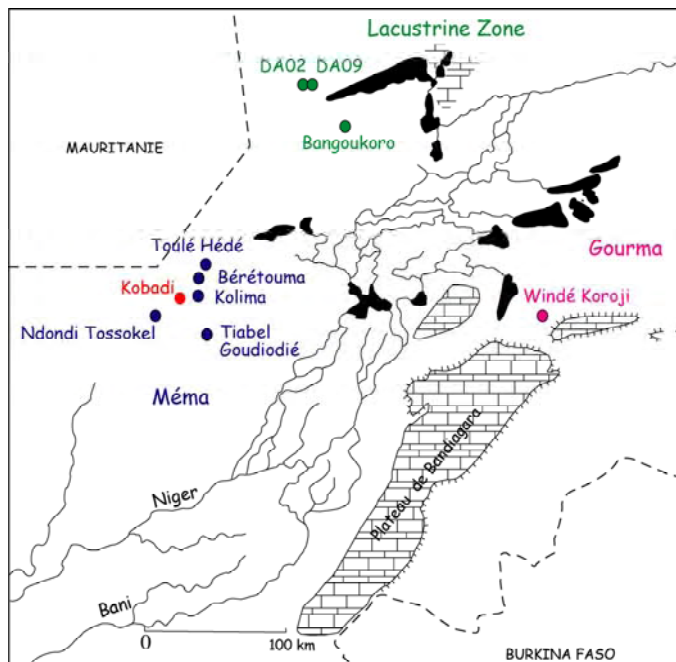
## Kobadi settlement through its ceramics

- Productions 1 (os) and 2 (Spic A & Spic B) are contemporaneous, Production 3 (vegetal) is more recent
- Association of Production 2 (Spic) and fishery activities
- Functional complementarity of productions 1 and 2 (os: small cooking pots, spic: larger bowls and pots for storage)

If we consider the position of the various wares in the test-pits, we can see that Prod 1 and 2 are contemporaneous and that Production 3 (vegetal) is more recent. The production 2, especially SpicA, is associated with the concentrations of fish bones, and thus to the fishery activities.

The functional aspect of these ceramic wares has been contemplated too: the morphometrical analysis showed that the cone tempered ware and the spicules ware are complementary. Bone tempered vessels are smaller, maybe dedicated to cooking, though the spicules vessels are larger and maybe dedicated to storage.

# Kobadi ceramic styles in the Inner Niger Delta



« Os » only present in Kobadi and Ndoni Tossokel

SpicA and SpicB both present in Méma, western Gourma and Lacustrine Zone

I then compared the Kobadi ceramic wares with the ceramic corpus of the late Neolithic sites in Inner Niger Delta thanks to K. MacDonald, A. Person and M. Raimbault who collected sherds on these sites. The bone tempered ware is only present in Ndoni Tossokel. The spicule ware, with both SpicA and SpicB, was found in most of the sites of the area.

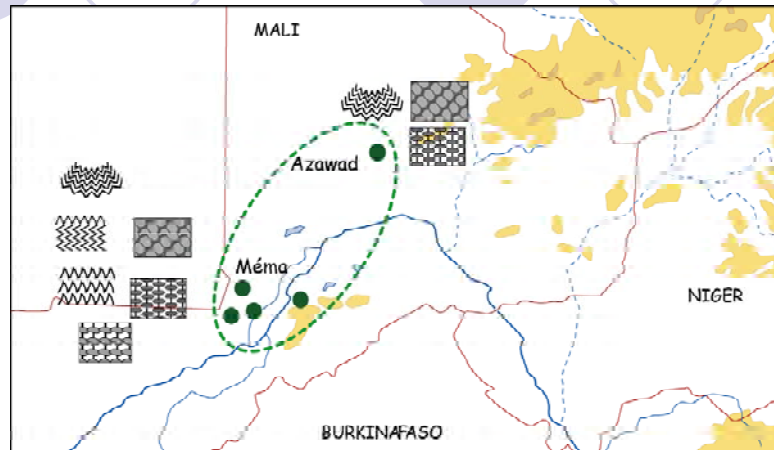
## Kobadi ceramic styles in the Inner Niger Delta

- Ceramic groups belonging to a same cultural complex
  - Fishers and cattle herder
  - Bone deposit sites
  - Tombs without structure
  - Between 1800 and 1400 BC

The bone tempered ware and the spicules ware constitute ceramic groups belonging to a same large cultural complex. Its definition is still vague but it concerns fisher/herders people whose settlements are only known by the bone deposits and tombs without structure. This complex is dated to 1800-1400 BC in the whole area.



# Origins of Kobadi people



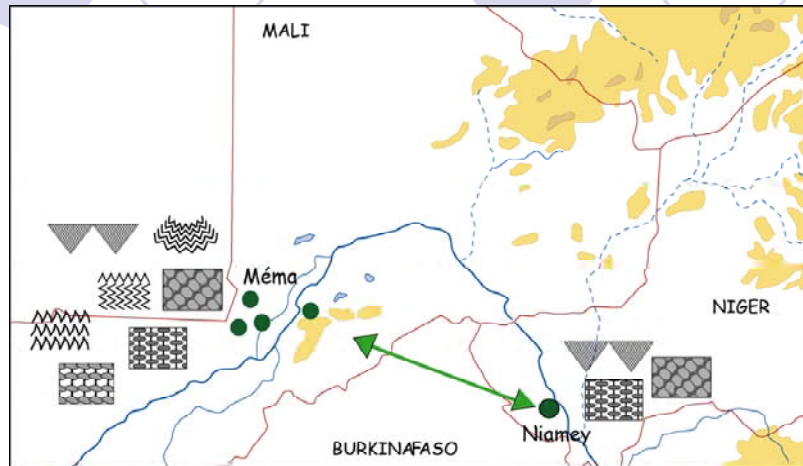
- No stylistic link between Kobadi and Tichitt
- Few links with the ceramics traditions of former settlements in Azawâd
- Some « SpicA » and « SpicB » examples found in MN26 (eastern Azawâd)

Then the origin of Kobadi people was to be questioned so I confronted the Kobadi wares to the ceramic corpus of Azawâd (N. Petit-Maire survey) and Tichitt (Akreijit ceramic). I could find no link between Kobadi and tichit on the ceramic basis.

The Azawâd series were even more complex: the more ancient ones belong to 2 northern cultural complexes (Erg Jmeya and Foug el alba), the other are generally mixed corpus.

Only one site provided a ceramic comparable to Kobadi Spicules ware : MN26. Some Spic A and Spic B characteristics were found there, which seem to indicate that the IND cultural complex extended to the eastern Azawâd. MN 26 was dated to 1950-1530 BC with pottery sample.

## Méma ceramic group spread ?



- In Kirkissoy (Niamey), a ceramic complex with different technical and formal characteristics, but some similarities in ornamental patterns and motifs
  - Contacts through Gourma ?

The late Neolithic ceramic corpus from Sahel had to be considered too, in order to look for southern origin or extension of the Méma cultural complex. The only site that yielded a comparable ceramic set is Kirkissoy (on the Niger bank by Niamey). But the similarities are only ornamental, the technical and formal characteristics are different, and so is the conception of visibility guiding the ornament style. These ornamental similarities must be considered with caution. We can only suppose that there may have been contacts between the two regions and test this hypothesis during further studies.

## Peopling of Malian Sahel : Kobadi data

- Three ceramic groups in Méma
- These data mostly come from collected ceramics : necessity of new excavations

The definition of three ceramic group in Méma and their spread toward Lacustrine Zone and western Gourma has enable us to show the existence of a larger cultural complex dating to 1800-1500 BC. Nevertheless, as the data collected on these sites are generally coming from the surface, new excavations of late Neolithic sites such as Kolima or Gadio-gudio should be done to precise the nature of this complex, its evolution and its relationships with the Azawâd area and the Niger valley.