Couverture

Shell Energy. Prehistoric Coastal Resource Strategies

Les coquillages et leur place dans le milieu côtier

Colloque international

Musée Théodore Monod d'Art africain

Dakar, Sénégal, 8-12 avril 2008

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Thèmes pour les communications :

1- Archéologie des amas coquilliers : Théorie et méthodologie
2- Ethnoarchéologie des amas coquilliers
3- Utilisation des coquilles et des amas coquilliers
4- Coquillages marins et gestion des côtes

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Shell mounds and shell artefacts in Brazilian archaeology

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Shell mounds (*sambaquis*) are distributed along 2,800 km of Brazilian coast from north to south, with some regions in northeast and north lacking this kind of archaeological site. In contrast, there are several areas with a huge concentration of shell mounds, between the north of Rio de Janeiro State (southeastern coast) and the south of Santa Catarina State (southern Brazil). These concentrations present very distinctive groups of shell mounds with different sizes, deposits, geographical distribution and site functions. Huge shell mounds, acting as landmarks, occur near smaller ones, other types of coastal sites and even sites with deposits containing small amounts of shells, displaying a very complex settlement pattern established by the shell mound builders. The strongest feature in common between Brazilian *sambaquis* is that they are mounds composed of black earth with faunal remains (fish bones, shells) and, in most of them, there are also human remains, artefacts and hearths. They were constructed between 8000 to 800 years BP, and when the first Europeans arrived no human groups were building shell mounds any more. Archaeological researches show that Southeastern and Southern Brazilian sites indicate long-term populations, specialized in exploitation of sea resources (basically fish and shellfish), using shells to build the sites. In almost all shell mounds there is evidence of fishing, gathering and small game hunting, and also remains of consumption of plant resources. Some sites present only one function, like cemeteries, and lithic sites with fixed sharpener-polishers, for the production of polished objects. Shells were used as constructive material and also as raw material for artefacts like scrapers and ornaments. Shell artefacts, although very similar along the Brazilian coast, present more variability in the Rio de Janeiro coastal sites, and this region could be considered the dispersion centre of this kind of technology. In some sites, mollusk shells are associated with burials, so the study of faunal remains leads to consideration not only of subsistence activities but also of ritual use. We review archaeological evidence for the formation of shell mounds and their spatial and temporal patterns in different regions of the Brazilian coast, presenting field data and taking account of geological and environmental factors, like the relation between shell mounds and past and present shorelines. We also review shell artefact production and analysis and present results of researches conducted at shell mounds located in different regions in the southeast and southern regions (states of São Paulo, Rio de Janeiro, Paraná and Santa Catarina) as examples of field methodology applied to shell mounds and data interpretation.

Upper Pleistocene - Early Holocene transition at La Garma cave (Omoño, Cantabria, Spain): the marine molluscs.

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This paper studies the evolution in marine mollusc exploitation in different archaeological levels at La Garma A: Levels N and O, belonging to the Upper Palaeolithic (Upper Magdalenian), and Level Q, ascribed to the Mesolithic. Particular attention is given to variations in the consumption and in the size of Littorina littorea, Osilinus lineatus and Patella sp., mainly P. intermedia, across the Late Pleistocene-early Holocene transition. Further discusión assesses the importance of diferent gastropod species with no bromatological value that have been found in the deposit (e. g. Nassarius reticulatus, Trivia sp.), many of which have been made into pendants. Finally the paper examines the archaeomalacological remains in other deposits in Cantabrian Spain from early Magdalenian to the final Neolithic (19,000-2,500 cal BC).

Shell middens and shell mounds above and below sea level: the Farasan Islands of the southern Red Sea

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Over 1000 shell middens have recently been discovered on the Farasan Islands from a combination of ground reconnaissance and satellite survey. The concentration and state of preservation of these sites are exceptional by world standards and pose a number of challenges of investigation and interpretation. Current field investigations are focused on maximizing the potential of such a large sample to throw light on the geomorphological and palaeoenvironmental associations of the middens and the factors that determine their location and variation in size and patterns of clustering; establishing a chronology for these sites and their rates of formation using a combination of dating methods; and establishing through underwater investigations how far back in time beyond the period of modern sea level such sites may have occurred, and the relationship of the Farasan Islands to the Arabian mainland when sea levels were substantially lower than the present. In this paper we will discuss the methods we are using to advance these investigations and some of the preliminary results

Late Stone Age shell middens on the Red Sea coast of Eritrea

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Several shell middens were discovered during a pioneer survey of the Red Sea Coast of Eritrea. All were dated to the mid-Holocene and reflect the exploitation of different environments. Asfet, dated to the fourth millennium bc, was dominated by *Terebralia palustris*, a large gastropod living among mangroves. Misse East and Gelalo Northwest were both dated to the sixth millennium bc. The latter was also dominated by *Terebralia palustris*, while the former was dominated by *Atactodea glabrata*, a small bivalve found buried in the sand of the intertidal zone. This coastal adaptation is probably the result of adverse climatic conditions that prevailed in the hinterland during that period. It may also reflect the expansion of agricultural and/or pastoral societies into this region.

Shell Middens of the Pericue Indians, Baja California Sur, Mexico

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Shell middens span large proportions of the coastal landscape of the Cape Region of Baja California Sur, Mexico. Most of these sites have been attributed to the Pericue Indian culture, which has been present in this region from at least the early Holocene until shortly after Spanish contact in the mid-sixteenth century. A number of multi-functional shell midden/occupation sites will be discussed, with evidence of ritual practices, burial, butchery, lithic production, and waste deposition. The Pericue Indians appear to demonstrate an arid adapted gathering group but with considerable focus upon shellfish harvesting, fishing and marine mammal hunting. This paper will summarise the rapidly changing archaeological landscape of the Cape region and discuss the archaeological, chronological, palaeoenvironmental and palaeodietary investigations currently being undertaken.

Revealing the Hidden Dimensions of Pacific Northwest Coast Shell Middens

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Intensive analysis of small to microscopic components of site matrix recovered from a diverse array of shell midden sites reveal clear patterns of occupation and activity. Field investigation of twenty-eight sites on the central coast of British Columbia was based on core and bucket-auger sampling. Analyses included the identification of small elements and fragments of fish bone, archaeo-parasites, seeds, and shell fragments, assessment of shell fragmentation, observation of shell incremental growth structures, and determination of the abundance and chemical characterization of red ochre fragments. The combination of these data with macro-scale observations of site size and configuration and the chronology of midden formation provide a powerful basis for differentiating between patterns of longer-term residential occupation and shorter-term encampment. In some cases, the specific activities conducted at short-term camps are also evident. Shell midden sites can be reliably assigned to categories of village, residential base camp, and short-term encampment, and regional settlement patterns can be reconstructed on the basis of these multiple indicators. The cumulative evidence of site use in the region is also providing an understanding of long-term continuities in patterns of resource acquisition and management and in the perception of place.

Ethnoarchaeology of shellfishing and shell/flesh use in the Bahamas

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Why shellfishing is undertaken today, why shellfishing was abandoned by most inhabitants in the last century, the use of shells and shellfish flesh in fish traps today, and the middens that result are explored. These comments are based on three weeks of observation in 1991 on the Bahamian island of San Salvador.

Prehistoric shell middens on the Caribbean coast of Nicaragua: food production, structures and site formation

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Ten years of archaeological researches in the southern Caribbean Coast of Nicaragua allowed the discovery and documentation of dozens of artificial mounds mainly composed of mollusk shells. This paper summarizes different kinds of archaeological and ecological data regarding these sites. First, their setting is discussed and they categorized on the basis of the number of shell deposits that construct each site. Secondly, different archaeomalacological data of the sampled and excavated shellmiddens are explained. These data relate to the taxonomic composition of the shellmiddens, their internal stratigraphic variability, the size distribution of the shells and their relative weight in respect to the remains of vertebrate fauna. From the Karoline site (450 cal BC-400 cal AD) the results of the extensive excavation of the remains of a domestic area near of the shellmiddens are also presented. On the basis of both archaeological information and the modern environments, we discuss the economic importance of shells during the prehistory of the Caribbean coast as well as environmental changes that occurred along this coast during the last two thousand years.

Food habits of the hunter-gatherers of the Andaman and Nicobar group of Islands: a case study of shell mounds in South Andaman

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The Andaman and Nicobar islands comprise a chain of 319 islands, ca. 1000 km south east of Calcutta and 1000 km east of Tamilnadu. The islands were occupied by Negreto people with pepper corn hair, the original inhabitants of mainland India. Believed originally to have numbered about 10,000, and divided into two main groups with differences of language and material culture, they are now on the verge of extinction. We do not know when and how these people reached the islands and became isolated from the mainland, though the predominance of microlithic tools suggests a post-Pleistocene date. Archaeological remains are known principally from shell mounds, some more than 3 m high, particularly the sites of Choulduri, Lalpahar and Karakahang in south Andaman. This paper presents details of the food habits of the hunter-gatherers of south Andaman on the basis of the food refuse from these three shell mounds.

Methodological reflections on shell midden archaeology: issues from Tierra del Fuego ethnoarchaeology.

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Our aim is to present some methodological issues coming from the ethnoarchaeological research undertaken since 1986 in the Beagle Channel (Argentina). Excavations carried out in several sites (shell middens basically) in the northern coast of the Beagle Channel (Tunel VII, Lanashauaia, Alashawaia, C.Remolino, Mischiuen III) allowed us to test the methodology of excavation as well as the sampling methods in order to understand the management strategies of resources and space. The main objective of our research is to develop a methodology to reconstruct social organization, and the ethnoarchaeology has been an experimental approach, aimed at verifying how well archaeological methods can generate reconstructions that correspond to what we already know from ethnoarchaeological sources.

The shell middens of Scotland's west coast.

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The west coast of Scotland faces the Atlantic Ocean. The coastline is extensive and rugged and includes several hundred islands. Much of the coastline has been left undisturbed by modern development. The Gulf Stream feeds this coastline and consequently the seas are very rich in natural resources. The complicated geology of the region has also provided a wide range of raw materials that were used by prehistoric people. Additionally, the coastline is pockmarked in places with caves and rockshelters. This fortunate set of circumstances has combined to provide a unique environment which was intensely exploited from the Mesolithic period onwards. Shell middens dating from the Mesolithic to the Late Medieval periods line the coast, most of them protected in caves and rockshelters. This paper will outline the richness of this resource, will highlight the different types of middens that were created at different time periods and will explore ways in which this virtually untapped resource could be used to further our understanding of how people lived along the coastline in the past.

Causes and consequences of large shell midden formation along the West Coast of South Africa

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The term “megamidden” was coined in the mid-1970s to describe several large shell middens along the west coast of South Africa. The majority of these large coastal sites are situated in the Elands Bay and Lamberts Bay areas and this paper concerns these sites in particular. An excavation and dating program carried through in the 1990s helped unravel some of the causes and consequences behind the formation of these large sites. According to this study, population densities were on the increase and residential permanence was progressively more sedentary between 3500 and 2300 BP. These demographic and settlement changes were accommodated initially by a productive environment, although signs of local impact on marine fauna were evident towards the end of this period. Solutions to social stress, resulting from landscape infilling, were not sought through migration, but through the formalization of ritual gatherings at Steenbokfontein Cave. Coinciding with an increase in population numbers after 3500 BP, subsistence was reorganized around the intensive collection of highly predictable and productive species, such as shellfish, tortoises and plants. Frequent snaring of small and territorial bovids almost completely replaced the hunting of large mobile game. A system of delayed returns was probably central to coastal hunter-gatherer subsistence strategy and diet between 3000 and 2000 BP, through which the collection, processing and storage of large quantities of shellfish meat was undertaken. Available isotopic evidence from human skeletons buried along the west coast shows that most of the necessary protein during this millennium was derived from marine resources.

Coast and hinterland: territory and resource management by the Selknam from Tierra del Fuego (Argentina)

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Ethnography and archeological research in the centre of the Isla Grande de Tierra del Fuego (Argentina) show how the *Selknam* managed their territory. Littoral, inland forest and steppes were exploited in a complementary way. During historic times, as is mentioned in the works of the ethnographer Martin Gusinde, the *Selknam* land was divided into small territories (*haruwen).* Most of these territories had access to the littoral and the hinterland resources. Movements inside the *haruwen* allowed access to different resources during the year. Archaeological investigations in the centre of the island show the presence of resources from the Atlantic coast such shells and eroded glass appearing 12 km inland. On the other hand, on the Atlantic coast evidence of shell consumption is frequent. In this paper we will discuss strategies of territorial management of the *Selknam* hunter-gatherers.

Shell midden research in Japan and Korea: a personal view

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I examine the topic of formation processes of shell middens in East Asia. More than 3000 shell middens are distributed throughout the Japan Archipelago and Korea. They are mostly dated from the Jomon Era in Japan, between 10000 to 2300 BP. I will also discuss underwater shell midden excavations, based on my work on the submerged shell midden of Awazu in Lake Biwa Lake, Japan, dated back to 4500 BP and formed by a kind of freshwater clam. *Corbicula japonica*. I have also been working on the Higashimyo shell middens, formed by cockles, *Tegillarca granosa*, in the Saga plain in Kyushu Island. They had been buried deep in the alluvial plain since 7000 BP. The transgression of the sea compelled the Jomon inhabitants to abandon the middens, which were then covered with marine clay that preserved the organic remains in good condition. For instance, more than 730 woven baskets were found from and around shell midden No. 2 with some wooden tools, including digging sticks, bowls, composite combs, carved mask and large planks probably from a dugout canoe. I am also working on the Kimhae shell midden, in Korea. AMS dated from BC 50 to 160 AD. The shell layers are more than 8 m deep and formed by Pacific oyster, *Crassostrea gigas*, common clam, *Meretrix lusoria,* and brackish water clams of *Corbicula*. I will discuss the accumulations of these shell middens, reconstruction of life ways and relationships with other contemporaneous settlements.

Beyond subsistence: the social and symbolic meanings of shellfish in Northwest Coast Societies

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Although the numerous shell middens of southeast Alaska testify to the importance of shellfish as an economic mainstay for millennia, ethnographically the Tlingit associated shellfish with poverty, laziness, and ritual impurity. Oral historical research shows the persistence of these ideas today, even though shellfish are valued food. This apparent contradiction points to an ethic in which the ideal person (gendered male) pursues animal foods that require more effort to procure than do shellfish. In an earlier study, I also suggested social rules regarding shellfish consumption were applied differentially based on rank, gender, and life stage. The very real danger of paralytic shellfish poisoning also affected Tlingit views of shellfish. In this presentation, the Tlingit case will be compared to available ethnographic and archaeological evidence for the Kwakwaka'wakw of British Columbia. Some of John Harper's new research on "clam gardens" in the Broughton Archipelago indicates that the Kwakwaka'wakw modified the intertidal zone to intensify their use of shellfish. This cultivation approaches mariculture in scale, and will be discussed within the larger cultural context of Kwakwaka'wakw intellectual traditions.

From shell midden to society: some interpretations and implications of the Ertebølle *køkkenmøddinger*

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This paper explores the contribution that shell middens can make to the elucidation of hunter-gatherer variability, specifically with regard to the socio-economic variability observed ethnographically by researchers such as James Woodburn (Immediate vs Delayed Return) and Lewis Binford (foragers vs logistical collectors). It will consider mainly the Ertebølle shell middens of Denmark. It will argue that on the basis of (a) length of settlement stay, (b) settlement pattern, (c) food storage, (d) technology, and (e) territoriality (insofar as these can be reconstructed) the Ertebølle manifests many of the attributes of a Delayed Return society. Some of these attributes appear outside both the chronological and distributional limits of the shell middens themselves. Shell middens are thus preservational data capsules rather than (in this regard) a single diagnostic settlement type in themselves. Some shell middens in other areas of Northwest Europe appear to have been components in Immediate Return economies. In closing, it will speculate on the origins of Delayed return economies, and on hw shell middens might elucidate this in the future.

Prehistoric shell work landscapes of the Ten Thousand Islands: evidence for the emergence of coastal forager complexity

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The Ten Thousand Islands are a remote archipelago of semi-tropical mangrove islands stretching for miles along southwest Florida's coast. Hidden among this maze of islands are dozens of extensive prehistoric shell midden mound sites, including massive, human-engineered shell works, among the largest and most complicated prehistoric shell constructions in the world.

Shell works comprise complex prehistoric landscapes of distinctly arranged spatial features. Built by the prehistoric coastal foragers of south Florida, a rare example of a sub-tropical, non-agricultural society with a subsistence based principally on coastal resources, these constructions represent a unique, prehistoric architectural tradition of landscape terra-forming using shell. But when, and how were these monumental sites constructed? What did shell work features function for, and what do they indicate about coastal forager settlement patterns?

Throughout the region, shell works sites appear to be arranged in spatially similar patterns, ranging from small, simple, non-complex linear and curvilinear shell midden ridges, to massive, complete islands constructed with complex arrangements of shell. Does similarity or diversity in site layouts, and the presence or absence of certain architectural features indicate changes in site functions, or social organization over time?

Systematic archaeological testing to determine site structure, chronology and temporality, together with data visualization and geographic information systems (GIS) for spatial analysis of site patterns are conducted on a sample of shell work sites to help build regional settlement patterns. By comparing various island settlement types and sizes, it is hypothesized that variations in the spatial and temporal patterns of shell works may reflect changes in social complexity over time.

Shell as a Raw Material and the Pleistocene Archaeological Record of Southeast Asia

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The importance of shell as a raw material and food resource in Island Southeast Asia can hardly be underestimated, however it has rarely been the subject of focussed or systematic concern. This paper assesses claims for the use of shell tools by Javan *Homo erectus*, in counterpoint to the Southeast Asian early modern human record for the use of shell as a raw material. I argue that only by understanding the nature of shell as a raw material in further depth can we interpret regional archaeological finds.

Growth line analysis of mollusks and archaeological studies on shell gathering of oysters in Jomon Japan

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In Japan from the Jomon Age to the Modern Age, people have accumulated bigger or smaller shell middens including a number of dominant bivalve species including the Pacific Oyster *Crassostrea gigas,* and clam species of *Meretrix, Ruditapes* and Arcidae. Since the 1970s, Japanese archaeologists, notably Dr. Hiroho Koike have devised methods of interpreting seasonality using growth line analysis on speices of *Meretrix lusoria, Meretrix lamarcki, Ruditapes philippinarum, Corbicula japonica* and shells of Arcidae, showing that gathering occurred mainly in spring. We have refined these methods, showing variations in the growth rate of *Meretrix lusoria* over time and in different areas. We have also extended these methods to analysis of growth increments in the Pacific Oyster excavated from Jomon sites, and identified predominantly winter and spring gathering. We have also examined the hypothesis advanced by some Japanese archaeologists that the Pacific Oyster was cultivated using tree branches and stones, using results from the Hikozaki shell midden in Okayama Prefecture. This site is located on a sandy shore but the oysters are frequently attached to stones, suggesting a deliberate attempt to alter the substrate and improve conditions for oyster growth. Jomon people also gathered *Ostrea denselamellosa denselamellosa* which is flatter and stronger than *Crassostrea* to make shell bracelets.

Les différents types de gisements coquilliers dans la lagune de Joal-Fadiouth (Sénégal occidental)

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Les gisements coquilliers de la lagune de Joal-Fadiouth sont traditionnellement subdivisés en deux types : les amas anthropiques et les amas naturels. Si l'on remonte la chaîne de préparation des Mollusques notamment celle de *Senilia senilis* (Linne,1758), espèce dominante dans les amas, on s'aperçoit que presque toutes les coquilles sont ouvertes pour l'extraction de la chair dans les amas artificiels. De même, le mode d'édification des amas naturels empêche l'existence d'un grand nombre de coquilles entières de Bivalves.

Dans certains gisements coquilliers, la proportion de coquilles entières est tellement importante qu'il ne pourrait s'agir de l'un de ces 2 types (amas artificiel ou naturel). Seule, une zone de croissance des Mollusques fossile (*Sal* en sérère fadiouthien ou *Saré* en sérère niominka) qui désigne un endroit où les Bivalves existent en nombre suffisamment important pour permettre leur exploitation, peut expliquer cette forte concentration de coquilles non ouvertes. Il s'agirait donc d'un troisième type de gisement coquillier.

Sur le terrain, la taille et la position des coquilles (apex horizontal ou vers le bas) permettent de dire que la pression humaine était nulle.

Diversité et ethnobotanique de la végétation ligneuse des amas coquilliers des îles Bétanti (Parc du Delta du Saloum), Gandoul et de la lagune de Joal-Fadiouth

Mathieu Guèye

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La végétation ligneuse des amas coquilliers du parc du Delta du Saloum, des îles Gandoul et de la lagune de Joal-Fadiouth est très peu diversifiée. 38 espèces ligneuses réparties dans 31 genres et 22 familles ont été recensées. Parmi ces familles, 11 sont présentes sur au moins un site sur deux. Les familles les plus représentées sont les *Leguminosae*, les *Moraceae* et les *Capparaceae*. Le Baobab (*Adansonia digitata*) est présent sur la plupart des amas et apparaît comme une plante indicatrice de la présence des amas coquilliers à travers cette luxuriante mangrove.

87% des espèces recensées sont exploitées par les populations autochtones. Les usages les plus fréquents sont médicinal (43%) et alimentaire (22%). Les organes les plus consommés sont respectivement les fruits et les feuilles. Les noms locaux (Sérère) de 79% des espèces ont pu être recueillis et leur signification ou leur étymologie n'a été obtenue que pour 52% des espèces. Il y aurait alors une perte des savoirs relatifs aux noms locaux des espèces. Les noms sérère des ligneux rapportés font surtout référence à l'usage et secondairement à des anecdotes, aux propriétés et à l'écologie de l'espèce, ou à un animal.

Les amas coquilliers sont souvent utilisés comme lieu de culte et leur accès est la plupart du temps limité. Malgré l'environnement marin sursalé, certaines espèces, qui ont pratiquement disparu sur la terre ferme, y sont actuellement préservées. Nous pensons que c'est dans ces endroits où l'on devrait promouvoir la protection naturelle pour sauvegarder un patrimoine peu connu et souvent menacé.

Effet réservoir marin sur les côtes sénégalo-mauritaniennes

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Nous savons avec l'archéologie que depuis la fin du Pléistocène, les restes d'occupations humaines sur les côtes de l'Afrique de l'Ouest, notamment sur les côtes mauritano-Sénégalaises, témoignent d'une intense exploitation des ressources marines. Ainsi, l'étude des procédés de ramassage, d'ouverture, de cuisson et de conservation des coquillages a pu être effectuée sur ces immenses amas de coquillages (du Sine- Saloum entre autres). L'abondance de ces nourritures est directement liée à la circulation océanique (et atmosphérique), plus précisément au fonctionnement du système de remontée d'eau profonde qui ramène à la surface de l'océan les éléments nutritifs favorisant une intense activité biologique. Durant l'Holocène, ce système, appelé communément l'upwelling sénégalo-mauritanien, a été soumis aux perturbations ou fluctuations climatiques déterminantes du champ des vents responsables de la circulation océanique introduisant, ainsi, une variabilité de la localisation et de l'intensité de l'upwelling côtier. Certes de nombreux travaux au cours de ces récentes années ont documenté ces perturbations climatiques au niveau de l'Afrique de l'Ouest. Cependant leurs influences sur l'upwelling sénégalo-mauritanien et sur l'économie des populations préhistoriques sont très peu connues.

L'idée est de déterminer l'influence de la variabilité durant l'Holocène de l'upwelling sénégalo-mauritanien sur l'économie des populations du littoral.

Il s'agit d'établir une chronologie carbone 14 aussi précise que possible des occupations côtières ainsi que de leur fréquence. Les datations sont effectuées autant que possible sur du charbon de bois et coquille associés dans le même niveau archéologique. A cet égard, les datations anciennes doivent être réexaminées en vue de corriger l'effet biologique (correction de $\delta^{13}C$) et l'âge réservoir.

La détermination de l'âge réservoir (R) des eaux océaniques de surface (différence entre âges ^{14}C d'une coquille marine et d'un échantillon organique (charbon ou végétal continental)) permet d'évaluer l'intensité de l'upwelling dont dépend R. Cette approche peut être complétée par la mesure des variations du rapport isotopique de l'oxygène du carbonate des coquilles indiquant les variations de température de l'eau de mer. L'emploi de ces deux méthodes permet d'établir un index de l'intensité du fonctionnement de l'upwelling.

La confrontation des fréquences des occupations humaines en différentes places de la côte avec l'index de variabilité de l'upwelling permet d'estimer dans quelle mesure ce paramètre a pesé sur la disponibilité des ressources marines pour les hommes préhistoriques.

Etude ethnoarchéologique des processus de collecte et d'édification des amas coquilliers sur le littoral sénégambien.

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Les nombreux amas coquilliers du littoral sénégambien ont fait l'objet de plusieurs interprétations. Certains sont considérés comme étant d'origine naturelle et résulteraient de changements climatiques, alors que d'autres seraient l'œuvre de l'homme. En ce qui considère cette dernière, plusieurs hypothèses ont été émises quant à leur processus d'édification en relation avec la densité de population et la vitesse d'édification. Il en est de même du matériel céramique récolté et qui est souvent attribué aux mêmes récolteurs de coquillages.
Cependant, les enquêtes ethnoarchéologiques effectuées dans les îles du Saloum et dans les villages de Brefet et Bintang, situés à côté de bolongs reliés au fleuve Gambie, ont montré que l'édification de buttes de coquillages implique plusieurs groupes culturels, un mode d'occupation de l'espace spécifique, une organisation sociale à l'échelle d'une concession, d'un quartier et d'un village et des relations d'échange complexes avec l'hinterland induisant une circulation de poteries fabriquées par d'autres groupes culturellement différenciés.

Les amas et tumulus coquilliers sénégambiens : un patrimoine en sursis

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En revivant la question du pillage des amas et tumulus coquilliers, nous sommes repartis sur les traces de Guy Thilmans, fortement préoccupé durant un quart de siècle par la sauvegarde des-dites buttes. Connus dans la littérature archéologique depuis les années 30, les amas et tumulus coquilliers (les tumulus plus tardifs, sont des monuments funéraires édifiés sur les amas) occupent le littoral sénégambien de l'embouchure du Sénégal à celle de la Casamance. Ces dépôts furent accumulés par l'homme, du Néolithique à l'époque moderne contemporaine. Les principaux coquillages marins consommés par les pêcheurs-collecteurs sont les arches (*Anadara senilis*), les huîtres des palétuviers (*Crassostrea gasar*), les patelles (*Patella safiana*). Les dimensions des amas varient de quelques dizaines à des centaines de mètres. Dans le Delta du Saloum, un inventaire fait état de 903 tumulus funéraires, répartis dans 18 amas coquilliers. En effet, du fait de leur intérêt scientifique (écologie, ostéologie, archéologie, etc.), il est impératif de protéger ces buttes fortement exposées à des processus de destruction tant naturelle (érosion marine) qu'anthropique (bitumage de routes, construction, décoration, blanchiment de bâtiments en dur et fabrication de la chaux, nourriture de volailles, pavage et remblayage des maisons). Si les sites sacrés frappés d'interdits et ceux inaccessibles du fait de la mangrove échappent au pillage, l'exploitation des coquillages fossiles se poursuit dans certaines localités en dépit de la médiocrité du matériau, de la concurrence du ciment et des différentes politiques de sauvegarde.

Fouilles archéologiques à Falia dans les îles du Saloum (Sénégal)

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Le site de Falia est connu dans la littérature archéologique sous la dénomination de Cupaan (Thioupane) qui est un lieu dit. D'après les rares traditions recueillies sur place, il serait un lieu sacrificiel très fréquenté par les populations Sereer de la Petite Côte. Le site se trouve à environ 500 m au Nord-NE de la localité de Falia. Il est composé de deux amas coquilliers surmontés de tumulus dont certains culminent à plus de quatre mètres au dessus de l'amas. Le plus grand des amas dénommé *Cupaan bumak* renferme 196 tumulus. Le plus petit, *Cupaan bundaw*, en compte 58. Une fouille archéologique, réalisée en avril-mai 2000, a porté sur un tumulus localisé vers le centre de Cupaan bumak, présentant un diamètre d'environ 7 m pour une hauteur d'environ 1m.

Cinq couches archéologiques ont été identifiées grâce à l'origine et la composition des matériaux ou suivant les conditions de la pédogenèse. Trois individus (deux hommes et une femme) ont été dégagés dans la couche 5, à la base de l'amas, dans un niveau riche en chaux d'une épaisseur variable entre 5 et 30 cm.

A l'exception de la parure portée au cou (collier de 46 perles en os ou en verre) et à la ceinture (10 cauris) par l'un des individus, aucun autre matériel funéraire n'a été trouvé.

Les datations sur les ossements humains et les fragments de charbon prélevés dans les niveaux de cuisson de la chaux, ainsi que l'étude en cours de la céramique (environ 120 kg) devraient aider à une meilleure connaissance de l'amas fouillé.

Inventaire et Typologie des amas coquilliers du Sud-Comoé (sud-est de la Côte d'Ivoire)

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Les amas coquilliers ou faluns, sont le résultat d'un entassement sur un même emplacement de coquilles, à intervalle plus ou moins régulier dans le temps. Ils constituent les sites archéologiques par excellence de la Côte d'Ivoire côtière. L'ampleur du phénomène a de ce fait amené les archéologues français déjà en 1972 avec Raymond MAUNY, à conclure que la côte ivoirienne est spécifiquement coquillère. Cette vision s'est cependant depuis révélée caduque du fait de nouvelles recherches qui montrent aujourd'hui, les autres possibilités archéologiques de la Côte d'Ivoire côtière composées de villages désertés, de sites métallurgiques, de la transformation de la matière organique (cf. KOUASSI (K.S), *Archéologie de la Côte d'Ivoire côtière (Grand-Bassam - Grand-Lahou)*, Thèse nouveau régime, Abidjan, Université d'Abidjan, 2007, 533 p.).

Le travail que nous nous sommes proposés de faire ici a consisté à cerner l'ampleur du phénomène coquillier dans le Sud-Comoé (Sud-est ivoirien). Les études antérieures sur les amas coquilliers en effet, ont été consacrées de façon significative à la partie ouest de la Côte c'est-à-dire la zone de Dabou à la périphérie d'Abidjan.

L'étude basée sur l'exploitation des rapports de recherche de la SODEMI (Société pour le Développement Minier de la Côte d'Ivoire) et sur une reconnaissance sur le terrain, nous amène à trois (3) constats essentiels. D'abord que les amas coquilliers du Sud-Comoé sont centrés en grande partie sur les lagunes. Ensuite qu'ils sont des Kjœkkenmœddings. Enfin qu'ils font l'objet d'une réutilisation par les populations actuelles.

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