Introduction

Material remains of a settlement constitute reliable evidence of the ways in which a society adjusted to its environment. Udo (1966, 1982) has observed that settlement is a concrete expression of the workings of a society and economy over time in a single place. Settlement pattern is also the manner in which a people’s cultural activities and social institutions are distributed over the landscape (Rouse 1972:96). The forms of settlement express the ideas, attitude and feelings of the occupants both past and present (Folorunsho and Ogundele 1993:280). Settlement pattern studies are a reliable source of data for testing hypotheses on a wide range of topics. The works of Robbins (1973) on the material culture of the Turkana, Northern Kenya, and of David (1971) on the Fulani of Northern Cameroon clearly demonstrate that ethnographical observational studies of traditional architecture could be used for the reconstruction of archaeological records in terms of the distribution of certain items as indicators of wealth, sex and numbers of people within a compound. Ethnographic observation can also map present-day settlement units and record the economic, social and political organization of the living community. From such studies, we can learn a great deal about the internal organization of a settlement, how the people arrange themselves on the ground, as well as how they make, use and dispose of some of their material, from pottery to houses (Folorunsho and Ogundele 1993:280).

This paper documents aspects of the traditional architecture, spatial distribution, and the construction of a number of structures and features in a compound, including the construction of floorings of houses, among several linguistically distinct rural communities in Niger State. It also attempts to compare the ethnographic material on the subject with that from the Wushishi excavations (Aiyedun and Shaw 1989), to see whether additional cultural relationships could be discerned and established. Other aspects relating to settlement patterns and landuse studies presented elsewhere (Aiyedun in Press) include an examination of the various domestic material objects used by the men and women, their ownership and spatial distribution in the home, body ornamentation, both in terms of cosmetics and jewellery, their use and ownership on the basis of sex, and funerary remain practices among traditional rural societies in Niger State.

Over the last six years, one of us (K.A.) has carried out an ethnoarchaeological investigation on contemporary material culture among several communities in Niger State (Aiyedun 1994). The region has rich potential for archaeological research. Large scale excavations have taken place in the Wushishi area, next only to Daima in importance and magnitude in the whole of northern Nigeria (Straw 1986; Aiyedun and Thaw 1989). One of us has been involved in archaeological research in this region for the last 10 to 15 years (Aiyedun 1987). The other (S.O.) is involved in carrying out statistical population analysis of the cultural material recovered from Niger State, marking the beginning of a multidisciplinary approach to the study of settlement patterns and landuse studies in the region.

Niger State (Figure 1) is one of the most rural states of the Federation. Out of an estimated total population in 1979 of 1,623,704; more than 90% are rural, while the remainder are urban dwellers (Idachaba 1985:631). It is situated in the middle belt region of Nigeria and lies between latitude 8°00 and 13°30 North and longitude 4°20 and 8°40 East. Its area of 65,037 km² represents about 8% of Nigeria. Four major traditional societies live here, including the Nupe who occupy about one-quarter of the land area, make up one-third of the population and who are found in four Local Government Areas (Larum, Gbako, Agaie and Lapai). Another is the Gwari who occupy about one-quarter of the land area and make one-third of the popu-
Figure 1: Nigeria showing Niger State at time of fieldwork.
Figure 2: Map of Niger State showing 10 Local Government Areas covered in the research.
Traditional Architecture

The smallest nucleated settlement among rural societies in Niger State is a compound, known as *gida* in Hausa and *emi* in Nupe. A number of compounds make up a ward known as *efu* in Nupe and as *Unguwa* in Hausa, while a number of wards make up a village, known as *k'auye* in Hausa and *tunga* in Nupe. Each compound, often consisting of members of the same family in most cases, but not in some, is surrounded by a perimeter fence which could be constructed of mud wall or of grasses. In almost all cases the compound was entered through a principal entrance building known as katamba (*Nadel* 1951:34; *Dmochowski* 1990, Volume II, 3-4). Usually inside the house are smaller partitions and a number of smaller katamba, all invisible from outside, including living rooms, the kitchen, the animal section, the barn or granaries and the main hall (*Nadel* 1951:38).

In the construction of houses, usually carried out on a communal basis among all rural societies studied by one of us (K.A.) in Niger State, the men were responsible for the mixing of the building material, the actual construction of the houses, for the plastering of the walls, and for the procurement of roofing material and actual roofing itself. Women were responsible for fetching building materials, including the grasses for the roofing, and the water to be used in the mixing of the clay or the building material, for preparing food for the labour engaged in the construction of the houses; they were also responsible for the full construction of all the floorings once the houses were built, as well as for designing and applying or carrying out all internal decorations to be found in the compound.

Among the Hausa and the Gwari foundations of houses are not generally dug; stones are first laid in the ground as foundations. This building material is high in a country where there is no way that this population growth will not affect the traditional architectural setting, our subject of discussion, however, of the changing pattern of the population growth in Niger State. Since there is no way that this population growth will not affect the traditional architectural setting, our subject of discussion, however, small. If not by the way the houses/compounds are modelling, there is bound to be an expansion of other words small round huts must have given way to large round, and in some cases, rectangular compounds with huts inside. Another area of comment is the way the rooms, windows, etc., are constructed which takes care of wife, husband, male and female children when the traditional setting is still untouched. This is a result of population growth and modernization over the years. The 1963 population census (1,194,508), and that of 1991 population census (2,482,367) shows a growth rate of 3.85 which is high in a country where recently the awareness of child spacing and family control is on the increase. The traditional architectural setting of rural communities in Niger State can be described in terms of population growth in another way. If we compare the population census of 1963 which is 1,194,508 with that of 1979 which stood at 1,623,704; we shall see the difference with that of 1991 population census of 2,482,367; with a density of 18.37 in 1963 to 38.17 in 1991, a period of 28 years.
its dry form as brick, known as lamkpa in Nupe, are always mixed with soft dry grasses, rauno in Hausa, 4–9p or banal in Nupe which are usually broken into 10 cm lengths which are trodden and used as building material.

Among the Hausa, Nupe, Kambari, and others, with the exception of the Gwari, who maintained that a husband’s room is the first to be built, there is a general agreement that when a new compound is to be established the woman’s room, kata nzagi in Nupe and dakin mata in Hausa is always first built, followed by the man’s room, dakin miji in Hausa and kata baji in Nupe by all of them. Among the Gwari this is followed by the construction of the bachelor’s room, abigbe, the girl’s room, gbebi, the man’s main granary, dobui yako, then the pounding or grinding room, ataboknu, then the entrance hall, zaure, pounding and grinding hut, kpan, and the granary, edo, are built in that order. Among the Hausa and the Gwari, among the Nupe the man’s room kata bagi, is followed in construction by the bachelor’s room, kata gbaru fu, after which the animal hut, egagi, is built; the compound is then fenced before the entrance hall, zaure, pounding and grinding hut, takun kpan, and the granary, edo, are built in that order. Among the Hausa and the Rambari, after the husband’s room known as baraya, used for keeping war implements as well as serving as a sleeping place, is built, the construction in at’ compound is followed by the granary, rumbu, among the Rambari, then by the entrance hall, zaure, a small shrine hut, kunkekashe, then the bachelor’s room before the compound is completed by a fence. Among the Hausa, after the construction of the baraya, the entrance hall, zaure, is built, then the compound is fenced, while the granary, rujewa or rumbu is built last. In a Gwari compound there are always other structures and features not commonly found among other societies, such as animal hut, kudumi, the wife’s kitchen, gache, a firewood hut, knunu, other smaller granaries, dobui, an inner entrance hall, boknu, as well as two small features in the form of shrines, bori, madaka for the women and tsafi for the men, represented by a stone and a pot in a compound respectively.

Apart from earth, loam, and rauno used as basic structural building material, other materials are used for plastering and roofing. The walls of the interior and exterior are plastered with eguna elafibana among the Nupe. This is a mixture of earth and liquid, water and liquid additives such as grass, dried horse or cow-manure, and vegetable refuse, usually prepared over a period of about four days. Among the Gwari a mixture of clay made into a paste, pounded with locust bean pod and gore wood, is used; while the Kambari and the Hausa use the same material for building: black soil, bakin kasa or red soil, jan kasa, or even white soil, faran kasa, mixed with landa water for preparing a thick paste for plastering the walls. Roofing poles or sticks include gora from bamboo poles, gwanda from Annona senecalensis; qwagwalaa from Raphia sudanica; giginya from Borassus aethiopum; and kirya from Prosopis africana.

Criss-crossing for the roof is constructed with the branches of giyayya, Mitragyna inermis; kulunga, Tilia cora varneckiei; kwiwa, Adenodoliches paniculatus; wuyan damoo, Cambretum glutinosum; and from corn stalk, karan meiwa, all tied with palm leaves kwakwia or rama. Grasses used for roofing include jan-banje, Monocymbium cerasiforme; tofa, Imperata cylindrica; yama, Hyparrhenia rufa; bauje, Acacia sieberana; k’yaaraa, Hyparrhenia dissolata; K’yasuwa, Pennisetum hordeaides; bay, Penicium laetum, all woven with rama, Hibiscus cannabinus; ramania, Ureta lobata; balagande, Cochlospernum tinctorium, and balge. Grasses used for fencing of the compound include gamba, Andropogon guyanus; iwa, Rhynchoschene congenses; zana, zanhuere, and jinji, woven with kalgoo, Pilostigma reticulatum; kukkuuk, Sterculia setigara; and janbawa.

Among the different societies in Niger State it was generally agreed that the woman’s room is often larger than the man’s room, while random measurements and observations of a few typical houses among the Nupe were as follows: the walls of the houses have an average thickness of about 20 cm, slightly narrower than their foundations. Measurements of a woman’s room range in diameter from 2.64 m to 2.74 m and were about 2.3 m in height, while a man’s room ranged in diameter from 2.0 m to 2.15 m and was about 2.19 m in height; a bachelor’s room is about the same size as the man’s room; the grinding hut is the same as a man’s room in height, but is slightly smaller; the granary could be about 2.14 m in height and about 1.57 m in diameter. Among the Nupe, for a labour force of about ten people, the entrance hall could be completed in about ten days; it took about eight days to complete the woman’s room; about seven days to complete
the man's room. The door way is always high, about 29 cm above the ground level; the upper part of the door way is always lined with a door sill or lintel made up of two bamboo poles tied together to form a support for the wall above it. The door way of the man's room and woman's room are both rectangular, measuring about 2.19cm and 1.55 cm in height by about 95.9 cm and 75 cm in width respectively. The commonest building in a Nupe compound is the granary, edo, ranging in number from three to four surrounding a small family, to as many as ten for a large compound. They are often difficult, delicate, and time-consuming to erect and are thus often erected by specialist builders who could take up to as many as twenty five days to erect an edo according to informants of one of us (K.A.).

In order to erect an edo, a large stone was first laid in the centre, it was then surrounded with circular smaller stones. If the granary was to be large, two concentric circles of stones were placed around the central stone. The stones were set firmly on the ground; on each a lump of clay was placed which was then shaped, using both hands, into a mushroom or inverted cone form (Dmochowski 1990, Volume II, 3.29) so that the rim of each of these touched the rim of its neighbour, in this way forming a circular platform. The overhanging circumference of the platform was supported by closely placed thin and slender slabs of stone to provide a sort of grille through which chickens were kept where they could lay their eggs. The grille also formed a protection for the granary from termites, ants and other insects. When the platform is almost dried a thick layer of building material is spread evenly on top of it. The walls of the granary are now erected on top of the platform in consecutive solid layers of clay, the height of each layer squalling the length of the middle finger. Usually the layers are laid each day (Dmochowski 1990, Volume II, 3.29-3.30). A single granary usually contains a single food item. Food kept in granaries include guinea corn, maize, beans and millet; among the Nupe each variety of rice is kept in a single granary.

Apart from the granary, a Nupe compound would also contain similarly loam-built cylindrical structure, yaku, which is a kind of roasting oven. It could be as tall as 1.50 m by 1.0 m in diameter, divided about half way up into two parts: the lower serving as a fire-place to be fed with wood, while the upper, separated from the lower by a horizontal sieve-like grille, was a multi-purpose receptacle which could be opened at the top for the drying of various grain crops to be stored once they were dried in the granaries (Dmochowski 1990, Volume II, 3.31). A careful study and examination of the morphology of a women's living room among the Nupe reveals that the sleeping area or sleeping mud bed, gadon kasa, is always on the right hand side of the door as the room is entered, the door way is always opened to the right hand side, known as kpakota; the area on the left hand side of the door way, kpanwagi, is where the drinking pot is kept; this place also serve as a sleeping area for grown up girls and children. The cooking area is towards the middle of the room, close to the lower part of the sleeping place. Behind this area are usually arranged several decorated pots of various sizes, between about twenty-five and forty, depending on the available space and the wealth of the woman, standing on an etzo, a port stand, against the wall. Each pot stand would hold five to seven pots stacked on top of each other, facing the door way. The eating area is between the cooking area and the pots, towards the left hand side of the door. After use, the pots are washed and are kept outside the room but within the compound.

Among the Gwari a contour of a circular building is usually drawn round a central peg, using the handle of a hoe. Standard measuring units were a foot or an arm's length. The walls were erected without foundations, but a layer of ashes was laid as a precaution against termites. On top of this was usually put the first layer of loam, about 20cm in height according to the informants of one of us (R.A.), but about 30 cm in height according to Dmochowski (1990, Volume II, 3.62). During the building of a house, a course, measuring about 7 cm in height is built each day. A house is often completed in about seven to ten days depending on the height of the room, with a labour force of about four to five people who are often relations. All Gwari doorways have no beam, but are constructed above the ground level to a height ranging from 12 cm to 29 cm to prevent rain from running in; they are always parabolic in shape with a height of about 1.5 m and a width of about 69 cm at midpoint.

Among the Gwari, the bachelor's room is always near the inner entrance hall, bokena, the girl's room is often located further inside the compound
near the mother's room so as to isolate them from the boys and strangers from outside. The women's room is always near the kitchen and is always very close to her guinea corn granary, dobui. Guinea corn granary in the compound could also be owned by grown-up sons in the family who own farms, regardless of whether or not they are married. Among the Gwari there is always the man's main granary, dugbui yako, inside the compound; this is usually larger than the other granaries; it is used for the main crop by the man, varying from area to area, but in Egwa, Shiroro Local Government Area of Niger State, it is used for storing guinea corn. Other grain crops farmed by the men or owned by the women, through farming or buying, for which granaries are constructed outside the compound include rice, groundnut and millet. There are often other smaller granaries constructed inside the compound near the kitchen area to aid preservation where different produce is kept for daily use.

In a traditional Gwari compound the grinding hut, ataboknu, is the all-important room where all the preparation of the food menu on a daily basis takes place. Though not the kitchen, it is the all-important accompaniment to the kitchen paraphernalia. Inside the ataboknu is kept a grinding slab, ata, constructed on top of a clay platform. The ata is owned by the senior women in the house. A typical clay platform for an ata observed at Eqwa measured 71 cm at the rear in height, while the front part was 46.5 cm in height, thus, sloping outward towards the ground; the middle part of the platform has a diameter of 73 cm at a height of about 35 cm from the bottom. The grinding stone, plastered on the clay platform, measured 56 by 48 cm. It had a working area of 45 by 34 cm. The upper rubbing stone measured 39 cm in length by 16 cm in width with a thickness of 8.5 cm. Its lower side is always used for rubbing or grinding, while the upper side is held with both hands when it is being used. The front part of the grinding stone, where the actual grinding takes place, is usually plastered with pot sherds but the other pat of the floor of the ataboknu is made of mud soil. The grinding stone is used for dry grinding guinea corn, maize and millet into a flour, nyailuku. Whatever material is ground flows into a winnowing tray, natala, which is always placed in a slanting or leaning position on the side of the clay platform. Inside the ataboknu is also kept a wooden mortar and pestle, gniyi obei, for dry milling rice and wet milling guinea corn, maize and millet. On top of one side of the roof of the ataboknu is usually constructed an asha, usually made of three bamboo poles, similar to the asha in a woman's living room in other societies, crossing from one part of the wall to the other. The poles of a typical asha observed measured 2.65 m in length, about 5 cm in diameter, erected at a height of 1.59 m on the wall, with the first inner bamboo pole laid about 38 cm away from the wall. The asha is always used for keeping or placing items used in the ataboknu, such as the upper rubbing stone, atabi; sieves, nalia, as well as grains to be milled.

Among the Kambari, about 30 cm of height of wall is built at a time; this is usually allowed to dry for two to three hours before another course of 30 cm is added to it. About three of these courses are often built in a day in the process of building a house. On the second day the same three courses are built; on the third day the house is completed, with only two courses of 30 cm each. Kambari and Hausa houses also have door-sills or lintels made of gwagwala, Raphia sudanica. A newly constructed house is left for a further three days to dry before it is roofed. Among the Kambari, sleeping beds are often made of mud, andon kasa, both for the men and the women. In the middle part of the room is constructed a hearth or firing place, ramin wuta nda gado, for heating. Among the Hausa, in the man's and woman's living rooms, corn stalk beds, gadon kara, are used, so there is no need for firing places for heating.

In terms of the number of structures and features, spatially distributed in the compounds of the four major societies (Hausa, Nupe, Owari and the Kambari) in Niger State, the largest number was found among the Owari, followed by the Nupe, then the Kambari, while the least number was found among the Hausa (Figures 3 and 3a). If we look at Figure 3 where a pie chart is used to compare the distribution of structures and features in the compound, among those shown, one is bound to see this in terms of the population settings of the rural communities. Gwari people have the largest population, 378,000; according to 1963 census figure and are mainly in Niger State, as shown by the highest degree of the pie chart. Nupe and Kambari people followed but they are not as large as the Owari people. The Hausa are fewer in number in terms of these structures. Figure 3a below the pie chart is the bars,
showing the same structure distribution. This can easily be grasped by a lay man on the street in terms of understanding as the heights are different. Structures commonly found among the four societies include the main entrance hall, the man’s room, the woman’s room, the bachelor’s room, the granary and the enclosed fence. Among the Gwari and the Nupe are commonly found the pounding and/or grinding hut and the animal hut. Among the Hausa and the Rambari is the baraya, a hut in which war implements are kept. Among the Gwari and the Kambari is the shrine, represented by a hut among the former and by a feature in the form of a stone and a pot for the male and the female respectively among the latter. Other structures found only among the Gwari include the girl’s room, the wife’s kitchen, a firewood hut, and an inner entrance hall. This may be indicative of man-land population distribution ratio, varying number of activity patterning and variation by way of ownership and/or division of labour for their usage of the basis of sex.

Floorings

Information gathered by one of us throughout Niger State, varying only in minor details, revealed that women are responsible for the construction of floorings of all houses, rooms, and huts in a compound, as well as for other architectural designs and decorations on the internal and external walls of the woman’s living room and courtyard of traditional architecture in traditional rural societies. The construction of the flooring of a house in a compound takes place after the construction of the building, including its roofing, has been completed. Such flooring is carried out by the women on a communal basis, involving about two or three women in most cases who are usually wives to the same husband, but could well number up to five women in some cases, who are often relatives, including grown-up girls in the house.

The ground floor of any room to be constructed is first level-tilted with the aid of a special hoe known among the Rambari as eshe ‘egbe, among the Hausa as magini, and among the Nupe as dugba guka. The same hoe is used for collecting gravel/laterites which is then poured and level-spread over the floor under construction. In the process, from time to time, the floor is sprinkled with water and beaten with a wooden floor-beater, madabi, and then left for about three days to dry. Black soil material, bakin kasa, is next poured and spread on the floor by the Kambari, Hausa and the Nupe, with the exception of the Gwari; this is further sprinkled with water smoothed and burnished with the help of a small quartz stone or sandstone, dutsin magogi; the burnishing and rubbing of a single room at this stage could be completed in a day by a group of two or three women, after which water soaked with pods of locust bean is sprinkled on the newly constructed floor, with the aid of a broom, for hardening.

Among the Gwari after the ground floor is level-tilted, it is spread with gravel and gently beaten with the wooden floor-beater, after which broken potsherds are flat-laid on the floor, sprinkled with water, and further beaten thoroughly until they are solid. Water is poured on the floor to wash off dirt, after which more water soaked with pounded locust bean pods is sprinkled to harden the newly constructed floor. The courtyard of the compound is further laid with potsherd pavement or combined with small stone pebbles as well as the inner and outer part of the door way of the room of a newly married bride among the Bassa, while among the Nupe, the door way of the woman’s living room and the courtyard or part of the zaure are occasionally laid with potsherd pavement. The inner walls of the living room of newly married women among the Shari, Nupe, Kambari and Hausa do contain decorations: designs and drawings of various types, some graphic, others of schematic objects. These are usually drawn by the women with the edge of stone quartz, often left plain or painted among the Gwari, but always painted with red colouring material, jan kasa, by the Hausa and Kambari. Outside the walls of the woman’s living room of a newly married bride are found drawings of lizard, kadangare; antelope, kada; crested ducker, gada; crocodile, dorina; Arabic board, elo; human finger-print, foton yatsu; as well as the drawings of a man or a woman among the Kambari. These drawings observed among the Kambari are found mostly stretching the lower part of the wall (usually the firing side) to a height of about 1.60 m leaving about 18 cm away from the roof plain.

Concluding Remarks

Examination of the contemporary settlement pattern and architecture in Niger State reveal regu-
Figure 3: Pie chart showing comparative distribution of structures and features in the compound among the Hausa, Nupe, Gwari and Kambari in Niger State.
larities in spatial arrangement of the compound within the settlement. Compounds today are patterned to reflect the nucleated or extended family nature of the traditional rural societies, through house partitioning on the basis of sex and age. Women houses are usually different from the men and were observed to be slightly bigger than the man's; the bachelor and unmarried female children could have their own separate rooms, but in some places the latter can be living with their mothers. Each compound also contains an entrance hall, known to be used as a meeting place, for recreation, to settle dispute and as a guest room, while the larger open space within the compound are used for carrying out activities such as pottery making, wood carving, tray and basket making as also observed at Ishongo by Folorunsho and Ogundele (1993:283). The circular compound is common to all the four societies and usually contains five huts. The compound walls and the houses are built in the same way.

The construction of the foundations is achieved by laying a line of stones on or under the land surface on top of which earthen materials are put, without actual digging. The Owari and the Hausa are closest, digging shallow trenches for foundations which are then filled with wet earth and loam, the basic building material. The Rambari and the Nupe are also similar but differ from the Gwari by digging larger trenches for foundations measuring about 13 cm and 22.5 cm in depth by about 12-13 cm and 25 cm in width respectively, but such foundations are also filled with wet earth and loam, the same basic structural building material. The spatial distribution of structures and features within the compound is generally the same among the four societies, with the largest number of structures (up to 13) being found among the Owari, followed by the Nupe (up to 9), then the Kambari (up to 7), while the least was found among the Hausa (usually 6). The houses are oriented east-west and the compound entrances facing east. The construction of flooring

Figure 4: Congon Makeri plan of hut wall cutting 1 B, C and D in level 17.
varies with the use of potsherd pavements only among the Gwari. The use of clay and or laterites for flooring among the Nupe, Hausa and the Kambari are very similar. The inner walls of the living rooms of newly married women have decorations among the four societies and are similar in style and colour although today Christian and Moslem newly married women no longer decorate their rooms. Traditional (non-Christian/Moslem motifs are the drawings of lizard, antelope, crested ducked, crocodile and human fingerprints.

Lastly, it is interesting to note that the concept of circular house construction was recognized archaeologically at Kongon Makeri in the Wushishi area (Aiyedun and Shaw 1989:122), the only excavated area in the region. A house plan recovered from Kongon Makeri was circular in shape from the floor plan recovered from cuttings IB, IC and ID Level 17 (Figure 4). The edge of the hut wall showed it to have been over with an external diameter of about 3m and with walls 15-20cm thick (Shaw 1986:103. Hut floors recovered from Kongon Makeri and Kasakogi Bast included clay floor, medium to large sized quartz pebbles, small pebbles, smoothed clay and flat-laid potsherds, and lateritic (Aiyedun and Shaw 1989:92,122). Details of compound organization were not obtained from the excavated sites in the Wushishi area due to the vertical nature and size of the excavations, but considering the enormous amount of cultural material recovered, including pottery and other clay objects such as daub and wattle and clay net sinkers, metals; stone objects; beads (glass, stone, clay and shell); fauna, including fish and mollusca, from Kongon Makeri, the development of different domestic activity patterning and their spatial distribution within the settlement were probably comparable to the present day forms. Such hut floors recovered from the Wushishi area bear resemblance to present-day flooring among the Owari and the Bassa to a large extent and to the Nupe and the Ura to some extent.

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