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An archaeological exploration in southern Borno

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Abstract

For much of the African continent archaeological fieldwork is still at an exploratory stage. There must be a great difference between the known archaeological evidence, on which we base our hypotheses, and the evidence that remains to be discovered. There must, in addition, be a veritable gulf between the archaeological evidence we have and the prehistoric human behaviour that we seek to understand. The following paper discusses recent fieldwork in southern Borno in the light of these ideas. This fieldwork aimed to test an hypothesis about human exploitation of the area before 3000 bp but succeeded instead in revealing a substantial number of later sites in a part of an area already previously investigated by the writer. So far as earlier sites are concerned, this new fieldwork suggests that future archaeological exploration should be concentrated on the northern end of the Mandara Mountains and on the deposits at their base. The overall lesson of this fieldwork, however, seems to be that the harder you look, the more you find—although you may not find what you are looking for.

Résumé

Presque partout en Afrique, le travail archéologique sur le terrain n'en est qu'au stade exploratoire. Il y a sans doute un grand écart entre les données archéologiques connues sur lesquelles se fondent nos hypothèses, et les faits qu'il reste à découvrir. De plus, il existe vraisemblablement un veritable gouffre entre les données archéologiques que nous possédons et le comportement humain préhistorique que nous cherchons à comprendre. Le présent article discute les recherches récentes au sud du Borno en tenant compte de ces idées. Ces travaux visaient la mise à l'essai d'une hypothèse portant sur l'exploitation humaine de la région avant 3000 ans bp mais en vint plutôt à révéler un nombre considérable de sites plus tardifs dans une aire déjà étudiée par l'auteur dans la même région. Quant aux sites de date plus éloignée, les nouveaux travaux sur le terrain suggèrent que l'exploration archéologique devrait dorénavant se concentrer sur l'extrémité nord des montagnes Mandara et sur les dépôts à leurs pieds. Il en ressort surtout, cependant, que plus on cherche, plus on découvre, bien qu'on ne trouve pas toujours ce que l'on cherchait.

Twenty years ago archaeologists investigating the later prehistory of Africa would openly admit how little they really knew. I recollect that the main reason for such diffidence was that one was acutely aware of how little systematic site survey work had been done in this huge continent. Always at the back of one's mind was the nagging worry that out there somewhere in the heat haze was as-yet-undiscovered evidence that would blast any careful synthesis of the known evidence that one might try to make. As the years went by and the amount of fieldwork grew and the excavations proliferated and the published literature mushroomed, there was a growing interpretative confidence that tended to blind us to the fact that not much had really changed. I still show Australian students a slide of a map of Africa with their continent fitted into the north-western part of it. I do this to emphasize the enormous size of the African continent and the fact that, as I see it, African archaeological fieldwork is still at an exploratory stage. From this situation there come two consequences of universal significance that archaeologists everywhere have been worrying about for some time. These are that: (1) there must be a very large difference between the archaeological evidence that we know about and the archaeological evidence that remains to be discovered, and (2) there is obviously a giant gulf fixed between the evidence we have for study and the prehistoric human behaviour that we are seeking to understand. The real worry is that these differences are not just quantitative; if they were we could no doubt solve our problems with adequate sampling techniques. They are qualitative also.

Recently I made a detailed attempt to construct the natural history of Man over the last 3000 years in Borno, in the Lake Chad region of Nigeria (Connah 1981). In doing so, it was necessary to try to explain why there was a virtual lack of archaeological evidence from periods before 3000 years ago. The major reasons suggested were that the deep older deposits of the Chad Basin were masked by superficial deposits of relatively recent date and that there were few exposures anywhere in the area. In addition, extensive areas around Lake Chad may have been submerged until about 3000 years ago (Connah 1981:76–77). In the absence of any evidence, an hypothesis was advanced concerning the prehistory of the area prior to that time. Briefly, it was suggested that fisher-hunter-gatherers must have been exploiting the margins of Lake Chad from an early date and that one of the most likely strategies of such groups, during the periods of climatic stress which are known to have existed from time to time (when the lake shrank and sometimes disappeared), would have been to retreat into the Mandara Mountains and the adjacent uplands to the south of Lake Chad. In addition it was suggested that food production, involving both cereal cultivation and pastoralism, must have developed or been adopted in the Lake Chad area at some time prior to 3000 years ago. A number of ways were suggested for testing this hypothesis and in particular the potential importance of the northern end of the Mandara Mountains (Fig. 1) and the adjacent parts of the old shoreline known as the Bama Ridge was mentioned (Connah 1981:82–83).

In January and February 1981 there occurred an opportunity to test this hypothesis. At the invitation of the Centre for Nigerian Cultural Studies, Ahmadu Bello University, Zaria, Nigeria, I was able to spend 25 days in Borno of which 15 were devoted to an intensive search for archaeological sites in the area shown in Figures 2–4. This fieldwork was done in collaboration with Joseph Jemkur, archaeological research fellow at the Centre for Nigerian Cultural Studies, and we have elsewhere briefly reported our discoveries (Connah and Jemkur 1982a). It is my intention in this paper to discuss those findings in rather more detail

Figure 1 The east side of the northern end of the Mandara Mountains, seen from Gagava Nawayanda Amthe (site B119).

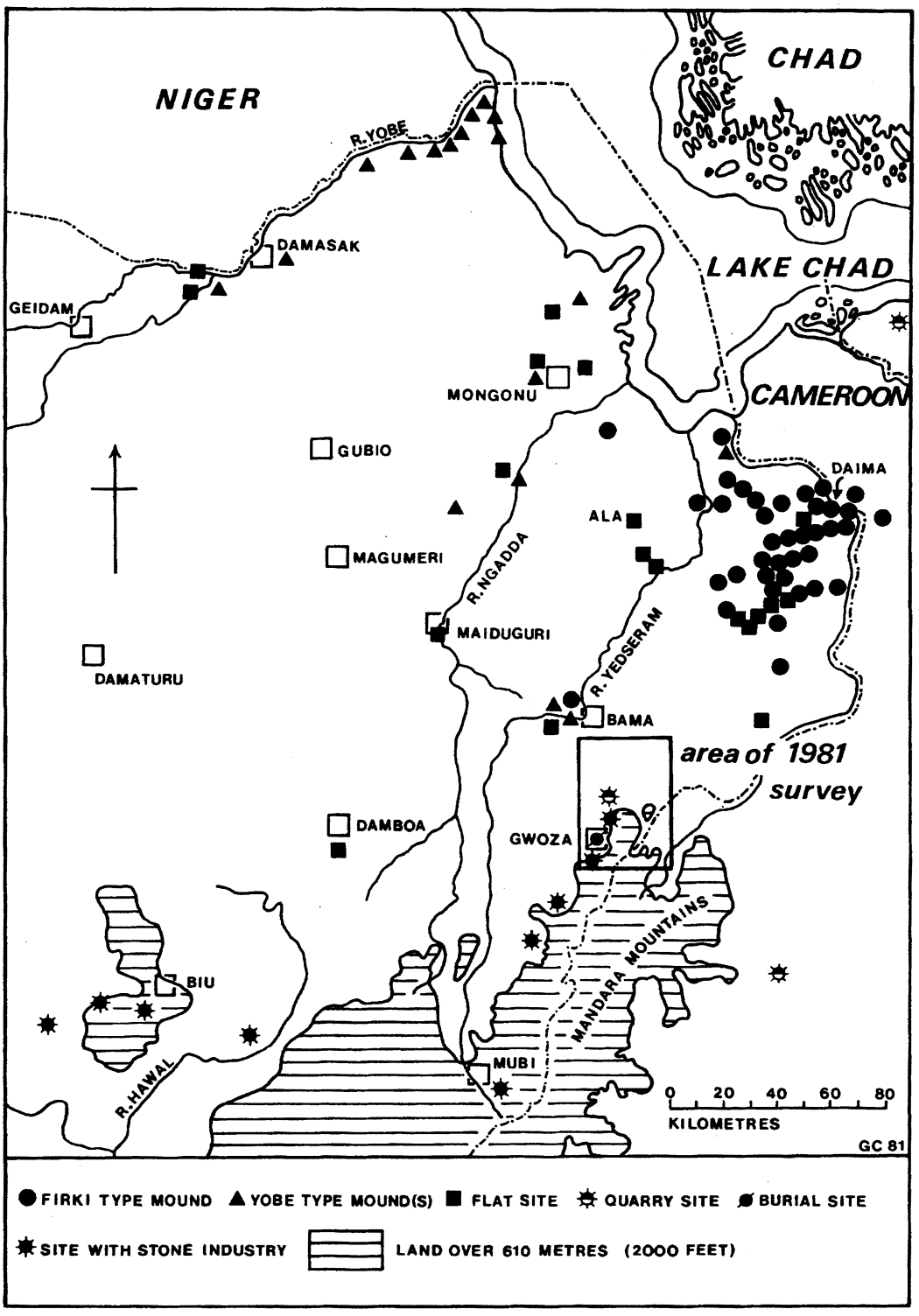

Figure 2 Archaeological sites in the Lake Chad region of Nigeria, as known prior to 1981. Based on Connah (1981:46). The only addition is Ala, a newly discovered site outside of the area of the 1981 survey.

(otherwise available only in an unpublished report: Connah and Jemkur 1982b) and to examine their implications.

Previous archaeological fieldwork in Borno covered an area of about 40,000 square kilometres (Connah 1981:27) and was designed to investigate past and present human adaptations to a number of contrasting ecozones. In contrast, the 1981 fieldwork attempted to cover an area of about 1800 square kilometres (Fig. 2), actually covered only about 1100 square kilometres and made a detailed examination of only about half of that. In that approximately 500–600 square kilometres was found a startling amount of archaeological evidence compared with the amount located in the previous fieldwork discussed by Connah (1981). In that earlier work many months of fieldwork over the 40,000 square kilometres of the main study area produced 76 sites; in the 1981 work 15 days of intensive search produced 27 sites but archaeological material was actually collected from 42 of the 56 localities that were examined. Not only did the new work produce a lot of evidence in a relatively small area but the area selected was actually part of the 40,000 square kilometres that had been previously examined! During that earlier examination only 4 sites had been located in the area of the 1981 fieldwork (Fig. 2) and these are not counted among the 27 new sites that have now been put on the map (Fig. 4).

What could explain such an apparent difference in site density? There are a number of important factors. First, the earlier work was intended as a broad regional study and the intensity of archaeological fieldwork reflected this. In contrast, the new work was intended as an intensive search of a relatively small area in order to test an idea. Second, arising from this, there is the fact that in archaeological fieldwork, to a certain extent, the harder you look the more you find. The experiences of Australian colleagues over recent years make me suspect that this is often the case. Some of them (for example Attenbrow discussed by Sullivan, in press) have found that areas of bush with relatively little known archaeological evidence have yielded a substantial number of sites when subjected to on-foot, extended-order search parties, making a systematic sweep through a section of rough country. Similarly, another worker, as she put it, 'vacuumed' a small mountain of its archaeological evidence so thoroughly that even 'potential habitation sites' and 'potential utilization sites' were recorded (Williams 1980). Such an approach was clearly justified when subsequent excavation by the same worker demonstrated that a high proportion of these 'potential' sites (all of them were rock shelters) did indeed have archaeological evidence in their deposits, in spite of the fact that on the surface they gave no inkling that this would be the case. I am convinced that if the small area of southern Borno examined in 1981 were subjected to such field-search techniques, the amount of archaeological evidence located would be even greater than it was. In our new work we actually located sites in two ways: (1) surface searches were conducted at arbitrarily selected spots but particularly along incised stream and river beds and on selected areas of the Bama Ridge, and (2) local knowledge was used by talking (through an interpreter) to farmers and others in most of the modern settlements shown in Figure 4. Of the two methods, the second produced the greater number of sites but most of these were settlement mounds that probably all dated to within the last 3000 years. In contrast, the first method produced fewer sites but amongst them was the only site with a convincing stone industry (Borno 117; see Fig. 4). There is here, in fact, a major difference from the Australian situation. In that continent archaeological fieldworkers have only to consider hunter-gatherer sites and have until recently merely ignored historical sites of the

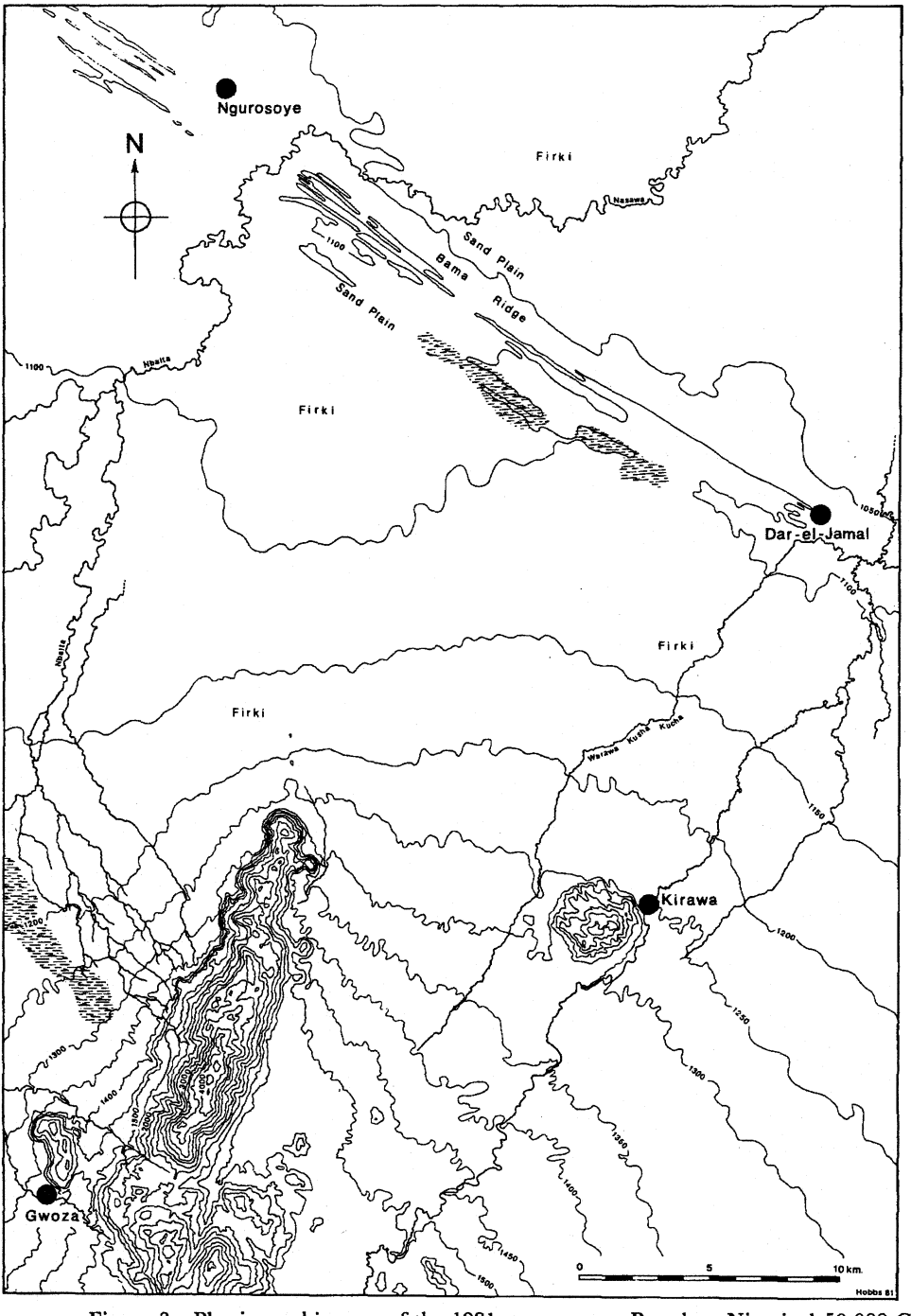

Figure 3 Physiographic map of the 1981 survey area. Based on Nigeria 1:50,000 Gwoza NW, NE, SW, SE (Sheet 114), Edition 1. Contours are at 50 foot intervals. Note the areas liable to flooding south of the Bama Ridge.

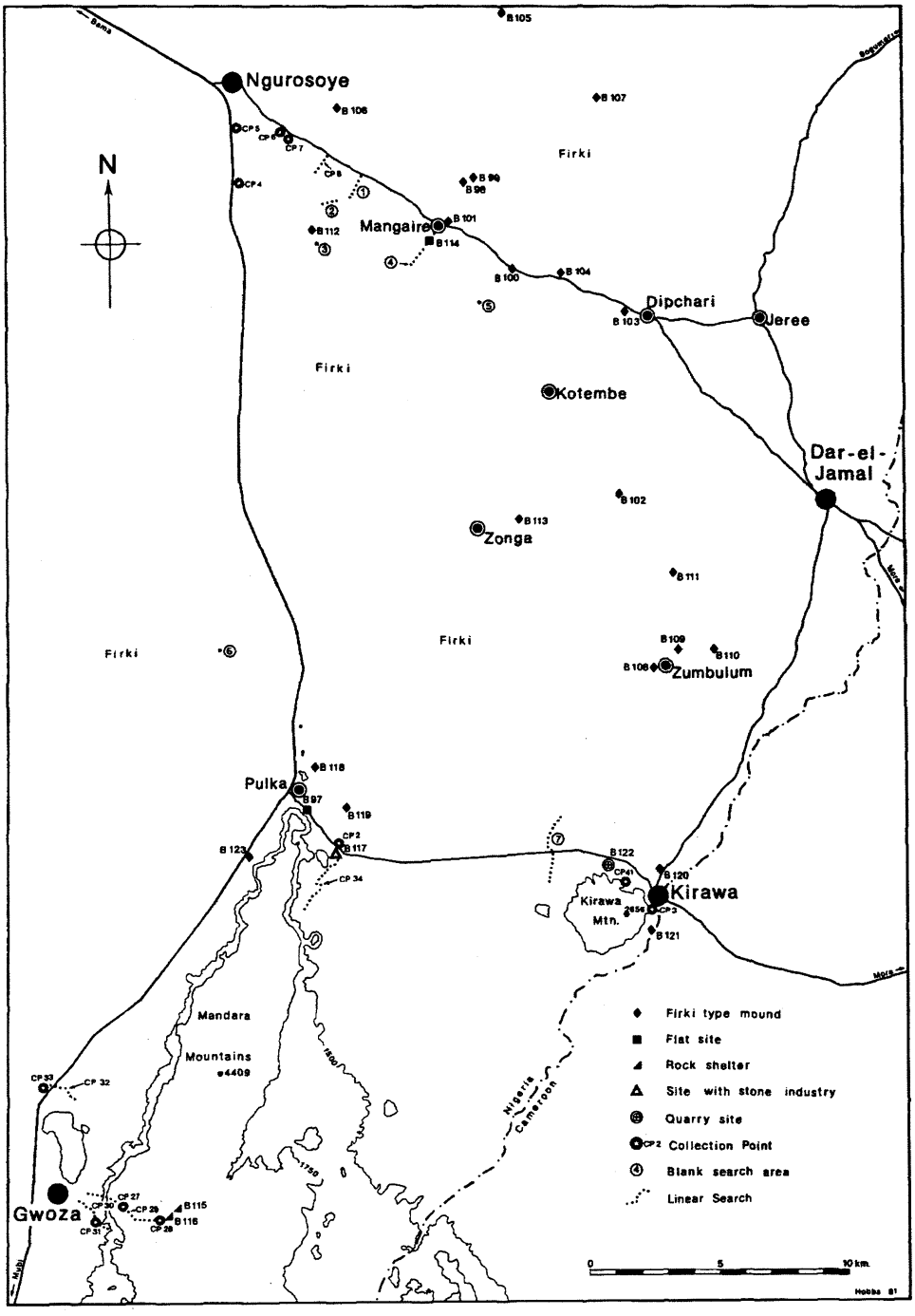

Figure 4 Archaeological sites discovered during the 1981 survey. Collection Points that did not constitute sites, and some of the blank Search Localities, are also shown, as are modern settlements and roads. Six blank Search Localities could not be shown on a map of this scale; three of these were in or near the town of Kirawa, three were in or near the village of Guduf Bubaya-Gawa (indicated here by CP28). For the correlation of sites, Collection Points and Search Localities see Table 1. Basis of map as for Figure 3. It proved impossible to penetrate the area immediately to the west and south of Zonga.

last 200 years. In Borno the substantial amount of later archaeological evidence of a highly visible type provides an ever-present 'noise', as numerical analysts might call it (Daniels 1972:204–05), behind which earlier evidence becomes hidden.

There is another factor, however, which is of basic importance. When I write of finding 27 new sites, what do I mean? What is a 'site'? Do all archaeologists use the word in the same way? Do I use it in the same way as I did 15–20 years ago? In practice, such apparently simple questions are very much more difficult to answer than most non-archaeologists realize and very much more difficult to answer than many archaeologists will admit. Struggling with the task of pioneering archaeological aerial photography in Australia, I have found myself having to face the basic question: 'When is a site a site?' (Connah 1978:98). As regards Borno, I have elsewhere written (Connah 1981:45) as follows:

> In the case of the area under consideration here, a site is taken to be an obvious concentration of material evidence for previous human activity. Thus there may be evidence that falls below the threshold of site recognition but in an extended pioneer study of this sort it is perhaps best to confine ourselves to the most significant evidence. Nevertheless, Man's relationship to his environment was by no means confined to the scattered archaeological sites that we treat as windows into the past.

Yes indeed, but such a statement merely recognizes the problem and then turns its back on it. Others (for example Isaac and Harris 1980) have sought to tackle it head-on. In particular, Foley has studied what he calls 'off-site archaeology' but has admitted that in his work '. . . greater spatial resolution . . . has been bought at the cost of lowered temporal resolution' (Foley 1981:197). The fieldwork done in Borno in early 1981 attempted to reach a workable compromise to this whole problem, although it was done before I had the opportunity to read Foley's important study. The findings of my 1981 fieldwork were graded into three categories (see Table 1 for their correlation):

(1) 'Sites' given 'Borno numbers', continuing the sequence commenced in the 1960s, the sites consisting usually of a clear concentration of archaeological evidence or the presence of archaeological evidence that clearly indicated particular past human activities.
(2) 'Collection Points', where careful search yielded archaeological evidence, but either in a concentration that was too slight to qualify as a site, or in a manner that was difficult to classify in terms of prehistoric human behaviour.
(3) 'Search Localities', where careful search yielded no clear archaeological evidence.

However, this rule-of-thumb approach should not allow us to forget the old archaeological joke that archaeological distribution maps (for example Figs 2 and 4) principally show the distribution of archaeologists. Instead, we might make this idea a little more specific and suggest that such maps mainly show the intensity of archaeological endeavour. The extent to which the locating of such endeavour reflects either the amount of archaeological evidence that exists or the intensity or type of past human usage of the area remains unknown and perhaps unknowable. In the case of southern Borno we have a mass of new evidence that suggests we should (a) look even more closely at this area than we have even now done and (b) look very much more closely at adjacent areas than has yet been done.

So the new work in southern Borno has revealed a lot of archaeological evidence. Evidence of what? The purpose of the fieldwork was to test an hypothesis about human utilization of the area before 3000 years ago. In fact most of the evidence we found is later 'noise' belonging

to farming communities of the last three millennia. Of the 27 new sites, 21 are firki type settlement mounds comparable in type and date with those further north-east of which Daima is the best known. This in itself is an important discovery because it had not been appreciated previously just how far south mounds of this type were located. As Figure 4 shows, we now know of mounds of Daima type situated on the plains at the very foot of the Mandara Mountains (B118, B119, B123) and the furthest south of any Borno settlement mound is no longer the 'typical' mound of Amchaka (B72) at 11°40'N. or even the somewhat 'atypical' mound of B38 at 11°32'N. The furthest south is now the mound known as Ukvake Thuktse (B121) situated at 11°10½'N. on the lower slopes of Kirawa Mountain. This is an impressive mound of about 40 m diameter and about 5 m height.

About half of these newly discovered settlement mounds are situated in areas of firki clay plain or of firki clay and sand plain (Figs 3 and 4). Amongst the most impressive of the mounds thus situated, is Dugje (B105), a mound of about a quarter of a kilometre in length with higher submounds on it and a greatest height of deposit of 7–8 m. Another equally impressive mound is Munye Molgo (B107), a mound complex about half a kilometre long and 7–8 m high at its highest point (Fig. 5). Clearly these are both sites of some importance and, in my opinion, their basal deposits should be as early as those of Daima. Other comparable sites, whose excavation potential impressed me, were Wudula Jalta'a (B102), about half a kilometre long and 3–4 m high; and Buri Bultuwa (B113), about a quarter of a kilometre long and 5 m high. Inspection of Figures 3 and 4 will show that although Dugje and Munye Molgo are on the plain north of the Bama Ridge, Wudula Jalta'a and Buri Bultuwa are on the plain south of the Ridge. The plain to the south of the Bama Ridge extends to the foot of the abruptly rising Mandara Mountains (Fig. 1), which are mainly of granite, and Bawden (1972) mapped this plain as a pediment of schist, gneiss and migmatite with some Older Granite. The area selected for the 1981 fieldwork was deliberately chosen because this apparent relationship of mountains, pediment and old shoreline (the Bama Ridge) seemed to offer a particularly good chance of testing the hypothesis concerning the prehistory of the Lake Chad region prior to 3000 years ago. It was, therefore, something of a surprise to find a firki and firki and sand plain south of the Bama Ridge and to find firki type settlement mounds on it. The expected pediment appears to be largely masked by lacustrine or lagoonal deposits formed only during the last 5000 to 7000 years and available for human settlement only during the last 3000 years (Connah 1981:22). Instead of finding a stony pediment on which lay hunter-gatherer and early farming sites with stone industries, we found a stoneless firki and sand plain with settlement mounds belonging to the mixed agriculturalists of the last 3000 years.

The other half of the newly discovered settlement mounds lie either at the foot of the Mandara Mountains and Kirawa Mountain or adjacent to the northern side of the Bama Ridge. This latter group consists (from west to east) of sites B106, 98, 99, 101, 100, 104, 103, and overlaps with the mounds of the northern plain. It seems to correlate partly with the course of the Nasawa River and partly with the line of settlements that are strung out along the Ngurosoye to Dar-el-Jamal road, on the sandy plain immediately north of the Bama Ridge. Some of these mounds are reminiscent of B38 (Connah 1981:83–91) in that they are lower, smaller and have relatively little cultural material exposed on their surfaces when compared with most of the other mounds. B100, 101, and 103 seem to be mounds of this type and (south of the Bama Ridge) B109 and 110 may also be of this type. It is possible that such

Table 1 Cross-index of Search Localities, Collection Points, sites, site types, place names and locations. During the 1981 fieldwork a total of 56 Search Localities were examined. Surface collections were made at 42 of those Search Localities, which therefore became classified as Collection Points, and 26 of these were accepted as sites. Also one of the Search Localities where no surface collection was made constitutes a site. In addition, a bead hoard at Ala is included here, although it is outside the area of the 1981 survey.

Search Locality	Collection Point	Site	Site Type	Place Name	Location	
1	1	B 97	Flat settlement site	Foot of Mandara Mountains	11°13′N.	13°47′E.
2	2	Part of B 117	Site with stone industry	Gwoa Pulka River	11°12′N.	13°48′E.
3	3	—	—	Kirawa Mountain	11°11′N.	13°54½′E.
4	4	—	—	S. of Ngurosoye	11°26′N.	13°45½′E.
5	5	—	—	S. of Ngurosoye	11°27′N.	13°45½′E.
6	6	—	—	SE. of Ngurosoye	11°27′N.	13°46½′E.
7	7	—	—	SE. of Ngurosoye	11°27′N.	13°47′E.
8	8	—	—	Bama Ridge	11°26½′N.	13°47½′E.
9	9	B 98	Settlement mound	Barwoshe	11°26′N.	13°50½′E.
10	10	B 99	Settlement mound	E. of Barwoshe	11°26′N.	13°51′E.
11	11	B 100	Settlement mound	SE. of Burari	11°24′N.	13°51½′E.
12	12	B 101	Settlement mound	E. of Mangaire	11°25′N.	13°50′E.
13 (Fig. 4, Blank Search 5)	—	—	—	Bama Ridge	11°23½′N.	13°51′E.
14	13	B 102	Settlement mound	Wudula Jalta'a	11°19½′N.	13°54′E.
15	14	B 103	Settlement mound	NW. of Dipchari	11°23½′N.	13°54′E.
16	15	B 104	Settlement mound	NW. of Dalagambori	11°24′N.	13°52½′E.
17	16	B 105	Settlement mound	Dugje	11°30′N.	13°51½′E.
18	17	B 106	Settlement mound	E. of Mairamri	11°27½′N.	13°48′E.
19	18	B 107	Settlement mound	Munye Molgo	11°28′N.	13°53½′E.
20	19	B 108	Settlement mound	W. of Zumbulum	11°16′N.	13°54½′E.
21	20	B 109	Settlement mound	NE. of Zumbulum	11°16½′N.	13°55′E.
22	21	B 110	Settlement mound	Aba Kaya	11°16½′N.	13°56′E.
23	22	B 111	Settlement mound	Magarta	11°18′N.	13°55′E.
24 (Fig. 4, Blank Search 2)	—	—	—	E. of Bulturi	11°25½′N.	13°47½′E.
25	23	B 112	Settlement mound	NW. of Dauleri	11°25′N.	13°47½′E.
26 (Fig. 4, Blank Search 3)	—	—	—	NW. of Juwa	11°25′N.	13°47½′E.
27	24	B 113	Settlement mound	Buri Bultuwa	11°19′N.	13°51½′E.
28 (Fig. 4, Blank Search 4)	—	—	—	Bama Ridge	11°24½′N.	13°49½′E.
29	25	B 114	Flat settlement site	Bama Ridge	11°25′N.	13°50′E.

30 (Fig. 4, Blank Search 1)	—	—	—	Bama Ridge	11°26′N.	13°48½′E.
31	29	—	—	Gwoza to Guduf Bubaya-Gawa	11°4½′N.	13°43½′E.
32	—	—	—	NW. of Guduf Bubaya-Gawa	11°5′N.	13°43½′E.
33	Includes CP 28	—	—	Guduf Bubaya-Gawa	11°4½′N.	13°44½′E.
34	26	B 115	Rock shelter	NE. of Guduf Bubaya-Gawa	11°4½′N.	13°44½′E.
35	—	—	—	Guduf Bubaya-Gawa	11°4½′N.	13°44½′E.
36	—	B 116	Rock shelter	Guduf Bubaya-Gawa	11°4½′N.	13°44½′E.
37	—	—	—	Guduf Bubaya-Gawa	11°4½′N.	13°44½′E.
38	27	—	—	NW. of Guduf Bubaya-Gawa	11°4½′N.	13°43½′E.
39	30	—	—	River SE. of Gwoza	11°4½′N.	13°43′E.
40	31	—	—	River SE. of Gwoza	11°4½′N.	13°43′E.
41	32	—	—	Gazake River	11°7′N.	13°42′E.
42	33	—	—	Gazake River	11°7′N.	13°42′E.
43	34	—	—	Gwoa Pulka River	11°11½′N.	13°47½′E.
44	35	B 117	Site with stone industry	Gwoa Pulka River	11°12′N.	13°48′E.
45	36	B 118	Settlement mound	NE. of Umbazha Hill	11°14′N.	13°47½′E.
46	37	B 119	Settlement mound	Gagava Nawayanda Amthe	11°13′N.	13°48′E.
47 (Fig. 4, Blank Search 6)	—	—	—	Gagava Shuwa	11°16½′N.	13°45½′E.
48	38	B 120	Settlement mound	Dugje Gaga	11°12′N.	13°55′E.
49	—	—	—	NE. edge of Kirawa	11°11½′N.	13°55′E.
50	—	—	—	Kirawa	11°11½′N.	13°54½′E.
51	39	B 121	Settlement mound	Ukvake Thuktse	11°10½′N.	13°54½′E.
52	—	—	—	Kirawa	11°11′N.	13°54½′E.
53	40	B 122	Quarry site	Kirawa Mountain	11′11½′N.	13°54′E.
54	41	—	—	Kirawa Mountain	11°11½′N.	13°54′E.
55 (Fig. 4, Blank Search 7)	—	—	—	Warawa Vale River	11°12′N.	13°52½′E.
56	42	B 123	Settlement mound	Ndufa	11°12′N.	13°46′E.
—	—	B 124	Bead hoard on flat settlement site	Ala	12°11′N.	13°52′E.

Note: Latitude and longitude are estimated from the 1:50,000 maps (see Fig. 3 caption) to the nearest half minute. Where an extended area is involved, they are given for a mid-point.

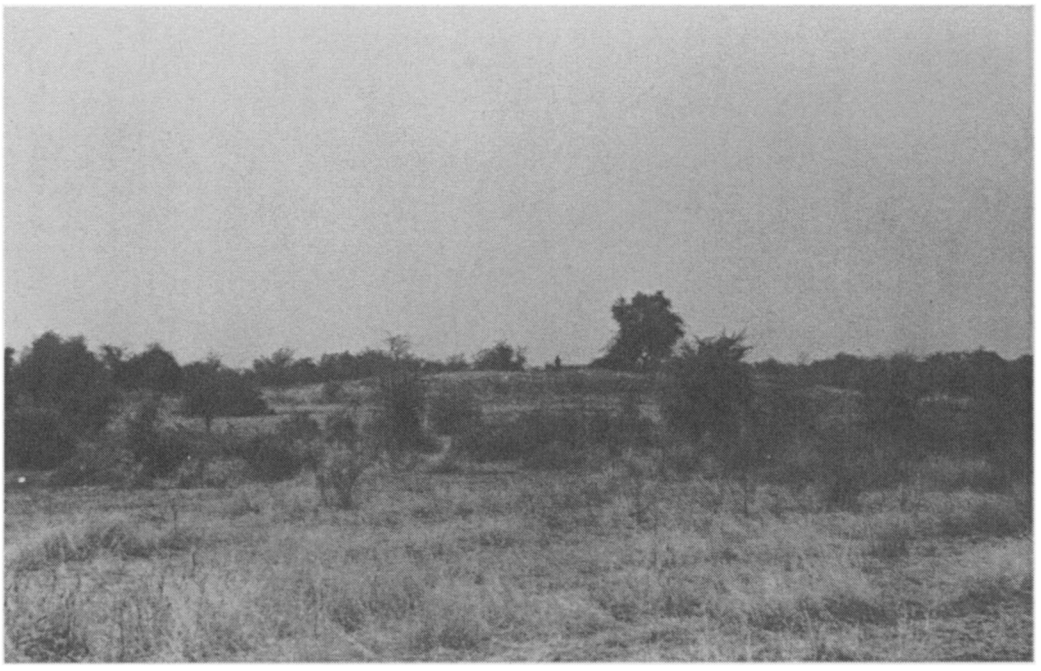

Figure 5 Highest submound at western end of firki type settlement mound complex near Munye Molgo (B107).

mounds belong to the earlier part of the last three millennia, although only excavation could test this idea.

The mounds at the foot of the Mandara Mountains and of Kirawa Mountain overlap with the mounds of the southern plain, but their proximity to the mountains, at a slightly higher elevation than the mounds to their north (see contours on Fig. 3), raised the question of whether they might have been initially occupied at an earlier date. For this reason, site B119, known as Gagava Nawayanda Amthe, was chosen for test excavation. One cutting measuring 2 × 2 m in area was excavated into its highest point. The cutting was oriented to the cardinal points of the compass and its southwest corner was located at 32 metres from the nearest root of a large *Tsamia* tree (which was the only tree on the upper part of the mound) on a bearing of 103½° from that root. The excavation was conducted quickly (without sieving) over a period of two and a half days. It was done in 50 cm spits and had five limited aims. These were: (1) to investigate the depth of the deposit; (2) to throw light on the character of the deposit; (3) to date the deposit; (4) to get some idea of the contained cultural material; and (5) to discover something about the subsistence economy of the site.

Excavation was discontinued at a depth of 3.50 m and the deposits beneath sounded with a trowel to 3.70 m; in the time available it was not possible to confirm whether the natural deposits beneath the mound had been reached. The light brown sandy fine gravel that comprised the lowest deposit examined probably merges into natural non-archaeological deposits not far below the limits of excavation. Thus the mound is greater than 3.70 m high, probably about 4 m in all. The excavated section through this mound (Fig. 6) confirms the general similarity of its occupation deposits to those of other firki type settlement mounds such as Daima.

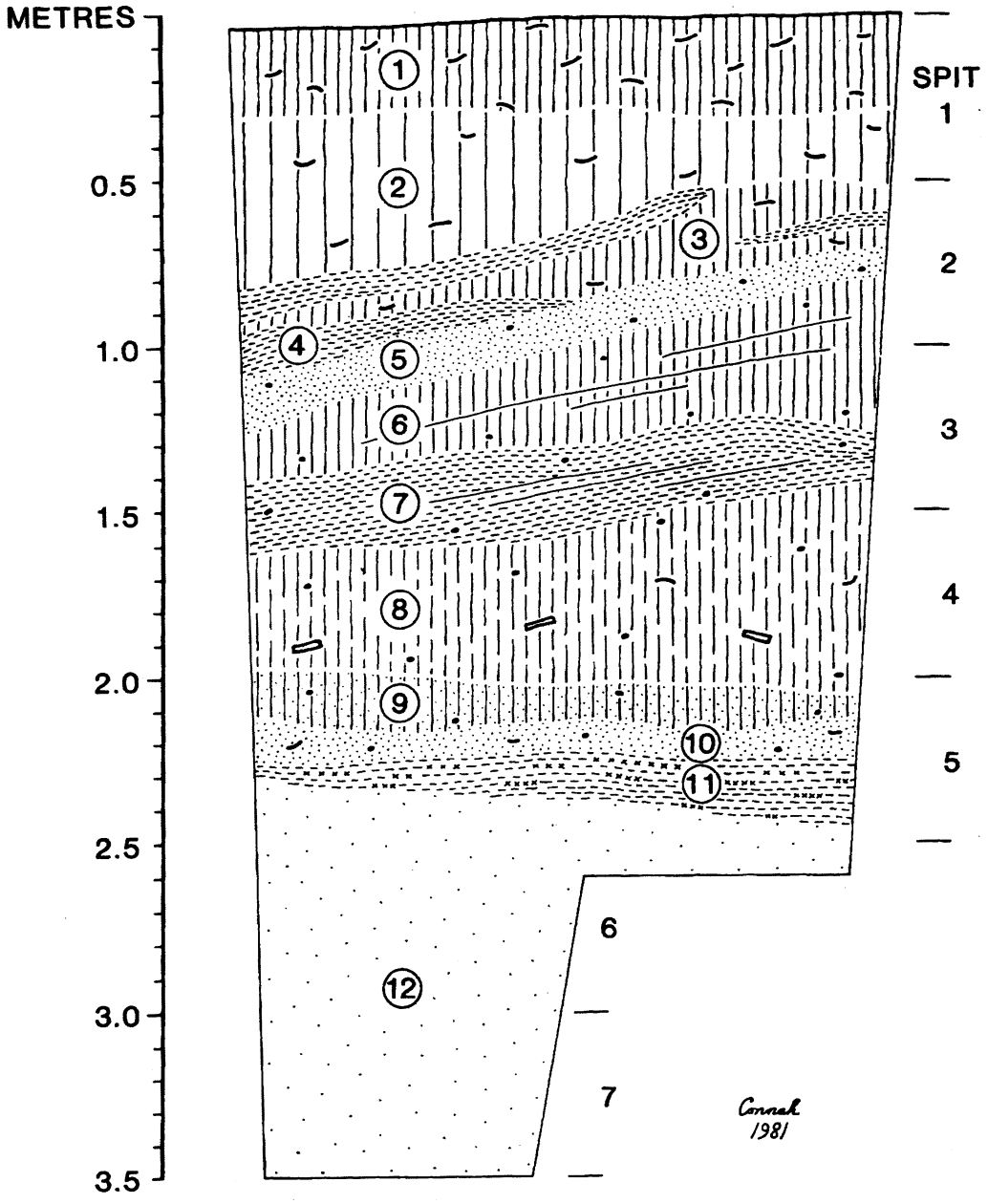

Figure 6 East section of test excavation at Gagava Nawayanda Amthe (B119). Stratigraphy as follows: 1: Brown/grey sand and gravel, with sherds (cultivated soil). 2: Grey sand and gravel, with sherds. 3: Brown/grey sand and gravel, fewer sherds. 4: Pale grey lenses. 5: Black/brown earth, flecked with charcoal. 6: Brown/grey sand and gravel, flecked with charcoal, some fine banding. 7: Pale grey sand and fine gravel, flecked with charcoal, some fine banding. 8: Brown/grey sand and gravel, flecked with charcoal, sherds and bones; jumbled material. 9: Brown sand and gravel, flecked with charcoal. 10: Black/brown earth, flecked with charcoal and sherds. 11: Pale grey ashy sand and fine gravel. 12: Light brown sandy fine gravel, probably merging into natural below limits of excavation. Using the meter method, the following pH values were determined after return to Zaria, by the Leather Research Institute of Nigeria: Spit 2: 8.19; Spit 3: 8.28; Spit 4: 8.42; Spit 5: 8.48; Spit 6: 8.68.

Wood charcoal scattered throughout Spit 4 has given a radiocarbon age of 1110 ± 70 bp (Beta-3510) and wood charcoal scattered throughout Spit 2 has given a radiocarbon age of 1240 ± 80 bp (Beta-3917). In spite of the apparent inversion of these dates, they lie within one standard error of one another and a t-test (critical value of t at $t = .05$) indicates that there is no significant difference between the two dates (Thomas 1979:206–08). The best interpretation of these dates is that they indicate that the deposits of Spits 2–4 inclusive were probably forming during the second half of the 1st millennium AD. No sample material suitable for radiocarbon dating was available from the lowest parts of the deposits excavated but it seems unlikely that the earliest occupation of this site could have been more than 2000 years ago at the most.

A cursory analysis of the cultural material excavated from B119 confirms the likelihood of a time-span somewhere within the Daima sequence and there is no clear indication of any cultural break that might point to a lengthy abandonment at an early stage of the site's occupation, thus lengthening its chronology beyond that already suggested. The decoration and form of the pottery compares generally with that from Daima, although there are some differences that may represent either regional variation in style (this site is about 135 km distant from Daima) or difference in time. The test excavation produced no objects of metal nor any metal slag, although three fragments of what may have been crucibles were recovered. On the other hand, although pieces of stone were moderately common in the deposits, particularly quartz and granite, there were virtually none that showed clear evidence of a flaked stone industry. The butt end of a stone axe was found in a disturbance hole in the surface of the mound, although the fragment showed signs of later reuse. Although it is appropriate to compare the cultural material of this site with that of Daima, there are, nevertheless, some marked differences. The most noticeable of these are that at B119 there is a total lack of clay figurines, an almost total absence of the varied use of fired clay for small objects, an absence of bone artefacts, and a virtual absence of the massive sherds of the traditionally-called 'So pots'. However, any absences of particular items of cultural material from this site should be interpreted with care. Surface collection would tend to yield a selection of the later cultural material and the test excavation that was done was of a very limited size compared with the scale of excavation at Daima! Instead, it is positive differences in cultural material to which attention should be mainly directed and here there are few items of significance: a tendency for the pottery from the B119 test excavation to have a lot of incisions amongst the grooving and ridging decoration, cordons frequently used for decorating pottery, lug handles on some pottery; these are perhaps the only positive differences worthy of comment.

So far as the subsistence economy is concerned, the excavated evidence indicates mixed farming roughly comparable with the economy which has been argued for Daima (Connah 1981). Grindstone fragments and grinders/pounders were moderately common and animal bone fragments occurred throughout. Amongst these fragments (Spits 1–4), 7 cow teeth and 13 teeth of sheep or goat were identified. Fish bones were virtually absent, but lack of access to a reference collection made it impossible to know whether wild mammal species were present or not. The bone evidence should be seen in the context of the pH values of the deposits (listed in the caption of Fig. 6). It would appear that the site should have provided good conditions for bone preservation and it might be noted that although the pH rises with depth, the quantity of bone actually falls. Furthermore,

this fall is not necessarily explicable in terms of diminishing volume of excavated deposit with depth.

Thus the results of the test excavation offer little hope that the settlement mounds nearer to the mountains of southern Borno might represent settlements of an earlier date than those of the northern firki plains. An impression that both B118 and B119 (Gagava Nawayanda Amthe) were reminiscent in appearance of B38 may therefore have been a mistaken one, or may indicate that it is indeed impossible to identify an earlier type of settlement mound as was suggested above.

In addition to the 21 newly discovered firki type settlement mounds, the 1981 fieldwork yielded six other previously unrecorded sites. Of these, three fairly certainly belong (like the mounds) to the last three millennia at most. Two of these are flat sites. B97 comprises an extensive scatter of sherds and other cultural material at the foot of the Mandara Mountains and is probably of 2nd millennium AD date. B114, however, is possibly of an earlier date than B97 and is the only definite site found in 1981 on top of the Bama Ridge proper. It consists of a thin scatter of sherds in disturbed earth from a group of ground-squirrel holes. One large sherd from this site is decorated with comb stamping, which is absent from the latest spits at Daima. The third site (B122) is a quarry site in granite on the northern side of Kirawa Mountain (Figs. 4 and 7), that was probably used for producing grindstones at some time in the last 3000 years. I have elsewhere (Connah 1981:139–40) discussed the long-range

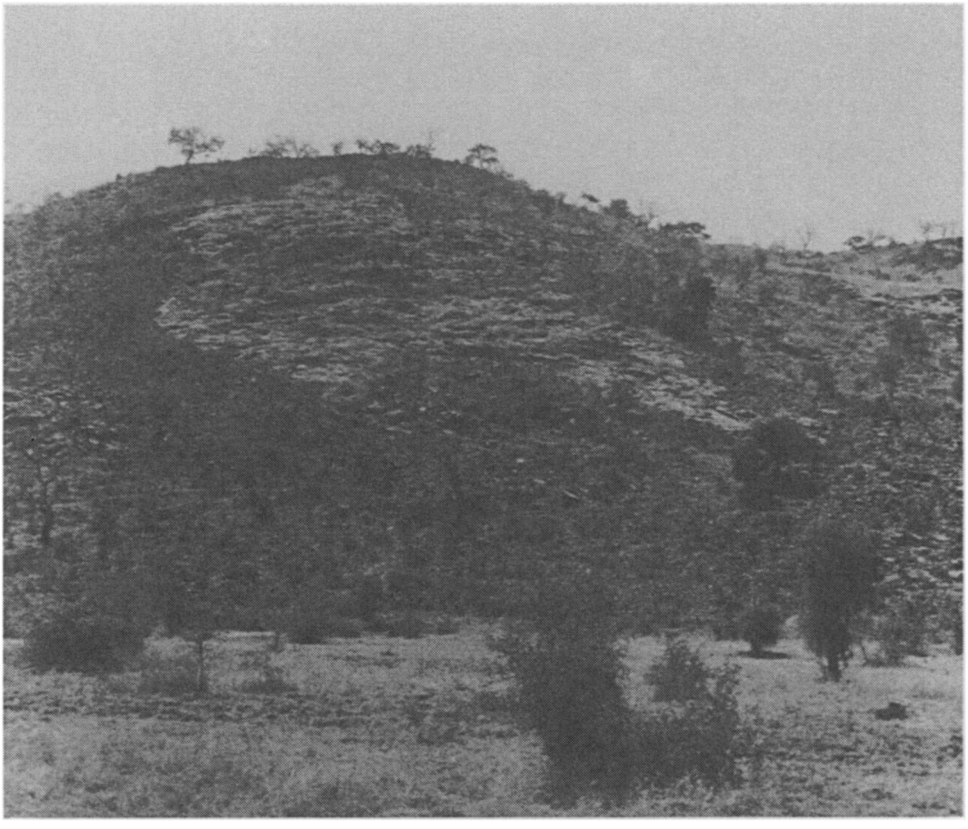

Figure 7 Quarry site in granite (B122), north side of Kirawa Mountain.

transportation of grindstone material into the stoneless firki plains, and sites such as B122 must surely have been at the supply end. In this context it is interesting to note that B118 had many granite flakes and fragments on its surface. This settlement mound, which is a little over half a kilometre from Umbazha Hill, a northern granite outlier, may well have been occupied by people who were manufacturing grindstones for trade with settlements further out on the plains. A small number of flakes of granite were also found on the surface and in the upper deposits of the nearby B119 mound.

There are only three sites recorded in 1981 that are potentially earlier than the last three millennia. Two of these (B115 and B116) are rock shelters in granite at Guduf Bubaya-Gawa, nearly 3000 feet (900 metres) up the Mandara Mountains, and these two sites are strongly associated in the local traditions with Buhé, a legendary hero figure who introduced ironworking into the mountains. Both of these rock shelters contain deposits; there are surface indications that the shelters have indeed been used for ironworking. It is possible that pre-iron deposits might never have existed in these rock shelters or that such deposits, if they did formerly exist, have been subsequently disturbed or even removed as a result of later use. Excavation could clarify this point and might at least given an early date for ironworking in the mountains, perhaps even suggesting the date of its introduction into the area. Certainly, the existence of these rock shelters with floor deposits suggests that the mountains should be carefully searched for more such sites.

It is also possible that the mountain village of Guduf Bubaya-Gawa would make a good starting point for the investigation of the prehistory of ironworking in the Mandara Mountains. An ironworking tradition survived there till recent times (I *assume* it to be now dead) and there are strong local memories about it. In and around the village itself I saw the remains of several derelict shaft furnaces and there are other visible traces of the craft as well. The villagers produced a sample of the black sand used as iron ore, a sample of charcoal and a rectangular lump of wrought iron. The black sand (which appears to be magnetite) has been analysed by The Australian Mineral Development Laboratories, Adelaide, South Australia, who found a total iron content of 53.1%, meaning that it would have been a fairly good source of iron. The Department of Geology of Ahmadu Bello University has analysed the lump of wrought iron and found a total iron content of 94.9%. These details should perhaps be considered in the context of Sassoon's work of twenty years ago (Sassoon 1964) which described iron smelting in the Mandara Mountains, but further to the south.

Of the 27 sites recognized during the 1981 survey, B117 seems to be the only definite example of a site older than 3000 years bp. It consists of a concentration of 36 undiagnostic quartz artefacts on the surface of a flat cultivated field, on the west side of the Gwoa Pulka River, near the foot of the Mandara Mountains. The artefacts are mostly fresh, not rolled, and from Collection Point 2, nearby, came two more quartz artefacts. The artefacts from B117 consist of 25 primary flakes, 2 primary flakes with secondary working, 2 cores, 6 pieces of flaking waste and 1 piece with percussion wear. Those from Collection Point 2 consist of 1 core and 1 piece of flaking waste. Site B117 is not the same as B61 found by Robert Soper in 1964 (Connah 1981:80) but it is the same sort of site, similarly situated near the foot of the mountains. As will be seen from Figure 4, searches along incised river and stream beds at Collection Points 29, 30/31, 32/33 and 34 failed to reveal any other certain sites with stone industries, although occasional stone artefacts were recovered from most of these places. However, these searches covered parts of only four watercourses and there are at least 25

between Gwoza on the west of the mountains and a point to the east of Gwoza on their eastern side (Nigeria 1969).

In conclusion, the hypothesis concerning human settlement in the Lake Chad region of Nigeria prior to 3000 years ago is neither supported nor invalidated by the newly discovered sites, although it receives some support from the B117 stone artefact site. Nevertheless, it is now clear that attempts to test this hypothesis will have to be concentrated much more closely on (1) the Bama Ridge, (2) deposits immediately adjacent to the base of the Mandara Mountains and (3) rock shelters that might be potential habitation sites, amongst granite boulders on the mountains themselves. My impression is that the Bama Ridge will not yield very much. In the area examined, its surface is little disturbed by cultivation and there are no substantial exposures. Also, sand from B114, on the top of the ridge, gave a pH reading of 5.54 when tested later in Zaria, so that it is possible that bone and shell (the most likely indication of fisher-hunter-gatherer sites in this stoneless area) may not have survived in Bama Ridge deposits. Even if such material has survived in a rather poor condition, it would probably break down quickly once eroded onto the surface. Future fieldwork would be more profitably concentrated in the Mandara Mountains and on the deposits at their base. Incised watercourses are common; quartz occurs naturally; there must be more sites like B61 and B117 and, somewhere on the lower slopes of the Mandara Mountains themselves, there must be rock shelters with early occupation deposits. However, it may prove difficult to find early material in the stream gravels that has not, in fact, been redeposited. Also, it is not at all clear that prehistoric fisher-hunter-gatherers had the same preference for rock shelters as some modern archaeologists!

This brings me back to my opening discussion. The 1981 fieldwork in southern Borno has demonstrated clearly what a very large difference there can be between the archaeological evidence that we know about and the archaeological evidence that remains to be discovered. Compare, for instance, Figures 2 and 4. Furthermore, the results of the new fieldwork suggest strongly that there is indeed a giant gulf in this area between the archaeological evidence that we can find and the prehistoric human behaviour that we seek to understand. Almost every piece of archaeological evidence recovered belongs to mixed farmers of the last 3000 years. Are we prepared to believe that there were almost no fisher-hunter-gatherers in the area? Can we totally explain away the paucity of earlier evidence in terms of geomorphological processes? Or is it a matter of archaeological visibility? I am inclined to the last explanation. If there is one overwhelmingly important lesson that comes from the 1981 fieldwork in southern Borno, it is that the harder you look, the more you find (always providing that the evidence is there to start with). If we then apply this lesson to the later prehistory of Africa as a whole, we may begin to realize how likely it is that there is an enormous amount of archaeological evidence still unrecognized and unlocated. There is as great a need as there ever was for systematic site search and survey work in Africa. While we sit and hypothesize, it is still likely that somewhere out there in the heat haze is the means of making or breaking our hypothesis.

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