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HUNTER GATHERERS AND NON-HUNTER-GATHERERS:
A LITHIC ANALYSIS FROM N!OMA, TSODILO HILLS, BOTSWANA

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By

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ABSTRACT

HUNTER GATHERERS AND NON-HUNTER-GATHERERS:
A LITHIC ANALYSIS FROM N!OMA, TSODILO HILLS, BOTSWANA

By

Salalenna Greek Gaotshabege Phaladi

This thesis describes the lithic variability of the site of N!oma, Tsodilo Hills, Botswana in the light of interactions between hunter-gatherers and their neighbors.

N!oma is an agropastoralist site that dates to AD 700 - AD 1000 and has lithic artifacts and iron, copper, wild and domestic plant and animal remains. There are also shells which indicate regional trade.

An analysis of the lithic artifacts shows that tools were made at the site. Also there are activity areas in several levels of the site.

Most of the artifacts are made of quartz, which is locally available.

This thesis provides lithic data on an agropastoralist site, and that data is often lacking in the literature on southern African Archaeology. But the data is insufficient to conclusively answer the question of whether the lithic artifacts were made by pure hunter-gatherers, agropastoralists or both.

To Keitirile MmaLebeya Marope and

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INTRODUCTION

Human beings have lived by hunting and gathering for a long time, but this adaptation has been disappearing. In order to ask some questions about how human groups organize themselves, it helps to study groups that hunt and gather. This subject causes debate, so this thesis will deal with the debate about the nature of hunting and gathering societies and their relation with their neighbors. The focus of the study is an archaeological site in the Tsodilo Hills of northwestern Botswana. The Hills will be described, as well as the archaeology of the region. A description of the site of N!oma will also follow, after which I will mention how I analyzed the lithics from N!oma. Next, I will comment on the analysis of the lithics, and draw conclusions.

CHAPTER 1

INTERACTIONS BETWEEN HUNTER-GATHERERS AND NON-HUNTER-GATHERERS IN SOUTHERN AFRICA: A Case-Study from the Tsodilo Hills

Introduction

The aim of this thesis is to explore the relationships between hunting and gathering peoples and their non-hunting and gathering neighbors by looking at lithic artifacts from an important early Iron Age village located at the Tsodilo Hills in northwestern Botswana. Radiocarbon dates show that the site of N!oma dates to between AD700 and AD1000. This site contains evidence for agropastoralism, use of iron tools and participation in long-distance trade. The site of N!oma also contains thousands of Late Stone Age artifacts. Part of the thrust of this thesis is to describe the lithic variability of the site of N!oma. The purpose of this description of the lithic artifacts from N!oma is to help fill a gap in our knowledge of lithic data on Early Iron Age sites, for detailed classification and presentation of such data on Early Iron Age is often lacking. At the same time, the analysis permits of some basic exploration of the

overall problem of the nature of the interaction between hunter-gatherers and non-hunter-gatherers. Below follows an exploration of the general theoretical background of the question of hunter-gatherers and their relations with their neighbors. This theoretical background will be followed by a description of the Tsodilo Hills of northwestern Botswana, where the site of N!oma is located. This archaeological site serves as a case-study for looking at the question of hunter-gatherers' relation with their neighbors.

The question of the nature of contacts between hunting and gathering peoples and non-hunters and gatherers is a fascinating one. According to Lee and DeVore (1968:3), during almost 99% of the time that human beings have existed on planet Earth, most of their livelihood has depended on hunting and gathering. Thus, if we view success in terms of longevity, subsequent societal processes pale into insignificance when we view them in terms of their success as humankind's modes of production. These include the processes of sedentary agriculture and the concomitant developments of settled dwellings and more complex ways of culture. Additionally, there is the more recent (in terms of prehistory) process of industrialization (Leacock and Lee 1982:5). Therefore, the question of how hunter-gatherers' ways of life articulate with those of their non-hunting and gathering neighbors bears more than academic significance. For example, among present hunters and gatherers, we as anthropologists may find avenues of understanding how

humankind lived in the past (Leacock and Lee 1982:1-2,13; Lee and DeVore 1968:vii,3-4,12; Schrire 1984:xiii-xiv).Let us note this change in the life of hunters and gatherers. Pure hunters and gatherers living in a world of hunters and gatherers no longer exist, and the remaining hunter-gatherers are fast disappearing (Lee and DeVore 1968:4). Today, most hunters and gatherers have been involved in processes of assimilation into the wider world of which they form a part (Schrire 1984:xv). In various parts of the world, this process of assimilation has proceeded at varying speeds, but the direction seems to be one of incorporation (e.g. Yellen 1985). It would appear that the basic processes governing interaction between the two societies would be the same in the various parts of the world, with slight differences pertaining to local circumstances. Today, there is a web of complex interrelationships between hunters and gatherers and their neighbors (e.g. Bahuchet and Guillaume 1982; Vierich 1982; Chang 1982 and Lee and Hurlich 1982). These neighbors may herd animals, practice agriculture, live in mission stations, villages, towns or cities, or on farms. This diversity and complexity has contributed to a lively debate among anthropologists about the nature of contacts that existed in the past. The question, "How did Prehistoric Humans live in the past?" is a baffling one and raises a lot of disagreement.

To narrow the geographical focus, this present discussion of contacts between hunter-gatherers and their

neighbors will deal primarily with the contact situation in Southern Africa. References to other parts of the world will be incidental and not detailed (see Figure 1).

In the question of contacts between hunter-gatherers and non-hunter-gatherers, many anthropologists have been critical about the way hunter-gatherer studies have been used (e.g. Barnard 1983, Chang 1982, Denbow and Wilmsen 1986, Parkington and Hall 1987). Wobst (1978) raises a number of important and pertinent issues which I will summarize below. I will stick closely to his text.

Wobst maintains that the spatial, temporal and behavioral constructs that order archaeologists' understanding of past human "behavior and its precedents and products" contain serious limitations (Wobst 1978:303) . Basically, the shortcomings derive from ethnographic fieldwork's incapacity to deal sensitively with the wider ramifications of hunter-gatherers' behavior. Therefore, Wobst argues against an uncritical acceptance of archaeological research that is founded on "expectations, implications, and measurements derived from ethnography" (Wobst 1978:303).

A quote from Wobst will set the tone of his argument. He argues that all hunter-gatherers that ethnographers have studied

> ...were intimately tied into continent-wide cultural matrices, be it through the world market or through

> other direct and indirect contacts with more complex societies. Thus, the ethnographic record should be a veritable gold mine of information on regional and interregional process, among hunter-gatherers and between hunter-gatherers and other populations. Yet, the literature is remarkably silent on the behavior of hunter-gatherers as it articulates within larger social and spatial entities [Wobst 1978:303-304].

Apart from being dissatisfied with this curious state of affairs, Wobst continues to analyze it. He argues that preoccupation with salvage ethnography and the "ethnographic present" (Wobst 1978:304) has stimulated the blooming of the parochial model of hunter-gatherers.

In the first case, salvage ethnography dealt with observing how hunter-gatherers differed from the agriculturalists who gradually intruded upon the lands and rights of hunter-gatherers. Wobst maintains that the rationale of salvage ethnography disclaimed those behaviors which united hunter-gatherers with their neighbors (Wobst 1978:304). By focussing on locally distinct process, salvage ethnographers minimize inter- and intra-regional process; hence the high profile of the parochial model of hunter-gatherers.

Another factor that contributes to homeostasis in studies of hunter-gatherers is ethnographers' concern with the "ethnographic present." Here, Wobst indicates that the

ethnographic present refers to the unreal moment in time when hunter-gatherers were affected by culture contact to a smaller degree (Wobst 1978:304). By filtering out the results of cattle ranches, forts, trade and missions, the effect is to limit processes to really narrow "units of social, economic, and geographic space" (Wobst 1978:304). By not situating these processes in their wider regional and interregional context, "ethnographers are forced to attribute what remains to the most local and internalized stresses" (Wobst 1978:304).

What Wobst says is that ethnographers' temporal and spatial constraints of their fieldwork heighten the resilience of the narrow model of hunter-gatherers. He argues that it is easy for Lee (1969) to talk of the "two-hour-walk territory" or Jarman (1972) to put forward the "catchment area" because they conceptualize hunter-gatherers in terms of limited periods of time. These constraints limit ethnographers' length and breadth of sensitivity towards understanding how hunter-gatherers respond to major stresses, hazards, and catastrophes. Failure to gain this perception leads to ethnographers' attribution of behavior to what is within their narrow range of vision: "small group dynamics, small units of space, and temporal and spatial variability of low amplitude" (Wobst 1978: 304). Thus ethnographers pass on information which archaeologists, without using strong inference, then base their research on (Platt 1964). In this way, archaeological research does not

challenge the "overwhelming ethnographic stereotype that hunter-gatherers articulate exclusively with local variability, and that regional and interregional process among hunter-gatherers is a symptom of degeneration and culture contact" (Wobst 1978:304).

Conversely, Wobst maintains that it is among hunter-gatherers that we find conditions which are conducive to broad processes covering a wide geographical area, rather than the narrow area that the parochial model puts forth. Wobst says hunter-gatherers have more flexibility of movement than agriculturalists. The former's ease of movement arises from hunter-gatherers' exploitation of a broad range of food sources. Also, they have weakly developed facilities, storage, ownership, and claims to land. In addition, the game and plant foods that hunter-gatherers exploit are not limited to a restricted geographical area; they are spatially continuous. Moreover, other hunter-gatherers and predators from other areas compete for these resources. Therefore, Wobst concludes that we should find a great deal of interdigitation among hunter-gatherers and their neighbors (Wobst 1978:304-305). He asserts that the hunter-gatherers' resources and personnel are not "confined to the small unit of space that some general models want to allot to hunter-gatherers" (Wobst 1978:305).

Wobst also says that another dimension to the parochial model of hunter-gatherers is the reliance of ethnographers

on informants. The latter depend on observation and hearsay in making sense of behavior. It then follows that in dealing with the behavior of other groups, much invention goes on. That arises out of informants' inability to know what other groups' behavior is really like, apart from the patterned and homogeneous conduct that is displayed in public (Wobst 1978:305-306).

Wobst suggests that archaeologists must predict "variability of behavior in all of its spatial and temporal dimensions" (Wobst 1978:307). He lays the responsibility on Archaeology's lap because it alone among the various sub-disciplines of Anthropology deals with

> ... information about behavioral variance in all of its dimensions: in personnel from single individuals in private to the largest structural poses; in space from the smallest catchment area to the largest continent-wide population matrix, and in time from single events to millennia [Wobst 1978:307].

Thus, archaeologists have to create "theory more permissive of behavioral variability and more sensitive to culture process in all of its spatial dimensions" (Wobst 1978:307).

Having outlined some of these theoretical considerations, I would like to discuss the views of some of the scholars involved in the debate of how past hunter-

gatherers and their neighbors related to each other in their day-to-day existence. While we are dealing with the sub-discipline of Archaeology within Anthropology, the evidence for such prehistoric contacts is by nature diverse. I say "by nature diverse" because a lot of the evidence relates to many disciplines. We have an array of information and knowledge gleaned from oral history, linguistics, geomorphology, physical anthropology, ethnography, archaeology and archival sources.

The Debate: Rousseauians versus The Pragmatic Opposition

We may compare and contrast the views that researchers have about the relative degree of isolation of hunter-gatherers in several ways. One of my prime considerations is the focus on Southern Africa, so some noteworthy scholars of hunter-gatherers do not meet this criterion - e.g. Colin Turnbull and James Woodburn, who have worked primarily in Central and East Africa (e.g. Turnbull 1961, 1983; Woodburn 1970). Another criterion I used in discussing the question of contacts between hunter-gatherers and their neighbors is the attitude that I feel researchers take towards human nature. For the purposes of this discussion, I have chosen to group researchers into two categories - those who take a Rousseauesque attitude towards hunter-gatherers and those whose attitudes I will call pragmatic. In using the terms "Rousseauesque camp" and the "Pragmatic camp," I am using

them for convenience. My aim is not to denigrate the contributions of the individuals in this debate on hunter-gatherers. Moreover, I do not mean that the people in each camp always agree with each other. Again, it must be borne in mind that there may be overlap between these two camps, for they are engaged in the pursuit and furtherance of knowledge, and the nature of the academic enterprise consists of debate and confrontation, as well as collaboration.

In general, the Rousseauesque "school of thought" sees modern hunters and gatherers as exemplifying man's original state of nature. These researchers see that state of nature as having been benign and full of affluence. This is seen as an idyllic state of nature, so that we may say, without meaning to be pejorative, that hunters and gatherers were noble savages. The Rousseauians tend to treat modern hunters and gatherers as though they have not been subject to the winds of change that have been blowing across our planet. It is as if hunter-gatherers have lived an unchanging existence for millennia. They are seen as representatives of aspects of human beings' existence that are fixed and only change now when hunters and gatherers come face to face with the dictates of the industrializing, mechanizing and uprooting modern world.

In the Rousseauesque camp, we have Richard Lee, Sheryl Miller, David Phillipson, George Silberbauer, Jiro Tanaka and John Yellen. To illustrate some of the points of view of

this "school," here is a quote from Richard Lee:

> ...life in the state of nature is not necessarily nasty, brutish, and short. The Dobe-area Bushmen (of Botswana) live well today on wild plants and meat, in spite of the fact that they are confined to the least productive portion of the range in which Bushmen peoples were formerly found. It is likely that an even more substantial subsistence base would have been characteristic of these hunters and gatherers in the past, when they had the pick of African habits to choose from [Lee 1968:43].

Now, Jiro Tanaka commented on the G/wi of the Central Kgalagadi that:

> ...even nowadays most of them still live a life of hunting and gathering away from the influence of modern civilization, relying on primitive "stone age" techniques... The fact that a group of people with a population of several thousand is still living in the same fashion as human societies of almost 10,000 years ago is a miracle [Tanaka 1974:iii].

At this juncture, allow me to clarify some points regarding my use of some terms relating to Botswana - the land and its peoples. First, I would like to use the term "San" or "Basarwa" in referring to the people that are

commonly referred to in the literature as "Bushmen." The term Bushmen has now fallen out of favor and is regarded as discriminatory and pejorative. As the people of Botswana largely use the name Basarwa to refer to these hunter-gatherers, I have chosen to use that name. Also note that the prefix "Mo" refers to one person, thus a "Mosarwa," while the plural prefix is "Ba", thus Basarwa. The prefix denoting the languages is "Se" - therefore we have Sesarwa. The different groups that I call Basarwa also have their own names for themselves, so it is essential to realize that the names I am using are those that are used by the Setswana-speaking people of Botswana.

Let me delineate the arguments of the opposing epistemological camp. This is the "school of thought" that for the purpose of this discussion, I have called the Pragmatic Opposition. It is represented by James Denbow, Robert Hitchcock and Edwin Wilmsen.

One major strand of this camp's argument is the emphasis they lay on a flexible and open response to changes in the hunter-gatherers' environment (Denbow 1984; Hitchcock 1979, 1982a, 1982b; Wilmsen 1979, 1982, 1989). Thus, they stress the hunter-gatherers' readiness to take advantage of opportunities available to them, in order to maximize their security. Part of the motivation also lies in enhancing hunter-gatherers' existence through a wide range of survival strategies. As Denbow puts it:

> ...people are decision-makers and, as such are capable of using the same environment in a number of different ways and of inventing new strategies and technologies to adapt to changes in ecological and social conditions through time [Denbow 1984:189].

So, we have a far-reaching and wide-ranging repertoire that encompasses complex interaction with non-hunting and gathering peoples, who, given the dictates of circumstances, adopted the behaviors of hunter-gatherers (Lee 1968:40). Therefore, according to the second group of researchers, the line between hunters and gatherers and their neighbors is not clearcut. It is not exactly clear who is a hunter-gatherer and who is not, and as Bahuchet and Guillaume say, even though some hunter-gatherers

> ...enable us to observe ancient forms of social and economic organization, they are by no means fossils of a prehistoric state, magically preserved. It is highly likely that centuries of proximity and contacts have had profound influences on both sides [Bahuchet and Guillaume 1982:189].

Moreover the "second school of thought" also differs from the Rousseauians in that Denbow, Hitchcock and Wilmsen state that there has been environmental change. They say that the environment in which we find today's hunter-

gatherers has not always been the undesired, parched and inhospitable wilderness that some present-day scholars deem it to be - so that the Kgalagadi may have been occupied by non-hunter-gatherers for a long time (Denbow and Wilmsen 1979, 1982, 1989; Hitchcock 1982a:47; cf Phillipson 1969:35). Part of their argument is to cite evidence for past environmental change in the Kgalagadi Desert.

The Isolationist View

Sheryl Miller is one archaeologist whose views on contacts in the sub-continent of Southern Africa I will follow at length. I have chosen her views to illustrate the isolationist position that the Rousseauians espouse. Again, she uses evidence which at the time of writing was new, and which predates some significant radiocarbon dates (Miller 1969). I am using Miller (1969) as a historical point of departure and her view was an appropriate view at that time given the state of research and knowledge. I am not asserting that her views are immutable, but am using her research to provide a framework for the debate on contacts between hunter-gatherers and their neighbors in the past.

In her interpretation of the nature of contacts between hunter-gatherers and their neighbors, Miller deals with two periods in the prehistory of Africa, the Later Stone Age and the Early Iron Age. Some scholars have suggested that terms like the Later Stone Age and Early Iron Age, as well as

Later Iron Age, are ambiguous, and should best not be used or should be used with care (e.g. Huffman 1982; Parkington and Hall 1987; Wilmsen, personal communication 1988). I use terms like the Later Stone Age and Early Iron Age for convenience. My aim is to illustrate some of the points raised by discussants of the question of contacts between hunters and gatherers and their neighbors. Later, I will discuss some of the problems involved in using archaeological remains and ethnography to designate the ethnicity of archaeological sites.

In dealing with Southern Central Africa (the territories of Zambia, Malawi and the then Southern Rhodesia or present-day Zimbabwe), Miller associates the Later Stone Age with autochthonous hunting and gathering groups (e.g. Miller 1969:89). Therefore, particularly with reference to Miller's work, I will occasionally use "Later Stone Age people" to refer to hunters and gatherers. On the other hand, Miller argues that during the early contact period, the Early Iron Age people had a more varied material culture than that of the hunter-gatherers. Components of this Early Iron Age culture probably included such technological and economic variables as agriculture, stock-rearing, techniques of manufacturing iron and pottery, as well as a sedentary lifestyle based on villages (Miller 1969:81).

This broad repertoire differs from the simpler hunting and gathering one, which she does not largely describe. That is probably because she maintains that its cornerstones were

hunting and gathering with simple weapons of stone, and perhaps iron. Also, it may reflect her interest in the Early Iron Age, as well as more evidence on that period at the time of publishing her work in 1969. But Miller, a pioneering researcher, does provide a caveat that certainly applied in 1969. She says that the dynamics of the Early Iron Age are not exactly clear, a problem which archaeologists have yet to resolve (Miller 1969:84). In her time, it was even more baffling because studies of the African Iron Age had not reached the sophistication and intensity of research that now exists in the 1980s (e.g. Denbow 1979, 1980, 1981, 1982, 1983, 1986; Denbow and Wilmsen 1983, 1986; Huffman 1970, 1978, 1982; Mgomezulu 1981; Phillipson 1974, 1975a, 1977, 1985).

Essentially, Miller's conclusions regarding the long contact situation in Southern Central Africa form two strands. The first component of this structure states that the Later Stone Age way of life existed for nearly two thousand years after the Early Iron Age first appeared in Southern Central Africa (Miller 1969:81). That is to say that various pockets of the Later Stone Age way of life persisted in fairly remote areas into fairly recent times. The second part of Miller's analysis postulates a near-technological segregation between the two cultures (Miller 1969:89). Under this scenario of cultural isolation, peaceful barter probably facilitated exchange of a few material goods. According to Miller

> . . . the two peoples remained culturally distinct until the present, the hunter-gatherers adopting only a few innovations from the agriculturalists and maintaining their basic subsistence pattern intact until driven to retreat or extinction [Miller 1969:89].

To lend credence to this isolationist analysis, Miller draws on ethnographic examples from various parts of sub-Saharan Africa. Those cases show several kinds of contacts between hunter-gatherers and their non-hunting and gathering neighbors. From these recent examples, Miller draws some possible contact scenarios for the past.

Let us now turn closely to the archaeological evidence as discussed by Miller. Primarily, I will adhere to Miller's 1969 work, and will only add more recent work to clarify a few of her points, especially those dealing with physical anthropology. My reasons for dealing at length with Miller's work include a need to familiarize myself with the sites and dates she mentions in South-Central Africa. Again, as a representative of the Rousseauian "school," she counterbalances the "school" of Denbow, Hitchcock and Wilmsen. Thus, I have chosen to give a lot of attention to her work in order to avoid bias towards Denbow, Hitchcock and Wilmsen.

There follows an examination of the archaeological evidence from Zambia, as presented by Miller. I will look at

the contact situation in Zambia first because of the relative abundance of sites and dates from this territory. Moreover, the Zambian contact situation serves as a basis for comparison with the contact situation in the adjoining territories of Malawi and present-day Zimbabwe. Therefore, I will look at several key sites in Zambia, and discuss their significance.

In terms of contacts between Late Stone Age and Early Iron Age peoples, a survey of the Zambian evidence shows variation by region. For example, the southern Zambian plateau is typified by a quick replacement of the Late Stone Age by the Early Iron Age, so argues Miller. The reason could be ecological: good soils and the presence of light savannah woodland are conducive to agriculture. Therefore, the argument follows that hunter-gatherers were forced into less desirable areas (Miller 1969: 82). At this juncture, one may add that Miller does not provide evidence to show that the ecological conditions on the southern Zambian plateau have been existent for so long that they cover the period of early contacts between the hunter-gatherers and their neighbors. Moreover, her assertion "that hunter-gatherers there were soon absorbed into the new economy or forced into less desirable territory" runs counter to her premise of the "lack of cultural exchange" (Miller 1969: 82). My argument is that if the hunter-gatherers merged into the economy of the agriculturalists, then the process cannot be said to have been one of splendid isolation. The very use

of the term "absorbed" suggests a process which had wider ramifications than Miller's stance of cultural isolation would lead us to believe.

Regarding the evidence from archaeological sites, Miller cites several sites and dates (see Figures 2 and 3). Her basic argument postulates a short co-existence between the Early Iron Age and the Late Stone Age on the southern plateau. She cites evidence which suggests that contact first occurred in Zambia during the early part of the first millennium A.D.. For example, the Late Stone Age horizon at Lusu is dated to 400 $\pm$ 100 B.C. and 75 $\pm$ 230 B.C. (C-830). Clark and Fagan (1965) say the Early Iron Age layer above this Late Stone Age horizon contains sherds of Situmpa Ware. And at Leopard's Hill Cave, the Late Stone Age layer lies right below an Early Iron Age layer dated to 535 $\pm$ 125 A.D. (SR-126) (Miller 1969a).

But as the millennium wore on, Miller argues that the agriculturalists who replaced Late Stone Age hunter-gatherers on the southern Plateau (and also had contacts at the northern border of the country) caused a transformation in their relationship with the hunter-gatherers. That is to say, they expanded their territory closer to Late Stone Age retreat areas (Miller 1969:84).

The valley of the Middle Zambezi River could have served as such retreat territory. Here, the archaeological evidence comes from an aggregate of lithic materials and potsherds, which were apparently in place together. Also,

there is the Muchinga Escarpment, which was an "ideal" and "long-term retreat area for hunter-gatherers," unlike the short-term retreat area of the valley of the Middle Zambezi River (Miller 1969:82-83). On the Muchinga Escarpment, several sites yielded evidence that Miller interpreted as showing the persistence of hunting as a "mainstay in the economy, still depending on lithic technology even after the introduction of iron" (Miller 1969:83). For example, Nachikufu Shelter yielded pottery and iron, in addition to stone artifacts. To substantiate her conclusion that hunter-gatherers maintained their tradition of lithic technology 1,000 years after meeting Iron Age agriculturalists in the Muchinga Escarpment, Miller cites the site of Nakapapula. Here, lithics and pottery from the Late Stone Age level were dated to 770 $\pm$ 100 A.D.. Also, Nachikufu Cave provided similar, supporting evidence of this kind of interaction between agriculturalists and hunter-gatherers. Again, Nsalu Cave yielded more evidence of Early Iron Age and Late Stone Age contact: Late Stone Age material and pottery; stem of an iron arrowhead; coiled copper wire and several glass beads (Miller 1969). According to Miller, these findings are attributable to the fact that hunter-gatherers did not change their basic subsistence pattern. Then, she argues that contact went on till late, at least in limited areas. That is because evidence from Nachikufu Shelter shows a Late Stone Age level going back to 890 $\pm$ 95 A.D., and a top horizon of lithics that are associated with a date of 1750 $\pm$

100 A.D. (Miller 1969:83).

On the northern plateau of Zambia, Miller's evidence leads her to suggest that Late Stone Age peoples stayed there for some time following contact with Early Iron Age peoples. She cites the evidence from Mwela Rocks Shelter, near Kasama. The battery of evidence is as follows: at 45 cm below the surface, a Late Stone Age horizon contained sherds. Moreover, there is no major change in the relative frequencies of stone tool types following the onset of pottery. Again, continuity of the lithic tradition reaches the surface of the deposit. In addition, remains of three iron arrowheads came from the top part of the deposit. Furthermore, the sherds from this site bear resemblance to Early Iron Age wares from Kalambo Falls, which dates to 345 ± 40 A.D. (GrN-4646), and was excavated by J. Desmond Clark in the extreme north of Zambia (Miller 1969:84). She speculates that the "poor local soils and dense brachystegia woodland of the region" may have "discouraged the rapid expansion of the Early Iron Age agriculturalists there" (Miller 1969:84).

Similarly, contact occurred in other parts of Zambia. Thus, Chondwe farm on the Copperbelt produced some "Later Stone Age type lithic material, Early Iron Age pottery, and iron slag" (Miller 1969: 84). And in eastern Zambia, the site of Makwe had sherds in its upper levels (Phillipson 1968).

Likewise, we find evidence of contact in Malawi. Miller

says that the patterns of interaction in Malawi are reminiscent of the Zambian contact situation. But she does assert that because of scanty evidence, it is hard to draw a clear picture of the Malawi contact situation. However, her optimism leads her to express the likelihood that

> . . . when more sites and dates are known, the Malawi contact situation may well be found to approximate that of Zambia, with Early Iron Age agriculturalists soon established in favorable regions and Later Stone Age groups preserving their traditional way of life in remote areas [Miller 1969:85].

But on the Nyika Plateau, Miller's evidence shows that contact began at about the same time as it did in Zambia. Here, at the sites of Chowo and Phopo Hill, Robinson and Sandelowsky (1968) report the presence of lithics and Mwavarambo (Mwabulambo) Ware in Early Iron Age levels, which may overlay Late Stone Age levels. Miller reports evidence for a similar contact situation between the mountainous northern region of Malawi and the Muchinga Escarpment of Zambia. She argues that the northern region of Malawi may have functioned as a retreat area. Her evidence stems from J. Desmond Clark's work at Mphunzi Shelter, where several potsherds and some Late Stone Age lithics were found. Hora Mt. Cave also gave supporting evidence of early contact (Miller 1969:85).

In the other territory of the then Southern Rhodesia, now Zimbabwe, contact also dates to at least the turn of the first millennium A.D. For example, Calder's Cave, in the north-western part of the country, yielded pottery dated to 20 ± 80 B.C. (UCLA-929). Evidence for this contact comes from various parts of the country (see Figure 4). For example, in the Fort Victoria area, Early Iron Age sites show occupation by agriculturalists. Citing Robinson (1961), Miller says that the site of Mabveni produced a wide range of Early Iron Age artifacts, in addition to Late Stone Age components: pottery from the eponymous site of Gokomere; hut and granary remains; iron and copper; and ostrich egg-shell and snail-shell beads of Late Stone Age type (Miller 1969:85). Mabveni is dated to 180 ± 120 A.D. (SR-43), while Robinson suggested an anomalous date of 570 ± 110 A.D. (SR-79) which may have been due to intrusion or contamination. Again, another Gokomere Ware site had elements similar to Mabveni, except for the fact that the date of earliest occupation is much later: 540 ± 120 A.D. (SR-26).

Another difference relates to the absence of typically Late Stone Age artifacts (Robinson 1963). Miller concludes that maybe "by this date the later Stone Age peoples no longer inhabited the area" (Miller 1969:85).

In north-east Zimbabwe, the Inyanga region has some Early Iron Age Ziwa Ware sites that date to the beginning of the fourth century A.D.. And Miller cites Summers (1967) as saying the artifacts found included pottery, iron, gold and

Late Stone Age elements like bone points and ostrich egg-shell beads (Miller 1969:85).

Miller's interpretation of the above sites is that Early Iron Age people were settled in Zimbabwe by the middle of the first millennium A.D.. As in most cases, Late Stone Age material culture elements are found in the earliest agricultural horizons; Miller argues that this is more evidence for contacts. As these Late Stone Age material culture elements later disappear altogether, Miller says that means these items of material culture were made by Late Stone Age people who later disappeared. She suggests that the Early Iron Age people did not make these items (Miller 1969:86).

There is also evidence to show that as in Malawi and Zambia, Late Stone Age people retreated to remote areas; this followed contact with immigrant agriculturalists. Sites in the Matopo Hills of southwestern Zimbabwe, e.g. Tshangula (Cooke 1963) and Bambata (Schofield 1940) contain Late Stone Age horizons, some of which contain pottery. And Robinson (1966) tentatively suggests that Bambata Ware may represent contact with Early Iron Age people. In addition, some topmost horizons of Late Stone Age deposits in the Matopo region have pottery styles that "indicate that hunter-gatherers remained there for at least several centuries after their initial contact with" Early Iron Age groups (Miller 1969:86).

Let us examine the types of contact that existed

between Late Stone Age and Early Iron Age peoples during the centuries of contact. First, we need to note archaeological data alone is insufficient to give a clear and broad picture of the nature of the interrelationships that existed between Late Stone Age and Early Iron Age peoples. Miller argues that there was peaceful co-existence, as evidenced by the presence of potsherds and rare metal objects in Late Stone Age horizons. She also says that another indicator of peaceful trade is the presence of Late Stone Age shell beads and bone points sometimes found in Early Iron Age deposits. Modern analogies for peaceful trade come from the Ituri forest, and here Miller cites Turnbull (1961), who says the Mbuti exchange their products for those of their agricultural neighbors. And according to Fagan (1967), the presence of wild animals in Early Iron Age deposits indicates that hunting had a supplementary role to the domestic economy. Perhaps agriculturalists traded their goods for game when they encountered Late Stone Age peoples. It is also conceivable that Early Iron Age people may have been involved in hunting. In times of stress, when domestic animals and domesticated crops failed, the Early Iron Age people may have hunted. I would say Miller does not seriously consider this possibility, and in parts of Botswana where there are no hunter-gatherers, the agropastoralists sometimes supplement their economy by hunting.

Still on the question of peaceful trade, Miller

suggests that honey may have been an item of trade between the Early Iron Age and Later Iron Age peoples. Here, she postulates that the Late Stone Age peoples probably provided the honey, while they received the agriculturalists' produce in return. I would say that one may add that in this exchange scenario, we need to note that the agriculturalists may have collected the honey themselves. I do not think that this item of trade was necessarily the preserve of the Late Stone Age people, for the agriculturalists may conceivably have learned how to hunt for honey.

Miller also seems to contend that the Late Stone Age people did not know how to make pottery. Thus, they probably traded it from the agriculturalists. She further states that pottery found in Late Stone Age horizons tends to be typologically similar to pottery from Early Iron Age sites (Miller 1969:87).

Concerning iron-smelting, Miller argues that the evidence from Nachikufu shows that Late Stone Age people knew how to smelt this metal. Here, Miller goes against the traditional view that iron-smelting, like pottery, was not known to the hunter-gatherers. She suggests that the presence of a few iron objects in a Later Stone Age horizon may lead to the inference that trade occurred. Conversely, the presence of slag and even furnace remains indicates actual smelting on the site, carried out by itinerant Iron Age craftsmen or by the Late Stone Age occupants themselves, so Miller argues. She argues that Late Stone Age lithic

technology coexisted with iron-smelting done by the Later Stone Age people themselves (Miller 1969). The evidence comes from Nachikufu. But Miller's assertion that iron smelting was known to the Late Stone Age hunter-gatherers, while pot-making was not, seems to be contradictory in the sense that both creative methods, iron-smelting and pottery, probably went together. A people that could smelt iron, which is a complex technological process that entails a high degree of cultural innovation, was probably able to make pots as well. Therefore, for Miller to argue that Late Stone Age people did not make pottery themselves, but knew how to smelt iron, does not seem to follow a logical process.

Turning to the extra-commercial relationships of the Late Stone Age and Early Iron Age peoples, Miller faces a dearth of knowledge. It is unclear exactly how displacement of the hunter-gatherers by the agriculturalists occurred, she argues. While the hypothesis of major skirmishes is unsupported, rock paintings in Zimbabwe depict small-scale fighting. Therefore, Miller argues that it is possible that the inchoate Early Iron Age involved minor skirmishes between the Late Stone Age hunter-gatherers and the Early Iron Age agriculturalists.

Regarding the evidence from Physical Anthropology, Miller states that there is not much evidence from this sub-discipline as far as the characteristics of each group are concerned. She attributes this lack of knowledge to scanty skeletal evidence. But we also need to realize that Physical

Anthropologists do not agree regarding the degree to which "races" can be determined from skeletal material.

Aside from the debate among Physical Anthropologists, Miller also states that some researchers disagree regarding the "stock" of the hunter-gatherers and the agriculturalists. She cites Gabel (1965) as saying the hunter-gatherers could have been of Khoi-San stock, while the agriculturalists had the physical characteristics of Bantu-speaking peoples. But, according to Fagan (1967), the evidence from very early agricultural sites is insufficient to confirm the preceding interpretation.

In a later context, Rightmire (1970, 1975) delineates some of the problems dealing with the identification of sub-fossil skulls and other skeletal remains from prehistoric sites. There are difficulties pertaining to dating, preservation and provenance. Then, again, Rightmire states that the origin of the Negro is uncertain, and more work needs to be done to shed light on these matters. His work disputes some of the claims that have been made regarding the ascription of some skulls disinterred from Iron Age sites to a mixed stock with Khoisan, Negro and "Boskop" features. He disclaims the presence of a Boskop race as a myth. Likewise, Schepartz (1988) disputes the assertion that the later Pleistocene Eastern Africans were of Khoisan stock. Instead, Schepartz's skeletal work suggests they were tall and linear peoples. Therefore, we need to realize that there is a great deal of debate regarding the interpretation

of skeletal remains from the prehistoric sites in Africa and the physical characteristics of the groups that inhabited those sites. It is likely that as more work proceeds, other interpretations will also arise to challenge Miller's interpretation.

Another area of uncertainty pertains to the degree of mixing of people from the different cultures. According to Rightmire, in this case of "long-term contact between divergent human populations, exchange of both genes and cultural traits must have played some role" (Rightmire 1970:148). Miller also shares this view, insofar as she states the probability that at the level of the individual, physical mixing occurred. At the group level, mixing may have occurred when one group became acculturated without losing its physical identity. However, as indicated earlier, Miller subscribes to an isolationist view of interactions and contact between these two population groups. Thus, her interaction scenario postulates a situation in which separate identities remained intact. She argues that each culture retained its identity and traditions, adopting only a few new material elements from the other culture. So, after learning to smelt iron, the Late Stone Age people still maintained their lithic technology until they had to retreat into remote areas, were forced into extinction or became incorporated into the agriculturalists' social system as time wore on. Only a few hunter-gatherers were not incorporated, hence the persistence and existence of San

hunter-gatherers (Miller 1969:89) in South Africa, Botswana, Zambia and Zimbabwe, and by extension, Angola and Namibia.

Another scholar who subscribes to this isolationist view of contacts and interactions between Late Stone Age hunter-gatherers and Early Iron Age agriculturalists' is David Phillipson. Based on his extensive research into the prehistory of Eastern and Southern Africa (e.g. Phillipson 1968, 1974, 1975a, 1977, 1985), Phillipson argues that the Early Iron Age Industrial Complex spread into the central and southern parts of Africa in two distinct streams. The Eastern Stream, which like the Western Stream is based on pottery typology and the possession of cattle, is represented by regional groups in northern Zambia, eastern Zambia, Malawi and Zimbabwe. The above stream covers a wide geographical region (including Kenya, Tanzania, and the Republic of South Africa and Botswana and Mozambique).

The Eastern Stream is the better-known one, in terms of chronology and geographical distribution. Using a battery of radio-carbon dates, Phillipson (1977) argues that the Early Iron Age progressed in a north-to-south movement from East Africa. Its representative sites in the regions above had been settled by Eastern Stream peoples around the fourth century A.D.. But the Western Stream sites show a settlement by people at a later date, after the turn of the fifth century A.D..

Regarding contacts and interactions between the indigenous hunter-gatherers and the immigrant metal-using

farmers, Phillipson argues that relations between these two population groups were characterized by aloofness or mutual avoidance, albeit not in all areas (Phillipson 1985:180). He further says that at the Zambian sites of Makwe, Thandwe and Nakapapula, the lithic material buttresses this isolationist interpretation. That is, there were no big typological changes signifying significant contacts between the two population groups. Only minimal contact is suggested, he maintains (Phillipson 1985:180-181).

Prior to the final displacement of the hunter-gatherers or their conquest or absorption, Phillipson postulates a scenario that included client relationships between the hunter-gatherers and the cattle-keeping farmers. He borrows this idea from Silberbauer (1965). Ultimately, Phillipson sees the expanding population of the second millennium A.D. bringing about greater competition for land between the two populations. Consequently, the hunter-gatherers were pushed into "the few areas which were unsuitable for farming" (Phillipson 1985:181).

Now I will delineate some of the features of hunter-gatherers' contacts with pastoralists and other neighbors, as seen by other members of the Rousseauian school such as Richard Lee, John Yellen and George Silberbauer. They all have worked among San communities in the Kgalagadi Desert of Botswana. This is the area that is normally referred to as the "Kalahari" Desert. However, the Setswana term for this area is "Kgalagadi" which means "the land of thirst." This

noun is derived from the Setswana verb "go kgalega," which means "to be thirsty." (Morulaganyi Kgasa, personal communication December 1988). That is why I use the term "Kgalagadi" rather than the misnomer "Kalahari," as the Setswana term is more appropriate.

Apart from having a common geographical area of research interest, the above three scholars also see the Kgalagadi as a place that the San retreated to, where, according to Lee, "life in the state of nature is not necessarily nasty, brutish, and short" (Lee 1968:43). As indicated, he further states that the San people of his research area, Dobe, in north-western Botswana, subsist sufficiently on wild flora and fauna. Thus, he continues, "it is likely that an even more substantial subsistence base would have been characteristic of these hunters and gatherers in the past, when they had the pick of African habitats to choose from" (Lee 1968:43). Likewise, Yellen (1985) and Silberbauer (1981) see the Kgalagadi Desert as having been a retreat area that the San went to when other, more aggressive groups avoided it because of its inhospitable climate.

It is not entirely true to say that all the above anthropologists categorically see the modern San hunter-gatherers as replicas of an ancient and unchanging way of life. What can be said is that there is a belief that they represent a Rousseauesque type of "noble savage." They are seen as representatives of Sahlins's "original affluent

society" (Lee and DeVore 1968). Hence, the point of departure in the above scholars' work is to study the San of Botswana because they have not changed much in their way of life. So, at the time of the "ethnographic present," the San are taken as not having had much contact with their neighbors.

The Pragmatic Viewpoint

This traditional picture of San hunter-gatherers as exemplars of an unchanging existence in the Kgalagadi comes under attack from James Denbow (1982, 1983, 1986a, 1986b), Robert Hitchcock (1982a) and Edwin Wilmsen (1979, 1982). For the purposes of this discussion, I will refer to this group of researchers as the Pragmatists. The thrust of their studies postulates a large degree of symbiosis between the hunter-gatherers and their neighbors. Rather than seeing the hunter-gatherers as isolated people who did not mix with their neighbors, the Pragmatist "school of thought" argues for interdigitation. Denbow, Hitchcock and Wilmsen argue that the history of interaction in the Kgalagadi shows an intermeshing of different lifestyles involving the hunter-gatherers and their herding and agricultural neighbors (Denbow 1984; Denbow and Wilmsen 1986; Hitchcock 1982). In other words, flexibility characterized the contacts and interactions between the peoples in this area. Denbow, Hitchcock and Wilmsen argue that as pragmatic dwellers of

the Kgalagadi, the San, just like the other groups they interacted with, made decisions based on maximizing the benefits that would accrue from the choices they made. Thus, we find that in the Kgalagadi, the various groups involved lived interdependent lives. They did so, the Pragmatists argue, in order to take advantage of opportunities that were available in that environment. As one protagonist puts it: "Hunter-gatherers are opportunists who take advantage of circumstances as they arise" (Hitchcock 1982:61).

Before proceeding with an examination of the data pertaining to the evidence for at least 1,500 years of interaction in the Kgalagadi, I will consider the concept "Mosarwa" or "Bushman." Here, I will deal with Yellen's insights on this question, and finally, I will add some points regarding his critique of this term and its importance insofar as contacts and interactions are concerned (Yellen 1985).

As indicated earlier, "Mosarwa" is the singular form for a San person, while the plural term is "Basarwa." These terms are used in Botswana, and because the term "Bushmen" is pejorative and discriminatory nowadays, the terms "Basarwa" and "Mosarwa" are preferred for the purposes of this discussion. Therefore "Mosarwa" or "Basarwa" can be used interchangeably with "San," which is used in the anthropological literature to designate the hunting and gathering people that were referred to as "Bushmen."

Now, "Basarwa," as used in Botswana is a term that

agrees with Schapera's (1930) term "Khoisan." "Basarwa" are speakers of "Bushmen" and "Hottentot" languages, and "Sesarwa" is the term used in Botswana to refer to the languages of the Basarwa.

According to Yellen (1985), the concept "Mosarwa" needs some elaboration. It is hard to define, even though it may be seen as a clearcut category in theory. A fourfold definition based on criteria of language, physical characteristics, lifestyle and self-identity is often untenable in reality. He states that a Mosarwa is supposed to speak a "click" language that belongs to the Khoisan language family of African languages. Although genetically, the Khoisan languages are not related to Bantu languages, the Bantu languages of Zulu and Xhosa do contain clicks in their phonological make-up (Yellen 1985:15). (But note that Westphal (1963:242) says that other Bantu languages with clicks are Swati, Ndebele, Suthu (Sotho), Yei, Kwangari, Gciriku and Mbukushu.)

Second, Yellen states that the definition of a Mosarwa in Botswana means having a livelihood that encompasses nutritional dependence on hunting and gathering wild foods. Therefore, a certain amount of "backwardness" or eking out a living based on a "rural" or "traditional" lifestyle is associated with Basarwa (Yellen 1985:15). But Yellen further points out that this definition runs counter to much of the acculturation that has characterized relations between Basarwa and non-Basarwa. His argument is that today's

Basarwa and their neighbors have interrelated closely since they began living together in the same environment.

Third comes the genetic argument. According to Nurse and Jenkins (1977), there are physical characteristics which are peculiar to Basarwa peoples. These include such descriptions as

> Basarwa are generally short, have yellowish rather than blackish-brown skin, tightly coiled "peppercorn" hair, a malar bone conformation which produces a flat face which is small in relation to the cranium, and a skull shape which is pentagonal when viewed from above [Yellen 1985:15].

The fourth criterion relates to self-identity. Yellen states that an individual will indicate his belonging to the general Basarwa group or will say he belongs to one of the Basarwa "tribes" (Yellen 1985:15).

But Yellen disputes this four-fold definition as being out of touch with the concrete reality of Basarwa integration into the Botswana social and economic system (Yellen 1985). In brief, he argues that there has been a long process of interaction between "pure" Basarwa hunter-gatherers and Tswana, Herero, English and Afrikaner groups in the past. So he argues that Silberbauer's (1981) and Tanaka's (1980) works on those Kgalagadi interactions minimize the degree of interaction (Yellen 1985:1b). Similarly, genetic markers as distinguishing features of Basarwa are also tenuous as shown by the case of the "Black

Bushmen" of the Okavango Swamps. While they consider themselves Basarwa, and speak a Khoisan language, physically, they are "indistinguishable from non-Basarwa Bantu speakers" (Yellen 1985:16). Also, in the Nata area, Chasko et al. (1979) found that the Denesana, a Basarwa group, are genetically closer to black African groups than to San groups. The implication is that related groups in Botswana, Zambia and Zimbabwe may be "biologically Negro rather than San" (Chasko et al. 1979:18).

Yellen further questions the neat and clearcut textbook case of ideal Basarwa. He substantiates his argument by saying that many people in the Kgalagadi area of Botswana are multi-lingual. Thus, Basarwa may speak Herero and Setswana in addition to a San language. Also, Herero and Tswana people may speak a San language. This is especially true in areas where there is a significant number of Basarwa in the area. Moreover, in cases of intermarriage, Yellen argues that the question of ethnic identity may not be an overriding issue. That is, the concerned person navigates his worlds in a manner which makes him feel at home in a given situation (Yellen 1985:16).

The above points made by Yellen are pertinent in the sense that the concept of a "Mosarwa" is fluid in reality. But as an analytic unit, it may appear to be more cut-and-dried. In fact, the protagonists and antagonists of this question of contacts between farmers and hunters and gatherers agree on this question. This is evident insofar as

they recognize the vicissitudes of terms like "Bantu," "Basarwa" and "Bushmen" (Hitchcock 1982b).

Actually, Yellen tends to romanticize the relations between Bantu-speaking people and Basarwa in Botswana. Many Bantu-speaking people in Botswana do not regard Basarwa as fully human. They are regarded as if they are sub-human or childlike. This is a point which I find deficient in Yellen's analysis. To illustrate this position of servility and degradation, there is a Setswana proverb that says "Mosarwa ke yo motonanyana" - "the male Mosarwa is the Mosarwa." This saying is interesting for some of the negative attitudes it expresses towards Basarwa. First, the reference to gender, "yo motonanyana," depersonalizes Basarwa. That term is used to refer to animals, and is hardly ever used to refer to human groups. Here, Basarwa are being equated with animals. Again, this saying expresses the derogatory sentiment which Basarwa have to contend with for it says that Basarwa women are valuable insofar as they have reproductive powers. The implication is that with regard to sexual activity, Basarwa women may be regarded as non-Basarwa. But the same consideration cannot be extended to Basarwa males, who are considered the lowest of the low.

So, I think we have to consider Yellen's notions of Basarwa assimilation in this light. Basarwa institutions are relegated to the bottom of the ladder of social categories, and the modern state of Botswana does not take pains to understand them and alleviate the pressures accompanying

moves towards incorporation. As Basarwa are numerically weak and do not have economic and social power, they are being treated very badly in the name of bringing them into the mainstream of Botswana society. The process of "integration" involves severe insensitivity towards Basarwa and does not really create substitute institutions to take the place of Basarwa's lost privileges. Those privileges include access to land and a kin network that supports Basarwa in times of stress, as well as a sense of belonging coming from a feeling of community. The process of "assimilation" destroys these mechanisms, but does not attempt to fill the vacuum, for Basarwa are powerless and lack a strong voice.

Now, let us consider the "Pragmatic School's" conceptualization of the contacts between Basarwa and non-Basarwa in the Kgalagadi area of Botswana. In this section, I will refer primarily to Denbow. The understanding here is that his work is a collaboration with Wilmsen. The choice is partly one of convenience: it is easier to refer to one person only. Again, Denbow has undertaken a lot of archaeological excavations in Botswana, so, that is partly why I choose his name over Wilmsen's. To round off this discussion, I will add Hitchcock's work in the Sandveld area of Botswana. My intention here is to provide a modern-day example of how Denbow's scenario of interaction could have worked.

Next, in this discussion of contacts will follow the work of Mabunga Nlshwa Gadibolae (1985) and Gaontatlhe

Mautle (1986). Here, my aim is to bring in a measure of comparison between Western and indigenous scholars of Botswana. As people who have their roots in Botswana, and have lived there for a long time, I consider the perspective of Mautle and Gadibolae important. The views and insights they have are likely to be different from those of Western and Western-trained anthropologists. Again, they have an advantage in having stayed in the country of Botswana longer than the other scholars. Most of the discussants of this question of contacts visit Botswana for short periods of time, and then return overseas. These brief journeys are likely to have serious implications on their analysis of contacts and interaction between Basarwa and their neighbors.

In dealing with the Kgalagadi contact situation, Denbow believes that a "reassessment of the antiquity and presumed evolutionary status of contemporary foragers in the Kalahari" is called for (Denbow 1984:175). His reconsideration of recent Botswana prehistory challenges conventional anthropological views regarding Botswana and its contribution to understanding "what life may have been like at some earlier stage in humankind's cultural development" (Denbow 1984:176). According to him, San hunter-gatherers have not lived unchanged lives since 10,000 years ago. His research leads him to disagree with a number of researchers regarding their view of a "static picture of pre-nineteenth-century foragers, a caricature set in a

timeless dimension with no social or cultural change until recent times" (Denbow 1984:176).

The first person to come under attack is David Phillipson. He argues that many parts of Southern Africa were not climatically conducive to settlement by pastoralists. Hence hunter-foragers found it opportune to settle in those inhospitable areas. Again, Phillipson (1969) argues that over the past 2,000 years, rainfall did not fall so much as to have made the Kgalagadi a haven for agriculturalists. Therefore, he says that "most of Botswana was occupied largely, if not exclusively, by hunting-gathering peoples of Late Stone Age stock until very recent times" (Phillipson 1969:39).

Other researchers with whom Denbow disagrees include members of the Rousseauian school. He assails George Silberbauer (1965, 1981), Richard Lee (1979) as well as Jiro Tanaka (1974, 1980) for taking the view that Khoisan peoples in the Kgalagadi are nearly "pure survivals from another age, people who for millennia have lived out of touch with the outside world" (Denbow 1984:184). Consequently, Denbow argues for a reconsideration of anthropological models based on aspects of Khoisan territorial organization, family and group structure, and demography. He says so because of the evidence he uses to reconstruct change and continuity that went on for about 1,500 years in the recent prehistory of the Kgalagadi (see Figure 5).

Primarily, Denbow relies on archaeological data to

buttress his reassessment of the prehistory of the Kgalagadi. Additionally, the evidence comes from geomorphology, ethnography, oral traditions, archival sources and linguistics.

Denbow uses data based on over 400 surveyed sites and detailed excavations at 16 selected localities (Denbow 1984:176). These excavations and reconnaissances help buttress Denbow's interpretation of contacts and interaction between foragers and agropastoralists. He argues that patterns of exchange and interaction reach back to about 1,500 years ago. This is a longer time-span than the conventional anthropological view argues. According to Denbow, these relations were not easy to understand, contrary to the rather simplistic view that "the standard anthropological categories of hunter-gatherer or herder-farmer would suggest" (Denbow 1984:179). His basic premise is that

> the association of particular types of subsistence strategies with specific ethnic or linguistic groups is not straightforward and the relations among the Khoi, San, and Bantu seem to have been both of longer duration and greater complexity than was formerly thought to be the case [Denbow 1984:179].

Concretely, Denbow argues that in the past, the Kgalagadi apparently witnessed an oscillation between

foraging and food production by some hunters and gatherers. Likewise, some hunters and gatherers earlier on learned to make pottery, and herd animals, so that they are "now almost indistinguishable, both genetically and culturally, from their Bantu-speaking neighbors" (Denbow 1984:179).

Regarding the prehistoric past, there is evidence from several sites in eastern Botswana to show forager-pastoralist interaction. From the sites of Taukome and Maiphetwane come such tell-tale characteristics of Southern African Late Stone Age sites (Sampson 1974) as small scrapers, crescents and other finds (Denbow 1984:180). The presence of these artifacts on some Early Iron Age sites and not on others leads Denbow to say that these artifacts indicate exchange and interaction between Early Iron Age peoples and Late Stone Age groups that happened in the western Botswana Sandveld. Moreover, he argues that supporting evidence comes from the scrapers' and crescents' identity with lithics typical of Late Stone Age deposits in other parts of Southern Africa. Additionally, Denbow asserts that these artifacts were not necessarily manufactured and used by Iron Age peoples.

Conversely, he states that the tools indicate interaction between Iron Age groups and Stone Age peoples (Denbow 1984:180). As for the time range of this interaction, radiocarbon dates from seven of the over 300 Early Iron Age sites on the eastern fringes range from the seventh to the fourteenth centuries A.D.. These sites

include Bisoli, Taukome, Thatswane, Maiphetwane, Toutswe, Moritsane and Broadhurst. At Toutswe, a date from the upper level brings the range up to the sixteenth century (Denbow 1984: 180).

Denbow's research also shows that there was dense agropastoral settlement on the eastern Kgalagadi, and this settlement dates to the prehistoric past. This is indicated by deep and extensive cattle dung deposits on several sites. In fact, over 75% of the 320 sites located on the eastern Sandveld of Botswana contain these deposits of vitrified cow-dung. These deposits range from 30 to 100 m in diameter and have a depth range of 25 to 150 cm (Denbow 1984:180).

Below follows some evidence from some parts of the eastern Sandveld of Botswana to indicate past interactions as well as suggest past environmental changes. According to Denbow, the first millennium sites of Toutswe and Taukome provided a yield of bones. About 80% of the meat eaten there came from domesticates - cattle, sheep and goats (e.g. Welbourne 1975). Also, the presence of springbok in the faunal assemblages suggests either past radical environmental change or trading and hunting links with the Kgalagadi to the west. Denbow further says that springbok and impala tend to exploit mutually exclusive areas, for they subsist on the same resources. Springbok occupy the drier territories while impala are found in wetter areas. Now, the better-watered Toutswe area supports impala, and historical records show that was the case in the past - but

there are no springbok now and they are not reported in the historical records (Denbow 1984:180, note 1).

We will now look at the evidence for prehistoric interaction in the northern Kgalagadi. Again, I will follow Denbow closely. He states that eight sites that are linked to the Early Iron Age and Late Stone Age have been dated to the first millennium A.D.. The dates range from 680 ± 80 A.D. (I-12,801) at Matlapaneng to 980 ± 50 A.D. (Wits-836) at Outpost 1 (Denbow 1980; Denbow and Wilmsen 1983; Denbow 1984: 177-178, Tables 7.1 and 7.2.). On the drainage systems of the Chobe and Okavango rivers are the sites of Matlapaneng, Serondella, Chobe and Hippo Tooth (on the Botletli River). The sites of Society and Outpost 1 are located on the Tsodilo Hills, which lie 60 km west of the Okavango Delta. The site of Nxai Nxai is near the Namibian border, 160 km in the Kgalagadi Sandveld. Finally, there is Sandelowsky's (1979) site of Kapako along the Okavango River in northern Namibia.

Denbow further catalogs the remains from these sites. With the exception of Kapako, all these sites contain Early Iron Age and Late Stone Age artifacts. Also deviating from the commonalities of the other sites are Nxai Nxai and Hippo Tooth which do not have charcoal-tempered Early Iron Age ceramics. Other artifacts include iron and copper tools - such as cutting implements, projectile points, pendants, beads and linked-chain segments (Denbow 1984:81). Denbow further reports the presence of smelting slag from

Matlapaneng, Society, Serondella and Chobe. In addition, Matlapaneng had a grinding stone, while Serondella and Outpost 1 had pole-impressed daga fragments characteristic of Iron Age structures. More importantly, from the perspective of interaction in this area, is the recovery of cowrie shells from Society and Outpost 1, as well as cane glass beads from Society and Matlapaneng. Denbow deduces that such trade items "provide further evidence that transcontinental trade networks stretched as far as western Botswana by the seventh century A.D." (Denbow 1984:182).

As for the use of food resources, several patterns emerge. The further away one moves from the Okavango Delta and enters the Sandveld, the greater is the prevalence of domesticated fauna over wild animal remains. Denbow asserts that there is a predominance of domesticated species near the Okavango swamps (Denbow 1984:182).

Thus, Serondella, Society, Outpost 1 and Matlapaneng have sheep and goats. Then, at Society and Outpost 1, there are mostly cattle, which outnumber sheep by a proportion of 2 to 1. Only Kapako has no cattle remains (Denbow 1984:182).

Moreover, the use of aquatic resources exhibits a pattern somewhat similar to the above. Fish bones are reported from Matlapaneng, Society (from the Okavango river drainage system), Serondella, Chobe and Hippo Tooth. Denbow further states that hippo bones come from Kapako and Hippo Tooth (Denbow 1984:182). The further away one moves from the Okavango, the faunal remains become mostly of hunted

species. However, even at Nxai Nxai, Wilmsen found evidence of cattle - he dug out cattle teeth in association with a hearth at 60-70 cm below surface. The radiocarbon date is 800 ± 60 A.D. (Beta-397), (Denbow 1984:182).

But some controversy arose over the above date. Yellen disputed the association, but Denbow supports Wilmsen, because of the fact that the teeth and charcoal-tempered pottery accompany each other in a manner that lends credence to the considerable age suggested by the radiocarbon date (Denbow 1984:182, note 2). Also, charcoal-tempered pottery is reported from Nxai Nxai (Denbow and Wilmsen 1986; Wilmsen, personal communication 1988).

The lithic assemblages also display a similar kind of pattern: away from the Okavango Delta, there is a change in the nature of the prehistoric deposits. At Nxai Nxai and Hippo Tooth, Late Stone Age lithics increase in proportion, while the number of ceramics and metal tools decrease. Actually, at these sites, stone tools predominate in the eighth and ninth centuries A.D. levels. These sites are not truly Early Iron Age sites in Huffman's (1970, 1982) sense of what constitutes Iron Age sites, so Denbow sees them as "being probably best classified as Late Stone Age sites with evidence for contact and exchange with Iron Age Communities" (Denbow 1984:182).

Let us note these points which bear upon the nature of contacts between hunter-gatherers and their non-hunting and gathering neighbors. First, the evidence supplied suggests

that it can no longer be said that contact between foragers and food producers in the northwest Kgalagadi is a recent phenomenon. That is because the site of Nxai Nxai lies only 45 km from Dobe; Dobe is in the area where Yellen and other members of his "school of thought" argue for little contact between the two worlds we are discussing (Denbow 1984:182). Moreover the Nxai Nxai teeth lead Denbow to suggest that in the first millennium A.D., some foragers had an association with domesticated cattle. But the precise nature of that association is unclear - were the cattle herded or hunted?

Again, the view that the Kgalagadi has been "eternally empty, its peoples long segregated and isolated from each other" comes under more attack (Denbow and Wilmsen 1986 = 1514). Denbow's view is substantiated by the presence of ceramics and iron tools in the trade networks of the Kgalagadi in the first millennium A.D.. There is also the evidence from the rock paintings at the Tsodilo Hills (see Figures 6 and 7). These hills are 110 km north of Dobe. Outpost I and Society are located on the Tsodilo Hills, as are the sites of Nqoma (N!oma) and Divuyu (Denbow 1984; Denbow and Wilmsen 1986:1511). These sites date the establishment of the Iron Age to the eighth and ninth centuries A.D. (Denbow 1984; Denbow and Wilmsen 1986: Table 1).

These hills abound with rock paintings. There are over 2,000 prehistoric rock paintings at the Tsodilo Hills (Campbell et al. 1980; Rudner 1965). Research indicates

these paintings had an extra-decorative purpose - they were instrumental in the religious and ritual symbolism of the prehistoric painters (e.g. Vinnicombe 1976). As the paintings bear stylistic resemblances to thousands of others attributed to Khoisan artists in Southern Africa, it may be said that the Tsodilo paintings may have attracted foragers from a wide area. These foragers would then have come into contact with Iron Age herders and new ways of life over a thousand years ago (Denbow 1984:183).

That there was contact and interaction is shown by some paintings portraying cattle. Denbow cites the painting that depicts men raiding or tending cattle. While this painting is unclear insofar as it does not reveal whether the herders are ethnically different from the painter, I presume the painter was a Khoisan-speaking person. Also, this painting bears close stylistic resemblance to numerous typical outlines depicting wild animals and human figures found on the Tsodilo Hills. Denbow thus views the paintings as proof of "direct evidence of contact and interaction between foraging and agropastoral peoples in the region and suggest that concomitant changes in economic organization may have occurred at the same time" (Denbow 1984:183).

Denbow hypothesizes that the introduction of the Iron Age in the Tsodilo Hills area led to the demise of rock art. If so, he further reasons that twentieth century San ritual and religious behavior differs from that of 1,000 years ago. This argument is part of the Pragmatists' argument of

openness to opportunity. Thus, Denbow produces more evidence to show that

> rather than being static, uniform relics of an ancient way of life, San societies and cultures have undergone transformations in the past 2,000 years that have varied in place and time in association with local economic and political alterations involving a variety of peoples [Denbow and Wilmsen 1986:1514].

There is more evidence of forager-herder interaction in the second millennium A.D.. This evidence comes from the other Tsodilo Hills site of Depression Cave. Denbow says "no decorated sherds were found, so it is unclear what type of sherds the undecorated sherds from the 50 cm level below surface were (Denbow 1984:184). However, Lawrence Robbins (personal communication 1988) says that there are decorated Early Iron Age sherds in the levels above 50 cm. But uncertainty regarding the identity of the undecorated sherds may still remain - whether they are Khoisan ceramics or Early Iron Age ones is a point that has not been resolved.

Regarding Khoisan manufacture of pottery, Rudner (1979) states that the Khoikhoi and the San have a history of making ceramics. The Khoi ware tended to have these features - thin walls; a pointed base; reinforced lugs; pounded quartz temper; a rare decoration of simple horizontal lines round the neck; and the vessels would be red or black

(Rudner 1979:10). The San ceramics, on the other hand, tended to be thick-walled bowls with a grass temper; they would also be generally badly fired and black in color (Rudner 1979:10).

Turning to Botswana again, Denbow cautiously suggests that the Depression Cave ceramics may be of San manufacture - he does not "rule out the possibility that the pottery mentioned was of San, not Bantu, manufacture" (Denbow 1984: 184). Also Denbow points out associations of the Khoi with pottery during historic times. One site is at the Kgwebe Hills, 40 km south of Lake Ngamii. Here, Denbow found both Tswana and Khoi ceramics at a mid-eighteenth century midden. This midden is associated with the settlement of the area by the Tawana, a Tswana group, in the eighteenth century (Schapera 1952; Tlou 1972).

Although Khoi ceramics from over 50 Late Stone Age sites in the Lakes Ngami and Dow area suffer from lack of dating of the sites, Denbow surmises that the sites' "differential distribution suggests that indigenous Khoi pot manufacture is of some antiquity in the region" (Denbow 1984:184).

There is more data pertaining to Khoi manufacture of pottery. Present-day Dete Khoi informants in the area furnish information that indicates their forebears made pottery before the intrusion of Bantu-speaking peoples in the eighteenth century (Denbow 1984:185). Their descriptions indicate that the pottery resembles pottery from

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archaeological sites and surface assemblages from a nineteenth-century Dete village (Denbow 1984:185). Also, although modern-day Dete Khoi groups do not make pottery, their wares resemble descriptions of Namibian Khoi ceramics of the early twentieth century (Schwartz 1923).

Linguistic data also throws light on the question of contacts and interaction in the area concerned, i.e. the Botletli River and the margins of the Okavango Delta. Dete and other Khoi groups are shown to have lived here in the first millennium A.D.. Also, Westphal (1963, 1979), among others, argues that other Khoi groups may have split off from the proto-Khoi nuclear area in Botswana. Denbow argues that Khoi pot-making may have originated in the Botletli area; or, pot-making and herding may have come to the Botletli area from Namibia in the West at a later date (Denbow 1984:185).

Oral traditions also shed light on this theme of interaction in the Kgalagadi area of Botswana. Dete oral traditions say the Dete lived for a long time in the Botletli area of northern Botswana. They lived as herders, hunters and fishers before the Bantu-speaking peoples entered the area (Denbow 1984:185). Denbow further mentions one cross-cutting folk tale that describes how the Dete domesticated cattle: it is common to many Khoisan ethnic and linguistic groups. Also, the explorer, David Livingstone commented on the Dete herding lifestyle during his travels in the area in the nineteenth century (Livingstone 1858).

Also supportive of Denbow's picture of flexible interaction are the serogenetic studies I have already referred to (Chasko et al. 1979). These studies support the idea of long contact and interaction among various groups in the Kgalagadi. Khoi speakers who hunt and forage today are shown to be genetically closer to Bantu than San speakers. This, Denbow argues, shows that people are able "to transcend the expectations of conventional anthropological categories" which present a "static picture of Kalahari hunter-gatherers" (Denbow 1984:186).

From the recorded past, Denbow (1984) again produces evidence to show that there was a frontier situation in the Kgalagadi area of Botswana. He argues that this frontier situation goes back at least 1,000 years into the past; it was characterized by different political and economic arrangements intermeshing with each other. He argues against a geographical separation of these different social and economic systems (Denbow 1984:186-190). We find that in the nineteenth century, Khoisan people became involved in trade involving products such as skins, ostrich feathers and ivory - this is linked the economies of foragers and agropastoralists (Gordon 1984, Wilmsen 1989). Denbow (1984) also states that neighboring Bantu groups competed for Khoisan labor. These processes served to cause close links between the two economies.

Denbow (1984) argues that parallels exist today. For example, Lee (1979) says Dobe !Kung San are involved in the

modern-day Bantu groups' (Tawana and Herero) pastoral economies because the Bantu speakers want labor for their animals. This is especially so since the large increases in the number of cattle, sheep and goats that followed upon the outbreak of rinderpest in 1896 (Lee 1979). We may say that the net of Khoisan-Bantu relationships encompasses a broad spectrum of activities ranging from economic activities like provision of labor and food to social activities like visiting, dancing and settlement of disputes (Denbow 1984:186).

Now, Denbow agrees with Hitchcock's (1982b) version of versatile lifestyles among Kua San in Botswana - a shift from foraging to cattle-posts and back to foraging, depending inter alia on social and climatic circumstances (Denbow 1984:186). So, in Denbow's view, San people have moved to cattle-posts as part of the wider process of cyclical interaction and change in the Kgalagadi. He does not subscribe to the view that the shift to cattle-posts is the San's way of entering the "Iron Age" (Denbow 1984:187). According to him, anthropologists who say these compound economies are recent phenomena miss the broader picture. The fallacy lies in the fact that twentieth-century interviews with independent foragers occurred after the collapse of the European market in game products (Denbow 1984:187, Wilmsen 1989). Again, such interviews occurred after the 1896 epidemic of rinderpest, which left few cattle in the region. So, Denbow sees the independent foragers of the 1960s and

1970s as belonging in his scheme of broad interactions and contacts.

Hitchcock's work tends to fit into Denbow's dynamic picture of interaction between the Khoisan and their Bantu-speaking neighbors (Hitchcock 1982a, 1982b). Like Denbow, Hitchcock argues that the Khoisan flexibly decide to take advantage of prevailing opportunities in order to maximize their chances of survival. Therefore, they opt for various methods of interaction with the Bantu-speaking peoples; these include working in cattle-posts and owning some goats and cattle, as well as doing some hunting and foraging and planting crops (Hitchcock 1982a, 1982b). Referring to groups that are conventionally referred to as "hunter-gatherers," Hitchcock (1986:94) observes that "even mobile groups will plant crops of melons, maize, beans, or sorghum, then will continue to move, returning to the fields when the crops are ripe." In this way, Hitchcock's work exemplifies the Pragmatic School's contention that relations between foragers and agropastoralists are not clearcut, and are subtle and complex.

The View of the Botswana Scholars

Before dealing with the views of Gaontatlhe Mautle (1986) and Mabunga Nlshwa Gadibolae (1985), I need to address several points. First, the other scholars have been dealing with the prehistoric past. Second, their use of data

from the ethnographic record as well as other records of the nineteenth and twentieth centuries has been a way of illuminating contacts and interactions in the past. Third, Gadibolae and Mautle deal primarily with the nineteenth and twentieth centuries, but do not specifically aim at elucidating prehistoric contacts and interactions. Fourth, let me say that the nineteenth- and twentieth-century processes occurred mostly under the aegis of colonialism and imperialism. Therefore, all those researchers who use latter-day analogies are bound to have their conclusions affected by the nature of colonialism and imperialism. In this sense, perhaps the Botswana scholars' work is more affected by these processes, as they do not compare their work with the archaeological record.

But I chose to use their work in spite of the above caveats because it illuminates the nature of client-patron relationships. Again, as people from inside Botswana, I find that their insights and perspectives differ from those of researchers who come from outside the country. My contention is that they may have some insights which foreigners will probably never have because the situations of the Botswana scholars differ from those of the foreigners, e.g. the neo-colonial experience.

It is in this light that I find Mautle and Gadibolae's contribution to the debate on contacts and interactions in the Kgalagadi interesting. They present a radically different picture of the relationships involved. By

"radical," I mean that the other scholars have not emphasized violence and dependency in the Bantu-Khoisan relationships. But these two Botswana scholars argue basically that the Khoisan and one group that is regarded as low on the ladder of social stratification, the Bakgalagadi, were treated as serfs or slaves (Gadibolae 1985; Mautle 1986). They emphasize the unequal nature of the relationships, and here, I need to point out that implicit in their discussion is the theme of the expropriation of the servile group's will. In addition, we may say that the servile group came to regard the controlling group as superior, and this reinforced the subordinate status of the "colonized" group. Also, the groups of Botswana had guns, while the Basarwa and Bakgalagadi did not, and lacked effective regimental organization. These factors facilitated the subjugation of Bakgalagadi and Basarwa by Botswana groups in Botswana.

Noteworthy is Gadibolae's and Mautle's emphasis on the exploitative nature of the above relationship. According to Mautle (1986:19), "this relationship...was more of bolata (slavery) than botlhanka (servitude)." He is referring to the Bakgalagadi's relationship with the Bakwena, a Tswana ethnic group. Gadibolae (1985:25) talks of the "ill-treatment of Basarwa by Bangwato and other dominant groups." On the other hand, the other scholars seem to view the relationship between the Khoisan and their Bantu-speaking neighbors as almost advantageous to all parties. They see it

as being primarily a response to structural realities.

Conclusion

> . . . when are we looking at transitional economies, when are we seeing the results of exchange relationships, when may we suspect class distinctions or clientship and when are we merely dealing with a poorly resolved archaeological sequence? [Parkington and Hall 1987:2]

The last two millennia in Southern Africa bore witness to "great technological and demographic dynamism" (Parkington and Hall 1987:15). Perhaps it should not be surprising then that the various discussants of the theme of contacts and interactions in Southern Africa disagree greatly on several points.

There is disagreement relating to the degree of mixing and interaction between hunter-gatherers and agropastoralists. The Rousseauians take the view that relations were characterized by mutual aloofness. But the Pragmatic "school of thought" disagrees with this isolationist stance. Researchers like Denbow and Wilmsen argue for a lot of fine interrelationships between the two groups. They argue for a symbiotic relationship between foragers and agropastoralists, and also say that these relations have gone on for millennia. That is in contrast to

the Rousseauians' contention that recent changes are only a new introduction to the hunter-gatherers' splendid isolation from their neighbors. The Pragmatists argue that these relations are not new, but have continued for millennia. The Pragmatists argue that as decision-makers, people respond to change, and are not static.

The Botswana school, while dealing with the colonial situation, emphasizes the use of force in bringing about unequal relations between Basarwa and Bantu-speaking peoples. The pertinent point here is that the Botswana scholars seem to probe deeper into the values underlying the interactions between Basarwa and Bantu-speaking peoples. This situation may reflect the Botswana scholars' inside view which the other non-Botswana scholars do not have.

But there are other issues as well in this question of contacts and interactions in Southern Africa. One of them relates to the use of "ages" in Southern African prehistory. We have found that in Late Stone Age sites, there were Early Iron Age artifacts, and vice versa. So, we have to realize that there are "problems in applying the traditional system of two 'ages' in Southern African prehistory" (Parkington and Hall 1987:2). The problems are due to the terminology's failure to capture "the blended traditions and interactive complexity" of the "ages" (Parkington and Hall 1987:15). This problem of typology is also raised by Mason (1976). The point is that the typological classification used fails to respond sensitively to "complex intergroup relationships

where boundaries of various kinds (linguistic, economic, technological) do not necessarily coincide" (Parkington and Hall 1987:15).

What we have to bear in mind is that it is extremely difficult to determine a wide range of past behavior from dates and artifacts. A radiocarbon date does not tell us who made the accompanying artifacts, where the material came from, whether it was bartered or bought or stolen; and other related issues are masked (Parkington and Hall 1987:14). I am arguing that facts do not speak for themselves, and this brings into question the use of artifacts to designate ethnicity. We are dealing with a subtle issue, an issue which defies mechanistic distinctions and definitions. What further makes the determination of "ethnic affiliations of archaeological sites" difficult is "the failure of the inhabitants to behave in ways compatible with ease of classification" (Mason 1976:357).

So we may note that relations between hunter-gatherers and agropastoralists are complex and variable. This is a point which the isolationist position implicitly recognizes. What I mean is that even though Lee and members of his school may emphasize lack of co-operation and highlight stability through time, they still realize that hunter-gatherers interact with their neighbors. This is a point which the other discussants specifically point out through their emphasis on widespread contacts and interactions.

The following section provides a description of the

setting of the Tsodilo Hills. These hills have sites that provide the archaeological case-study area that is my avenue into examining the basic problem of hunter-gatherers' interaction with non-hunter-gatherers.

CHAPTER 2

THE TSODILO HILLS - SETTING OF THE STUDY

The Tsodilo Hills, a National Monument, lie in the northwestern part of Botswana in the Northwest District. These hills are located at approximately 18 deg 45 South latitude, 21 deg 48 East longitude. To the north lies the Caprivi Strip, while Namibia is found to the west. The Tsodilo Hills are approximately 31 miles from the Okavango River, while the "annual rainfall is about 20 inches" (Rudner 1965:11). The area in which these hills lie "has a mean annual rainfall of about 400-500 mm" (Smithers 1971:21). And this area is characterized by a wet season which begins in October, and ends in April. The rainfall tends to be localized, and sometimes occurs as thunderstorms. The remainder of the year consists of the dry season, when barely no rain falls (Andringa 1984:117). But most of the rain occurs during the months of November to March (Wilson et al. 1976:34) in this area, for the Tsodilo Hills are not far from the Okavango Delta, with which Wilson et al's work deals.

The coming of the rains is unpredictable, and they may be delayed for several months. Also, there is a lot of

variation regarding the amount of rainfall from year to year. Temperatures are highest during early afternoon in the summer, but they markedly decrease during the winter months, when ground frost may occur at night (Andringa 1984:117). Temperatures often exceed 40 deg C in the summer (Andringa 1984:118). Other parameters associated with the rainy season are increased wind speed, evaporation and relative humidity (Andringa 1984:118).

Rainfall data from the weather station at Shakawe, about 25 miles to the north of Tsodilo, may give some measure of the amount of rainfall in the Tsodilo Hills area. The measurements covered the period from 1932 to 1980, and there were 51 raindays of 0.1 mm of rainfall or more in the period March to November; annual normal amount of rainfall was 538 mm (Andringa 1984:119).

The Tsodilo Hills are unusual in that they lie in an area of Botswana that is undulating and lacks hills. They lie in the Kgalagadi Sands, the Great Thirstland of Botswana. In fact, the Kgalagadi Sands include parts of Namibia in Southern Africa, and reach as far north as Zaire.

I will call the area in which the Tsodilo Hills lie the Sandveld, as opposed to the hardveld in the eastern part of Botswana. These two broad physiographic zones have been used by others (eg Denbow and Wilmsen 1983:405): "the Kalahari Sandveld, which covers the northern and western two-thirds of the country; and (sic) the eastern hardveld, which is an

extension of the adjacent Zimbabwean and Transvaal highlands." The Sandveld is characterized by the Okavango - Chobe - Zambezi river systems in the north as well as the Okavango - Botletli drainage, which cuts the Sandveld into two parts (Denbow and Wilmsen 1983:405). Regarding the hardveld further east, erosion of the Kalahari beds has produced a more rugged topography; river systems in this area flow eastwards into the Limpopo (Denbow and Wilmsen 1983:405). The boundary between the two broad physiographic zones is sometimes clearly marked by an upwarped escarpment, but sometimes the divide is imperceptible.

Turning to the Tsodilo Hills again, they consist of four separate hills (see Figure 7). There is the Male Hill, as well as the Female and the Child. These names are used by the local !Kung San people who live in the Tsodilo Hills area. The fourth hill is unnamed. The Male Hill is the highest. "Its western face, which is solid rock, has a broad base and rises sheer for over 300 m" (Main 1987:31). The height of the hills descends, for the Female Hill is less high, and the Child Hill is smaller still. The unnamed hill is the least high - 80 m. These hills are unconnected to each other. The basic rock that the hills are made of is quartzite (Rudner 1965:51). Campbell (1980:290) says the hills are made of "micaceous quartzite schist."

Regarding the flora of the Tsodilo, Rudner cites Banks (1963 in lit.) to say that

There is a distinct difference between the heavy grass and bush vegetation (mopani, "wild syringa" and acacia) of the surrounding sandy plains (about 3,000 feet above sea level) and that on the Hills and their immediate environs with an abundance of wild fruits such as baobab, Combretum spp., camel thorn, mispel, mangetti (Ricinodendron rautenii), tsamma melons and strychnos or monkey orange [Rudner 1965:51].

Regarding the fauna, the evidence comes from Smithers (1971). He recorded remains of numerous mammals that were netted or captured. These included animals like the vervet monkey, wild cat, bateared fox, rusty spotted genet, banded mongoose, common duiker, steenbok, kudu, scrub hare, porcupine, spring hare and bush squirrel (Smithers 1971:99,124, 130-131, 166-167, 182-183, 215, 219,223, 261, 269, 277-280). Other mammals were only sighted, eg chacma baboon, cheetah, wild dog, antbear, elephant, Burchell's zebra, warthog, gemsbok, roan, blue wildebeest and porcupine (Smithers 1971:101, 113-114, 140, 188, 192, 204, 206, 238, 241, 246, 268).

There are two groups of people who inhabit the Tsodilo Hills area. These are the San or Basarwa, who belong to the !Kung group of Basarwa. They have a small village near the Male Hill. Traditionally, they hunted and gathered wild fruits, but they now supplement their subsistence through keeping some domestic animals, such as goats and sheep.

Moreover, they have settled down, instead of being residentially mobile. These San people are acknowledged to be the original inhabitants of the Tsodilo Hills. By "original" I mean that the "owners of the land" (beng ba lefatshe) are said to be the San villagers. This term is applied to those inhabitants of an area that have been occupying the area longer than other groups.

The !Kung villagers are in a kind of client relationship with the Hambukushu villagers, whose settlement is further from the Male Hill than the San's. The Hambukushu keep cattle, and in good rains they plant cereals. They also hunt game.

The Hambukushu originated from Central Africa, and being river people, they moved into the swamps of the Okavango. They were fleeing from the dynastic troubles of the Lozi kingdom in Western Zambia (Main 1987; Tlou 1972). They were also able to work iron and keep cattle.

The Hambukushu, like many Bantu-speaking groups and others, look down on the San. So, the relationship is one of inequality. However, interaction does flow both ways. Some of the Hambukushu men marry Basarwa (San) women, or father children out of wedlock. Also, visiting between the San and the Hambukushu takes place frequently.

As noted previously there are rock paintings on the Tsodilo Hills. These paintings are under study by Alec Campbell. The number of the paintings exceeds 2,750 (Campbell et al. 1980). Cooke (1969) says they are found on

many open shelters as well as on individual rocks. He further states that these paintings have more differences than similarities "with paintings from elsewhere in Southern and South-Central Africa" (Cooke 1969:27). Moreover, Cooke states that the "naturalistic paintings of Tsodilo are more in the form of caricatures than true representations" (Cooke 1969:27). These paintings are mostly taken to have been executed by San people, even though local San today do not paint rocks. Furthermore, surviving San people in the Tsodilo Hills area do not have oral traditions which attribute the paintings to them - except for a few found at the White Shelter on the Male Hill (Campbell and Coulson 1988). But a number of authorities suggest the paintings are the work of San people, and Cooke (1969) says categorically that they were made by San people.

As for the age of the paintings, uncertainty abounds. That is because of the extreme difficulties entailed in dating rock paintings (Main 1987:35). Stylistic changes and superimposed paintings, as well as using wear and tear (degree of fading) and the paintings' subject matter all have drawbacks (Main 1987:35). Archaeological associations and radiocarbon dating are the more reliable methods, but they still do not tell us the exact age of Tsodilo Hills rock paintings (Main 1987:35). However, he states that

> The small handful depicting what are clearly cattle are unlikely to be older than the oldest traces of those

animals found in the hills. This suggests that they were not painted before A.D. 700-900 [Main 1987:35].

The next section gives a review of the general archaeological background of the area or region in which the Tsodilo Hills lie.

CHAPTER 3

A SUMMARY OF PREVIOUS ARCHAEOLOGICAL EXCAVATIONS IN THE TSODILO HILLS AREA

In order to understand the importance of archaeological work in the Tsodilo Hills area of Botswana, it is necessary to remember that the Kgalagadi region was conventionally seen as a peripheral area that owed its marginality to its inhospitable climate. Therefore, the excavations at Tsodilo are significant in the sense that they enlarge our knowledge of past cultural processes in this area that was hitherto considered to be a backwater. As stated previously, the argument stated that the Kgalagadi was a retreat area where San communities fled when they came in contact with food-producing agropastoralists who also brought new technologies such as metallurgy. It follows that the incursion of Bantu-speaking peoples into the Kgalagadi overwhelmed the San, and the argument also runs that the San led an almost-static existence that continued for millennia.

The excavations in the Tsodilo Hills are important in yet another respect. The dates from these sites indicate that there has been a long period of interaction between the San-speaking peoples and their Bantu-speaking neighbors. In

this sense, our knowledge of the time depth of interaction between the two communities is also enhanced. Previously, it was thought that the process of interaction is a more recent phenomenon. But the trajectory involved is much longer in terms of time.

Moreover, the significance of the work at Tsodilo lies in the fact that there have been few excavations in the Tsodilo region. Therefore, work at Tsodilo helps to fill the lacunae in the archaeology of the Kgalagadi. Thus, work in the Tsodilo area is instructive because the Tsodilo sites yield data that enable us to make comparisons with research from better-researched regions. Apart from the comparative value of the Tsodilo sites, we also have to note that they aid knowledge insofar as they are building blocks on which we can base our inquiry into past cultural processes in the Kgalagadi. We can ask a different order of questions that we could not ask without the knowledge based on excavations at Tsodilo. Admittedly, more archaeological work needs to be carried out in the Kgalagadi, for the work that has been done is insufficient to flesh out the bare skeleton that has been exposed.

The Tsodilo sites discussed in this work lie on the Female Hill at Tsodilo. These sites were excavated by several American archaeologists and their Botswana assistants.On the sites of Outpost 1 and Society, James Denbow and Edwin Wilmsen worked with Alex Matseka, Alec Campbell, Calvin Sebole, Salalenna Phaladi and Samochao

Mokate among others in 1979-1980. Later, Society and Outpost 1 were incorporated into the more extensive work of N!oma that took place in 1985. Another site on the Female Hill is Divuyu, which was also excavated in 1985. Also, there is the site of Depression Rockshelter, which Lawrence Robbins excavated with Alec Campbell and their assistants extensively in 1987. The Depression Rockshelter is also on the Female Hill.

The sites of Society and Outpost 1 have yielded evidence for agriculture during the period from 700 to 1000 A.D. (Denbow 1987). Especially at Society, direct evidence for agriculture is attested by the presence of shallow grindstones, carbonized seeds of millet, sorghum, cowpeas and cucurbits.

Still at Outpost 1 and Society, faunal remains are mostly those of cattle and ovicaprids (Denbow and Wilmsen 1986). Society largely has cattle remains, while sheep and goats preponderate at Outpost 1. There are also fish bones at Society.

Lithic remains from the two sites belong to the Late Stone Age. There are small scrapers, crescents, backed bladelets and steeply retouched segments. As for ceramics, Society and Outpost 1 are characterized mainly by charcoal-tempered Early Iron Age ceramics.

There are also indications of coastal trade. This is represented by cowrie shells at both Society and Outpost 1. In addition, caneglass beads come from Society.

Other artifacts include copper and iron tools. The range includes pendants, segments, beads, projectile points and cutting implements.

Additionally, smelting slag came from Society, while Outpost 1 had pole-impressed daga fragments, indicating house structures.

At the site of N!oma, we also have a time range of AD 700 to AD 1000, except that N!oma flowered in the ninth and tenth centuries. Its economy was centered on cattle, but sheep and goats were also present. Also, other components of the economy included crops like sorghum, millet, and perhaps melons. But the importance of foraging in this agropastoralist economy is shown by the present of Mongongo nuts and Grewia berries and wild faunal remains.

Other artifacts from N!oma include daga houses, ivory, iron and copper ornaments. Also, there are iron tools, cane-glass beads and marine mollusk shells (including cowrie shell). Also, freshwater mussels and fish came from Okavango river (Wilmsen 1989:71-72).

The other main site of Divuyu dates to the sixth and seventh centuries AD. It was a fully developed Early Iron Age site. It had many ceramics, iron and copper tools and ornaments. Ivory was also present. Again, iron slag shows that iron smelting took place at Divuyu (Wilmsen 1989:70).

Still at Divuyu, sheep and goats were the mainstays of the economy. Cattle were rare. In terms of trade over large areas, two Atlantic coast marine shells and two iron

pendants show that there was trade with the interior and the coast (Wilmsen 1989:70).

At Depression Rockshelter, charcoal-tempered pottery was found (Denbow 1984:184). The pottery was mainly undecorated (Campbell and Robbins 1989; Robbins 1990:334), but some of it had incision and comb-stamping (Robbins 1990:335). Other finds included a variety of lithics: small scrapers, crescents, casually retouched pieces, sharp-edged flakes, backed microliths, points, blades, bladelets, and backed pieces. The fauna was not well-preserved, and is entirely of wild animals. Again, Dr. Robbins found that mongongo nuts (*Ricinodendron rautaneii*, Schinz) were used during the Holocene. These nuts are a very nutritious staple of San diet as well as other peoples. Again, the dates for Depression Rockshelter extended to 19,000 years ago (Robbins 1989:1-3).

These sites shed light on a number of the theoretical issues discussed above. The presence of lithics and pottery of the kind made by Bantu-speaking agropastoralists shows that interaction between the San-speaking peoples and the Bantu-speaking agropastoralists is of greater antiquity than has often been thought. Also, we can see that foraging and agropastoralism complemented each other. Also, the Tsodilo area was involved in trade over an extensive geographical area.

The following section deals with the site of N!oma, which is the source of the lithic material I looked at in

this study. I will outline the different areas we excavated, discuss the nature of the levels, as well as look at the stone artifact classification. As I have already stated, the site of N!oma dates to between AD700 and AD1000; it also shows remains of agro-pastoralism, iron technology and involvement in long distance trade.

CHAPTER 4

THE SITE of N!OMA

The site of N!oma is on the Female Hill at Tsodilo. This site covers a large area measuring 100 m x 200 m. As mentioned previously, this site was excavated under the direction of James Denbow and Edwin Wilmsen. It was part of their project investigating the coming of pastoralism into Botswana. The site was excavated in May-June 1985, with three previous excavations at the test sites of Society and Outposts I and II. The latter excavations were undertaken in 1979, 1980 and 1982.

The excavations divided the site into 10 "areas" and these areas are used in relation to my lithic analysis (Figure 7). Each area, apart from Area 10, encompasses a set of squares or units that lay close together in a geographical area that was distinct from other areas. Only Area 10 did not meet this criterion, for Area 10 includes all the test squares that did not belong to Areas 1 through 9.

Before presenting a list of the 10 areas of N!oma, I will mention some details pertaining to the "levels" we used to excavate the site. The levels are arbitrary, and in cases

where there were actual, distinct occupation layers, the levels cut across those layers. (I have no record of any cultural stratigraphy). In addition to mentioning the levels we used to excavate the site of N!oma, I will also mention the distances between the test squares.

A "level" means that we excavated the squares at N!oma in intervals of 10 cm. Thus, Level 1 will range from 0 to 10 cm and Level 2 will include the next 10 cm, and so on down to the deepest level. The exceptions include those squares where we reached bedrock before the full 10 cm level could be completed. Another instance would be with burials, which did not fully extend into the depth of the square. One more exception includes floor scrapings, wherein in order to clear up the square, the bottom of the square was scraped and the resulting artifacts made up their own level.

Regarding the spacing of the test squares (or units), we excavated by dividing the site into quadrants measuring 10 m by 10 m (see Figure 8).

Below follows a list of the 10 different areas and their geographical range.

Area 1: Squares between 00.20N and 10W and 30N to 06E 30N.

Area 2: Squares 0.0, 02W 00, 03W 00, 02W 01S, 03W 01S.

Area 3: Squares contiguous to 40W 25S and 40W 20S.

Area 4: Squares between 35W 60S and 50W 60S, 40W 69S.

Area 5: Squares with numbers in 70s and 80s West and 20s and 30s South.

Area 6: Squares 80W 60S, 81W 60S, 80W 61S and 81W 61S.

Area 7: Squares 60W 60N, 61W 60N, 60W 61N, 61W 61N.

Area 8: Squares 170sW, 180sW, 190sW.

Area 9: Squares 223W 127N to 239W 132N.

Area 10: All remaining squares.

A point regarding Areas 1 and 2 needs discussion. When I began analyzing the artifacts from N!oma, I began with the lithics from Areas 1 and 2. Because I was beginning to undertake this analysis, I omitted the artifacts from these two areas from further examination. Therefore, I looked more closely at the artifacts from Areas 3 through 10. These are areas I looked at more extensively when I had more experience, which I gained from the initial work at Areas 1 and 2.

Another point regarding the areas I examined concerns the sampling of some areas. Time became a constraint, and I decided to sample some areas, instead of looking at all the squares. The affected areas are Areas 4, 6, 8 and 10.

Here are the details of the areas I looked at more extensively.

Area 3 had 15 units, with Level 8 (70-80 cm) as the deepest level that yielded lithics. Area 4 had four units. Again, Level 8 was the deepest level. Area 5 had 13 units, all but Unit 79W 34S with one level (0-10 cm). The exceptional unit had a deepest level of 30-40 cm. Area 6 had three units. Its deepest level to yield lithic artifacts was 100-110 cm. Area 7 had five units, with 130-140 cm as the

deepest level. Area 8 had seven units, with 90-100 cm as the deepest level. Area 9 had 11 units, with 80-90 cm as the deepest level. Area 10 had 19 units (scattered across the site), with 120-130 cm as the deepest level.

The total number of units I examined for the final analysis is 67, encompassing 263 levels. Regarding the above statements about the depths of the various areas, I have to point out that several factors account for the variable depths of those areas. One reason is that we reached bedrock, and could not dig any deeper. Another factor is that when we excavated, we reached a depth where we found no more cultural remains. This level differed from one area to another, hence the various areas' variable depths. In addition, some areas did not yield lithic artifacts beyond certain levels, even though those levels might produce bones and other artifacts.

Turning to the computer analysis, I collapsed the 91 artifact categories into 20 categories in order to make analysis easier and more statistically meaningful. Without breaking the artifact categories into broader groups based on the presence of retouch, lack of retouch, presence of edge damage and a miscellaneous category of two artifacts that did not fit neatly into the top three groups, the statistical analysis would have been void. That is, by being sensitive to the differences in the designation of the lithic artifacts from N!oma, I produced a long list of artifacts, but the various designations often had few (such

as less than five) items belonging to them. Therefore, running statistical tests would be meaningless for many individual artifact categories, as the number of observations would be too small. So, I decided to use the twenty categories to group individual artifacts and generate groups more amenable to statistical analysis using the computer.

The total number of cases I entered into the computer was 5,757. These artifacts were made of quartz and chert. These two raw materials presented different challenges when artifacts had to be classified according to the type of their constituent raw material. In the case of quartz, the problem was easier because the quartz had a distinctive shininess that was uniformly present in artifacts that were made of this material. Conversely, the chert artifacts showed a lot of variation. This variation pertained mainly to color. The range in color variation included dark brown, light brown, gray, dark red and yellow. To simplify classification and analysis, I grouped all these shades of chert under the single name of chert.

I will list the definitions of the N!oma lithic categories in the next section, where I will also deal with the methodology I used to analyze the lithic artifacts from N!oma.

CHAPTER 5

METHODOLOGIES AND DEFINITIONS OF THE CATEGORIES USED IN CLASSIFYING THE LITHICS FROM N!OMA

Various classifications for microlithic stone artifacts are used in Southern Africa, such as Deacon (1984). My classification uses terms such as flake, scraper, and crescent, among others; but it also brings in terms that are more specific to the material in this collection, eg informal knife.

The main purpose of my classification is descriptive. However, I do use some terms that may be functional. For example, a use wear study recently carried out by R. Donahue and L. Robbins on similar artifacts from the nearby Depression site indicates the drills were actually used for drilling a hard substance such as ostrich eggshell and the scrapers were in fact used to scrape hide and hard materials (L. Robbins personal communication 1989).

Below are the definitions I used to classify the lithics from N!oma (see Figures 9-14 for some illustrations).

Angular waste - A stone artifact that is not a tool and also lacks a striking platform and a bulb of percussion.

Angular waste with metallic material - Angular waste that contains a luminous substance and is an iron oxide hematite.

Angular waste with metallic material? - Angular waste that contains a luminous substance that may be an iron oxide hematite.

Backed - A lithic with a series of small flake scars on the edge or edges. These scars are at an approximate right angle with the main surface of the tool. In many cases, these marks have been purposely made on the part of the artifact opposite the sharp edge. Also, the marks tend to be well-made.

Atypically backed - An artifact that has backing that is unusual and differs from the backing on most of the artifacts in the sense that the backing is very steep and covers various parts of the artifact.

Backed and edge-damaged - An artifact that has backing and edge damage.

Backed and retouched - An artifact that has backing and retouch.

Backed, round-shaped tool? - An artifact that has backing and is circular in form.

Backed, start of a crescent? - A backed artifact that may be the beginning of a crescent.

Double-backed - An artifact that has backing on two sides.

Heavily-backed - An artifact that has extraordinary backing.

Partly-backed - An artifact that does not have full backing along the entire edge.

Traces of backing - Slightly backed.

Blade - a blade is an artifact with long sides that have a short width and may have functioned as part of a cutting tool.

Core - An artifact that functioned to provide the basis for other pieces that were made into tools or became flakes and angular waste.

Blade-core - A core that served to produce blades.

Blade-core? - A core that may have produced blades.

Broken-core - A core that broke into several pieces.

Flake-core - A core that produced flakes.

Piece of core? - An artifact that may be a fragment of a core, but is less complete than a broken core.

Split-core - A core that shows evidence of having been broken apart along a horizontal plane that is above the base and sides.

Retouched split core - A split core that has retouch.

Split core with edge damage - An edge-damaged core.

Split core? (Broken core?) - A core that may have broken apart along a horizontal axis.

Start of core - Beginning of a core.

Worn-out core? - A core that appears to have been completely reduced.

Crescent - A small, almost semi-circular tool that is usually backed. These artifacts are also known as lunates or segments.

Broken crescent - A crescent that was forcibly separated into different parts.

Crescent? - An artifact that appears to be a crescent.

Atypical crescent - An unusual crescent. It has a shape that differs from other crescents'. Its retouched, curved side is much wider.

Crude crescent - An unrefined crescent.

Large crescent/piercing tool? - A long crescent with a big width, and it could also have been used to make holes in artifacts such as hides.

Retouched but not backed crescent - A crescent that has no backing but is retouched.

Drill - A lithic with sides that converge on a small pointed end.

Drill? - An artifact that appears to be a drill.

Backed drill - An artifact that is backed and appears to be a drill.

Retouched drill/awl? - A retouched artifact that could be a drill. On the other hand, it could also be an awl, for

it is slender and tapered, with a sharp end. Possibly, either as a drill or, as an awl, this artifact was used to pierce holes, such as in leather.

Edge-damaged - A lithic that has indentations or sharp cuts on the edge or edges. These cuts or indentations do not clearly show signs of having been purposely made.

Flake - A stone artifact that has a striking platform and a bulb of percussion. The piece resulted from the making of tools or the reduction of a core.

Core refresher flake/core trimming flake - A flake that resulted from making a core more amenable to producing more artifacts.

Flake with possible edge-damage - A flake that may be edge-damaged.

Flake with shiny metallic material - A flake that contains a bright, luminous and reflective material that is an iron oxide probably hematite.

Flake with some clear, transparent quartz - A chert flake that contains a large amount of chert material, but has a slight amount of quartz material in one place.

Freshly broken flake - A flake with a newly-occurred break.

Split flake - A flake that has been separated along a horizontal axis.

Notched piece - An artifact that has a series of V-shaped marks or indentations on the edges. This notching is due to retouch in some cases.

Point - A retouched artifact that has an edge that appears to have been used as a projectile for hunting or perhaps to pierce other objects.

Point? - An artifact that may be a point.

Backed point? - A point that may have backing.

Unretouched point? - A (point?) that does not have retouch.

Retouched - A lithic that has been improved or refined by removing some tiny pieces off the edge of the stone artifact.

Broken retouched piece - A retouched piece that is broken.

Possible retouch? Retouched - An artifact that may have retouch.

Possibly retouched or heavily edge-damaged - An artifact that may have retouch or has heavy edge damage.

Retouched (with double backing and broken tip) - An artifact that has retouch and is backed on two sides; it also has a broken end.

Slightly retouched, minimally retouched; partly retouched; minimal/minimum retouch - An artifact that has a little amount of retouch.

Steeply retouched; steep retouch? - An artifact that either has a high angle of retouch or may have a high angle of retouch.

Scraper - A stone artifact with a relatively continuous retouched edge that may have been used to rub or add pressure to another surface such as an animal skin or wood.

Scraper with minimal retouch - A scraper that is slightly retouched.

Utilized? - An artifact that may have been used for a purpose that is not certain.

Worked - Same as retouched; I use these terms interchangeably.

Informal knife/unretouched knife/Informal, unretouched knife - A stone artifact with a fine, sharp cutting edge that lacks retouch.

Large bifacial tool - A long and wide artifact with two opposite surfaces that converge. Both have retouch and may have been used.

In the next section, I deal with the results of the artifacts that I investigated. I classified each artifact according to these traits:

(a) raw material (quartz or chert or undetermined ie not sure whether it is chert or quartz)

(b) area (the specific site area)

(c) square

(d) level

(e) category (type of lithic artifact)

(f) length, breadth and depth in millimeters.

Each artifact also had a specific number, and I entered all these data on the computer. The people who helped me regarding computer programs and statistics are Dr. Stephen Godek of James Madison College and Dr. William Lovis of the Anthropology Department at Michigan State University. The results of the lithic classification are presented in the accompanying tables (Tables 1-11). In the following section, I comment on the tables of artifacts from N!oma. The tables are for Areas 3 to 10, and exclude Areas 1 and 2. As mentioned previously, I excluded these first two areas from the analysis because I was beginning to learn how to analyze the lithics, so the results of my analysis were suspect. When I reached Areas 3 to 10, I then felt more certain of what I was looking for and how to look for it. The comments are descriptive. They also include lists of the codes I used to classify the artifacts from the site of N!oma. Again, I include the final 20 categories that incorporate all the lithic artifacts from N!oma. These 20 categories make it less cumbersome to look at the data from the whole site.

CHAPTER 6

COMMENTS ON THE TABLES OF ARTIFACTS BY LEVELS FOR THE EIGHT DIFFERENT AREAS OF THE SITE OF N!OMA

For Area 3, a few patterns are evident (see Table 1). First, Level 1 does not have many tools, except for those that are backed, retouched, and edge damaged. As for Level 2, it is also interesting because all the informal knives lie in this level. Also, there is one scraper for the whole area, and this is the level in which it was found. This observation is similar to that for the backed artifacts, for both of them lie in the first level of excavation. Another observation concerns the blades, which are distributed almost evenly over Levels 3 through 8. As for the cores, the concentration is on Levels 2 to 5. But a comparison of the blades and cores shows that there may be stratigraphic significance as five of the seven blades in Area 3, and eight of the 10 cores in the same area, lie in Levels 3 through 5. Then, the edge damaged pieces concentrate on Levels 1 to 3 (12 out of 22), and Levels 4 to 6 (nine out of 22). The mixed pieces do not show a particular observation of being concentrated in a certain area. The only drill is in Level 5. To round out the observation of distribution of

artifacts in Area 3, the flakes lie mainly in Levels 2 up to 5, while the angular waste lies mainly in Levels 3 to 6. There is also a pattern of the flake and angular waste levels as activity areas. By "activity areas," I mean that the flake and angular waste levels are also the levels wherein fall the tools--such as the blades, cores, informal knives, scrapers, the combination lithics, drills and edge damaged pieces. But it is difficult to say what kinds of activities were carried out, as I cannot tell what the various tools, eg the blades, were used for. Also, there is only one scraper in Area 3, and that number is too small to speculate that woodworking or hide-scraping went on.

As for Area 4, an interesting feature emerges: Level 5 has the only core of the area (see Table 2). It also has three of the area's four retouched pieces. Again, it has one of the six backed pieces. Turning to other levels, we find that Level 7 contains two backed tools, a retouched piece and one combination lithic. Level 8 rounds out the observation of the deeper levels' having several tools: three out of the six backed tools lie in this level. Again, it is noteworthy that in the first four levels, there are no cores, backed, retouched and combination lithics. Also, this observation would hold for all the tools in Area 4, except that there is one edge damaged lithic in Level 3. This observation contrasts with the presence of angular waste in all eight levels, and there are flakes in all but the first level.

I sampled four squares out of the total of twelve squares in this area. I looked at all the bags in those selected squares. I wanted squares from each of these points: 40Ws, 41Ws, 43 Ws, and 44Ws--there were no 42Ws. Also, I selected squares that had at least five levels or more, and omitted the ones that had fewer levels.

For Area 5, the striking pattern relates to the first level (see Table 3). Most of the artifacts lie in this level, and all the artifact categories have at least one lithic represented here. In fact, all the blades (five), combination lithics (four), backed pieces (one) and informal knives (one) are in this level. For the remaining tool types, six of the seven cores, eight of the 11 retouched lithics and 21 of the 25 edge damaged lithics lie in the first level. Also, while the flakes and angular waste are represented in every level, most of them lie here: flakes--179 out of a total of 224; angular waste--32 out of a total of 45. Clearly, the first level witnessed tool making. Also, since Area 5 has only four levels, I argue that occupation occurred in the topmost level, and did not extend much into the remaining 30 cm of the area. This area can be seen as a homogeneous entity that was recently occupied, hence the concentration of lithic artifacts in the topmost level. Since the occupants of Area 5 lived there recently, their artifacts are found mostly in level one, and not in the earlier levels. This interpretation may need backing from radiocarbon dates for Area 5, as well as data pertaining to

the other types of artifacts found in Area 5--such as metal objects and beads. This issue will receive further attention in the following chapter as part of the conclusion of the investigation of the lithics from the site of N!oma.

For Area 6, there is a high density of artifacts in the last four levels: eight, nine, 10 and 11 (see Table 4). For the cores, 16 of 19 specimens lie in these levels. The pattern holds true for the backed, retouched and edge damaged artifacts: the last four levels contain most of the lithic categories. The numbers are as follows: 10 out of 11 for the backed lithics; 15 out of 21 for the retouched lithics and 35 out of 36 for the edge damaged artifacts. This pattern also applies to the angular waste and the flakes: 802 out of 887, and 66 out of a total of 70--all in the last four levels.

Again, the interpretation that can be made about the concentration of artifacts in these deeper levels of Area 6 is that these levels were activity areas. The presence of flakes and angular waste would lend credence to this interpretation. Also, this view of the deeper levels having been activity areas derives support from the presence of other tool types in these levels, albeit in a less striking way. For the informal knives, four of the six are in levels eight and 11. For the combination pieces, both lie in levels 10 and 11. For the blades, all nine are found in levels eight and nine. For the drills, both are found in level eight.

Toolmaking did not occur much in the upper levels of Area 6, for these levels contain few artifacts. Level 2 has only 10 flakes, and the rest of the artifacts are not present. For Level 1, this observation is continued, for there would be no artifacts at all were it not for the eight flakes, two cores, one informal knife and one crude crescent. Level 4 also has some artifacts but they are not present in significant numbers: one core; one informal knife; one backed piece; one edge damaged lithic; one possibly retouched lithic and four retouched pieces.

I also sampled squares from this area by selecting three of the four squares, and looking at all the bags in those squares.

For Area 7, the patterns differ from those of the preceding areas (see Table 5). Here I will concentrate on the levels, and not on the artifact categories. I will use the levels as the organizing features for describing the patterns I see and other considerations will be subordinate to this process of ordering. First, several levels stand out in terms of their having many different kinds of artifacts, while others have fewer kinds of artifacts. The levels with many artifacts are 5, 8, 12 and 13. The number of tool types varies from five to seven. The level with the highest number of artifacts is level 12, which has seven tool types. Level 5 has the fewest number of artifacts, five.

Furthermore, other observationss are evident in Area 7. Levels 1, 6 and 11 hardly have any tools at all. Level 1 has

three tools (one core, one combination piece and one edge damaged lithic); Level 6 has two tools (one retouched and one edge damaged) and Level 11 has two tools (one blade and one core). Another observation that emerges is that the two blades lie in Levels 10 and 11. Moreover, the edge damaged lithics are mostly found in the first three levels (8 out of 40). For the cores, half lie in levels 10 to 14 (nine out of a total of 18). For the retouched pieces, the concentration is in Levels 2 to 10, with 18 out of the total 24 lying in these levels.

I think the main reason Area 7 has a diffuse pattern of tool concentration is that this area consists of only four squares. Because Area 7 is limited in area (number of squares), especially in comparison with other areas that contain more than four squares, this fact helps to explain the small numbers of tools in the area. I would argue that this area was not a major activity area, and the tools and flakes, as well as the angular waste, reflect a wider settlement in N!oma. However, the presence of these artifacts does not represent the carrying-out of specific tool-making activities and occupations in the area. Also, a look at a map of the site (see Figure 7) shows that Area 7 is not near the other areas. It is isolated, whereas the other areas tend to be nearer each other. It may be possible that this area is on the edge of the occupation.

As for Area 8, I would argue that activities of a tool-making nature occurred here (see Table 6). Suggesting that

Area 8 witnessed occupation by people who made stone tools is the fact that Level 5, in addition to the deeper levels of Area 8, contains a large number of tools and debitage (flakes and angular waste). Levels 7, 8, 9 and 10 contain 112 of the 183 tools present in Area 8. As for Level 5, it contains 31 tools out of the remaining six levels' 71 tools.

Among the tool types in Area 8, the edge damaged lithics are the most numerous. There are 75 of them. They are found mainly in Levels 8, 9 and 10: 39 of the 75 were found in these levels. Also, Levels 4 and 5 have a significant number of tools, as 19 were recovered in these two levels.

The retouched pieces are also numerous. Their total is 52. This total is higher than the total for the angular waste: 45. It is also higher than the total for the backed artifacts and cores, which number 31 and 25 respectively. The explanation for this area's unusual number of retouched pieces may lie in the fact that I sampled material from squares in this area, as I had a large number of artifacts to analyze. Moreover, time was becoming a constraining factor. It is likely that my sampling strategy leaned towards squares that had an abundance of retouched tools. It is uncommon to find retouched tools outnumbering the backed and core tools. Additionally, it may be that in this area, the occupants were able to make retouched tools more intensively, for they form just over 25% of the total number of tools present here (26.94%). (This number is the second

highest, as the edge damaged lithics form 38.86% of the tools in Area 8). Area 8 may have so many retouched pieces because there was a big need for those tools. Additionally, it is possible that there were other presently unknown factors that governed the presence of so many retouched tools in Area 8.

Again, the retouched pieces are concentrated in the last levels, with Levels 7, 8, 9 and 10 containing 32 of the 52 retouched artifacts. The same pattern applies to the backed pieces as well. They are also concentrated in the last levels. In this case, Levels 8, 9 and 10 contain 15 of the 31 backed pieces present in Area 8.

For the cores, we find a similar pattern. Levels 7, 8, 9 and 10 contain 14 of the area's 25 cores. We also find that Level 5 has many cores, eight, which is the highest number in any level. I speculate that Level 5 may coincide with long, heavy occupation of the area, which may mean that we can then find these tool types being highly frequent, as was the case with the retouched pieces. Also, as with the retouched pieces, it may be that when I sampled the squares from this area, I chose bags that had a preponderance of cores; these bags then may have had an effect on the distribution of cores in the area.

For the remaining tool types, the pattern still holds; the last levels still have a large number of the tools present. However, the actual numbers involved are relatively small, when compared to the numbers for the retouched

lithics and cores. There are three informal knives; one drill and six combination lithics. Continuing the trend of tools being concentrated in the last levels, the tool that is probably a drill lies in Level 9. With the informal knives, one of the three lies in Level 7. For the combination tools, three of the six tools lie in Level 9.

This pattern of tools being concentrated in the deeper levels of Area 8 is also shown by the concentration of the flakes and angular waste in these levels. Also Level 5 has a large concentration of flakes and angular waste. For the flakes, 563 out of the total of 1120 found in Area 8 were recovered from Levels 7, 8, 9 and 10. With Level 5's 254 flakes the total reaches 817. As for the angular waste, 20 of the 45 pieces lie in the last four levels. Level 5 does have the largest number of angular waste, 16: this makes the total for Levels 5, 7, 8, 9 and 10 reach 36. Therefore, I argue that the later levels, as well as Level 5, were occupation levels, and the upper levels show an absence of prolonged occupation; that is because they do not have a sizable amount of artifacts, especially tools.

Area 9 shows several patterns pertaining to the distribution of artifacts over the area's nine levels see Table 7). First, a significant point is that Area 9 has 16 different types of tools, in addition to the flakes and angular waste. Also, the area has a large amount of tools: 168 of the 477 (35.22%) artifacts in Area 9 are tools. Generally, this area has many tools in the upper levels, and

Levels 8 and 9 are underrepresented. Area 9 has one tool in Level 8, while Level 9 has six tools. The rest of the tools in Area 9 lie in Levels 1 to 7. Actually, the first four levels from the surface contain 106 of the area's 168 tools. However, it is noteworthy that Level 3 has the smallest number of tools, apart from Levels 8 and 9.

A breakdown of the tool types by levels shows that most of the tool types in Area 9 are edge damaged (38, or 22.62%), blades (31, or 18.45%) and cores (29, or 17.26%). These three types of tools constitute 98 of the 168 tools present, or 58.33%.

All the blades lie in Levels 1 to 6. Levels 7, 8 and 9 have no blades at all. Level 2 (eight blades) and Level 4 (eleven blades) have 19 of the 31 blades present in Area 9. As for the cores, Levels 8 and 9 have none, as does Level 6. The cores are distributed almost evenly in the remaining levels. With the edge damaged lithics, 20 of these 38 artifacts lie in Levels 1 and 2 (52.63%), while Levels 4 through 7 also have many artifacts that make up almost the total number of edge damaged lithics (39.47%) that are outside Levels 1 and 2. Levels 3 and 8 have no edge damaged artifacts, and Level 9 has only three pieces.

The pattern of heavy tool concentration in the upper levels of Area 9 also continues with other tool types. For example, with the retouched lithics, only three pieces lie in Levels 6, 7 and 9 (Level 8 has none). All the remaining levels, except for Level 3 (which has none), contain 11 of

the total number of retouched lithics (14, or 78.57%). Similarly, the backed pieces are concentrated mainly in the top levels (1 through 5). Only three out of a total of 11 lie in Levels 6 and 7, with no backed artifacts in Levels 8 and 9.

Likewise, all the scrapers were found in the first six levels. There are no scrapers in Levels 7, 8 and 9. With the scrapers, there is no heavy concentration in a particular level, as the number in a given level is either one or two. As for the crude crescents, the pattern of the upper levels predominating by having many artifacts becomes readily apparent--Levels 1 and 2 have five of the six crude crescents present. This pattern is also borne out by the unretouched points--there are only two, and one lies in Level 1, while the other lies in Level 3. In the case of the utilized? tools, we find a similar pattern: one is in Level 2, and the other is in Level 3.

This pattern does not hold in the case of the possible burin and the drills?--they are located in the lower levels, where there have not been many other tool types. The possible burin is in Level 7, while the two drills? are in Levels 7 and 8.

In the case of the tool that is most likely an informal tool, the pattern is hard to discern, since there is only one tool. Also, this lone tool lies in Level 5, which is a middle level. As for the flakes and angular waste, the pattern that applies to the majority of the tools in Area 9

applies: Levels 7, 8 and 9 have few artifacts. For the angular waste, six of these 59 artifacts lie in the last three levels. For the flakes, Levels 7, 8 and 9 contain only 39 of the 250 flakes present in Area 9.

The interpretation of the distribution of the data in Area 9 shows that the upper levels of the area were activity areas. In this case, by "activity area" I am referring again (as I did with reference to Area 3) to the presence of tools and debitage, which shows that tool-making went on. Similarly, I cannot clearly say what kinds of activities took place, beyond tool-making. I can, however, speculate that the presence of scrapers may suggest that hide or wood was worked (or both). So, the heavy presence of tools and debitage in the upper levels suggests that upper levels of Area 9 witnessed a significant occupation. Conversely, the low presence of artifacts in the deeper levels means that these levels did not witness a significant occupation. As the lower levels were used earlier than the upper levels, I argue that in Area 9, the occupation by human groups was restricted to later times. If the area had little or no artifacts in the upper levels but had a preponderance of tools, flakes and angular waste in the deeper levels, then I would argue that in terms of time, the deeper levels were occupied; thus, the area would have been without much settlement as time progressed.

Area 10 differs from the other areas in one crucial element: it is a combination of all the test squares that

belong outside Areas 1 to 9. Hence Area 10's squares do not completely lie adjacent to each other, but are scattered all over the site of N!oma. This lack of a coherent geographical origin, unlike in the other areas, is bound to affect the patterning of artifact types through time, in terms of the levels (see Table 8). Also, I sampled squares in this area. I looked at 17 squares only.

For Area 10, the retouched, edge damaged and backed lithics predominate in the tool assemblage. These tool types form 143 of the 196 tools present. Including the 34 cores, the total reaches 177; the rest of the tools include five informal knives, five blades, seven combination tools, one crude crescent and blade with edge damage or retouch?

For the area as a whole, the lithics lie mainly in Levels 2 to 10. Levels 1 and 13 contain only 11 of the 196 tools present in Area 10. Also, Levels 11 and 12 have no artifacts at all--no tools, no flakes and no angular waste.

A breakdown of the area's tool types shows that the edge damaged artifacts are spread all over the area. They are present in Levels 1 to 10, as well as in Level 13. There is a fair distribution throughout the levels, except that Levels 4 and 13 have two pieces and one piece respectively. The cores also show an even spread, with only Level 13 having no cores at all. For the retouched pieces, only Levels 1, 2, 6 and 13 have one or two pieces each. The other levels have a larger number of tools; the highest number is 11 in Level 5. For the backed artifacts we find that they

are spread across the area evenly. Only one level has no backed pieces. Level 10 also breaks the pattern because six of the 19 pieces that are backed were found in this level. The rest of the levels have one or two pieces each.

The remaining artifacts are few in number. These remaining artifacts comprise combination tools, informal knives and blades. The combination artifacts lie in the deeper levels, for six of them are in Levels 7, 8, 10 and 13. The total for the combination tools is seven. Similarly, the five informal knives lie in the deeper levels, as four of them lie in Levels 7, 8 and 9. But the blades, totalling five, are divided almost equally between the shallower levels (2 and 3), and the deeper levels (7 and 8). There are three in the first levels, and two in the latter.

The crude crescent and the blade with edge damage or light retouch? are also few in number--there is only one of each. The crude crescent is in Level 3 and the other tool type is in Level 9.

I selected seventeen squares in this area, which consisted of squares that did not belong to Areas 1 to 9.

For the site of N!oma as a whole, we find that the chi-square test shows that the differences between the different areas are statistically significant except Area 5 (see Tables 1-8).

Here is the Pearson chi-square data:

Area	value	df	prob.
3	94.262	70	.028
4	65.191	42	.012
5	19.621	24	.718
6	188.600	72	.000
7	217.350	156	.001
8	90.753	72	.067
9	192.785	136	.001
10	162.630	110	.001

It is unlikely that the observed differences between the areas occurred by chance alone. However, we have to remember that the results for the various areas are tempered by the small frequencies of artifacts in certain artifact categories. In cases where there are less than five artifacts, the results are suspect. Therefore, I have to list those artifacts, for each area.

The affected artifact categories are:

1. Area 3 - informal knives, crude crescents, scrapers, combination tools and drills?

2. Area 4 - crude crescents, combination tools, retouched pieces and edge damaged lithics.

3. Area 5 - informal knives, backed pieces and combination tools.

4. Area 6 - crude crescents, combination tools, drills? and utilized? lithics.

5. Area 7 - blades, informal knives, scrapers, points, notched piece and drills.

6. Area 8 - informal knives and drills?

7. Area 9 - points, large bifacial tool, drills? possible burin, utilized? unretouched point and informal tool.

8. Area 10 - crude crescents, combination tools and blade with edge damage or light retouch?

The following section will consist of the conclusions drawn from looking at the lithics from N!oma in the broader context of hunter-gatherers' interactions with their neighbors.

CHAPTER 7

CONCLUSION

At the beginning of this study, one question that I posed dealt with anthropologists' rationale for studying living groups of hunter-gatherers and how they interact with their neighbors. I indicated that there were several reasons for this undertaking. An obvious explanation is that as human beings, we are curious to know about the past, so we have a scientific desire to discover our roots. Related to this scientific desire to know about our past is the fact that, as Lee and DeVore (1968) stated, hunting and gathering has been the main adaptation of human beings for most of the time that human beings have been in existence as human beings. Therefore, studying extant societies of hunter's and gatherers can enable us to inquire into the hunting and gathering way of life. We can find out about what human beings do--social organization, labor organization, cooperation, regional organizations, trade, exchange, relations between neighboring human groups (Binford 1990: 508). Also, there are not many living groups of hunters and gatherers, so the few remaining ones offer us opportunities to ask those questions that enable us to advance theoretical

knowledge and help these societies become less marginalized in today's nation-states. It is true that groups of hunting-and-gathering peoples often have low socio-economic standing as opposed to their neighbors, be they farmers or traders or miners, etc. Also, archaeological studies provide a longer-term perspective than ethnographic studies, which take a shorter temporal view. Again, ethnographic studies have also produced some confusion in hunter-gatherer studies.

In the case-study I chose, that of the Tsodilo Hills, the San hunter-gatherers help highlight some of the concerns that anthropologists have been dealing with. For instance, the question of what to call these hunter-gatherers has been a vexing one. The term "Bushmen" has been used, but is now considered to be pejorative. The term "San" or "San-speaking peoples" is also used. Then, in Botswana, the term "Basarwa" is also used. Richard Lee also used the term !Kung. Also, the term "Zhu" is often used. This question of what to call these hunter-gatherers points to the disagreement that characterizes studies of hunter-gatherers, not only in Southern Africa, but in many parts of the world.

I also have to point out that the hunter-gatherers of the Kgalagadi in Botswana have a high profile in the anthropological literature and the anthropological world and the popular imagination. These people take a pre-eminent position among hunter-gatherers partly because of the work of Richard Lee and the Harvard Kalahari (Kgalagadi) Project. Also, several films have contributed to the popularization

of the Basarwa, eg "The Hunters" by John Marshall, and the commercially successful, "The Gods Must be Crazy" by Jamie Uys, made in 1958 and 1980 respectively. They have introduced the Basarwa to a worldwide audience. According to David Wiley, The Hunters is the most widely shown film on American campuses (David Wiley, personal communication 1991). Coupled with this cinematographic presentation is an appealing portrayal of the Basarwa as child-like, innocent and peaceful people who have not been contaminated by the disastrous dehumanizing effects of the industrialized and modern 20th century. It is partly because of this portrayal of the Basarwa as people without history, caught in a static capsule of time that we have a debate on the nature of hunter-gatherers and their interactions with their neighbors.

For convenience, I divided the main protagonists into two camps. I have to reiterate that this division was for ease of writing and my intention was not to belittle any of these scholars who have contributed significantly to our understanding of social and environmental processes in the Kgalagadi and, by extension, in the world at large. Again, I have to indicate that by grouping these scholars in the manner I did, I am in no way saying that their positions are fixed and unchanging, and that members of each camp uncritically agree with each other, and always oppose members of the other group. Again, I need to point out that the views of these scholars, given the lapse of time that

has passed since I undertook my study have of necessity been changing; for instance, Sheryl Miller was a pioneering scholar in the 1960s, and John Yellen is still working on his Kgalagadi research. Furthermore, Edwin Wilmsen and James Denbow continue to carry out archaeological research in Botswana.

I also have to point out that the African voice in this study is represented by two Botswana scholars. In studies on the Basarwa, it would be ideal to quote Basarwa scholars, but at the moment, that is not possible as there are no secondary school and university scholars of Basarwa stock. The closest I came to this undertaking was to deal with the work of some Botswana scholars who have also touched on the question of socio-economic relations between Basarwa groups and their neighbors, including members of the main Tswana groups in Botswana and other subordinate ethnic groups.

Therefore, the study I undertook primarily concerns the views of the group that I termed the "Rousseauesque camp." This is a term that I chose in a narrow sense to illustrate the lack of a diachronic perspective in their approach towards hunter-gatherers and their contacts with their neighbors. By contrast, the opposing group of scholars tend to emphasize responsiveness to opportunity and change, so, again, in a narrow sense, I labeled this camp the "Pragmatic Camp." As the third group has a lesser contribution in terms of published output, this group does not figure largely in my study. However, I called it the "Botswana scholars." So

in the Rousseauesque camp, we have Sheryl Miller, John Yellen, Richard Lee, George Silberbauer, David Phillipson and Jiro Tanaka. Among the Pragmatists, we have James Denbow, Robert Hitchcock and Edwin Wilmsen. Lastly, the Botswana scholars consist of Mabunga Nlshwa Gadibolae and Gaontatlhe Mautle.

Essentially, the Rousseauians emphasize little contacts between hunter-gatherers and their neighbors; they argue for a distinct lifestyle of each group. They argue that lithics show that there was isolation between hunter-gatherers and their Bantu-speaking neighbors. Also, while trade may have taken place, it did not lead to intermingling that led to a loss of cultural identity. Also, hunting and gathering as a lifestyle is seen as having persisted for millennia, so that today's hunter-gatherers live as they have lived for thousands of years. Thus, studying them, especially in their retreat areas, places of inhospitality, offers us a window into how Early Man lived. But the Pragmatic camp challenges this view; they argue that as times change, and the environment changes, men with the times also change. Their evidence comes from geomorphology, archival sources, ethnohistory, linguistics and archaeology. They argue that far from being isolated, the Tsodilo Hills area of northwestern Botswana has had at least 1,500 years of interaction with its wider region. Long-distance trade occurred as evidenced by trade items like cowrie shells. Also, people in this area domesticated livestock. Also, they

used domesticated plants such as sorghum. In addition, they used iron, and lived in mud houses. At the same time, hunting and gathering went on, and stone tool production also occurred. More recently, historical sources show that the Basarwa used to be involved in trade, and kept domestic stock. Again, today, Basarwa do have livestock in some parts of Botswana, and have adapted to their environment by seeking employment on farms and mines, as well as growing food crops. Again, using biological studies, the Pragmatists show that the distinction between a "Mosarwa" and a "non-Mosarwa" in Botswana is a cultural, and not biological, designation as some "Basarwa" are not genetically different from "non-Basarwa" Botswana and other Negroid groups.

The Botswana scholars' perspective is largely historical and more limited in time. Again, they highlight the use of force in the subjugation of less powerful and less closely knit ethnic groups by more powerful ethnic groups. Again, they provide an insider's view of the interaction process, and through their knowledge of some of the local languages, customs, politics, economics, and moral, philosophical and religious systems, they bring out perspectives that are different from those portrayed by the Rousseauians and the Pragmatists.

The View from the Site of N!oma, Tsodilo Hills, Botswana

I chose to tackle the question of interaction between hunter-gatherers and their neighbors by taking Tsodilo Hills

as a case-study. The Tsodilo Hills lie in the area near Dobe, where Richard Lee and his co-workers have done a lot of their research. Therefore, making comparisons is easy because both Tsodilo and Dobe lie in the same area.

This part of Botswana is relatively unexplored in terms of archaeological reconnaissance, so the site of N!oma helps to advance our understanding of the prehistory of the area. Again, the site of N!oma has evidence of settlement by Bantu-speaking peoples and their technology, while there is also evidence of stone-tool using, which is often associated with San-speaking hunter-gatherers. In following the terminology that is currently used, N!oma is an Early Iron Age site with Late Stone Age components.

As has been stated previously, this site on the Female Hill of Tsodilo is an agropastoral site. It dates to between AD 700 and AD 1000. Its principal components date to between the ninth and tenth centuries. Its finds include cattle, which were the mainstay of the economy. Also, there were sheep and goats, as well as sheep and millet. Sorghum and millet were also present. Mongongo nuts and Grewia berries attest to foraging. Wild faunal remains are also present. Trade items include ivory, iron and copper ornaments as well as iron tools. Long-distance trade is shown by the presence of cane-glass beads and cowrie shells. Contact with the Okavango Delta, 70 km away, is shown by the presence of freshwater mussels and fish. Also, there were pole and daga (daub) houses. Also, the site has stone tools. Also, in one

area of the site, stone tools, tuyères, millet and sorghum remains, as well as cane-glass beads and cowrie shells were found on burned hut-clay floor (Wilmsen and Denbow 1990).

Certainly, the presence of over 5,700 lithics at the site of N!oma shows that the makers of the stone artifacts were settled at the site for some time. I argue that they must have lived there in a non-itinerant way. If, indeed, this scenario held true, then it could support the interpretation of Wilmsen and Denbow that local hunter-gatherers were part and parcel of the local economy of Tsodilo. At the time of writing, this fact cannot yet be documented, but a way to test this hypothesis could be through burial evidence. A way to demonstrate this connection between stone artifacts and human groups could be to see what kinds of human remains were found buried with stone tools, and if there were morphological differences, then this demonstration might hold.

In addition, the large numbers of flakes at the site, as well as the large numbers of the angular waste, show that the tools were made at the site, and did not come from elsewhere. Moreover, the quartz raw material is available on the Female Tsodilo Hill; so I argue that tool production occurred locally.

Furthermore, the presence of activity areas in Area 3 to 10 shows that when people settled at Tsodilo, they carried out tool production at the site. Additionally, a wide range of tools were made, including crescents, backed,

retouched and edge damaged pieces, as well as informal knives, scrapers and blades.

However, several questions remain unanswered at this particular stage of the research. For instance, I am not able to tell what the scrapers were used for. This calls or follow-up research on micro-wear. Also calling for further research is the question of the source of the chert raw material. Right now, I cannot tell where the chert used to make the N!oma lithics came from. So, future research must locate the sources of the chert before this question can be addressed. Currently, Wilmsen and some of his students are working on this problem. Another question awaiting investigation relates to how long the different activity areas were settled for. Yet another question that needs addressing is the point of who made the lithic artifacts--were they hunter-gatherers or agropastoralists? Were these people the same as those from the nearby sites of Divuyu (Denbow and Wilmsen 1990:499) and Depression Rock Shelter (Robbins et al 1989)? There is also the question of comparison of the lithic variability of this site with other sites that also have Early Iron Age and Late Stone Age components together--eg sites in Zambia, Zimbabwe, South Africa, and perhaps Namibia. It would also be fruitful to look at the faunal and trade items, as well as the pottery, and see how they correlate with the concentration or lack of concentration of the lithics in certain areas and levels of the site of N!oma.

N!oma is a thought-provoking site with exciting possibilities for future research that will help us reassess the "dynamics underlying social and economic forms in the Kalahari [Kgalagadi]" (Denbow 1986:35). In raising questions for future research, the site of N!oma and its stone artifacts help us advance our understanding of the past of the Kgalagadi. In undertaking this task, I submit that a process of integrating the methods, theories and experiences of a wide range of fields of inquiry is called for. For instance, the realms of archaeology, ethnoarchaeology, ethnohistory, history and linguistics can be drawn upon.

Again, I contend that this process of further inquiry into the remote past needs to include more indigenous scholars. There are several advantages to the greater incorporation of scholars from their native lands. I submit that it will be a boon to further archaeological research to have native scholars carry that research as they grew up in the local environment. They are more likely to be in tune with the local culture, languages, customs, peoples, laws, politics, economics, and moral and religious-philosophical system. As products of the local environment, it makes sense that they should be more involved in interpreting the past of their native lands. Again, their being involved in this research will bear personal, professional and national rewards (Dr. Yacob Fisseha, personal communication 1991). Research by local scholars builds their own self-esteem, and increases the self-confidence of their communities. They

become role-models to younger children, who also are able to identify with them. Also, it becomes easier for discerning informants to pass information on to these indigenes as there is the commonality of the cultural factors mentioned above. Again, it makes sense to have native scholars create and interpret their own past, as the past is "created" and "reconstructed" in view of the prevailing socio-political and intellectual times (Parkington and Smith 1986, Shaw 1989). Again, local researchers may help lessen the dependence on foreign scholars; in some cases foreign scholars become an economic drain on the meager financial resources of developing nations as they have to be given financial inducements to attract them to the host country. Again, since foreign scholars often come from western countries, this process delays the emergence of productive debate, collaboration and fruitful confrontation, for the West is currently in a dominant political and economic position vis-a-vis non-western countries. When foreign researchers work in their host countries, they are thus working as westerners (Hodder, 1986). This can have a debilitating effect of stifling initiative and blossoming ideas, partly because knowledge is power. Yet, for research to go forward, an attitude of cultural humility is called for.

APPENDICES

APPENDIX 1

CODES FOR N!OMA ARTIFACTS

1	slightly edge damaged
2	edge damaged?
3	edge damaged
3	edge damage on one side
4	blade
5	blade?
5	broken blade?
6	partly backed and retouched blade
7	blade with edge damage
4	broken blade
7	blade with edge damaged tip
8	core trimming blade
9	blade with heavy edge damage
10	blade with shallow-angled retouch
11	blade with edge damage or light retouch
12	backed
12	broken backed piece
13	backed and edge damaged
14	partly backed
15	backed and retouched

16	heavily backed
17	atypically backed
18	double-backed
19	backed, manufactured, round shaped tool?
20	backed, start of a crescent?
21	traces of backing
22	core
23	small core
22	broken core
24	worn-out core?
22	piece of core
25	piece of core?
26	blade core
27	blade core?
29	retouched split core
30	crude core
28	split core
31	bladelet core?
32	split core?
33	flake-core
34	start of core
35	backed bladelet
28	split core with edge damage
36	backed bladelet
37	crescent
37	broken crescent
38	retouched but not backed crescent

39	backed and retouched crescent
40	crude crescent
41	large crescent/piercing tool?
42	minor crescent
43	crude crescent?
44	atypical crescent
45	start of a crescent
46	crescent?
47	possible burin
48	drill
49	drill?
75	backed drill?
50	flake
50	split flake
50	freshly broken flake
50	flake with possible edge damage
50	flake with some clear, transparent quartz
50	core refresher flake
50	flake with shiny metallic stuff
50	core trimming flake
51	angular waste
51	angular waste with metallic stuff
51	angular waste with metallic stuff?
52	point
53	unretouched point
54	point?
55	backed point?

56	notched piece
57	unretouched knife (informal knife)
58	unretouched knife?
59	retouched
59	broken retouched piece
60	retouched, edge damaged
69	retouched drill/awl?
61	slightly retouched, minimally retouched, minimal retouch
62	retouched (with double backing and broken tip)
63	possible retouch? retouched?
64	retouched and backed
65	possibly retouched or heavily edge damaged
66	retouched and edge damaged
67	steeply retouched; steep retouch?
68	broken retouched piece
70	scraper
71	scraper with minimal retouch
72	large bifacial tool?
73	utilized?
74	utilized
75	backed drill?
76	utilized? light retouch
77	bladelet
78	slightly retouched?
79	core?
80	piece off blade core

81	backed?
82	small scraper with backing
3	edge damaged or retouched flake
57	knife/edge damaged
83	backed blade
84	small scraper
85	small scraper?
86	scraper?
87	small blade core
88	retouched/edge damaged
89	informal tool?
20	backed, start of a crescent?
14	partly backed?

APPENDIX 2

N!OMA ARTIFACTS--LIST OF CATEGORIES THAT I GROUPED INTO SMALLER DIVISIONS FOR EASE OF CLASSIFICATION

A. Pieces without retouch

1. Flakes - code 50.
2. Blades - codes 4, 5, 8, 77.
3. Cores - codes 22 to 28, 30 to 34, 79, 80, 87.
4. Angular waste - code 51.
5. Informal knives - codes 57 and 58.
6. Crude crescents - codes 40 to 46.

B. Pieces with retouch

7. Scrapers - codes 70, 71, 84 to 86.
8. Backed - codes 12 to 21, 35, 36, 48, 55, 75, 81 to 83 and 88.
9. Retouched - codes 59, 61 to 63, 67 to 69, 76, 78.
10. Mixed/combination - codes 6, 10, 29, 37, 38, 39, 60, 64, 65, 66, 69, 71, 88.
11. Points - codes 52 and 54.
12. Large bifacial tool? - code 72.
13. Notched piece - code 56.
14. Drill? - code 49.
15. Possible burin - code 47.

C. Pieces with edge damage

16. Edge damaged - codes 1 to 3, 7, 9.

17. Blade with edge damage or light retouch? - code 11.

18. Utilized - codes 73 and 74.

D. Others

19. Unretouched point - code 53.

20. Informal tool? - code 89.

FIGURES

Figure 1. Some of the countries in the area of discussion (modified after Phillipson 1977: Figure 1)

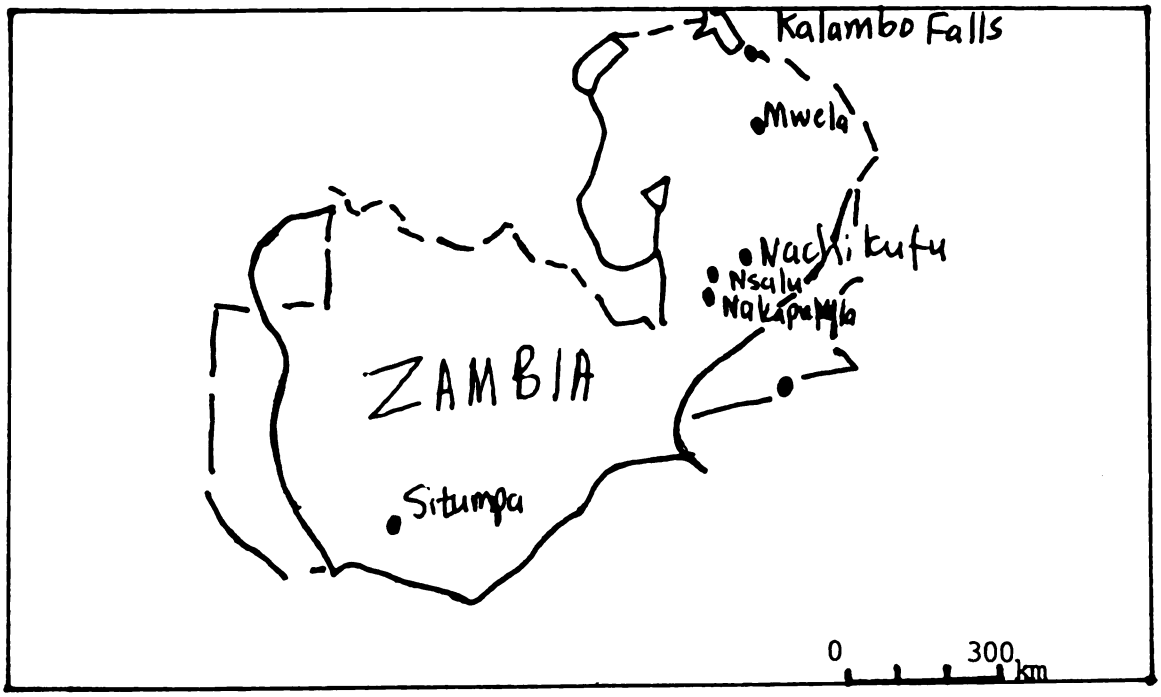

Figure 2. Some of the prehistoric sites in Zambia
(modified after Phillipson 1975b)

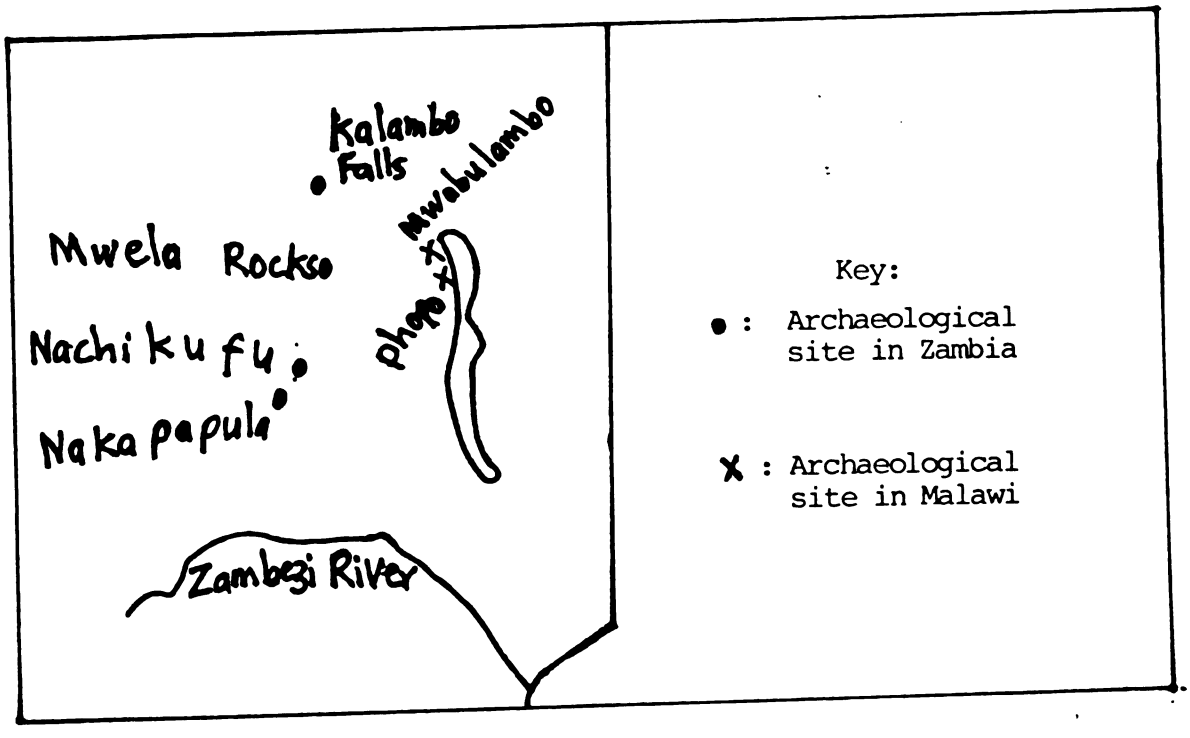

Figure 3. Some of the prehistoric sites in Zambia and Malawi (modified after Phillipson 1977: figure 33)

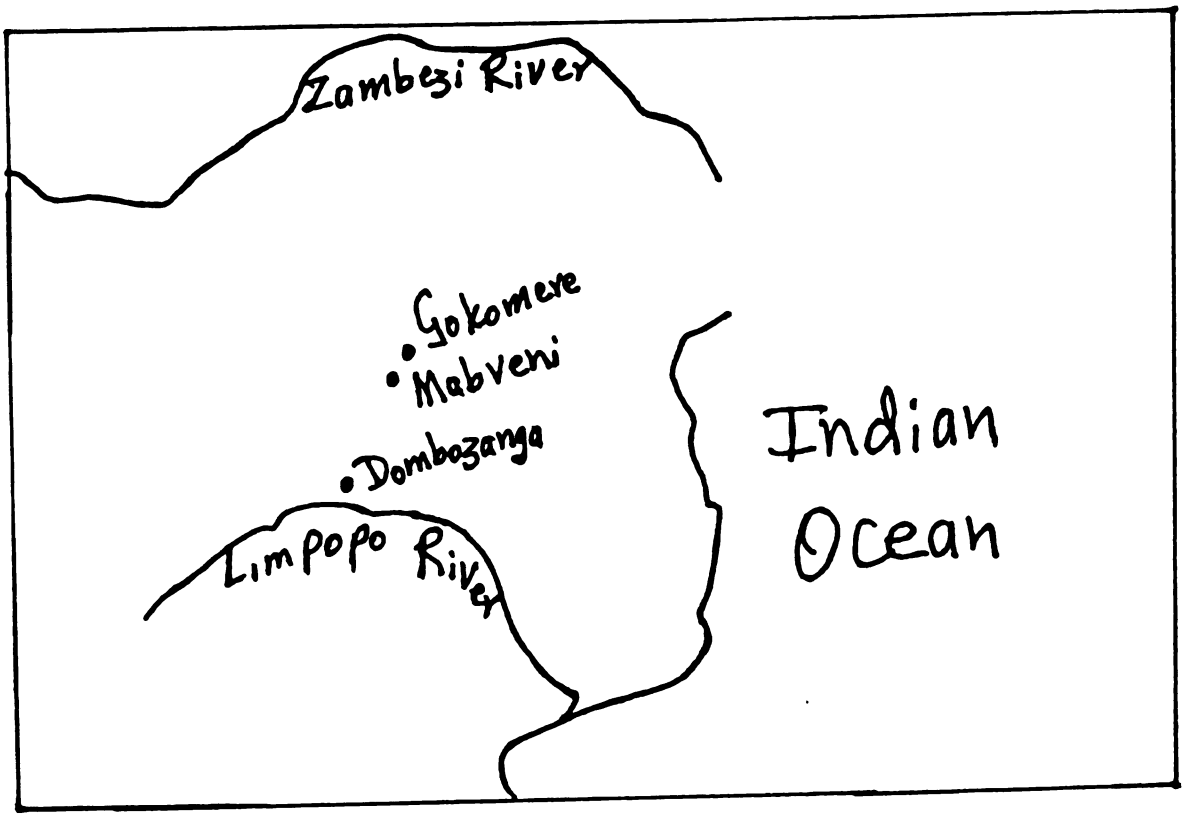

Figure 4. Some of the archaeological sites in Zimbabwe (modified after Phillipson 1977: Figure 37)

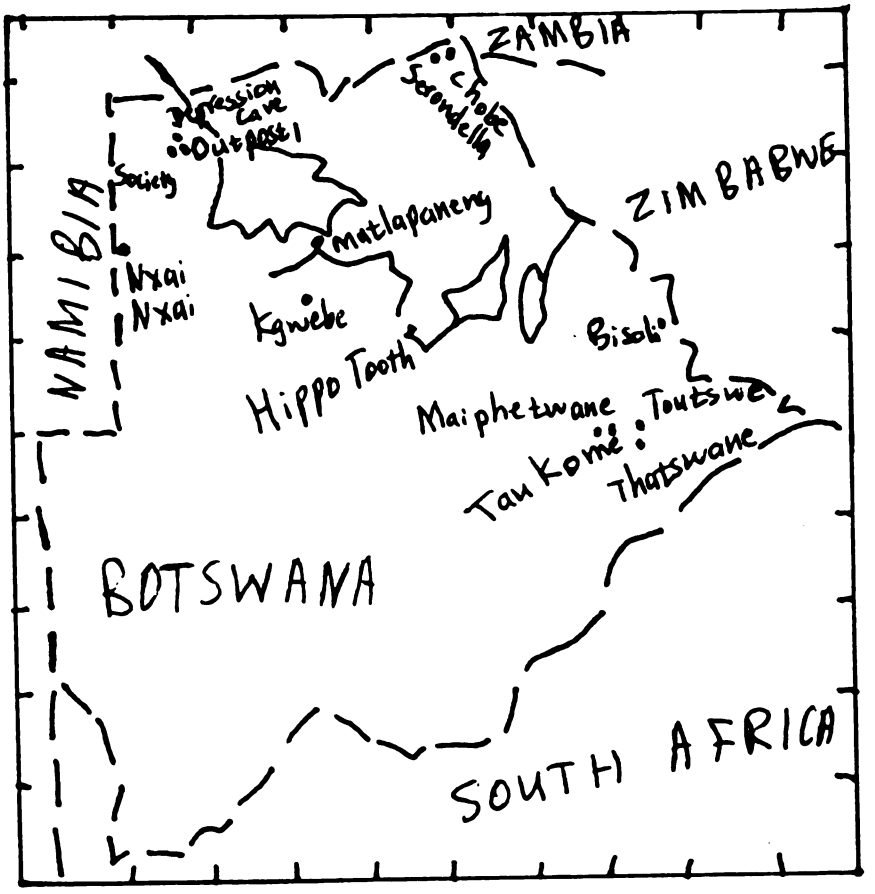

Figure 5. Some of the dated archaeological sites in Botswana (modified after Denbow 1984: Figure 7.1)

Figure 6. Tsodilo and part of its environs (modified after Wilmsen 1989: Figure 3.1)

Figure 7. The Tsodilo Hills (modified after Rudner 1965)

N!OMA-AREAS

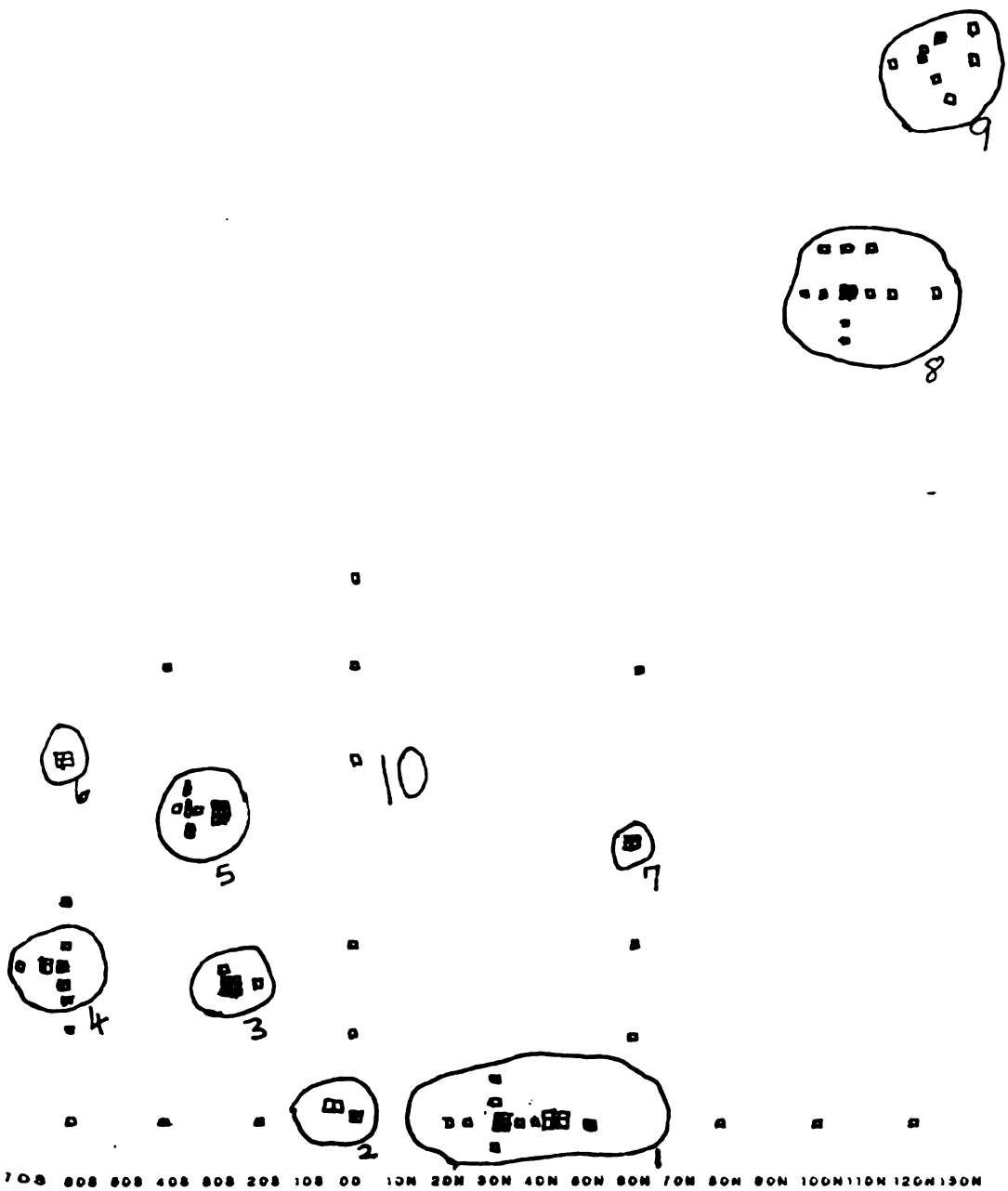

Figure 8. N!oma-Areas

Figure 9. Blades

Figure 10. Cores

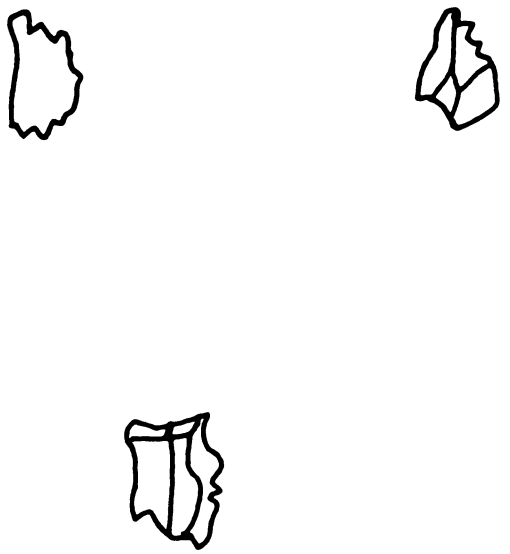

Figure 11. Edge damaged

Figure 12. Retouched and scraper

Figure 13. Crescents; backed and retouched

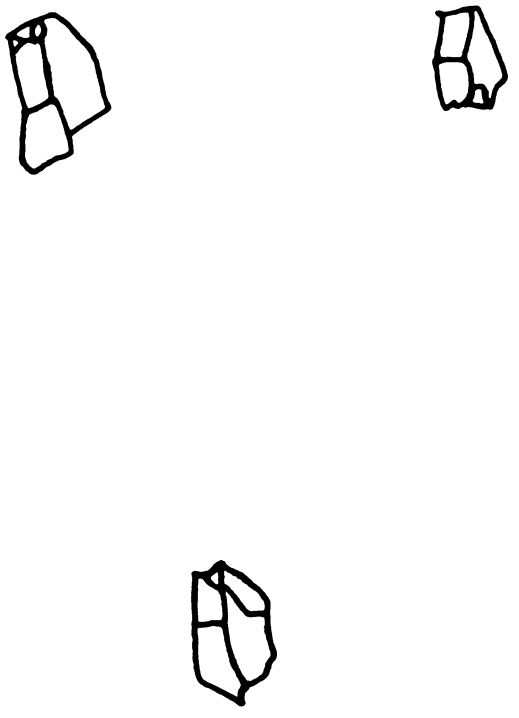

Figure 14. Informal knives

TABLES

Table 1
Table of artifacts (rows) by level (columns) - Area 3

Artifact	Level								
	1	2	3	4	5	6	7	8	Total
Frequencies									
Blades	0	0	1	3	1	0	1	1	7
Cores	0	1	4	3	1	0	0	1	10
Informal knives	0	3	0	0	0	0	0	0	3
Scrapers	0	1	0	0	0	0	0	0	1
Backed	2	0	0	0	0	0	0	0	2
Retouched	2	0	0	2	0	0	0	1	5
Combination	0	1	1	0	1	0	0	0	3
Drills?	0	0	0	0	1	0	0	0	1
Edge damaged	2	5	5	1	7	1	0	1	22
Total for tools	6	11	11	9	11	1	1	4	54
Flakes	9	20	42	21	23	5	8	14	142
Angular Waste	1	1	6	2	2	2	0	3	17
Grand Total	16	32	59	32	36	8	9	21	213

Table 1 (cont'd)

Artifact	Level								
	1	2	3	4	5	6	7	8	Total
Percentages									
Blades	0.00	0.00	14.29	42.86	14.29	0.00	14.29	14.29	100.00
Cores	0.00	10.00	40.00	30.00	10.00	0.00	0.00	10.00	100.00
Informal knives	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Scrapers	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Backed	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Retouched	40.00	0.00	0.00	40.00	0.00	0.00	0.00	20.00	100.00
Combination	0.00	33.33	33.33	0.00	33.33	0.00	0.00	0.00	100.00
Drills?	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
Edge damaged	9.09	22.73	22.73	4.55	31.82	4.55	0.00	4.55	100.00
Total for tools	11.11	20.37	20.37	16.67	20.37	1.85	1.85	7.41	100.00
Flakes	6.34	14.08	29.58	14.79	16.20	3.52	5.63	9.86	100.00
Angular Waste	5.88	5.88	35.29	11.76	11.76	11.76	0.00	17.65	100.00
Grand Total	7.51	15.02	27.70	15.02	16.90	3.76	4.23	9.86	100.00

Table 2
Table of artifacts (rows) by level (columns) - Area 4

Artifact	Level								
	1	2	3	4	5	6	7	8	Total
Frequencies									
Cores	0	0	0	0	1	0	0	0	1
Backed	0	0	0	0	1	0	2	3	6
Retouched	0	0	0	0	3	0	1	0	4
Combination	0	0	0	0	0	0	1	0	1
Edge damaged	0	0	1	0	0	1	0	0	2
Total for tools	0	0	1	0	5	1	4	3	14
Flakes	0	17	25	36	62	23	50	17	230
Angular Waste	2	2	2	3	5	8	2	3	27
Grand Total	2	19	28	39	72	32	56	23	271
Percentages									
Cores	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
Backed	0.00	0.00	0.00	0.00	16.67	0.00	33.33	50.00	100.00
Retouched	0.00	0.00	0.00	0.00	75.00	0.00	25.00	0.00	100.00
Combination	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	100.00
Edge damaged	0.00	0.00	50.00	0.00	0.00	50.00	0.00	0.00	100.00
Total for tools	0.00	0.00	7.14	0.00	35.71	7.14	28.57	21.43	100.00
Flakes	0.00	7.39	10.87	15.65	26.96	10.00	21.74	7.39	100.00
Angular Waste	7.41	7.41	7.41	11.11	18.52	29.63	7.41	11.11	100.00
Grand Total	0.74	7.01	10.33	14.39	26.57	11.81	20.66	8.49	100.00

Table 3
Table of artifacts (rows) by level (columns) - Area 5

Artifact	Level				
	1	2	3	4	Total
Frequencies					
Blades	5	0	0	0	5
Cores	6	0	0	1	7
Informal knives	1	0	0	0	1
Backed	1	0	0	0	1
Retouched	8	1	0	2	11
Combination	4	0	0	0	4
Edge damaged	21	2	2	0	25
Total	46	3	2	3	54
Flakes	179	14	14	17	224
Angular Waste	32	9	1	3	45
Grand Total	257	26	17	23	323
Percentages					
Blades	100.00	0.00	0.00	0.00	100.00
Cores	85.71	0.00	0.00	14.29	100.00
Informal knives	100.00	0.00	0.00	0.00	100.00
Backed	100.00	0.00	0.00	0.00	100.00
Retouched	72.73	9.09	0.00	18.18	100.00
Combination	100.00	0.00	0.00	0.00	100.00
Edge damaged	84.00	8.00	8.00	0.00	100.00
Total for tools	85.19	5.56	3.70	5.56	100.00
Flakes	79.91	6.25	6.25	7.59	100.00
Angular Waste	71.11	20.00	2.22	6.67	100.00
Grand Total	79.57	8.05	5.26	7.12	100.00

Table 4
Table of

Table 4
Table of artifacts (column) by level (row) - Area 6

Artifact	Level							
Frequencies	1	2	4	8	9	10	11	Total
Blades	0	0	0	6	3	0	0	9
Cores	2	0	1	7	1	4	4	19
Informal knives	1	0	1	3	0	0	1	6
Crude Crescents	1	0	0	0	0	0	0	1
Backed	0	0	1	6	1	1	2	11
Retouched	0	0	4	4	11	1	1	21
Combination	0	0	0	0	0	1	1	2
Drills?	0	0	0	2	0	0	0	2
Edge damaged	0	0	1	16	9	6	4	36
Utilized?	0	0	1	0	0	0	0	1
Total for tools	4	0	9	44	25	13	13	108
Flakes	8	10	67	370	242	101	89	887
Angular Waste	0	0	4	31	22	1	12	70
Undetermined	0	0	0	0	1	0	1	2
Grand Total	12	10	80	445	290	115	115	1067

Table 4 (cont'd)

Artifact	Level							
	1	2	4	8	9	10	11	Total
Percentages								
Blades	0.00	0.00	0.00	66.67	33.33	0.00	0.00	100.00
Cores	10.53	0.00	5.26	36.84	5.26	21.05	21.05	100.00
Informal knives	16.67	0.00	16.67	50.00	0.00	0.00	16.67	100.00
Crude Crescents	100.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Backed	0.00	0.00	9.09	54.55	9.09	9.09	18.18	100.00
Retouched	0.00	0.00	19.05	19.05	52.38	4.76	4.76	100.00
Combination	0.00	0.00	0.00	0.00	0.00	50.00	50.00	100.00
Drills?	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
Edge damaged	0.00	0.00	2.78	44.44	25.00	16.67	11.11	100.00
Utilized?								
Total for tools	3.70	0.00	8.33	40.74	23.15	12.04	12.04	100.00
Flakes	0.90	1.13	7.55	41.71	27.28	11.39	10.03	100.00
Angular Waste	0.00	0.00	5.71	44.29	31.43	1.43	17.14	100.00
Grand Total	1.12	0.94	7.50	41.71	27.18	10.78	10.78	100.00

Table 5
Table of artifacts (rows) by level (columns) - Area 7

Artifact	Level														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Frequencies															
Blades	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
Cores	1	1	0	2	1	0	3	1	0	1	1	1	2	4	18
Informal knives	0	0	0	0	0	0	0	1	0	0	0	1	1	0	3
Scrapers	0	1	0	0	0	0	0	1	0	0	0	1	0	0	3
Backed	0	0	1	1	3	0	1	1	0	0	0	1	0	0	8
Retouched	0	2	3	1	1	1	2	3	3	2	0	0	6	0	24
Combination	1	0	0	0	0	0	0	0	2	3	0	1	2	1	10
Points	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Notched piece	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Drills?	0	0	1	0	1	0	0	0	0	0	0	1	0	0	3
Edge damaged	1	12	5	0	0	1	6	2	0	3	0	2	3	5	40
Total for tools	3	16	10	4	7	2	12	9	5	10	2	8	15	10	113
Flakes	18	47	24	8	18	2	23	17	47	20	6	36	32	31	329
Angular Waste	0	0	1	0	1	0	8	0	1	3	2	0	2	3	21
Grand Total	21	63	35	12	26	4	43	26	53	33	10	44	49	44	463

Table 5 (cont'd)

Artifact	Level														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
Percentages															
Blades	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	50.00	0.00	0.00	0.00	100.00
Cores	5.56	5.56	0.00	11.11	5.56	0.00	16.67	5.56	0.00	5.56	5.56	5.56	11.11	22.22	100.00
Informal knives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.33	0.00	0.00	0.00	33.33	33.33	0.00	100.00
Scrapers	0.00	33.33	0.00	0.00	0.00	0.00	0.00	33.33	0.00	0.00	0.00	33.33	0.00	0.00	100.00
Backed	0.00	0.00	12.50	12.50	37.50	0.00	12.50	12.50	0.00	0.00	0.00	12.50	0.00	0.00	100.00
Retouched	0.00	8.33	12.50	4.17	4.17	4.17	8.33	12.50	12.50	8.33	0.00	0.00	25.00	0.00	100.00
Combination	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	30.00	0.00	10.00	20.00	10.00	100.00
Points	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	100.00
Notched piece	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Drills?	0.00	0.00	33.33	0.00	33.33	0.00	0.00	0.00	0.00	0.00	0.00	33.33	0.00	0.00	100.00
Edge damaged	2.50	30.00	12.50	0.00	0.00	2.50	15.00	5.00	0.00	7.50	0.00	5.00	7.50	12.50	100.00
Total for tools	2.65	14.16	8.85	3.54	6.19	1.77	10.62	7.96	4.42	8.85	1.77	7.08	13.27	8.85	100.00
Flakes	5.47	14.29	7.29	2.43	5.47	0.61	6.99	5.17	14.29	6.08	1.82	10.94	9.73	9.42	100.00
Angular Waste	0.00	0.00	4.76	0.00	4.76	0.00	38.10	0.00	4.76	14.29	9.52	0.00	9.52	14.29	100.00
Grand Total	4.54	13.61	7.56	2.59	5.62	0.86	9.29	5.62	11.45	7.13	2.16	9.50	10.58	9.50	100.00

Table 6
Table of artifacts (rows) by level (columns) - Area 8

Artifact	Level										
	1	2	3	4	5	6	7	8	9	10	Total
Frequencies											
Cores	1	0	2	0	8	0	2	2	6	4	25
Informal knives	0	0	0	2	0	0	1	0	0	0	3
Backed	1	1	1	1	8	3	1	5	4	6	31
Retouched	3	0	4	5	5	3	8	5	7	12	52
Combination	0	1	0	1	0	0	1	0	3	0	6
Drills?	0	0	0	0	0	0	0	0	1	0	1
Edge damaged	4	1	5	9	10	2	5	12	14	13	75
Total for tools	9	3	12	18	31	8	18	24	35	35	193
Flakes	65	28	60	91	254	59	98	81	266	118	1120
Angular Waste	1	0	2	4	16	2	3	1	8	8	45
Grand Total	75	31	74	113	301	69	119	106	309	161	1358
Percentages											
Cores	4.00	0.00	8.00	0.00	32.00	0.00	8.00	8.00	24.00	16.00	100.00
Informal knives	0.00	0.00	0.00	66.67	0.00	0.00	33.33	0.00	0.00	0.00	100.00
Backed	3.23	3.23	3.23	3.23	25.81	9.68	3.23	16.13	12.90	19.35	100.00
Retouched	5.77	0.00	7.69	9.62	9.62	5.77	15.38	9.62	13.46	23.08	100.00
Combination	0.00	16.67	0.00	16.67	0.00	0.00	16.67	0.00	50.00	0.00	100.00
Drills?	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	100.00
Edge damaged	5.33	1.33	6.67	12.00	13.33	2.67	6.67	16.00	18.67	17.33	100.00
Total for tools	4.66	1.55	6.22	9.33	16.06	4.15	9.33	12.44	18.13	18.13	100.00
Flakes	5.80	2.50	5.36	8.13	22.68	5.27	8.75	7.23	23.75	10.54	100.00
Angular Waste	2.22	0.00	4.44	8.89	35.56	4.44	6.67	2.22	17.78	17.78	100.00
Grand Total	5.52	2.28	5.45	8.32	22.16	5.08	8.76	7.81	22.75	11.86	100.00

Table 7
Table of artifacts (rows) by

Table 7
Table of artifacts (rows) by level (columns) - Area 9

Artifact	Level									
Frequencies	1	2	3	4	5	6	7	8	9	Total
Blades	2	8	1	11	5	4	0	0	0	31
Cores	6	7	3	4	4	0	5	0	0	29
Informal knives	1	4	2	2	0	1	2	0	0	12
Crude crescents	2	3	0	0	0	0	1	0	0	6
Scrapers	2	1	1	2	2	1	0	0	0	9
Backed	1	1	1	3	2	2	1	0	0	11
Retouched	3	2	1	0	5	1	1	0	1	14
Combination	1	1	0	1	1	1	0	0	1	6
Points	0	1	0	0	0	1	0	0	1	3
Large bifacial tool	0	0	0	1	0	0	0	0	0	1
Drills?	0	0	0	0	0	0	1	1	0	2
Possible burin	0	0	0	0	0	0	1	0	0	1
Edge damaged	14	6	0	3	4	5	3	0	3	38
Utilized?	0	1	1	0	0	0	0	0	0	2
Unretouched point	1	0	1	0	0	0	0	0	0	2
Informal tool?	0	0	0	0	1	0	0	0	0	1
Total for tools	33	35	11	27	24	16	15	1	6	168
Flakes	25	61	24	47	22	32	17	5	17	250
Angular Waste	7	10	1	16	5	14	4	0	2	59
Grand Total	65	106	36	90	51	62	36	6	25	477

Table 7 (cont'd)

Artifact	Level									
Percentages	1	2	3	4	5	6	7	8	9	Total
Blades	6.45	25.81	3.23	35.48	16.13	12.90	0.00	0.00	0.00	100.00
Cores	20.69	24.14	10.34	13.79	13.79	0.00	17.24	0.00	0.00	100.00
Informal knives	8.33	33.33	16.67	16.67	0.00	8.33	16.67	0.00	0.00	100.00
Crude crescents	33.33	50.00	0.00	0.00	0.00	0.00	16.67	0.00	0.00	100.00
Scrapers	22.22	11.11	11.11	22.22	22.22	11.11	0.00	0.00	0.00	100.00
Backed	9.09	9.09	9.09	27.27	18.18	18.18	9.09	0.00	0.00	100.00
Retouched	21.43	14.29	7.14	0.00	35.71	7.14	7.14	0.00	7.14	100.00
Combination	16.67	16.67	0.00	16.67	16.67	16.67	0.00	0.00	16.67	100.00
Points	0.00	33.33	0.00	0.00	0.00	33.33	0.00	0.00	33.33	100.00
Large bifacial tool	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Drills?	0.00	0.00	0.00	0.00	0.00	0.00	50.00	50.00	0.00	100.00
Possible burin	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00
Edge damaged	36.84	15.79	0.00	7.89	10.53	13.16	7.89	0.00	7.89	100.00
Utilized?	0.00	50.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Unretouched point	50.00	0.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Informal tool?	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	100.00
Total for tools	19.64	20.83	6.55	16.07	14.29	9.52	8.93	0.60	3.57	100.00
Flakes	10.00	24.40	9.60	18.80	8.80	12.80	6.80	2.00	6.80	100.00
Angular Waste	11.86	16.95	1.69	27.12	8.47	23.73	6.78	0.00	3.39	100.00
Grand Total	13.63	22.22	7.55	18.87	10.69	13.00	7.55	1.26	5.24	100.00

Table 8
Table of artifacts (rows) by level (columns) - Area 10

Artifact	Level											
	1	2	3	4	5	6	7	8	9	10	13	Total
Frequencies												
Blades	0	2	1	0	0	0	1	1	0	0	0	5
Cores	3	2	5	4	3	4	3	2	6	2	0	34
Informal knives	0	0	0	0	1	0	1	1	2	0	0	5
Crude crescents	0	0	1	0	0	0	0	0	0	0	0	1
Backed	0	1	2	2	1	1	1	2	2	6	1	19
Retouched	1	1	7	5	11	2	5	6	9	4	1	52
Combination	0	1	0	0	0	0	4	1	0	1	0	7
Edge damaged	4	7	8	2	12	8	6	7	11	6	1	72
Blade with edge damage or light retouch?	0	0	0	0	0	0	0	0	1	0	0	1
Total for tools	8	14	24	13	28	15	21	20	31	19	3	196
Flakes	58	62	88	76	77	90	114	118	290	251	68	1292
Angular Waste	6	9	6	5	12	6	6	15	19	7	3	94
Undetermined	0	1	1	0	0	0	0	0	0	1	0	3
Grand Total	72	86	119	94	117	111	141	153	340	278	74	1585

Table 8 (cont'd)

Artifact	Level											
Percentages	1	2	3	4	5	6	7	8	9	10	13	Total
Blades	0.00	40.00	20.00	0.00	0.00	0.00	20.00	20.00	0.00	0.00	0.00	100.00
Cores	8.82	5.88	14.71	11.76	8.82	11.76	8.82	5.88	17.65	5.88	0.00	100.00
Informal knives	0.00	0.00	0.00	0.00	20.00	0.00	20.00	20.00	40.00	0.00	0.00	100.00
Crude crescents	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Backed	0.00	5.26	10.53	10.53	5.26	5.26	5.26	10.53	10.53	31.58	5.26	100.00
Retouched	1.92	1.92	13.46	9.62	21.15	3.85	9.62	11.54	17.31	7.69	1.92	100.00
Combination	0.00	14.29	0.00	0.00	0.00	0.00	57.14	14.29	0.00	14.29	0.00	100.00
Edge damaged	5.56	9.72	11.11	2.78	16.67	11.11	8.33	9.72	15.28	8.33	1.39	100.00
Blade with edge damage or light retouch?	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00
Total for tools	4.08	7.14	12.24	6.63	14.29	7.65	10.71	10.20	15.82	9.69	1.53	100.00
Flakes	4.49	4.80	6.81	5.88	5.96	6.97	8.82	9.13	22.45	19.43	5.26	100.00
Angular Waste	6.38	9.57	6.38	5.32	12.77	6.38	6.38	15.96	20.21	7.45	3.19	100.00
Grand Total	4.54	5.43	7.51	5.93	7.38	7.00	8.90	9.65	21.45	17.54	4.67	100.00

Table 9

Table of artifacts by material

	Area 3			Area 4			Area 5			Area 6			Area 7				Area 8			Area 9				Area 10			
	Q	C	T	Q	C	T	Q	C	T	Q	C	U	T	Q	C	T	Q	C	T	Q	C	U	T	Q	C	T	Total
Frequencies																											
Blades	2	5	7	0	0	0	4	1	5	1	8	0	9	1	1	2	0	0	0	23	7	1	31	3	2	5	59
Cores	8	2	10	1	0	1	2	5	7	14	5	0	19	7	11	18	10	15	25	25	4	0	29	23	11	34	143
Informal knives	1	2	3	0	0	0	1	0	1	3	3	0	6	0	3	3	1	2	3	12	0	0	12	2	3	5	33
Crude crescents	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	5	1	0	6	0	1	1	8
Scrapers	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	7	2	0	9	0	0	0	13
Backed	0	2	2	0	6	6	0	1	1	2	9	0	11	0	8	8	4	27	31	10	1	0	11	4	15	19	89
Retouched	2	3	5	1	3	4	5	6	11	6	15	0	21	1	23	24	5	47	52	12	2	0	14	22	30	52	183
Combination	1	2	3	0	1	1	0	4	4	1	1	0	2	3	7	10	1	5	6	5	1	0	6	3	4	7	39
Points	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	3	0	0	3	0	0	0	4
Large bifacial tool	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1
Notched piece	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Drills	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1	1	1	0	2	0	0	0	9
Possible burin	1	0	1	0	0	0	0	0	0	1	1	0	2	1	2	3	0	1	1	0	0	0	1	0	0	0	1
Edge damaged	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	13	9	22	0	2	2	16	9	25	21	15	0	36	17	23	40	35	40	75	28	9	1	38	45	27	72	310
Blade with edge damage or light retouch?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Utilized?	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	3
Unretouched point	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	2
Informal tool	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1
Total for tools	29	25	54	2	12	14	28	26	54	51	57	0	108	32	81	113	56	137	193	137	29	2	168	103	93	196	900
Flakes	126	16	142	216	14	230	192	32	224	667	220	0	887	237	92	329	804	316	1120	206	42	2	250	998	294	1292	4474
Angular waste	15	2	17	27	0	27	37	8	45	63	7	0	70	19	2	21	40	5	45	56	2	1	59	93	1	94	378
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	1	2	3	5
Total	170	43	213	245	26	271	257	66	323	781	284	2	1067	288	175	463	900	458	1358	399	73	5	477	1195	390	1585	5757

Table 10

Table of artifacts by material, showing variability across site according to arifact category

	Area 3			Area 4			Area 5			Area 6			
	Q	C	T	Q	C	T	Q	C	T	Q	C	U	T
Percentages													
Blades	3.39	8.47	11.86	0.00	0.00	0.00	6.78	1.69	8.47	1.69	13.56	0.00	15.25
Cores	5.59	1.40	6.99	0.70	0.00	0.70	1.40	3.50	4.90	9.79	3.50	0.00	13.29
Informal knives	3.03	6.06	9.09	0.00	0.00	0.00	3.03	0.00	3.03	9.09	9.09	0.00	18.18
Crude crescents	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.50	0.00	0.00	12.50
Scrapers	7.69	0.00	7.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backed	0.00	2.25	2.25	0.00	6.74	6.74	0.00	1.12	1.12	2.25	10.11	0.00	12.36
Retouched	1.09	1.64	2.73	0.55	1.64	2.19	2.73	3.28	6.01	3.28	8.20	0.00	11.48
Combination	2.56	5.13	7.69	0.00	2.56	2.56	0.00	10.26	10.26	2.56	2.56	0.00	5.13
Points	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Large bifacial tool	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Notched piece	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drills	11.11	0.00	11.11	0.00	0.00	0.00	0.00	0.00	0.00	11.11	11.11	0.00	22.22
Possible burin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Edge damaged	4.19	2.90	7.10	0.00	0.65	0.65	5.16	2.90	8.06	6.77	4.84	0.00	11.61
Blade with edge damage or light retouch?	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilized?	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.33	0.00	0.00	33.33
Unretouched point	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Informal tool	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total for tools	3.22	2.78	6.00	0.22	1.33	1.56	3.11	2.89	6.00	5.67	6.33	0.00	12.00
Flakes	2.82	0.36	3.17	4.83	0.31	5.14	4.29	0.72	5.01	14.91	4.92	0.00	19.83
Angular waste	3.97	0.53	4.50	7.14	0.00	7.14	9.79	2.12	11.90	16.67	1.85	0.00	18.52
Indeterminate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.00	40.00
Total	2.95	0.75	3.70	4.26	0.45	4.71	4.46	1.15	5.61	13.57	4.93	0.03	18.53

corning to article

Area 7			Area 8			Area 9			Area 10			
C	T	Q	C	T	Q	C	U	T	Q	C	T	Total
1.69	3.39	0.00	0.00	0.00	88.98	11.86	1.69	52.54	5.08	3.39	8.47	100.00
7.69	12.59	6.99	10.49	17.48	17.48	2.80	0.00	20.28	16.08	7.69	23.78	100.00
9.09	9.09	3.03	6.06	9.09	36.36	0.00	0.00	36.36	6.06	9.09	15.15	100.00
0.00	0.00	0.00	0.00	0.00	62.50	12.50	0.00	75.00	0.00	12.50	12.50	100.00
3.08	23.08	0.00	0.00	0.00	53.85	15.38	0.00	69.23	0.00	0.00	0.00	100.00
8.99	8.99	4.49	30.34	34.83	11.24	1.12	0.00	12.36	4.49	16.85	21.35	100.00
2.57	13.11	2.73	25.68	28.42	6.56	1.09	0.00	7.65	12.02	16.39	28.42	100.00
7.95	25.64	2.56	12.82	15.38	12.82	2.56	0.00	15.38	7.69	10.26	17.95	100.00
0.00	25.00	0.00	0.00	0.00	75.00	0.00	0.00	75.00	0.00	0.00	0.00	100.00
0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
2.22	33.33	0.00	11.11	11.11	11.11	11.11	0.00	22.22	0.00	0.00	0.00	100.00
0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	100.00	0.00	0.00	0.00	100.00
7.42	12.90	11.29	12.90	24.19	9.03	2.90	0.32	12.26	14.52	8.71	23.23	100.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	100.00	100.00
0.00	0.00	0.00	0.00	0.00	66.67	0.00	0.00	66.67	0.00	0.00	0.00	100.00
0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
9.00	12.56	6.22	15.22	21.44	15.22	3.22	0.22	18.67	11.44	10.33	21.78	100.00
2.06	7.35	17.97	7.06	25.03	4.60	0.94	0.04	5.59	22.31	6.57	28.88	100.00
0.53	5.56	10.58	1.32	11.90	14.81	0.53	0.26	15.61	24.60	0.26	24.87	100.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	100.00
3.04	8.04	15.63	7.96	23.59	6.93	1.27	0.09	8.29	20.76	6.77	27.53	100.00

Table 11

Table of artifacts by material, showing variability within areas

	Area 3			Area 4			Area 5			Area 6				Area 7			Area 8			Area 9			Area 10		
	Q	C	T	Q	C	T	Q	C	T	Q	C	U	T	Q	C	T	Q	C	T	Q	C	U	T	Q	C	T
Percentages																										
Blades	6.90	20.00	12.96	0.00	0.00	0.00	14.29	3.85	9.26	1.96	14.04	0.00	8.33	3.13	1.23	1.77	0.00	0.00	0.00	16.79	24.14	50.00	18.45	2.91	2.15	2.55
Cores	27.59	8.00	18.52	50.00	0.00	7.14	7.14	19.23	12.96	27.45	8.77	0.00	17.59	21.88	13.58	15.53	17.86	10.35	12.95	18.25	13.79	0.00	17.26	22.33	11.83	17.36
Informal knives	3.45	8.00	5.56	0.00	0.00	0.00	3.57	0.00	1.85	5.88	5.26	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	3.65	3.45	0.00	3.57	0.00	1.08	0.51
Crude crescents	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.00	0.00	0.00	0.00	3.70	2.65	0.00	0.00	0.00	5.11	6.90	0.00	5.36	0.00	0.00	0.00
Scrapers	3.45	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	2.65	0.00	0.00	0.00	5.11	6.90	0.00	5.36	0.00	0.00	0.00
Backed	0.00	8.00	3.70	0.00	50.00	42.86	0.00	3.85	1.85	3.92	15.79	0.00	10.19	0.00	9.88	7.08	7.14	13.71	16.05	7.30	3.45	0.00	6.55	3.88	16.13	9.69
Retouched	6.90	12.00	9.26	50.00	25.00	28.57	17.86	23.08	20.37	11.76	26.32	0.00	19.44	3.13	28.40	21.24	8.93	34.31	26.94	8.76	6.90	0.00	8.33	21.36	32.26	26.53
Combination	3.45	8.00	5.56	0.00	8.33	7.14	0.00	15.38	7.41	1.96	1.75	0.00	1.85	9.38	8.64	8.86	1.79	3.65	3.11	3.65	3.45	0.00	3.57	2.91	4.30	3.57
Points	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.13	0.00	0.88	0.00	0.00	0.00	2.19	0.00	0.00	1.79	0.00	0.00	0.00
Large bifacial tool	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	0.00	0.00	0.60	0.00	0.00	0.00
Notched piece	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.13	0.00	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Drills	3.45	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	1.96	1.75	0.00	1.85	3.13	2.47	2.65	0.00	0.00	0.00	0.00	3.45	0.00	0.60	0.00	0.00	0.00
Possible burin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Edge damaged	44.83	36.00	40.74	0.00	16.67	14.29	57.14	34.62	46.30	41.18	26.32	0.00	33.33	53.13	28.40	35.40	62.50	29.20	38.86	20.44	31.03	50.00	22.62	43.69	29.03	36.73
Edge damaged	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Blade with edge	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
damage or light retouch?	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.00	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	1.46	0.00	0.00	1.19	0.00	0.00	0.00
Utilized?	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46	0.00	0.00	1.19	0.00	0.00	0.00
Unretouched point	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	0.00	0.00	0.60	0.00	0.00	0.00
Informal tool	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total for tools	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total for tools	17.06	58.14	25.35	0.82	46.15	5.17	10.69	39.39	16.72	6.53	20.07	0.00	10.12	11.11	46.29	24.41	6.22	29.91	14.21	34.34	39.73	40.00	35.22	8.62	23.85	12.37
Angular waste	74.12	37.21	66.67	88.16	53.85	84.87	74.71	48.48	69.35	85.40	77.46	0.00	83.13	82.29	52.57	71.06	89.39	69.00	82.47	51.63	57.53	40.00	52.41	83.51	75.38	81.51
Flakes	8.82	4.65	7.98	11.02	0.00	9.96	14.40	12.12	13.88	8.07	2.46	0.00	6.56	6.60	1.14	4.54	4.44	1.09	3.31	14.04	2.74	20.00	12.37	7.78	0.26	5.98
Indeterminate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.51	0.19
Grand total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

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