

on horseback with guns. They put us under the carrying yoke. We had to carry the meat that they shot from the kill sites back to the camps; and then at the end of the summer hunting season, a line of porters would carry bales of *bilong* (dried meat strips) back to Tsau. Then there they would be paid off in balls of *storo* [tobacco], which they carried back to the West. We !Kung also did our own hunting, and brought the hides and *bilong* in for tobacco.

From the late 1870s, European hunters from the south also came to the Dobe area to seek the rich resources of ivory, rhino horn, and fur-bearing animals. Some men had affairs with Ju women, and the descendants of these unions today live at !Kubi. (It was not until the 1950s that the first Europeans lived for any length of time in the interior.) In Ju/'hoan oral history the period 1870–1920 is sometimes called the time of *Koloi* (Tswana-wagons), a reference to the oxwagons that the Tswana later brought with them on their annual trips.

The largest number of non-Ju in the Dobe area today are members of the Herero people. The Herero are southwestern Bantu-speakers who have a long history in the territory of Namibia. During the tragic war of 1904–1907, thousands of Herero were slaughtered by the Germans. Several thousand Herero escaped across the desert and were given asylum in the then-British colony of Bechuanaland (Botswana). After 1920 the ruling Tswana gave a few families of Herero permission to settle in the Dobe area, and this event marked the beginning of a new era for the Dobe Ju. These contacts are discussed in Chapter 9.

European presence in the Dobe area, apart from the early hunters, occurred at an even later date. The first government patrol to reach Dobe from Bechuanaland dates from 1934. The area really became known to outsiders when the Marshall family began their studies of the adjacent Nyae Nyae area in 1951. Even after the Nyae Nyae Ju/'hoansi had been settled on a government station at Chumikwe (now spelled Tjumikui) in 1960, the Dobe people continued to live in relative isolation. During my first year in the field only about one truck every six weeks reached the Dobe area. Although the Ju/'hoansi of Dobe had seen many Whites, I was the first to live in their area, and this fact created a certain bond between us.⁸ The major changes that occurred after 1970, after my main fieldwork was completed, are detailed in Chapters 10 and 11.

⁸Strictly speaking, I was not the first White. A man named Venter (called Fendare by the !Kung) lived with his Nama wife at !Kubi for some years after 1927. Also, although a number of anthropologists worked in the Dobe area after 1964, for the first year I was there on my own. Irven and Nancy DeVore rejoined me at Dobe only after October 1964.

3/ Environment and Settlement

The Dobe area quickly began to captivate my senses. The October days were fiercely hot and drowsy, with the smells of countless aromatic shrubs and trees hanging heavily in the air. Bird calls were a constant background to the day's activities. There were the staccato rhythms of the woodpeckers, the cooing of the turtle doves, the sharp, high-pitched cries of the plovers, and the characteristic *koowezei* of the grey loerie that the local English called the go-away bird. The giant dung beetles and other exotic insects went about their daily business. Swarms of stingless bees hovered about the waterhole. Wildlife was abundant. Antelope and warthog tracks were everywhere, as well as leopard and hyena. At night, lions could be heard grunting to each other as they fed on their kills.

At midday, the land was a furnace. Since walking in the sun could consume a quart of body water per hour through sweat, during the hottest part of the day the people rested. At dusk the burning heat broke its grip on the land and life became animated. Firewood was gathered, nuts were roasted, and food was cooked in iron pots. As night fell the frelight rose in intensity to cast an orange glow over people, dogs, huts, and trees.

But my favorite time was after dark. In the cool I could sit in front of my tent on a canvas folding chair and observe the heavens. On moonlit nights the light was incredibly bright, light enough to read by. And when the moon set I saw a heavenly display the likes of which I didn't know existed. The sky became a dense mass of points of light. Literally thousands of stars were visible, not the paltry few hundred that the reflected city lights allow us in the northern sky. The Ju/'hoansi call the Milky Way *'gu !ko!kemi*, "the backbone of the sky," and the ridge of stars overhead with dozens of patches of interstellar dust does look like a vertebral column.

The habitat intrigued me. I resolved to learn as much about it as I could, and wherever I went in those first few months I was constantly peppering the Ju with questions. "What kind of plant is this? What soil does it grow on? Do you eat it? What animals eat it? Does it have any use to you?" The !Kung enjoyed this kind of work. They were superb botanists and could read the landscape like a road map. My knowledge of the environment grew by the day.

The Dobe area is part of a vast basin 1000 to 1200 meters above sea level, bisected by the Botswana-Namibia border on the northern fringe of the Kalahari Desert. The first impression of a traveler to this region is an immense flatness, where the sky dominates the landscape. The Aha Hills rise only 100 meters above the surrounding plain, and from their top one sees what seem to be endless vistas of brush and savannah stretching to the horizon in every direction. Thus the observer is surprised to find in the Ju/'hoan language of travel a rich vocabulary of

climbing and descending as they discuss trips from one waterhole to another. For example, a trip to Nokaneng is always referred to as *kowa // hai* (literally, "to descend to the east"). As one gains familiarity with the area, one realizes that the Ju//hoansi are right: there are slight elevation differences from place to place, and I soon came to appreciate how important these differences are in the structuring of drainage, vegetation zones, and key plant resources.

At several points in the landscape the sandy plain is broken by dry river courses like the !Kangwa and the /Xai/ xai. Some of these river courses can be traced for 100 kilometers. They rarely hold flowing water, perhaps twice in a decade, but when they do the flow of water can be considerable. In a few localities the underlying rock formations are exposed. These rocks form an important source of subsurface water. Some areas are riddled with sinkholes and caves, such as the extensive underground network of caves at /Twihaba (known as Drodsky's Caves), which are mentioned in Chapter 1.

The upper reaches of the !Kangwa Valley are extremely flat. When one reaches !Kangwa, however, the relief becomes much sharper. By !Goshe the riverbed is a seven-meter-deep miniature canyon between vertical banks. Here the down-cutting of the river has exposed deposits of high-quality chert, a rich source of prehistoric tools, and in recent years, of flints for the flint-and-steel fire-making kits used by the !Kung. In fact, the lower !Kangwa descends so steeply that after a heavy rainfall the river bed becomes a raging torrent for a few hours, with cascades to challenge a white-water canoeist.

THE DUNE AND MOLAPO SYSTEM

Apart from hills and dry rivers, the main feature of the Dobe area is a system of fixed longitudinal dunes running parallel to each other and oriented roughly east-west. The dune crests and flanks have deep, loose, red and white sands. The *melapo* (river courses, in Setswana) between the dunes and in the more deeply incised river valleys are characterized by compacted, fine-grained gray soils. Each supports a distinctive association of trees and shrubs with a distinctive array of edible species.

The Ju themselves distinguish four kinds of habitats: (1) dunes, (2) flats, (3) *melapo*, and (4) hardpan and river valleys.

Dunes Unlike the moving dunes of the Namib and southern Kalahari deserts, the dunes of the northern Kalahari are fixed by vegetation. *Ricinodendron rautanenii* (the mongongo nut), the major plant food of the Dobe-area !Kung, is found only on the crests of the fixed dunes. The mongongo provides a protein-rich nut meat and a nutritious fruit, and the tree's hollow interior traps rainwater for drinking.

Flats Intermediate in elevation between the dunes and the *melapo* are plains of buff-to-white compacted sands. The flats provide extensive groves of *Grewia* berry bushes, the vegetable ivory palm with its tasty fruit, and a number of other edible species.

Melapo Two subtypes can be distinguished here. The smaller *melapo* have compacted soils of light gray or buff. Here are found dense thickets of small trees



!Kangwa spring in the dry season.



The same view during a heavy rainy season.

verging on forests. Well-defined *melapo*, with gray, compacted, silty soils and occasional beds of hardpan, support many species of *Acacia* with their edible gums. *Harapan*. The soils here consist of patches of bare rock alternating with patches of sand or mud. The baobab tree with its fruit and seed is the most important food found here.

Water Sources

The northern Kalahari is a semidesert, and water scarcity is a major problem. The Ju rely on a hierarchy of water sources ranked in order of abundance. First are the permanent waterholes found in the main river bottoms where the bedrock is exposed. Most of these waterholes are natural, but all have been improved and maintained either by the San themselves or, more recently, by the Blacks. Second are the seasonal waters that exist for one to six months a year: these are found in the *melapo* between the dunes, where local drainage patterns produce a depression. These vary from small depressions 15 feet in diameter and ankle-deep, holding water for a few weeks after heavy rains, to great ponds up to 300 feet long, holding water for months or even year-round in years of high rainfall.

Third in importance are the small quantities of water found in the hollow interiors of mongongo and other trees. And finally, there are several species of water-bearing root, which may be dug up and used in emergencies. With these

A seasonal pan during the rainy season.



sources the Ju plan their annual round, spending the winter season close to the permanent waters and the summer months ranging widely at the secondary and lesser water sources.

FAUNA

Despite recent changes, the Dobe area harbors an impressive array of African plains game. With over 50 resident mammal species, the area can still provide the Ju/hoansi with a solid hunting subsistence base. At the same time, the Ju hunters have to compete for their prey with representatives of all the major predator species: lions, leopards, and others. In addition to the mammals, 90 species of birds, 25 species of reptiles and amphibians, and up to 90 species of invertebrates are also known to the Ju, making a total of about 260 named species in their animal universe.

Ungulates (hoofed mammals) are the main game animals of the Ju. Most prominent are kudu, wildebeest, and gemsbok. Giraffe, eland, roan antelope, and hartebeest are also present. The nonmigratory warthog, steenbok, and duiker are extremely plentiful and are the most frequently killed of the ungulates.

Lion, leopard, cheetah, hyena (two species), wild dog, and a dozen smaller forms of carnivores are all found in the Dobe area. Their kills and tracks are frequently encountered on gathering trips, yet the !Kung do not seem to be afraid of these predators. The !Kung sleep in the open without fires when necessary and make no provision to protect or fortify their living sites (but see fn 3).

Of other mammals, the elephant is the only large nonungulate regularly seen in the Dobe area. A few pass through the area each rainy season. In an exceptionally wet year, such as 1973-1974, a dozen might be seen. Buffalo and sometimes hippo are also summer visitors. Of the small- to medium-sized mammals, four are important in the diet: ant bear, porcupine, springhare, and scrub hare. The pangolin (scaly anteater) is less common but is also eaten. Completing the list of mammals are one shrew, two species of squirrel, three species of bat, and 14 species of mouse and gerbil. None of these small mammals are eaten by the Ju. Finally, there are three primates, also not eaten: the tiny galago, the vervet monkey, and the baboon; the latter two are rarely seen. A summary of the mammals is found in Table 3-1.

Considering the dryness of the area, birdlife is surprisingly abundant. About 100 species of birds are resident in the Dobe area, and another 40 are summer migrants. Of these, the Ju have identified at least 90 species. The abundant ostrich, though rarely hunted for food, is prized for its eggs. They are emptied, their contents eaten, and the shells cleaned and used for water canteens and in bead making. Other important game birds include the very abundant guinea fowl and francolin, as well as ducks, korthaan, sandgrouse, quail, and dove.

Twenty-five species of reptiles and amphibians have been recorded, including snakes, lizards, tortoises, chameleons, and frogs. The six kinds of poisonous snakes loom large in the lives of the Ju/hoansi. Although snakebites are rare (only three cases occurred in 10 years, none fatal), the !Kung take precautions to clear their

TABLE 3-1 MAMMALS OF THE DOBE AREA

Animal	Occurrence*	Animal	Occurrence
<i>Ungulates</i>		<i>Other</i>	
Buffalo	R	Ant bear	C
Duiker	VC	Baboon	VR
Eland	U	Bat (3 species)	C
Gemsbok	C	Elephant	R
Giraffe	U	Galago	C
Hartebeest	U	Scrub hare	VC
Impala	VR	Mouse (12 species)	VC
Kudu	C	Pangolin	C
Roan antelope	U	Porcupine	C
Steenbok	VC	Shrew	C
Warthog	VC	Springhare	VC
Wildebeest	C	Bush squirrel	U
Zebra	R	Ground squirrel	C
<i>Carnivores</i>		Vervet	R
Aardwolf	C		
Bat-eared fox	C		
Caracal	U		
Cheetah	C		
Genet	C		
Honey badger	C		
Brown hyena	VR		
Spotted hyena	C		
Black-backed jackal	C		
Leopard	U		
Lion	C		
Banded mongoose	C		
Slender mongoose	C		
Yellow mongoose	C		
Serval	VR		
Wild cat	C		
Wild dog	C		
Zorilla	C		

*VC = very common, daily sights of tracks;

C = common, weekly sightings of tracks;

U = uncommon, monthly sightings of tracks;

R = rare, few sightings per year or less;

VR = very rare, one or two sightings in a decade.

campsites of brush that would conceal a snake, and whenever they find a poisonous snake, they kill it with a club or digging stick. (Women appear to be as proficient as men at killing snakes.)

Fish are not present in the Dobe area, but aquatic species such as terrapin, leeches, clams, and snails are found in isolated waterholes, indicating a time in the past when the area was connected to a river system by flowing water.

Of the countless invertebrates in the Dobe area, about 85 to 90 species are known to the San, including an abundance of scorpions, spiders, ticks, millipedes,

and centipedes, and some 70 species of insects. Few insects are eaten. Wild honey is a superb delicacy but highly subject to seasonal fluctuation. No honey was seen in 1963-1964, but it was fairly common and highly prized in 1967-1969. The most important of the insects for subsistence are the species of *chrysoamelid* beetles used by the Ju for poisoning their hunting arrows. The grubs produce a slow-acting but highly effective poison, which when applied to arrows can kill a wounded animal in 6 to 24 hours.

CLIMATE

With a mean elevation of 1100 meters above sea level, the Dobe area lies within the summer rainfall zone of southern Africa. The area experiences hot summers with a four-to-six-month rainy season and moderate-to-cool winters without rainfall. The hottest months of the year are October to February, when temperatures average 30 to 40 degrees Centigrade (86 to 104 degrees Fahrenheit). In June and July, the coldest months of the year, night temperatures fall to freezing or near freezing, but they rise during the day to a comfortable 24 to 27 degrees Centigrade (75 to 80 degrees Fahrenheit). Temperatures are fairly consistent from year to year, but this is not the case with rainfall. The annual precipitation may vary from year to year by as much as 500 percent.

The Seasonal Round

The !Kung accurately divide the year into five seasons (Figure 3-1). *!Huma* (spring rains) Their year begins with the first rains in October and November. These are light thundershowers that often fall on one area and miss other areas entirely. This is a spectacular area for lightning. According to the United States Weather Service, Botswana has one of the highest incidences of lightning in the world. Brilliant displays light the Dobe sky at this time of year. The first rains also have the effect of triggering growth in plants and reproduction in animals, and overnight the parched landscape is transformed into one of lush greenery.

BARA	!TOBE	/GUM	/GAA	/HUMA
Summer	Autumn	Winter	Early Spring	Spring Rains
HOT RAINY	COOLER DRYING	COOL VERY DRY	HOT DRY	HOT DRY/WET
D J J F M A M A M J J A S O N				

Figure 3-1. Seasons of the !Kung.



Filling ostrich eggshells from a small summer waterhole, 1968.

Bara (main summer rains) From December to March the heaviest rains fall, bringing with them a season of plenty. Migratory ducks, geese, and other waterfowl flock to the seasonal pans in great numbers. Elephant and buffalo may migrate from the Okavango swamps. The major summer plant foods—fruits, berries, melons, and leafy greens—also make their appearance, and the !Kung camps are widely distributed at seasonal waterpoints in the hinterland.

!Tobe (autumn) A brief autumn occurs in April or May after the rains have ceased but before the onset of the really cold weather. The seasonal pans shrink and dry out at this time of year, and the !Kung may converge on the larger summer pans that still hold water. Food is abundant, with plenty of the summer berries and melons still available. The April mongongo nut harvest puts a major new food into the diet.

!Gum (winter) The cool dry season extends from the end of May through August. It is heralded by a sharp drop in nightly temperatures, with the peak cold in late June. In 1968 and 1987, Dobe experienced a month or more of freezing and near-freezing nights. The !Kung winter camps, usually around a permanent waterhole, are well stocked with firewood to burn through the cold nights. Fortunately, the days are crisp, clear, and warm. The diet is varied during the winter months. Mongongo fruit and nut, baobab, and many species of roots and bulbs provide the staples. The clear, pleasant days are ideal for walking; winter is a time for visiting relatives at distant camps. The good tracking conditions encourage more hunting and the setting up of snares. As the season passes, plant foods become increasingly scarce as foods are eaten up in wider and wider radii around the permanent waterholes.

!Gaa (spring dry season) The final season of the !Kung year begins in late August with a rapid increase in daily temperatures and ends in October or early November with the onset of the first rains. This is the least attractive time of year. Although humidity remains low, the days are exceedingly hot, with highs from 33 to 43 degrees Centigrade (92 to 110 degrees Fahrenheit) in the shade. Work is difficult, and the better foods may be available only at distances from camp. It is in this season that the !Kung make use of the widest variety of plant foods. Fibrous roots, ignored at other times, may be dug and eaten without enthusiasm. Hunting, however, can be very good at this time of year due to the weakness of the animals. The !Kung eagerly await the onset of the next rainfall and the new season of plenty.

Rainfall is concentrated in the hot summer months (October to May), and from June to September the Dobe area is completely dry. The most striking fact, however, is the enormous yearly variation in amount and distribution of rainfall. Figure 3-2 shows the rainfall at Dobe for two rainy seasons and most of a third. Rainfall varied from 239 millimeters in the drought of 1963-1964 to 597 millimeters in the good year of 1967-1968, a swing of 250 percent (from 10 to 24 inches). Month-to-month and place-to-place variations further increase the uncertainty of precipitation.

Droughts are frequent. At Maun (the nearest weather station to Dobe with long-term records), drought occurs two years out of every five, and severe drought occurs about one year in four.¹ With a lower average rainfall, the situation at Dobe would be, if not worse, at least no better than the situation at Maun (Lee, 1972). In the rainy season of 1991-1992, the rains failed almost totally, precipitating what is widely regarded as the worst drought of the century over much of southern Africa.

Too much rainfall can also present a problem. Superrecord rains fell in 1973-1974 (1184 millimeters or 47 inches at Maun) and seriously reduced the mongongo crop, although the crop recovered the following year.

The message of the foregoing discussion is clear. There is no such thing as a typical rainfall year for the Ju/'hoansi. They must continuously adapt their subsistence strategy to high-rainfall years, to low-rainfall years, and to marked local variability. Theirs is long-term adaptation to the problem of living: the ethnographer sees only a small segment of the overall pattern in a given year of fieldwork. This theme will crop up again as we explore the !Kung way of life in more depth (for example, see Chapter 7 on *Hxaro* Exchange).

SETTLEMENT PATTERNS

The Ju/'hoan word for village or camp, *chul o*, means literally "the face of the huts." The *chul o* symbolizes for the Ju the safety, comfort, and companionship of the group, and the term is contrasted in their thought with the term *t'si*, meaning "bush" or wilderness. *Chul o* is tamed space, cultural space; *t'si* is untamed or natural space.²

¹Severe drought occurs when annual rainfall is less than 70 percent of average.

²Unlike the Mbut pygmies, who revere the forest, the !Kung do not express reverence or even much affection for the semi-arid savannah that surrounds them. They know it intimately, derive all their economic needs from it, and are comfortable traveling through it, but they do not deify it or attribute any supernatural powers to the land *per se* (see Chapter 8).

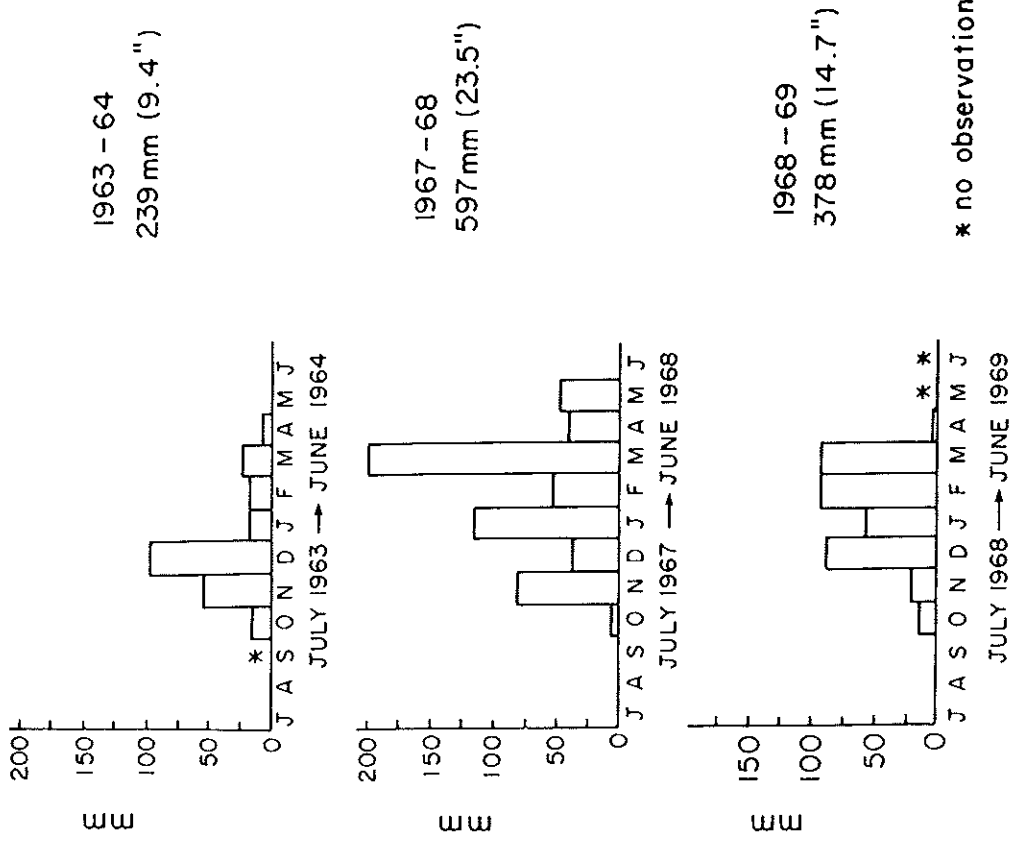


Figure 3-2. Rainfall at Dobe for three years.

A typical Ju/'hoan camp is a rough circle of grass huts some 10 to 30 meters (30 to 100 feet) in diameter, arranged around a central clearing. This section discusses the settlement patterns of the Ju during the 1960s, under the following headings:

1. Village Types
2. The Layout of the Camp
3. Hut and Shelter Construction
4. Ethnoarcheology

Village Types

Mobility is the essence of the Ju adaptation. This factor strongly influences the settlement pattern. Ju villages are easily established and moved frequently. Habitations are built in a few hours or a few days, and camp sites are rarely occupied for more than a few months before being abandoned. In all, five types of villages and camps can be usefully distinguished.

A. Dry season villages These sites, occupied for three to six months from May or June to September or October, are fairly large, often containing 8 to 15 huts and 20 to 50 people. They are always located near permanent water sources and, because of their accessibility (to outsiders) and their long duration, are by far the most thoroughly studied of all the Ju/'hoan village types. Dry season huts tend to be well-constructed; the site is cleared with care, and large middens of garbage accumulate before the site is abandoned. As a result, the archeological visibility of the dry season camps is highest of all the settlement types.

B. Rainy season villages These are located near major seasonal water and food sources. They are highly variable in size (from 3 to 20 huts) and are usually occupied for periods of three weeks to three months. The site is casually cleared, and the huts are hastily constructed, though thickly thatched in order to provide shelter from the rains. When these are abandoned, the saplings used in hut construction may be moved to the next locale. A group may occupy as many as six sites in the course of a single rainy season.

C. Spring and fall camps These are called camps rather than villages; because of the dry weather no huts are built, and they are rarely occupied for more than two or three weeks. Under certain circumstances similar short-term camps may also be established in summer when the group is moving from one foraging area to another, or in the winter when a group is taking advantage of a still-available seasonal water source.

A rainy season camp in the mongongo groves.



D. Overnight stops These are what the name implies. Only a fire is built, and the site is abandoned the next morning. Overnight stops occur in all seasons.

E. Cattle post villages These new-style villages have become increasingly common since 1970. They involve solid, carefully constructed huts, usually built on sites close to an Herero or Tswana village. The size of these villages varies from 1 to 20 huts, but common to all is a crescent-shaped (not circular) layout around a central cattle kraal, with hut mouths facing the cattle compound rather than each other. This shift in layout sums up a key symbolic shift in social orientation. Whereas the older camps were circular so that the Ju could look at each other, the cattle-post Ju now look to the livestock for their survival. Another prominent feature of these villages is their long duration; some are still occupied 18 to 20 years after being built.

The Layout of the Camp

Choosing a site is not a great problem for the Ju/'hoansi. They look for good shade trees in an area that has not been too recently occupied. They do not return again and again to the same spot, so there is not much opportunity for a great residue of artifacts to build up. They live lightly on the land.

The village site itself can be seen as consisting of five concentric circles, each with a different function (Figure 3-3). In the center lies the village's public space, a cleared "plaza" from 5 to 25 meters (15 to 75 feet) in diameter where children play and people may gather, and where in the evening healing dances are held. Around the central area is the most important part of the village, the ring of huts—*chu tsi*—and hearths—*da tsi*. Each woman builds her hut with a space of three to five meters from those of her neighbors. Directly in front of the hut mouth is the family fire, at which all the food is cooked, where people socialize in the evening, and around which the family sleeps at night. The space immediately around the hut and fire is carefully cleared of all grass and low shrubs so that people can move about easily day or night, without fear of poisonous snakes or scorpions.

Most villages exhibit a symbolic order, with the most senior household situated on the side of the village from which its ancestors were said to have come and with its married children's huts strung out to the right and left. Other senior households and in-law segments usually situate themselves opposite the most senior couple, with their offspring strung out to their right and left, and thus a circle is constituted (see also Marshall, 1960).

The next ring, about five meters deep immediately behind the huts, is the zone of ash heaps and garbage dumps. Every 10 days or so women clean out their hearths and dump the ashes and nutshells behind their huts. In a six-month camp, middens up to half a meter (20 inches) in height will accumulate and the fireplace in turn may be scooped out so that it gradually sinks a foot below grade.

The third ring, about 25 meters (80 feet) deep, is the zone where cooking pits or earth ovens are dug. Whenever a large animal is killed, the head is cooked separately by digging a two-foot-deep pit, filling it with burning wood, placing the

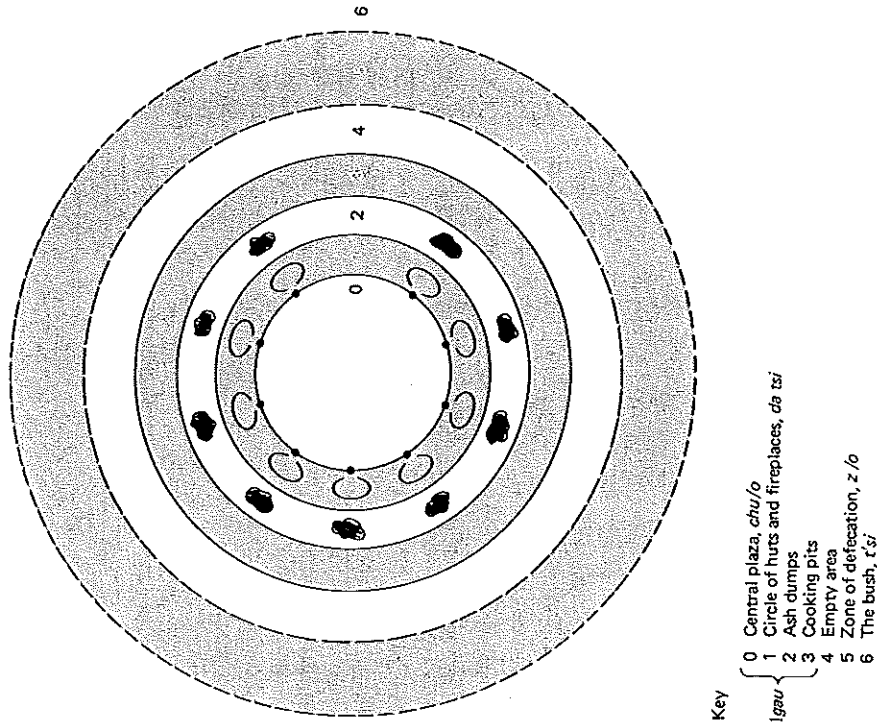


Figure 3-3. Idealized plan of a Ju/'hoan village (*chu/o*).

head on top of the fire, then adding more embers and wood, and covering it with sand. After two hours of cooking, the meat is served. Butchery of large animals and emptying and cleaning of entrails is also carried out here.

The last ring in the cultural space is the area of defecation, *z/o*. Depending on the size of the camp, this zone can be from 100 to 300 meters (350 to 1000 feet) in depth. !Kung have no latrines or privies, and they distribute themselves widely when carrying out their toilet. The abundant Kalahari dung beetles that roll into balls and quickly carry away and bury human and animal feces help to keep the *z/o* relatively clean and odor-free.

Beyond this outer perimeter, paths radiate outward into the *t'si* itself, the wild lands of subsistence into which the foragers venture.

Despite the !Kung imagery of the *t'si* as wilderness, and in spite of the real dangers that lurk in *t'si*, it is extremely interesting and significant that the traditional Ju

did not attempt to fortify or stockade their village sites in any way.³ They sleep in the open, protected only by their sleeping fires, which keep the carnivores at bay, and by their mutual trust of and peaceful relations with their human neighbors.

Hut and Shelter Construction

A !Kung rainy season hut can be constructed in a day. A dry season hut, to last for several months, takes three or four days to build. First, 10 to 12 saplings are cut, and each is dug in vertically in a circle with an opening for the mouth. The tops are tied together to form a dome, and the frame is strengthened horizontally with pliable branches. Then bundles of grass are cut and transported back to the site, where handfuls of thatch are carefully woven into the frame to form the walls. In the rainy season the top of the hut is heavily thatched to protect against the elements. In the dry season the dome of the hut is left open to catch the warming sun. People do not live in their huts, which are only 2 to 2.5 meters (6 to 8 feet) wide and less than 2 meters (6.5 feet) high. They use them as a place to store their belongings, as a windbreak and a place for an afternoon nap, and as a symbolic element to structure the living space. Since they are composed of organic materials, huts quickly become infested with bugs and are not particularly pleasant places to be in.

Three other kinds of structures are built in !Kung villages: tree storage areas, storage platforms, and meat-drying racks. For the first, a nest of branches and thatch is built at chest height in the crotch of a convenient tree. Men store their arrow poison out of reach of children, dried strips of *biliong* out of reach of dogs, and other valuables out of sight of the inquisitive eyes of neighbors.

The storage platform, built on four poles, serves the same function, with the additional advantage of casting a pool of shade for conversation. The drying rack is built if a large kill provides more meat than can be locally consumed.

In recent years the Ju/'hoansi have been abandoning their beehive-shaped grass huts in favor of the more substantial Tswana-style house with a vertical pole and mud walls, a mud floor, and a separate thatched roof. These huts take weeks or months to build, and when one is completed its owner is not likely to want to leave it soon. Many of these new-style huts are occupied continuously for years and mark the dramatic transition to sedentary life.

Ethnoarcheology

Until recently, Ju/'hoan life in the Dobe area constituted an endless cycle of seasonal movement, with each group building and abandoning three to six villages each year. These abandoned villages—/ *gung/osi*—form an important part of the social landscape. Each permanent waterhole is surrounded by dozens of them, and most adults can point to the campsites of their childhood. With the passing of the

³ Only since the arrival of cattle have some villages put up a rough stockade to keep the animals from eating their thatching and other articles (see Chapter 9).

generations, gradually the campsites fade from human memory, become buried in the sand, and are converted into archeological sites.

The fact that Ju village sites of the 1960s strongly resemble the village sites of prehistoric foragers 100 to 500 years old or more offers us two kinds of important data. First, it shows us the continuity of the living cultures of the Dobe area with those of the past, and second, it offers us the chance to use the behaviors of the living as an aid to the interpretation of the past. The new science of *ethnoarcheology* does precisely this: the foraging behavior of living people is observed and then the material residues of that behavior are plotted. The residues produced by known behaviors are then compared with archeological residues for which the behaviors are not known.

Underlying ethnoarcheology is an assumption of uniformitarianism.⁴ The same processes that produce the campsites of contemporary !Kung are postulated to have been instrumental in producing the campsites of prehistoric foragers. For example, if a group of 20 occupies a camp for 14 days and leaves a residue of 2.0 cubic meters of nutshells, and the same group's occupation of 28 days leaves 4.0 cubic meters, what length of stay would we expect to find for a residue of 6.0 cubic meters, of 1.0 cubic meter, and so on? This is one kind of question that ethnoarcheology seeks to answer.⁵

John Yellen, Alison Brooks, Polly Wiessner, and others have been doing ethnoarcheology research on the !Kung for over 20 years. Readers wishing to find out more about this approach are encouraged to consult their work (Yellen, 1977, 1990b; Brooks, Gelbrud and Yellen, 1979, 1981; Wiessner, 1982, 1986).

⁴A term coined by the great nineteenth-century geologist and friend of Darwin, Charles Lyell (1793–1867).

⁵If you answered 42 days and 7 days, you were correct. Of course the same volume of residue could be produced by a larger group staying for a shorter period; for example, a residue of 6.0 cubic meters could be produced by a group of 42 staying 20 days.

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