4/Subsistence: Foraging for a Living

The morning after I arrived in Dobe and before I had even set up my camp, my new-found neighbors came to me with a proposition. N!eishi and his son ≠Toma approached me and said, "There is no food in our camp and we are hungry, would the bearded White man take us in his truck to get some food?"

"Isn't there any food around here?" I asked through the interpreter.

"There is some," the answer came back. "A few bitter roots and berries. But we want to show you a place where the food is good and there is plenty."

"But what kind of food?" I asked, reaching for my notebook.

"*// gxa,*" ≠Toma said. "The Tswanas call it mongongo."

I had heard about mongongo, from reading the Marshall research (they called it *mangetti,* the Herero name for it), and the Dobe camp was littered with mounds of empty nutshells. I was keen to see what the trees looked like. A trip there would also put me on good terms with my neighbors.

"How far is it?" I asked, not wanting to get involved in a wild-goose chase.

"Oh, it's not far," N!eishi and ≠Toma assured me. "We'll be there in no time."

Just as the truck started, six women from Dobe camp rushed forward and asked if they could come too. They hopped onto the back, and as we set out they broke out in a song, a rousing chorus with a pleasant melody sung in complex rhythms. I later learned that this was the truck song (*dotsi*), sung whenever the Ju/'hoansi got a lift on one. The joyous words to celebrate the luxury of high-speed transportation go something like this: "*do si bereka, moseliseliyana*" (while the truck does the work we sit around and get fat).

I also liked the lyric to another verse that went "Those who work for a living, that's their problem!" Despite the song, the travel was anything but high-speed, and our destination was anything but near. We ground along for hours in four-wheel drive at a walking pace where no truck had ever been before, swerving to avoid ant bear holes and circumventing fallen trees.

At several points along the way I spotted trees that looked familiar.

"Isn't that a mongongo tree?" I asked. "And what are those little nuts lying on the ground?"

"Yes, that's mongongo, all right," ≠Toma replied, "but those groves are almost finished. Keep going."

It was noon before ≠Toma signaled that we had reached our destination. It was worth waiting for. We stood on the top of the dune in the middle of a large grove of mongongo trees that stretched east and west to the horizon. The fallen nuts densely covered the ground. This was a fresh grove, unpicked this season. I reckoned we were about 10 miles north of Dobe.

Without ceremony, the women fanned out and started to pick. Grabbing my camera, stopwatch, and notebook, I hastened to follow them. They bent from the waist with a smooth and effortless motion and picked five or six nuts each time and popped them in their *karosses,* one-piece garments-*cum*-carrying-bags. Every 10 minutes or so, each would return to the truck to spill out her load on the spot she had picked out. The individual piles began to accumulate rapidly. The men were collecting too, using smaller bags than those of the women. I sampled how rapidly the women were able to pick. They were gathering at the rate of 40 to 60 nuts per minute, or 2000 to 3000 nuts per hour. By two o'clock everyone was finished; they dumped their final few onto the piles, which looked enormous to me. The women took off their *karosses* and laid them flat. After piling all their nuts into the middle of the *karosses,* they made manageable bundles of them by bringing the four corners together and sewing the edges together with bark stripped from a nearby tree. Some women used pieces of store-bought cloth to make their bundles. Some stopped to crack a few nuts with stones they found nearby and eat them as they waited for the others to finish.

The bundles were loaded on the truck, which, with the eight people, was riding dangerously low. We set off on our return journey, arriving home before nightfall.

I was curious to see just how much food had been gathered in the short time we had been in the groves. A simple fisherman's scale gave a rough-and-ready answer. The women's loads weighed 30 to 50 pounds each, and the men's 15 to

Tin!kay packing mongongo nuts at !Gausha.

25 pounds each. That worked out to about 23,000 calories of food for each woman collector, and 12,000 for each man. Each woman had gathered enough to feed a person for 10 days and each man enough for 5 days. Not at all a bad haul for two hours' work![1]

My first full day of fieldwork had already taught me to question one popular view of hunter-gatherer subsistence: that life among these people was precarious, a constant struggle for existence. My later studies were to show that the !Kung in fact enjoyed a rather good diet and that they didn't have to work very hard to get it. As we will see, even without the aid of an anthropologist's truck, the !Kung had to work only 20 hours a week in subsistence. But what about the fact that N!eishi had come to me that morning saying that they were hungry and that there was no food nearby? Strictly speaking, N!eishi spoke the truth. October is one of the harder months of the year, at the end of the dry season, and the more desirable foods had been eaten out close to Dobe. What N!eishi did not say was that a little farther away food *was* available, and, if not plentiful, there was enough to see them

[1]Of course being on the truck saved the collectors about six hours walking time, and these hours would have to be factored in to get a more accurate idea of the actual work involved.

The mongongo.

through until the rains came. When N!eishi came to me with his proposition, he was making an intelligent use of his resources, social and otherwise. Why hike in the hot sun for a small meal, when the bearded White man might take you in his truck for 10 large ones?

The security of Ju/'hoan life is attributable mainly to the fact that vegetable food and not meat forms the mainstay of their diet. Plant foods are abundant, locally available, and predictable; game animals, in contrast, are scarce and unpredictable. In addition to the mongongo nut, the !Kung have an astonishing inventory of 105 edible plants: 14 fruits and nuts, 15 berries, 18 species of edible gum, 41 edible roots and bulbs, and 17 leafy greens, beans, melons, and other foods. The abundance and variety of plant foods makes it possible for the Ju to feed themselves by an average of about 20 hours of subsistence work per adult per week, a far lower figure than the 40-hour work week we have come to accept in the industrialized countries. In this chapter we explore how this "affluent" way of life is achieved by the Ju in their harsh, semiarid desert environment.

GATHERING AND CARRYING

The tools and techniques of gathering are relatively simple. The knowledge of plant identification, growth, ripeness, and location, however, is extremely complex. The !Kung women are highly skilled at distinguishing useful from nonuseful or dangerous plants and at finding and bringing home sufficient quantities of the best food species available.

Only a single tool, the digging stick, is used in gathering. Carrying, on the other hand, involves the use of several ingenious multipurpose containers and an elaborate body of knowledge.

The versatile digging stick is used to dig out roots and bulbs; it is also used in hunting to dig out burrowing mammals, in water-getting to dig out water-bearing roots, and as a carrying device to transport large roots impaled on it or suspended from it with twine. For the remaining nonroot 75 percent of the vegetable diet—fruits, nuts, gums, melons, and leafy greens—no special gathering tools are used.

Carrying Devices

The kaross Foremost among the carrying devices is the woman's kaross *(chi!kan),* a formidable one-piece combination garment-*cum*-carrying device that also does service as a sleeping blanket (Figure 4–1). The men manufacture these for the women from the hides of the female kudu, gemsbok, wildebeest, or eland. This suede garment is worn draped over the wearer's back. Tied at the waist with a leather thong, the lower half of the kaross conceals the wearer's backside, and the upper half forms a pouch for carrying vegetables, water containers, firewood, and babies. With a center of gravity close to the body, the kaross is ideal for carrying heavy loads. In Ju/'hoan thought, the kaross is so characteristic of women and their work that the knot *(!kebi)* that ties the kaross at a woman's waist is also an affectionate colloquial term for "women" *(!kebisi).*

Leather bags A variety of sturdy leather bags are made from the skins of the steenbok and duiker. Both men and women wear small "handbags" over the shoulder and under the armpit for keeping handy tobacco, fire-making kits, sewing materials,

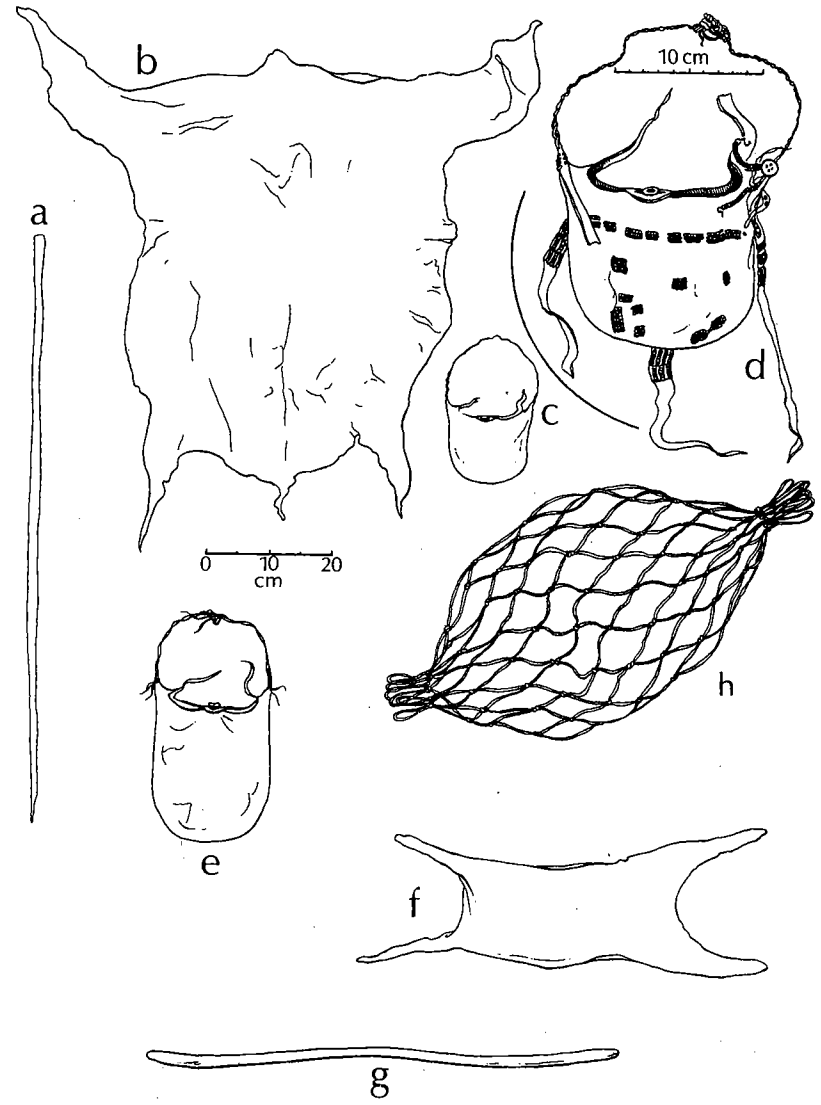

Figure 4–1. Gathering and carrying equipment: (a) digging stick; (b) kaross; (c) small bag; (d) small bag (detailed); (e) man's bag; (f) baby carrier; (g) carrying yoke; (b) man's net.

and other items. The women's bags are brightly decorated with beadwork. For carrying foodstuffs and larger items, large bags called / *tausi* are used, ranging up to the size of a grocery shopping bag.

Baby sling For carrying a young infant, a mother employs a special leather baby carrier (Figure 4–1), tied around her waist and over her shoulders, that fits inside the

Women carrying loads in their karosses.

kaross on her hip and allows the baby access to the breast. This special baby carrier is lined with soft grasses and other absorbent materials and is frequently cleaned and aired. When an older, toilet-trained child is carried, he or she sits directly in the main pouch of the kaross or is carried on the shoulder by a woman or man.

Carrying net Men make an ingeniously intricate knotted net, called */ wisi,* for use as a carrying device (Figure 4–1). This wide-meshed net, 100 centimeters (3 feet) long and 40 centimeters (16 inches) across, can be lined with long grass and used to carry quantities of such small items as nuts and berries.

Carrying yoke The carrying yoke *(!garo)* is easily made from a rough wooden branch. Full bags, nets, bundles of meat, and haunches of freshly killed game are slung from either end, and the load is shouldered by a man for the long trips between camps.

Because the essence of the Ju/'hoan adaptation is mobility, and because their daily diet consists mostly of hundreds of small nuts, berries, and roots, San life would not be possible without means of carrying quantities of these small foods back to the camp or home base. Ju/'hoan carrying technology is well developed and well designed. A similar degree of development is reflected in their vocabulary, which has a multitude of terms for different ways of carrying. A partial list is shown in Table 4–1 and illustrated in Figure 4–2. One cannot overstate the importance of carrying and carrying devices for San life and for the life of hunting and gathering

TABLE 4–1 CARRYING VOCABULARY (SEE FIGURE 4-2 FOR ILLUSTRATIONS)

To Carry on the Back		*To Carry Otherwise*	
1. A child	*maa*	11. On the head	*ku≠tem*
2. A load (males)	*//xam*	12. On the belt	*!uu*
3. A load (females)	*//kei*	13. To drag (not shown)	*!gwe*
4. A *kaross* package	*!guu*	14. To carry firewood in a *kaross*	*!gaba*
To Carry on the Shoulders		*To Carry with a Carrying Yoke*	
5. A child	*chi*	15. To stick a load through (not shown)	*/di*
6. An object	*!kai*		
7. A bag or quiver	*!wana*	16. to hang a load from	*//gau*
8. A carrying yoke	*//wana*	17. To impale a root and carry	*!n//xam*
9. A *kaross*	*//gama*	18. To carry with two carrying yokes	*du tsiu !garo*
10. A spear	*!kei//kun*		

peoples in general. The universality of the carrying device and its functional importance among all recent hunter-gatherers has implications for the evolution of human subsistence during the Pleistocene Era, because a device for carrying vegetable foods would seem to be a prerequisite for human economic and social life (see Lee, 1979:489–494).

Major and Minor Foods[2]

Over 100 species of wild plants are classified by the Ju/'hoansi as edible. However, not all plant foods are valued equally. Some are prized and eaten daily; others are despised and rarely eaten. Complex criteria are applied by the Ju to arrange their plant foods into a hierarchy of classes of desirability. Abundance, duration of eating season, ease of collecting, tastiness, absence of side effects, and nutritional value are six of the criteria Ju use to classify their food as */ gau* (strong) or */ ta/tana* (weak) foods. To their own judgments I have added my observations on frequency of eating and quantities eaten and have drawn up a six-class hierarchy of foods:

[2]The research on which this discussion is based was carried out from 1963 to 1969. In the 1970s, models of optimal foraging strategy began to be widely applied to gathering and hunting humans (e.g., Winterhalder and Smith, 1981; Bettinger, 1992). The discussion presented here closely anticipates the spirit and underlying assumptions of optimal foraging theory (OFT), although I have several points of disagreement with optimal foraging as currently applied to humans.

OFT assumes that humans, like other species, will make their subsistence choices based on an underlying cost-benefit calculus. They will rank-order foods, giving priority to those that yield the highest returns (in terms of energy and protein) for the least amount of effort. Elaborate models, often accompanied by pages of mathematical formulae, are constructed around this rather simple proposition, usually linked to neo-Darwinian arguments about genetic fitness or differential reproductive success.

While OFT has its adherents, others have been critical of its explicit reductionism. Do people always behave so rationally? Are foraging decisions never affected by outside factors, such as government or missionary policies, or the price of flour at the trading store? I wonder if OFT models, when used single-mindedly, are not enforcing a kind of tunnel vision by focusing on a limited range of behavior (foraging) at the expense of a richer understanding of economic life in its social and historical context.

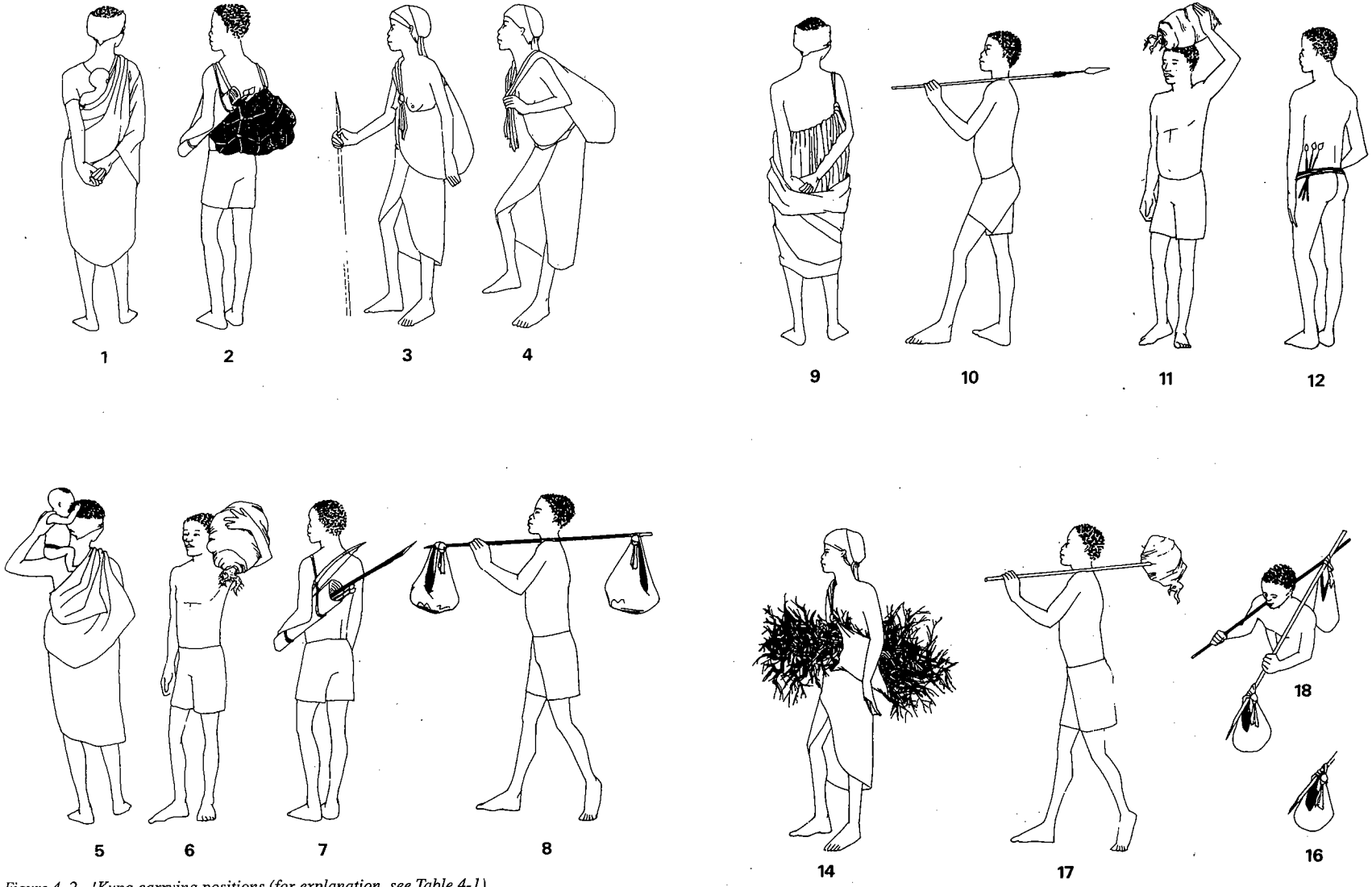

Figure 4–2. !Kung carrying positions (for explanation, see Table 4-1).

Food Classes:		*Criteria:*
1. Primary	1 species	widely abundant year-round
2. Major	13 species	widely abundant
3. Minor	19 species	locally seasonally abundant
4. Supplementary	30 species	locally seasonally available
5. Rare	19 species	rarely observed to be eaten
6. Problematic	23 species	!Kung classify as edible; not observed to be eaten

The mongongo (fruit and nut) is in a class by itself. All the Dobe !Kung agree that it is their most important vegetable food. It is superabundant, found near all waterholes, and available in all months of the year; it is easy to collect, tasty, and highly nutritious. Only meat rivals the mongongo as the most desirable food of the !Kung. I asked one informant to tell me what his idea of an ideal diet would consist of. Without hesitation, he listed four items: meat and mongongo for strength, honey for sweetness, and wild orange fruits for refreshment.

Thirteen additional species are considered major foods. These are rated high on most, but not all, the criteria of desirability. Most are seasonal and therefore not available year-round, and most are not universally distributed at all the waterholes. All are abundant, and each may exceed the mongongo in importance at certain waterholes at certain times of the year. Baobab, for example, is tasty and abundant but is mainly concentrated in a few waterholes such as !Kubi and is rare or absent at others. Marula is found at most of the waterholes, but its nutmeat is smaller than that of mongongo, and its shell is harder to crack.

Nineteen of the species are listed as minor foods; these rate high on one or two criteria of desirability. Included are seven species of roots and bulbs that, taken individually, are not important, but that as a group become a major item of the diet during the winter dry season, when the major summer foods are not available. All the species of class III are seasonally limited.

The largest class is supplementary foods, with 30 species. As the name implies, these food supplement the foods in classes I, II, and III or are eaten when the more desirable foods become locally exhausted. The list includes 6 species of fruits and berries, 10 of edible gum, 12 roots and bulbs, a bean, and a leafy green. In general, the foods of class IV are both less abundant and less tasty than the corresponding foods of class III.

The rare foods (19 species) were observed to be eaten on only a few occasions each year. Many were quite scarce; others were plentiful but were downgraded because of poor taste or undesirable side effects.

Finally, there are the 23 species listed as problematic foods. The !Kung said that these were edible, but I did not observe them to be eaten during the study period.

Food Classes and Subsistence Strategy

The way the Ju/'hoansi hierarchically evaluate their plant inventory in order of importance as food suggests a productive analogy to the way they utilize space in the short run in subsistence activities. The Ju typically occupy a campsite for a period of weeks and eat their way out of it. For instance, at a camp in the mongongo forest the members exhaust the nuts within a 1.5-kilometer (one-mile) radius the first week of occupation, within a three-kilometer (two-mile) radius the second week, and within a five-kilometer (three-mile) radius the third week. The longer a group lives at a camp, the farther it must travel each day to get food. This feature of daily subsistence characterizes both summer and winter camps. For example, at the Dobe winter camp in June 1964 the gatherers were making daily round trips of 9 to 14 kilometers to reach the mongongo groves. By August the daily round trips had increased to 19 kilometers.

This progressive increase in walking distance occurs because the Ju are highly selective in their food habits. They do not eat *all* the food in a given area. They start by eating out the most desirable species, and when these are exhausted or depleted they turn to the less desirable species. Because plant food resources are both varied and abundant, in any situation where the desirable foods are scarce, the !Kung have two alternatives in food strategy: (1) they may walk farther in order to obtain the more desirable species, or (2) they may remain closer to camp and exploit the less desirable species. In fact, both alternatives are practiced simultaneously: the younger, more active camp members go

Cooking the fruit of the mongongo.

farther afield to bring back foods of classes I and II, and the older, more sedentary camp members collect class III and IV foods closer to home. Because the day's foods are pooled within families and shared with other families at adjacent fires, the net effect is that every camp member has a variety of food available at the end of the day—and no one goes hungry.

HUNTING

Though vegetable foods provide the bulk of the diet, we should not underestimate the returns from hunting. Meat contributes about 30 percent of the calories to the diet and hunting was the major occupation of the men, up to about 1970. All !Kung, men and women alike, rate meat among their most valued foods. Part of its value comes from its scarcity. Steak is always better than potatoes. But its social value is, I think, paramount. Whenever a large animal is killed it is the occasion for feasting. Great cauldrons of meat are cooked round the clock, and people gather from far and wide to eat. Distribution is done with great care, according to a set of rules, arranging and rearranging the pieces for up to an hour so that each recipient will get the right proportion. Successful distributions are remembered with pleasure for weeks afterwards, while improper meat distributions can be the cause of bitter wrangling among close relatives.

Tools and Techniques

The hunting weaponry consists of major tools and minor ones. The major ones are the bow and arrow, spear, knife, springhare hook, and rope snares (see Figure 4–3). The minor tools include the digging stick and fire-making equipment. In addition, the knife, ropes, and carrying yoke are used in butchery and in carrying the meat back to camp. Guns are almost entirely absent in Dobe !Kung hunting. Though some men had hunted with guns borrowed from the Herero, only one man out of 151 Ju owned a gun and used it for hunting while I was there.[3]

The Ju/'hoansi have four types of hunting techniques. First is the mobile hunt, with bow and poisoned arrows, for plains game such as kudu and gemsbok and wildebeest. This is the kind of hunting most outsiders associate with the !Kung and other hunting peoples (see John Marshall's film, *The Hunters*). It may surprise some that the other hunting techniques produce many more kills than the classic bow-and-arrow hunt.

Hunting with dogs is the second kind of hunt. Warthog, steenbok, duiker, and hares are taken this way. Well-trained hunting dogs bring small game to bay, and the hunter finishes it off with a spear. N!eishi's son ≠Toma had a famous pair of dogs named Swoiya and Foiya, with which he killed warthog at the rate of three per month.

I was surprised to find that the Ju do much of their hunting *underground,* pursuing burrowing animals into their lairs. Ant bear, warthog, and porcupine are taken this way. The latter two are hunted above ground as well. The nocturnal springhare sleeps in narrow burrows during the day. Ju hunters have developed a special tool, a 13-foot-long pole with an iron hook at the end, for probing springhare burrows and impaling the animals underground. The burrow is then excavated with a digging stick to retrieve the kill. This is hot, dusty work, which the Ju were only too glad to turn over to the visiting anthropologist.

The fourth technique is snaring, employed particularly by older hunters whose mobility is limited. A man surveys an area of bush for fresh tracks, then he lays down an unobtrusive line of brush to accustom the animals to cross at certain gaps. The snares are made of rope from local fiber plants with a delicate wooden trigger attached to a bent-over sapling. When the hare, guinea fowl, or small antelope steps in the snare, the noose tightens and the sapling springs up, leaving the quarry dangling. Snaring does not produce a large quantity of meat. In July 1964 at Dobe, 18 animals were killed, 11 of them by snares. These 11, however, provided only 20 percent of the meat of the camp.

[3]Even in the late 1980s, firearm ownership was virtually nil among the Dobe area Ju/'hoansi.

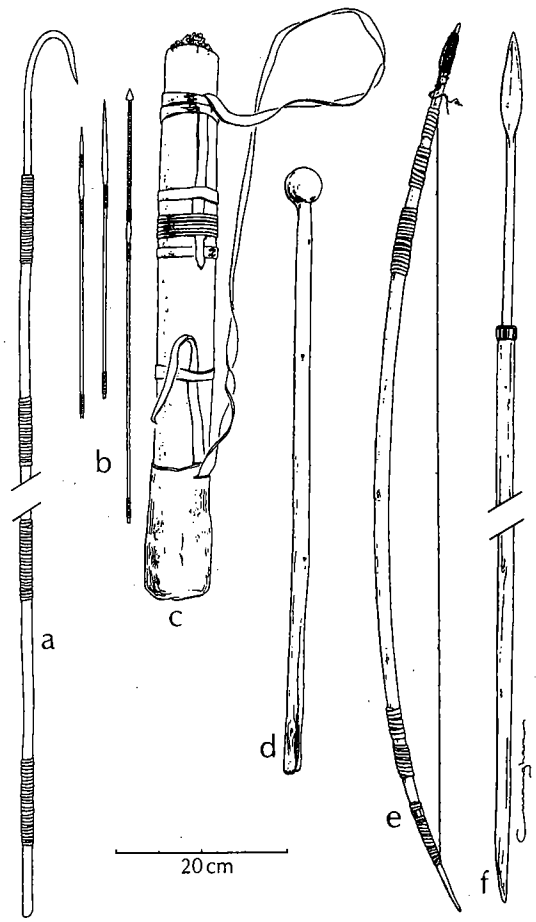

Figure 4–3. !Kung hunting weapons: (a) springhare probe; (b) arrows; (c) quiver; (d) club; (e) bow; (f) spear.

The Joys of Tracking

The Ju/'hoansi are such superb trackers and make such accurate deductions from the faintest marks in the sand that at first their skill seems uncanny. For example, both men and women are able to identify an individual person merely by the sight

≠Toma and his father, N!eishi, butchering a warthog.

of his or her footprint in the sand. There is nothing mysterious about this. Their tracking is a skill, cultivated over a lifetime, that builds on literally tens of thousands of observations (see also Liebenberg, 1990). The Ju hunter can deduce many kinds of information about the animal he is tracking: its species and sex, its age, how fast it is traveling, whether it is alone or with other animals, its physical condition (healthy or ill), whether and on what it is feeding, and the time of the day the animal passed this way.

The species, of course, is identified by the shape of the hoofprint and by the dung or scat; this is the simplest information to be deduced, and any 12-year-old boy can accurately reproduce in the sand the prints of a dozen species. The size or age of an animal correlates directly with the size of its print. The depth of the print indicates the weight of the animal. An old or infirm animal may be distinguished by a halting gait or uneven stride length. Evidence of crippling is eagerly sought and is discerned when one hoofprint is deeper than the others.

Knowledge of the animal's habits aids in determining the time of day it passed by. Some of the signs are surprisingly simple. If the tracks zigzag from shade tree to tree, the animal went through during the heat of the day. If the tracks go under the west side of the trees, the animal was catching the morning shade; if under the east side, the afternoon shade; and if under either side, the animal passed at midday. Milling tracks within a small radius out in the open suggest that the animal was there at night and was sleeping. Tracks leading into a dense thicket indicate the animal rested up during midday.

Perhaps the most amazing skill is in the hunter's ability to figure out the number of minutes or hours elapsed since the animal went through. This is crucial information; to obtain it, the Ju have developed their discriminating powers to the highest degree. After a print has been made, it provides a miniature physiographic feature that is acted upon by natural processes. Consider a simple example. When fresh, the print is clean-cut, but after an hour (or less, if the day is windy) a fine covering of wind-blown sand collects in the depression. Later, twigs and grass fall in, and then insect and other animal tracks are superimposed. The moisture content of the soil one, two, three, or four centimeters below the surface and the rate at which soil dries out after being exposed by a footfall are two variables that are exceedingly well studied by the Ju. When an animal is being closely followed, the present position of the shade in relation to the animal's footprint plus these other signs can indicate to within 15 minutes the time the animal passed by.

All these kinds of information and more are interpreted by the hunter in order to decide whether a trail is worth pursuing. Ideally, a hunter looks for an older or infirm animal moving slowly in thick brush. The hunter then can creep up to get within firing range while the quarry is unaware. A final stalk may take up to 40 minutes, with the hunter creeping on his elbows and knees. To have a reasonable chance of placing an arrow, the hunter should be within 100 feet.

Once the animal is hit, the poison must do its work. Well placed, a poisoned arrow can kill a large antelope within 6 to 24 hours. After the hunter examines the tracks for signs of blood, he does a surprising thing: he goes home. There is no point chasing an animal to its death place, which could be miles away. Instead, the hunter heads back to camp for the night. In the morning the hunter, accompanied by a party of carriers, goes out to pick up the wounded animal's trail. They follow the prey to its place of dying, butcher the carcass, and bring it home.

Not all hunts are successful. In fact, on most days of hunting a man will come back empty-handed. And even if an animal is wounded, there is no guarantee that the meat will ever reach camp. As many as half the animals shot by the Ju either recover from their wounds or run so far that they die out of range of the carrying party. An individual hunter is deemed fortunate if he kills as many as two large antelopes per year. Most of the meat consumed by the Ju comes from hundreds of kills of smaller animals.

INSULTING THE MEAT

When a hunter returns from a successful hunt, or when meat is brought into a camp, one would think that this would be met with open glee and the hunter praised for his skill. Quite the contrary: the people often display indifference or negativity at the news of a successful kill, and I was surprised to see the low-key way in which the hunters would break the news of their success. /Xashe, an excellent hunter from /Xai/xai, put it this way:

> When you come home empty-handed, you sleep and you say to yourself, "Oh, what have I done? What's the matter that I haven't killed?" Then the next morning you get up and without a word you go out and hunt again. This time you *do* kill something, and you come home. My *tsu* ("older kinsman") sees me and asks: "Well what did you see today?" "Tsutsu," I reply, "I didn't see anything."

I am sitting there with my head in my hands but my *tsu* comes back to me because he is a Ju/'hoan. "What do you mean you haven't killed anything? Can't you see that I'm dying of hunger?"

"Well, there might be something out there. I just might have scratched its elbow."

Then you say, as he smiles, "Why don't we go out in the morning and have a look." And so we two and others will bring home the meat together the next day.

Men are encouraged to hunt as well as they can, and the people are happy when meat is brought in, but the correct demeanor for the successful hunter is modesty and understatement. A / Xai/ xai man named / Gaugo said:

Say that a man has been hunting. He must not come home and announce like a braggart, "I have killed a big one in the bush!" He must first sit down in silence until I or someone else comes up to his fire and asks, "What did you see today?" He replies quietly, "Ah, I'm no good for hunting. I saw nothing at all . . . maybe just a tiny one." Then I smile to myself because I know he has killed something big.

The theme of modesty is continued when the butchering and carrying party goes to fetch the kill the following day. Arriving at the site, the members of the carrying party loudly express their disappointment to the hunter:

You mean you have dragged us all the way out here to make us cart home your pile of bones? Oh, if I had known it was this thin I wouldn't have come.

People, to think I gave up a nice day in the shade for this. At home we may be hungry, but at least we have nice cool water to drink.

To these insults the hunter must not act offended; he should respond with self-demeaning words:

You're right, this one is not worth the effort; let's just cook the liver for strength and leave the rest for the hyenas. It's not too late to hunt today, and even a duiker or a steenbok would be better than this mess.

The party, of course, has no intentions of abandoning the kill. The heavy joking and derision are directed toward one goal: the leveling of potentially arrogant behavior in a successful hunter. The !Kung recognize the tendency toward arrogance (≠ *twi*) in young men and take definite steps to combat it. As ≠ Tomazho, the famous healer from /Xai/xai, put it:

When a young man kills much meat, he comes to think of himself as a chief or a big man, and he thinks of the rest of us as his servants or inferiors. We can't accept this. We refuse one who boasts, for someday his pride will make him kill somebody. So we always speak of his meat as worthless. In this way we cool his heart and make him gentle.

Insulting the meat is one of the central practices of the Ju/'hoansi that serve to maintain egalitarianism. Even though some men are much better hunters than others, their behavior is molded by the group to minimize the tendency toward self-praise and to channel their energies into socially beneficial activities. As a result, the existence of differences in hunting prowess does not lead to a system of Big Men in which a few talented individuals tower over the others in terms of prestige.

I didn't really understand the importance of meat insulting until the Ju/'hoansi tried it on me. Visiting anthropologists, I found, are not immune to the faults of arrogance and self-praise. One Christmas I planned to slaughter an ox as a way of saying thank you to the Ju for their cooperation over the past year. The Ju didn't see it that way and harassed me mercilessly in a way that was both hilarious and painful. The tale is told in a story called "Eating Christmas in the Kalahari," which is reproduced in Appendix A.

Though painful, the experience gave me a deeper insight into their core system of meaning. Insulting the meat is just one of a whole set of rough practices that allow the !Kung to sustain a sharing way of life (see also Chapters 7 and 8).

The theme of egalitarianism is also seen in several other hunting practices. Hunting magic and divination are frequently used to help a hunter who is down on his luck. And the widespread sharing of arrows also helps to reduce the considerable individual differences that exist in hunting ability.

The Ju/'hoan rule for allocating ownership of meat from a kill is "the owner of the arrow is the owner of the meat." Ownership here means primarily the right to distribute the meat. Men circulate arrows widely in the *hxaro* trade network. A man will say to another, "Give me an arrow, and if I kill something with it I will give the meat to you." Weeks or months later, when he kills an antelope, he shares the carcass with his trading partner if the latter happens to be in his camp. If the arrow-giver is elsewhere, the hunter saves a portion of the dried meat for him. This trading of arrows strengthens the bonds between men and is especially used between such kin categories as brothers-in-law. Women may own arrows too, trade them with men, and become owners of meat.

The reason for this high incidence of arrow sharing is not hard to find. A meat distribution brings prestige to the hunter, but it also can be a heavy burden, bringing with it the risk of accusations of stinginess or improper behavior if the distribution is not to everybody's liking. A practice that tends to diffuse the responsibility for meat distribution and spread the glory (and the hostility) around is therefore a blessing in such tense situations. Lorna Marshall makes this apt comment on the practice: "There is much giving and lending of arrows. The society seems to want to extinguish in every way possible the concept of the meat belonging to the hunter" (1976:297).

WORK EFFORT AND CALORIC RETURNS

As my research on the Ju/'hoansi proceeded I was struck by the apparent lack of effort that went into the food quest. In the bush camps half or more of the adults seemed to be resting or sleeping in the camp on any given day. I had seen the abundance of mongongo nuts that the Dobe group had gathered the day after my arrival (see pp. 37–39), but didn't know whether this was a fluke made possible by the presence of my truck. I had learned to mistrust first impressions, and so I decided the only way to settle the issue was to make some systematic observations. How hard or easy was it to make a living? How many hours a day or days per week did the Ju have to devote to subsistence activities? How adequate was their diet in meeting their nutritional needs? In July 1964 I started a daily work diary of the Dobe camp's activities.

The whole camp was checked at sunrise and sunset to determine what each person was doing that day. The comings and goings of Ju/'hoan visitors were also recorded in order to establish a count of the number of mouths being fed each day. And the hunters were checked as they came home each day with or without meat. Women were monitored to see what species of plant foods they had gathered, and samples of their backloads were weighed on a simple scale.

July was neither the best nor the worst time of year for subsistence. The days were sunny and warm; the nights went down to freezing. Mongongo nuts were the major food, with smaller quantities of roots and bulbs. Berries, leafy greens, and other rainy-season foods were scarce or absent.

During the work study, the population of the Dobe camp ranged from 23 to 40. On an average night there were 31 mouths to feed in the camp. I calculated work effort in terms of workweek, not because the Ju think that way (they don't), but because it is a form that is easily understandable to us and makes possible comparison with other societies.[4]

At the end of four weeks I plotted out the figures (see Table 4–2). When the actual number of days of work was plotted, it turned out to be surprisingly low. From week to week the !Kung spent from 1.9 to 3.2 days in finding food. The overall average was 2.4 days of food-getting per person per week. Translated into hours, this worked out to about 20 hours of work per week, about half of the 40-hour workweek that is standard in industrial societies.

Breaking down the figures by age and sex, I found that men worked more days per week than women, about 2.7 days for men compared to 2.1 days for women. Another interesting point was that though women did not hunt, men did gather: about one-fifth of all men's working days were spent in gathering and men's gathering accounted for about 22 percent of all the gathered foods. When I looked at the total contribution of all forms of activity to the diet, I saw that men provided about 45 percent of the food, and women 55 percent, even though men worked harder than women. Overall, vegetable foods provided 70 percent of the diet, and meat the other 30 percent.

How general was the low level of work seen at Dobe in July 1964? In 1969, Pat Draper studied work effort at seven foraging camps in the /Du/ da area, 70 miles south of Dobe. She found that the workweek varied from 1.2 to 3.5 days, with an average of 2.3 days of work per week, very close to the Dobe average of 2.4 days (Draper, personal communication). Thus later studies at other waterholes showed that this leisurely pace of life was not unique to Dobe.

It would be misleading to leave the discussion of work effort here, since subsistence work is not the only kind of work the Ju/'hoansi have to do. In addition, there are the important tasks of manufacturing and maintaining their tool kit and, of course, housework—for the Ju this involves food preparation, butchery, drawing water and gathering firewood, washing utensils, and cleaning the living space. These tasks take many hours a week. (But we should also remember that when Western economists calculate on-the-job work time, they do not include this type of work in their figures.)

[4]For a detailed discussion of methods and results, see Lee, 1979:249–280.

TABLE 4–2 RESULTS OF THE DOBE WORK DIARY

	Group Size				*Total Person-Days of*			*Meat Consumption*	
Week	*Mean*	*Range*	*Adult-Days*	*Child-Days*	*Consumption*	*Work*	*Work-Week*	*Kg.*	*lbs.*
I (July 6–12)	25.6	23–29	114	65	179	37	2.3	42	92
II (July 13–19)	28.3	23–37	125	73	198	43	2.4	36	79
III (July 20–26)	34.3	29–40	156	84	240	42	1.9	80	176
IV (July 27–Aug. 2)	35.6	32–40	167	82	249	77	3.2	57.5	127
Total	30.9		562	304	866	199	2.4	215.5	474

TABLE 4–3 ESTIMATE OF OVERALL WORK EFFORT IN HOURS PER WEEK FOR MEN AND WOMEN

	Subsistence Work	*Tool Making and Fixing*	*Housework*	*Total Workweek (hours)*
Men	21.6	7.5	15.4	44.5
Women	12.6	5.1	22.4	40.1
Average both sexes	17.1	6.3	18.9	42.3

The traditional Ju/'hoansi make use of some 28 different tools and devices for gathering, hunting, cooking, and fetching water. In addition, their wardrobe consists of leather garments that have to be manufactured from the hides of game animals. They have to construct their houses, and their living and sleeping sites have to be cleared and maintained. These kinds of tasks add about an hour's work per day for men, and 45 minutes for women.[5] Finally, the tasks of housework, including an hour of nut-cracking per person per day, plus all the other tasks, add another 2 to 3 hours per day to the total work effort.

The overall estimate of hours per week shown in Table 4–3 is about 44.5 hours for men and 40.1 hours for women, with an overall average of 42.3 hours of work per person. This figure is still far below that level of work expected of people in our society. Studies have shown that North American wage-earners, those with many children especially, will spend up to 40 hours per week *over and above their wage-paid* job doing housework, shopping, washing, etc. This amount of work is not necessarily decreased by "labor-saving" washing machines and other appliances (Meissner et al., 1975).

The Quality and Quantity of the Diet

During the 28 days of the study the hunters brought in 18 animals yielding 454 pounds of meat, and gifts of meat from outside made up another 36 pounds of meat, for a total of 490 pounds. This works out to a daily consumption of 9.1 ounces of meat for every man, woman, and child. None of the kills were made with bow and poisoned arrows. ≠Toma, with his excellent hunting dogs, killed four warthogs, and these alone provided two-thirds of all the meat. Snaring and clubbing provided the remaining third of the meat.

Hunting success rates were not high. In all, seven men spent 78 man-days hunting. Since only 18 kills were made, it works out to only about 1 kill for every 4 man-days of hunting. Nevertheless, over a whole year, the average Ju will consume between 175 and 200 pounds of meat, a very good level of nutrition by world standards, comparable to the level of meat consumption in the developed countries.

Although meat consumption was high, how adequately did the !Kung level of work effort meet their *overall* caloric needs? And did their diet provide them with the

[5]The calculation of these figures is discussed in detail in Lee, 1979:272–280.

TABLE 4–4 CALORIES AND PROTEINS IN THE !KUNG DIET

Class of Food	*Percent contribution to Diet by Weight*	*Per Capita Consumption*		
		Weight (g)	*Protein (g)*	*Calories/Person/Day*
Meat	31	230	34.5	690
Mongongo nuts	28	210	58.8	1365
Other vegetables	41	300	3.0	300
Total	100	740	96.3	2355

range of nutrients and minerals needed to maintain a healthy population? By weighing the food and calculating the nutrient composition, I was able to come up with a rough estimate of the calories and proteins available in the daily diet. The figures are shown in Table 4–4.

Meat and mongongo nuts comprised the major part of the diet, contributing 31 and 28 percent of the weight respectively. About 20 species of roots, melons, gums, bulbs, and dried fruits, including some mongongo fruit, made up the remaining 41 percent of the diet. In all, the work of the Ju/'hoansi made available a daily ration of 2355 calories of food energy and 96.3 grams of protein to each person. The diet was well-balanced in terms of vitamins and minerals, and if it was lacking anything it was an abundance of refined carbohydrates: there was no equivalent in the Ju/'hoan diet to the white bread, rice, pasta, and sugar-rich food that form so large a portion of our Western diet (and which may be responsible for our rapid growth rates). The caloric levels were more than adequate to support the Dobe population and to allow the people to live vigorous, active lives without losing weight.

The July work diary showed a good level of nutrition at one time of the year, a time of relative plenty. It was important to know how well people did at times of the year when food was scarcer. I did not collect work diary information at other times of year, but in a subsequent study Nancy Howell and I weighed people at various times of the year (Lee, 1979:281–308). We reasoned as follows: though individual weights might vary, if overall weights remained fairly stable, that was a clear sign that nutrition was adequate. Conversely, if overall weights dipped sharply at one time of year, it would indicate a hungry season when the !Kung adaptation was put to the test.

In July 1968, Howell and I toured the Dobe area, stopping at all waterholes to weigh as many people as we could find. We repeated this weighing in October and again in January of 1969. In all, we were able to weigh 201 people in all three weight campaigns. The results showed that adult weights remained essentially stable from July to October, but dipped slightly from October to January, with a weight loss of 0.7 percent at Dobe and Mahopa and of 2.3 percent at /Xai/ xai (Lee, 1979:303). This loss of weight was statistically significant (it was not due to chance) but it was very small by the standards of other African societies, where seasonal weight losses of 6 or more percent were not uncommon.[6]

[6]This point has been disputed by Wilmsen (1978b, 1989:303–312). For a discussion, see Lee (1979): 281–308; 440–441.

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The evidence from the study of seasonal weights therefore supported the evidence from the work and caloric studies. Ju/'hoansi appeared to have the happy combination of an adequate diet and a short workweek. Over the course of a year, the picture of steady work, steady leisure, and adequate diet was maintained.

In summary, we have learned from the study of Ju/'hoan subsistence that despite the popular stereotypes, the Ju do not have to work very hard to make a living. In assuming that their life must be a constant struggle for existence, we succumb to the ethnocentric notions that place our own Western adaptation at the pinnacle of success and make all others second or third best. Judged by these standards, the Ju are bound to fail. But judged on their own terms, they do pretty well for themselves.

If I had to point to one single feature that makes this way of life possible, I would focus on *sharing*. Each Ju is not an island unto himself or herself; each is part of a collective. It is a small, rudimentary collective, and at times a fragile one, but it is a collective nonetheless. The living group pools the resources that are brought into camp so that everyone receives an equitable share. The !Kung and people like them don't do this out of nobility of soul or because they are made of better stuff than we are. In fact, they often gripe about sharing. They do it because it works for them and it enhances their survival. Without this core of sharing, life for the Ju/'hoansi would be harder and infinitely less pleasant (see Chapter 13).