





DIGGING STICKS & DESERT DWELLERS

by Peter Bindon and David Gough

Aboriginal women were the breadwinners of the desert-dwelling groups. Their digging sticks were used to extract a daily diet from the harsh hard ground over which they travelled throughout the year. But food sources in the desert were unreliable, so how did the desert dwellers eke out a living from such an arid land, and what relevance do their traditional land management techniques have for present-day scientists and land managers?

A boriginal men and women had different and distinctive roles, but unlike some modern societies, neither role was considered more important than the other. Both sexes were responsible for contributing food to the camp. Adult males hunted kangaroo and emu with spears, took birds on the wing with boomerangs, and dug snakes and lizards from burrows, while women and girls dug and foraged for vegetable foods, birds, eggs, reptiles and small marsupials. But because the presence of game was unpredictable, women obtained most of the food.

The most versatile tool used by the women was the *wana* or digging stick. Individual shapes of digging sticks varied according to the style and tradition of the local group. Desert women wielded sticks about one-and-a-half metres long



that were made of dense mulga wood and sharpened at one end to a chisel-like blade for digging. Women were proud of their sticks, and kept the digging blade ground to a fine edge, which was hardened in a fire to help preserve it. Digging sticks were rarely used as a walking aid, and when infrequently they were, only the conical point came in contact with the ground - the digging end was respected too much to be profaned in this way.

Digging sticks had many other uses. Piles of *Acacia* branches bearing tightly filled seed pods were threshed on rock surfaces or dry claypans to remove the leafy matter and break the pods open. The resulting mound of leaves, branches and broken pods was winnowed to remove the unwanted parts and the nutritious seeds gathered. Wielded club-like with a two-handed grip, a digging stick was an object to be feared, and it readily served to dispatch small game encountered on foraging excursions.

In Western Australia's desert regions, this simple but efficient tool helped extract roots and tubers and expose small animal species in their burrows to generations of foraging women. Children, accompanying their mothers on foraging trips, dozed to the thump of the stick's sharpened blade being driven into the ground to loosen earth that, in turn, would be scooped out on a wooden dish. Today, it is common to see digging sticks of iron, and the women who trek away from desert camps to favourite yam grounds are just as likely to be carrying a metal digging dish or a billy can as they are a wooden bowl.

However, several styles of bowl can still be seen throughout the desert regions. The commonest and possibly most versatile form is called *piti*. Oval in outline and carved laboriously from a hardwood flitch, these bowls can be almost a metre long, 30 centimetres wide and 40 centimetres deep. They are used to carry water, hold food items, confine a sleeping baby and also serve as mixing bowls. Another important use is as a winnowing basket for separating



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Emu feather head pad, stone knife with bark and hair string pouch, and carved spear points.

Photo - Doug Elford

Above left: Hole excavated to obtain swollen roots of *tjiril patja* or pencil yam (*Vigna lanceolata*).

Photo - Peter Bindon

Left: Digging for pencil yams in the desert south of Balgo, Western Australia.

Photo - Peter Bindon

sand grains from the tiny seeds gathered into piles by ants. The seeds are collected by women, who grind them to a nutrient-rich flour or porridge. A shallower kind of *piti* makes a useful shovel. Soil loosened by the digging stick can be scooped from a large hole very easily using these dishes. Traditionally, bowls were carried by balancing them in a small circle of twisted grass or emu feathers - called a *manguri* - on the top of the head. This allowed one free arm to carry the digging stick, with a young child invariably tucked under the other.

MEN'S WORK

As the women and children gathered the staples, men organised hunts for bigger game like emus and kangaroos. Generally these animals were speared from ambush near water, perhaps with the assistance of tame dingoes, which were always keen to hunt. Small water holes regularly visited by emus were drugged with the narcotic *pitjuri* (*Duboisia hopwoodii*) and the birds fell easy prey to the hunter's spear. As larger game species were often caught away from the camps, they were generally disembowelled on the spot. Various organs were replaced in the body cavity and the small access hole in the abdomen was stitched with a sharp twig. Animals were roasted whole in deep beds of coals with the skin intact. Cooking in this way preserved much of the moisture in the flesh - an important consideration in arid desert environments where water is a scarce commodity.

Perhaps the most useful of the tools used by Aboriginal men in the desert was

Top right: *Piti*, a lightweight wooden bowl carved from beanwood (*Erythrina vespertilio*) and used for carrying water and bush tucker.

Photo - Douglas Elford

Above right: *Pitjuri* (*Duboisia hopwoodii*) growing on a wind-blown sand drift near Kalgoorlie.

Photo - Peter Bindon



the spear thrower or *miru*. Skilfully shaped to deceiving thinness from a flitch of tough mulga (*Acacia aneura*), this light-weight tool was used primarily to add velocity to the hunter's spear. But it had several other uses. The broad curved body of the *miru* served as a platter in which fruits and berries could be carried. The tiny hook or *mukul* that held the spear provided an extension for an arm reaching high into mulgas in search of the tasty mulga apples (not fruit at all, but galls resulting from insect attacks on the mulga) or for picking fruits. It could also be used to coax a reluctant animal from within its burrow. On the handle end was a sticky lump of *limiri* or resin from *Triodia pungens*, a species of spinifex. This held in place a sharp stone chisel or *tjuna*, which was shaped something like an orange quarter. This

razor-sharp blade was used to cut open game, sharpen a wooden spear to a needle point, cut the sinews from animals, or for any number of other cutting, scraping and slicing chores. At night in the camp, the spear thrower served as a container for objects that could not be placed directly on the ground for fear of loss. The edge of a boomerang rubbed briskly back and forth in a groove on the back of the spear thrower produced a glowing pile of powdered wood, the beginnings of a fire.

A tool that caught the eye of European explorers as they struggled to cross Australia's deserts was a stone-bladed knife in a bark sheath. These were called *lelira* and were eagerly traded for steel knives by Aborigines - both sides assured that they had made a good trade. However, they seldom agreed upon much

else, as the camels and stock accompanying the exploring parties used far too much of the scarce water resources in the Aborigines' territories.

FIRE AS A TOOL

Desert dwellers maintained their territory through a schedule of burning. Sometimes fire was used as a hunting tool to shepherd animals into long coarse-meshed nets or brushwood palisades, behind which the waiting hunters stood. Terrified by the smoke and flames, the game would flee in panic from the women and children following behind the flames, and were easily caught as they ran into the ambush.

Travelling through the desert today with Aborigines, one often hears the comment that the country needs burning to 'clean it up', meaning that dead brushwood and post-mature clumping grasses need to be burnt to bring about renewal.

AFTER THE RAIN

We tend to perceive deserts as hot, dry places, and it is a surprise to see the desert in full bloom following rains. But when confronted with such abundance, it is easier to accept that deserts experience a seasonal cycle; a wet time, a cold time, a windy time. Vegetable foods respond to infrequent rains. Many types of roots and tubers, including the desert sweet potato (*Ipomoea costata*) and pencil yam (*Vigna lanceolata*), are considered to be ready to eat at specific times, usually in rhythm with blossoming of particular trees or shrubs. Desert flowers are often surprising in more than their tenacity. Many contain copious amounts of sweet nectar, which is eagerly sucked from the flowers by insects, birds and humans alike.

The use of water sources was a skill that had to be learned to ensure the survival of nomadic families. As soon as thunderstorms were seen in distant parts of the clan territories, the groups moved towards them, knowing that animals would be doing the same. It would only be a couple of weeks before plants flowered, insects arrived, birds began to prey on insects and ultimately the whole of the desert food chain began to exploit the flush of resources delivered by rain.

Water sources in the desert are varied; some last only a few days, whereas others



remain throughout the year. Between the dunes in the open desert, a clay horizon just below the sand surface holds water a few centimetres deep following rain. Water in these shallow, ephemeral resources known as claypans must be used quickly before it evaporates. Smaller rock holes known as *yirirra*, commonly called gnamma holes, are kept covered by rock slabs and their waters are deep and cool. They hold water longer than claypans. The location of these life-giving water sources is often revealed by flocks of tiny zebra finches, who find their way to the water's edge through surprisingly small holes. In rocky creek beds these tiny oases are shaded by the prolific rock fig (*Ficus platypoda*) whose ripe, sweet, red fruits, though small, were relished both fresh and pounded and dried in the sun to be eaten later.

Deep cool water holes in shaded gullies are generally known as 'living waters', meaning that groups can live around them for the whole year. Cunning desert hunters would never do this, because they must move through the landscape following in the footsteps of ancestral heroes who first opened the land and stocked it with the species of plants and animals and provided the water sources so that all could live together. Aboriginal beliefs concerning the formative period of Earth history are recorded in the stories of the adventures encountered in the 'Dreaming' by ancestral figures. To tread the footsteps of these previous occupants of a territory is to reaffirm one's own belief in the origins of the Earth and its resources. Continually patrolling different parts of one's territory is also a conservation

A peg on the end of the spear thrower rests in the small hole in the end of the spear. The increased leverage propels the spear at awesome speed. Photo - Douglas Elford

Above left: Desert spears usually have a flattened point with a small hardwood barb, *mukul* attached with bands of animal sinew. Photo - Douglas Elford

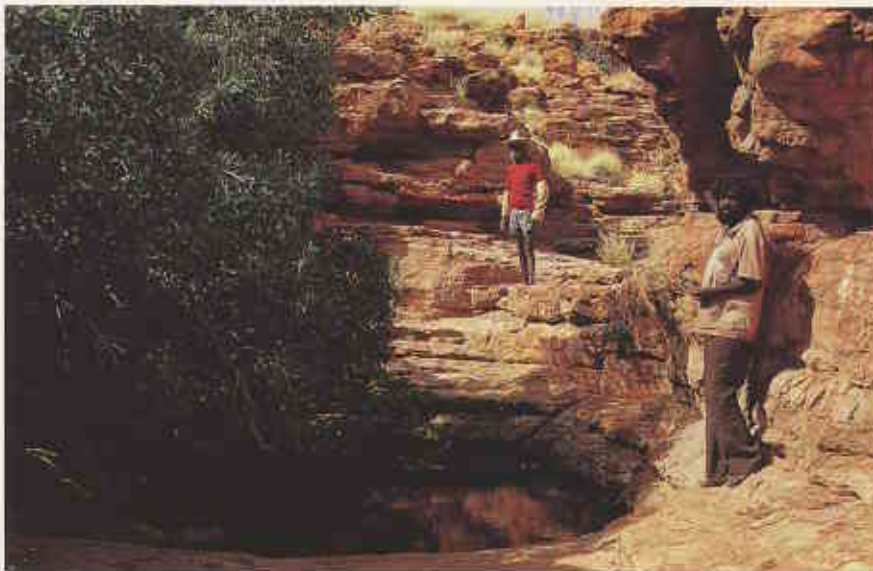
strategy for people living off the land, as each area that has been exploited is rested until the group's return.

In drought, many game animals retire to the 'living waters'. Some animal species are concentrated in the immediate area and there is great demand on the plants for food. Ironically this was a time of relatively easy living for people, who preyed on the weakened animals.

HEAT AND COLD

Desert dwellers are acclimatised to hot days, but there are times when even their toughened feet protest at the searing heat of the sand and rocks. Bark stripped from an *Acacia* or *Crotalaria*, often the green bird flower (*Crotalaria cunninghamii*), was woven into a sandal that was worn like a thong, its thick sole protecting the foot. Occasionally, these traditional sandals are still produced from strips of canvas torn from the edge of a sleeping roll.

Although daytime temperatures can reach the mid-forties, night brings coolness; and in winter, water left exposed in a flat container will freeze. Early mornings are bitterly cold until after the sun rises, and a story from traditional times tells how ice maidens spread their white ice over the desert surface just to



Deep in a rocky gully, a waterhole, shaded by a rock fig (*Ficus platypoda*), provides cool water.
Photo - Peter Bindon

Below right: Desert claypans provide short-term freshwater following rains, but as these quickly disappear, desert dwellers centre their activities on more permanent supplies.
Photo - Jiri Lochman

cut the Aborigines' feet. An early morning stroll is reminiscent of walking across broken glass, but the story really refers to the frozen surfaces found on shallow, still claypans and water holes, or the frozen remnants of the previous night's water supply left exposed in the dish.

During most of the year, sleeping arrangements were simple. A neatly constructed windbreak of spinifex tussocks or leafy tree branches arranged to windward kept the cool night breeze from the occupants, who were each flanked by a small sleeping fire. Awakening regularly and pushing the ends of the thick branches into the fire, the people remained comfortably warm through the night.

In the day and while not on the move, a *wiltja* of tree branches could be quickly erected to provide shelter from the sun when it was at its hottest. Only very occasionally was it necessary to build a more substantial shelter that could shed the very light seasonal showers of rain.

Sometimes cyclonic depressions managed to push huge cloud banks far inland, and then no amount of brush roofing would prevent the group from being drenched in the torrential rains that fell.

Scattered throughout the desert are remnants of the old plateau, which reflect the former surface of the soil in past geological ages.

The edges of these mesas and breakaways contain shallow caves, and during very heavy rains these provided the only secure and warm shelter for desert dwellers.

CULTURE AND CONSERVATION

There can be no doubt that life in the desert is harsh, but the Aboriginal groups who have lived there for thousands of years survive because of an intimate knowledge of the land and its plants and animals, and a seemingly innate ability to extract resources in a sustainable manner. Since European settlement and the migration of many desert-dwelling Aborigines from their traditional lands, the face of the western desert has changed, often for the worse. More recently, scientists began working with these people to understand more about the desert, its wildlife and the sustainable management of plant and animal habitats.

A major survey of the desert regions of Western Australia was carried out by scientists from the Department of Conservation and Land Management (CALM) in the early to mid 1980s (see 'Vanishing Desert Dwellers',



LANDSCOPE, Winter 1987), to establish more accurately the ranges of desert mammals, and hopefully pinpoint the likely periods when some of them had become extinct. Aborigines from several desert-dwelling groups were instrumental in helping to identify desert mammals and their original habitats. Animal skins and museum exhibits were shown to Aboriginal elders, and questions asked about the various mammals that lived in the desert areas. A number of extinct species, such as the central hare-wallaby, pig-footed bandicoot and the lesser bilby, which were thought to have become extinct in the early part of this century, were found to have existed in reasonable numbers as recently as the 1940s and 1950s in parts of the northern Gibson Desert and southern Great Sandy Desert. Information obtained from the desert people enabled scientists to extend significantly the known range of these species as well as of the chuditch, golden bandicoot, desert bandicoot, common brushtail possum, woylie, spectacled hare-wallaby and the now extinct crescent nailtail wallaby.

Further studies have indicated that the pattern of species decline - from south to north - relates closely to the movement of desert-dwelling Aborigines from their traditional lands to missions, settlements and pastoral properties following European settlement. As they abandoned their nomadic lifestyles, so the mammal populations declined.

Traditional burning regimes have ceased in some areas and have at least been severely diminished in others. This, combined with the introduction of the fox and feral cat, is believed to be an important factor in the demise of many desert mammals that are now extinct on the Australian mainland. Several of these mammals are important to Aboriginal people and revered as living embodiments of 'Dreaming' ancestors. The disappearance of certain species with important cultural significance has saddened the desert dwellers. Some blame themselves for failing to perform the periodic burnings and traditional 'regeneration' ceremonies necessary to maintain the status quo. Recently, CALM scientists and land managers have used traditional Aboriginal fire regimes to help provide habitats for the experimental reintroduction of burrowing bettongs

and golden bandicoots to areas of the Gibson Desert (see 'Desert Dreaming', *LANDSCOPE*, Autumn 1990). The project has been made possible with financial and environmental help from West Australian Petroleum Pty Ltd (WAPET) and the assistance of paying volunteers through the *LANDSCOPE* Expeditions program (see 'Back in the Outback', *LANDSCOPE*, Summer 1992-93).

Undoubtedly, there is still much to learn from the desert dwellers, and co-operative programs with CALM and the WA Museum will continue with growing mutual understanding and respect of each other's knowledge and, perhaps more importantly, each other's cultures.



Rock figs are one of many succulent fruits prized by desert Aborigines. Birds also relish these fruits and are responsible for the widespread distribution of the plant.

Photo - Peter Bindon

Traditional sandal of *ngalyipi* bark (*Crotalaria cunninghamii*) beside an improved version made from a long strip of canvas.

Photo - Douglas Elford

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Wildfires are synonymous with Western Australian summers, but what can be done to lessen the threat to life and property? Lachlan McCaw discusses the problem on page 49.



Daisies belong to the Asteraceae family, one of the world's largest families of flowering plants. Suzanne Curry presents some of them in 'Delightful Daisies' on page 41.



Aborigines have eked out a living in the harsh Western Desert region for thousands of years. Their intimate knowledge of the desert is helping scientists learn more about its plants and animals. See 'Digging Sticks and Desert Dwellers' on page 10.



'Rainforests and Bats', on page 34, tells the story of the recent LANDSCOPE Expedition to the Mitchell Plateau.



Can images from space help locate desert mammals? See 'From Buckshot to Breakaways' on page 23.

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COVER

Cape Barren geese live on the islands and rocks of the Archipelago of Recherche. A few years ago their numbers appeared very low and their survival was in doubt. However, a recent survey of the islands has brought good news with a marked increase in the bird's population.

The illustration is by Philippa Nikulinsky.



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