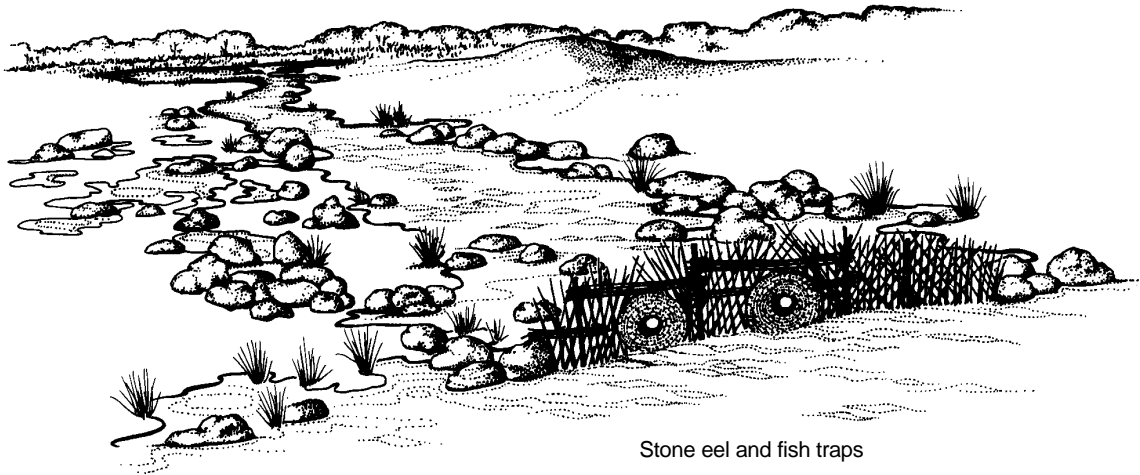


Aboriginal Plant use and Technology



Stone eel and fish traps

Technology

Definition: *The application of knowledge and an experience to create products and ways of meeting societies needs through the use of resources for particular purposes.*

The application of knowledge to create technologies is an integral part of the heritage and future of Australia. It is also essential to sustainable development. In traditional Aboriginal societies science and technology were used to manage the environment for the benefit of all people.

A great variety of tools, weapons and utensils were used to gather plants for food, fibres and medicine as well as to hunt animals for food and clothing. In the manufacture of these tools and weapons rocks such as obsidian and quartz were attached to wood to create excellent cutting edges. These rocks in fact produce a cleaner, smoother cutting surface than steel. To attach the stones resins were used.

The basic pattern of Aboriginal life was similar throughout Australia: small groups of people moved with the seasons over a particular territory. Their knowledge of seasonal changes in the environment and the ecology of plants and animals was very important in the search for food.

All people used a similar range of equipment which included:

- netting and trapping equipment
- digging sticks
- cutting and chopping tools
- hunting and fighting equipment eg spears, boomerangs
- equipment to prepare food e.g. grinding stones
- containers eg bowls (coolamons)

Some of these were only used in certain parts of Australia e.g. the returnable boomerang was unknown to Aborigines in the north and centre of Australia.

Today, in parts of Australia where Aborigines live a semi-traditional lifestyle changes in technology have provided materials and utensils which are easier and more efficient to use, for example the rifle, billy can, crowbar, fishing net and twine.

Plant Use: Plants used to make fibres, tools and utensils.

Fibres

In many Aboriginal societies making objects from plant fibres was an important activity. Items needed for hunting as well as for carrying and collecting food were made along with ritual objects for use in religious ceremonies.

Many Aborigines today have no need for traditional products from fibre, however in some communities people still make beautiful baskets, bags and mats. Most of these are sold although some are made for personal use or for gifts.

The parts of many plants provide fibre to make string, bags, rope, baskets and mats. Fibres come from the following plant parts:

- The underground stems (rhizomes) of plants such as the bulrush
- The leaves and stems from grass-like plants such as the mat-rush
- The bark of trees and shrubs such as some species of *Acacia* and native hibiscus.

After the plant parts have been collected the fibrous material must be extracted or separated.

Some materials are soaked in water until the non-fibrous tissue rots away. Chewing or being scraped with a shell or sharp rock then softens the remaining fibres.



Leaves and flower heads of the Spiny-headed Mat-rush

The stems of the Spiny-headed Mat-rush and similar plants are split while still fresh and dried in the sun. They are later soaked in water to make them pliable.

The sappy inner bark of trees and shrubs is collected from strips of bark by separating it at one end and peeling it away from the outer bark. Paperbark needs little preparation; it is peeled from the trees and used to make water containers, mats, wallets and liners for babies' baskets.

Aboriginal fibre crafts today

When Europeans first came to Australia almost every Aboriginal person would have been skilled in some form of fibre craft.

Today, in south-eastern Australia only a very small number of mostly elderly women and some men now have knowledge of traditional fibre crafts. These people value their skills and are in most cases eager to pass on these skills to younger generations. The main items produced now are coiled baskets and mats.



Basket made by Wally Mongta of Bodalla NSW,
using leaves of Spiny-headed Mat-rush

In the remote areas of northern Australia, there are still keen and very skilled fibre workers. These are mainly women who sell their products, including bags (coiled and twined), string bags, and different sized mats.

Traditional designs and materials have undergone modifications for example in Arnhem Land cardboard boxes are boiled along with the plant fibre material to extract the blue/grey ink from the paper.

Tools and Utensils

Timber from certain shrubs and trees was sustainable for making a wide range of tools and utensils.

Spear throwers and **shields** were made from the hard dense wood of wattles such as Blackwood (*Acacia melanoxylon*).

The spear thrower (known in some parts of Australia as the woomera) is a unique Aboriginal invention. It was designed to increase greatly the distance a spear could be thrown, acting as a first order lever. Other uses for spear throwers include carrying food and water, making fibre by rubbing one side against a piece of softwood and mixing ochres. Designs for spear throwers differ in different parts of Australia. In some areas such as tropical rainforests and Tasmania they were never used.

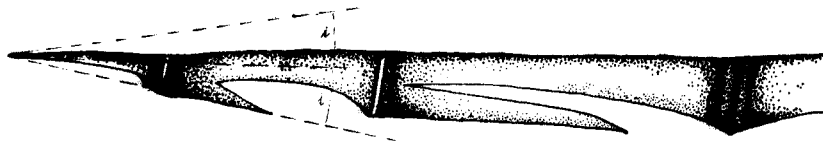


Spear thrower from central Australia

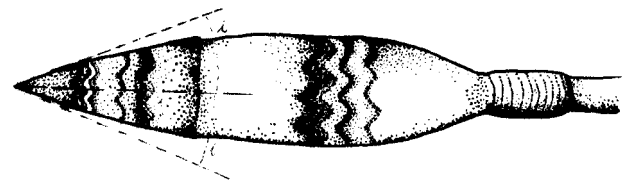
Spears were sometimes made from reeds but they were also made from the roots of certain trees. To straighten them they were chewed then placed in hot coals to be hardened.

Different heads were attached to the spears to kill different animals. For example fish were hunted with a two to three-pronged spearhead.

Different shaped points were also used on spearheads. The points are examples of inclined planes. The smaller the angle, the greater the penetration.

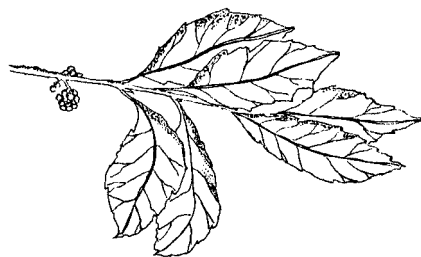


Examples of spearheads



Fire drills were made from the straight sticks of Austral Mulberry (*Hedycarya angustifolia*) in many parts of Australia. The Yalata people in South Australia used the wood of the Quandong tree to make fire drills. The drill is a straight stick which is rotated rapidly between the hands while it is pressed into a small socket in a flat piece of wood such as the dry flowering stalk of a grass tree. Dried grass, leaves or kangaroo dung is used as tinder.

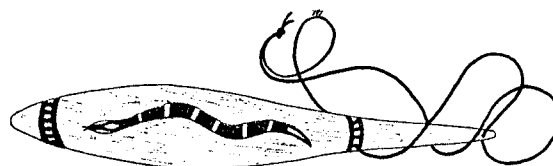
Fire was used for farming, driving game towards hunters or in fire-stick farming where areas of grassland were fired to encourage regrowth which would attract animals. It was also used to heat shafts and for heating resins and cooking food.



Austral Mulberry

The wood of the Native Cherry (*Exocarpus cupressiformis*) was used to make **spearthrowers** as well as **bull roarers**.

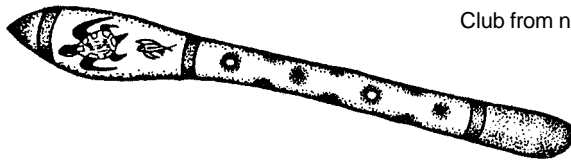
Bull roarers were used to announce ceremonies or to ward off evil spirits.



Bull roarer from south east Australia

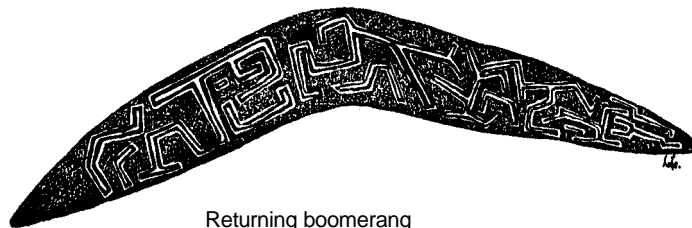
Clubs and **boomerangs** were often made from She-oaks (*Casuarina* species and *Allocasuarina* species) and wattles.

The **club** was an important tool used over most of Australia. They were mainly used in hunting, for example after a boomerang felled an animal, a club was used to kill it. Clubs were also used in dances and ceremonies. Both men and women used them. Clubs in northern Australia were also made of light timber.



Club from northern Australia

Boomerangs are thought to have developed from the throwing club. They were used in hunting as well as beating sticks to provide music. The returning boomerang was made only in the east and west of Australia. It was mainly used for fun however it could be used to frighten water birds that would then be speared for food.

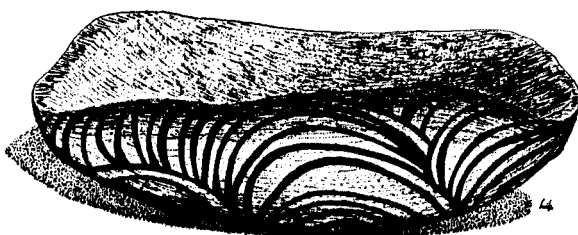


Returning boomerang

Wooden bowls (coolamons) and shields were sometimes made from the wood of species of eucalypt such as Manna Gum (*Eucalyptus viminalis*) and Red Box (*Eucalyptus ployanthemos*). In central and Western Australia the wood of Mulga (*Acacia aneura*) was often used to make bowls and shields. Particularly large shields were made from the very light timber of certain softwood trees in northern Australia.

Wooden bowls were known as coolamons in parts of Australia. They were used for collecting, transporting and storing food and water. Some had a sharpened end for digging. Women used head rings traditionally made of human hair to balance these bowls on their heads.

In eastern Australia bowls were made of bark, which had been soaked in water, moulded into shape and the ends pinched together.

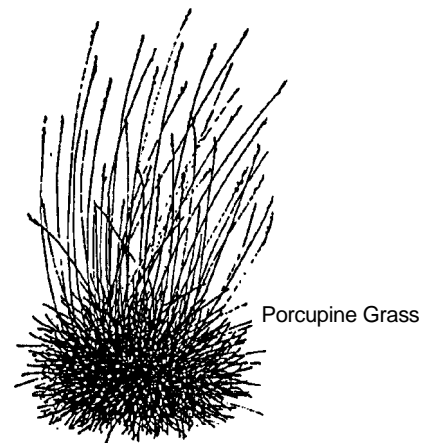


Bowl from central Australia, made from Mulga

Resins were used to bind stones to handles as well as wood to wood in some spear throwers.

Resins, which come from certain plants, become soft when heated and very hard when cooled, that is, are thermoplastic. Resins are obtained from Porcupine Grass (*Triodia* species) and Grass Trees (*Xanthorrhoea* species).

Gums were also used as adhesives. However its use is limited by the fact that gum swells and shrinks depending on humidity. Gums are obtained from a number of trees including wattles and eucalypts.



Plants used as foods and medicines in Aboriginal cultures

When Europeans arrived in Australia, Aborigines ate a balanced diet made up of seasonal fruits, nuts, roots, vegetables, meat and fish.

Foods varied from area to area depending on availability, season and the preference of the people.

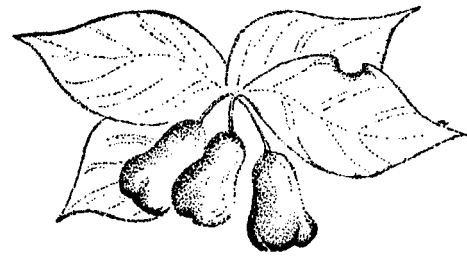
In some, warmer parts of Australia plants made up about 65-70% of the people's diet, however, in colder areas plants made up about 30% of the diet. It was the women who collected the plant food.

Plants included fruit, seeds, nuts and the green parts of plants, which were only available at certain times of the year. Roots, tubers, corms and bulbs could be dug all year round. Gum was also eaten at any time of the year.

Aboriginal groups in many parts of Australia used fire to keep the bush open and to allow the growth of new seedlings. Many Australian plants re-grow quickly after fire.

In Arnhem Land, Queensland and the Kimberleys, many tropical trees bear fruits and seeds; these include Fig (*Ficus* species) and Macadamia nuts. Yams (*Dioscorea* species) were important root vegetables.

In central Australia, where water is scarce, there are many fewer plants. The Aborigines in these areas harvested seeds of native grasses and wattles such as Mulga (*Acacia aneura*), and the seed of the Coolabah tree (*Eucalyptus microtheca*). Fruits of the variety of 'bush tomatoes' (*Solanum* species), Quandong or Native Peach, Native Plum and Desert Fig (*Ficus platypoda*) were eaten. Roots eaten in central Australia included the Desert Yam (*Ipomoea costata*).

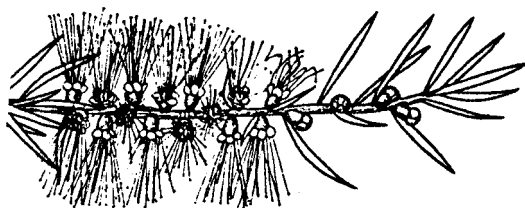
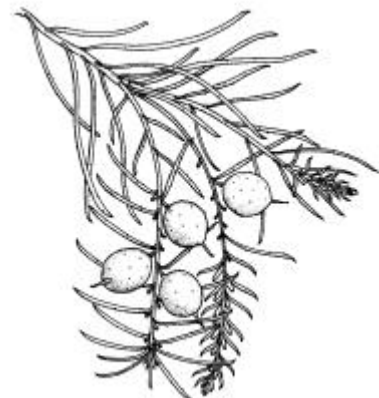


Lilly-pilly fruit



In the southern parts of Australia the most important foods were roots such as those of the Bracken Fern (*Pteridium esculentum*) which was chewed or beaten to obtain a sticky starch. Many native lilies such as the Fringe Lily (*Thysanotus tuberosus*) have small tuberous roots which were collected for food. Murnong or Yam-daisy (*Microseris lanceolata*) was plentiful, favourite food.

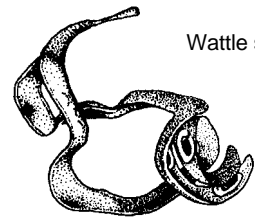
The fruits of some plants were eaten including the Native Cherry (*Exocarpus cupressiformis*), Geebung (*Persoonia pinifolia*), Wild Raspberry (*Billardiera scandens*) and Alpine Pepper (*Drimys xerophila*).



The nectar of certain flowers was sucked or used to make sweet drinks. Flowers used for this purpose included those of *Banksia* species, *Grevillia* species and *Callistemon* species

Callistemon flower

The seeds of many grasses were ground and baked while the seeds of some wattles were roasted and eaten whole.



Wattle seeds in pod



Nardoo

The spores of Nardoo (*Marsilea drummondii*), an aquatic fern, were eaten raw.

Bulrush, also known as cumbungi (*Typha* species), was a useful food along the Murray-Darling river system.



Plants used as Medicines

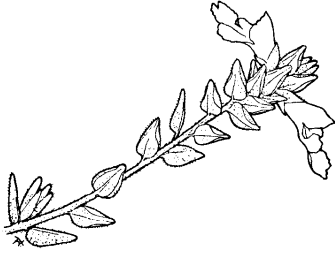
Many plants provided medicines. Very little preparation was required. Leaves were bruised, roots or bark pounded to use as poultices. To be taken internally the chemical in the plant material were extracted using hot water. Many Australian plants such as tea-trees, eucalypts, boronia and mints are rich in aromatic oils. These oils are very useful in treating respiratory illnesses.

Example of plants used in medicine:

The juice and crushed leaves of the Australian Bugle (*Ajuga australis*) were used by Aborigines in northern NSW to cure sores and ulcers.

In WA an infusion of the roots of the Prickly Fanflower (*Scaevola spinescens*) was drunk to ease stomach aches.

The young leaves of the Broad-leaved Paperbark (*Melaleuca quinquenervia*) were chewed as a treat for head colds. They were brewed in warm water to make a liquid which was helpful in treating headaches and general illness.



The leaves of mint bushes (*Prostanthera* species) were crushed and placed on the temples to relieve headaches.

Inhaling the vapour from crushed Eucalyptus leaves could clear the head.