

Pašai language remembered his native grammar perfectly, yet his vocabulary was at first 90% Persian and Pashtu. This difference may be partially due to the fact that in Victoria there has been no prolonged state of bilingualism, but this cannot by any means be regarded as a complete explanation. The Victorian languages, in their various stages of decay, may therefore illustrate some of the ways in which the very rapid loss of a minority language may take place. Quite apart from their intrinsic interest, and their position in comparative Australian linguistics, the remnants of Victorian languages may thus help to elucidate some of the problems of languages in contact.

L. HERCUS.

Australia : Social Anthropology.

Campbell

Elementary Food Production by the Australian Aborigines. *By Alastair H. Campbell, M.D., F.R.A.C.P.*

Although some anthropologists such as Thomas (1906) mentioned food cultivation by the Australian Aborigines, later authorities have insisted that the Aboriginal subsistence relied exclusively upon hunting and food-gathering.

During the last seven years the literature has been searched and enquiries have been made of Aborigines and others in an attempt to determine whether the Aborigines engaged in any form of food production.

For the present purpose, food production has been defined as measures taken by humans to assist the growth or reproduction of fauna or flora utilised as food.

Food producing activities are extremely diverse. In their elementary form they have no close resemblance to the sophisticated procedures of a well-established food-producing economy, and may fail to be recognised by those familiar only with the latter. In its simplest form, food production consists of providing favourable conditions for natural products *in situ*.

Irrigation.

In contrast to the modern practice of irrigation for the benefit of cultivated crops and domestic animals, river control and irrigation were practiced by the Aborigines on the Roper River for the purpose of providing a suitable environment for the native flora and fauna.

On the Elsey property, the Roper River enters a jungle and divides up into several streams which re-divide into smaller streams some of which flow underground and others fill lagoons including the Red Lily Lagoon. Just below the jungle, the river forms two main streams, one flows all the year round, but the other which flows over a low bank, sometimes stops running in the latter part of the dry season allowing the large Waggon Lagoon almost to dry up. During the dry season, the water level in the jungle is also likely to fall, allowing the swamps to dry.

To prevent the jungle country from drying and to divert sufficient water into the channel filling the Waggon Lagoon, the streams were partly obstructed by the Aborigines to maintain the water level. This work was done before the water fell to the lower level in the dry season.

The small channels emerging from the jungle and Red Lily Lagoon were partly blocked by felling trees, which were placed across the channels. Stakes were then driven into the mud and leaned against the upstream side of the logs. Sheets of paper-bark held by other stakes were laid against the stakes. Most of the water still ran through the cracks, but enough was stopped to keep the water at the suitable height. Smaller streams were blocked by filling with earth and sticks against a felled tree. In some streams, overhanging banks had to be cut away before they could be blocked. The purpose of maintaining the water in the Waggon Lagoon and the jungle swamps was explained to be: "We like to see plenty of water in the jungle all the time, for birds of all kinds gather near it and the food plants that we like grow better."

The Aboriginal informant made it clear that this was an ancient practice, she stated that "Old Goggle-Eye, who was a very old man and 'been finish' when Mrs. Gunn was here, taught his son, Jungle Dick, how to do this. He told him the Mungari had stopped the water running out too quickly for as long as he could remember. In fact they had done it in Kurnallan (far past times)."

When the practice was forbidden by the Commonwealth Government and the decision upheld by the Judge in Alice Springs, the following comment was made: "He says white man's law says it is wrong, so we must not do it, we do not understand why we are not allowed to. You took our country from us and now you stop our keeping water where we want it, so that we can get plenty of food easily. We try to make the best use of our water and our country, but you keep stopping us saying: 'White man's laws will not allow it.' We think it is time you changed your laws when they interfere with our freedom to live our own way."

An example of water control near the Grampians, Victoria, was described by Robinson in 1841 and quoted by Barrett and Kenyon (1936). Mountain streams were made to pass through treble dykes measuring 500 yards in length to extensive ramified water courses in the marshes covering an area of at least ten acres. Thousands of yards of channels had been dug. Although this system has been described as being designed for eel fishing, it would seem to be unnecessarily extensive for this purpose alone, and is likely to have provided a suitable irrigated environment for the growth of eels, fish, bird and plant life especially during the dry Victorian summer. Unfortunately the intention of the Aborigines cannot now be ascertained with certainty, and this example can be regarded as providing only presumptive evidence of food production.

Cultivation of Grubs.

There are several examples of cultivation of specific natural products. One of the best documented is the cultivation of a grub, known locally as cobra, which grows in old logs exposed to salt water. Such cultivation was observed by Petrie (1904) in the Brisbane River, Breakfast Creek, North and South Pine Rivers, the Maroochy and Mooloolah Rivers. The Aborigines "took good care to have plenty [of cobra] coming on by cutting swamp oak saplings and carrying these on to a mud bank dry at low water, and piling them up there. These piles were some two feet high and six feet wide."

"These piles would be dry at low water always, and covered at high, and the natives would visit them in about a year's time making fresh ones then to take their place."

Brough Smyth (1879) discussing a report by Grey describes the preparation of grass trees so that they become suitable media for the growth of a species of cerambyx, called *bardi* (witchetty grub). The tops of the grass trees were broken to allow decay, the man who broke the top of the grass tree became entitled to gather the grubs. To harvest the grubs the decayed grass trees would be knocked down and broken to pieces, sometimes fifty or a hundred grubs would be found in one grass tree.

Bee Control.

Modern bee keepers construct hives and place them where convenient. Aborigines have used a more elementary procedure, selecting a conveniently placed natural cavity and settling the bees into this.

Writing of the Channel country of inland Queensland, Duncan-Kemp (1961) reports : "Standing sentinel on a flat between two blunt-nosed sandhills was a ghost gum draped about with bunches of yellow flowering punjilla. Bees hovered near and buzzed persistently over a hollow high in the side of a tree. Aboriginal women wishing the bees to settle there had carried the scented bush five miles and soon reaped the reward of their labours."

Burning Off.

Burning off will often promote growth. Thomas (1906) states : "Grey says that a species of flag was cultivated in West Australia, at any rate to the extent of burning it in order to improve the next crop." Whether or not the extensive practice of burning grass was ever done for the same purpose or to encourage animals to graze on the new grass is a possibility which requires further investigation. Tindale and Lindsay (1963) state that in addition to driving out game, burning of the country "also provides young growth on which the larger animals graze later on."

Planting of Yams.

Planting of a portion of a yam was widely practised. The women of the Munkan tribe who occupied the western side of the Cape York Peninsula between the Archer and Edward Rivers, were reported by Ursula McConnel (1957) to "sometimes replace the top of the yam attached to its 'string' to grow again."

In a personal communication to Dr. L. T. Webb, the Rev. W. F. MacKenzie (1958) of Arakun Mission on the Archer River wrote "I was aware that in this district the tops of yams and Koothai are broken off and replaced in the ground to grow for the next season when the root is dug out. I made careful enquiries from the old folk but was told that only those two roots were replanted." Koothai is an oval shaped root of the yam family with a mass of fine hair-like roots protruding from it. The writer has been informed by an Aboriginal woman from Mapoon (north of Arakun) that she and her people were also in the habit of replanting the top of the native yam so that it would grow again. On the eastern side of the Peninsula, Hall and Tindale (1933) reported inconclusively that the women of Flinders Island in Princess Charlotte Bay claimed that they always threw back into the yam hole a portion of the yam vine after removing the tuber, with the injunction to go and make more yams. However, these investigators found no evidence of this practice when they examined the holes. There is evidence of a similar practice in Arnhem Land. Specht (1958) reports that there were at least 18 species which provided edible underground organs mainly on the

edge of freshwater streams, swamps and marshes. He states: "usually a fragment of the root or tuber is left in the ground to ensure a continuance of the food in subsequent years." Further west, on the western coast of Australia, Gregory (1904) reported that "The natives on the West Coast of Australia are in the habit amongst other things of digging up yams as a portion of their means of subsistence; the yams are called 'ajuca' in the north and 'wirang' in the south. In digging up these yams they invariably re-insert the head of the yams so as to be sure of a future crop. but beyond this they do absolutely nothing which may be regarded as a tentative in the direction of cultivating plants for their use."

Planting of Seeds.

The planting of seeds has been reported several times. Thomas (1906) states "the cultivation of purslane (*Portulaca*) seems to be well established fact. It is grown like mellons on slightly raised mounds, before the seed vessels are ripe the plant is cut, turned upside down and dried in the sun, then the seed vessels are plucked and rubbed down and the seeds collected." As Thomas fails to reveal the source of this important information its reliability is difficult to assess. The same remarks apply to the statements of Hyam (1939) "there is also evidence of a trace of primitive agriculture in the theory that the seeds [of the bunya] were sometimes deliberately planted to secure a continuity of supply. The same suggestion has been made to account for the curious isolated grove of the cabbage palm near Orbost, as this species was also highly valued for its fruits and young shoots."

More convincingly, Dame Mary Gilmore (1934, 1935) reported that as a child in N.S.W. she observed the Aborigines planting seeds to restore plants burnt by a bush-fire. "When the earth was cool enough to walk upon, the women gathered [unburnt seed capsules] from untouched shrubs and planted them where the destroyed ones stood. The little boys were requested to moisten them with urine. Grass seed was gathered, a heavy kind, the separated seed was sorted, the unsound or small was rejected and the best planted in the burnt area but very lightly covered."

The practice of planting seeds was not restricted to planting after a fire. Dame Mary Gilmore had "often seen the blacks set individual seeds as well as replace where the plant grew, those of what they ate. But the former was usually done where they themselves first made a small fire of twigs in order to prepare the earth by heating it. Whenever they gave me the fruit of the ground-berry as we called it—and they always gave me the best they found—I was invariably asked for the seed, which was immediately planted beneath the growth from which it came." She states the Aborigines also planted the seed of the quandong tree.

Due to the absence of other authentic reports the accounts of Thomas and Gilmore require to be treated with some reserve. However as there is no reason to doubt the credit of either author it seems that certain tribes did plant seeds as a method of food production, but this does not appear to have been a widespread practice, and may have been limited to the inland plains.

Fertilisation.

Dame Mary Gilmore reported that to fertilise the flowers of a grove of the quandong tree, flowers were brought from another grove.

Animal Husbandry.

That the Aborigines were capable of domesticating animals is shown by their taming of the dingo. However, the dingo was domesticated to help hunting rather than to provide a direct food source, although the domesticated animal, like its wild brother, may have been devoured at times. It is not surprising then to find evidence of an elementary form of animal husbandry. Tindale (1962) states that the tribes of the Atherton Tableland "husbanded cassowaries, the huge emu-like sharp-beaked bird of Queensland. They captured the young birds, tethered and tamed them. Come feast day, the cassowary now in prime condition, was slaughtered and the pygmies dined like kings." In publishing a photograph of a half-grown cassowary on the fringe of the jungle near Cape Sidemouth, N. Q., Thompson (1938) stated "It had been reared in a native camp and followed the natives everywhere." It is extremely likely that this was another example of the custom reported by Tindale and suggests that this was followed widely in the rain forest regions of North Queensland. Other authors have reported that Aborigines made pets of other young birds and young animals but do not describe whether or not these "pets" were later consumed. For example, Basedow (1925) states "In the camps of any of the tribal groups throughout Australia who still are enjoying an uncontaminated life, one might see captive birds and animals temporarily tethered or kept for the amusement of children." He states further "The King Sound natives catch the small ring-tailed opossums, which live in the mangroves, and hand them to their children. The Ponga Ponga gins become very attached to these Marsupial pets which they carry about with them in their days outings, planted in the locks of their hair. The opossums seem quite contented to abide there whilst their mistresses are on the march and hang on by means of their claws and tail. Occasionally one might even see an affectionate gin suckling her pet at her breast." The suckling of the animals appears to be an example of the rearing of young possums. Without further evidence it is uncertain whether the possums were consumed when required or when adult but this would be a reasonable assumption. On the other hand, as an alternative food production procedure, Dame Mary Gilmore has reported that after drought "To assist in replenishment of areas possums would be caught in the land of plenty and when rains came these were loosed in the trees in places too far for them to travel back from. This was done in order that they might breed in the renewing locality."

DISCUSSION

There is clearly evidence of food production by some groups of Aborigines even if the incomplete or speculative reports are disregarded. The extent and significance of the practice is difficult to assess.

Owing to the neglect of this question in the past, it is difficult to assess the importance of negative reports. Nevertheless, it does appear that some methods of food production were not widely practised and were restricted to certain localities. For example, McKenzie in reporting the yam planting custom in Cape York Peninsula found no evidence of the cultivation of grubs in logs as was done in the Brisbane region, nor did he find evidence of planting of seeds as described by Gilmore in N.S.W.

A striking feature about most of the food producing activities was its short duration, natural conditions being allowed to complete the process. This permitted the Aborigines to leave the region and still obtain the benefit of their actions on their return. Thus, food

production supplemented but did not hinder food gathering and hunting. Another characteristic was the elementary nature of the food production, which is possibly one reason why it has not been recognised more fully. Careful tending of plants and breeding from adult animals does not appear to have been practised. In most instances the activities closely followed natural processes. For example, the irrigation on the Roper River was aimed to preserve the satisfactory water level which occurred naturally in the wetter seasons. Similarly, the provision of suitable culture media for grubs by the piles of logs on the river banks or by the injuring of trees paralleled natural phenomena.

It is of considerable interest that elementary food production should be conducted by a nomadic people and suggests that ideas of food production can exist without necessarily converting a community from a food gathering and hunting to a food producing society. It is evident that the food producing activities would have to develop both quantitatively and qualitatively before they could supercede food-gathering.

Although it is possible that the yam planting could have been inspired by Northern neighbours its elementary characteristics and the use of the wild tubers suggests a local origin. The apparently spotty distribution of the other food producing customs suggests that they were also indigenous invention.

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Australia : Religion.

Massola.

Some Superstitions Current Amongst the Aborigines of Lake Tyers. *By Aldo Massola.*

The following notes are a record of present-day superstitious beliefs of the aborigines living at Lake Tyers, Gippsland, and were collected during a number of short visits to the locality between 1961 and 1963. Information about a number of other familiar animals, objects, and happenings, was sought, but they did not appear to have any supernatural meaning in the eyes of my informants. However, this record must not be regarded as being complete.

The people of Lake Tyers are of mixed descent, not only because of the addition of European blood, but also because they descend from a variety of Victorian as well as from some New South Wales tribes. There is also an admixture of West Australian blood, derived from a number of native women from King George's Sound, taken to Lake Tyers in June 1867.

These superstitions are similar in form to some found elsewhere ; but at Lake Tyers they are adapted to local conditions, and as such appear to be a "product of the soil" in spite of their uncertain origin.

My main informants were :

Cedric Parsons and his wife Louise Parsons, Mrs. Annie Alberts, Mrs. Ethel Hood, and Laurie Moffat.