CAPTION REQUIRED

Evidence for Indigenous Australian Agriculture

BY RUPERT GERRITSEN

The assumption that indigenous Australians did not develop agriculture is highly contestable, with a body of evidence revealing that they developed food production systems and in some cases lived in large villages.

It is a commonly held view that indigenous Australians in traditional circumstances never engaged in food production, specifically in terms of developing or adopting agriculture. Based on this assumption there has been extended debate on the supposed reasons for this (*AS*, March 2010, pp.19–21).

Such debates are meaningless if the initial premise is incorrect. And it may well be. Furthermore, if that assumption is incorrect it has significant implications for theories on the origins of agriculture.

Agriculture is a form of primary economic specialisation that developed at about the same time as fishing and pastoralism. In south-west Asia and China, the earliest cradles of agriculture, herding of sheep, goats and pigs and the development of fish hooks, fishing nets and fish traps accompanied the development of agriculture.

But such developments didn't spring up overnight, and hunting and gathering continued to provide a significant part of subsistence until well into the Pre-Pottery Neolithic B (see box). Moreover, the crops that were being grown as part of this Neolithic revolution – emmer and einkorn wheat, barley, rye, lentils, rice and millet – were wild, undomesticated crops for at least 1500 years.

Higher levels of sedentism, underwritten by intensive and specialised exploitation of a few key resources such as fish, nuts and grass seeds, was already evident by the Natufian. A contemporaneous pattern was also found in China and repeated in Neolithic revolutions elsewhere.

In the Pre-Pottery Neolithic A (PPNA), Pre-Pottery Neolithic B (PPNB), Chinese Early Neolithic and Mesoamerican Early Formative periods, sedentism developed to the point where permanent settlements (of at least several

A Brief History of Agriculture

Natufian Period

A transitional Mesolithic period in south-west Asia from 14,500 to 11,500 years ago, leading up to the adoption of agriculture as a significant form of subsistence. The first permanent human settlements began to form about this time, along with the first signs of the storage of foods.

Pre-Pottery Neolithic A

A period in south-west Asia from 11,500 to 10,800 years ago, when agriculture began to constitute a significant part of subsistence. Permanent settlements became common, with populations exhibiting higher levels of sedentism. Storage of quantities up to 50 kg became common.

Pre-Pottery Neolithic B

A period from 10,800 to 9100 years ago, when agriculture became the predominant form of subsistence. Residents of increasingly large settlements appear to have been fully sedentary, or nearly so. Storage of grains and other foods became a characteristic feature of the subsistence economy in this period.

Chinese Early Neolithic

A period from 11,200 to 6000 years ago, whereby agriculture based on rice along the Yangtze River in central China, and millet in the Yellow and Wei River valleys in north-central China, became established. Permanent settlements of 150–400 people, comprised of rectangular dwellings, developed during this period, as did storage of tonnes of grains.

Mesoamerican Early Formative

A period in the area covered by modern central Mexico from 5000 to 2900 years ago, during which agriculture became established based on maize, beans and squashes. Villages with populations of 200–600 people developed. Rectangular wattle and daub dwellings were large enough to accommodate six people or more. Storage facilities had a capacity of up to 1 tonne.

years duration) were established. These were comprised of permanent dwellings that were occupied on a seasonal basis, and possibly throughout the year.

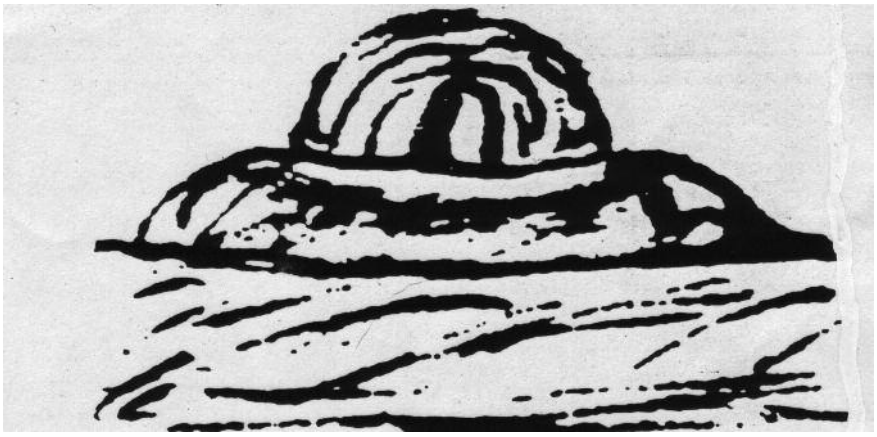
Settlements of 50–60 people had developed by the PPNA, comprised of rudimentary but seemingly permanent, single-roomed circular or oval dwellings with dimensions of 3–8 metres. At PPNA Jericho in Israel, for example, "beehive-shaped" abodes predominated, with some evidence of internal partitioning into rooms. Even in the PPNB, habitations were only simple wattle and daub, such as those at Tell Aswad in Syria, although more rectangular structures were becoming the norm by then. Individual dwellings would have housed four or five people at PPNA/PPNB Nahal Oren in Israel, or up to ten at an "unusually large" PPNA habitation at Jericho.

The size of settlements increased in the later PPNA and PPNB. The larger ones, such as PPNB Jericho and Mureybit and Tell Aswad in Syria, had populations of 230–330.

If one considers comparable evidence from Australia a similar pattern emerges, with traditional indigenous groups in some parts engaging in food production, including agriculture, living in large villages made up of permanent abodes, exhibiting high levels of sedentism and having the same characteristics as Neolithic societies elsewhere.

Historical accounts, oral traditions and ethnographic observations reveal that at the time of the British colonisation of Australia at least 19 different species of plant were being cultivated by at least 21 different identifiable indigenous groups. These included species of yam, sweet potato and its relatives (such as the "bush potato"), "native millet", ngardu, "bush tomatoes" and "bush onions". But some of these species weren't just planted; in some instances they were the principal source of sustenance.

When explorer George Grey first entered the Victoria District of the central



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west coast of Western Australia in 1839, he noted yam fields of square kilometres in extent. One tract "extended east and west as far as we could see". Further south he recorded that "the whole of this valley is an extensive warran [yam] ground".

A few years later Augustus Gregory, a surveyor who later became a famous explorer and Surveyor General of Queensland, stated that the local Aboriginal population "never dug a yam without planting the crown in the same hole so that no diminution of food supply should result".

Another colonial explorer, Lt. Helpman, commented in 1849 that the Nhanda and Amangu "are a fine race of men but seem to depend entirely upon warran and gum, of which they have great abundance".

Grey also reported four villages in the region, two of which he observed at Hutt River the day after encountering the yam fields. He wrote: "In this distance passed two native villages, or, as the men termed them, towns". These villages comprised dwellings that were "very nicely plastered over the outside with clay, and clods of turf," and which Grey thought "were evidently intended for fixed places of residence".

According to Helpman, these dwellings were "well plastered outside and the timber which formed it was about 6 in. [15 cm] thickness, about 6 ft. [1.8 m] high inside and capable of holding ten persons easily".

Subsequent research at the site of the first village seen by Grey has established that it probably had a population of almost 300 people.

In the Corners Region of eastern central Australia, in an arc from western NSW through south-west Queensland, north-east South Australia and the south-east of the Northern Territory – a similar pattern was evident when Europeans began to intrude into those areas. Here there is evidence that native millet, ngardu and bush onions were sown by broadcast seeding.

In reference to native millet, explorer Major Thomas Mitchell recorded in 1846 that "dry heaps of this grass, that had been pulled expressly for the purpose of gathering the seed, lay along our course for many miles" along the Narran River. Comparable observations were made by an array of explorers, drovers, pioneers and the like, as attested by Augustus Gregory in south-west Queensland in 1864: "Fields of 1,000 acres [400 hectares] are there met with growing this cereal. The natives cut it down by means of stone knives, cutting down the stalk half way, beat out the seed leaving the straw which is often met with in large heaps."

Surveyor Lewis made a similar observation in 1875 about the "nardoo flats" of the Mulligan River in south-west Queensland "extending northward as far

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as the eye could reach". Likewise John Davis, who was searching for Burke and Wills in the Strzelecki Desert in 1861, noted that ngardu "is procured in almost any quantities in the flooded flats by sweeping it up into heaps".

Food preservation and storage, another indicator of agriculturally based food production, was also widespread. More than 70 examples have been identified, from the stockpiling of yams to 50 kg clay casings of *Portulaca oleracea* seeds and multiple 50 kg skin bags of native millet. There is substantive evidence that seeds were being traded as seed stock.

In one instance in 1871 a drover, A. C. Ashwin, came across a settlement of 50 dwellings, approximately 180 metres across and enclosed by a fence, in the south-east of the Northern Territory. Within this settlement was a "large miamia, about 7 feet [2.1 m] high in the middle and about 16 feet [4.8 m] diameter" containing 17 "large wooden dishes four or five feet [1.2–1.5 m] long filled with grass seed as large as rice". This store would have contained about 1 tonne of seed.

The type of settlement that Ashwin reported was not uncommon either. Sturt, another explorer of some note, recorded in his journal on the upper Darling River on 5 February 1829: "Early in the day we passed a group of seventy huts, capable of holding twelve to fifteen men each. They appeared to be permanent habitations, and all of them fronted the same point of the compass." If fully occupied, such a "permanent" settlement would have had a population of 800–1000 residents.

Numerous villages with populations of "over 200" were reported at the time in this region. Some dwellings had small associated structures that may have been storage structures. A couple of well-built structures were observed that were large enough to house 30–40 people.

In south-west Victoria the economy was based on aquaculture involving eels and fish. Considerable infrastructure had been built, with kilometres of fish trap systems from Lake Condah and along Darlot Creek, fish weirs up to 90 metres long, and artificial eel canals up to 450 metres long covering an area of 6 hectares in some instances.

Once again a number of villages were reported, one at Mustons Creek with a population of up to 240, another near Port Fairy (150), and another on the Eumeralla River that may have had a population of 500. Most of these dome- and loaf-shaped dwellings were built of solid timbers and coated in clay, with some at Eumeralla Village possibly made of stone. These housed up to 12 people, although Mitchell and his deputy also encountered a large communal structure at White Lake that the residents later said accommodated 30–40 people.

In all the cases outlined here, the inhabitants exhibited high levels of sedentism, from "multi-seasonal" occupation to full sedentism. Testifying to this was the amount of labour invested in building their habitations, the occurrence of multi-room dwellings, burial grounds, observations of limited mobility, settlement patterns and even the existence of specialist male hut builders.

Furthermore, confirmation of the development of food production economies characteristic of neolithic societies comes from unequivocal evidence of a change in the division of labour. For example, there is clear evidence from the Nhanda and Amangu, and the Corners Region, of men engaging in planting, harvesting and processing food plants. There was also systematic trade in foods in all three regions.

Theories on the origins of agriculture, mostly based on population pressures, climate change and "social demand", have been unsuccessful in explaining the location and timing of the numerous instances of the pristine development of agriculture around the world. Part of the reason for this has been a continued reliance on inappropriate paradigms.

This debate cannot progress unless we overcome our own paradigm blindness and acknowledge that some indigenous groups in Australia were indeed engaged in agricultural forms of food production.

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