Who Peopled the Pacific?

Using objects from the Voyages of the Pacific Ancestors: Vaka Moana exhibition at the National Museum of Australia to investigate Pacific history

To teachers

Over a period of 2 million years successive waves of humans made their way overland, or by short trips using log rafts or canoes, over the whole of the inhabitable world.

Of course the geography of the continents during these times was different to what it is today. At different periods there have been ice ages where more sea water than usual was frozen, and sea levels dropped, exposing more land. This made some of these journeys possible by land where they would not be possible today.

Only one area of inhabitable islands remained empty of people about 5000 years ago — the islands of the Pacific Ocean.

It seemed that these islands would remain empty of people — how would people be able to cross thousands of kilometres of ocean to reach these tiny specks of land?

But in 1541, when Europeans first had the navigational skill and the ocean-going boats to enter the Pacific, they sailed to these islands and were amazed to find people there! These were settled societies, many hundreds and even thousands of years old. They were people who knew how to cross the ocean, to find their way to other islands and back; people who had obvious links, of language, culture, customs and technology.

Who were these people? And how had they managed to populate the islands of the Pacific?

This is the ‘mystery’ that we explore in this unit, using the resources of the Voyages of the Pacific Ancestors: Vaka Moana exhibition at the National Museum of Australia.

The unit has been constructed around the proposed National History Curriculum due to come into effect in 2011. It combines an emphasis on understanding human migration with an awareness of the skills of historical enquiry.
Who Peopled the Pacific?

Using objects from the *Voyages of the Pacific Ancestors: Vaka Moana* exhibition at the National Museum of Australia to investigate Pacific history

**Your task**

Look at the map of the Pacific on page 17. The Pacific is the largest ocean in the world, and covers about one third of the earth’s surface. It contains relatively few islands and many of these are hundreds of kilometres apart. Yet when Europeans first entered the Pacific in 1542 and started ‘discovering’ the islands they found almost every one already inhabited by people who had been there for hundreds, even thousands of years.

Who were these people? Where had they come from? Why had they travelled? And how did they manage to find their way to these places?

These are the key questions that we want you to explore in this unit. Much of the evidence comes from the *Voyages of the Pacific Ancestors: Vaka Moana* exhibition at the National Museum of Australia. You will find out the meaning of this title as you work through the unit. You will need to be a detective and use the evidence from this exhibition and from other sources to reach your conclusions.

After you have worked your way through the unit return to this page and record your final answers here.

*Good luck with your exploration!*

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**Key questions that need to be answered to understand the peopling of the Pacific**

<table>
<thead>
<tr>
<th>WHO</th>
<th>WHEN</th>
<th>WHY</th>
<th>HOW</th>
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<tbody>
<tr>
<td>peopled the Pacific?</td>
<td>did they do it?</td>
<td>did they do it?</td>
<td>did they do it?</td>
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</table>
To understand the magnificent achievement of ancient people in populating the Pacific you need first to understand the spread of humans to other parts of the world.

Below are:

- A map of the world, showing its modern outline — note that the shape of the land would have changed many times over the last two million years, but we will use this shape for convenience.
- A ‘family tree’ showing different branches of the genus ‘Homo’
- A table of information showing how most scientists who study these things believe various human species populated the world.

1. Draw a series of arrows showing these different migrations. You will need to use a different colour for each human species. One example has been partly done to help you.
When and how did people come to Australia and New Guinea?

The answer at present is that we do not know. The oldest available archaeological evidence dates from about 50,000 years ago. This could change tomorrow if some new evidence were to be discovered.

But we can see how it might have happened, from the following evidence.

Look at these maps. They show ‘Sahul’ — the name given to Australia and New Guinea in the past.

**Source 1 Maps of Sunda and Sahul**

The information at the top of each map shows the change in sea level in the area over the last 120,000 years. So, for example, map A shows the shape of the land and the depth of sea level today, while map B shows the shape of the land about 45,000 years ago, when the sea level was 65 metres below today’s sea level.

1. Using this information, suggest the three times when it would have been easiest for people to move from Sunda (now Indonesia) to Sahul (now Australia and New Guinea).

2. How would people have made this journey?
You have seen that humans had expanded out of Africa all around the world over several million years, and had reached Australia and New Guinea about 50,000 years ago. However, they had not settled on Pacific islands. You are now ready to start working out how people were able to settle this area.

Imagine that you are an adventurous spirit who lived 4000 years ago on the easternmost part of the Solomon Islands. You believe that there are unseen islands to the east. You are determined that you will find some of these islands and will settle there and start your own society. You are not sure if you need to take everything with you, or whether you should find the land and try to return home and then go back with what you will need for your new society.

Read the information in the ‘Factors to consider’ column, and then decide what you would need to do to undertake this journey successfully.

Write your ideas in this table below. You will be able to come back at the end of the unit and compare your ideas with what you discover actually happened.

This ‘imagine that’ exercise helps you to think about the important or key questions on page 16 that you will be able to answer by the end of this unit.

<table>
<thead>
<tr>
<th>ASPECT</th>
<th>YOUR COMMENTS AND IDEAS</th>
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<tbody>
<tr>
<td>Skills needed:</td>
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<td>Supplies needed:</td>
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<td>Equipment needed:</td>
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<td>Technology needed:</td>
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<td>People needed:</td>
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<td>Strategy needed:</td>
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</table>
To answer the key questions about who, when, why and how the Pacific was settled you will be looking at some information from the Vaka Moana exhibition at the National Museum of Australia.

You need to know some basic facts about the Pacific. Look at the map of the Pacific on page 17.

1 Mark this information on the map:

   — The three major Pacific areas:
     - Melanesia — the area to the left of the Andesite line
     - Micronesia — The area including the Caroline Islands, Marshall Islands and Kiribati
     - Polynesia — the remainder.

   — The Pacific geographical or geological features:
     - The islands of Melanesia are continental
     - The islands of Micronesia and Polynesia are volcanic.

   — Oceania can be divided into two areas:
     - Near Oceania — the area including New Guinea and the Solomon Islands
     - Remote Oceania — the remainder towards the east.

Here is an illustration of two vaka — the Polynesian word for ‘canoe’.

The key features of the vaka are the sail (which may be lateen — triangle shaped or claw shaped), the hull (a single canoe) or double hull, the outrigger (one or two thin extra hulls used to create stability). A paddle would be used to help steer the vaka.

1 Identify these features on the vaka above (draw a line from the words to the features).
The vaka could be small, for use by one or two people such as fishermen — such as the Hawaii outrigger canoe shown — and be suitable for use around islands; or they could be large enough to carry several families, equipment and supplies needed for a several hundred or even thousand kilometre trip over many days and even weeks — shown in the Marquesas double canoe. These vaka were called moana — the word for ocean in many Pacific Islands languages. The technology to create such canoes only appeared 4000–5000 years ago. Before this time, planned ocean voyages were impossible.

Making a vaka would have taken great time, effort and skills by the whole community. List some of the tasks that may have been required for people to construct the vaka.

Look at the artist’s impression of an ocean-going vaka below. How does it help you understand how people were able to colonise the Pacific?

Imagine that you were on one of these on a great voyage. List the feelings that you might experience at different times during the voyage.

No matter how good your vaka was there would be no point in going on a voyage to a new island unless you knew the island was ‘out there’, and unless you could be sure you could find it. In other words you would need to have impressive navigational skills.

Let’s say that you are at point A, and you know (or suspect) that there is an island at point B. It may take you many days and nights of sailing to get there. Only a skilled navigator could make a successful voyage.

The key challenges that the navigator had to overcome for people to make a voyage to an unknown place were:

- having a vaka that could sail forward, regardless of the direction of the wind
- knowing where you were by day and by night
- knowing in what direction land was
- knowing when you were near land.

Look at this information from the Vaka Moana exhibition and decide how the early voyagers solved these problems.

1. Here are some ways that navigators knew where they were. Match each type of navigational aid with the correct explanation by writing the appropriate letter in the circle. One example has been done to help you.

<table>
<thead>
<tr>
<th>TYPE OF NAVIGATIONAL AID</th>
<th>EXPLANATION AND ILLUSTRATION</th>
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<tbody>
<tr>
<td>Steering by deep sea swells</td>
<td>A During the day, navigators could judge the direction they were travelling by the sun; but at night they had to know all about the rise and set of stars at different times of the year to determine where they were going.</td>
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<tr>
<td>Land-roosting birds</td>
<td>H</td>
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<tr>
<td>Watching the weather</td>
<td>B Swells wrap around islands, and any change in the direction of swells would tell the navigator there was land ahead, before he could see it. A regular swell will also bounce back from an island. The disappearance of a swell could indicate that there was land ahead blocking it.</td>
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<tr>
<td>Steering by stars and sun</td>
<td></td>
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<tr>
<td>Swells and islands</td>
<td>C Water changes colour according to the depth of the ocean.</td>
</tr>
<tr>
<td>Island colours reflected on clouds</td>
<td>D During the day navigators could steer their vaka by feeling the lift and noting the direction of the typical regular and widely spaced open ocean swells.</td>
</tr>
<tr>
<td>Cloud patterns above islands</td>
<td>E Colours may be reflected from land to the underside of clouds above: white from coral sand, dark from heavy vegetation and green from shallow lagoons.</td>
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<tr>
<td>Drifting objects</td>
<td>F There may be floating vegetation from nearby islands.</td>
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<tr>
<td>Changing sea colours near islands</td>
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<tr>
<td>Smoke, smell, taste</td>
<td>G Clouds have different patterns over islands. They also may appear to be still while other clouds are moving.</td>
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<tr>
<td></td>
<td>H Navigators would look for land-nesting birds. The time of day and the direction of the birds’ flight would tell them the direction of their nesting island, and the breed would tell them how far the island might be — with different species flying different distances to seek food.</td>
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</table>

I Navigators would watch the weather carefully to judge when their voyage should start. They knew the prevailing winds at each time of year, and would know when the most favourable winds would blow.

J There may have been smoke from lightning strikes or volcanic eruptions; there may be the smell of vegetation; the water may taste differently near land.
How do you sail a vaka when the wind is blowing into you, not behind you? Imagine that you are sailing from point A to point B. The wind is blowing from A to B. You would have no problem — the wind would blow you straight there.

But what if the wind were blowing from B to A? How would you get there?

The answer for modern sail boats is by ‘tacking’. Look at the diagram opposite from the Vaka Moana exhibition.

Diagram A shows a vaka ‘tacking’, that is, changing direction to catch the wind. By moving side to side you also move forward.

This is how modern yachts sail, but there is a problem with this if the vaka has an outrigger. If the wind passes over the outrigger first and then hits the sail it will push the outrigger out of the water — and create instability. So the outrigger always has to be on the far side of the sail. But how can this be done? The answer was by ‘shunting’, when instead of having a fixed front and back of the vaka, you could move the foot of the mast from one end to the other, in effect making the front become the back and the back become the front each time you changed the sail. This meant that the outrigger was always in a more stable position.

Look at the diagram opposite and this illustration below, and explain the process in your own words.
We can see how people have spread by the trails they leave. The Vaka Moana exhibition includes a number of ‘evidence trails’ that will help you develop your answers to the questions on page 2.

The evidence trails that the exhibition tells us about are:
- language
- artefacts
- plants
- animals
- DNA.

Let’s look at some of the exhibits and see what they tell us.

**Language trail**

When people move they take language with them. Over time their language can change a bit from what it used to be. You can see this when you consider that the English of the United States, Australia and New Zealand all originated from the British Isles but all have diverged slightly over time.

Experts have identified the language of the Pacific people as coming from one original language, called Austronesian.

Here is a diagram to show how the original Austronesian language has spread over time.

1. On the map of the Pacific on the back cover, draw arrows to show how the language has spread.
2. Would you expect this spread to happen quickly or slowly? Explain your reasons.
3. Why would the language change slightly over time?

The map on page 17 shows a possible timeline for the spread of people through the Pacific.

4. Fill in the empty boxes on the map with these estimated or approximate dates:
   - A 1500 BC
   - B 1400 BC
   - C 1200 BC
   - D 1000 BC
   - E 0–500 AD
   - F 700 AD
   - G 700 AD
   - H 900 AD
   - I 1200 AD
   - J 1300 AD
   - K 1300 AD

5. Draw arrows to show the movement of people through the Pacific over time.
6. On the map you will see that the arrows and dates suggest that people moved to New Zealand from the Society Islands rather than from New Caledonia, which is much closer. How does the language trail support this suggestion?
Artefact trail

Throughout the Pacific there are many objects or artefacts that are similar, but with slight differences. Here are some examples.

1. Just because the objects are similar does that mean they all came from the one original source and have spread over the area? Discuss this idea.

The Austronesians started making a style of pottery, called Lapita pottery, in the New Guinea area 3500 years ago. Examples of it have been found in the Solomon Islands, New Hebrides (Vanuatu), New Caledonia, Fiji and Tonga. The most recent piece is dated to about 3000 years ago.

2. Mark this area on the map on page 17.

3. What does this tell you about migration?

4. Why do you think the pottery trail stopped there and then?
Plant trail

One of the reasons why people were able to colonise the Pacific was the development of agriculture about 10,000 years ago. Many of the islands of the Pacific were not able to sustain people naturally. The voyagers had to bring various plants with them to grow and use to feed themselves including these plants:

This map shows the distribution of major imported plants. The darker the colour, the greater the variety of food plants.

1 Describe the distribution of the plants.

2 Describe the likely pattern of movement of the plants.

3 Why do you think the variety of plants declined the further east people went?

Over 30 new species of plants were introduced from the east into the Pacific during the period of colonisation. There was one exception — the sweet potato is native to Peru in South America and must have been introduced from there.

4 What does this suggest about the nature and extent of navigation and voyaging in the period?
Animal trail
People during their migrations took animals with them. Three of the four most popular animals taken were dogs, pigs and chickens.

1 Why might people have taken these animals on their voyages?

But the most widespread animal in the Pacific is the rat. To see the distribution of the rat, draw a triangle on your map that links Hawaii, Fiji, New Zealand, Easter Island and back to Hawaii.
Rats cannot swim well enough to have spread naturally, so they must have travelled with people.

2 Suggest two reasons why people may have had rats aboard their vakas during their voyages.
Rats may have had a major impact on at least one island and society — you will see this on page 16.

DNA trail
One of the ways scientists can now see connections between people is by studying their DNA — their basic genetic material.
The Pacific people can trace their genetic origins back to the original Austronesians — the people who lived in what is now the island of Taiwan. Some of these people left the area about 5000–6000 years ago, and travelled south, before spreading west into the Indian Ocean and eventually east into the Pacific Ocean.

One debate in recent times is about whether the peopling of the Pacific occurred by deliberate act (a planned voyage) or by accident (such as by being blown off-course during a short voyage and being washed up onto a new and unknown island).
Scientists say that there must have been between 70 and 190 women in the first migration for their DNA to have been spread in the way it was.

1 Does this fact about the number of women support the accident or deliberate theory of original settlement?

The genetic studies also show that migration was from west to east, and that the people with the least genetic diversity, and therefore the most recent group, are the Maori of New Zealand.

2 Does this support or challenge the suggested timeline for migration on page 10?
Congratulations! You are now ready to go on a voyage. What would you need to take? And what would you carry it in?

Look at the illustration below.

1. Identify as many objects or supplies as you can.
2. Why are some being carried in protective storage?
3. What other food might be available on the voyage?
4. Go back and compare this to your first ideas on page 5.

We do not know why people left their known lands to go to unknown and uncertain lands. But here is one traditional story, reproduced in the Vaka Moana exhibition, that might help explain this:

Searching for an island to settle, Matai-welu found Cikobia, in northern Fiji. But it was already inhabited. Matai-welu asked permission from Cikobia’s chief to keep on looking for land. It was granted, as long as he searched only to the east, into the wind.

This he did and found the island of Qele-levu, and settled there.

But when Matai-welu’s sons grew up, they, in their turn, asked his permission to search for new land. He let them go, and they found the uninhabited land of Vutuna.

One of his sons decided he would stay in a new land of his own.

What does this story help you understand about why people migrated?

What qualities do you think voyagers needed?

What skills other than navigational ones must they have had?

Conclusions

You are nearly ready to write your answers to the key questions on page 16. But first, read through these statements and decide from the evidence that you have now seen whether each statement is probably true, probably false, or cannot be known from this evidence. You can record a comment if you need to explain your decision.

<table>
<thead>
<tr>
<th>Statements about the peopling of the Pacific</th>
<th>Probably true</th>
<th>Probably false</th>
<th>Cannot tell</th>
<th>Comment</th>
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<tbody>
<tr>
<td>1. Humans peopled the Pacific from east to west</td>
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<td>2. They spoke the Austronesian language</td>
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<td>3. They took rats as a food source</td>
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<td>4. The Pacific was peopled within a few hundred years</td>
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<td>5. People made deliberate voyages</td>
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<td>6. Some people were expert navigators</td>
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<td>7. The people were adventurous</td>
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<td>8. The voyages carried fresh water</td>
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<td>9. The plants needed to survive already existed on the islands</td>
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<td>10. All voyages were successful</td>
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<td>11. Voyages could not happen until the invention of the sail</td>
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<tr>
<td>12. Voyages could not happen until the development of agriculture</td>
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<td>13. The voyages started from Taiwan</td>
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<td>14. Different places adapted the technology they inherited from their founders</td>
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<tr>
<td>15. Voyages were community activities</td>
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<tr>
<td>16. Pacific voyagers made it to South America and back</td>
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<tr>
<td>17. Pacific voyagers changed the environment of the islands they settled</td>
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<td>18. People of different islands would have all understood each other</td>
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<tr>
<td>19. Navigators were expert in understanding their environment</td>
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<tr>
<td>20. Voyages could only be made when there was a west to east wind</td>
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<td>21. People moved because islands became overcrowded</td>
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<td>22. People expanded in the Pacific over thousands of years</td>
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<td>23. People only moved when they were sure there was land ahead</td>
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<td>24. Navigators were respected and admired people</td>
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<tr>
<td>25. Women were the main suppliers of food for the voyage</td>
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When you have completed this list write your final answers to the key questions on page 2. Well done!
Looking ahead

You have now worked out your answers to the four key questions. There are three more questions that could be asked:

 WHAT was the life that people created on the islands like?
 WHAT impacts did they have on the environment?
 WHAT happened when they came into contact with Europeans?

Here is a small part of the answer. When the Europeans entered the Pacific they found highly successful civilisations, such as at Hawaii, and also disastrous ones, such as at Easter Island.

In 1772 a Dutch explorer landed on the isolated Easter Island, off the coast of Chile.

He saw the magnificent statues that had been built there over time – but found the land in a terrible state, and the people practising cannibalism and in conflict with each other.

We do not know the reason for this, but people have offered various explanations.

Here is one popular one. It involves a list of 15 events which help to explain why the once fertile and prosperous island had reached that stage.

1. Polynesians sailed east to settle Easter Island in the fifth century AD.
2. There was plenty of leisure time.
3. Migration from Easter Island became impossible.
4. Clans competed to carve and erect the greatest number of sacred statues.
5. The staple diet of the new settlers was sweet potatoes and chicken, neither of which required much labour to produce.
6. Soil quality declined, and food production decreased.
7. Logs were used as rollers to shift the statues to ceremonial sites.
8. There was little natural fertilisation of the soil over time.
9. The Polynesians brought no large animals to the island, and no mammals at all.
10. Conflict developed over scarce food resources.
11. People became cannibals.
12. Deforestation occurred on a large scale.
13. There was a shortage of trees for shelter, fuel and canoes.
14. Good diet caused a substantial growth in population, which organised into clans.
15. In 1772 the Dutch Admiral Roggeveen found a degenerating society on a bare island, amid 600 splendid statues (some half completed).

What do you think were the main causes of this situation?

Some scientists have now suggested an alternative explanation: that the deforestation was caused in part by rats that came as part of the migration. The rodents ate the palm seeds and destroyed all hope of regeneration.

Now draw up your own set of logical developments based on this new information. You may decide to leave out some of the factors in the previous explanation. When you have drawn up your sequence, scramble it, and pass it on to a classmate to see if she or he can come up with a logical sequence. You can do the same for your classmate’s list.

What does this activity tell you about the nature of evidence and people’s interpretation of it?

We hope that we will be able to bring you a unit looking at the impacts of the original Pacific colonisers on the environment, and the impacts of the meeting of these people with Europeans, in a forthcoming STUDIES.
A HISTORY MYSTERY  Who peopled the Pacific?
A suggested *Homo* family tree. (Based on Richard Klein, 2004.)
Hawai'i Outrigger Canoe

Marquesas Double Canoe
1. Original tack
2. Luffed to take off way
3. Stopped sheet eased off, sail flapping to leeward and tack being carried aft
4. Mast raked and sheet and tack carried to other end
5. Sheet hauled in, canoe on new tack

Direction of wind
fish hooks
cloth beaters
tools
sails
Breadfruit
Pandanus