

YOUR VIRTUAL DISCOVERY VISIT – 37 TO THE HERITAGE STORIES OF ROTTNEST ISLAND



The Virtual Visit series was initiated during the COVID-19 pandemic when Rottnest Island was closed to the public due to social distancing restrictions and periods of use for quarantine from March to June 2020.

Now that the Island is again open to visitors, these Virtual Visits are continuing in 2021 to enable a further enjoyment of stories introduced at the Wadjemup Museum, the Chapman Archives or sites around the Island.

Enjoy, reflect and share.

THE ANCIENT ART OF FLINTKNAPPING



Chert flakes displayed in the Wadjemup Museum

The occupation of Wadjemup by the Wadjuk Noongar is confirmed by the dating of chert (flake tools) found at several sites around the Island. The oldest from Bathurst Point date to between 15,000 and 40,000 BCE; those from Little Armstrong Bay date between 8,000 and 15,000 BCE; and those from Charlotte Point from 8,000 to 11,000

BCE. The technology was applied thousands of years later during the Iron Age to fashion points from glass.

To appreciate the skill involved in the fabrication of these points whether ancient or modern it is useful to have an understanding of the types and processes of flintknapping or turning raw stone into tools based on the predictable nature in which particular types of stone fracture when struck or have pressure applied.

Flintknapping (today mostly shortened to 'knapping') is an art that has been practised by humans for at least 2.6 million years. The type of tools made depended very much on the type and quality of the raw materials. The artefacts found on Rottneest were made from fossiliferous chert, a microcrystalline form of quartz. Because of its microcrystalline nature, it can be easily formed into useful tools such as spearheads and arrowheads.

Two things are necessary in order to make a stone tool. One is a hammerstone. This is a largish, heavy stone used, as its name suggests, to hammer another piece of stone. The second piece is the core stone, the one chosen to make the tool from. A core stone is used to make a number of smaller implements called flakes. It may also be modified and used as a larger tool. The earliest stone tools were the large shaped cores that were worked to produce cutting edges. Sometimes they were worked bifacially, that is on two sides, and were used like axes for heavy work, cutting trees, shaping wood for spears or cutting up animals.

How Did People **Make** Flaked Stone Tools?

Researchers and craftspeople often use the term "flintknapping" to describe the making of flaked stone tools. The **flake** is the most basic element in flintknapping, and a flake is struck from a rock called a **core**. A flake generally has very sharp edges, making it useful for cutting, scraping, and carving. Some flakes are worked into projectile points for an atlatl or bow.

People's ability to create flaked stone tools is based on their understanding of the phenomenon of **conchoidal fracturing** and their discernment of the materials that fracture this way.

Labels in diagram: pebble, pane of glass, cone of percussion (conchoidal fracture)

Consider what happens to a pane of glass when a pebble hits it at high velocity: This impact sends a wave of energy through the glass, and the wave creates a fracture. If you look at the cone in the right light, you can see radial rings. Those rings or ripples form as energy from the impact travels through the glass. This is comparable to the ripples of energy you see when you throw a rock in a pond.

how a flake is MADE

Labels: HAMMERSTONE, CORE, FLAKE, FLAKE SCAR

Only rocks with a high silica content (like glass) produce predictable flakes.

Flintknappers primarily use

Labels: PLATFORM (POINT OF IMPACT), BULB OF PERCUSSION, FLAKE

Ripples show the direction energy traveled through the rock.

getting to the POINT

Extract from Stone Tool Fact Sheet

https://www.archaeologysouthwest.org/pdf/stone_tools_fact_sheet.pdf

The core stone was also used to make smaller implements called flakes. These had very sharp edges and could be made into different types of tool such as arrow heads, spear heads, scraper tools and blades for cutting and carving. Flakes were sharp enough to be used almost straight away, but over time were often re-fashioned to suit their purpose. In much the same way as we have different types of knives with different uses. The process to do this was called retouch and was often done using a different medium such as bone. This was used to pressure flake the tool by carefully pushing at the edges to the desired effect.

The makers of these tools needed an understanding of the way in which the various types of stone fractured. Flint and chert fracture when the rock is struck, as ripples of energy impact through the stone. This is called conchoidal fracturing. It creates a bulge on the flake called the bulb of percussion which is one of the features of a stone tool that allows it to be defined as made by humans, rather than formed naturally.

Therefore, the core stone was carefully chosen. It wasn't a matter of just bashing the core with the hammerstone (although that could give you a workable flake). With practice, it is possible to produce exactly the type and size of flake you want to make.

In the newly opened Wadjemup Museum there are three of the few stone tools that have been found on the island. Some of you may wonder, if so few stone artefacts have been found on Rottnest, what is their importance?

You will have heard of the terms Paleolithic and Neolithic. These refer to the technology of toolmaking during those time periods. From the very early basic tools like hand-axe cores and flakes we can see innovations over time such as spears and arrowheads that allowed better hunting. Then more intricate needles and fish hooks fashioned from bone using finer stone implements. Later there were beads and other jewellery, beginning art works and bone flute musical instruments. These items tell us stories. For example, they show the technology of the people making them and the way this changes over time.

So the stone tools found on Rottnest do have importance. The fact that they are made from a chert that is not found on Rottnest shows that they came from elsewhere. Various studies of the seabed between the mainland and Rottnest show deposits of similar chert. The tools have been dated to a time prior to Rottnest's separation from the mainland. This shows that people were occupying or at least using the land now covered by the sea between the mainland and the island.

This Virtual visit only skims the knowledge of prehistorical archaeology on Rottnest. If you would like to know more about the fascinating subject of knapping, refer to the publications below. The second article argues that the chert tools found in the south-west of WA may have been sourced as far away as the Nullarbor Plain...perhaps this suggests travel and trade? I intend to follow this up and will let you know of my findings.

Firstly, our very own RVGA Chapman Archive has 24 items under the Category ABORIGINAL-Sites

Then online:

<https://fremantlestuff.info/fhs/fs/7/Dortch.html>

https://www.researchgate.net/publication/311237610_Challenging_the_%27offshore_hypothesis%27_for_fossiliferous_chert_artefacts_in_southwestern_Australia_and_consideration_of_inland_trade_routes

https://www.researchgate.net/publication/307809099_Rottnest_and_Garden_Island_Prehistory_and_The_Archaeological_Potential_of_The_Adjacent_Continental_Shelf_Western_Australia

https://www.researchgate.net/publication/262771011_Bifacial_Flintknapping_in_the_Northwest_Kimberley_Western_Australia

Now for some books you may find of interest and there are many others. These are older texts from the time when I was at university, but they are still valid and interesting. You may need to ask your local library to find them.

Flood, Josephine, *Archaeology of the Dreamtime*, NSW, Collins, Angus and Robertson Publishers, 1992

McCarthy, F. D., *Australian Aboriginal Stone Implements*, Sydney, Australian Museum Trust, 1976

Connah, Graham, ed., *Australian Field Archaeology*, Canberra, Australian Institute of Aboriginal Studies, 1983. See especially Chapter 11 by R. V. S. Wright on Stone implements. He taught me how to make stone tools.

Note: The term “flintknapping” comes from the late 1800s—people who made gun flints for rifles in Europe were called flintknappers.

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