



membrane

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## **Membrane**

### **noun**

1. Anatomy. a thin, pliable sheet or layer of animal or vegetable tissue, serving to line an organ, connect parts, etc.

2. Cell Biology. the thin, limiting covering of a cell or cell part.

the natural













Black wattle bark is thought to have been used by Ab-  
originals for its tannins. Tannins essentially form a layer of  
protection around wounded living cells hence their preserva-  
tion of hides and skins.





Yellow box is a tree which is not as common in some areas as the 'river red gum'. European settlers were able to tell that the soil was fertile if a yellow box was growing. When in blossom the yellow box produces a large amount of nectar.

the natural



the natural

Pine is the traditional timber used for tar making. Compared to native timbers pines cellular structure is made up of a much larger quantity of resin.



traditional processes





traditional processes



traditional processes

“When the Viking went to England or to the East to plunder and raid their ships had to be treated with tar to make them waterproof. The tar was also used to impregnate wooden houses and stave churches.”



After about an hour the tar starts to flow, and it will continue to run for 4-5 hours.

<http://vimeo.com/40581474>





## traditional processes



[http://1.bp.blogspot.com/-0HOimx44oYg/TsIxp3S7PxI/AAAAAAAAADk8/7mH-ULrRGWQ/s1600/IMG\\_8253.jpg](http://1.bp.blogspot.com/-0HOimx44oYg/TsIxp3S7PxI/AAAAAAAAADk8/7mH-ULrRGWQ/s1600/IMG_8253.jpg)



[http://www.mysticseaport.org/morganblog/wp-content/blogs.dir/7/files/2013/08/IMG\\_3769.jpg](http://www.mysticseaport.org/morganblog/wp-content/blogs.dir/7/files/2013/08/IMG_3769.jpg)

## traditional processes

Instead of cutting planks Vikings opted to ‘split’ their timber into lengths. This made the hull of the boat easier to bend and also added greater strength.

Each plank of timber on the hull was individually ‘caulked’ a process which involves wool soaked in tar and then placed between two planks of timber. This forms a joint which is both watertight and flexible enough for conditions at the open sea.

traditional processes



traditional processes

When producing materials on a small scale you can connect and perceive them entirely different to that of materials which are mass-produced.



crafting





crafting



crafting



Wasted materials (by-products) from making a product, have the potential in the manufacturing process to become as important as the product itself.

being connected

**Do you have to be cognitively connected to your landscape to have an appreciation for materials?**

Manipulating materials and natural resources is something man has been doing since the beginning of time. It is inevitable that as the human race evolves both socially and technologically, we then begin to relate to objects and materials differently. In the process, however, this evolution impacts the way we use, interact and associate with particular materials and/or artefacts. An important consideration when asking why our appreciation increases or decreases is the environmental context in which we see or have seen the material. Because of our rapidly advancing social landscape, for many this experience is often done so in an already processed form, from significantly altered materials.

One's relationship with a material can often be understood by their perceived spiritual identity within the landscape. The Vikings as a civilisation had an extremely deep understanding of their surrounding environment. One thing that came with this was their ability to technologically advance materially far quicker than their European neighbours, both on land and sea. Their Norse gods were particularly influential in this advancement as can be referenced in many physical artefacts found from that period of time. Thor, one of their most respected gods, second to Oden (O'Donoghue 2007). Was thought to be a hammer-wielding 'protector' of the land, in spite of the fact that his hammer 'Mjölfnir' is related to other European words for thunder, it can be seen that his protectoral role is transferred to the physical process of forging. Blacksmiths used hammers to forge iron and steel into all sorts of objects, one of the most obvious being weaponry such as swords and axes (Price 2010). But blacksmiths also created everyday tools, which were then used to manipulate all forms of raw materials. It can be seen from that symbolism of the hammer, they had from the very beginning, engrained in their culture was an appreciation for the workmanship of raw materials into functional objects (Nevelson et al. 1972). When transforming something from its raw state the Vikings would look at its natural form, for example, to pick a section of timber which grew a certain way to then naturally add strength to the end object. Accepting that nature is at the centre forced them to broaden their expectations of what something was or was not, for example when making pitch it's near impossible to imagine that a physical living tree with

the addition of heat can be destructively distilled into a semi-solid black substance within a number of hours (Destructive Distillation of Wood n.d.) (Leirpoll 2002). But it's because of this deeper understanding of what a material could be in its natural environment, that they could then go on to create products which were natural and at the same time highly efficient.

Knowledge of the land is something that can also be passed down in a metaphorical sense, which in turn then leads to a far greater recognition for materials. Through the dreaming, it's understood that Aboriginals actually believed they were born from the land. This belief that the land essentially was their mother, brings with it an obligation to care and nurture everything that grows within the land. Because they had a very strong affiliation of what the landscape was and believed parts of the land were once created from 'totemic' animals (with examples such as the snake forming rivers still inhabiting the landscape today)(The Dreaming n.d.). This in turn forced them to see the land, not as an adverse object which had to be overcome but rather harmoniously worked with. When European settlers first arrived in the 1700's (Role of Aboriginal people in the exploration of Australia n.d.), they had no knowledge of their surroundings and the abundantly available 'bush tucker' around them. This forced them to bring their own source of food with them. However, when going on expeditions for extended periods of time it wasn't feasible to carry large quantities of food aboriginal guides were brought along just so that they were able to survive. Although the Aborigines practices perhaps seemed unconventional, there was a very effective methodical approach to their practices(e.g. fire stick farming, middens etc.) (Bliege Bird et al. 2008). Because of aboriginals' spiritual connection with the land they were able to identify the 'potential' of a material. An example of this would be extracting the toxic thiaminase from 'nardoo seeds' (commonly known as wattle seeds) to then make it edible, a skill many believe European explorers 'Burke and Wills' didn't execute properly (Role of Aboriginal people in the exploration of Australia n.d.). When thinking of what I can make with the material tar I have tried to take a similar approach, in highlighting its waterproofing qualities as opposed to its texture or smell. To put into context if you actually haven't seen what water over time can do to timber in its raw state, you would have no comprehension that waterproofing it is a positive.



Advancing technologically basically creates and puts objects into a landscape, which we 'want' but don't necessarily 'need'. The industrial revolution in recent years has significantly altered the setting in which we view and experience artefacts. Thus also changing societies connection with the material to a more idealistic connection in contrast with as a pure material connection or a metaphysical spiritual connection (Latour 2007). With objects being manufactured on such a large scale, they are often carried over into your surrounding environment as both functional objects and at their end of life, if they're not able to be recycled will become 'rubbish'. This then creates an environment which is basically dominated by 'unnatural' matter, creating an augmented reality of what the landscape should look like. The landscape is often the one that is modified to accommodate the needs of the object, for example, asphalt is laid on most main roads so that heavy cars can now move seamlessly over it at high speeds (History of Roads n.d.). Moulds have the potential to pump out millions of high tolerance objects, however often attached to these objects is a planned lifespan of only a few years, this degenerative practice is called planned obsolescence. This then makes a product which once may have been considered a piece of craftsmanship, in its initial conceptual stage to a repeatedly morbid eyesore (Latour 2007). What makes objects that are crafted by hand intriguing is the subtle or sometimes not so subtle references to how the raw materials would once have lived in their natural environment (Ingold 2007). Though even with deliberately imperfect objects without backing knowledge of the landscape in the first place, it's difficult to attach sentimental value.

Understanding what an object means may often become misconstrued. It is clear however that there is an inherent relationship between appreciation and understanding the process of transforming living material from its landscape into a finished end product. But is it possible that we have advanced to the stage where the initial raw materials have little to no meaning? As long as the processed raw material conforms to it's desired shape? Once the object has been manipulated from the processed material it can be seen as then carrying its very own personality and story to what happened along the manufacturing process. However, when the object has established itself, could it potentially create it's very own harmonious landscape, much the same as it had in its living raw state?

the unnatural

AREA  
CLW 12



The refining of the sap into rubber starts with a process called 'tapping', which is basically scraping the bark with a hooked blade, and allowing the sap to ooze out and then funnel into a cup below. Then strain impurities and mix in formic acid which then coagulates the sap and continues to thicken it to a point where it can be rolled out into a sheet. Formic acid is then rinsed off and the sheet is ready to dry into a solid.

Glass is made by mixing a combination of minerals and subjecting them to extremely high temperatures. Silica in the form of sand is the main ingredient which is mixed with soda ash and limestone and then melted to temperatures of approximately 1700 ° Celsius once at this temperature it then turns into molten where it can then be manipulated by means of being poured, blown, pressed and moulded into variety of shapes.



Aluminium in its raw state can actually be found in all types of clay. However the most useful for producing aluminium in pure form is bauxite. It's manufactured in two phases, firstly the bauxite ore is refined in the bayer process which involves numerous steps including crushing, washing and heating to obtain aluminium oxide. The second phase is the Hall-Heroult process which is the smelting of the aluminium oxide. This is basically filtering the pure molten aluminium to the bottom of the pot where it is then siphoned off and cooled to form pure aluminium.

Asphalt is a combination of crushed rock, sand, filler and bitumen. The crushed rock in asphalt is most commonly granite. To get to the stage where the granite is ready to use in the asphalt it must first be mined. The granite is blasted off large rock walls where it is then collected as large boulders. They are then transported to a primary crusher, crushing the granite smaller than 20cm. The granite rocks are then filtered over screens with holes 10cm wide. The granite is then sent to a 3rd or tertiary crusher which then produces rock which are 2cm or smaller.



the unnatural

Bitumen is often referred to as tar. It is a black, oily, viscous material that is a by-product of decomposed organic matter. To cater for the massive demand for bitumen in road systems it is most commonly sourced and refined from crude oil.

the unnatural



contemporary processes

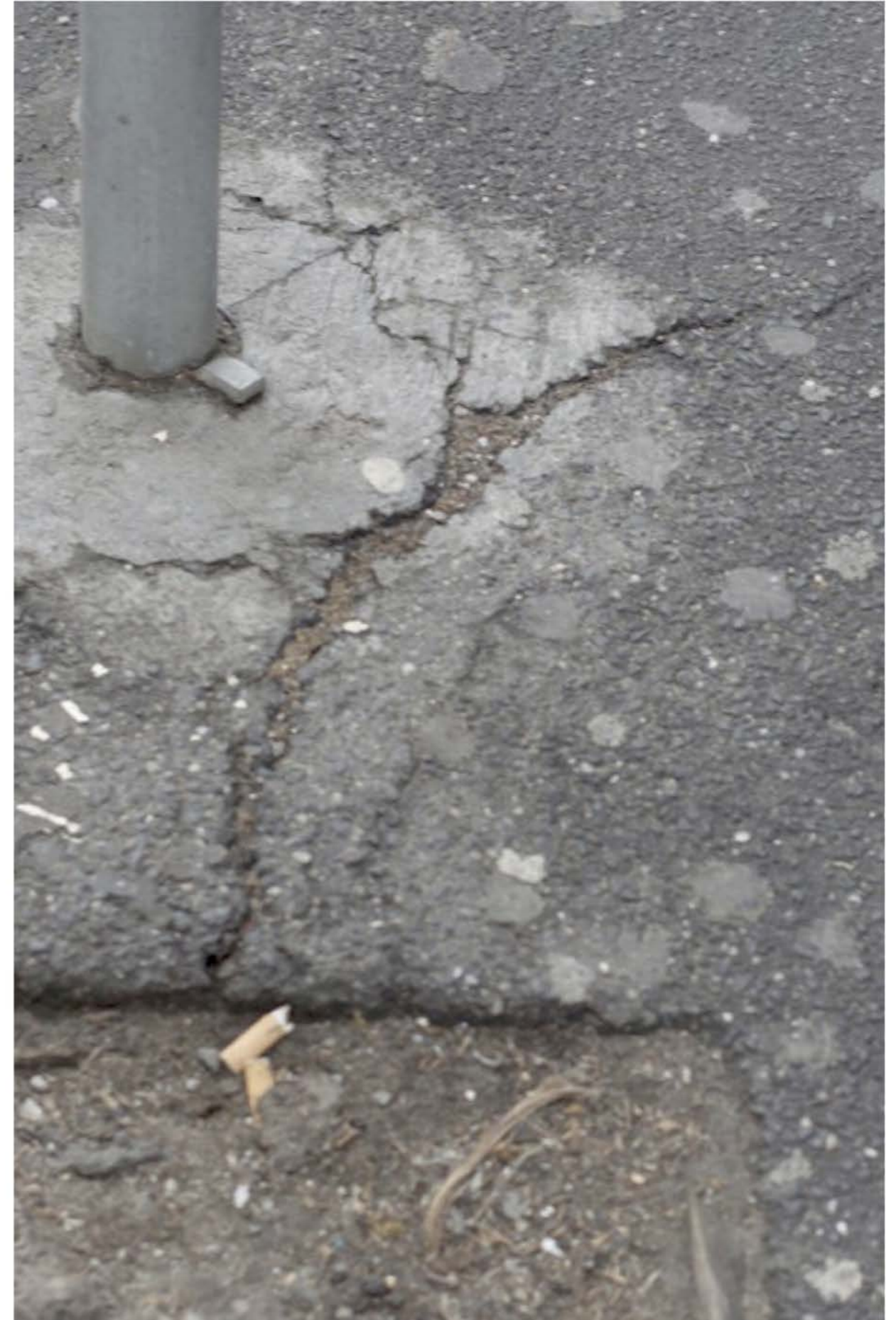
Freshly laid bitumen gives off a very distinct strong scent. When bitumen doesn't get a chance to reform and mould it self to changes it can become very brittle and will begin to 'crack' open.







Asphalt is repetitively put over 'potholes' to even out the road. In the process leaving the road layered with several different shades representing different periods of time.



mass production



Bitumen acts as a binding agent for rock and sand. After exposure to the elements it then begins to do the same, acting as a catalyst. Objects are slowly encased in the bitumen and although never intended to, then become apart of it.

mass production



mass production

DANGER  
NO PEDESTRIAN  
ACCESS

FIRE  
HOSE

PRIVATE PROPERTY  
NO ACCESS THROUGH  
THE MARKET  
DO NOT ENTER





mass production

Asphalt as a surface provides a certain degree of friction to the objects on top of it, meaning that they can then go on and do their intended function.

mass production



interpretation







interpretation



A transition from perceiving a mass produced product into an individualistic artefact, at the same time bilaterally obtaining the key properties of the mass produced tar supplying a waterproofing membrane for a surface.

interpretation







‘Aloft, floating free beneath the moist, gleaming membrane of bright blue sky, is the rising earth, the only exuberant thing in this part of the cosmos.’

- Lewis Thomas

<http://www.ruf.rice.edu/~few/lewisthomas/membrane.html>

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