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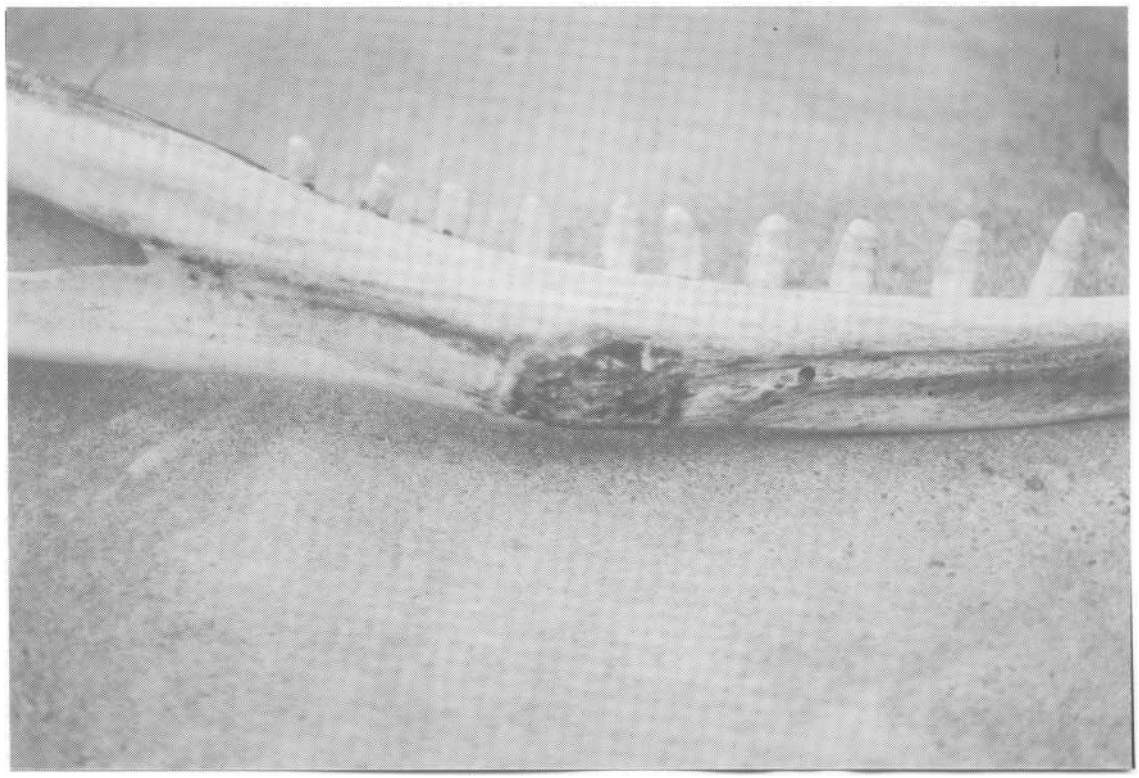
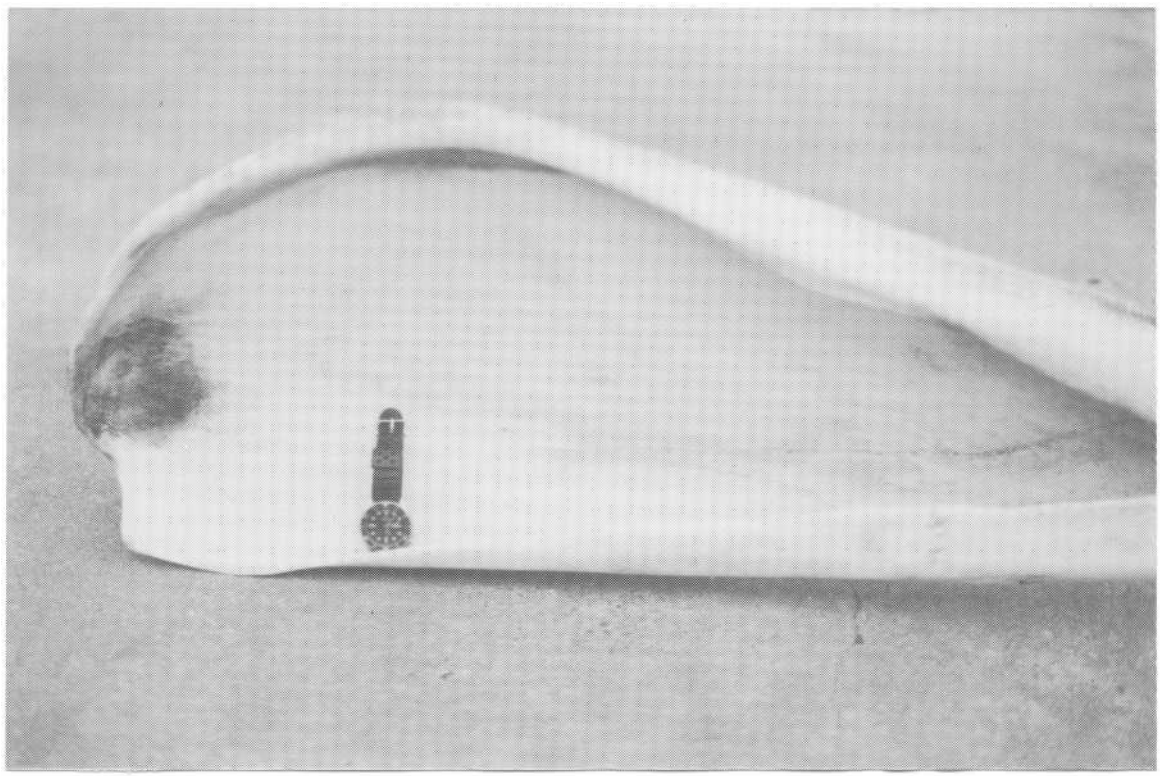
Photograph 5: Showing heavy sinew ball and inside of jawbone



Photograph 6: Showing inside of pan bone



Congratulations, half the job is done.

Apply what was done to first side to recover second half of jawbone. A handy hint here is to tie a piece of rope to jaw tip, asking your colleague or bystander to pull jaw up to facilitate cutting on outside/underneath of pan bone.

3. JAW PREPARATION

Method 1

Three methods are advocated here, the former is rapid preparation and the latter two lengthy process, only insofar as time is concerned.

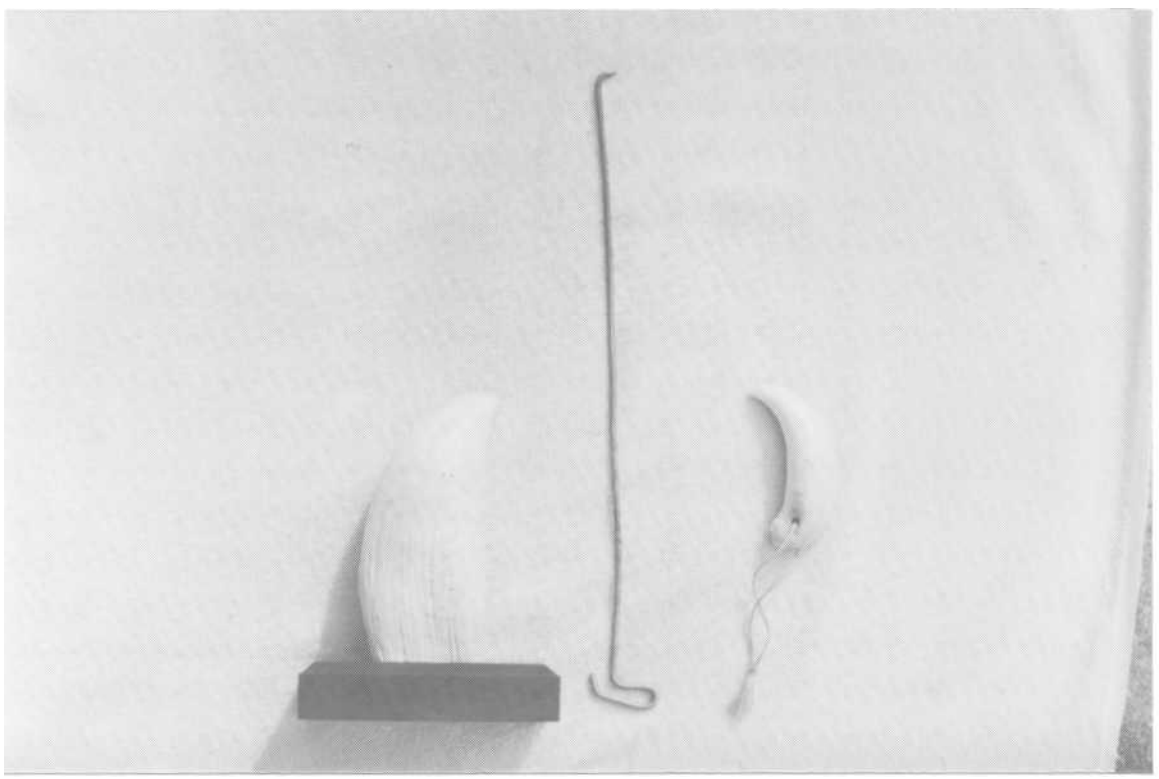
A Cleaning

The first step is to take both halves of jawbone as soon as possible after removal from whale and strip all meat, oil, blubber and gristle from them. This is a lengthy job and can take upwards of four hours to complete properly.

Sharp, thin bladed knives are excellent for this task. From personal experience the best way to deal with this material is to use the knife like a spoke shave and shave long thin strips of unwanted material off bone.

Inside the pan bones contain a large amount of very fine suspended oil and as much of this material as possible should be removed by clawing it out with your fingers. A length of No.8 wire which has been hammered flat like a spoon then bent at right angles is excellent to push down inside pan bones and used to scrape/break this material up. This simple yet effective tool is shown in Photograph 7 below.

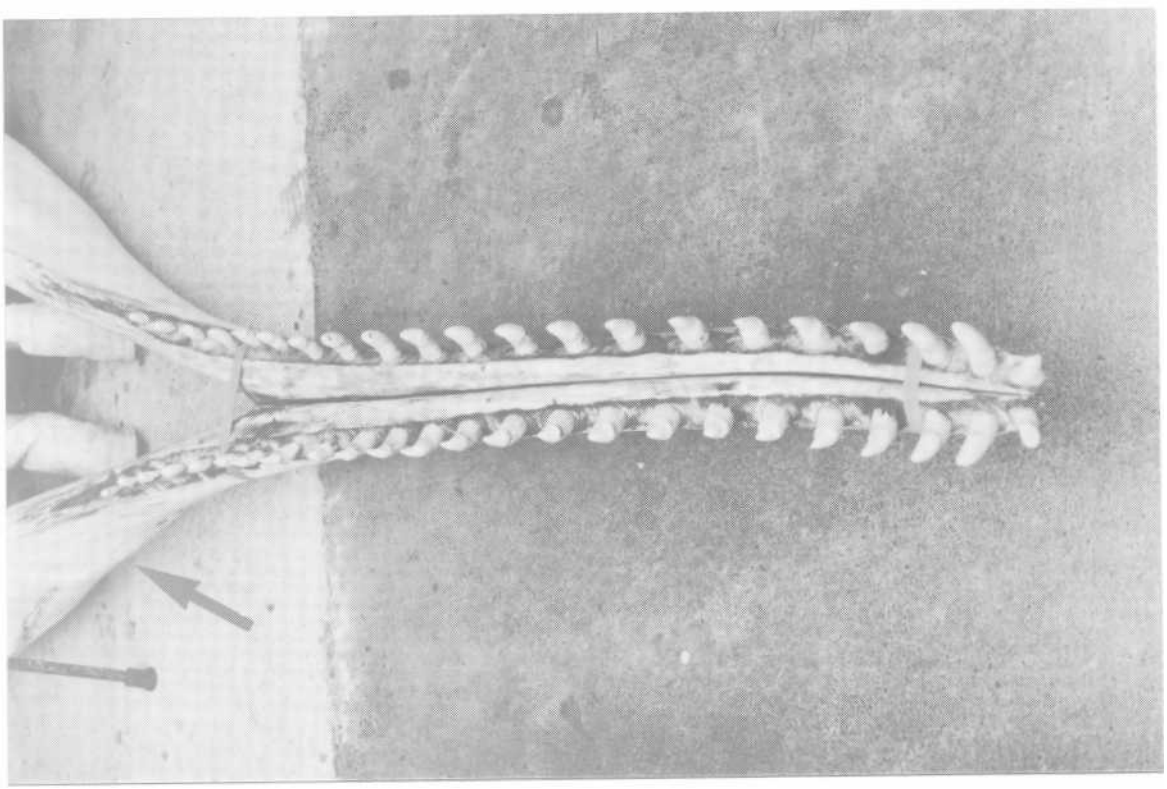
Photograph 7: Wire Hook



Care should be taken to shave the gristle off each tooth, down flush to solid bone as shown in photographs 8 and 9.

Photograph 8:

Photograph 9:



Of special interest in photograph 9 is the slightly bent jawbone and an ancient break which has completely knitted, can be clearly seen on true right pan bone when compared to true left pan bone. How this injury was sustained will never be known but how the animal fed itself prior to this injury repairing itself certainly raises a few very interesting questions?

Without a doubt the best site to complete this operation is on a riverbed and in shallow running water to clean away cut and unwanted material.

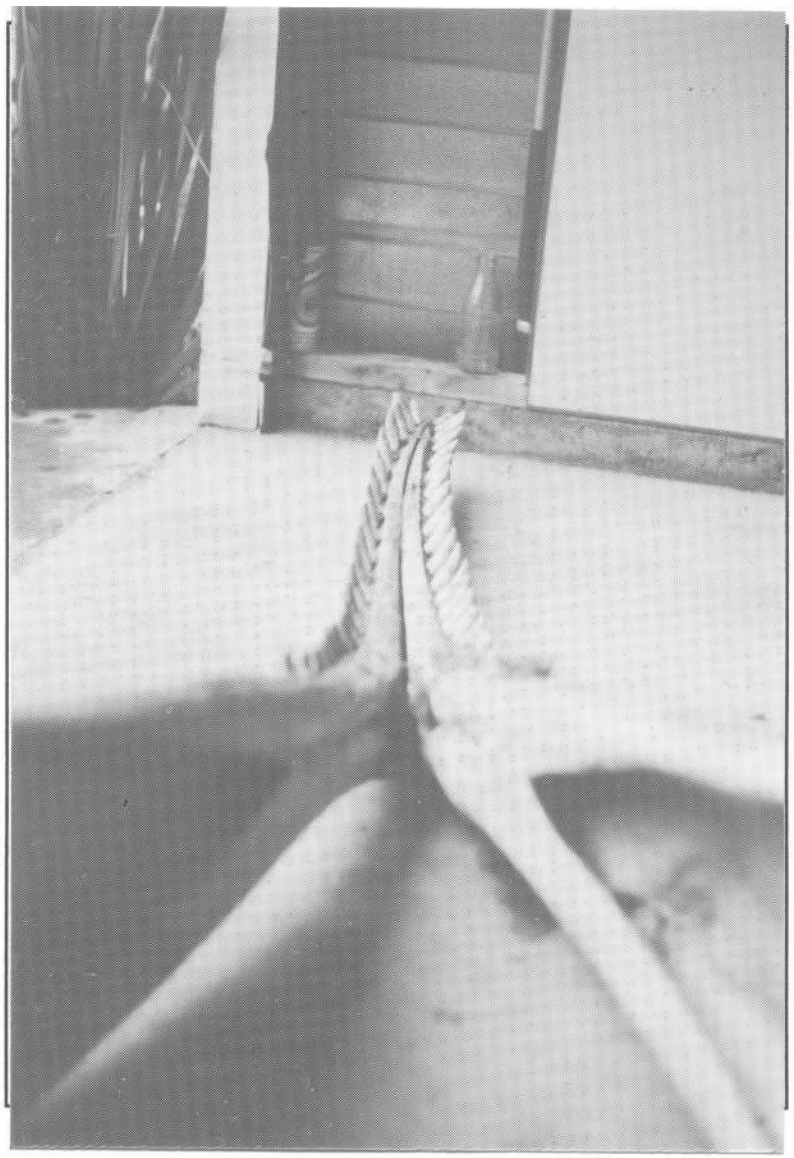
B Steam Cleaning

The next step in cleaning work is to locate a major Works and Development facility or similar heavy machinery workshop. Most of these facilities have an industrial steam cleaning shed. For a small sum I am sure these folk would let you use this equipment to clean and degrease whale bone.

Carefully work hot steam over bone surface where it will semi cook and blow off any small remaining pieces of meat and sinew material.

Be careful not to point steam pipe directly at teeth and gum area as I suspect it would blow the teeth out especially the smaller ones at rear of jawbone, if left too long. Once the outside is cleaned up, work steam over inside of pan bones to clean these. Then insert steam hose into panbone cavities as shown in photograph 10.

Photograph 10:



Leave steam pipe in cavities for approximately 40 minutes each. This will effectively remove all traces of oil from inside jawbones.

A small amount of whale meat will remain inside pan bones near tip of jaws but maggots will clean this material within a few weeks. To speed eating process, put several pieces of flyblown whale meat down the inside of pan bones on a piece of string.

Take a 10mm drill and drill 4 holes on each side of jaw bone as shown in photograph 5. This will give maggots extra access points to meat in jaw tip. When jaw bones are finally assembled these holes will not be seen from the outside.

Curing Gum Material in Jawbone

Mix up a 5 litre plastic container of 50% formalin and 50% water.

Obtain a large hypodermic syringe and carefully inject formalin mixture down between whale teeth and gum line. Every couple of days, for 2 - 3 weeks, keep topping up these areas with fresh formalin. Rip up some old sheets into 300cm wide strips and soak this material in formalin. Zig zag these saturated sheets around whale teeth, every couple of days these sheets should be resoaked and applied to teeth to ensure a constant supply of formalin dripping onto gumline. While the formalin is soaking into gums it is a good idea to leave jawbone out in sunlight on fine days to assist with bleaching/drying process.

After approximately 2 weeks, push some thin high tensile fencing wire into the two small holes located on outside of pan bones (see photograph 8 and red arrows marked). This will break up what remaining decomposing meat exists inside jawbone and give maggots additional access inside jaw from these sites.

At approximately 5 weeks when maggots have ceased their activity apply neat Lux dishwashing liquid and vigorously scrub all of the jawbone with a stiff nailbrush to remove any remaining stains, oil, and flush away with clean water.

Your jawbone is now ready for final assembly.

D Jawbone Assembly

Apply two G clamps, one near heavy sinew joint and the second about 35cm back from jaw tip.

Drill two 4mm holes through jawbone with a long, thin drill bit, countersink both sets of holes on both sides of each jawbone (4 holes). With an 18mm auger bit, drill slightly deeper than the depth of the stainless steel nubs you intend using to bolt jaw together.

Visit a ship chandlery and obtain one long threaded, 8mm stainless steel rod and a 4mm threaded rod, complete with nuts. Thread 8mm and 4mm nuts onto one end of respective threaded rods and penn over with ball penn hammer, then apply araldite to inside of nut threads to effectively freeze them permanently into position.

Carefully calculate the length of bolt required just short of overall width of jaw so that bolt heads do not protrude outside jawbone when free moving nuts are done up tight.

Cut and grind off excess threaded shaft. It is well worth doing several test shots to ensure that stainless steel nuts or threaded shafts do not protrude past the outside edge of the pan bones.

Obtain an 8mm masonry drill, slowly push drill through the jawbone at gap taking care to save all fine drill dust. Insert 8mm and 4mm threaded shafts and give all nuts a final check/tighten.

Mix the required amount of white fibreglass adding in all the drill bone dust. Fill holes with this mixture, making sure slightly more filling than necessary is used. When the fibreglass has cured it can be filed off and sanded flush with the bone. This final result effectively makes stainless bolts, nuts and countersunk holes invisible.

Don't use brass bolts as brass will eventually oxidise and turn green.

The jawbone shown here was completed within 6 weeks of removal from sperm whale, sun bleached white and did not smell, or ooze oil.

Photograph 11: The Finished Article

JAW PREPARATION - IMMERSION IN SALT WATER - TEETH IN JAW

Method 2

Without a doubt this method is less time consuming than the first, however, there is always a chance some bright spark is going to locate the jaw and swipe the lot!

Cleaning

Bone out as much meat/gristle as possible but it is not necessary to be as thorough as the former method because marine life will consume most of the unwanted material surrounding jawbone and teeth. Claw as much suspended oil material away from inside panbone as possible with your fingers. It is helpful to take clear, closeup photographs of teeth in jaw so they can be relocated in their correct sockets once jawbone is ready for re-assembly.

Obtain a good quality heavy galvanised pea netting and carefully wrap this around jaws to ensure that once gristle material is rotted away, the teeth are not lost from the jaw!

Make an appointment with your local harbour master and explain what you are doing. These folk will probably suggest a safe site with a sandy bottom, in shallow water where you can deposit jawbone away from prying eyes.

Discreetly go out at low tide and lower jawbone over the side with 3 stout ropes attached. Adjust ropes to ensure they will not be observed from surface then tie 6 long lengths of heavy longline monofilament line to your 3 ropes.

A site I utilise is a navigation buoy as most of these have a series of eyes welded to sides where heavy monofilament lines can be tied. Do not tie off onto anchoring chains as rough weather conditions and resulting movement in chain links will cut through monofilament lines.

Uplift jaw every month to monitor progress, during colder winter months decomposition can take longer than in summer months. Jawbone should be clean in approximately 8 - 10 weeks.

Depositing bone on a sandy sea bed would appear to be best as sea lice are more prevalent on this type of sea floor.

When jaw is clean, apply a high pressure hose especially inside panbones to blow out any remaining flesh. Remove pea netting and number teeth with pencil so that if it is decided to reassemble jaw complete with teeth these can be put back into their correct sockets. Photographs taken previously are an excellent backup should pencilled numbers be accidentally rubbed off.

It is a good idea to remove any traces of whale oil from the jaw by pouring regular grade petrol over jaw bones with a watering can. Do not use super grade petrol as it will stain bone pink. Put both jaw bones out on your shed roof for 3-4 weeks, sunlight and rain will do the rest and bleach bone nice and white.

If it is decided to reassemble jaws this can be done as previously described.

Setting Teeth in Jaws

Teeth can be reset into sockets using white fibreglass. This is an excellent method as it effectively stops light fingered folk uplifting whale teeth later on.

JAW PREPARATION - IMMERSION IN SALT WATER - WITHOUT TEETH IN JAW

Method 3

If it is felt that whale jaw and teeth could be stolen from your selected site then teeth can be removed and just jaw bone put into salt water. I doubt very much whether anyone would want to put this decomposing material onto their boat for obvious reasons.

Removal of Teeth

Use a sharp knife as shown in photographs 12 and 13 and carefully push knife down all the way around the edge of the tooth/gumline. For every third of tooth exposed roughly two-thirds will be below gumline. Firmly apply pressure towards yourself on knife handle and use knife tip, this will effectively sever roots of teeth.

Photographing teeth in jaw is an excellent idea. Should teeth become mixed up or numbers rub off teeth them you have an excellent record of the teeth and their correct placement in the jaw. Scratching numbers on teeth below gumline with knife tip is also a fail-safe method of marking teeth but again this depends on what is intended with jaw/teeth.