# TROPHY CARE

## Skull Preparations

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"EGADS, IF I BOIL MY COUGAR (BEAR) SKULL IT'LL SHRINK AWAY LIKE A SOUP BONE, FALL APART AND NEVER MAKE THE BOOK."

This is one of the more frequent comments received by Jack Reneau, Director of Big Game Records, at the Boone and Crockett Club Headquarters. *Shrinkage*, the word that terrifies hunters who have trophy skulls that, when green scored, will make the minimum entry level into "The Book", but when incorrectly cleaned don't quite make it. Many things can happen to the skull that has been too harshly boiled; the Zygomatic arches pop apart at the suture lines leaving two distinct offset bone masses; the outer layer of bone can flake off from overcooking and harsh bleaching, the teeth fall out and the nasal bones crumble from the heat treatment and Clorox bleaching. You can safely clean skulls to avoid these catastrophes.

Before explaining the various processes of skull cleaning prior to Official Measuring, I would like to quote the Boone and Crockett Clubs' official measuring information book, Measuring and Scoring North American Big Game Trophies. The text on skull measurements states, "*All flesh, membrane and cartilage must be removed from the skull before a measurement can be made. As with all trophies, a 60-day drying period after death must be observed before an official measurement for trophy entry can be performed. You should also note that if the skull has been "boiled" to remove adherent flesh, an additional 60-day drying period (starting with the boiling date) must be observed before the measurement can be officially performed. Similarly, if the skull has been frozen, or stored under any conditions other than normal atmospheric ones, an additional 60-day drying period, under normal atmospheric conditions, must be observed before measurement.*" Simply stated the skull must be cleaned and naturally dried for 60 days "after boiling, bleaching or freezing" before an official measurement can be made.

I have cleaned skulls from all parts of the world for years and have used a variety of methods. The most common method used in the past was boiling. A skull can be cleaned by boiling but if you do not pay close attention to what you are doing you will end up with a horrifying mass of shrunken bone and perhaps a trophy skull that will score less than it would had it been cleaned by another method.

Three distinct, and very different methods of cleaning skulls will be explored in this article. Although all three methods will produce a clean skull, I have found the enzyme detergent maceration process to be the most preferred method. This process will be described first.

> " A well-maintained colony of reproductive beetles can clean a bear or cougar skull in one day..."

### GENERAL INSTRUCTIONS FOR SKULL PREPARATION

- Remove as much flesh from the skull as possible. The more flesh you remove at this stage the faster the cleaning process will take place.
- Remove the lower jaw from the skull and clean it well.
- Insert a small metal probe or rod through the foramen magnum (small hole in the back of the skull) and mash up the brain as much as possible. Much of the mashed up brain parts can be pulled out with long forceps or scooped out with a long-handled spoon. A small diameter, high pressure nozzle on a garden hose can also be used to hasten the evacuation of this cavity.

### ENZYME DETERGENT MACERATION

- Obtain a metal container large enough to hold enough water to completely immerse the skull. When preparing an antlered animal's skull for a European head (skull) mount immerse the skull in the solution up to or just above the antler burrs.
- Mix one teaspoon of Arm and Hammer washing soda per gallon of water. (Note: more soda is not better in this solution!) Also be sure to use washing soda rather than baking soda! Heat and maintain the temperature of the solution so it has steam rising from the surface but do not allow it to boil. The hot detergent solution will break down the adhesion of the tissues to the bone.
- After about ten or fifteen minutes much of the flesh will be loose. Remove the skull from the solution and scrape as much of the loose flesh from the skull as you can with the non-serrated edge of a table knife. You can also flush more loose brain material out of the brain cavity.
- Place the skull in the solution again for about ten minutes, remove the skull and gently scrape more of the flesh from the bone. Usually the skull will be clean after two immersions although more may be required in some cases. The veins can be removed from their individual canals with an air nozzle. Be sure to cover the exit area with a rag before blowing them free, to avoid splattering.
- When the skull is clean you may wish to remove the cartilage from the nasal cavity.

### BLEACHING

- Bleaching works best immediately after cleaning.
- Immerse the skull in a general

drug store strength hydrogen peroxide using a plastic or ceramic container. NOTE: You must wear rubber gloves and eye protection when using hydrogen peroxide. If your skin comes in contact with the hydrogen peroxide, rinse thoroughly with running water for a few minutes.

• Remove the skull when it turns a creamy white color. This usually takes a couple hours. Do not leave the skull in the hydrogen peroxide solution any longer than necessary to turn it a creamy white color.

• Once the skull is bleached it needs to be defatted. Rinse the solution off and place the skull in a tub of hot tap water. This process will remove the fat and oils from the skull. Repeat with a clean hot water solution every 20 minutes for three immersions.

• After the third hot water immersion, remove the skull and place it on a clean white cloth surface to dry. Do not use a colored cloth because it will transfer the color dyes to the skull.

## Insect Maceration

The second type of cleaning process is insect maceration. This process uses the dermestids beetle larvae to clean the soft tissue from the skull. Coastal Alaskans use sea lice to carry out this cleaning technique, but you stand the chance of losing your skull to crabs, tides, etc., plus we don't all live in Alaska. The dermestids beetle larvae will remove every minute particle of soft tissue inside and outside of a skull in a very short time. This process does not require boiling and is very fast. *How fast?* A well-maintained colony of reproductive beetles can clean a bear or cougar skull in one day, or a musk-ox in three days. If allowed entry into your home these beetles will eat just about everything of a natural fiber, including your hunting trophies, sweaters, wool carpets, etc. Removal of these beetles is very costly, both in time and money. In order to accomplish this quick cleaning feat certain conditions must be controlled at all times for the beetle.

In order to maintain their appetite, you must correctly reproduce their breeding environment, and control the humidity and temperature on a year around basis. Also, multiple colonies must be maintained to promote high tissue consumption throughout their continuous reproductive stages. This cleaning method is superior to any other method to maintain the true size of the skull, and it is carried out under natural atmospheric conditions. Since this specific type of cleaning is natural, a skull can be measured immediately after the 60-day drying period. Although, immediately bleaching the cleaned skull to kill the hidden beetles is highly advised.

To reiterate, if bleaching by immersion, or by painting on of any bleaching solution is done after any cleaning, you must wait another sixty days before official measuring can take place. Cleaning with beetles, in my opinion, is the best method available, and upon inspection a beetle cleaned skull is unmatched in quality to any other method. All minute bones are intact, all arterial and veinal canals, crevices and hidden spots are cleaned to perfection and it is cleaned naturally, with shrinkage kept at its lowest point.

## Bacterial Maceration

The third method of cleaning a skull is bacterial maceration. Bacterial maceration produces very good skull specimens. It is also easy to watch and control so the cartilaginous parts of the skull may be saved. The process of bacterial maceration does become very smelly and takes longer than other methods.

The skull should be prepared for immersion in the bacterial culture as I have described for enzyme maceration.

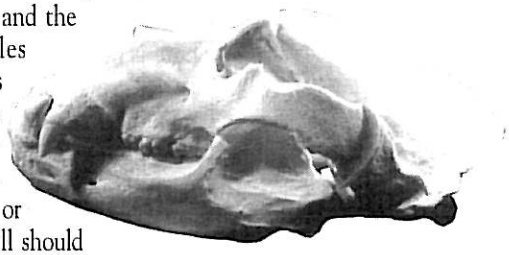
• Start the bacterial culture in a container that can be fitted with a fairly tight lid. The bacterial culture is started by adding a few horse fecal balls to warm tap water. The culture should be kept warm, preferably between 90 and 98 degrees Fahrenheit. Bacterial maceration is easily done in the summer when the container can be placed in a well ventilated, sunny area allowing the sun to heat the culture naturally.

• Place the skull in a cotton stockinette and tie the ends closed. This is done as the teeth may fall out of the skull during this process. The stockinette will prevent the teeth from being lost when the solution is dumped out. The teeth are easily glued back in the skull after it is bleached with a casein glue like Elmer's since it dries clear and looks like bone when it dries.

This is an example of a skull that has not been properly cleaned.

• Place the stockinette containing the skull in the solution as soon as it is started.

• The skull should be taken out of the culture and checked every four or five days. On these occasions the loose tissue can be scraped or rinsed from the bone and the brain particles flushed out as was done in the enzyme maceration process. After about 14 or so days the skull should be free of most all tissue using this process.



This skull was cleaned in a bacterial maceration tank. Note the exquisite detail of the properly cleaned skull.

Although this process is smelly and messy it will clean a skull to perfection!

There are a number of commercial operations that deal only with skull cleaning, and I've interviewed four of them for this article. All four clean by using the dermestids beetles, two of them offer other methods of cleaning as discussed.

If you have any interest in the above services contact Jack Reneau at the Boone and Crockett Club Headquarters in Missoula. A list of the businesses interviewed will be made available for your choice.