Epo-Grip How To

Cur's Easy Steps to Antler Repair

by Bill Gaither (CUR)

When Steve requested that I prepare some reference material for his How To section within the Epo-Grip Website, I was slow to react. Even though my career in the wildlife arts began more than fifty years ago many of the processes and procedures I use have been worked out alone, and I am not too familiar with many of the common materials and products offered by most vendors. Because of this, many of my sources for materials are outside this field, and the processes are mostly the end result of many hours of tinkering. The old ways have been modernized by substituting modern materials, but I find the procedures as valid today as they were fifty years ago. I wasn't sure that the current generation would be quick to accept the teachings of an old man (or at least a man THEY consider to be old.....)

The first time I remember drawing pictures of wildlife was in 1946, six months or so after V-J day. My father had been too old for the draft during WWII and in addition, his company was one of the war effort's vital manufacturers. His company, Dayton Acme, made tokens, aircraft parts and bomb sight and bomb fuse components as well as a really nifty little flashlight that contained a magneto that was activated by a pump lever in the handle.....a flashlight with no batteries that dad invented around 1942. (I still have a couple in the Olive Drab bakelite plastic like those issued by the thousands to GI's.)

During the war, my father worked at least 12 hours a day, seven days a week from the day after Pearl Harbor until the Japanese surrender. We took a train to Florida to visit Relatives and to spend a month in a family cabin on Lake Apopka. My father was an avid bass fisherman and Apopka was home to large numbers of his favorite fish. During the train ride from Kentucky, I became homesick. I had a pet duck (named Donald) and a small menagerie of turtles and fish and a snake, not to mention the chickens and rabbits we had raised during the war to supplement rationed food. Dad was an engineer and not a shabby artist in his own right, and my mother had been a designer with a major retail chain. Dad produced the latest copy of Sports Afield or Outdoor Life (I don't remember which) and began drawing small pencil sketches by copying the art in magazine. I chimed in, and until I fell asleep, he would copy a photo or picture from the magazine and then I would follow his lead.....I haven't stopped drawing and working with wildlife since!

A major portion of my career has been spent in relative isolation. I have always been curious and have been wont to originate, rather than copy another's technique. My father's work introduced me to cutting edge technology and the most recent materials available, and I was always encouraged to put them to use. Dad had a number of friends and outdoor partners who also provided suggestions and input to help my pursuits. To that end, I have spent more than five decades working in the taxidermy field and pride myself in having learned by both invention and introduction, most of the basics. In addition, I can look back to many innovations and not a few discoveries that are now wide spread in this field. I have never been one to try to profit by selling or marketing processes, having been content with developing a process or adapting outside processes to this field. I will leave the selling of secrets and techniques to others who are willing or more eager to profit in that fashion. But like the car salesmen say, I just love to give things away! To that end, I am producing this series for Mark and my fellow taxidermists free of charge and restraint, in hopes it will enable others to elevate their skills.

Spending time on WASCO's fine Taxidermy Net Forums, I cannot help but notice that a large number of current taxidermists are either lacking a number of basic shop skills, or tend to believe that some skills are beyond their ability to comprehend or accomplish.....That is Hogwash! Taxidermy isn't diamond cutting or micro-engineering. It is an accumulative art and craft trade that requires some degree of dexterity, but no skill or trick in this trade is beyond the ability of the average human being. The difference between the best and the worst of our associates isn't genius or the degree of art ability - it is determination and effort, and nothing else. Those who study their subjects, take time to learn basic science and math skills and burn the midnight oil to perfect their techniques succeed. Them that don't stay where they are for a lifetime.

The first rule to fair business and profit in one's shop is to do the elementary and the obvious yourself. Sending out work and buying items that are easily crafted cost you money and as result, profits. There is a basic tenet that applies to all industry: IF YOU CAN MAKE IT IN-HOUSE CHEAPER THAN YOU CAN ACQUIRE IT.....DO IT! Don't surrender potential profit to another unless you are just too dammed lazy to do things for yourself. At today's prices, the guy who can make most things and do most things in house should clean up. I hope this series helps you do just that.

Bill Gaither (Cur)
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Repairing antlers used to be a chore. It required a large stock of scrap tines and sheds and a lot of intense effort to do most common repairs. Not so today. Repairing antlers today is as simple as an process in this business. The days of sweat and fit are gone, thanks to a number of fine products. I have used most materials available over the years, and many were adequate to the task, but now there are two new products on the market that make repair a snap. I understand that some are getting $50.00 a point to repair broken antlers. Others bill as much as $50.00 an hour for the same service. Well, thanks to the folks at Newton Supply, namely Steve Steinbring, the new Epo-Grip Quick Repair Putty and Seam And Repair Putty provide a one-two punch that reduces this particular fix to an elementary procedure. When Steve first sent me samples of his products, he said, "see what you can do with them." Well, Steve, the answer is....."Damn near everything."

Broken hornsets and antlers present a wide variety of problems to the taxidermist. The color of individual deer racks varies widely; The shape and conformation of tines vary from region to region and even among local herd bucks; Many available materials set up too slow, requiring constant tweaking during the cure; Still other materials are inherently weak and do not make a quality replacement part; Matrix pigmenting and compatibility of components sometimes require special steps when using various materials in combo. Well, the Epo-Grip materials are compatible, bond to the horn very well, are colored to match the antler material and are darn near as hard as steel! They make repair a snap. Here's how:


Photo #1

Tools and materials needed are shown in Photo #1. They are:

1. Epo-Grip Quick Repair Putty
2. Epo-Grip Seam and Repair Putty
3. A Dremel or Foredom hand grinder. I prefer the cordless model shown for antler work.
4. Liquatex or other quality acrylic paint for matching. Only five colors will ever be needed:
a. Black
b. White
c: Yellow Ochre or Yellow Oxide or Turner's Yellow
d. Burnt Sienna
e. Burnt Umber.
Some species other than the cervids may have horns that show a spectrum of grays and hues that require additional colors such as colbalt blue or viridian or alizarin, but for deer and their allies, no other color is required to match the antlers.
5. Riffler files for some detailing (Not required)
6. Screws and a screwdriver.....(Stainless is preferred.)
7. A variety of sculpting tools
8. Tongue depressors or other implements to mix the epoxy.
9. At least one quality flat and one round sable brush or synthetic brush.
10. A side cutter and lengths of number 12 wire.
11. A 7/64ths drill bit or one the same size as the wire used.
12. Krylon Matte Finish Spray to overcoat the finished work.
You will also need several grades of sandpaper, some acetone, baking soda, Dawn Soap, hydrochloric acid (Or a commercial cleaner that is a dilute solution of HCL - "The Works" sold in Target and other stores works just fine. So will CLR cleaner....both will eliminate blood oxides grease and film from the antlers in order to get a good bond with the epoxy).

Got all that piled up? Good! Let's go on, I am getting hungry!


Photo #2

Photo #2 and Photo #3 show fairly typical breaks that often come into the shop. The antler in photo two is a small six point with the entire left beam missing and a break that extends below the brow tine. Photo two is a nice rack with blade shaped tines. It is missing the first two tines on each side. The two antlers are very different in color and form, even though

they both came from Pennsylvania.


Photo #3

The first step in both repairs is to mill and grind down the breaks to provide a rough edge of clean bone to insure a good bond with the epoxy. After preparing the surface, clean it with a dilute solution of hydrochloric acid and follow that with a rose of water into which baking soda has been dissolved at the rate of 3 tablespoons per cup. After the soda rinse, wash with dawn and rinse and allow to dry. When dry, scrub the prepared surface with acetone and allow to dry.


Photo #4

The six point rack could be formed with the Epo-Grip, but having a large stock of racks on hand, I was able to match the turn and sweep of the main beam with a spare from a small eight pointer. (PHOTO # 4). The general shape was correct and the additional tine was a simple problem that was overcome by cutting it off flush with the beam. The broken beam was notched to receive the new replacement and the scrap antler was cut off at the proper point and shaped to fit. (PHOTO # 5, 1 and 2).


Photo #5

The two sections were filed and ground until the fit was close and the angle and sweep of the new antler matched the original remaining on the right side. Then a 7/64ths hole was drilled through the replacement and into the original base while the antler was clamped in position. (PHOTO # 6, 2) A short length of #12 wire was cut to form a pin and then a liberal amount of Quick Repair Putty was mixed and applied to both the replacement and the top of the original base. (PHOTO # 6, 3) The pin was placed into the pre-drilled hole and the joined parts were braced for the 6-10 minute initial curing period. When the epoxy had set up, it was sanded down to the surface contour with a drum attachment on the Dremel tool. A hole was then drilled through the replacement beam and into the original base at center. A 1 3/4" screw was then driven into the hole to anchor the segments. (PHOTO # 6, 1). The screw head was not countersunk and was removed later with a cut-off disk in the Dremel.

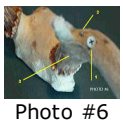
Photo #6


Photo #7

Since the replacement rack was from an eight point buck and not a six, the second tine had to be removed. The beam length was nearly identical, but G-1 and the brow tine were both a bit long and they also were cut to length and ground to shape. (PHOTO # 7). The rack was then shaped and some areas of the replacement beam were re-shaped to match the original as closely as possible. The original cemented area covered by the Quick Repair Putty was then covered with a thin application of Seam And Repair putty which then was detailed in stages as it cured. After the first thirty minutes, it can be smoothed out with a brush and water and original contours may be continued into the compound to match the original part. When fully cured, the details, whorls and ridges were defined with bits in the Dremel and then the entire area was sanded a bit before painting to match.

I personally like a number of the hobby and craft acrylic paints for this purpose, especially the "Folk Art" types since they dry flat and can then be matched to the original antler's patina and sheen with a sealer coat. For this antler, I chose to use a color from PLAID's Folk Art Series. The color is called "Tapioca" (#903) and is an ivory white in hue. Strong whites such as Titanium and super whites or reflective white colors do not work well for matching the antler colors. By beginning with an off-white or ivory color, the job seems simpler to me. The reason I like the "Tapioca" is that it is nearly identical to the tine tips when dry, allowing me to use it to brighten those areas without mixing. The detailed, painted and sealed antler is shown in PHOTO #8.....


Photo #8

The second repair involved a set of antlers that had the first tine broken off on each side of the rack. The antlers sported blade shaped tines that were narrow ellipticals in cross-section. The narrow surface mandated a small area for epoxy bonding and I feared that the final ersatz tine would be a bit weaker than desired. To that end, I chose to use two wire armatures to provide a rough shape on which to build the saber shaped tine. My normal procedure is to always use two wires in most rebuilds, rather than rely on a single that may allow turning of the replacement if dropped or struck. Using the 7/64ths drill bit, two holes were drilled into each tine base to a depth of about 3/4". Lengths of wire were glued into the holes with the Quick Repair Putty and allowed to set up. When cured, one wire was cut 1/8th inch shorter than the tine. the second wire was cut to be about 2/3 the length of the first wire. The end of the shorter wire was taped to the first with masking tape and the two wires formed to the curve and shape of the other tines and arranged to be in concert with the position and sweep of the overall basket. (PHOTO # 9)


Photo #9

Once the shapes were pleasing, the Quick Repair Putty was troweled onto the wire armatures until they were coated with a 1/6th or so of the material and the space between the wires filled. After curing, the putty was sanded a bit with coarse sandpaper and a second application was made to fill low spots and even out the surface. Finally, a coat of the Seam and Repair Putty was applied over the mandrel formed by the Epoxy covered wires. It was smoothed, blended and shaped to match the remaining original tines. I must apologize to readers at this point by saying that I deleted the photos of the first and

second epoxy applications from my digital camera and consequently cannot post them here. I hope the descriptive is sufficient for readers to follow and comprehend. If referring to PHOTO # 12 (a computer graphic cross-section) does not help, you may email me for details if necessary.


Photo #10

Detailing, preparing and painting to match followed the procedure outlined in the first example. The finished rack is shown in PHOTO # 10. (Not bad for an old man....ehhh???) PHOTO #11 is a finished repair on a rack that was missing both brow tines. The repairs are shown by enlarged insets)


Photo #11

Following standard billing procedures, the repairs shown would have cost $250.00 on the fifty bucks per point basis, or $300-$400 on an hourly base. That is money that should never leave your shop. Now, that is not to discredit those who offer those services, but it is to your good to learn to make the occasional repair in house.....after all, the client pays, no matter what.....it is who gets the money that counts - YOU or the other guy?


Photo #12

I hope this makes you want to at least try it....Good luck!

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