



Bulletin # 19

by Paul Gibson
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▣ Riding ❁ Collecting ❁ Restoring ❁ Research ❁ History ▣

Restoring Your “Boneshaker” (Velocipede)

Restoring a boneshaker can best be described as a matter of doing what seems to be right at the time. The basic operating principal should be: “Do nothing that cannot be undone.” There can be no set rules because you will find yourself working with a bicycle that is well over 100 years old, is basically 50% wood, and wood has a tendency to shrink with age leaving you with the problem of split hubs and loose spokes. An unrideable machine.

Generally speaking, the frames were of forged iron and, although they may be rusty, have not deteriorated to any great degree. Most, if not all, were painted. When cleaning the frame, take your time and try to find the base coat. Make a note of the color and look for signs of pinstriping. A good quality paint stripper may be used, but do small areas and wipe it off quickly so that only one layer of paint is removed at a time. The frame may also be sanded, being careful not to disturb the original finish. (No coarser than 120.)

When you have finished this step, either draw pictures or take photographs to insure proper refinishing.

I have seen several machines with the original paint. If you are fortunate enough to have a bike with the original paint in good condition, consider retaining it.

Handle grips and pedals made of wood are easily cleaned with sandpaper and patience. Anyone with a wood lathe can make replacements. If you have to replace one of a pair, replace both, but keep a single good one for future use.

The wheels!———Don’t give up.

As previously mentioned, most boneshakers were painted. If the original paint is to be retained, simply wash it using a mild soap and dry it thoroughly. If the wood is to be repainted, use the same steps as outlined for the frame. Make any repair prior to stripping paint as it is almost impossible to remove the stripper from cracks and cracks must be clean, as you will see later.

Taking the wheel apart is a last resort; however, if a natural wood finish is to be used, it is much easier to do one piece at a time.

There are several degrees of deterioration. If the wheels are solid and reasonably true, clean them up and/or refinish them and have fun. If not, here are the degrees and how to handle them.

1. Hub in reasonably good shape (minor cracks), spokes loose in hub. This repair can best be done with wheel mounted.

Fill cracks, if any, with good quality epoxy. Using a small, thin putty knife, work epoxy down in around spokes. Don’t be shy. You want the wheel to be rideable so use plenty and work it down deep. Chair Lock has been suggested for the spokes, but I have not tried it.

Wipe off all excess and spin the wheel. Work it back and forth until it spins true. You may have to tie or clamp it to take out a particularly bad spot.

Let it set for 24 hours. It should be tight.

If you are left with a spot that is off center, pull it back beyond center and tie it. Keep it tied during storage and it should straighten out.

2. Hub is badly split and most, if not all spokes are loose in hub.

Take heart! This is not an insurmountable problem.

Remove the wheel and make sure the steel tire is fairly tight. If this is the case, then the wheel can be repaired as is.

Set it in a vise as it will be easier to work this way. You will have to keep rotating it as you go, but no one said it would be easy—*RIGHT?*

Remove the outer hub rings. Chances are the splits go all the way to the ends of the hub.

Remove the axles. You will not be able to close the cracks with them in place. The front wheel will have a square or triangular axle which will drive out. Keep the nut on while driving to prevent peening of the end. The rear wheel should contain a sleeve. Remove it. These parts will have to be refitted when you are done, but a wood rasp or file will do the job.

Two automotive or truck hose clamps long enough to encircle the hub will be necessary at this point.

Now treat the hub and spokes exactly the same as in case No. 1, except use epoxy all the way. When all the cracks have been filled and the spokes epoxyed, place a hose clamp on either side and tighten. When tight, and with the wheel held tightly in the vise, grasp the outer rim (felloe) at the top and exert upward pressure in an attempt to pull spokes out of the hub. Tighten the clamps, rotate wheel about 90 degrees and do it again. Keep doing this until you can no longer tighten the clamps. Wipe off excess epoxy and let set for at least 24 hours.

When the hose clamps are removed, there will probably be excess epoxy. This can be filed off easily.

If you intend to paint the wheel, then all cracks should be filled. (Some of the larger cracks will not close completely.) Epoxy shrinks when it dries. Your wheel should be tight at this point, so fill with whatever you desire. I use more epoxy, but I tend to be over-cautious.

Now replace the hub rings. They will more than likely be loose. I suggest shimming them with some kind of sheet metal and epoxying them on also. They should be tight as they help to prevent the hub from splitting again.

3. Hub is falling apart, spokes are loose at both ends and steel tire is loose.

Consider having a new wheel made.

If you are like me, you are too stubborn, and if that is the case, here is what to do.

The wheel will have to come apart and be rebuilt.

Pick a spoke and mark it somehow at both ends. This will be your key spoke. Now mark the hub and the outer wooden rim or felloe so that you will know how it goes together. Also mark the steel tire because it will only go on one way.

Remove the screws and rim connectors and carefully remove the steel tire.

For the next step, find a clear floor area and disassemble the wheel, leaving all the parts in order.

Remove the hub and repair it first, using epoxy and hose clamps

as described previously. Make sure it is tight and don't lose your mark.

After 24 hours, you are ready to reassemble.

Chances are that the spokes will have to be refitted to the hub. Do it dry. Use a file to help adjust the fit.

When the spokes are in the hub, replace the felloes and the steel tire. Should the steel tire not go on, some spokes need to be filed some more. When everything fits, the next step must be accomplished all at once. One step!

Epoxy sets slowly so take your time.



Glue the spokes into the hub, glue the felloes onto the spokes and replace the steel tire with the screws and rim connectors. Mount the wheel in the bike and turn it, working it back and forth until it is as true as you can get it.

Let it set for 24 hours and it should be sound.

If you are left with a bad spot, follow case No. 1. Just tie it and leave it.

If, after reading all this, you are in doubt, a good wheelwright is a logical solution. Here is one that repairs wooden wheels and can also reproduce spokes and felloes.

Witmer Coach Shop
1070 W. Main Street
New Holland, PA 17557
(717) 656-3411
(Route. 23 West)

Refinishing should be easy.

If you are going to repaint, I would suggest consulting someone who restores old wagons, carts, or coaches. There is a proper way to do it and if you have gone this

far, it only makes sense to finish it right.

If you want to go with natural wood, use orange shellac.

Paint the frame to the original color unless you were never able to determine what it was or you just don't like it. If the latter is the case, black is a logical choice. My Lakin was flat black and my Turner was gloss. Take your choice.

Going to a natural wood finish requires that the wood be clean. That means lots of sandpaper, preferably 100–120 grit. Finish with 220. Stains that cannot be sanded out can be bleached using Clorox or a similar product. They may not disappear, but they will fade to an acceptable point.

Now paint the wood with the orange shellac and when it is thoroughly dry, smooth it using 00 grade steel wool. Wipe it clean and shellac it again. You may want to use three coats, but steel wool it each time including the last coat. Apply a good paste wax, polish it, and you are done.

Enjoy it!

