THE CARE, FEEDING AND PRESERVATION OF A HAMMERED DULCIMER

Being a loose Essay upon the Ills that may beset the Instrument & its Players
by Nicholas Blanton *(who has counseled many of the Afflicted)*

WATER causes at least half of all instrument problems.

If it gets really dry - summer in Arizona, or you are heating with a woodstove in January - store the dulcimer in its case when you are not playing it. It is not usually necessary, but if you heat with dry heat, or the outside temperature drops below 20 degrees or so for a long time it's not a bad idea. A Dampit, or other artificial humidifier, can be used, but unless circumstances are special- say, you actually live in Nevada- real humidification in the case shouldn't be necessary.

Don't play in rain or mist. The wood will swell then shrink, and the tuning pins could get loose. And if they rust, they'll grind away more wood and get looser faster. If you're caught outside, flip the instrument over pin-side down, until you can get inside, where you can wipe it off. If the pins get loose, see **Loose Tuning Pins**.

Humidity also makes strings rust. I used to recommend oiling the strings sparingly with WD40, but it didn't help and if the strings were played while it was wet it made a fine mist that, combined with the dust on the soundboard, made an awful grundge. Though they don't hurt the instrument, rusty strings just don't sound as good as shiny ones and don't tune as easily. If you're living in Arizona, you might never need to change them. If you're in a beach house, you might have only two or three years before they're corroded. Most of the time it's 7 to 15 years, in the east, before you should consider new strings. See **Broken and Bad Strings**

HEAT is put with water because they are linked.

Leaving a musical instrument in a car or car trunk on a hot day with the windows rolled up is the traditional way to reduce it to kindling wood, but a hot attic will do it, too. If you have something with a black top, leaving it in the full sun will also raise boost its temperature, first on the top of the soundboard. If you're playing in the full sun, take a break occasionally and test the top with your finger. If it's getting hot, put the instrument in the shade for a while. Don't leave the instrument on a stand in front of the window for a few months; given a south-facing window and some time, the top can get quite hot and eventually split. It may look durable, but your dulcimer is not quite furniture.

If you're traveling with your dulcimer in the warm months, and have to leave it in the car, don't put it in the trunk. Leave it in the case, put a blanket or quilt over that - a space blanket or something reflective is great - and leave the windows open a crack. If you're worried about security with your windows cracked open, leave them up but park in the shade.

DUST on the soundboard can be perhaps annoying.

An even coating is great for cutting down the glare, provides good contrast to the strings, but it is hard to keep an even coating. Two solutions:

1) take your instrument to an auto garage with an air hose, and ask to blow or have it blown down.
2) buy a big natural-bristle paintbrush, and use it for dusting. It will get chewed up, but once it's chewed up, nobody will try to borrow it for painting.

BROKEN AND BAD STRINGS are not rare.

Bronze and brass string break soonest. Wound strings go dead when the windings fill with crud; some people like this sound, but the strings are hard to tune in this condition. The windings can also get loose and buzz (see **Buzzes**). The light wound strings (under.036) are good for a couple of years, the heavy ones for a lot longer (the data for the heavy wound strings is not all in yet). Steel strings get rusty, even the tinned ones. Russell Fluharty once said he'd replaced his strings once after 25 years and it took 25 years to get them to sound right after that, but Russell had different ideas about tuning, generally. Rusty strings really should be replaced.

You should always carry spares, especially bronze, brass and light wound strings. Get used to replacing strings. You will find that someday you will want to re-string your instrument, reaching a new level of independence and self-development.

General Procedure For Replacing a String, (here, a bass bridge string)

1) If you have several to change, do it a string at a time; bridges will stay in place, and you won't mistake one pin for another.

2) Grab the string with one hand and with the other unscrew the tuning pin counterclockwise out of the hole until the string pulls free of the tuning pin; this way the tuning pin hole should be the right distance over the soundboard for winding on another string , around 1/4".

3) Hook the new string's end loop over the hitch pin, and thread the other end under the treble bridge, over the bass bridge and to the tuning pin. The loop should be down against the soundboard. If the loop keeps coming off the hitch pin, jam a little fold of masking tape over the hitch pin to hold it down, or get a friend to put a finger down on it.

4) Pull the end of the string past the tuning pin, and cut it off two fingers' width past the pin, or about 1.25 ".

5) Push this end of the string through the little hole in the tuning pin, but **don't let it stick out the other side:** flush is best. Holding onto the string, turn the pin to put a nice sharp bend in it, and then keep turning to wrap the wire nice and neat onto the pin. Loose coils can be tightened up; but don't let the wire coils overlap. Keep a little tension on the string. The short section of wire in the tuning pin hole is called the becket, and it's what holds the wire in place; if you slip and don't get a sharp bend in the wire at the hole, you may find the wire keeps coming out of the hole and off the tuning pin, in which case try putting in the sharp bend with pliers.

6) Bring up the bronze wire gently to tension, and it won't be so liable to pop. If you have trouble with breaking bronze or brass strings, check to see if the string is kinked or overlaps other coils on the tuning pin; sometimes having more space betwteen the soundboard and the coils on the tuning pin will fix the problem, since then the string isn't coming off the tuning pin at such a

sharp angle. Though if you back the tuning pin out to fix this, remember that the string does have to bear down some on where it crosses over the side bridge, otherwise you'll get buzzes or a weak tone. If you don't tune a wound string up greatly beyond its normal tension or pitch, the windings will not be as likely to get loose and buzz.

7) Take off those little wads of masking tape before someone sees and wonders about your sanity..

BROKEN OR BAD HAMMERS are common and often ignored.

People get used to even very crude, clunky ones because hammers are a little personal, like shoes, so they get comfortable with one set and use them on any instrument. This is sad, because hammers wear out and hammers break, and hammers also sound good generally for only certain instruments. The rule of thumb for hammers is, generally speaking, the heavier the strings, the heavier the hammers, and the softer as well. For more bright overtones, and less of the fundamental note , use lighter, harder hammers. For more fundamental, use softer and heavier hammers. If you find the sound of your instrument harsh and bright, try some softer, heavier hammers. If you find that you're getting a lot of "thud" when you play, try using lighter harder hammers, and if you find that a melody sounds like it's smothered in a pillow, try harder hammers.

Hammers break because people forget where they are and sit or step on them. They wear out because they get cracks from being used too long, or they can actually wear away until they get weak enough to crack. The double-sided hammers are usually more delicate, and develop problems earlier - and are more trouble to fix.

A beloved hammer can sometimes be glued back together on the spot with Titebond, then the cracked part wrapped with nylon thread (check the sporting goods store, in the fishing/fly-tying section) for a pretty strong fix, if the crack is long enough and not a straight break right across the grain. You only need a single layer of nylon thread- more will look worse and make the hammer heavier. Squeezing some crazy glue into the nylon wrap will make it a little stronger still. If you lack technique, approach a fly-fisherman who does their own flies, or a nautical-type who knows how to whip a rope-end.

Hammers also change their sound because the leather on them beats down and gets hard. Just pull it off, sand with medium sandpaper a little to get most of the old glue off, and put new leather on with Titebond. Cut the strip a little wider than the hammer and a little longer. It's not necessary to clamp, just pull the leather down onto the hammer head, hold for a minute, and then wait for an hour for it to dry. Then trim the extra length; don't bother to trim the extra width. Make sure the leather under the heel of the hammer is glued; that's the part that can get loose and catch on the strings. If it's an emergency, you can start playing in about ten minutes, but an hour is better. You can also use moleskin, the self-adhesive felt people put on their feet. Cut a strip, stick it on. It won't last as long as leather, but one pack cut into strips will last a long, long time, even for changing with every gig.

For soft felted hammers, they shouldn't wear out quickly but sometimes have trouble coming unglued. If Titebond doesn't seem to work, try a little GOOP, a vinyl-based adhesive sold in hardware stores. Use a toothpick to apply it and don't get it all over the hammer; it's more trouble to scrape/pull/wash off than Titebond.

OUT OF TUNE OR BAD BRIDGES

The right and left sides on the treble bridge, especially the top strings, don't seem to stay tuned? You tune the right side, then the left, and find that the right side is out of tune again? If you've given your instrument some hard knocks, your treble bridge is probably out of tune, and has to be adjusted**.** This is a job best left to somebody used to doing it, but in emergencies you can give it a try. You will need a piece of wood; a big thick grade-school pencil cut off to 3" works well, with the eraser trimmed to about1/4", and a light hammer, and an electronic tuner, preferably a strobe tuner. Hold the eraser end **flat against the bridge as low on the bridge as you can get it**, and tap the pencil with the hammer to move the bridge. As you tap one way, you are lengthening the string course on the tapped side and shortening the other, so you will have to re-tune the string (just tuning one is fine, for setting) to constantly keep track, unless you have a tuner that will adjust in pitch, like a strobe tuner. Slide the string up and down on the bridge a little, as friction there will cause false readings on the tuner. If there is a piano technician that can be jollied into doing this (they usually need to be jollied), great.

Bridges also can crack and warp, and the little bridge caps can become lost or badly grooved from the strings. A cracked bridge can be glued together; but you need to save all the pieces, and you need to use a glue that will never let go, like epoxy. Heavy rubber bands work well as clamps. Narrow, flimsy bridges can warp, bend or bow, and the bst solution for them is to replace them with strong ones. Bridge caps that are deeply grooved, and binding on the strings too much, should be simply rotated to an ungrooved spot, until they just have to be replaced. Delrin bridge caps that come off too often can be glued with a drop of crazy glue, and still be pulled loose if they need replacing. So can metal bridge caps, but you'll need to heat them a little bit before they let go.

CRACKS

The soundboard or top on the dulcimer shrinks and swells with changes in humidity. If it swells, it may bow harmlessly, but if it shrinks too much it may crack. Usually the crack starts at a soundhole. There may be an accompanying buzz or rattle. Although the crack will not immediately make the instrument unplayable, its a good idea to get it repaired fairly soon, as the longer you wait the more the crack may distort. The edges of the crack will move up and down, making it very hard to glue the crack level again. Also, the best time to glue up a crack due to shrinkage is when the crack is as big as it can be, which usually means right after it's cracked.

Cracks as thin as a piece of thin cardboard (like a matchbook cover) can be glued with tinted epoxy, and are not expensive to fix. Wider cracks have to have a new piece of wood spliced in, and are more difficult.

Occasionally a back will crack. This is not too common, as the back is usually thicker than the top, but it can occur. The repairs are the same as those for a soundboard, just a little simpler as there are no strings to get in the way.

Cracks can occur in other places. Dropping a dulcimer onto a concrete floor can crack a frame rail. Usually cracks like this are fairly simple to fix, as long as all the strings are slacked to take the strain off the wood, so it doesn't distort, and all the pieces are kept. Solid wood pinblocks, (not laminated wood pinblocks) can be sometimes cracked by the tuning pins. Solid wood pinblocks are often found

on instruments of traditional design, and the ones with three or more big piano-size tuning pins per string course develop the problem more than most other styles. The pinblocks are exposed on these, so the cracks should be obvious, starting typically at one end of the pinblock. There is no good remedy for this save replacing the pinblock, really.

Cracks may also be symptoms of major structural problems. There is a fad among some makers for doing complicated pinblock/frame rail joints that look impressive but sometimes these can actually be rather weak. If you notice a crack or cracks forming at the corners of the instrument where the pinblocks meet the frame rails, get it checked out, soon.

LOOSE TUNING PINS

Eventually, all tuning pins will become loose. This is just in the nature of wood/metal unions. Fortunately, it doesn't seem to happen real fast with good dulcimers, perhaps it's a matter of decades. On a piano, it is possible to get slightly bigger tuning pins and tap them in, and recently, oversize tuning pins for dulcimers have become available from Dusty Strings. The bad news; they're expensive.

Sometimes on instruments with solid wood pinblocks loose tuning pins can be a symptom of cracked pinblocks. See above.

TRAVEL: DROPS BASHES BONKS CRUSHINGS CRUNCHINGS AND MASHINGS

A hammered dulcimer should already be a strong box, and much of the damage from drops and kicks will be found to be superficial - a new dent, scratch or scar. These can be touched up, but they are cosmetic and because Dulcimer Refinishing is beyond the scope of this little paper will not be dealt with here.

If you don't want to suffer having a distressed dulcimer, get a good soft case. A good soft case can also make the difference between a dent and a real crack. There are plenty of good soft cases out there; Dusty Strings', especially the ones with dense foam lining, are good, as are ones from Main Street Case Company, and Coon Hollow Canvas . Note that a perfect, tight fit is not very important with soft cases.

A good case will provide some protection when the instrument is knocked over onto the bridges, and a piece of foamboard put over the strings will provide more. No soft case, however, will adequately protect from the instrument being crushed. If you pack your cased dulcimer into a car, try to pack it like a book, i.e. on end with the handle up.

A major dilemma is airline travel. There are not many good options here, and today airlines are charging for everything extra. Even checking a regular HD in a case can result in another $150 added to your bill, and a flight case will add more. You can get an aluminum flight case; for professionals who travel, it's security. A flight case is bothersome because of its size, weight, and cost. It will run about $300-$600, measure up to 48x24x10". With a flight case, you take a car to the airport, not the subway or the bus. You carry the case to the check-in on a cart, pay much more for having oversize luggage, and pick it up on arrival from the special baggage office. You leave the airport in at least a

station wagon, because most taxis can't fit the thing in their trunks. And don't count on being able to put the case under the bed.

For occasional trips, check the dulcimer in a cut-down cardboard bicycle box, in its soft case. Wrap the instrument with bubble wrap, or cut out a trapezoid of foamboard, (like they sell in art supply stores for mounting posters), the same size as the dulcimer, and put it between the bridges and the case, for a extra bash resistance. Tell the check-in staff that it's a musical instrument - they should have a special tag that can be stuck on that tells the handlers to load it with care. Draw arrows on the side of the box showing it's not to be laid down flat. Most airliners have a net in the baggage compartment where they hang the more delicate stuff, try to see it gets in that net. And if you change flights, and you have time, don't check the dulcimer through; pick it up and carry it to the next counter.

BUZZES

A buzz can be caused by a number of things, but typically just a few, and finding out which is a straightforward process. First, is the buzzing dulcimer on a stand? Take it off, put it on a table. No buzz? Look for loose hinges, knobs, other things on the stand. Is the instrument on telescoping legs? Take them off. No buzz? Put the legs back on move them around a little, tighten the screws on the fittings, look at the locking rings on the legs to make sure they're snugged down.

Is the buzz definitely coming from the dulcimer? Look for possible loose things; a pickup glued to the soundboard, a mike clip. Anything inside the dulcimer? Mice once got into a cimbalom of mine and tried to store a year's supply of dry dogfood in it...

Nothing? OK, Get a pencil, with an eraser on the end, and a dulcimer hammer. First, bang with the hammer on the string that makes the buzz. Stick the eraser down through the strings on to the soundhole rose, and push down lightly around the edge. Keep banging. No buzz? The soundhole rose has to be reglued - a very small job, usually. You could do it yourself with a little crazy glue carefully squeezed in at the edge of the rose.

Rose all right? Keep banging on the buzzing note, go over to the bass bridge, and put the end of your finger down on a bass course on the **right side** of the bass bridge where it crosses the right side bridge, damping the strings. Hop your finger around, trying different bass courses on the right side. A string may be just barely touching where it goes over the side bridge, making a buzz.

Yes? Loosen the string, and either tap the tuning pin down into the dulcimer a little further (use a light little hammer, don't miss) so the string bears firmly against the side bridge or push down the windings on the tuning pin (the coil of string wire wrapped around the pin) to do the same thing. Or, push them up so the string does not touch at all. If the string is definitely bearing on the side bridge, and it's a wound string, put your finger on the string itself, and hit it. No buzz? If it's a double string course, try to hit the whole course but damp first one, then the other string, with your finger. If damping one string removes the buzz but damping the other does not, you have a bad wound string, with loose windings. Replace it.

Still a buzz? Keep banging on the note that makes the buzz, and hop your finger around some more, this time take it up the right hand side bridge, a course at a time. Then try the left hand side bridge. Pay special attention to the highest treble strings. Yes? Tap the pins down or move the windings, like the bass strings. Still a buzz? Hop your finger around to all the little rods on top of the main bridges,

the bridge caps, using a little more pressure. Found one that buzzes? If the bridge isn't bent or split (which means some surgery) slack all the strings going over the bridge cap and pull the cap out of the groove. Dab a little bit of Titebond into the groove and replace the rod, wiping off the excess glue. Tighten up the strings.

This covers most of the buzzes you will encounter. If you have thoroughly tried all this, there are other things, like broken braces, etc., that are a little more trouble to identify.

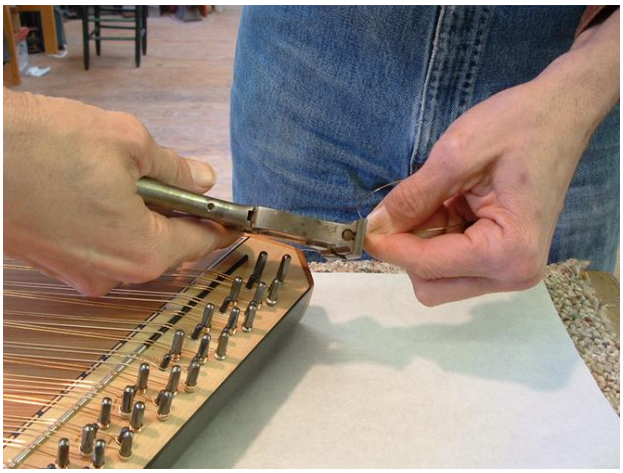
BENDS, BOWS AND NOT HOLDING TUNE

Of all the problems of a dulcimer, this may be the easiest to misunderstand. A soundboard can be greatly distorted, and collapse. But even good instruments will bow a little bit under the tension of the strings. The backs will bulge slightly, the bridges will dip in the middle slightly, and sighting along the top edge of the bottom frame rail you should expect to see a little bit of a curve. The instruments with free-floating tops occasionally have a "trampoline syndrome", where tuning one course makes the soundboard shift and throw other bridges out of tune, as though they were all standing on a trampoline

The easiest way to tell if your instrument is probably sound is if it holds pitch. A decent dulcimer should be able to mostly hold its pitch until humidity changes make it go sharp or flat. Dulcimers needing adjustment, or with flexible construction, short scale length, etc. will constantly go flat or sharp and have strings that won't stay tuned. What no dulcimer should do, however, is **continually drop pitch**. If you tune your instrument up to A440 standard, then find the **whole instrument goes flat**, tune it again, and find it's **flat again**, etc., without **ever** getting it to keep its pitch for more than a day then something is wrong. Is your dulcimer bowing, starting to look like a canoe? Does the top seem to be caving in? Slack the strings, call the doctor...

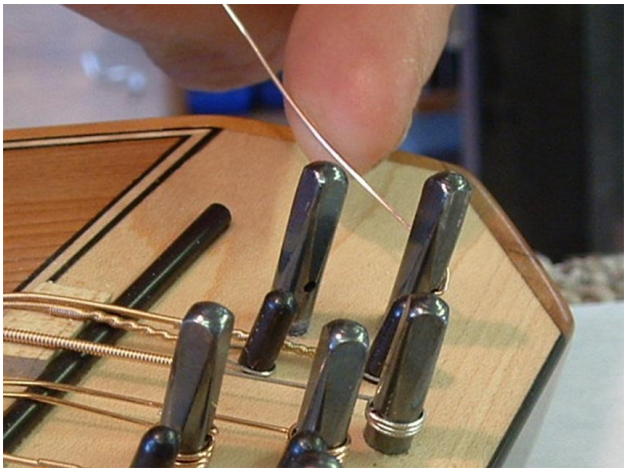
PUTTING ON A STRING

1) Clipping off the string two finger's width beyond the tuning pin;



2) Inserting the wire into the tuning pin, but not letting it poke out the other side;

3) Turning the tuning pin to mke a nice kink in the wire (get that finger close to the pin!);



4) Applying a little tension so the wire can be controlled for wrapping; wrapping a coil.