



HANDSTONING JADE CARVINGS

In 1974 I first started carving wood as a balance to the study of social science at university; gradually handwork became more important than scholarship so I followed my instincts of becoming a carver. I am primarily known as a bone carver through my book, *Bone Carving, a Skillbase of Techniques and Concepts*, but over the years I have moved over to carving stone.

My primary passion is jade, but I also enjoy working with various hardstones. I still like to carve bone and ivory occasionally and work with other softer materials such as

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Stephen L. Myhre

Mother of Pearl, wood and horn. Being a New Zealander means I have had the good fortune to be exposed to the long history of carving here and to artifacts both pre-European and contemporary. When I was reaching for something to do with my hands it was natural to start with that history, and those pieces.

I have been aware of Maori, pre-European stone adze blades for a long time; in fact I can remember when I was a kid playing with a friend and making small stone blades. There are many good examples in the National Museum of New Zealand, and



HANDSTONED JADE CARVINGS, by Stephen L. Myhre, of Siberian nephrite, Canadian nephrite or Cassia (celt) and *innuaga/kokapu* New Zealand jade (whaletail, 3.7 centimeters long). *Photograph by Robert K. Liu/Ornament. Opposite page: MYHRE WORKBENCH with work station in foreground, on which a hockey puck sits on a piece of rubberized material. Larger pieces of cut carbide are to rear of bench; as pieces are used, they get smaller, as this process is sacrificial. Note they are kept in water-filled containers. Handstoned pieces of jade carvings in progress are to right of workbench. The whale tooth form pendant, next to whaletail, is also Siberian nephrite. All photographs by Stephen L. Myhre, except where noted.*

many other collections in this country. I have always been fascinated by the seemingly perfect lens-like surfaces on some of them, particularly the older argillite, *Pakohe*, metamorphosed sedimentary stone blades. These blades are finished way beyond their utilitarian purpose, which gives the nod to their being much more than just tools—really they were cultural objects used in the complex system of exchange and trade that existed in *Aotearoa* (pre-European New Zealand).

Along with the blades in the dusty museum cases I saw so long ago there were also a few grindstones, *Hoenga* in Maori, which were used to create the surfaces. I realized that the grooves in them were created by the male/female fit of the blade to the *Hoenga*. The blades fit into a groove after some rubbing back and forth, and the fit works perfectly. Most of these grindstones are soft-bonded sandstones which willingly accommodate the harder material of the blade being ground into a groove of its own making. This process is much like the way that a lens is created with two pieces of glass, grinding material between them, one becoming concave and the other convex as they are worked. There were also some stone files

of very fine profiles, elegant and functional, but also at the same time very fragile. It is a wonder the finer files survived. This information stayed with me, unused, for a long time. I was working bone and ivory at the time, but when I started to work stone it became the basis of my technique for finishing.

A handstoned finish is as close as I can get to the best natural water-worn finishes found on some alluvial cobbles from the rivers of the West Coast of the South Island. This particular finish can also be part of the process leading to the highest mirror finish as well—some stones allow for a high finish and others are better with a low gloss satin finish. A stone, tempered by an artist’s judgment and experience, should be allowed to have a say in its creation.

It is more efficient to grind stones with electricity, but grinding by hand is not as inefficient as might be thought. With some care and attention, a lot of material can be moved quite quickly, leaving surfaces without the small “flats” that often occur with machine-driven peripheral grinders. Though it must be said that I do as much as possible with the electric grinder before moving on to the handstoning regime.



CHOPFILE: It is simple to change the sticks. Abrasive sticks can be rotated in their aluminum holders to give more profiles. The limited use of water means only sponges are needed. Oil is a regular necessity. Note the sewing machine, on its side, retooled as a chopfiller.

Toil has some nobility, but in the end only a small reward is available. A good turn at the grinder can provide a fair surface, but the “meniscus” lens-like surface that handstoning creates is so much more convincing, especially if you want a very high polish to the surface. High polishing points out all the scratch marks and surface imperfections, so I often use the first polish as the point whereby I can assess the need for more work and not as a finish—some pieces may require many polishes as they arrive at the right level of finish.

For a fair surface without flats and faults it is necessary for the grindstones to be soft enough to quite quickly accommodate the form of the piece being ground, i.e. fit into a groove. This presupposes that the grindstone is made of a grit that is sharp enough to cut the harder stone but the bond between the grits is soft enough for the grindstone to be shaped to fit the piece by the grinding process.

The forming of a “cutting slurry,” a mixture of grit, waste material, swarf, and water, between the grindstone and the piece is counterintuitive. To cut so that the work is obscured by a build-up of waste from the cutting process seems wrong. In most cases of cutting, or grinding, it is a first principle that the swarf should be conveyed away as fast as possible. With most stone cutting this is true. When using diamond cutting gear, for example, the water used during the cutting cools the cut and carries away the swarf.

I am thankful to Russell Beck for the prompt that there was an old technique by which it was much more efficient to work up a cutting slurry on the surface of the grindstone than to wash it away. Subsequently I found that the large sandstone grinding wheels used in the stone-cutting industries of Europe were used with a minimum of water, just enough to work up the slurry on the surface of the wheel. It is a balancing act as you handstone and gradually build up a slurry where the last strokes of the cut are much more efficient than the first. If the consistency of the slurry is kept so that it stays sloppy, by the addition of a bit of water, it is so much more efficient than the first half or two-thirds of the grind. This technique necessitates the washing off of the slurry to check the cut but it works well—you just have to get used to the notion of essentially working blind.

I have found it very helpful to place what I call a “telltale” on the stone’s surface so that as it is worked I can see where I have been and where more cutting needs to be done. By experimenting, I have settled on a coating of brass, as it is easier to see through the water that is present most of the time. Brass also does not clog the grindstones, especially the finer ones, or run into the cracks that are ever present in poorer quality stone. I tried using a mineral spirit-based stain which works well, but with highly featured stone the stain works its way down into the cracks and faults and is hard to remove.



CHOPFILING: Hold the piece up gently with a little water and work up a cutting slurry. Note the brass "telltale" on the celt pendant being worked and that the workpiece is held below the abrasive stick.

I have also seen some stonecarvers use day-glow spray paint, which is easily seen through the water, but these tend to clog the grindstones, especially if wet and dry sandpaper is used. I prefer a brass brush in the point carver, to apply the coating, or brass pencils to put it on manually.

I was very lucky to live in Russia in the early 1990s and was able to buy some very good abrasive stones which they produced at that time. I am unsure if the Russian abrasive industry is still making them, but if they do it is worth the effort to find some of their super fine abrasives. They are some of the finest abrasive stones, and the closest to them are

Japanese water stones that Japanese woodworkers use to sharpen their blades. Also the swordmakers use water stones to grind and polish their famous metal swords. These are very good and go down to very fine grits, eight thousand to ten thousand grit. Green grit silicon carbide grinding wheels are very good, such as the round peripheral grindstones for bench grinders used in sharpening tungsten carbide tools. They have very sharp grit and a soft bond ideal for the slurry technique. I cut them up on my trim saw into sticks of various sizes and profiles, and these will quickly wear into the form required, either concave for lens-like surfaces or convex

APPLYING TELLTALE: The brass brush coats the stone with the "telltale." The point carver is a basic shaft with a Jacobs chuck on the end, a versatile bit of gear I use to drive many cutting, sanding and polishing points. TELLTALE CUT OF CHOPFILE: After one direction, turn through ninety degrees to cut off the tops of the first cut with the second. Adze blade pendant (*Hei Toki*) of New Zealand nephrite, *Pounamu* in Maori, of blue gray (*Inanga*).





HANDSTONING: The abrasive stick quickly works its way into the groove. The cutting slurry can be easily seen here, which is why I say you have to get used to working blind.



HANDSTONING: Washed down, the "telltale" clearly shows where you have been and where to cut next.



HANDSTONING: A rubber puck holds most work well when it needs to be steady. A constant question is how to hold the puck while working this nephrite whale tooth pendant.

for internal curves in and around holes. Any old carborundum stone can also be used. Whenever I go into a junk shop I look for old abrasive stones; they are usually a good price and are going to be cut into sticks anyway so their condition does not really matter.

Many years ago I was working in a factory where they made injection molds for plastic manufacturing. The toolmaker there showed me his metal polishing technique of working the abrasives, mostly wet and dry sandpaper, from coarse to fine, and at the end of each grit he would make all the lines of the abrasives in one direction, and then with the next, finer one he would go across the lines in a different direction until he had completely cut out all of the previous lines and established the pattern of abrading in a new direction. It is interesting how examples stay with you though they do not seem to be useful at the time. I now use this technique of crosscutting almost every day in the workshop. There are many places to find useful techniques and it is a good policy to keep your eyes open to what may be adapted to your own needs.

Crosscutting also works well with many other tools, filing being a good example; when you change the angle of the file you automatically cut off the tops of the previous cut. I also use this technique with my handheld high speed burrs. Repeated cutting at the same angle will gradually build up a corrugation on the surface but by changing it regularly much more control of the surface is obtained.

Once the "telltale" is cut off and all the final abrading is in one direction, it is still possible for there to be fine scratches from the previous grit underneath the present cut, so a wash and dry is necessary. Next hold the piece up to a strong light and bounce the light off the surface; this should give you the



HANDSTONING: Only limited water is needed to work up the "cutting slurry" and the fit to the surface being worked. The pendant represents two birds that share the same body, called *Pekepeka* in Maori, of Canadian nephrite.



HANDSTONING: Brass pencils work well to manually apply the “telltale.” **WORKBENCH:** The sticks start large at the back and gradually work their way down to different bowls. Fine and super fine grits have their own bowl to avoid grit transfer.

ability to see all the scratches. Any scratches that are not in the main direction are usually from a previous grit and will stay there if you do not completely eliminate them. It is hard to take, when polishing, to come across a scratch from two or three grit sizes back. I use close-up lenses when working surfaces at these fine levels—the details are very fine, but can affect the resulting polish quite dramatically at times. Many stones, but particularly jade, have textures where fine and soft materials are mixed together. As you move to the finer grits this texture becomes more apparent, making it harder to distinguish between the texture of the stone and the abrasive you are working it with. This is where judgment comes in, and experience is the best teacher. A knowledge of something as diverse as jade is not something that can be easily taught, but in reality it is the sum of all the cuts you have made, as no two stones are the same.

As mentioned earlier, toil has only a limited reward, and there is a lot of work to the handstoning technique. I have had repetitive strain injuries, so I developed from a chopped-down sewing machine a way of getting rid of some of the labor and still be able to have the desired effect of the lens-like surfaces, at least on the convex surfaces. A sewing machine is not the ideal starting point but they are relatively inexpensive when old and secondhand, and it is a good way of driving the handstones until the bearings of the shaft wear out. You can get enough work out of one to make the effort of setting it up worthwhile.

Take out all the superfluous parts of the mechanism, leaving just the needle drive. Chop off the foot of the sewing machine—hence the term “chopfiling” that I have given this bit of gear—mounting the machine on its side to a board attached to a strong bench (the vibration is quite vigorous).

Cut aluminium tubes to length and bore a hole in one side for a threaded bolt that attaches the needle to the shaft. I split the tubes with a hacksaw to give them a bit of spring to aid gripping the stones and then grind the ends of the abrasive sticks, slightly tapered, to fit into the tubes. Mount the tubes with the sticks on the shaft and away you go. A little bit of water on the stones and you can quickly work up the cutting slurry. I hold the piece up to the underside of the stick as it is easier to see what is going on that way.

Some of the most inspiring archaic pieces, from many diverse cultures, were made without the help of machines. Stonecutters of the past were careful and skilled in their selection of stones and abrasives. That is what made their achievements possible. Pre-machine technologies that achieved the highest quality artifacts were not as laborious as is accepted. My experience with handstoning has shown that this technique is really quite efficient within its range of possibilities; perhaps it is a cultural arrogance to think that it must have taken a long time to achieve the results that are found in such quantity in many museums around the world. There are a few people here in New Zealand who are working with only handstoning techniques and getting good results in a manageable time frame. Even though many more details will not fit into a space like this, have a go and see what you can achieve: just put in the time. *Kia Ora/Good Luck.* ☺

SUGGESTED READING

- Liu, Robert K. “Steve Myhre. New Zealand Carver.” *Ornament* Vol. 10, No. 2 (Winter 1986): 18-23.
 —. “Collectibles. Stephen Myhre.” *Ornament* Vol. 19, No. 3 (Spring 1996): 10-11.
 Myhre, Stephen L. *Bone Carving, a Skillbase of Techniques and Concepts*. Aldington Books, Ltd: 2000.