



Creating the Guelph Mercury Globe

From concept to creation to installation:
The Guelph Mercury's iconic sign

By André Probst

The Challenge

Sculpting an accurate globe from aluminum by hand

In early 2000, as owner of Creative Design Inc., a 16 year old sign company based in Kitchener, Ontario, I was approached by the editor of The Guelph Mercury to come up with a concept for a new sign above the main building entrance on Macdonell Street. The newspaper wanted a fresh look for the new millennium.

I suggested a three dimensional globe be the dominant feature of the sign, a nod to Superman's day job at the Daily Planet. Blue neon halo lighting would surround both the globe and the letters of the newspaper's "masthead" against a white background. The concept was eagerly accepted, so the process of design began.

For centuries, the challenge to cartographers was to render our spherical planet in two dimensions on paper. I was faced with approaching this challenge from exactly the opposite direction: wrapping a two dimensional map around a three dimensional sphere while maintaining geographical accuracy and doing it in metal with basic hand tools.

Fortunately, I had already gone through this process once before, in 1993, when I sculpted a freestanding three dimensional globe for a Kitchener hair salon. The cutting techniques I had used at the time taught me a few lessons, for example not to use a bandsaw, but the creation of the cutting patterns for the continents was the same.



For reference, I turned to my trusty old Canadian Oxford School Atlas, Second Edition, from 1964, remembering that it featured maps of all continents using Equal Area Projection, the only projection technique that does not distort the accurate shapes of the land masses. I photocopied the maps onto clear acetate and using an overhead projector, enlarged them on my shop wall to the required size and hand traced the outlines onto layout paper. These patterns were then transferred onto the raw sheets of aluminum with an electric engraving tool.

For the Mercury's globe, I decided to increase the thickness of the metal from my previous globe's 0.063" to a more robust 0.080". This ensured that the welding process would not burn through the pieces when attached to the framework.

I rigged my router with a metal bit into the workbench vise, positioned the nozzle of a pressurized sprayer containing cutting lubricant at the bit and fashioned a drip trough for the fluid and shavings to collect in a deep tray. Using two pairs of vice-grip clamps held in my hands, I cut the outlines of the continents with this setup.

Once the flat sheets were cut to the correct shapes, I had to form the metal to the correct curvature. I had determined the optimal size for the globe to be 60 inches in diameter, so an interior radius of 30 inches was required. I only had one method of forming the aluminum sheets to the required radius at my disposal: a ballpeen hammer. I now needed an appropriate anvil of the correct radius and I knew exactly where to find one. Clemmer Industries in Waterloo fabricated steel tanks and pressure vessels that had semi-spherical end caps – I had been driving by their manufacturing facility on Albert Street for decades and had seen these tanks in their yard. I purchased an endcap with a 30 inch radius, but had to cut the perimeter off, as it curves around to meet the tubular walls of the vessel. The ¼" thick steel lip took almost an hour to remove with a reciprocating saw, but the end result was a wok shaped anvil with the desired radius.

Now the noisiest part of the process began – repeatedly bashing the aluminum with my hammer. I used an old blanket to help



muffle the sound of the impacts, so as not to disturb my neighbours more than necessary.

Alternating between the concave side and the convex side of the anvil, I flipped it back and forth, slowly shaping the pieces until they matched the curvature exactly. Once all the pieces were formed, I finished them with an abrasive grinding disc in a random swirling pattern to give them a bright finish that concealed the hammer marks. Next came the step of fabricating a spherical framework.

The full globe I built in 1993 used a tubular aluminum frame, with each piece being rolled to the correct radius, six longitudinal rings of equal diameter and seven latitudinal rings of varying diameter corresponding approximately to the equator, 22.5°, 45° and 67.5° north and south.

As the Mercury's globe is actually just one half of a globe, the rings are only semicircles attached at the ends to a circular frame filled in with a solid aluminum panel. I enlisted the services of my friend Tom Lapp, a skilled welder, to assemble the frame.



The completed frame was transported to my shop where I attached the continents in position using clamps while referring to a small 9 inch diameter desktop globe with taped markings representing the metal rings of the framework. It then returned to Tom's shop where he welded the continents to the frame.



The fact that this was only one half of a globe created an early design conundrum the solution to which only presented itself to me one night at three or four in the morning when I awoke with a sudden inspiration. The background panel *had* to be a mirror! The reflection would create the illusion of a complete sphere – which appears to penetrate the wall behind it – it would appear as a full globe!

I added a silver mirror vinyl polymer adhesive film to the background panel to achieve this effect.

Of course a globe does not a sign make. The Guelph Mercury letters had a new font with some characters connected and the others tightly kerned. As halo illumination was to be achieved with neon tubes within the letters, the thickness of the letter strokes had to be increased to fit the glass tubes. The letters were hand fabricated of aluminum by E.J. Hannes of Woodstock and spray processed with black polyurethane automotive enamel in my shop. The letters and the globe were spaced one inch from the mounting surface for the blue neon light to spill around all elements of the sign.



The background for the sign was a 74 inch high by 183 inch wide carrier box clad in Dibond aluminum composite panel over a welded square aluminum tube frame. The box was hinged at the top in order to access the electrical connections

behind the letters and also the neon transformers that supplied the 15,000 volts of AC power at 60 milliamps required by the tubes.

The globe, letters and neon were all assembled in my shop and tested prior to being transported to the site for installation. To erect the sign in the tight space above the newspaper's front entrance, it was decided to use our proven method without heavy equipment or cranes. An electric winch attached to the top of a heavy duty extension ladder hoisted the sign up into position where my staff secured it to the building.



The Guelph Mercury's new sign was enthusiastically received and graced the entrance for over fifteen years. It has remained the favourite sculptural sign project of my entire career and I am greatly honoured to have it become a permanent artifact of the Guelph Museum and part of this current exhibit.



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