

The three pieces *Ikarangi*, *Ipurangi* and *Taurapa* work together as a whole to represent the various entities within our universe. Both the canvas and the carving, depict the axial precession of the equinoxes, where both the north and south poles move in a circular direction, taking 25,772 years

to do a full circuit of 360 degrees.¹ The rotation in the canvas and wrapping of the Taurapa carved around the wood is the continuous changing and moving of the stars, more specifically **Te Taurapa o te waka o Tama-rereti**, and references the precision in navigation and the cycles in nature of Te Ao Māori. The weaving, within both the carving and canvas, represents every individual thread that comes together to create our universe, right down to the very carbon atoms made inside the stars.

Me mātau ki te whetū, i mua i te kōkiri o te haere
Before you set forth on a journey, be sure you know the stars

IPURANGI

The sculpture of *Scorpius* is a snapshot of a constellation in time. Within the next seventy-two years the constellation will change and not look exactly like it does today/tonight. The idea behind *IPURANGI* was to create a three-dimensional star map in order to make the stars accessible to the visually impaired, more specifically to my 94-year-old grandmother who has macular degeneration.

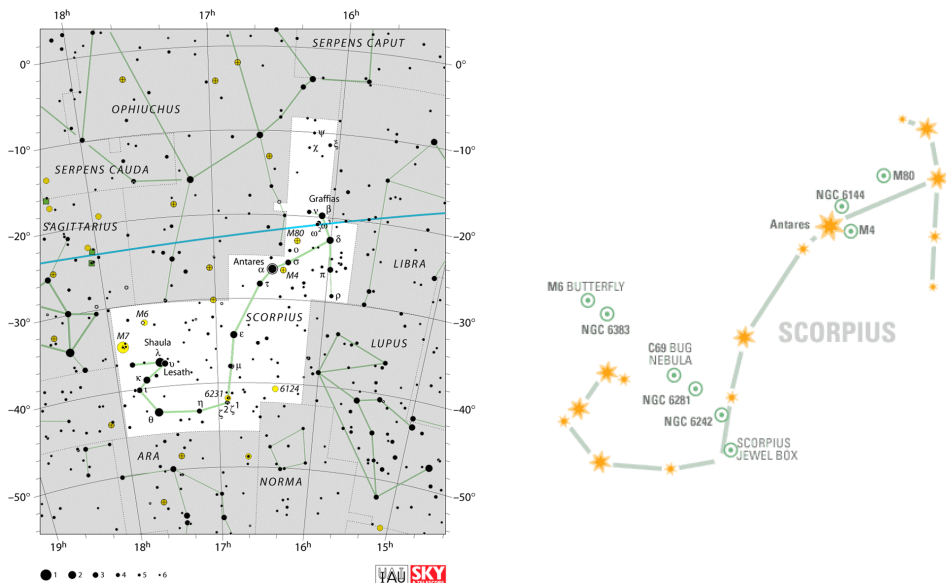


Figure 2 & 3. Scorpius—astrophotographs of the constellation of Scorpius, constellation map and star diagram images from NASA²

Each star within the constellation was represented through different heights (distance as measured by light years from earth) and a range of colours relating to the apparent and absolute magnitude or brightness of the stars that make up the constellation.³ Factors researched for brightness or luminosity and colour were star temperature and conventional versus apparent colour of each star (as perceived by the emitted light spectrum). By the end of the research I was in an awhiowhio of numbers. The end product looked at the distances of each star and the spectral classes of the stars shown by colour through the Hertzsprung-Russell diagram. Hertzsprung-Russell diagrams classify stars according to age and mass, by plotting star luminosity and temperature.⁴

The making of the star map was a collaboration with ceramic artist Jesse-James Rehu Pickery. The peaks were first modelled in clay from the earth we stand on, to transpose the stars into an accessible medium, and then cast in recycled glass. The star towers were finally set in a porcelain base on top of the taurapa and lit from beneath with LED lights to reveal a luminous celestial landscape for the sighted and a tactile map for my grandmother.

Heramaaahina Eketone loves to share her passion in mahi toi/Māori art with her students at Te Wananga o Aotearoa.



Figure 4 & 5. Casting and firing of the glass.

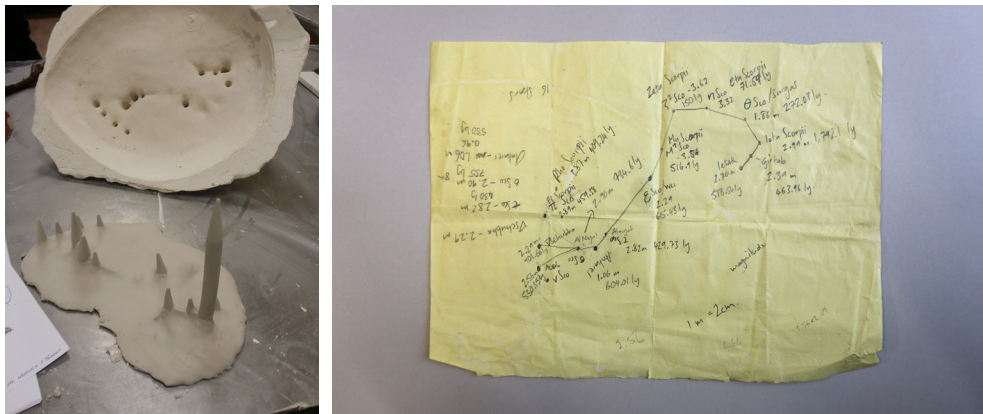


Figure 6. (left) Casting of the porcelain base and testing of heights for the cast-glass inserts. Figure 7. (right) *Ipurangi* workbook—calculations for distance and other factors determining colour (image courtesy of the author).



Figure 8. Installing the work for the Art and Space Exhibition.

1. https://en.wikipedia.org/wiki/Axial_precession
2. <http://pics-about-space.com/nasa-scorpio-constellation-map?p=1#>
3. Matt Williams, Why Are Stars Different Colors?, <http://www.universetoday.com/130870/stars-different-colors/> (accessed 8 November 2016)
4. Ibid. See The Hertzsprung-Russell diagram, (image credit astronomy. starrynight.com), showing the relation between star colours, absolute magnitude, luminosity and temperature.