

The Great Telescope Project

And the Australian Antiquarian Horological Society

At Melbourne Museum Moreland Annex



*Dr. Richard Gillespie,
Head of Science & Technology,
Museum Victoria*

*Dr. Barry Clark,
Melbourne Observatory &
Mechanical Team Leader*

*Vivian C. Kenney,
President
AAHS*

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*Tim Wilmot
Past-President
AAHS*

*Ken Hose
Horologist and Author
AAHS*

Not often does a piece of high technology stay in advance of the rest of the world for 40 years or more, but this and many other considerations make the history of this 1860's instrument important to Australia and indeed to the world of science.



When Dr. Richard Gillespie accepted my request to give a lecture on the Great Melbourne Telescope's retrieval back to Melbourne (after it endured the Stromlo fires in Canberra a few years ago), I started pondering the possibility of an AAHS involvement in the restoration of this giant jigsaw puzzle (We were told it is currently all in bits and was delivered on pallets minus the clockwork).

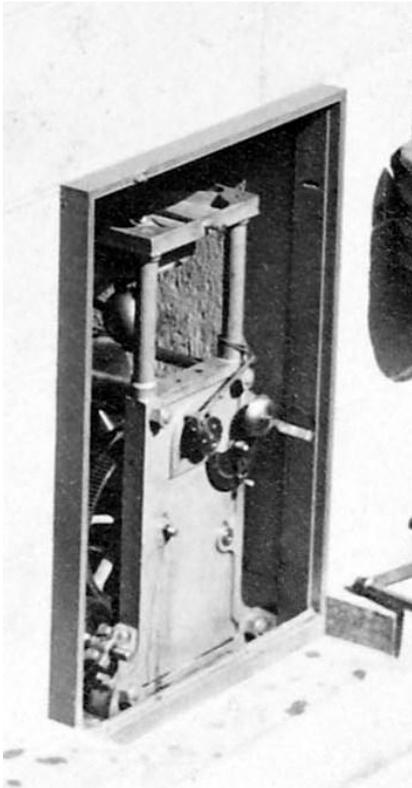
Richard is an intelligent and warm hearted man so it was not out of the question that one could approach him with an enquiry and so it came to be that a few emails between myself, Richard and

Barry Clark led to this terrific moment (captured in the photo above).

It was a rainy/hot day at 10.30 am Wednesday the 8th December 2010, but our little group had excited grins as we were let through the security doors of the big plain building in Moreland.

Four members from the AAHS met the team leaders and some of the other volunteers on the GTP (Great Telescope Project) as they call it.

We had been given time on the day to discuss the parameters of the AAHS involvement as well as a guided tour of all the parts being refurbished and documented for future reassembly.



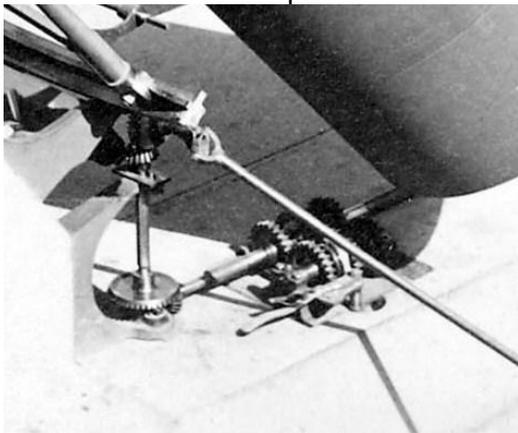
Close up detail of the movement from the 1875 photo

Barry Clark thoroughly explained the work done so far and (importantly to us) the diagrams and philosophy behind the designer Mr. Grubb, (of Dublin, Ireland). Very little of the clock work was drawn up and the AAHS would have this important task to do before any costings or further involvement could be properly discussed.

We are already working on these drawings and our involvement will no doubt be a wonderful experience and a great talking point for all our members over the four years the museum envisions it will take to finish the project.

A great day for the AAHS and we will give talks and articles on it all as we go along.

There is a rectangular weight at the workshop assumed to be one from the clockwork and if so this will be handy for the AAHS team as it prepares specifications for a new drawing to be done that would replicate the original clockwork and lead off gearing as well as pulley systems.



The lead off to the Telescope

To top off an exciting meeting I was allowed to wander the entire Annex looking at and taking pictures of thousands of museum artefacts waiting restoration or display. I saw fabulous things that I never knew existed and on more than one occasion.

The AAHS is at last being able to apply itself to important and historical work that benefits us as a Society as well as helping to promote awareness of our existence in the Australian community

V.C.K.

From many years from 1869 onwards, the City of Melbourne could boast of having the largest steerable telescope in the world. Known as the *Great Melbourne Telescope*, it was truly large with a metal mirror 1.2 m across and weighing about 8 tons; it truly merited the "great" epithet. By the time Melbourne Observatory was closed down in the 1940s the telescope was regarded as an out-of-date pile of junk and transferred to Mt Stromlo in Canberra. There parts of the telescope were incorporated into a more modern telescope with a slightly larger glass mirror. This was destroyed in the Stromlo fire of 18 January 2003. The remains were eventually returned to Melbourne and to the care of the Museum of Victoria.

Ref: <http://www.sydneobservatory.com.au/2010/nick-visits-project-phoenix-the-restoration-of-the-great-melbourne-telescope/>

Pictures of parts of the jigsaw puzzle as the Great Telescope gets restored



Steve and Barry (Museum Team Members)

Other members of the Museum Team are:

Barry Adcock - joint Mechanical Team Leader

Steve Bentley - Electrical Team Leader

Barry Clark - joint Mechanical Team Leader

Barry Cleland

Arthur Coombs - Optical Team Leader

David Crotty - Curator, Engineering, Museum Victoria

Jim Pollock - Chair ASV GMT Reconstruction Sub-Committee

Helen Privett - Senior Conservator, Museum Victoria

Neville Quick - Manager, Collection Facilities, Museum Victoria

Steve Roberts - Support Leader

Meeting with the Royal Society of London and Australian National Gallery regarding inspecting the Shelton Regulator of Captain Cook fame



Dr. Felicity Henderson PhD. of the Royal Society of London and Michelle Hetherington Senior Curator of the National Museum of Australia



Mr. Vivian Kenney with Dr. Felicity Henderson

Dr Felicity Henderson is Events and Exhibitions Manager at the Royal Society of London. Her academic interests include manuscript culture, bibliography, satire, seventeenth-century institutions, and the social history of science in seventeenth-century England.

Recently I approached Michelle Hetherington, Senior Curator of the National Museum of Australia (Canberra) inquiring if I could get personal access to photograph and study Captain Cooks Shelton Regulator that is currently on loan from the Royal Society in London for a wonderful exhibition called 'Exploration and Endeavour'.

Michelle explained that only the Royal Society could give permission to such a request. I decided to write a letter to the Royal Society Curator explaining my wish to do a series of lectures at the AAHS and other historical Societies in Australia on this clock and this was the perfect opportunity (before it soon returns to England) to become properly familiar with it. The way the clock had aged, been altered and originally made is best viewed up close rather than in books and illustrations. There's so much one can see concerning it's originality and it's history that is forever displayed on its surface as well as all the bolt and screw holes and style and depth of



engraving.

I was willing to adhere to all regulations placed upon the viewing and would be respectful of museum staff.

To my amazement Dr. Felicity Henderson wrote back a few days later having read my request and said that she could meet me in Canberra on Wednesday the 15th of December to organise and authorise the matter with the National Museum for an upcoming date.

I spent some wonderful moments with these exceptional people and realised that this most important piece of Horology is in very good hands indeed. Both Felicity and Michelle have a friendly, positive and highly professional approach to their very responsible administration. I will update members as we go along.

Vivian C. Kenney

Regulator carried by Cook on the *Resolution*

The long-case astronomical regulator, made by John Shelton, that features in the exhibition was carried by Cook aboard the *Resolution* on both his second and third voyages to the South Seas.

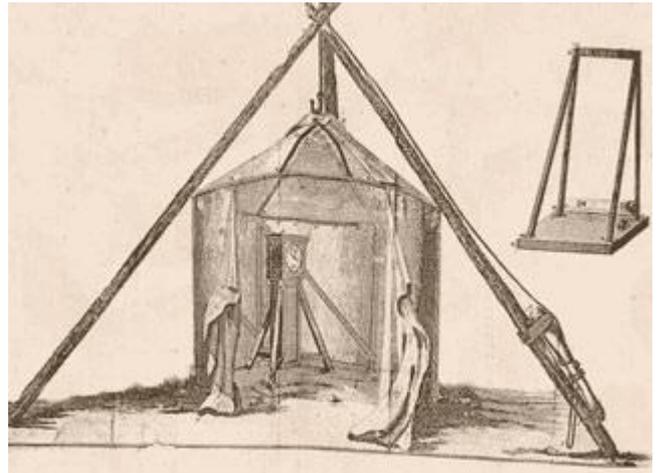
Regulators were accurate clocks used specifically for timing astronomical events, such as transit observations, to the exact second; this regulator is one of five created by Shelton for the Royal Society for the purpose of timing the transits of Venus in 1761 and 1769.

The regulator measures sidereal time (time measured from the apparent movement of the stars) instead of solar time (time measured from the apparent movement of the sun). In 1828 this regulator was used to compare the strength of gravity at both the top and bottom of a mine in an attempt to find the density of the Earth.

Right: Regulator carried by Cook on the *Resolution* made by John Shelton, London, about 1769, with replica tripod stand. The Royal Society.

While the regulator was extremely accurate, it could only be used on land. Until John Harrison produced his chronometer H4 in 1759, no simple and effective method existed for accurately calculating longitude at sea. (H4 was the fourth model Harrison created in his pursuit of £20,000 prize offered by the Board of Longitude for an accurate method of keeping time at sea.) In the absence of accurate readings of longitude, maps were inaccurate, ships were wrecked and lives were lost.

The nautical tables provided in 1767 by Nevil Maskelyne, Astronomer Royal, Fellow of the Royal Society and member of the Board of Longitude, had been used by Cook to perform the mathematically complicated but effective method of calculating longitude based on lunar distances during the *Endeavour* voyage, and his maps of the South Seas were much more useful as a result.



Tent Observatory used in may of Cook's expeditions. (French Edition 1783 - Brian Greig collection)

Chronometers used on Cook's second voyage to the Pacific

Made by John Arnold, London, 1771. The Royal Society

H4 had undergone sea trials in 1761 and been awarded an interim prize of £2500 by the Board of Longitude, but the Board demanded further tests. Larcum Kendall, a British clockmaker, was commissioned by the Board to create a copy of H4, and astronomer William Wales was appointed to oversee the trial of Kendall's chronometer, known as K1, aboard the *Resolution*. The timepiece passed with flying colours.

Cook took another three timepieces with him — two for his companion ship, the *Adventure*, and a second for the *Resolution*. All three had been made by John Arnold. The two Arnold chronometers included in the exhibition were both made in 1771 and used aboard the *Adventure*. None of the Arnold timekeepers were as reliable as K1, which may account for their preservation in the Royal Society's collection: accurate timepieces were too valuable not to be used, and K1 would later travel with Governor Arthur Phillip on the voyage of the First Fleet to New South Wales in 1788.



REF: http://www.nma.gov.au/exhibitions/exploration_and_endeavour/voyages_resolution/