

# The Great Melbourne Telescope Project

A Joint Venture by Museum Victoria, The Royal Botanic Gardens and the Astronomical Society of Victoria

## 1. The Great Melbourne Telescope's Second Life at Mt Stromlo



**The Great Melbourne Telescope (GMT) installed in the GMT house at Melbourne Observatory 1885.**

The Great Melbourne Telescope shown above was housed at Melbourne Observatory in the GMT House from 1869 when it was first commissioned, until 1945 when it was finally sold for scrap metal value to the Mt Stromlo Observatory near Canberra. Elements of the telescope's innovative mount were modified and became part of a new instrument with a modern 50-inch diameter mirror, shown on the right.

This instrument had a period of great success at Mt Stromlo from 1959 into the 1970's, measuring the brightness of stars. During the 1990's further upgrades were made to the telescope with the addition of two mosaic optical detectors. The telescope was then brilliantly successful by detecting for the first time the existence of MACHOs, MASSive Compact Halo Objects that were possible candidates for dark matter, orbiting around our Milky Way galaxy. The process for detecting the presence of a MACHO takes advantage of the principal of gravitational micro lensing. The brightness of the nearly 10 million stars in the Large Magellanic Cloud was studied over a long period for any subtle changes. The presence of a MACHO between the LMC and the observer on Earth would cause the brightness of a star to steadily increase to a few times its original then steadily decrease equally. The telescope was also used to take photographs of the most violent cosmic explosions in space, the gamma ray burst.



**The elements of the GMT mount at the Mt. Stromlo Observatory 1959– 2008.**

In 2003 severe bushfires devastated the observatory at Mt. Stromlo and the GMT was damaged beyond restoration for professional use. The remains of the GMT were exposed to the weather for nearly 6 years until being dismantled and returned to Melbourne in 2008.



**The burnt remains of the GMT at Mt. Stromlo 2008.**

## The Great Melbourne Telescope Project Information Fact Sheet

This fact sheet is one of a series providing information on the GMT historical background, technical details of the instrument and the efforts to reconstruct this magnificent telescope for use by the public.

Prepared by Stephen Bentley ASV 21-07-2009 © ASV Inc Reg. No. A0002118S Australia 2009 All Rights Reserved