Rebuilding My Observatory

Steve Harris

My telescope arrived 2003 ‘Peggy’

My beautiful Mother – Peggy died 20th July 2002

In 2002 my beautiful mother Peggy Harris died so my sister and I had to sell her house as our Father Ken had died about seven years earlier. They really were the best parents anyone could wish for.

From the proceeds of selling Mum and Dads house my wife and I felt we would like to be able to buy something that would be a heirloom for our daughters to remember their grandparents. After exploring this idea for a few months we could not find a sensible option to do this.

I had always intended to buy myself a nice telescope when I retired in 2008 and an advert in Astronomy Now Magazine caught my eye. The Meade range of telescopes had a very generous discount offer that gave me an idea. I asked my wife if she would agree for me to buy a really nice telescope and dedicate it to Peggy and Ken. She agreed so I bought the telescope that was reduced by £1000 and also was supplied with a box of the eight eyepieces in the Meade range along with a Barlow lens all worth another £750.

I have now enjoyed using my beautiful telescope 17 years and always remember Mum and Dad every time I see it.

I also bought a 10 foot x 6 foot wooden shed to house ‘Peggy’.

My Observatory as built 2003

The roof of the wooden shed was supplied with the roof in two sections so I decided to modify it so that one half of the roof could slide back over the other half.

I ended up building a completely new roof half and stowed the original half behind the shed. The special roof was raised to allow the telescope to be rotated and elevated inside the closed roof.

After about eight years the roof began to leak and I never needed to move the telescope around with the roof closed. We also needed to rebuild our patio which affected the observatory.

REASONS FOR THE REBUILD

Leaking roof

Replace sliding roof

Match the foundation bricks to patio

Access drain under the observatory

Straighten the patio

Replace the tripod with a pier

Move the observatory down the garden

Give me more room for observing

I built the new patio in 2009

I started building the new patio in 2009. We designed the patio to be larger to facilitate our 6 to 8 seat table and chairs. We also needed more room for the growing family to play. The new patio was to be wider to allow my 14" Dobsonian to be used in the extra space.

My telescopes pre-observatory built 1995 -1998

Up until 2003 my two main telescopes were my homemade 14” and 6.25” Dobsonians.

The new patio wall and slabs

I replaced the wall with my better looking bricks, laid loads of ballast and then the new paving slabs.

The new patio

There were now steps to make and finally the new patio was finished. I had built the patio around the observatory with the aim of moving the shed further down the garden and continuing the line of the front of the patio to the fence. So this was the project for the following year.

There was now plenty of room for scooters, cars, running and a lot of room to play.

The original roll off raised roof was to be replaced with the original flat half of the roof. It would have to be raise to allow it to be rolled back over the fixed half of the roof. The original wheeled trolleys would be used.

The Meade LX200 on its tripod

Peggy was supplied with a giant field tripod that I decided to replace with a fixed pier and equatorial wedge.

The raised roof allowed full movement inside

This is an image looking up under the original raised roof.

Disassembly of the Original Mk.1 Observatory

Project 2011

First step clear out the observatory

The first step for the rebuild was to empty out the observatory. This view shows the brick pads that the tripod legs stood on. The brick pads were set into the foundation of the observatory to stop movement on the wooden floor causing vibrations on the telescope.

Peggy was given safe sanctuary in the spare bedroom.

All the other stuff from the observatory and the new pier were stored in the garage.

I needed some helpers to lift off the old roof.

The helpers were very good and loved running around on the wooden floor.

All the wall panels, floor and roof were stored in the side entrance to the house.

I dismantled the old roof and recycled much of the wood.

Rebuild of the Mk.2 Observatory

Project 2011

With the wooden shed removed the old foundations were revealed. The drain that was hidden under the shed was for the rain water drain pipe from the garage. The brick foundation wall was to be removed along with the tripod footing pads. The new white brick foundation was waiting behind the shed to be laid to match the new patio.

The rear (south) foundation wall was to be moved 600mm down the garden.

The drain level had to be raised to the height of the new patio and the patio wall extended to the drain. The east and west brick foundation wall was dismantled (with a lot of work and a sledge hammer). The rubble from the wall was used as ballast with the concrete for the new pier foundation.

The paving slabs were laid to complete the new patio up to the new ‘raised’ drain. A drain was fitted between the patio and the observatory foundations to divert rain water off the patio.

I decided to leave the old rear foundation wall and incorporate it into the pier base. A large hole was dug for the concrete and rubble pier base and the back foundation brick wall was built.

The wooden floor was temporarily fitted to ensure that the concrete pier base correctly aligned with the new hole in the floor. The old tripod pad holes were repaired.

Wood shuttering was installed for casting the concrete base for the pier. The floor supporting beams were fitted and levelled.

The pier foundation was cast and the shuttering removed. The space between the pier foundation and the new wall was filled with ballast and concrete. The mains electricity cable can be seen close to new the drain cover.

The floor support beams were fitted and secured in place.

The foundations and floor supports are in place and ready for fitting the floor.

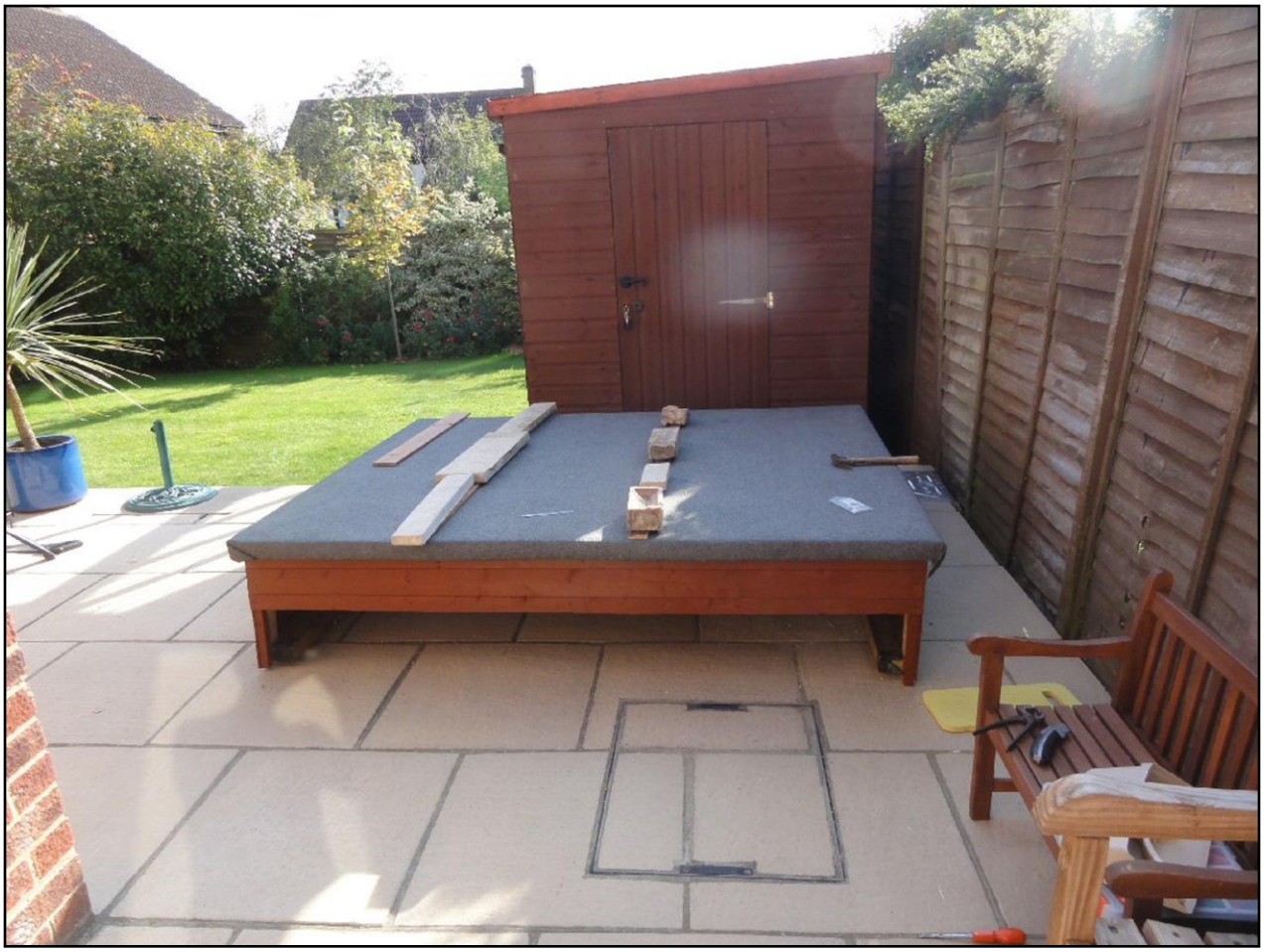
The first fit of the floor to check the fit. The cables were then laid under the floor and secured to the floor support beams.

The walls were then fitted and secured to the floor.

All the walls fitted. The two roof sections were put in place to establish the height of the sliding roof side support walls. The slope angle had to be carefully calculated so the sliding roof would not damage the fixed roof felt. When the original 'raised' roof was manufactured the second 'half' of the supplied roof was wrapped in heavy plastic sheet and stored between the observatory and the garden fence.

Checking the original roof half and the sliding roof support trolleys.

Assembling the new sliding roof with its side support walls and trolleys.



Fitting the sliding roof felt.

The door and the fixed roof fitted and felt fitted.

The sliding roof lifted on to the runners and slid forward to butt against the stop and sealing bar.

Measurements were made with the roof in the closed position so the dimensions of the low viewing / ventilation flap.

The sliding roof in the closed position.

The low viewing / ventilation flap fitted into position with the rain seal sheet.

The low viewing / ventilation flap open.

The low viewing / ventilation flap in the ventilating position.

The wall mounted mains electrical sockets fitted.

The floor mounted mains electrical sockets fitted.

Preparing the wooden cover for the pier mounting.

The north pole alignment template in position.

The pier in position and secured to the mount.

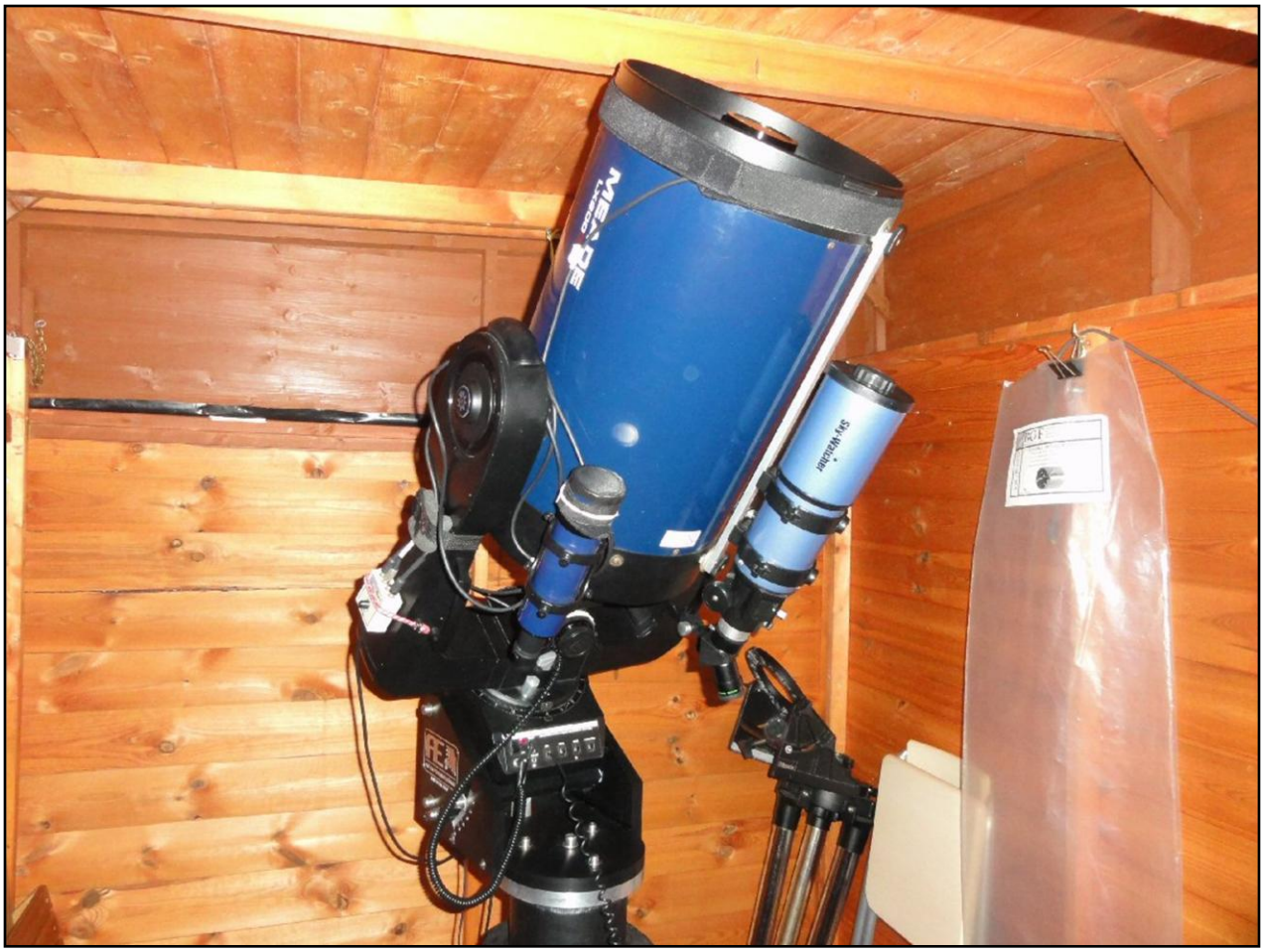
The pier top adaptor fitted. My wooden eyepiece shelf fitted.

Checking the level of the pier assembly.

The Giant Equatorial Wedge fitted.

A close up view of the wedge latitude angle setting mechanism.

Peggy has come home and fitted in to her new pier.



The telescope in the polar alignment position. Pointing to the Celestial Pole 90^{o} Dec.

The telescope aligned and ready to go.

Peggy today

Peggy fitted with my 90mm Skywatcher ‘piggy backed’ for imaging the Jupiter / Saturn conjunction on 21st December 2020. Actually used on 20th December as the 21st was cloudy.

Beginner's Website:

naasbeginners.co.uk