

## **Astronomy Talk 8<sup>th</sup> September 2020**

### **100 Years of Astronomy**

This was a “Zoom” talk given by the chairman, James Fradgley, and looked back over the last 100 years since the BNSS moved to its present premises.

There were many discoveries in the late nineteenth century, and it was widely believed that more or less everything had been discovered by the early twentieth century!

In 1920 it was not clear whether the Milky Way was the whole universe or not. Hubble proved it wasn't in 1925. In the same year Cecilia Payne showed that the stars were mostly hydrogen and helium. In 1929 – 31 Hubble discovered the expansion of the universe.

Pluto was discovered in 1930, and Dark Matter postulated by Fritz Zwicky in 1933. The 200” telescope saw first light in 1949, and was the largest telescope in the world until the twin Keck instruments were built in 1993.

Radio astronomy started around 1933. Since then it has been responsible for our finding Quasars, the Cosmic Microwave Background radiation (CMB), and Pulsars, amongst many other things.

The nuclear processes in stars were fairly well understood by mid century, with many of the processes being explained in the so-called B<sup>2</sup>FH paper in 1957.

Modern instruments include ALMA (Atacama Large Millimetre/submillimetre Array), with 66 dishes used as an interferometer, which has been fully operational since 2013. The LIGO instrument (Laser Interferometer Gravitational-Wave Observatory) first detected gravitational waves in 2016.

Space probes have been very productive as well, e.g. the Hubble space telescope, which has been fully operational since 1994, and the Kepler telescope launched in 2009 which found many exo-planets. Others include the Mars rovers and the Cassini probe to Saturn.

We are still making astounding discoveries on an almost regular basis. So much for knowing everything 100 years ago!