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THE ART AND THE SCIENCE

Ken Tapping, 19th September, 2017

The Royal Greenwich Observatory was founded in 1675, under command from King Charles II to aid navigation. It is the location of the zero degrees of longitude meridian and where Greenwich Mean Time (now called Universal Time) was set up. The first "Astronomer Royal" put in charge of the observatory was John Flamsteed. One of his charges was to produce a set of precise star charts that could be used for maritime navigation.

Over the years London expanded to and beyond the observatory. The resulting light pollution made useful observations impossible, and the establishment was closed. Today the Royal Greenwich Observatory, located at the top of a hill overlooking the Thames, is a museum.

One of the main exhibits is Flamsteed's "Atlas Coelestis", his atlas of the sky. It is a beautiful and precise piece of work. What is immediately striking is that along with the stars being marked in their exact positions, as needed for navigation, the mythical figures the constellations represent are drawn in. The item is not just a scientific document; it is a work of art in its own right.

There are many other exhibits. In addition to instruments used at the observatory, the collection includes old astronomical instruments from around the world. Many of these show the same combination of science and art. They are made of brass and ebony, beautifully polished. The precise scales and graduations needed for their scientific applications are accompanied by depictions of mythical figures relevant to astronomy. To the craftsmen making the instruments, aesthetic appeal was as important as scientific performance.

The Ancient Greeks assigned responsibility for the various creative arts to the Muses, daughters of Zeus. There were nine of them, each responsible for an art/science: Calliope (epic poetry), Clio (history), Euterpe (music and lyric poetry), Erato (love poetry), Melpomene (tragic drama), Polyhymnia (sacred poetry and hymns), Terpsichore (dance), Thalia (comedy), and Urania

(astronomy). For the Ancient Greeks, astronomy was one of the creative arts. It is also clear that those Greeks were really big on poetry.

Today we generally aim the resources at producing the maximum scientific return, with aesthetics being secondary. However even then, artistic aesthetics can be a powerful science tool. For example, a few years ago a visiting astronomer gave a talk here at the observatory that was a bit of a revelation. She took a selection of images obtained using the Hubble Space Telescope as part of a number of scientific investigations. The originals were impressive, but what she did with them made them amazing. She just rotated and clipped the images to get them artistically composed properly. If an image is artificially coloured, picking the right colours makes all the difference. This made the images easier to look at, and easier to grasp the scientific potential.

Art has always been an interface through which we come to terms with the world. In the past we celebrated that not just by pursuing scientific utility, but also building in some artistic self-expression. The function of Stonehenge could have been achieved with a ring of rocks or sticks in the ground. Instead its creators took on the ancient equivalent of building a cathedral. Even in today's emphasis on utilitarian instrumentation, art sneaks in. We take pictures of the geometrical arrangement of radio telescope antennas in the desert, or radio or optical telescopes against the backdrop of the Milky Way. Or it could be a picture of an observatory glinting in a mountaintop sunset.

At 15:02 EST/12:02 PST on Sept 22 the Sun crosses the equator heading south, a moment called the autumn equinox. Saturn lies low in the southwest. Spectacularly brilliant Venus rises in the early hours, with Mars and Mercury deeper in the dawn glow. The Moon will be New on the 19th.

Ken Tapping is an astronomer with the NRC's Dominion Radio Astrophysical Observatory, Penticton, BC, V2A 6J9.

Tel (250) 497-2300, Fax (250) 497-2355

E-mail: ken.tapping@nrc-cnrc.gc.ca