Talks by Prof Michael Whittle

Skylab (1973-4): Science and Medicine in Space

The Skylab space station was launched by NASA in the spring of 1973. After some serious initial problems, it was used by a total of nine astronauts (in three groups of three), who conducted an impressive array of experiments in several scientific areas. The author, who was at the time a research medical officer in the RAF, was loaned to NASA to supervise (from the ground!) six of the Skylab medical experiments. The talk, which is illustrated by slides, describes the Skylab mission itself, the various experimental areas, with an emphasis on the medical experiments, and the author's involvement in the project.

The Study of Human Movement

Although human movement has undoubtedly been observed ever since humans have been on earth, its systematic study only began during the Renaissance. In Victorian times there were major advances, thanks to the invention of photography. In the 20th Century, the use of television cameras, linked to computers, advanced the field of study in many different directions. The author pioneered the use of three-dimensional television/computer technology to study human walking, the main application being to assess children with cerebral palsy, prior to treatment. The technology is now used in scientific research, ergonomics, police investigations, sports training and umpiring, and the entertainment industry. The talk covers all of these aspects of human movement studies, illustrated by slides and movie clips.

Sun and Moon, Time and Tide

- The tides are caused by the gravity of the moon, pulling on the seawater. But there is only one moon, yet there are two high tides a day.
- The height of the tides varies from day to day, over a two week cycle, and is greater at some times of year than others.
- The coast of Britain has significant tides; the Mediterranean hardly any.
- The sun's gravity is 180 times greater than that of the moon, at the surface of the earth, yet the influence of the moon on the tides is more than double that of the sun.
- The moon and sun cross the sky from east to west, yet the time of high tide moves along the channel coast from west to east.
- These and related questions will be explored in this talk.

"*Everything I thought I knew about the tides turned out to be wrong!*"

The History of Navigation

From earliest times, people have had to find their way around, but the methods used have evolved considerably with time. Some societies, such as the Polynesians, developed highly sophisticated methods of navigation, without the use of technology. An early and important technological invention was the magnetic compass. The sextant was another major advance—it was excellent for finding latitude, but longitude was a harder problem, and had to wait until accurate timepieces were developed—a saga in itself! During the second World War, electronic methods began to be used, and these eventually led to the Global Positioning System (GPS) now used by ships, aircraft and (as "satnav") in our own cars. We will take a look at all these methods of navigation, and a few more.

Skylab and Me—the Backstory

My talk on the Skylab space station concentrates on the flights, the astronauts and the experiments. This complementary talk covers the personal side—how I came to work on the space program, and the many interesting and amusing aspects of living in Houston and working for NASA. The talk assumes no technical knowledge, and aims to be light hearted and amusing; it should be suitable for people of all ages.

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