

Spaceport

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As a recent participant with my local MP (Andrew Miller) in the Royal Society's MP-Scientist pairing scheme, I saw for myself the high priority given throughout Parliament to science and technology as a driving force behind the prosperity and wellbeing of the nation. It is of course also true that the UK is not producing sufficient numbers of scientists and engineers. Moreover, and perhaps just as importantly, we need to enhance the general level of public understanding in these areas and great efforts continue to be expended nationally to achieve this. Astronomers, such as myself, have somewhat of a natural advantage here. The level of public interest, particularly among our young people, for all things to do with "space" seems to grow by the day.

At Liverpool John Moores University, we have designed, built and now operate the Liverpool Telescope (LT - telescope.livjm.ac.uk) as the World's largest and most sophisticated robotic telescope. Sited atop the island of La Palma in the Canaries, the LT was funded by the University, the European Regional Development Fund, PPARC and a generous private benefactor (Mr Aldham Robarts) and is a National Facility for astronomy research.

It was always our ambition to bring our work in science and technology to the attention of the public. This took two forms. First of all, we knew that a flexibly-scheduled telescope such as the LT could be used to enable schools to execute their own projects in among the work of the professional astronomers. Thus it was that what is now the National Schools' Observatory (NSO - www.schoolsobservatory.org.uk) was born whose primary aim is to use astronomy to enthuse students about the study of science, technology and mathematics in general.

With assistance from the DfES and the Institute of Physics, the NSO now has around 500 subscribing member schools across the UK, both primary and secondary, and since October 2004, over 3,000 LT observation requests by pupils have been fulfilled.

We also wanted to have some more "physical" presence (the NSO being largely web-based), ideally in our own locality. This grew into an outline plan for a major visitor centre in astronomy and space research situated between the University's Astrophysics Research Institute and the university subsidiary company, Telescope Technologies Ltd (which was originally formed to build the LT).

Ultimately we had some of the required funding in place, but siting the centre where we originally intended was problematical. In addition, operating such a centre is well beyond the normal range of experience of any university. On the very day we thought we had reached the end of the road on the project, the local authority brought us together with Mersey Ferries and their parent company, Merseytravel. Just a mile from our Institute is the Seacombe Ferry Terminal. Next to the terminal is the Annexe Building, which when constructed in the early 1930s was of all things the largest multi-storey car park outside London. In recent years it fell into disrepair, but as an art deco listed



A school party at the opening of Spaceport on Merseyside in July. In the background is a Starchaser rocket.



Visitors to Spaceport enter the "Solar System Zone"

building, it could not be demolished. However Merseytravel wished to develop its business at this site and were simultaneously putting together a feasibility study to place a visitor attraction in the Annexe.

So it was that at the end of 1999 we formed a partnership between the University and Merseytravel/Mersey Ferries with the aim of jointly bringing our aspirations to fruition. On paper it was perhaps an odd partnership (astronomers and a regional transport body) but the teams' expertise complemented each other superbly. It took no time for both parties to be convinced that a visitor centre in space and astronomy at this location was likely to be a success and be beneficial to both.

Funding was gradually secured from a variety of sources including ERDF, the Wirral Waterfront (SRB6) initiative, the local authority and Merseytravel itself. The total amounted to around £10m. We had to use the building in a way that made it fit for purpose, enhanced it, but did not violate its aesthetic appeal. Essentially, it is long and thin and on two storeys, with roughly the same exhibition area as the National Space Centre in Leicester. Our concept was to take visitors on a journey out into the Universe, utilising the form of the building to greatest advantage and, above all, ensure that any visitor rapidly forgot that they were in Wallasey, or even on the Earth.

Our aim was to be educational at several levels, but also fun. It was one of the most challenging aspects of all to explain our science succinctly in layman's terms whilst retaining scientific accuracy and also making it entertaining and "hands-on". Somewhere along the road we had to choose a name and the partnership came up with "Spaceport" (www.spaceport.org.uk) – aptly tying together astronomy and seafaring, as had of course been the case via navigation for many centuries before – and the centre opened its doors to the public on July 26th 2005.

A visitor to Spaceport first "leaves the Earth" by entering a "spacepod" from which they emerge into our Solar System of the Sun, planets, moons, comets and asteroids. The more intrepid can experience a simulator which gives them a "white knuckle ride" through various imaginary landscapes. Along the way there are many inter-actives including demonstrations of weightlessness, crater formation and the relation of the tides on the Mersey outside to the Earth-Moon-Sun system.

We have had the technology for many years to travel around our Solar System. However, travelling the vaster distances to the stars is currently beyond us. The transit in Spaceport between the Solar System and out into the vast spiral of dust, gas and around 200 billion stars that make up our Galaxy, the Milky Way, is accomplished via a

"wormhole" – based on a theoretical concept allowing one to journey vast distances by effectively short-circuiting space. Here visitors learn that space is not really empty – they see, for example, the otherwise invisible tracks in a cloud chamber caused by charged sub-atomic particles that make up "cosmic rays" and view evidence of the magnetic field that threads its way throughout our Galaxy. They also hear and see the story of stars, from birth to (sometimes violent) death and explore the heavens represented on the ceiling via a virtual telescope, before entering a 360° theatre show.

The next transition is onto the second floor and into the wider Universe. Questions asked and answered here include "how did it start and how will it end?"; "how large/old is the Universe?" Along the way, visitors can learn more from the NSO area and understand how telescopes as probes of the Universe work. Finally in this zone, perhaps the biggest question of all is asked: "Are we alone?"

The penultimate transition is to a zone that as scientists we found the most challenging of all – the science behind science fiction. We debated this long and hard, weighing up the public interest in UFOs, Dr Who and the like against the absolute requirement not to mislead. In the end we let the designers' imaginations loose, but the final message is effectively to retain a healthy scepticism and, to coin a phrase, "Don't Panic!".

Emerging into daylight, visitors encounter the "Starchaser" zone, which is now the public home of the UK's bid to launch a commercial manned spacecraft, with rockets and their associated hardware all around. To the visitor's right, one of the most stunning views across the Mersey to the Liverpool waterfront suddenly reminds them that they are still in fact in Seacombe.

Although it is early days of course, visitor numbers are exceeding expectations. Since opening, on most days the centre has reached full capacity several hours before closing time. Indeed, one of the challenges now is that (ironically) we could actually do with more parking space!