

President's Message



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Dear Colleagues

I am writing this in the departure lounge of Manchester Airport after two days at the Yorkshire Sculpture Park, where I took part in a two-day weekend public project called "Dark Skies." I was invited to attend by Bradford-based Space Connections, who organised the event, and I represented both IPS and Armagh Planetarium.

The experience for the participants was enhanced by the volunteer support, including those from the local Sheffield and Huddersfield amateur astronomical societies and a portable planetarium team who showed the classic starry skies. Friday was devoted to a workshop with primary and secondary school teachers, where I tried to show them how astronomy was a super "hook" which could be used to prime childrens' interest in science, technology, engineering and maths.

In the UK this is known as the STEM agenda, which has funding support from central government and many aspects in common with similar programmes around the world. I used a number of images and small electronic gadgets and toys which I used to show how to capture pupils' attention. The feedback from the teachers was very positive, as they could see that with some very simple and inexpensive kits they could easily stimulate lots of classroom discussion about how, for example, spacecraft could be designed. The demo really emphasised that using infrared and ultraviolet sensors immediately broadened our sensory boundaries, and clearly showed how little of the electromagnetic spectrum we humans actually can see using our hard wired biology.

Richard Everiss from the Yorkshire Planetarium set up a 3D projection system demonstrating astronomical video and deep space images processed and programmed by Swinburne University in Australia. The Space Connections travelling WOW bus was also available for the teachers to see.

Saturday started as a rather murky grey day, and volunteers set up a trailer with a simulated Lunar landscape to be explored with small

robots. This allowed the children to see how they could plan the exploration of neighbouring planets using very expensive small autonomous machines.

I set up a plasma ball with fluorescent tubes to show how static electricity was powerful enough to make the tubes light up when we used small people in the circuit design acting as switches.

As I finish writing this, I am reflecting on how even the smallest children are fascinated by the apparent magical attraction of rare earth magnets strongly sticking to each other with such force that they are very hard to separate.

At my table I had two fist-sized NiFe meteorites, and the magnets really stuck to them also. Just for comparison I had a couple of rather nondescript looking chondrites and they also showed the weak magnetic attraction typical of their kind. Even though I encased the magnets in plastic coats to prevent the magnet's surfaces actually touching, it is a tough job to pull them apart: I guess it is the invisible power as these strong magnets repel and attract which is the "magic."

As one of the 3D shows ended, an avalanche of excited small people exploded from the doors and besieged my table: it was a birthday party with two young lads having a joint celebration. I showed them how the static charge from a plasma ball leaks into the air, but can be channelled through them to earth, and if we insert a fluorescent tube into the pathway, I can convert them from humans into voice-activated switches. (Think about it!)

They are all clamouring for a turn at making the plasma spark follow their fingers and to trying to shock each other with the static electricity. We are not mentioning maths, engineering or anything else, but I know that demonstrations like this can powerfully fire youngster's imaginations out in a brightly lit

corridor. How much better to show them constellations, planets, spectacular deep space objects and all the other fabulous things in the universe in the controlled darkness of the planetarium.

Even in the foggy conditions, the Sheffield amateurs are using a solarscope to let them look at distant trees. Once again the actual expected outcome is less important than the hands-on experience. Telescopes are experience instruments; hours of talk and diagrams cannot beat the personal use of eyepieces, focusing and defocusing, lens changes, tracking motors and all of the paraphernalia of imperfect observing conditions. How do you explain in words the experience of having telescope tubes freezing on to your hands on frosty winter nights?

The teaching instinct is to strive for perfection, but as the Yorkshire day was very misty and damp, my static electrical experiments become unpredictable. On the other hand,



(Top) Static electricity experiments with a plasma ball at the Dark Skies event, Yorkshire Sculpture Park; (Bottom) Discussing the experiments with local teachers. Photos by Andy Northfield, Boomerang Creative.

that allowed teachers to demonstrate different truths and to use the opportunity as a different learning experience. The world of science experimentation is often imperfect, so make sure that is understood!

Trying over and over to see if we can get a result meant changing the parameters. For example, for static charges to pass through peo-

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tions Committee, with Dimitrie Olenici, who runs the planetarium in Suceava, Romania. Dimitrie has been a great help in providing information on nine planetariums in his country, and this communication with him is going hand in hand with the great work that is done by Publications Chair and former IPS President Dale Smith in relation to the IPS directory of the world's planetariums.

The first public planetarium in Romania was established in Constanta, a major city on Romania's Black Sea Coast, in 1969. Following this, several more were established, the largest being in Suceava in the north, in 1982. Suceava makes use of a Zeiss ZKP2 projector; indeed, the majority of planetariums in Romania have Zeiss projectors, and these include several ZKP1 projectors.

The first digital planetarium in Romania—an RSA Cosmos system—was established in 2008, in Pitesti. Pitesti is a town about 100 km north of Romania's capital city, Bucharest.

Bucharest itself has a planetarium, but it is dedicated to education in the Faculty of Mathematics at Bucharest University, and my understanding is that it is not open to the public. Dimitrie's enthusiasm for astronomy education is wonderful; in addition to the main planetarium in Suceava, he also runs a small planetarium with a Goto EX3 projector. I look forward to visiting several of Romania's planetariums on my next visit to that country!

To Southeast Asia now, and I have recently had a report from our colleague Salin Weerabutra, at the National Science Centre for Education in Bangkok, that all three planetariums in Thailand—in Bangkok, Rangsit and Ayutthaya—are operating well. The Bangkok Planetarium celebrated its 45th anniversary in August 2009, and is still using its original Zeiss Mk IV projector. It is hoped that funds will be available for a new planetarium there in the next few years, and I wish Salin all the very best in hoping that this turns into a reality.

In addition to the three planetariums in operation, there is one under construction at the Roi-Et science centre in the north east of the country. It will have a 15 m dome and 120 seats, and is expected to open in 2010.

The International Relations Committee is dealing with several other issues, including the possibility of some translations being organised for IPS 2010. I hope to have more news about this and other topics.

Meanwhile, it's back to the dome for me, to run that great programme *Dawn of the Space Age* and to show off the delights of the spring-time night sky with our Zeiss ZKP3 projector. Best wishes to everyone for the solstice, the Christmas period, the New Year, and for whatever other celebrations are taking place in your country! ☆

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ple, body mass is critical, and a result can be obtained by shuffling big people and small people to different ends of the fluorescent tubes. And, of course, persistence is vital, and waiting just a little bit longer, allowing the static charge time to build up, just might work.

I know that these "non-failures" are also valuable. Much of what we offer young people is predicated on instant gratification. This is not always achievable, and often unattainable in an astronomical context. But seeing is definitely believing, so wait for the moment.

The ooohs and aaahs that result from people's individual eureka moments are to be cherished. That is why I do outreach events, and that is why I still think that no matter what my funding agency thinks, outreach is a critical part of what we do. Taking science to the public is almost an imperative. We have a duty to proselytise and try to make our populations more scientifically literate. To justify your taxpayer's money, you must pay back by explaining and showing them things that they rarely experience.

The other end of my table had four meteorites and out of the corner of my eye I saw that others were playing with them, discovering the power of the magnets, their "stickiness," and how the magnets suddenly jump off the wooden table top to attach to the metal frame

and legs. They could steer them around a table-top obstacle course by pulling one under the table and having the slave magnet follow.

What they are learning is how magnetism passes through objects, and by the simple method of having an old food or soft drink can, they can learn about materials too.

Just like our digital planetarium, the limitations are in your head. By asking the right questions they can learn about these things by stealth; they don't even realise what is happening.

At the top of my list for the event was knowing that I had earned my keep. I hope that maybe I planted the seeds that will germinate into a quest for an engineering solution to a problem that does not even exist today, or sparked a new train of thought that will enable us to do something spectacular years after I am gone. It's a bit like planting acorns, the outcome is assured, barring fire and disease, and the end product is truly impressive. Outreach rules: KO!

By the time that you read this, depending on global mail delivery, the festive season and New Year will either be upon us or will have happened, so I wish you all a great 2010, and look forward to seeing you all in Alexandria for the IPS conference.

I wish you clear and frosty nights. ☆

(Digital Earth, continued from page 12)

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