

MINUTES OF THE ANNUAL VISITATION BY THE BOARD OF GOVERNORS HELD IN THE OBSERVATORY BOARDROOM AT 10.40 A.M. ON 23 MARCH 2012

Present: His Grace, the Most Reverend A.E.T. Harper (Chairman), Canon W.M. Adair, Mr W.G. Berry, Dean G. Dunstan, Archdeacon R.G. Hoey, Professor R. Oudmaijer, Canon R.J.N. Porteus and Professor S. Smartt

Apologies: Canon J.N.T. Campbell, Canon J.W. McKegney, and Canon C.F. Moore

In attendance: Dr T. Mason, Professor M. Bailey, and Mr J. Copeland

The Chairman welcomed Professor R. Oudmaijer who was participating by video link from Leeds. The Chairman also welcomed the Very Revd Gregory Dunstan, Dean of Armagh, Professor Smartt and Mr Copeland to their first meeting of the Board of Governors.

Members of the Board confirmed that there were no conflicts of interest arising from the matters to be discussed at the meeting.

1. MINUTES OF THE ANNUAL VISITATION OF 18 MARCH 2011

The minutes of the Annual Visitation of the Board of Governors of 18 March 2011 were approved as a correct record of the meeting and signed by the Chairman.

2. MATTERS ARISING FROM THE MINUTES

- 2.1. Minute 4.6 – Dr Mason has raised the issue of subsidised transport costs with the Permanent Secretary of the Department of Education.
- 2.2. Minute 4 – Discussion of the Planetarium Director's Report – Dr Mason advised members that he had (a) reviewed the need for a weekly closure day and had decided that during winter months closure would be on a Sunday and in July and August no closure day was needed as the Theatre Manager had varied her working arrangements to undertake maintenance from 4 am to normal opening times at a neutral cost to the Planetarium, and (ii) increased the sample of visitors surveyed and changed the methodology for selecting those surveyed.
- 2.3. Minute 4.42 – Professor Bailey had passed on the Board's congratulations to Professor Jeffery on the granting of the title of Adjunct Professor at Trinity College Dublin.
- 2.4. Minute 4.42 – Professor Bailey had arranged a rota of presentations by senior research staff at future Annual Visitations.

3. CHAIRMAN'S BUSINESS

Dr Mason updated Board members on the personnel matter that was raised at the March 2011 meeting. He advised members that the Planetarium employee had lodged a claim for unfair dismissal against the Governors of Armagh Observatory and Planetarium with the Office of Industrial Tribunal and that the case was held over 4.5 days in January and February 2012. The Tribunal panel had adjudicated on the matter in February 2012 and the result will be communicated to the Board of Governors in due course.

4. DIRECTORS' REPORTS 2011/2012

Professor Bailey referred to the following matters:

- 4.1. During 2011 staff maintained a high level of research activity during the year with 49 publications in refereed publications in 2011 as well as 262 identified mass-media

citations to the Armagh Observatory, its staff and their work. Electronic access to the Observatory has also remained at a very high level, with 0.823m Distinct e-Visitors (DEVs), 16.4 million “hits” and 7.6 TB of data exported from the Observatory to users of astronomical information elsewhere.

- 4.2. Details of some of the principal advances in astronomy and astrophysics made by Observatory staff and research students and their international collaborators during 2011 were provided in the Director’s Report. Noteworthy amongst these were the discovery of low metallicity analogues of Delta Scuti stars, so-called SX Phe stars, in the most distant regions of our Galaxy known to contain visible stars; the discovery of nearly 100 small main-belt asteroids in co-orbital 1/1 mean-motion resonance with the dwarf planet (1) Ceres and the large main-belt asteroid (4) Vesta, confirming the ubiquity of this interesting dynamical phenomenon; the physical characterization of a small, low- Δv asteroid using the Southern African Large Telescope (SALT): the discovery using the timing method of what appears to be two giant planets orbiting the compact X-ray binary UZ For, also using SALT data; the discovery as part of the Very Large Telescope ‘FLAMES’ Tarantula Survey that one of the most massive stars in the near Universe (the star VFTS 682, identified in the Milky Way’s ‘satellite’ galaxy the Large Magellanic Cloud) has apparently formed in isolation or been dynamically ejected from its parent star cluster, raising new questions about the origin and evolution of the most massive stars in the Universe; and the detection, it is believed for the first time from the Island of Ireland, of the phenomenon of Schumann Resonances, produced by lightning and other powerful geophysical electrical phenomena that excite the cavity between the Earth’s conducting surface and the ionosphere into natural modes of oscillation.
- 4.3. Details of some of the Observatory’s historic instruments and progress in preserving and conserving material from the Museum, Library and Archives collections were also provided in the Director’s Report, including a summary of the Observatory’s very active outreach programme and the many scientific papers delivered and general public talks (85 in total). There is also an active programme of in-house training including 24 internal seminars and colloquia delivered mainly by external visiting speakers. An important innovation, as part of the Observatory’s involvement in the European Universe Awareness (EU-UNAWA) programme, is the strand of the Observatory’s programme of Science in the Community to provide primary-sector teacher training courses aimed at providing primary-sector teachers with the skills and confidence to include astronomy as part of the ‘World Around Us’ element of the curriculum.
- 4.4. Total external grant income and other income during the financial year 2011/2012 amounted to £298.6k (projected) of which £290.4k (projected) related to external grant income. The research staff have again been successful at obtaining external grants in a difficult climate.
- 4.5. Staff play a full role in the international astronomical community by, for example, reviewing scientific papers and serving on the academic committees of external organisations, all of which contribute to the Observatory’s international profile and standing.
- 4.6. The Observatory’s programme of Science in the Community is multi-faceted and includes periods of work-experience training for schoolchildren and undergraduates, public lectures and special events such as the Observatory’s participation in Armagh’s St Patrick’s Day celebrations and the provision of public tours of the buildings and grounds on occasional open days. These are very worthwhile activities and serve not just to improve STEM literacy in the community but also to increase the Observatory’s profile within Northern Ireland.
- 4.7. Large numbers of visitors to the Observatory’s Grounds and Astropark continue to be registered by the counter at the entrance to the ‘Solar System’ part of the Astropark, approximately 42,000 being recorded in 2011.
- 4.8. The Observatory will participate in the Research Excellence Framework 2014, formerly the Research Assessment Exercise. This provides the Board of Governors with an

- objective assessment of the Observatory's research performance that helps to underpin the DCAL's argument for supporting this element of the Observatory's activity.
- 4.9. Staff absence continues to be very low and much better than the general public sector.
 - 4.10. The principal objectives in the Business Plan 2011/2012 have been achieved apart from progressing plans for the new Library, Archives and Historic Instruments building. Nevertheless, a lot of work has been done to preserve the historic collection and the conditions in which it is held, and this helps to mitigate the risk of delay to the new building project.
 - 4.11. Professor Bailey referred to the key performance indicators for 2011/2012. The rate of return of 22.9% (projected) for the year is slightly up on the target of 21.5%. This is due to a change in the mix of total DCAL income, which decreased during the year, and external grant income, both evaluated using resource accounting rules. The ratio of administrative costs to total costs remains at a very good low level.
 - 4.12. The principal Business Plan objectives for 2012/2013 are to (a) obtain external grants and funding to support new research projects, (b) strengthen the Observatory's research capacity and capability in Solar-System Science, Solar Physics, and Stellar and Galactic Astrophysics, by recruiting 2–3 PhD students and providing a high-quality research environment to facilitate their advanced training as well as that of the postdoctoral staff at the Observatory at the beginning of their astronomical careers, (c) build on the Observatory's involvement in the DCAL Learning Strategy by developing new initiatives in education and public outreach associated with the Observatory's programme of Science in the Community, and (d) progress plans for the design of a new Library, Archives and Historic Scientific Instruments building, a project that plays a central role in the Observatory's forward look. In addition to these programmes of frontline scientific research and public understanding of science, the Observatory has an important function to promote, preserve and widen access to the Observatory Grounds and to the historic library, archives and museum collection at Armagh, which together represent an important part of Northern Ireland's scientific heritage.
 - 4.13. The Observatory is more than a pure research institution and has important responsibilities to develop and maintain the accuracy of its meteorological records and the breadth of its archives and museum collection, and to continue with a vibrant programme of Learning and Education in the Community. It is important continually to be aware of opportunities beyond short-term funding constraints to ensure that decisions made now do not irrevocably constrain future developments.
 - 4.14. During 2012/2013 it is intended to continue, as resources allow, the current programme of collaboration with the Armagh Public Library to improve the documentation and storage conditions of the Observatory's historic archives and museum collection. The Chairman said that ensuring the collection is maintained to museum standards is an argument in favour of the new building.
 - 4.15. Details of the Armagh Observatory and Planetarium organizational structure along with the Observatory's meteorological records and environmental and research environment are in the Report for information.
 - 4.16. Details of current staffing and changes in the membership of the Management Committee and the Board of Governors are in the Report. The current complement of six senior research staff provides a critical mass to sustain the full extent of research at the Observatory.
 - 4.17. Dr Fred Byrne retired from his position on the Management Committee and as Deputy Chair of the Management Committee with effect from the last meeting of the Management Committee in 2012 February after more than 45 years service to the organization. Dr Byrne was first appointed to the Board of Governors in 1966; was a founding member of the Planetarium Management Committee; and played a key role in the establishment of the joint Armagh Observatory and Planetarium Management Committee in 1985 following the 1983 review of the Observatory by the Astronomer Royal, Sir Francis Graham-Smith.

Consideration of Observatory Director's report

The Chairman expressed his immense debt to Dr Byrne and advised members that he would write to thank Dr Byrne for his lengthy governance services to both the Observatory and Planetarium. Archdeacon Hoey suggested a presentation and gift after a future Management Committee or Board of Governors meeting. Dr Mason suggested that a resonant and apposite gift to recognise Dr Byrne's contributions might be a fragment of a meteorite owned by the Planetarium in a presentation case. Dr Mason's suggestion was agreed unanimously and Mr Copeland was asked to arrange a presentation after the next Management Committee meeting in June 2012.

In a response to a question from Archdeacon Hoey on the methods of collecting media citations on the Observatory, Professor Bailey said that there two methods: manually scanning the local and national press and scientific journals for citations, and electronic monitoring.

In response to a question from the Chairman on the use of the data on the isotopic composition of rainwater in Northern Ireland, Professor Bailey said that Observatory staff will continue to collect the precipitation samples but the Observatory does not have a laboratory capacity to analyse the samples. The data are currently being used by a QUB PhD student as part of her research project.

In response to Professor Smartt about the Observatory's resources and ability to undertake meteorological research, Professor Bailey advised members that there was no current resource or postdoctoral capacity to undertake research in this field and that this represented a gap in the Observatory's portfolio. The Chairman asked that Professor Bailey try to build up a relationship with both the Met Office and Met Eireann and to try to attract funds to exploit the Observatory's unique historical information on climate change in Northern Ireland.

In response to questions from the Chairman and Professor Oudmaijer on the Southern African Large Telescope (SALT) project Professor Bailey said that the technical problems with the telescope that have affected observing time were being addressed and the Observatory's involvement and DCAL investment in the project through the UK SALT Consortium would be reviewed in 2015.

Dr Mason referred to the following matters in the presentation of his Report:

- 4.18. During the past year the Planetarium has sponsored many events on and off site as it is important for the Planetarium to retain its position as the repository of all things astronomical and as a great place to learn about our exploration of the cosmos.
- 4.19. The Planetarium's adult education courses in astronomy at Queen's University Belfast, which have been running successfully for six years, will continue.
- 4.20. The Planetarium views teacher training as a critical part of the stimulation of school pupils' interest in pursuing careers in science, technology, engineering and maths (STEM). Promotion of the STEM agenda is a vital part of government policy as it is a critical part of the renewal of local industry as we must stimulate new enterprises and new jobs, and scientific knowledge is a good starter for the creation of high tech jobs. In addition, the Planetarium has started to promote careers as science communicators for trainee teachers to see it as a possible career path.
- 4.21. The Education and Training Inspectorate (ETI) inspectors have provided an excellent appraisal of the Planetarium services in a strict educational context. In addition Planetarium staff have obtained direct assessments from the teachers and the pupils on what they have gained/learned from the experience. This direct feedback is very important, as all statements now must be bolstered with factual examples.
- 4.22. Staff numbers at the Planetarium are at the lowest possible level compatible with maintaining an operation six days a week, and seven during the summer. Management

keep a close eye on staff deployment, as it is likely that with the current financial situation, the reduction and eventual close down of our Outreach activities is now most unlikely, as to do so would remove one of the areas where we are showing growth. To fulfil our mission to promote STEM we will have to maintain and possibly expand the Outreach programme.

- 4.23. It will be necessary to formulate a succession plan for the future. This will involve reviewing staff members' actual duties rather than those that they were originally employed to carry out. The auditors recognised that many of the staff are filling several roles, and it is run as a very lean operation. For comparison the National Space Centre in Leicester has 110 staff: the Planetarium has 10.5.
- 4.24. The Health and Safety officer (HSO) at Armagh Planetarium is responsible for providing health and safety advice and monitoring welfare issues for all staff and visitors to the Planetarium in compliance with the Health and Safety at Work Act 1999.
- 4.25. Over the last 12 months there have been four accidents at the Planetarium, three of these accidents involved members of the public.
- 4.26. Armagh Planetarium had its annual Portable Appliance Test (PAT) carried out in January 2012 to comply with the Management of Health and Safety at Work Regulations 1999.
- 4.27. The Planetarium recruited and employed two new full-time Education Support Officers who commenced work in January 2012.
- 4.28. The Coffee Shop (formerly known as the Café) is no longer run by a franchisee: it has been taken over by the Planetarium.
- 4.29. An on-site inspection by the Armagh Planetarium's insurers was carried out in September 2011. The report from the inspection raised a few issues which were dealt with immediately; the only outstanding issue is a guard rail which has been recommended to be installed to prevent falls from the mezzanine level in the workshop in the administration building.
- 4.30. The most dramatic technical event of the past year was the award of slippage funding to upgrade the Digistar 3. This was a critical award, and came at a critical time, as it enabled us to replace the Digistar 3 computer projection system with the latest Digistar 4 upgrade. The replacement has solved a number of problems that had become pressing, namely that the D3 computers were old, 2004 – 2005 vintage, and in computer terms they had become more difficult to service and maintain as many of their components had become hard to find. The replacement system has a more modern modular architecture and does require more frequent maintenance and frequent attention to run them at their optimum resolution and brightness. The Theatre Manager has taken on this new task, which is a specialist skill that she has newly learned. Armagh Planetarium is the only UK Planetarium to have a Digistar 4 running. The first year of operation has been a steep learning experience, but we have had much positive public feedback, and the Planetarium's theatre has never looked better.
- 4.31. The new Digistar 4 has allowed us to run a new show on the Aurora, which is the first one ever to be made from camera captured large resolution images. It was made by Evans & Sutherland and staff members travelled to Norway at the end of October to film the northern lights. We captured some spectacular images that we now use in public presentations and also in the theatre to explain how the systems work. We are making new shows and have several in development, and hope to launch them by the summer.
- 4.32. The Planetarium's Outreach Programme is still very popular and the lack of schools' discretionary funding will mean that it will remain an important part of our work. We have used Outreach visits to promote our on site activities, especially following a very successful Christmas card competition run in November/December. There were more than 700 entries, which rather overwhelmed our prize strategy: eventually we decided to send the StarDome out to all of the schools that had entered and could not avail of a free trip to the Planetarium.
- 4.33. We continue to attract a small numbers of conferences, and product launches. The theatre's 93 seats is a controlling factor, but when people see the unique environment

where we can present a new experience for the conference attendees, they try to limit their numbers if at all possible, or make it a ticketed event.

- 4.34. The Planetarium is actively represented on the Council of the International Planetarium Society (IPS): the Director is currently Past President, and is entering the last year of his six-year term of office. The Director is also the Space Ambassador for Northern Ireland as part of the European Space Agency Educational Resource Organisation (ESERO-UK). We use this to promote STEM events and help schools needing help with space based projects, as well as acting as a conduit for continuous professional development for teachers, north and south of the border, where there is an ESERO-Ireland.
- 4.35. We have started to plan to revive and renew our display spaces within the next two-year planning period. We are working on our good connections within the European Space Agency to effect much of this change, as we would like to maintain the emphasis we have placed on European space efforts.
- 4.36. Planetarium staff face considerable difficulties with marketing, as the cuts to the budget will make it difficult to sustain a planned marketing drive. We have marketing material in place with Heritage Island and are also working closely with Armagh City & District Council (ACDC) who have finally realised that the most unique feature in Armagh is the Observatory and Planetarium. We are planning to jointly market the city with the Planetarium as a hook, and are planning to have small astronomical teaser adverts around the city. We continue to work in an ad hoc way with other agencies when we run special events. There has been a cut back by central government on campaign advertising spend, but our efforts are much more low key, and low cost.
- 4.37. The lateness of agreement on the 2011-2015 government planning documents in the Assembly has delayed finalising our business and strategic plans. The draft 2012-2013 Business Plan was included in the Director's report as if the situation was normal, as it is useful to have business plans and agreed projects on the stocks to exploit any sudden release of funds that may occur. The display space renewal plans, a plan to renew access to the Planetarium's large public telescope, and to replace it with a more modern GPS guided telescope, and the refit of the old caretaker bungalow building as a teacher training space is under consideration.
- 4.38. Our redesigned website and rejuvenated web presence, all work done in house, has resulted in an attractive and well-balanced site which is an excellent advert for the Planetarium's many activities. It is much easier to manage, is cheaper, and allows us to quickly react to new stories. The most successful part of it is the Planetarium blog that has been well run by the Planetarium's Education Officer. Stories are written by the Education staff and edited in house. The posts often attract great attention, a breakdown of the website statistics is provided in the Appendices. Most of our web traffic is blog related.
- 4.39. Astronotes is our shop window on the web and the articles are all written and edited in house by Planetarium staff. This performs a double function, not only does it allow us to maintain a lively electronic presence but it also allows staff to continuously refresh their knowledge and keep up to date as they research articles for the web
- 4.40. Our video conferencing project has been slow to take off, but we think it may be related to schools being unable to update their equipment, as it is quite expensive. Nevertheless we offer video visits from one of our experts using whichever software will work, so we can operate with three or four different software packages.
- 4.41. In the last report to the Board it was mentioned that the Planetarium was commencing an evaluation of the usefulness of Apple's iPad tablet computers. This actually started shortly after these new machines were released in 2010. It is now apparent that this tablet computer design, and other related Apple products including iPhones, iPads, iPods and MacBook Pro laptop computers have blended into a very powerful nexus of creative power. They are very easy to network and control, and their ease of use is also being driven by the release of free software by Apple that will enable us to control iPad clusters easily and to use them as sophisticated interactive machines to better inform our visitors. In the first instance, the Planetarium has plans to implement a suite of

- iPads in the display areas, these will replace current touchscreen and other Windows OS machines, which visitors use to learn about different astronomy topics.
- 4.42. The January 2012 BBC astronomy programme Stargazing Live provided further evidence that the mainstream broadcasters are seeing the power of astronomy based programmes for a public hungry for information. This year we worked with amateur astronomers from the Northern Ireland Amateur Astronomical Society (NIAAS) and they worked with the crowds who showed up on January 18th when we opened to support the BBC's Stargazing Live programme. The night was wonderfully clear and all of the 400 plus visitors saw Jupiter and other Solar System objects from the Planetarium.
- 4.43. The Cosmic Cuilcagh 2 event in February 2012 was a repeat of our collaboration with the Marble Arch Geopark in 2011. It took place on the Fermanagh-Cavan border as part of the Creative March effort, and has been specially funded by DCAL as part of the Creative Month promoted to showcase the depth of talent and breadth of activities that are happening in the creative industries in Northern Ireland.
- 4.44. Dr Mason provided an update on the Planetarium's key performance indicators (KPIs) that showed that the targets for both visitors and Outreach had been achieved this year. Admissions income and shop were slightly under budget that reflects the very hard marketplace in which we operate.
- 4.45. The cost to schools for visits to the Planetarium in terms of time and payments for transport is becoming very difficult to meet as their budgets are pared to the bone. This situation is unlikely to change in the short or medium term as the recession has bitten into their schools' operating budgets. The continuing very high cost of fuel is likely to impact on our operation for the foreseeable future. We have discussed this with DCAL and with the Learning Strategy Group that DCAL has set up, as it is a common problem for W5 and us, and also to the Museums, although as they do not charge for entry it is not easy to make a more direct comparison. If we did not charge for entry, we may get more school visitors, but there is also the psychological matter and cost of having to travel for at least an hour from Belfast. The charge for entry is an important part of our budget, and so if it declines we are placed under considerable pressure.

Consideration of Director's Report

In response to a question from Archdeacon Hoey about Digistar 4 and the Theatre Manager varying her working arrangements to undertake maintenance from 4 am to normal opening times, Dr Mason advised that the risk of lone working and personal security had been assessed and would remain under constant review.

The Chairman asked that the short-term solution of maintenance during the night to prevent unplanned closures be reviewed by the Director to provide a long-term solution that provides cover and ensures both personal safety for staff.

In response to a question from the Chairman on the eventual need to replace Digistar 4, Dr Mason said that with age would come technical problems with Digistar 4 and improvements in microchip technology will require a business case for Digistar 5 in 2014-2015 or 2015-2016. The Chairman asked that the need for a major capital investment to replace Digistar 4 be raised with DCAL at future Accountability Review meetings.

In response to a question from the Chairman about the budget for visitor numbers, Dr Mason advised that DCAL had set an aspirational target for 2011-2012 well in excess of 35,000 visitors but accepted a realistic target that reflected the recession, reductions in schools' operating budgets and the continuing very high cost of fuel that affects demand.

5. PRESENTATION OF RESEARCH – DR JORICK VINK – THE MOST MASSIVE STARS IN THE UNIVERSE

Dr Jorick Vink delivered a short presentation on the work of his research group, comprising a Post Doctoral Research Assistant and four PhD students entitled, “The Most Massive Stars in the Universe”. After questions the Chairman thanked Dr Vink for his presentation that was an opportunity to demonstrate to stakeholders the excellence of the Observatory’s research staff and their work.

6. ANY OTHER BUSINESS

There was no other business.

7. DATE OF THE NEXT MEETING

The next meeting will start at 10.00 am on Friday 22 March 2013 in the Armagh Planetarium. This slightly earlier time will enable the formal proceedings to be preceded by a show in the Digistar Theatre.

The meeting ended at 1.15 pm

Signed as a true record of the Meeting

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The Very Reverend Dean G Dunstan
Acting Chairman

Date: 22 March 2013