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COMMISSION 46
ASTRONOMY EDUCATION AND DEVELOPMENT
Education et Développement de l'Astronomie

Newsletter 74 – March 2011

Commission 46 seeks to further the development and improvement of astronomical education at all levels throughout the world.

Contributions to this newsletter are gratefully received at any time.

PLEASE WOULD NATIONAL LIAISONS DISTRIBUTE THIS NEWSLETTER IN THEIR COUNTRIES

This newsletter is available at the following website
http://astronomyeducation.org
(this a more memorable URL for the IAU C46 website than www.iaucomm46.org, to which the new URL links)
and also at
http://physics.open.ac.uk/~bwjones/IAU46/

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EDITORIAL

Thanks to everyone who has made a contribution to this edition of the Newsletter. Please note the text in this Editorial highlighted in RED.

For the October 2011 issue the copy date is **Friday 14 October 2011**. If you can include photos or illustrations with any material, please do so. Feel free to encourage others to submit material – anything with an astronomy education or development aspect will be considered.

IAU C46 NEWSLETTER – GUIDANCE FOR CONTRIBUTORS

> The editor is happy to accept articles on any aspect of astronomy education or development, including obituaries and other articles on people. 500-2000 words are the approximate upper and lower limits. Shorter contributions, up to a few hundred words, such as meeting announcements, meeting reports, and other news items, are also welcome.
>
> Send contributions to me by email, at b.w.jones@open.ac.uk. You can either send a Microsoft Word attachment (preferred) or include the text in the body of the email. **Illustrations must be sent as separate, individual files**, preferably as JPEGs or TIFFs no larger than about 3 Mbytes each. **DO NOT SEND ANYTHING AS A PDF.**
>
> Do not send a preliminary draft unless it is clearly marked s such.

I try to edit as lightly as possible, and I certainly don't care whether US English or British English is used. I also leave local turns of phrase untouched unless the meaning is obscure. Clarity, conciseness, and being interesting or informative are what is needed. Only in rare cases is heavier editing necessary.

Book reviews

I received two book reviews for this issue. This feature first appeared in the October 2009 issue and was repeated in the March 2010 issue. Reviews must be of books centred on astronomy education or development. If there's such a book that you think is worth reviewing, please send your review to me.

The C46 websites

The "official" handsome website is at http://www.iaucomm46.org. Jay Pasachoff has secured for C46 the more memorable URL http://astronomyeducation.org which links to the "official" website. I'm sure that you'll join me in thanking Jay.

My mini-website includes the things for which I am responsible: the Newsletter (including back issues – see below); National Liaison details; and National Liaison triennial reports for 2003-2006 and 2006-2008. The URL is http://physics.open.ac.uk/~bwjones/IAU46/. Everything on my website should also be on the "official" website.

Back issues of the C46 Newsletter

Since I took over as editor in October 1998, the Newsletters have appeared in March and October in every year.

Back issues are available at http://astronomyeducation.org (http://www.iaucomm46.org) and also at http://physics.open.ac.uk/~bwjones/IAU46/. Newsletter 49, October 1998, has been scanned from hard copy, so the quality of reproduction is only modest. This is also he case for earlier ones, edited by John Percy. These extend back to February 1992, but there are gaps.

Barrie W Jones
(for contact details see Program Group Chairs and Vice Chairs)

MESSAGE FROM THE PRESIDENT

The IAU Strategic Plan 2010–2020 "Astronomy for the Developing World: Building from IYA2009" was endorsed by the General Assembly in August 2009. The objective is to promote a substantial expansion of programmes, and funding, together with a large increase in the number of volunteers. For this large expansion and strategic approach a more suitable organizational structure is required. For this reason the Global Office for Astronomy Development (GOAD) has been created. Kevin Govender was selected as its first Director and he began his work on 01 March 2011.

The South African government, through its National Research Foundation (NRF), has generously agreed to provide most of the funding needed to run the Office. In July, Ian Corbett and Albert van Jaarsveld signed an agreement between the IAU and the NRF to establish GOAD. GOAD will be managed by a Steering Committee with 3 members nominated by the IAU and 3 members nominated by the NRF. The members of the first GOAD Steering Committee are Phil Charles, Megan Donoghue, George Miley (Chair), Khotso Mokhele (Vice-chair), Kaz Sekiguchi, and Patricia Whitelock.

The plans for development and education activities require a substantial increase in the number of volunteers and a transformation of the organisation of the activities to take account of the increased scale. The tasks for GOAD and a detailed implementation will be discussed in several meetings by the IAU Executive Committee and Program Group (PG) members of Commission 46, and Commission 55, in 2011, but the implementation will not occur until 2012.

Commission 46 members should be especially interested in the Strategic Plan and in its implementation. We plan to cooperate in the discussions in an active way and we hope that our experience in having PGs for years will be taken into account. The education and development in astronomy should be supported by developing countries. The experience of the recent International Year of Astronomy should be very useful for the future plans of the IAU. An approach should be considered to teachers, amateur astronomers, students, postdocs, and outreach staff. A category of associate IAU membership which involves these groups would be useful to consider in the future. It is necessary to change some aspects to introduce new perspectives. We need more people involved in our programmes if we want to have success in all of them.

This is a special situation to ask all the members of Commission 46 if you are interested in being much more active in the Commission. Of course we need volunteers from target groups, but we need also volunteers from our general membership. It will also be an opportunity to continue where the IYA has led the way in demonstrating the importance of astronomy to society. For cooperating with other people, we need more membership involvement in our projects. Please contact us, if you are interested in being involved in a more active way.

Rosa M Ros
(for contact details see Organizing Committee of Commission 46)

ASTRONOMY AT KING SAUD UNIVERSITY, SAUDI ARABIA

The object of this report is to briefly describe the Astronomy Unit at King Saud University (Riyadh, Saudi Arabia). A short overview about the observatory equipment is given and the overall structure and activities are highlighted. The main mission of the Unit is to guarantee basic astronomy education and to serve the public and society, contributing hence towards enhancing astronomy knowledge and creating a stimulating environment for scientific learning.

The Astronomical Observatory at King Saud University (KSU), originally established and inaugurated at Al Malaz in 1976 by prince Salman bin Abd Alaziz, is considered one of the earliest modern observatories in the Arabian Golf. Since its move to Al Dareyah KSU main campus, the telescopes (domes) have been installed on the roof of the College of Science (Figure 1).

Figure 1 The telescope domes' location at KSU

In the academic year 2003/2004, the Department of Astronomy was merged into the Physics Department and the joint name "Department of Physics and Astronomy" was adopted. Thereafter the Astronomy Unit was established.

The Observatory consists of two telescopes, a 15 cm F/15 Zeiss telescope (currently operating; Figure 2) and a 45 cm double telescope with a 16/24 cm Schmidt Camera (currently non-operating; Figure 3). A portable small optical telescope is also available for outside monitoring. Additionally, the observatory equipment includes an iris photometer, spectrograph, binoculars, Solar Laboratory and a high accuracy cesium atomic clock that transmits time signals to several electronic panel-clocks located in the University departments and in some government institutions within a range of 5 km.

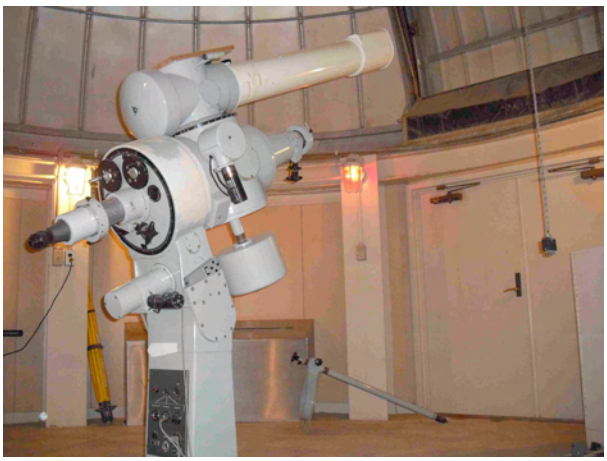

Figure 2 The 15 cm, F/15 Zeiss telescope (operational)

Figure 3 The 45 cm double telescope (non-operational)

Exhibitions

Visitors can easily spend a couple of hours looking at the exhibits and demonstrations throughout the department areas.

Dome: A small dome unit (with telescope) opens once a week (Monday evening-night) for inside and outside visitors to watch celestial bodies and the astronomical phenomena that occur intermittently, such as eclipses (lunar and solar).

Planetarium: The mini sky-show planetarium at the Astronomy Unit (Figure 4) offers an enjoyable sky illustration for celestial navigation. The planetarium has the form of a hemisphere and can accommodate about 20-25 visitors at time. Amateur astronomers, school students and the general public can follow an exciting and funny 20 minutes exhibition about the secrets of space, identifying the movement of most popular stars and constellations.

Figure 4 The mini sky-show planetarium

Museum: To attract more visitors, the astronomy unit has built a small museum (about 10 by 8 metres). The museum is dedicated to the promotion and teaching of astronomical science. Both Arabic and English posters are included, and as well a few historical collections of astronomical instruments. Models of astrolabes in various forms, including the flat and spherical types are also displayed. Moreover, several interesting pictures, illustrations, three-dimentional models and video movies are available, offering useful astronomical information for the visitors (Figure 5).

Figure 5 One side of the astronomical museum room

Teaching

The unit staff consists of 5 faculty members and one instructor. At present only a basic astronomy course, 102 Astro, is taught as a specific course in the Physics and Astronomy Department.

There is a number of computers and software facilities for student training, dealing with basic astronomical calculations.

Conclusion

The manpower, the resources, and facilities available at the Astronomy Unit at King Saud University can play a great role in enhancing the level of astronomy in both education and community service, especially with the continuous strong demand from students and the public.

Despite the obstacles while trying to set up new projects, we endeavour to get inside and outside support for long-term investment in astronomy education with the aim of starting in the near future separate under- and post- graduate tracks (BSc and MSc degrees) that will cover a wide range of topics in astrophysics.

Unit Staff: Prof A Kordi (head), H Altrabulsy, M S Alnawawi, A Ibrahim, K Almusabih

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PARTIAL SOLAR ECLIPSE 2011 FROM KING SAUD UNIVERSITY

The partial solar eclipse of 04 January 2011 was observed from the Astronomical Observatory at King Saud University, by a team consisting of A Elmhamdi, A Kordi, H Altrabulsy, M S Alnawawi, A Ibrahim, and K Almusabih.

Location: latitude 24° 43′ N, longitude 46° 37′ E
Eclipse start: 07:38 UT
Maximum obscuration (24.52%): 09:02 UT
Eclipse end: 10:24 UT

Camera: Nikon D3 mounted on a 15 cm codee′ telescope, with a DX-Af-S NIKKOR 18-200 mm lens and a UG2 solar filter. The exposure time was 1/4000 s at F/9. About 600 images were taken during the eclipse.

This summary is based on information supplied by Abouazza Elmhamdi, elmhamdi@ksu.edu.sa

Four of the frames taken during the partial solar eclipse

Barrie W Jones
(for contact details see Program Group Chairs and Vice Chairs)

FROM THE ASTRONOMICAL SOCIETY OF THE PACIFIC

The non-profit Astronomical Society of the Pacific (ASP) is pleased to announce three new resources for educators, outreach professionals, journalists, and astronomy enthusiasts.

1 Prof Michael Brown (Caltech) explains "How I Killed Pluto and Why It Had it Coming" in a free podcast in the Silicon Valley Astronomy Lecture Series from 19 January 2011.
http://www.astrosociety.org/education/podcast/index.html
In this wonderfully personal and humorous talk, Dr Brown explains exactly what happened and didn't happen when astronomers reached the controversial new definition of a planet. (On that same page, you can find a podcast from November, in which Natalie Batalha sets the background about the Kepler mission and explains the search for other Earths in our cosmic neighborhood.)

2 The latest issue of "The Universe in the Classroom" Newsletter on Teaching Astronomy celebrates the 50th anniversary of the Drake Equation – the formula proposed by Frank Drake that helps scientists estimate the likelihood of intelligent, communicative life in the universe.
http://www.astrosociety.org/education/publications/tnl/77/77.html
In addition to a nice historical summary of the equation and how it is used, the issue includes resources and classroom activities on this topic. (All 77 issues of the ASP's newsletter are available free of charge on the web site; they cover many topics in astronomy of interest to those teaching astronomy in our schools and museums.)

3 In light of the recent media interest in problems with astrology (such as the fact that the astrological signs and the astronomical constellations are no longer lined up), the ASP is pleased to present a revised and updated version of its long-popular article examining astronomy from an astronomical perspective and suggesting some embarrassing questions that help put astrology into perspective.
http://www.astrosociety.org/astrology.pdf
The article suggests a new "science" of jetology – where the positions of all the jumbo jets at the time a person is born determines his or her destiny and love life. It is an analogy that helps point to some of the problems with taking astrology very seriously.

(Founded in 1889, the Astronomical Society of the Pacific is an international educational and scientific organization dedicated to advancing scientific literacy through improving the public understanding of astronomy.)

Andrew Fraknoi
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LATIN-AMERICAN JOURNAL OF ASTRONOMY EDUCATION

We announce to the public, particularly to those interested in the teaching, history and popularization of astronomy, the *Latin-American Journal of Astronomy Education* (RELEA).

RELEA is an indexed on-line journal and the articles are refereed following the procedure known as "double-blind peer review". The first issue was released in 2004 and the latest issue was published in December 2010. RELEA is published twice per year

The main objectives of RELEA are to
- introduce a specific publication in astronomy education in Latin-America
- be a forum to show Latin-American activity in this area
- serve educators, researchers and astronomy students, at all levels of education, and to provide them with methodological and content tools
- promote the development of research in astronomy education in Latin-American countries.

As a guide, RELEA encourages the submission of articles about
- culture, history and society
- teacher training
- teaching and learning
- didactic resources
- educational policies
- news
- reviews
- events.

We are calling for papers, which can be written in Portuguese, Spanish or English.

Those interested in submitting a work will find more information about RELEA, and instructions to the authors at www.relea.ufscar.br

We ask you to spread the news concerning the launch of this journal to those it may interest, and we invite you all to send us your papers in its field.

Comments and suggestions may be sent to Prof Paulo S Bretones at the email address below. We thank you for your attention and hope for your collaboration.

Editors: Paulo S Bretones; Luiz C Jafelice; Jorge E Horvath
bretones@mpc.com.br

BOOK REVIEWS

DISCOVERERS OF THE UNIVERSE: WILLIAM AND CAROLINE HERSCHEL

Michael Hoskin, (Princeton University Press, 2011). Hardcover, xvi + 237 pages, $29.95 ISBN 978-0-691-14833-5

Michael Hoskin, the world's eminent historian of the Herschel family, and founding editor of the *Journal for the History of Astronomy,* has written a lively and informative book, paying homage not only to the two members of the family singled out in the title but also to William's actual and professional heir, John. In addition, he calls attention to the "unsung" yet crucial mechanical contributions of one of the elder Herschels' siblings, Alexander, to what Hoskin calls "the greatest family enterprise astronomy has ever seen."

Hoskin clearly has great admiration for the Herschels and tells us in his preface that, unlike some of his colleagues who have spent their lives working on Newton, only to develop a strong dislike for the subject of their researches, "it has been a privilege to become an invisible member of their family" over the years he has spent studying them. This is, however, no hagiography. Hoskin presents both William's and Caroline's warts as well as their achievements, and readers can be grateful to him for doing so in a humanizing, witty, and colorful fashion, and without diminishing our respect for them.

Both in the preface and throughout the book Hoskin points to William's unprecedented expertise in three different professional aspects of astronomy: instrument-building, observing, and theoretical work. In the last category he credits William with inaugurating a revolutionary change in human understanding of the cosmos. To replace Newton's view of a clockwork universe kept running by occasional divine intervention, Herschel introduced the idea of a biological universe, a universe in which the force of gravity makes significant changes over time and in which individual celestial objects undergo aging processes. He also notes, almost in passing, William's discovery, reported in two *Philosophical Transactions* papers in 1800, of "infra-red rays," a contribution that the President of the Royal Society Sir Joseph Banks thought the most significant among Herschel's many to science.

Hoskin's admiration for William is tempered, however, by his realization that "William achieved so much in life partly because he always put his own interests first." Caroline was used to being at her brother's beck and call, and – at least until William's unexpected marriage in 1788 – happily served as his assistant, even suffering a serious injury to her thigh by impaling herself on a nail as she rushed to answer William's call for an immediate adjustment to the machinery. John, however, seems to have left behind the rich intellectual atmosphere in Cambridge to carry on his father's work despite the fact that he did so "not as a matter of choice or taste, but [as] a sacred duty which I cannot postpone to any consideration." William also conveniently skirted the truth when it served his purposes; in 1802, for example, having lost his passion for completing the catalogue of nebulae on which he and Caroline had been working, he was content "to foster the illusion that the unfinished work was still in progress."

As for Caroline, for whom Hoskin clearly feels empathy, he nonetheless lets us know that she was among those mortals who are too lofty ever to suffer a common cold and who therefore get influenza rather frequently. Hoskin also describes the paranoia that turned her against family members over the final two decades of her long life, and ends the book not on a grace note but with a report of Caroline's "final act of revenge" against her mother. William had brought Caroline to England from Hanover many years earlier despite their mother's wish to keep her diminutive and smallpox-scarred daughter as a household drudge. By omitting their mother's name from the tombstone legend Caroline herself composed, which stands over the grave Caroline shares with the remains of both of her parents, "she condemned her mother to an unmarked grave."

Hoskin also lets us know that Herschel had his detractors among his contemporaries. William succeeded in convincing the astronomical community that the appropriate name for bodies like Ceres and Pallas was "asteroid" rather than one of the diminutives of "planet" that others, including Piazzi, favored. Herschel's motive for thus insisting was called into question by an early historian of the Royal Society, who wondered if Herschel's refusal to use a planet-related name for these bodies didn't

have something to do with his wish "to deprive the discoverers of these bodies of any pretence for rating themselves as high in the list of astronomical discoverers as himself."

Among the many other interesting things Hoskin shares with his readers I will mention only two, some comments about Lord Rosse and his so-called Leviathan of Parsonstown, the 72 inch telescope that took over observational astronomy in the mid-1840s from where Herschel had left off well before his death in 1822, and some interesting observations about Herschel's belief in extraterrestrials. Hoskins discusses Rosse and his telescope in two contexts, the first shedding light on the role of chance in determining a scientist's reputation in general, William's in particular, and the second in further illustrating the unlovely side of Caroline that prevailed in her final years. Lord Rosse happened to turn his instrument on M51, which he skillfully sketched, leading him to be remembered as the discoverer of the first spiral nebula. Some 30 years earlier, William had chosen to examine M74 and M81 with his 40 foot focal length reflector, but their spiral shape is less obvious, and the tarnished 48 inch diameter mirror of the 40 foot wasn't up to the task. Had Herschel focused instead on M51, "the 40 foot would not be remembered today as an unmitigated disaster but as a triumphant success." Towards the end of the book, Hoskin returns to the subject of Lord Rosse, attributing Caroline's petty dismissal of the man and his masterful instrument, especially when compared with her nephew's generous and genuine expressions of admiration for both, to her viewing Rosse as a contender for the admiration that should rightfully belong only to her deceased brother.

Hoskin identifies two books that in the early 1770s activated William's interest in astronomy, Robert Smith's two-volume *Opticks* and James Ferguson's *Astronomy.* Ferguson believed in the ubiquity of intelligent life in the universe, a belief that led the by-then famous Herschel to publish a paper in *Philosophical Transactions* in 1795 that openly spoke about inhabitants on the moon, the sun, and the stars. Two years later, however, a paper Herschel read to the Royal Society led the recently founded *Edinburgh Review* to dismiss Herschel's idea as a "grand absurdity."

In concluding my review of this engrossing book, let me point to some examples of Hoskin's charming and drily witty writing, as well as to one of the interesting illustrations that complement the fine text. In a brief discussion of Bode's Law, which drew attention to the sizeable gap between Mars and Jupiter, Hoskin tells us of a German court astronomer who, in around 1800, convened a group of observers who undertook to search for a planet that might be lurking in the gap. "They decided to divide the zodiac into twenty-four sections, each section to be assigned to an astronomer who would act as a 'celestial policeman' and keep a lookout for any suspicious characters seen loitering in his district." In a discussion of the only one of Herschel's telescopes commissioned for use as a means to spy on Britain's traditional enemies, the French, Hoskin explains that none of the statesmen assembled in a castle overlooking the Straits of Dover in fall 1799 could figure out how to assemble the instrument, despite Caroline's detailed written instructions. Their hopes were momentarily raised, however, when poet Charles Burney, a friend of Herschel's, showed up, "for as the author of an astronomical poem, he must surely know how to assemble a telescope." Finally, in describing William's dalliance with geology in the late 1790s, Hoskin tells us that William and his brother Alexander were fascinated by marine fossils found substantially above contemporary sea level. Noting William's comment that "perhaps thousands of centuries" elapsed as sediment collected, Hoskin, wryly alluding to Bishop Ussher, makes clear that our believer in extraterrestrials was in some ways also a forerunner of Darwin: "Not everyone," Hoskin assures us, "thought the world was created in 4004 BC."

Among the 25 figures and 15 color plates included in this book, the one that most intrigues me is Figure 3, a photograph of the official document dismissing Herschel from the Hanoverian Guards. In fact, Herschel had deserted, with his father's blessing, after the Guards' defeat in 1757, and moved to England. As a deserter he was unable to return home for a visit, lest he be forced to re-enlist. Nearly five years later, William's older brother Jacob (who, we are tantalizingly told in the brief description of the Herschel family that precedes the narrative, was to die 30 years later "by strangulation"), used his influence as a member of the Hanoverian Court Orchestra to get William honorably discharged from the Guards. Only then was he able to visit Hanover again. One such visit, in 1772, ended with Caroline's making the move to England with him that would result in their joint work on the celestial catalogue, which, later expanded and amended by John, still guides observers today.

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HOW I KILLED PLUTO AND WHY IT HAD IT COMING

Mike Brown, (Spiegel and Grau, New York, 2010). Hardcover, xiii + 267 pages, $25 ISBN 978-0-38-53108-5

In 2009 I reviewed for this newsletter Elizabeth Rusch's lovely illustrated children's biography of Caltech astronomer Mike Brown, *The Planet Hunter: The Story Behind What Happened to Pluto*. Now Brown has written his own scientific autobiography, which has been received rapturously, for the most part, both by the public and the profession. Let my voice be added to those of the enthusiasts.

Most, if not all, of the people reading this review will readily identify Brown as the head of the team that discovered not only Eris, which was first announced as larger than Pluto and hailed as the tenth planet, but also other trans-Neptunian objects (TNOs), including Haumea and Makemake.

Let me begin my remarks by discussing the late-breaking news that came as I was reading the book. As reported in a *New York Times* article of 11 January 2011, recent work by a French team led by Bruno Sicardy shows that Eris is not larger than Pluto after all. Brown's announcement in July 2005 that Eris is "definitely bigger than Pluto" sounded the death knell to Pluto's planetary status and led to the IAU's reclassification of it during the Prague meeting of 2006 as first in the class of dwarf planets. Do we now have to conclude that Brown, the self-described planet-slayer, committed murder in vain? Readers of Brown's book would know why the relative sizes of Eris and Pluto are unimportant to him. For him, "a profound definition of the local universe around us" would distinguish between "four terrestrial planets and four giant planets" on one hand, "and then a swarm of asteroids and a swarm of Kuiper belt objects" on the other. Whatever the relative sizes of Eris and Pluto, for Brown, neither object merits the name planet, which he non-technically defines as "one of a small number of large important things in our solar system," as he asserts in chapter thirteen.

It seems appropriate that the recent *New York Times* article was written by Ken Chang, who, we learn from the book, is not only a college friend of Brown's but also the author of the article in the "newspaper of record" announcing the discovery of the tenth planet. In the new article, Chang points out that only in 2015, when NASA's New Horizon spacecraft is slated to fly past Pluto, will we actually know what Pluto's precise measurements are. But Chang also notes that if Sicardy is right, and if Eris is smaller than Pluto, in Brown's assessment that only makes Eris all the more interesting. Its brightness would then be attributable not to size but to albedo, and its albedo would shed light on the history of its early atmosphere. And whatever the relative sizes of Eris and Pluto, we know from the orbital periods of the two bodies' satellites (Charon in the case of Pluto and Dysnomia in the case of Eris) that Eris is more massive than Pluto – as Chang puts it, "the heavyweight of the Kuiper belt." (Neither Chang nor Brown discusses that the best current values of Pluto's size are limited in accuracy by the opaqueness of Pluto's lower atmosphere, as measured by three competing groups: one headed by Jim Elliot at MIT and my husband, Jay Pasachoff, at Williams College; one headed by Sicardy at Paris; and one headed by Leslie Young at Southwest Research Institute.)

But back to Brown's book itself. The two meatiest parts are those in which Brown describes (1) the attempt of a Spanish team at an obscure institution to take credit for the discovery of Eris after accessing, without authorization, the observing logs of Brown's team on a website Brown hadn't even known existed, and (2) the drama at the 2006 IAU in Prague surrounding the definition of a planet. Brown, who makes no secret from the very prologue of his lack of admiration for the IAU (where he describes the triennial meeting as "nothing but a once-every-three-years chance for astronomers to advertise their latest discovery or newest idea while spending some time in a nice international destination, having dinners with old friends and catching up on their celestial gossip"), remains

disappointed that the IAU never makes "a real effort" to determine if the same Spanish group behaved unethically, if not fraudulently, in the case of Makemake too, but rather hedges its bets: It accepts the Brown team's choice of name for this TNO but lists its place of discovery "at a small telescope in Spain," and fails to name the discoverers.

For the purposes of this review, Brown's explanation of why he never bothered joining the IAU conveniently not only introduces an ongoing tension running through his narrative, between the temptation to sing his own (well-earned) praises and to deflate them by proclamations of humility, but also links Brown's book with Hoskin's book on the Herschels. Brown tells us in the penultimate chapter that he has never submitted the application for IAU membership because he doesn't know how to respond to the question on the form inquiring about the candidate's "special distinction." Brown rather disingenuously insists he "would not have been let in the doors" of the Prague IAU meeting since "I'm no William Herschel (the discoverer of Uranus, which is indisputably a planet)," nor is he even an Adams, Leverrier, or Galle (the two predictors of the existence of Neptune and the first person to observe it, respectively).

In the chapter called "A Millennium of Planets," Brown clarifies that the reclassification of Pluto in 2006, put into motion by his discovery of Eris, was hardly the first time the accepted concept of what a planet was had been challenged. With the 1543 introduction of Copernican cosmology, which conferred planetary status on Earth for the first time, people who "thought they knew what a planet was" discovered to their shock that they were standing on one. Similarly, when William Herschel discovered Uranus in 1781, "Everybody had known there were only six planets until the moment the seventh was found." Interestingly, like the historian of the Royal Society mentioned in Hoskin's book, Brown attributes Herschel's insistence on the classification of Ceres and Pallas as asteroids – a neologism of his own making – to his "wanting to preserve the uniqueness of his own discovery." This reader, at least, cannot help thinking that if Herschel's pride in his discovery of a planet might have verged on hubris, one can say the same thing of Brown's pride in his self-designation as a "planet-slayer."

Toward the end of the book we learn that as the Prague IAU approached, Brown was contacted by an unidentified member of the committee set up to determine the definition of a planet. This committee member not only – erroneously as it turned out – assured Brown that Eris was to be included among the planets but also urged him as "the only living discoverer of a planet" to "stay humble." As he does often throughout the book, Brown deflates his own ego by referring to events in his private life at the time. Staying humble, he asserts, is no problem now that his one-year-old daughter, Lilah – conceived and born while his search for planets was under way – has learned to mock him. (Earlier in the book he tells us that, at a party launching a big fund-raising campaign for Caltech, he's a big shot less because he discovered "that thing out past Pluto" and more because he's engaged to Diane Binney, the woman who will become Lilah's mother.)

The only less than glowing review of Brown's book that I have seen appeared in the weekend Book Review of *The New York Times*, written by M G Lord, author of *Astro Turf: The Private Life of Rocket Science*. (The review in the daily newspaper, by contrast, was wholly favorable.) She concludes the review by wondering, "Would a woman astronomer be taken seriously if so much of her book on planet-hunting also detailed her infant's first months?" As author of a biography of Marie Curie, I know that Curie's first biographer, her younger daughter, Eve, described how her mother's lab notebooks from the time of the birth of Eve's older sister, Irène, are liberally laced with details of Irène's care and development. The fact that 2011, which marks the centennial of Curie's Nobel Prize for Chemistry "in recognition of her services to the advancement of chemistry by the discovery of the elements radium and polonium, by the isolation of radium and the study of the nature and compounds of this remarkable element," has been named the International Year of Chemistry, indicates that despite her involvement with child care, she has been taken seriously.

In the chapter called “Planet or Not,” Brown tells us that in spring 2005, before the announcement of the tenth planet, Brown was, as a result of his own insistence, teaching introductory geology at Caltech for the first time, although he had never taken a geology course himself. He tells us, “Over the course of the term, I said only one thing that I now know to be blatantly wrong.” I, in turn, have detected only one thing in his book that seems clearly wrong, along with a few other things that leave me scratching my head. In the chapter called “The End of the Solar System,” Brown describes giving a lecture by that name to his class on The Formation and Evolution of Planetary Systems on 15 November 2004, and ending the class by telling his students that he and his colleagues have possibly just detected the TNO we now call Sedna. Brown's date for the class must be wrong, since Sedna was discovered in 2003 and announced to the public in February 2004, as he himself writes later in that chapter. I am surprised that neither Brown nor the graduate student he acknowledges “for reading every version of every chapter" nor the book's editor detected this minor chronological inaccuracy.

Two other matters, each relating to a female in Brown’s life, fall for me into a different category of wondering. Brown tells us that his wife chose their daughter’s name (having ruled out any suggestions from the man who could come up with names like Quoar and Makemake) because it is Arabic for night. Since I know for a fact that a number of Brown's colleagues, both junior and contemporary, over the years have been Israeli, I wonder that he doesn’t mention that Lilah also means night in Hebrew.

Finally, like Shakespeare about Silvia in *The Two Gentlemen of Verona,* I am left wondering “Who is Sabine?” While, except for the unnamed member of the IAU committee mentioned above, every other person in Brown’s dramatis personae has both a first and a last name, we never know the family name of Sabine, who makes her first appearance in chapter one and her final appearance in the final chapter, as the friend with whom he makes a bet, as also described in the children’s biography of Brown, that someone will find a new planet by December 31, 2004. I am glad to hear the end of that story, however. Since Brown detected Eris early in January 2005, Sabine kindly agrees to extend the terms of the bet by five days. Since Eris did “fit all of the characteristics that she and I had decided a planet must meet,” Sabine held up her end of the deal and brought bottles of champagne to Pasadena when she next visited. But since, when the whole matter played out, “Eris was not the tenth planet; it was instead the killer of the ninth,” Brown never drank the champagne, and the bottles Sabine brought “sit on my shelf still.”

My admittedly very minor quibbles about Brown’s book in no way obviate my admiration for it. It is a book anyone interested in astronomy education on any level can, and should, read with pleasure, and can, and should, recommend to others.

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NEWS OF MEETINGS AND OF PEOPLE

NASSP WINTER SCHOOL IN CAPE TOWN, SOUTH AFRICA, JULY 2010

The National Astrophysics and Space Sciences Program (NASSP) http://www.star.ac.za/ 2010 Winter School took place at the South African Astronomical Observatory (SAAO) in Cape Town, South Africa, in July. The school serves as a primer on astronomy and space sciences and as a recruiting venue for the NASSP MSc and PhD programs. It aims to increase the number of black South Africans in astronomy, and the students are chosen from historically black post-secondary institutions that do not have formal astronomy program offerings.

About 20 students attended, including about seven new black South African students in the postgraduate program in astrophysics. Dr Thebe Medupe, the director of the school, said "This is significant given that over three years ago we would have been lucky if we had two black students into postgraduate astronomy courses."

The two-week program included lectures on various topics including solar physics, galactic astronomy, mathematical analysis and extrasolar planets. There were also several hours of laboratory experiences using the resources of the SAAO.

The teaching faculty is drawn from the University of Cape Town, which houses the NASSP program. National Society of Black Physicists (NSBP) members, Charles McGruder and Hakeem Oluseyi, were also part of the teaching team supported by a grant to NSBP from the W K Kellogg Foundation.

Barrie W Jones
(from information supplied by Jay Pasachoff jmp@williams.edu)

INTERNATIONAL ASTRONOMY OLYMPIAD, SUDAK, UKRAINE 16-24 OCTOBER 2010

The fifteenth International Astronomy Olympiad was held 16-24 October 2010 in the old historical town of Sudak (Crimea, Ukraine). 125 people participated – 84 school pupils, 41 supervisors and observers, making up 19 teams in total from 17 countries. Winners of the national Olympiads represented the following countries: Armenia, Bulgaria, Canada, China, Croatia, Estonia, India, Indonesia, Italy, Kazakhstan, Korea, Lithuania, Russia, Rumania, Serbia, Thailand, Ukraine, as well as Moscow and Crimea. The main components of the Olympiad were the theoretical, practical and sky rounds, scientific and educational excursions and lectures. Among the scientific organizers there were the Crimean Astrophysical Observatory and the Crimean Laboratory of the State Astronomical Institute of Moscow State University.

The Olympiad was held in the tourist complex "Sudak", where each year different international meetings are organized. Good lodging, a large and beautiful park bounded by Crimean mountains on one side and by the sea shore on another, a good working area – large conference and lecture halls, all contributed to a successful competition. Moreover, the town of Sudak has long-standing astronomical traditions. Here, during the rather long summertime, the summer observational station of the Crimean Society of Amateur Astronomers is based. It should be noted that today many members of this society are working in different observatories and scientific research centers around the world. The Crimean organizing committee consisted mainly of the Crimean Astrophysical Observatory staff members, and astronomy teachers, who are alumni of the Simferopol Society of Amateur Astronomers.

The membership of the Olympiad organizing committee was as follows.

- Galina Grjibovskaya – co-chairperson (chairman of the Commission for science and education of the Crimean parliament)
- Michael Gavrilov – founding chairman and co-ordinator of the International Astronomy Olympiad (Euro-Asian Astronomical Society)
- Sergei Andrievsky – co-chairperson (science), ScD, professor, national liaison of Ukraine in Commission 46 of the IAU, vice-president of the Ukrainian Astronomical Association (the

director of the Astronomical Observatory and Chair of the Astronomy Department of Odessa National University)

- Eugeny Kolotilov – chairman of the Olympiad Jury (the director of the Crimean branch of the Sternberg Astronomical Institute of Moscow State University)
- Igor Salnikov – vice-chairman (chairman of the Simferopol Society of Amateur Astronomers).

On 17 October the opening ceremony of the Olympiad took place (Figure 1).

Figure 1 The opening ceremony

After that, the evening of acquaintance was held. During that event all the teams represented their own participants and countries of origin. Next day was the first round of the Olympiad – the theoretical round (Figure 2).

Figure 2 The theoretical round

All participants were gathered in the large light hall with a magnificent view of the medieval Genoa fortress (that was erected by Genoa immigrants). The first round lasted four hours. Traditionally, all the problems prepared for the International Astronomy Olympiad are quite easily formulated, but they are quite difficult in understanding how they should be solved. In all the problems participants have to realize wha physical, mathematical and logical models they should apply (there is some difference

from standard problems that are proposed at the majority of other Olympiads where the problems' conditions often already define the model which is needed for correct solution). All the help materials were given in the table format on separate pages, and participants had to understand which data were relevant to which problem.

The evening of 19 October was reserved for the sky round. Unfortunately the weather was bad at that time, and the planned observational round was replaced with a sky-map round. The problems for this round were composed to mimic the real preparation process for an observing run. Participants showed their knowledge of the sky and skills of using a sky map.

An emblem of 15th International Astronomy Olympiad was the Dolphin constellation above the towers of the Genoa fortress. Therefore on 18-19 October there was a cultural excursion to that fortress and to the Delphinarium of the Karadag biological station. During the next day there was an excursion to the Crimean Astrophysical Observatory. Olympiad participants learnt what scientific research is being carried out in that observatory; they also visited several telescopes. Senior astronomer Elena Pavlenko – a staff member of the Crimean Observatory – delivered a lecture "Cataclysmic variables".

The last (practical) round was held on 21 October. All the problems proposed for that round were based on the observational data collected by professional astronomers during their observations.

Just before the final day of the Olympiad, participants visited a beautiful reserved place in Crimea – Novy Svet (Figure 3). In this place the famous Crimean champagne is produced.

Figure 3 An excursion to Novy Svet bay

During the eight days of the Olympiad the schoolboys and schoolgirls attended a lecture by professor Sergei Andrievsky (Odessa National University), "Life in Universe", a lecture by the senior astronomer of the Crimean Observatory, Anatoly Tarasov, "***Be*** phenomenon", and other lectures.

The rounds were accomplished, but intensive work of the Olympiad jury was continuing. In the evening of 22 October, at the end of all the rounds, the results became available. The jury board members had a meeting to look at the overall performance of all the students without knowing their names or nationalities (so called "blind minutes", Figure 4).

Figure 4 Jury work

As is usual at these meetings, the jury board decided to establish the levels for the 1st Diploma, 2nd Diploma, 3rd Diploma (corresponding to the Gold, Silver and Bronze Medals), as well as the Diploma of Participation.

The closing ceremony took place on 23 October 23 (Figure 5). Eleven students won first prizes, including Cho Wan-Jin, Korea (group Alpha) and Balyaev Ivan, Russia (group Beta), who achieved the best results.

Figure 5 The closing ceremony (the team leaders)

More information about the fifteenth International Astronomy Olympiad can be found at the website http://iao.org.ua/ and by email at iaoorg@ukr.net

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WORKSHOP ON THE INTERNATIONAL SPACE WEATHER INITIATIVE HELWAN, EGYPT, 06-10 NOVEMBER 2010

This is a brief summary of the first UN/NASA/JAXA Workshop on the International Space Weather Initiative, Helwan, Egypt, 06-10 November 2010.

The United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS), in its fifty-second session in Vienna 3-12 June 2009, noted the importance of continuing to build upon the successes of the International Heliophysical Year 2007 (IHY 2007, http://ihy2007.org/), in particular by deepening the understanding of the function of the Sun and its effects on the Earth's magnetosphere, environment and climate, and noted with satisfaction the agreement reached by the Scientific and Technical Subcommittee at its forty-sixth session to consider, beginning at its forty-seventh session in February 2010, a new agenda item entitled the International Space Weather Initiative (ISWI) under a three-year work plan (2010, 2011, 2012) with specific focus on the effects of space weather on the Earth. ISWI will utilize the ground-based worldwide IHY instrument arrays under deployment since 2005.

International ISWI workshops were tentatively scheduled to be hosted by Egypt (2010) for Western Asia, Nigeria (2011) for Africa, and Ecuador (2012) for Latin America and the Caribbean. The 2009 UN/ESA/NASA/JAXA Workshop on Basic Space Science and the IHY 2007, held in the Republic of Korea in 2009, started implementing the ISWI as put forth by UNCOPUOS (http://bssihy.kasi.re.kr/unbssw_newsletter.aspx).

Initial important elements of ISWI are the issuance and maintenance of an ISWI Website by Bulgaria (http://www.iswi-secretariat.org/) and an ISWI Newsletter by Japan on a continuing basis in the period 2010-2012 to assure worldwide delivery and development of the results of ISWI and its space weather instrument arrays. From the beginning, this effort will cover all 192 Member States of the United Nations.

The 2010 ISWI Workshop (http://www.spaceweather-eg.org/iswi/) was co-organized and co-sponsored by Kyushu University of Japan (http://www.serc.kyushu-u.ac.jp) and the International Committee on Global Navigation Satellite Systems (ICG, see http://www.unoosa.org/oosa/en/SAP/gnss/icg.html). Local organization and sponsorship was provided in Egypt by the Ministry of Higher Education, Helwan University, and by the Space Weather Monitoring Centre at Helwan University (http://www.helwan.edu.eg/english/space/home.html).

More than 120 scientists, engineers, and policy makers from 30 countries attended the Workshop. The programme focused on the fact that the variability of the Sun has adverse impacts on planet Earth. As society becomes increasingly dependent on space-based systems, it is vital to understand how space weather, caused by solar variability, does affect, among other things, space systems and human space flight, electric power transmission, high-frequency radio communications, global navigation satellite system (GNSS) signals, and long-range radar, as well as the well-being of passengers in high altitude aircraft.

ISWI is fully utilizing and expanding as fast as feasible the world-wide, ground-based instrument arrays that have been deployed in five years of IHY campaign to monitor the impact of solar variability on Earth. The Workshop comprised in-depth presentation of results emanating from space weather instrument arrays such as
MAGDAS (Japan)
CIDR (US)
SCINDA (US)
GPS-Africa (France)
CALLISTO (Switzerland)
SAVNET (Brazil)
AMBER/AGREES (US)
AWESOME/SID (US)
that cover already more that 80 countries around the globe. All these instrument arrays have been particularly deployed to countries in Africa and around the equator. Close to 1000 space weather instruments are operational and are recording data by utilizing GPS receivers, magnetometers, very low frequency recorders, solar particle detectors, and spectrometers.

The main outcomes from the Workshop concern future expansion of all instrument arrays, data recording techniques, data analysis and image processing methods, coordination of collaboration

among members of the arrays and among arrays, as well as utilizing the data and images for research and applications.

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CONFERENCE ON SCIENCE EDUCATION AND PUBLIC OUTREACH BALTIMORE, USA, 31 JULY-03 AUGUST 2011

The Astronomical Society of the Pacific (ASP), in partnership with the American Geophysical Union (AGU) and the Space Telescope Science Institute (STScI), is pleased to announce the 2011 national conference, "Connecting People to Science." We invite you to join us. The conference web site is now accepting registration and abstract submissions at
http://m1e.net/c?75271971-yW.OJnWuBbOR.%406255309-JyMI3n0KL1MC6

This national conference is being held in the beautifully refurbished (and very reasonably priced) Tremont Plaza Hotel near the Baltimore Inner Harbor in Maryland 31 July 31-03 August 2011.

Everyone working in education, public outreach, and science communication in space, Earth, and physical science, is cordially invited to consider how best to share the results of our work with each other and the public, how to improve our practice, and how to make connections across science disciplines. Participants will include people working in formal education, informal settings, on the web, and in the media.

There will also be a weekend workshop on teaching hands-on astronomy (entitled "In the Footsteps of Galileo") 30-31 July, for teachers in grades 3-12 and those who work with them.

Abstracts are welcome for a number of different types of contributions to the meeting, including poster papers, 10-minute oral presentations, one-hour hands-on workshops, and special interest group discussions. Full instructions are available on the conference web site. The deadline for submitting an abstract is 22 April.

There is a substantial discount for early registration and for ASP members.

The hotel space is limited. We encourage participants to register early and make vacation plans around this valuable meeting in the Baltimore-Washington DC area.

To contact us:
Astronomical Society of the Pacific
390 Ashton Ave
San Francisco, CA 94112

Information supplied by Andrew Fraknoi.
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FIFTH INTERNATIONAL OLYMPIAD ON ASTRONOMY & ASTROPHYSICS POLAND 25 AUGUST-04 SEPTEMBER 2011

The International Olympiad on Astronomy and Astrophysics, or IOAA, is an annual competition for high school students from around the world. The students sit for theoretical, analytical and observational examinations in the fields of astronomy and astrophysics. Depending on which range of scores their performance fall into, students can be awarded gold, silver or bronze medals or an honourable mention.

The IOAA was founded by five countries – Thailand, Indonesia, Iran, China and Poland. Previous IOAAs were held in Chiang Mai (Thailand), Bandung (Indonesia), Tehran (Iran) and Beijing (China),

respectively. Each IOAA normally lasts for 10 days. The number of participating countries in the latest IOAA in Beijing was 22.

Despite being relatively young compared to the other recognized International Science Olympiads (the first IOAA was held in 2007), the high standards of the Olympiad and the work it does to promote astronomy education, particularly in regions with emerging astronomy programmes, have gained the support of the President and Commission 46 of the International Astronomical Union, and of the national governments of participating countries. The organization and statutes of the IOAA were originally based on those of the long-running International Physics Olympiad.

The IOAA is organized under the auspices of the Ministry of Education of the host country. Each participating country sends one team of up to five students (still attending or having just finished high school) and two adult team leaders, who approve the problems and translate them into the native languages of the students. Local accommodation and participation costs are paid by the host country, whereas the traveling cost to the venue is paid by each team. Any additional team members such as observers, guests etc. are to be responsible for their own accommodation, local transportation and other expenses occurring during the Olympiad activities.

Venues (in Poland): Katowice, Chorzów and Kraków
Dates: 25 August 2011 (arrival), 04 September 2011 (departure)
Website: http://www.ioaa2011.pl/
Contact Person: Greg Stachowski e-mail, greg@astro.as.up.krakow.pl, ioaa.loc@ioaa2011.pl
Office of the President: President : Boonrucksar Soonthornthum (Thailand)
Secretary: Chatief Kunjaya (Indonesia)

Barrie W Jones, from information supplied
(for contact details see Organizing Committee of Commission 46)

USEFUL WEBSITES FOR INFORMATION ON ASTRONOMY EDUCATION AND OUTREACH MEETINGS

The following websites contain information on future (and recent) meetings and conferences on, or very relevant to, astronomy education and development. In compiling this short list I am well aware of a strong European bias. **Please send me by email URLs for relevant websites in other areas of the world.**

UK

The Association for Astronomy Education	http://www.aae.org.uk
The British Association of Planetaria	http://www.bap.redthreat.co.uk
The National Schools Observatory	http://www.schoolsobservatory.org.uk

Europe

The European Association for Astronomy Education	http://www.eaae-astro.org
The European Astronomical Society	http://www.iap.fr/eas
The European Southern Observatory	http://www.eso.org/outreach/eduoff

USA
(among several other good sites)

The Astronomical Society of the Pacific	http://www.astrosociety.org

Barrie W Jones
(for contact details see Program Group Chairs and Vice-Chairs)

INFORMATION THAT WILL BE FOUND ON THE IAU C46 WEBSITE

Among the information that will be contained on the IAU C46 website is the following

- Overviews (of C46, in English, French, and Spanish)
- Guidelines (including Programme Groups)
- Resolutions
- Newsletters (including triennial reports from National Liaisons)
- Organizing committee
- National contacts (liaisons)
- Links
- News

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The Organizing Committee also includes a Society Organizing Committee that consists of the Program Group Chairs and Vice-chairs.

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