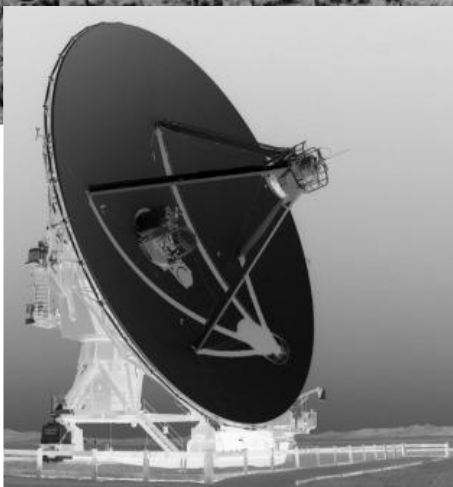


# CANOPUS

Monthly Newsletter of the Johannesburg Center of ASSA



VLA Radio-telescope Photo's - Dave Gordon



## What's happening in August?

This month, ASSA Johannesburg members ...

... join the fray at the Rosebank Rooftop Market on August 29. ASSA Jhb will host an exhibition space and any members who wish to showcase their telescopes (commercial and selfbuilt) are welcome. Don't have a 'scope yet, but feel like being involved in group talks or just general banter with Joe Public? You are most welcome to volunteer your time. For more information, see backpage.

... prepare for the 2004 ASSA Symposium which will be hosted by the Johannesburg center this year, to be held at the War Museum, next to the Johannesburg Zoo from October 14th to 16th. Traditionally the symposium

presents a platform for both professional and amateur astronomers to tell those present about the particular work they have been doing or some project that they have undertaken. Talks are also included on the programme, so if you know of anybody who would like to present an interesting topic, or perhaps have a suggestion of someone we should approach (like university professors and lectures), then please contact Brian Fraser. More information on page 7.

... attempt to answer a million-dollar question: 'Someone you know wants to pursue amateur astronomy. What would you advise him or her to do first?' Take part in our readers' poll on page 6.

... brush up on their knowledge: join the informative beginners' class presented by Jerome Jooste on the evening of the monthly meeting. The next topic will be presented two weeks later at the observatory in the Library building. Weather permitting, the Jacobs telescope will also be available for viewing and practical application of theory acquired. See further details on page 8.

... evidence the historical Tswaing crater and tour the skies from whence it came on a joint ASSA/ESSA trip to Tswaing Meteor Crater from the 21st to 22nd August 2004. More details on page 6.

From the outgoing editor

## Out with the Old...

August Edition of  
Canopus

Published by the  
Astronomical Society  
of Southern Africa,  
Johannesburg Centre

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Deadline for  
contributions is on  
the 20th of the  
current month for the  
next month's edition.

Opinions expressed  
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ASSA, ASSA  
Johannesburg Center,  
the editor or  
committee members  
of ASSA  
Johannesburg Center.

To take a peek at the  
electronic version of  
this newsletter, surf  
to our website at  
www.assajhb.co.za

Dear Canopus Reader,

Editing Canopus over the last few years has certainly been an eye-opener for me as an average amateur astronomer with an even less average skill in editing and publishing. It was a great help taking over from the previous editors who re-established the format as it is today (well, with some minor modifications along the way) and having some co-editors for a while until they were no longer in a position to help with said editing.

There have been some ups and downs during this period - ups in the sense of reporting on wonderful news, such as the naming of Minor Planet (5038)1948 KF "Overbeek" in November 2000, after one of our most distinguished and active local astronomers, Danie Overbeek; and the subsequent down in having to report on his death only eight months later... However, the ups are definitely in the majority. Reporting on Oom Eben van Zyl's 90th birthday in August 2003 - complete with pictures of the occasion (including that great delicious cake) - was definitely a plus.

...and talking of Oom Eben, other than Brian Fraser, he was my most prolific submitter of articles and information. And such brilliant ones they were too - I hope for the sake of our new editor that she will be able to resume these "Life in the Universe" articles soon, as they are a real value add to Canopus. I've always cherished the hope that we might take these articles and logically collate them into a booklet that may be used to provide additional income for our Library.

As regards Brian - what a helpful person - if it were not for him, the

backpage of Canopus would not have contained that really useful astronomical "highlights" of the next couple of months - for this I must give profuse thanks. And in between, he still managed to pop in the occasion page or two of humour, as well as articles of topical astronomical and/or scientific interest.

For many years I attempted to threaten/coerce/bully/beg our then current Chairman to provide a regular monthly Chairman's Chat. In this I succeeded somewhat intermittently (I received some articles - all of which were excellent, but not really regular), until our outgoing Chairman Dave Gordon came onto the scene. Finally the "Chairman's Chat" became a regular.

To all three of the above, a most heartfelt thanks for making my job that much easier.

This tribute is obviously not intended to ignore my many less regular correspondents, some of whom have submitted semi-regular articles over the years. Persons such as Eric and his "Southern Sky Star Hopping" articles and then of course, who can forget Bill Wheaton's articles from NASA's Jet Propulsion Laboratory, which he submitted regularly until work and medical related pressure prevented him from continuing.

...and to the many others out there - you know who you are - thank you one and all.

The best issues produced during this time were without a doubt those that wholly comprised articles which were submitted by our members and did not have to rely on those gleaned from the Space Agency sites and email lists - while the latter were always interesting, the local articles were always more satisfying to me, as I firmly believe that in

astronomical terms "local is lekker" especially if that "local" was located within the Johannesburg Centre.

What was also very satisfying, was to be able to report on local discoveries such as Supernovae etc... and beat the rest of the world into print! We managed to do this several times - including getting some magnificent eclipse images (both Solar and Lunar) and photographs of unique phenomena such as the Venus and Mercury transits. Many of these ended up as rare covershots.

It's been fun trying to give you a great Canopus and I hope that your new editor, Marianne, makes it even better.

Clearer skies,

*Chris Penberthy*

And from the new editor

## ...In with the New!

Dear Canopus Reader,

Let it not be said that this new editor of yours is a 'Bang Jan'. Rather, rushing in where angels fear to tread - that's a more appropriate description. For how it came about that I am writing this, is a long story of boldly going where I never have been before...

After the initial exhilaration of being accepted as new editor, I quickly realised that a daunting task lies ahead. The deep footsteps of those who edited this publication before me is a great indication of how beloved and important the Canopus is to its readers. A great relief though, is that this same spoor has already started the newsletter's trajectory into the digital age.

You will notice some changes in the layout - these are purely cosmetic - but I would like to rise to the challenge of keeping the content focused, of high quality and local. Because yes, I whole-heartedly agree with Chris that 'local is lekker'. I also hope to continue the close and fruitful relationship that Chris has built with contributors and readers alike. Without you, there would be no Canopus!

Therefore, I challenge all readers - old and new - to commit time and text to your favourite bedtime reading. Send in those star-gazing stories, articles of special interest and anything else that you would like to see in print. Photographs, comments and suggestions are also all welcome.

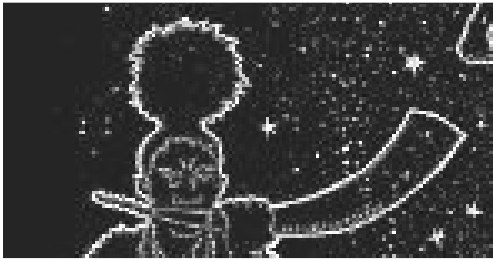
Enjoy this edition - I know I had lots of fun putting it together just for you!

Clear skies all the way,

*Marianne*

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## African Starlore: The legends surrounding Canopus

Canopus was called 'Naka' ('the horn') or 'E a dish-wa' ('it is carefully watched') by the Sotho. The men traditionally camped in the mountains, where they made fires and watched the early morning skies in the South. It was believed that the first person to see the star would be very prosperous that year, with a rich harvest and good luck to the end of his life. In olden times the chief would give the lucky man a heifer. The day after the star was sighted for the first time that year, the men would examine their divining bones in still water, to predict the tribe's luck for the coming year.

Not only was Canopus used as a divining star, but it also was crucial in predicting seasons and weather conditions.

When 'Selomela' (the Pleiades) rose in the east, frost was at hand and the leaves fell from the trees into the river beds. Looking up at the night sky, 'Senakane' (Achernar), or 'the little horn' predicted early frost if the bullrushes were still in flower when it rose very brightly in the next village, which would then join the noisemaking to warn other villages, each in turn, until all knew that Canopus had been seen.

Canopus was also known to some tribes as the 'ants' egg star' because of its prominence during the season when the eggs are abundant.



- SAAO:1998

## Chairman's Chat

- From our newly elected chairman

For some strange reason we end our year on June 30th, then have an AGM in July and in August we get to know who the new office bearers are. Maybe we should look at starting our year in January as all decent citizens do.

Firstly, a fond farewell to Chris Penberthy as editor of Canopus and a BIG (HUGE) vote of thanks to him for the fantastic job he did over some 6 or 7 years. Putting Canopus together takes a lot of time and Chris has done an excellent job, which we all appreciate.

And welcome Marianne, our new editor, who may not realize what she has let herself in for. Will you ALL please help make her job that little bit easier by contributing something, ANY little article to Canopus. Even if it is only a letter to the editor... Come on guys, please.

Another big bouquet goes to Dave Gordon, our outgoing chairman, for the way he has led the society in the past two years. His enthusiasm and energy were very obvious and are reflected in the sound financial status the society now enjoys. Thank you Dave.

Someone who tries to hide her talents under a bushel is our talented secretary, Lerika Cross, and I am so pleased that she will continue in that role and hopefully continue supplying the brains and ideas for the next years' Scopex.

The big challenge for us in the first half of our year is to organise the ASSA Symposium in October. All the other centers who have hosted the symposium have done really well and we owe it to the members to live up to the standard that they have set. So, this is an early appeal to all members to please support the symposium in October.

Lets roll up the sleeves and get going!

*Brian Fraser*

## Bets on the black hole

LONDON - During the past week, a lot of reporting has been done in the media about Stephen Hawking's about-turn on his famous black hole theory. But did you know that by admittedly revoking his theory, he also loses a 29-year old bet?

On 21 July at the 17th International Conference on General Relativity and Gravitation in Dublin, Cambridge University professor Stephen Hawking said in his talk titled 'The Information Paradox for Black Holes' that he was wrong about the formation of an event horizon in a black hole, and that matter is not destroyed in a way defying subatomic theory, as he had previously believed. According to the talk's blurb, "the way the information gets out seems to be that a true event horizon never forms, just an apparent horizon."

Gracefully and formally losing his Black Hole Bet after nearly 30 years of arguing that a black hole destroys everything that falls into it, Stephen Hawking presented Caltech astrophysicist John Preskill with the reference work 'Total Baseball, the Ultimate Baseball Encyclopaedia' after having it specially flown over from the United States. "I had great difficulty in finding one over here, so I offered him an encyclopaedia of cricket as an alternative," Hawking said, "but John wouldn't be persuaded of the superiority of cricket."

It was Hawking's own work that created the paradox of the black hole. In 1976, he calculated that once a black hole forms, it starts losing mass by radiating energy. This "Hawking radiation" contains no information about the matter inside the black hole and once the black hole evaporates, all information is lost.

But this conflicts with the laws of quantum physics, which say that such information can never be completely wiped out. Hawking's argument was that the intense gravitational fields of black holes somehow unravel the laws of quantum physics.

Other physicists have tried to chip away at this paradox. Earlier in 2004, Samir Mathur of Ohio State University in Columbus and his col-

leagues showed that if a black hole is modelled according to string theory - in which the universe is made of tiny, vibrating strings rather than point-like particles - then the black hole becomes a giant tangle of strings. And the Hawking radiation emitted by this "fuzzball" does contain information about the insides of a black hole.

Now, it seems that Hawking too has an answer to the conundrum and the physics community is abuzz with the news. Though Hawking has not yet revealed the detailed maths behind his finding, sketchy details have emerged from the seminar Hawking gave at Cambridge. According to Cambridge colleague Gary Gibbons, an expert on the physics of black holes who was at the seminar, Hawking's black holes, unlike classic black holes, do not have a well-defined event horizon that hides everything within them from the outside world.

Hawking's answer is that the black holes hold their contents for eons, but themselves eventually deteriorate and die. As the black holes disintegrate, they send their transformed contents back out into the infinite universal horizons from whence they came. Previously, Hawking, had held out the possibility that disappearing matter travelled through the black hole to a new parallel universe - the very stuff of most visionary science fiction.

"There is no baby universe branching off, as I once thought. The information remains firmly in our universe," Hawking told delegates at the conference. "I'm sorry to disappoint science-fiction fans, but if information is preserved, there is no possibility of using black holes to travel to other universes," he said. "If you jump into a black hole, your mass energy will be returned to our universe, but in a mangled form, which contains the information about what you were like, but in an unrecognisable state."

He added, "It is great to solve a problem that has been troubling me for nearly 30 years, even though the answer is less exciting than the alternative I suggested".

- Information sourced from THES

## Something fell from the skies - 220,000 years ago

See the evidence and tour the skies from whence it came on a joint ASSA/ESSA trip to Tswaing Meteor Crater from the 21st to 22nd August 2004.

### Programme for Saturday 21st August

08h00: Gates to the Tswaing crater site open

08h00 - 10h00: Arrive and pay the R15 entry fee at Reception

10h00 sharp: Naambu Wetlands trail - a geographically unique and rare wetland delta feature on the highveld. Bring binoculars, as there is reputedly good bird and game watching, with over 250 species of birds, and 35 of wildlife, including Impala, Zebra, Duiker and Kudu.

13h00: Lunch & snacks at Kgotla (bring your own)

14h00: Walk to the crater rim viewpoint and museum (or you could just relax at Kgotla and socialize).

PLEASE NOTE THE GATES CLOSE AT 16h00 SHARP - NO LATE ENTRIES!

Sunset: Self-catering braai - bring your own wood or charcoal, meat, drink and utensils. Braai facilities available.

Evening: Powerpoint astronomy presentation for those interested, followed by a hands-on guided tour of the skies, using

home-built telescopes made by members of the ASSA Jhb Amateur Telescope Making class.

### Programme for Sunday 22nd August

10h00: Tswaing Crater trail (7,5 km). We meet at reception - make sure to bring hat, binoculars, walking shoes and something to drink for a great morning of birdwatching and treespotting. (late arrivals on Sunday morning will just have to catch up - we won't wait!)

13h00: Bring & braai at visitor's picnic area (near Reception).

15h00: Back to civilisation - travel home safely!

COSTS: Approximately R60 per person, for Saturday or Sunday

ACCOMMODATION: R35 per head per night at Kgotla, a bush conference facility comprising four 16-bed dormitory huts with 4 bunkbeds per room - bring your own sleeping bag or bedding!

CAMP FEE: the charge is R25 per head per night if you wish to use your own camping equipment instead of sleeping in the dormitory.

Donations welcome.

BOOKINGS: Contact Vincent Nettmann on 011 475 3707 or 083 332 9333.

## Give some advice...

### .. take part in our Reader's Poll

Your neighbour, your niece, your favourite grandson has fallen in love with the wonderful hobby that is amateur astronomy. Except for immediate introduction to ASSA Johannesburg, what would you advise the novice to do first?

You'd advise the newcomer to...

1. Start saving for a big 'scope
2. Purchase binoculars
3. Attend a star party
4. Learn the constellations
5. Build a telescope

Tell us what your advice would be - send an e-mail to [marienneb@milpark.co.za](mailto:marienneb@milpark.co.za). Results to be published in next month's edition.

## Web Between the Worlds

by Evan Dembsky

Avis (Astro-vis) is a freeware FITS viewer for Windows 95, 98, 2000 and XP. FITS files are used in scientific applications like astronomy and medical imaging. Check it out at:

<http://www.sira.it/msb/avis.htm>

Did you know that there is an "official" superstring theory website? Just what is superstring theory anyway? Find out at:

<http://superstringtheory.com/>

The Encyclopedia Astronautica is the single most comprehensive reference for the history of spaceflight. It is endorsed by the Encyclopedia Britannica, library associations, NASA, the world's major newspapers and television networks, Internet guides, and leading space writers and historians.

<http://www.astronautix.com/>

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## ASSA Symposium 2004

by Brian Fraser

The sixth biennial ASSA symposium will be hosted by the Johannesburg center this year. It will be held at the War Museum, next to the Johannesburg zoo from October 14th to 16th. Traditionally the symposium presents a platform for both professional and amateur astronomers to tell those present about the particular work they have been doing, or some project that they have undertaken.

This year we will have the privilege of having the new director of SAAO, Dr Phil Charles present a talk. We also hope to have the new director of HARTRAO, Dr Justin Jonas, talk on the Square Kilometer Array, or SKA. There will be talks throughout the day, on the Thursday and Friday and then on the Saturday we will visit the historic Broederstroom observatory at Haartebeespoort dam in the morning and conclude with a session at HARTRAO in the afternoon.

It promises to be a varied and interesting program with many excellent speakers. We are hoping to keep the cost at around R250-00 for the three days, although there may be an additional charge for the Saturday excursions.

We are also still seeking speakers, so if you know of anybody who would like to give a talk, or perhaps have a suggestion of someone we should be approaching, (like university professors and lectures) then please let me know.

**So please make a big note in your diaries for October 14th to 16th!**

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## ASSA logo competition announced

The ASSA Council has agreed that a competition is to be held to design a new logo for the Society. The logo should be distinctive, unique and representative of astronomy in Southern Africa. For more information on the history of astronomy in Southern Africa and the Society's objectives, visit [www.saa.ac.za/assa](http://www.saa.ac.za/assa). All members are invited to submit entries which may be e-mailed to [maciej@lfr.sun.ac.za](mailto:maciej@lfr.sun.ac.za) or posted to ASSA Logo Competition, PO Box 9, Observatory 7935, South Africa.

**Deadline: To be received before November 1, 2004.**

The winning entry will be announced before January 1, 2005 and the winner will receive a prize to the value of R250.

## Information on Monthly Meetings

Unless otherwise noted, General meetings are held on the second Wednesday of each month (except December), starting at 20h00 sharp, at the Observatory. Donations to cover refreshments would be appreciated. The public are welcome to attend.

Note: Beginners' Classes and Telescope Driving Courses are usually run concurrently, in the hour preceding the General meeting. If you wish to attend these, just arrive, but please be there by 19h00 to prevent delays in starting the main meeting. Whether or not the courses are running on a given day depends on the availability of instructors; although we try to announce changes in plans beforehand, you take "pot luck" in this regard.

## Public viewing

From time to time, generally on the Friday nearest First Quarter, the Centre opens its domes at the Old Republic Observatory to the public starting time around 19:30. Please note that attendance must be negotiated and confirmed with the Viewing Officer. Check that viewing is taking place on the specified evening. If you take a chance and just pitch up and somebody is there, you are in luck - but if there isn't, don't complain.

A nominal charge will apply, which is used to cover refreshments and general maintenance of the instrumentation.

The August viewing date is set for the 20th. Constant Volschenk and Jerome Jooste will be manning the observatory.

## Other activities

Apart from our monthly meetings, the Centre is involved in various other projects and activities, including occasional excursions, Special Events, & competitions. To find out more, visit the website at

[www.assajhb.co.za](http://www.assajhb.co.za)

## Beginners' Astronomy Class

The beginners classes are given on the evening of the monthly meeting and then two weeks later at the observatory in the Library building. There may be a gap of three weeks between the second lecture of the month and the next monthly meeting. In such a case the lecture will still happen at the next monthly meeting. Dates and topics will be published regularly on the website. In special cases where the talk can not happen on a Wednesday, alternate dates will also be available on the website.

### Talk at the 11 August meeting: 'Stars & Dust in Galaxies' presented by Dr Barbara Cunow from UNISA.

Dr Cunow's main research focus is on internal absorption in spiral galaxies. This entails investigation of the absorption of light emitted by galaxies due to internal dust, where most of the dust can be found in the disc. Absorption rates are determined by photometric investigation of a large sample of spiral galaxies and by a detailed study of the light and dust distribution of selected galaxies. She is also responsible for the Munster Redshift Project's photometric calibration sequences, contributing to a galaxy catalogue which is, amongst other things, an invaluable source for studies in observational cosmology.

Starting times are 19h00 and the lecture lasts about 45min to an hour.

The beginners class is cyclical and for those who would like to attend the classes, but missed the first topics, please remember you are not at a disadvantage. You can catch up on the first topics next time round. Weather permitting, the Jacobs will be opened for beginners until 21h30. This will help illustrate in a practical way what was learned in the class.

>> Continues on page 9



## The Ten Commandments for Amateur Astronomers:

ONE: Thou shalt have no white light before thee, behind thee, or to the side of thee whilst sharing the night sky with thy fellow stargazers.

TWO: Thou shalt not love thy telescope more than thy spouse or thy children; as much as, maybe, but not more.

THREE: Thou shalt not covet thy neighbor's telescope, unless it exceeds in aperture or electronics twice that of thy wildest dreams.

FOUR: Thou shalt not read "Astronomy" or "Sky & Telescope" on company time, for thine employer makes it possible to continue thine astronomical hobby.

FIVE: Thou shalt have at least two telescopes so as to keep thy spouse interested when the same accompanies thee under the night sky or on eclipse expeditions to strange lands where exotic wild animals doth roam freely.

SIX: Thou shalt not reveal to thy spouse the true cost of thy telescope collection; only the individual components, and that shall be done with great infrequency.

SEVEN: Thou shalt not buy thy spouse any lenses, filters, dew shields, maps, charts, or any other necessities for Christmas, anniversaries, or birthdays unless thy spouse needs them for their own telescope.

EIGHT: Thou shalt not deceive thy spouse into thinking that ye are taking them for a romantic Saturday night drive when indeed thou art heading for a dark sky site.

NINE: Thou shalt not store thy telescope in thy living room, dining room, or bedroom, lest thou be sleeping with it full time.

TEN: Observe not through thy neighbor's AP or Tak, lest thee be utterly consumed by the lust of apo-fever, and thy brain and thy bank account shall shrivel and wither like branches in a flame. Verily, observe not through thy neighbor's Dob of Goliath, lest thee be lain bare to the fires of aperture-fever, and thy sanity, thy sacroiliac and thy life savings be crushed as ye grapes of wrath.

<< From page 8

Please phone Jerome Jooste on (011) 465 3402 for enquiries or to book your seat (he needs to know how many people are interested beforehand, please).

The next beginners class will take place on Thursday July 29. The topic to be covered is 'The Atmosphere'.

### Other topics to follow are:

Topic 5: The Motion of the Earth - to be presented before the monthly meeting on 11 August

Topic 6: The Moon

Topic 7: Eclipses of the Sun and Moon

Topic 8: The Orbits of the Planets

Topic 9: The Solar System

Topic 10: Stellar classification

Topic 11: Galactic Structures

Topic 1: Coordinate systems in Astronomy  
Horizon Coordinate  
Altitude/Azimuth

Topic 2: Coordinate systems in Astronomy  
Equatorial Coordinate  
Right Ascension/Declination

Topic 3: Time

**Join Jerome for an eye-opening experience!**

## Brass Monkey Star Party Vaalwater, 16-18 July 2004

by Dave Gordon

I still get a wonderful kick out of going away with a group of like-minded individuals who love to gaze at the stars as much as I do. We certainly are a unique breed of strange enthusiasts who will drive several hours away from city lights, proudly set up shiny telescopes in the fading twilight of winter dusk, then stand in one spot, hour after freezing hour, swinging these optical marvels from one faint object to the next.

I hear an exclamation to my left of 'amazing!' and join the group over at Chris Middleton's old faithful Meade 12-inch Schmidt Cassegrain Telescope (SCT) to share the ever-pleasing site of M8 - the Lagoon Nebula. Then, to my right, a muffled 'fabulous!' and the group shuffles over to Rudi le Louw and Jacques at their 8-inch Newtonian reflector to share the wondrous M17 - the Swan Nebula.

Suddenly, an almighty 'awesome!' and before I can tear my eyes away from what I'm currently looking at, there is already a line of observers forming a queue at Andrew Helson's new Leviathan: a Meade 14-inch SCT. They're observing the heart of the most glorious globular cluster of them all - Omega Centauri (NGC 5139) - using the 14mm ultra-wide field eyepiece. It's as though one is looking at a pile of sugar sprinkled across a glass table with a halogen lamp glowing faintly from behind the glass: the heart of a cluster holding more than a million extremely ancient stars. I wonder what it would be like to live on a planet near the centre of such a system? Would it be possible for a planet to even exist in such a place?

Then I amble back to the 10-inch and swing it over to Albireo - the high-contrast doublestar system comprising a brilliant sparkling blue-tinted member and a companion of honey metal hue hanging so incredibly close to it. I let out my own version of amazing, which is usually of an unprintable derivative, and I hear telescopes whirring in unison towards the new target. Before long, all telescopes are trained on Albireo and each observer takes turns comparing images and commenting on the differences in clarity and magnification between the scopes.



Ready, steady, scope! All is set for a night's stargazing.

By mid-evening, fingers and toes are protesting from the frigid air and it's time for a hot chocolate retreat to the warmth of the kitchen. You see, the farm kitchen has one of those old wood-burning stoves that emanates the most welcome warmth for a group of starry-eyed, core-frozen astro-enthusiasts.

The smell of the newly added wood cuttings to the fire chamber, the unrelenting hiss of the Cadac gas lamps, a cup of steaming hot chocolate in hand, a group of jovial carefree star-gazers bantering on about the universe, stars and things without a care in the world ... priceless!

This year, we changed the venue of the Brass Monkey Star Party at relatively short notice

from the Lammergaai Nature Reserve near Lady Grey to Vaalwater, just 260km NNW of light pollution central. The reasons were twofold: impending bad weather forecast for the Eastern Cape (which never materialised) and the much-reduced travel time to the location. Oh yes, there was a third reason - the promise of it being slightly warmer than last year's deep freeze excursion.

Kudu Lodge (the farmhouse) is eminently functional and basic. After observing, star-struck and weary observers crashed on bunk beds that had soft and clean mattresses. One had to trek outside and around to the back of the farmhouse to find the main showers, but this was a small inconvenience easily repaid by the oh-so-glorious hot water, which was very welcome first thing in the morning before breakfast.

Incidentally, the geyser comprised a 44-gallon

After the scrumptious breakfast, Rudi set the 8-inch telescope for some solar viewing with the aid of his newly acquired Mylar solar filter. We noted a large grouping of sunspots at the sun's eastern edge and a smaller grouping near the centre. Both umbra and penumbral regions were clearly distinguishable in the superb optics of his telescope. We experimented with magnification by testing a myriad of eyepieces on the solar disk and Rudi also experimented with some solar digital photography.

As the sun lazily drifted over the meridian and sank westwards, the group banter shifted from controversial cosmological theories to Jack Russell and Labrador antics. It's been a tough morning and early afternoon of debating and I managed to sneak away for a quick afternoon nap. Need batteries well charged for the Saturday night's observing. Andrew returned empty-handed after a late afternoon attempt to catch a main dinner starter of trout or fresh water bass in the nearby lake. So, we just had to settle for that delicious main course of curry and pap made by Indaba (Chris' enthusiastic star-gazing assistant).

The Saturday evening sky was not as crystal clear as the previous evening, with some bothersome high cirrus cloud playing silly games at odd intervals during the evening. Nevertheless, an equally enjoyable group observation experience again. Just as midnight approached, we unanimously agreed that al-

most all the fight had been frozen out of us and it was time to throw in the telescope cover in favour of good warm sleeping bags. Nobody remembered to bring along a thermometer for the record, but what we can confirm, is that there was a 5mm layer of ice in the dog's water bowl on the following morning. Yes, we are crazy! And it feels so good to be alive.



Chris, Jacques and Rudi - three ardent skywatchers.

drum (a donkey) over a constant fire, somewhat away from the main farmhouse. Talking about breakfast: traditionally, breakfast is a true feast at ASSA star parties; one of over-catering and primary consumption. But this is testament to a night's tough work at the eyepiece, and swivelling many kilograms of telescope tube from object to object, which creates a breakfast appetite of monumental dimensions.

## Light Pollution

Stargazers today face a problem that barely existed only a generation ago. Light pollution has spread so much in the last few decades that it compromises our view of the stars. For about half of us, the stars no longer really come out at all. Yet most light pollution is unnecessary. It is not an inevitable result of having well-lit streets and cities. As much as three fourths of the murky glow you see in the sky at night is waste light beamed directly skyward from poorly designed or improperly installed light fixtures.

If you are interested in the topic, consider joining the dark skies special interest group - details on the website.

- www.salt.ac.za

## Sunspots

Recent observations from a Phoenix amateur astronomer reported some excellent sunspots currently in view. One in particular is just on the face of the sun and it is HUGE. There is a large dark umbra and a much bigger penumbra on all sides. As usual, there are two obvious north and south poles, but they are attached together with several dark markings that run through the umbra. Fascinating!

All this was observed at 175X with a 7" Maksutov with a Baader filter. If you have a solar filter, now would be a fun time to try it out. There are several other spot groups to see, but the view is dominated by the large group. To take a look at the sun, you can also try 78X with a 8" scope.

# SNIPPETS

Remember to take the necessary precautions by using proper solar filters (NOT the kind that fits on the eyepiece!).

- Info from Chris P

## Crash mission to deflect asteroid announced

Remember those big Hollywood movies in which the Earth is endangered by asteroids as big as New York city? Fiction can soon prove to be fact.

Europe's space chiefs have backed a suicide mission which will end in a head-on collision with an approaching asteroid. The European Space Agency's near-Earth object advisory panel has recommended high priority for a Spanish mission to smash into a distant asteroid. With international cooperation, the first mission to attempt deflecting an asteroid could be launched between 2010 and 2015.

- Guardian

## Nasa's hopes of saving Hubble recede

The future of the Hubble space telescope looks grim after a high-level scientific panel conceded that repairing the observatory by using robotics would be "difficult". Scientists had been hoping that the telescope, which the panel called the "most important in history", could be salvaged by launching a robotic mission to change its battery and add new instruments. In January, Nasa cancelled plans for human repair, calling a manned mission to the observatory too risky.

- Financial Times

## Membership Renewal

- A Reminder to All

Please remember to renew your membership for 2004-2005!

Forms are available on the website, or from Chris Penberthy on request.

Normal member: R125.00

Family: R150.00

Minors, Pensioners & Students: R62.50

Joining fee for new members: R50.00

Note that the subscription period corresponds to the Centre's administrative year, i.e. 1 July 2004 to 30 June 2005.

## "Why Should We Send Humans to Mars?"

by Thomas Gangale, taken from the Moon Miners' Manifesto

In September 2003, as I prepared to leave the San Francisco Bay Area to deliver a presentation at an aerospace conference in Long Beach, one of my professors in International Relations asked, "Why do you want to send people to Mars? Is it not better to focus on robotics for now?"

It is cheaper to explore with robots, but not necessarily better. Despite the advance of technology, there remain tasks that humans can better accomplish using machines in situ than via remote presence.

In 1969, NASA presented a plan to the Nixon Administration to send humans on Mars 12 years later. The report by President Richard Nixon's Space Task Group concluded, "NASA has the demonstrated organizational competence and technology base, by virtue of the Apollo success and other achievements, to carry out a successful program to land man on Mars within 15 years."

Since that time, there have been no insurmountable barriers to landing humans on Mars... except the societal will. With each robotic mission to Mars, with each new advance in technology, the technical problem of sending humans to Mars becomes easier. What once were "known unknowns" become "knowns," and "unknown unknowns" become "known unknowns." Once we know that we don't know something, we can research the problem and master it. This is not to say that it will not be a difficult, dangerous, and expensive endeavour. It will be.

However, at this point, we are far better prepared to send humans to Mars than we were to send humans to the Moon when John Kennedy made the decision to do so in 1961.

At the time that Kennedy issued his stirring challenge to the nation, America had only 15 minutes of experience in human spaceflight - none of it actually in orbit around the Earth - yet eight years later, humans walked on the Moon.

In 1961, we had not sent a single successful robotic mission to the Moon = much less to any planet - yet eight years later humans walked on the Moon. In 1961, we had launch vehicles capable of putting only a couple of thousand pounds into orbit around the Earth - yet eight years later humans walked on the Moon.

In the 35 years that it has been feasible to launch a humans-to-Mars program, we have chosen not to. We will do so when the necessary social and political forces align, and that is something that is difficult to predict. It could happen tomorrow, or it might not happen for generations.

Perhaps the desire to go to Mars can be explained in part as a cultural afterimage of Lowellian Mars. Victorian civilization was convinced that it was on the verge of making "Contact". It was an age in which the New York Times reported Nikola Tesla's plans to send radio waves to Mars and communicate with its inhabitants.

As we better acquainted ourselves with Mars in the scientific sense in the course of the 20th century, there came, as H. G. Wells wrote, "the great disillusionment". We came to realize that in terms of sentient species, we are alone in the solar system.

Yet, a faded echo of Lowellian Mars remains. We cling to the hope of a neighboring planet that harbours, if not canals and an advanced civilization, at least some primitive forms of life. If Mars contains even nanobacteria - or indisputable evidence of past life of the simplest forms - this will profoundly change our conception of our place in the universe. If there is, or was, another Genesis here in our own solar system, then life must be common throughout the universe, and "Contact" with another civilization is therefore inevitable.

Do we need to send humans to Mars to discover this? No, not necessarily. It is possible that robotic missions to Mars could make such a starting discovery. But machines alone are not as capable as humans and machines working together in situ. So, if robots do not find life on Mars, the question remains open, even if just a crack.

Eventually, we humans >> Continues on page 14

must go to Mars ourselves to definitively satisfy our curiosity. As forbidding an environment as we have come to know Mars to be in the past few decades, it is nevertheless the most Earth-like planet in the solar system, the most readily accessible from Earth, and given sufficient technology and infrastructure, it will be able to support human life.

It is true that Mars is a far cry from our own abundant, life-giving world. The photographs returned by the first robotic fly-by probes in the 1960s should have erased forever the previously held romantic, softer, mental images of Mars, but perhaps they have not erased them entirely.

There would seem to be photographic indications, as well as geological reasons, that Mars might well have a thinner regolith (rock powder) blanket than the Moon. If we want to

use regolith to shield our outposts from cosmic radiation, we may have to look for areas where wind has accumulated dunes of regolith dust. Fortunately dune fields seem to be common on Mars.

Perhaps our own perceptions are the true "ghosts of Mars"; the spirits of our own past imaginings, and perhaps this is because we want to have neighbors on another world, because we do not want to be alone. Perhaps this is because, even if we cannot make "Contact" with the Other, the Alien, in our own solar system, we do not want to be confined to this Earth.

Is it worth spending tens of billions, possibly hundreds of billions of dollars, to send humans to Mars? In considering this prospective question, it is useful to ask a retrospective one: was it worth it to send humans to the Moon?

### AGM Votes: Final results

At the AGM on 14 July 2004, the members present voted for a new committee to lead the society's activities in 2004-2005. The final audited results are as follows:

Member's Name	Votes	Portfolio on Committee
Atze Herder:	7	
Brian Fraser:	35	Chairman
Bruce Dickson:	24	Special Projects
Chris Penberthy:	30	Membership Secretary
Chris Stewart:	34	Vice Chairman
Dave Gordon:	37	Treasurer
Dave Hughes:	30	Curator of Instruments
Evan Dembskey:	26	Librarian
Jerome Jooste:	24	Viewing Officer
Lerika Cross:	37	Secretary
Marianne Botha:	16	Editor of Canopus
Pam Sutton:	9	
Sharon Tait:	23	PR & Media Liaison
Frans van Nieuwkerk:	3	
Ed Findlay:	8	
Total ballots cast:	38	

An introduction to the first four of these members follows on page 15.

## Brian Fraser Chairman

Confessed TN (Telescope Nut) or ATM (amateur telescope maker) in polite terms. Past President of ASSA and past chairman of the Jhb centre (3 times). Also current Director of the occultation section of ASSA.



Delights in observing variable stars and occultations of all sorts, lunar, minor planet and grazing occultations. Has made a number of telescopes and is currently working on a 20-inch which he hopes to complete before the next supernova appears in our galaxy.

## Dave Gordon Treasurer

A 37 year old self-employed business trainer with far too many hobbies. The fascination with the night skies started around age 12 and became progressively more expensive.



On most clear nights, Dave can be found hunting deep-sky objects such as faint fuzzy galaxies. During daylight hours, Dave is either scuba diving, flying remote controlled aircraft, visiting archaeological pyramid sites, or checking activity levels in his beehives.

His self-admitted biggest flaw is spending too much time trying to solve the universal theory of everything and not getting today's job done in time.

If you want to be successful, it's just this simple. Know what you are doing. Love what you are doing, and believe in what you are doing. Yes, it's just that simple. (Will Rogers)  
Or, in amateur astronomy lingo...



## Chris Stewart Vice Chairman

Passionate about astronomy, space travel and optics literally since birth (age 3 - 1st telescope; age 5 - 1st microscope; age 13 - started making 6" telescope from scratch). An ASSA

member for 20+ years, and long-term committee member. Instigated events and activities including ATM class, ScopeX, Jupiter Crash programme. Personal observatory project currently in progress.

Grew up in Cape Town, has always worked in Engineering-related fields. Married, with one daughter; a cat person, biker, bibliophile, chocoholic.

## Chris Penberthy Members' Secretary

I'm a happily married 57 year-old Male who enjoys Astronomy but is not particularly good at it - this I hope to improve over the years. I've been a member for quite a while and have been Editor of Canopus for about 7

years.

I have an observatory at home with two 10" Schmidt-Cassegrain telescopes, one somewhat older than the other.

My first love (after my wife Lu, that is) is "Shallow Sky" stuff, i.e. Solar System observing. By profession, I'm a Mainframe Systems Programmer.

If you want to see the skies come alive, it's just this simple. Know what you are doing. Love what you are doing (despite the cold) and believe that what you are doing is sane. Yes, it's just that simple.

## August Skies

dd hh  
 1 01 Neptune 5.1 N of  
 Moon  
 2 12 Uranus 3.7 N of  
 Moon  
 6 03 Neptune at  
 opposition  
 7 22 LAST QUARTER  
 9 04 Mercury stationary  
 9 21 Mars 0.7 N of  
 Regulus  
 11 11 Moon at apogee  
 11 23 Venus 7.9 S of  
 Moon  
 13 09 Saturn 5.0 S of  
 Moon  
 16 02 NEW MOON  
 16 19 Mars 3.6 S of Moon  
 16 20 Mercury 9.7 S of  
 Moon  
 16 23 Mercury 3.6 S of  
 Mars  
 17 21 Venus greatest  
 elong. W(46)  
 18 05 Jupiter 2.6 S of  
 Moon  
 23 06 Mercury 5.2 S of  
 Regulus  
 23 10 FIRST QUARTER  
 23 23 Mercury in inferior  
 conjn.  
 27 06 Moon at perigee  
 27 18 Uranus at opposition  
 28 09 Neptune 5.0 N of  
 Moon  
 29 21 Uranus 3.8 N of  
 Moon  
 20 03 FULL MOON  
 31 09 Pluto stationary

## September Skies

dd hh  
 1 00 Venus 2.0 S of Saturn  
 1 17 Mercury stationary  
 2 01 Venus 8.9 S of Pollux  
 6 16 LAST QUARTER  
 8 03 Moon at apogee  
 9 19 Mercury greatest  
 elong. W(18)  
 9 22 Saturn 5.3 S of Moon  
 9 23 Mercury 0.1 S of  
 Regulus  
 10 17 Venus 6.6 S of Moon  
 12 05 Saturn 7.0 S of  
 Pollux  
 13 02 Mercury 3.8 S of  
 Moon  
 14 14 Mars 2.7 S of Moon  
 14 15 NEW MOON  
 15 00 Jupiter 2.2 S of  
 Moon  
 15 09 Mercury greatest  
 brilliancy  
 15 13 Mars in conj. with  
 Sun  
 21 16 FIRST QUARTER  
 22 00 Jupiter in conj. with  
 Sun  
 22 16 Equinox  
 22 22 Moon at perigee  
 24 16 Neptune 5.1 N of  
 Moon  
 26 03 Uranus 3.9 N of  
 Moon  
 27 05 Mars 0.2 S of Jupiter  
 28 14 FULL MOON  
 28 22 Mercury 0.7 N of  
 Jupiter  
 29 13 Mercury 0.9 N of  
 Mars

## Local Times of Rise and Set for the Major Planets August and September 2004

Date	Sun		Mercury		Venus		Mars		Jupiter		Saturn	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
Aug 08	6.43	17.44	7.43	19.29	3.40	14.25	7.28	18.41	8.32	20.18	5.12	15.48
Aug 18	6.35	17.48	6.52	18.38	3.40	14.24	7.08	18.31	7.59	19.47	4.37	15.14
Aug 28	6.26	17.53	5.52	17.21	3.42	14.28	6.48	18.20	7.25	19.17	4.02	14.40
Sep 07	6.15	17.57	5.20	16.38	3.45	14.35	6.27	18.09	6.52	18.47	3.26	14.05
Sep 17	6.04	18.01	5.25	16.52	3.47	14.45	6.06	17.58	6.19	18.17	2.50	13.30
Sep 27	5.53	18.05	5.38	17.33	3.47	14.56	5.45	17.47	5.46	17.47	2.14	12.54

Site Location: Long +28 deg.  
 Lat -26 deg. Local Time UT +2 h

## Last minute notes

### Corporate Sponsorship for the 2004 ASSA Symposium.

ASSA Johannesburg Centre is hosting the ASSA Symposium from 14 to 16 October 2004. We are looking for corporate sponsorship for various small items required at the Symposium. Examples of these include notepads, pens, and various other sundry items. Any member who is able to suggest some form of sponsorship or contribution should kindly contact Brian Fraser on 082-568-1391.

### ASSA Astronomy and Telescope Day at the Rosebank Rooftop Market

B&B Markets have allocated a large area to ASSA Jhb for a special day of astronomy at the Rosebank Rooftop Market on the Sunday of 29 August 2004. We plan to hold mini talks, telescope making demonstrations, solar viewing and new and second hand telescope sales. If anybody would like to sell their telescope or accessories, or would like display their telescope and talk to the general public about our hobby, please contact Dave Gordon on 011-702.1219.

Those members that don't have anything to do on the day, come along and say hello at the market.