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Telephone Mrs De Heaume 44132.

Sagittarius OnLine is the Astronomy Section's home page on the World Wide Web. It includes the on-line version of the newsletter, with some of the articles that have appeared in previous issues. It can be found at:

http://www-dept.cs.ucl.ac.uk/students/d.cave/a_sect.htm

Please note that the Editor of Sagittarius now has a fax (01481 64871). Articles may be faxed to him. E-mail sent to the following address should also reach him:

100334,1671@compuserve.com

Articles and other material for Sagittarius may be submitted in any format, but the following are preferred (in order of preference):-

Impression Publisher

Any other Archimedes format

Plain ASCII text

Word for Windows

Type-written (preferably scannable)

Hand-written ☆

Astronomy Section Officers

Section Secretary:	Geoff Falla	724101
Honorary Treasurer:	Peter Langford	720649
Light Pollution Officer:	Ken Staples	54759

The next newsletter will be published early in September. The deadline for publication copy is the 15th August.

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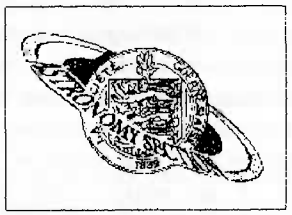
Sagittarius

The Newsletter of the Astronomy Section of La Société Guernesiaise



July/August 1996

Forthcoming events

Meteoroids, meteors and meteorites
by Lawrence Guilbert
Tuesday, 2nd July
8.00 pm at the Observatory

Observatory Day
Saturday, 20th July
All day, from 9.00 am
at the Observatory

The Jaipur Observatory and solar eclipse of 1995
by Richard Mallett
Tuesday, 23rd July
8.00 pm at the Observatory

Barbecue and Perseid Meteor count
Sunday, 11th August
7.30 pm at the Observatory

Inside

Major articles are in **bold**

Centre inserts

July/August star chart

Moon phase calendar

Meteoroids, meteors and meteorites

At 8.00 pm on Tuesday, the 2nd July, at the Observatory, Lawrence Guilbert will talk to us about one of his favourite subjects – or perhaps we should say three of them – **meteoroids, meteors and meteorites**. Lawrence has long had a practical interest in meteors – those flashes of light that some of us see, and some of us miss! This interest has extended to the origins of meteors – meteoroids – and their occasional results – meteorites.

Lawrence will describe all these objects and phenomena, what they are, and how to observe them. ☆

Observatory Day

Saturday, the 20th July is Observatory Day. It will last all day, starting at 9.00 am. Come all day, or just for the morning or afternoon, or for whatever time you can spare.

Observatory Day is an annual occasion, when we give the Observatory a good clean, and carry out various jobs, such as painting, repairs, etc. As many members as possible are needed, and if you are able to bring along any tools, that would be of considerable help.

There is a job for everyone this year. Anyone adept at carpentry could tackle the front door, which is now in sorry shape (as well as that infamous gutter). The roof of the C14 building needs attention. There is painting to be done, and, of course, spring-cleaning!

So, whether you have a particular skill, or none at all, please come along and help. ☆

The Jaipur Observatory and solar eclipse of 1995

On Tuesday, the 23rd July, at the Observatory, Richard Mallett will give a talk on the enormous 18th century stone observatories of the Maharajah Jai Singh, at Jaipur, India. He will also show some slides of the total eclipse of the Sun, as seen from the 16th century Moghul capital at Fatehpur Sikri.

Richard is a keen solar eclipse observer, and has been to several eclipses in different parts of the world. The eclipse last year, in India, was well observed, and it will be interesting to hear a first-hand account.

Richard is also a student of sundials – members will recall the excellent lecture he gave last year on this subject. He says that the largest sundial in the world is one of the instruments at Jaipur, and he will include it in his talk. ☆

Barbecue and Perseid Meteor count

The annual **barbecue and Perseid meteor count** will take place as usual on the **11th August**, which this year falls on a Sunday. The barbecue starts at **7.30 pm at the Observatory**, and will be followed, when it gets dark, by the meteor count.

Families and friends are invited. The fire will be provided, but please bring your own food to cook, something to drink, and utensils. Side dishes, etc, are usually shared.

You may, if you wish, just come for the barbecue, but anyone who wants to is welcome to help with the meteor count. The moon will be close to new, so conditions are favourable.

The rain date is Monday, the 12 August. ☆

Astronomy on the Internet

On Tuesday, the 14th May, Steve Dorrity took us on what he termed "a voyage of discovery" on the *Internet*.

First, with the aid of a schematic map he described what the Internet is, and explained that it derived from a military communications system designed to be bomb-proof. Then he described *Usenet*, which is best for text, and used mostly for work purposes. There are currently about 12,000 news groups.

Then we got onto the really exciting part – the *World Wide Web*, which is the fastest growing area of the Internet. Using the "Galaxy" site, we rapidly went through to the astronomy link and subsidiary links, such as amateur astronomy and observations, then via Cambridge to JPL in California. We looked at Saturn ring plane crossings, and visual and infra-red images from a geostationary weather satellite.

We then visited NASA, the Smithsonian Astrophysical Observatory, and the Space Telescope Science Institute, as well as other places. Steve explained that one can "subscribe" (without charge) to daily NASA press releases, to obtain the latest information on space projects. The Internet is also useful for specific queries – a question will usually produce answers within a few hours – and gives good contacts.

We looked at an atlas of nearby dwarf galaxies from Harvard, and several images: the galaxy Holmburg II, Saturn, Mars, the Shoemaker-Levy comet impact with Jupiter, and others.

Finally, we visited the Astronomy Section's own home page – the online version of Sagittarius, at: http://www-dept.cs.ucl.ac.uk/students/d.cave/a_sect.htm ☆

Transits of Venus

On Tuesday, the 4th June, Peter Langford gave a lecture on the transits of Venus. He explained that the term "transit" was used to describe the passage of a planet across the Sun's disc, when it was directly between the Earth and the Sun. There are only two candidates for such planets – those which orbit closer to the Sun than does the Earth, ie Mercury and Venus.

Peter pointed out how rare an event a transit of Venus is. It takes place either in June or December, and occurs in pairs:-

June	December
	1631
	1639
1761	
1769	
	1874
	1882
2004	
2012	
	2117
	2125

Note that the intervals between transits are 8 years and over 100 years. Peter showed computer demonstrations, programmed by himself, of Venus conjunctions, graphically showing why this is so.

He explained that transits became important when Halley showed how to use them to determine the astronomical unit (AU, the Earth - Sun distance) by making observations from different latitudes. Peter described attempts in the 18th and 19th centuries to do this, which were plagued with difficulties, and sad stories of missed observations. The basic problem was to determine the exact time when Venus crossed the Sun's limb, because of the "black drop" effect. Now, Venus is used to determine the AU by means of radar. ☆

The next transits of Venus

The next pair of transits of Venus across the face of the Sun occurs on the 8th June 2004 and the 5th/6th June 2012. Their visibility from Guernsey is described below.

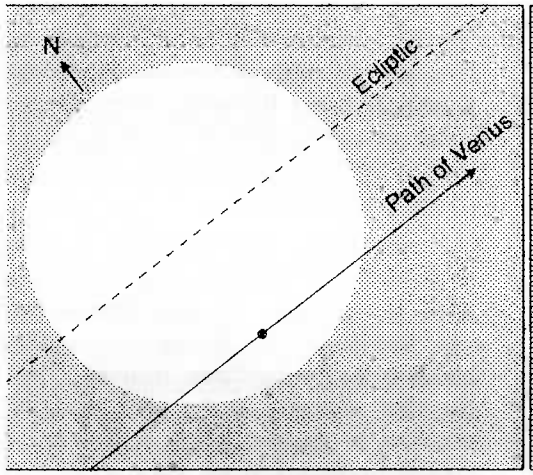
2004 June 08

Visible from: Europe, Africa and Asia.
In Guernsey, the Sun rises: 04h 05m UT
Transit starts: About 05h 15m UT
Altitude of Sun: 9°
Transit ends: About 11h 15m UT
Altitude of Sun: 61°
Duration: about 6 hours.
Sun's coordinates: RA 05h 07m
Dec +22° 53'
Angular diameters: Sun 1887"
Venus 58".6
(about 3% of Sun's)
Venus crosses southern hemisphere of Sun, at latitude about -60°.

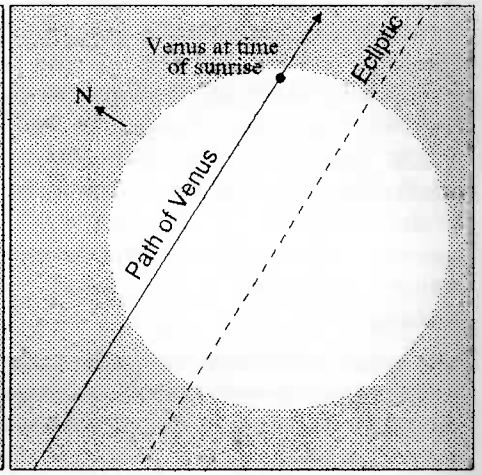
2012 June 05/06

Make the most of the 2004 transit because Guernsey is very poorly located for the second of the pair! The Sun rises just minutes before the end of the transit.

Visible from: Pacific, Australasia and eastern Asia.
In Guernsey, the Sun rises: 04h 05m UT
Transit starts: About 22h 30m UT
Sun below horizon
Transit ends: About 04h 40m UT
Altitude of Sun: 3.7°
Duration: about 6 hours 10 minutes.
Sun's coordinates: RA 04h 59m
Dec +22° 4''
Angular diameters: Sun 1888"
Venus 58".6
(about 3% of Sun's)
Venus crosses northern hemisphere of Sun, at latitude about +45°.



The transit of Venus in 2004, at mid-transit time



The transit of Venus in 2012, at Sunrise

Guernsey is therefore in a good location for observation of the first of the transits. And it is at a good time of the year.

The next transit occurs in 2117! ☆

David Le Conte

Solar mirrors project

Work has progressed speedily in the last few weeks on the completion and setting up of the solar mirrors project. Those involved in the project have included Lawrence Guilbert, Gareth Coleman and Roger Chandler. Lawrence has applied his inventive skills in making housings for the mirrors, and devising a mechanism to control the tilt angle of both the reflecting and focussing mirrors so that the Sun's image can be reflected and controlled more accurately.

The set-up at present is that the reflecting mirror is placed on a ledge at window sill height at the front of the building, directing the sunlight down to the focussing mirror on a tripod near the south boundary. The image is then focussed back through the window above the reflecting mirror and onto a white screen at the rear of the room. The focal distance is around 68 feet, and once the system is refined so that the sunspots can be shown to the best effect within the building, a drive system for the reflecting mirror may be added later.

At present the Sun is still near minimum sunspot activity, so we look forward to the build-up towards the peak of the next cycle over the next few years. ☆

GF

Lawrence Guilbert and Gareth and Nicholas Coleman with the solar telescope

When in Florence . . .

I was lucky enough to go on holiday in Tuscany recently, and my wife and I spent a couple of days visiting Florence. Amongst all the other splendid museums and galleries is the *Museo di Storia della Scienza*, the museum of the history of science.

It is a fascinating place to visit for anyone interested in astronomy. The family of the great pioneer of astronomy, Galileo, was from Florence, and Galileo lived there for part of his life. There is much in the museum connected with him, most famously the object lens of the telescope with which he discovered the four moons of Jupiter. The lens, now broken, is mounted in an elaborate ivory frame. There are a number of telescopes on display that date back to around Galileo's time, all refractory. Some of them are extremely long, and must have been very cumbersome to use.

The museum has a fine array of early astrolabes, sextants and other instruments, beautifully made and scribed in brass. One of the most impressive items in the museum's collection is a huge armillary sphere, some 10 feet across, made with gilded wood and with numerous rings representing the Ptolemaic spheres of the planets and zodiac. At one time all the rings moved, but unfortunately it is no longer in working order.

Besides the astronomy exhibits there are reconstructions, made from beautifully polished wood and brass, of Galileo's experiments with motion, some of them quite ingenious. The attendants give demonstrations from time to time.

There is a room with early experiments in electrostatics, containing some impressive machines to generate electric sparks. Other rooms show developments in medical and other sciences. In all, the museum is a fascinating place to visit, and I could have spent much longer there than I had time for.

After my visit to the museum, having seen so much about Galileo's life, I walked to the *Church of Santa Croce*. There, along with other famous Florentines like Michelangelo, Dante and Machiavelli is the tomb of Galileo. Having been condemned by the Church, Galileo was denied a Christian burial until almost a century after his death, when the Church saw the error of its ways and his tomb in Santa Croce was erected. ☆

Peter Langford

Galileo's object lens in its elaborate ivory frame

To go boldly

"Uhuru, Open hailing channel", ordered the Captain.

This is not a book review, it is an exhibition review. Helen, Ruth and I all set out on a snowy Half-Term Tuesday morning from Ipswich to visit the Science Museum, London, and in particular to view *Star Trek – The Exhibition*. We'd been meaning to go for months!

As you enter the Museum you are greeted by Starfleet officers in *The Next Generation* (*TNG*) uniforms. I must say that Starfleet has obviously fallen upon difficult times, as some of them would have never passed the physical in Kirk's day.

I must make it clear that if you are not a fan or *Trekkie* (as they are called), then this is not the day out for you. However, if you are, then it is all great, fascinating fun, and very worthwhile.

Running throughout the exhibition are video shows of the classic series: *TNG*, *Deep Space 9* (*DS9*), and the latest incarnation, *Star Trek – Voyager*. There is also a wealth of memorabilia dated back to the 1960s and the original Star Trek series. On view are Captain Kirk's and Dr McCoy's uniforms, plus a medi-kit and instruments. A mock-up of the *USS Enterprise* bridge is also there, and taking centre stage is Kirk's chair!

Moving on through the vastness of space you come across the transporter room, with Captain Picard and Commander Riker on the pads. There are Klingons, Cardasians, and a host of alien extras from the TV series and seven Star Trek films. Turning around, you find Captain Picard's desk fresh from his ready room, and his original command seat from the bridge of the Enterprise-D.

There is an array of hardware, phasers of all shapes and sizes (and all set to stun!). See Spock's tricorder and Kirk's communicator, and remember how these instruments have travelled the galaxy at warp factor 9, engines and Scotty permitting.

Of course, it's all good sci-fi, or is it?

Dr McCoy's hypo is now a reality; high pressure gas hypos are available to replace the dreaded needles, personal computers are here in abundance – I sat next to two laptop users on the train – and of course you can go nowhere without hearing the buzz or ring of a mobile telephone, the more modern of which look very much like Kirk's communicator.

And what about that most famous and individual of all Star Trek sayings – *"To Boldly Go, where no man has gone before"*? Well, it's now politically correct, with *"no man"* being replaced by *"no one"*. But the split infinitive, like the split atom, is still with us. As my English master once told me: "Yes, Williams, it is English", and, after a superbly timed pause: "But not as we know it!"

Star Trek – The Exhibition is wonderful. Perhaps my only criticism is not enough hands-on exhibits. But it made for a super day out, as we then went on to tour the Museum itself – a perfect combination of Science Fiction, Science Achievement, and Science History all under one roof.

Finally, it may be Science Fiction today, but remember Dr Robert Goddard: *"The dreams of today become the reality of tomorrow."* ☆

David Williams

Observing Programme – July/August 1996

For July and August we have moved on to constellations between 17 and 21 hours in Right Ascension. *Cygnus* and *Lyra* are both prominent, passing high overhead, while *Sagittarius*, although low in the southern sky, is now at its best for observation. There are no galaxies in the present list, but a number of planetary and diffuse nebulae, double stars and star clusters.

The constellation *Cygnus* has the showpiece double star *Albireo*, the stars having contrasting colours and best observed with low to moderate power as they are easily separated. In nearby *Lyra* the brilliant star *Vega* is almost overhead during the summer evenings.

Near Vega is the famous double-double *Epsilon Lyrae*. The double can be separated easily, and with high power each of the two stars can be resolved as a very close pair of stars. Also in Lyra can be found *M57* - the *Ring Nebula*, a planetary nebula which resembles a small smoke ring, but needing a moderate power to resolve it satisfactorily.

Sagittarius has a large number of nebulae and star clusters, some of the more prominent ones being noted and should be visible with binoculars. The most easily seen is *M8* - the *Lagoon Nebula*, which, at around magnitude 5, should be visible to the naked eye in good conditions. Sagittarius also contains *M22*, a bright globular cluster and the first to be discovered.

The small constellation *Vulpecula* contains the *Dumbbell Nebula*, *M27*, fairly bright at around magnitude 8, while another of the planetary nebulae *NGC 6543* is located in *Draco*. Seen as a blue disc this is considered to be one of the best of the planetary nebulae.

Double stars also include *Gamma Delphinus*, a good colour contrast, and *Alpha* (*Rasalgethi*) in *Hercules*.

In *Scutum*, *M11*, the *Wild Duck cluster* resembles a fan-shaped flight of ducks, and is an open cluster visible with binoculars, while in *Serpens* the *Eagle Nebula*, *M16*, is a star cluster and nebula recently photographed spectacularly with the Hubble Space Telescope. ☆

Geoff Falla

The table of objects for July and August is on page 9, the star chart is on pages 10 and 11, and the observing log is on page 12. These centre pages can be removed for convenience.

Two more comets

Following the success of Comet Hyakutake in the past couple of months, two more comets are visible. Comet Hale-Bopp has been awaited since it was discovered last year as an exceptionally large, and potentially very bright comet. It is now about magnitude 6-7, a binocular object in Sagittarius, and will be brightening to 5½ by the end of August. Its RA and dec are:-

Jul 01	18h 55m	-11° 53'
Jul 15	18h 35m	-10° 29'
Aug 01	18h 11m	- 8° 52'
Aug 15	17h 54m	- 7° 42'
Sep 01	17h 39m	- 6° 32'

At the time of writing, Comet Kopff, a periodic comet of similar magnitude, happens to be within a few degrees of it. ☆

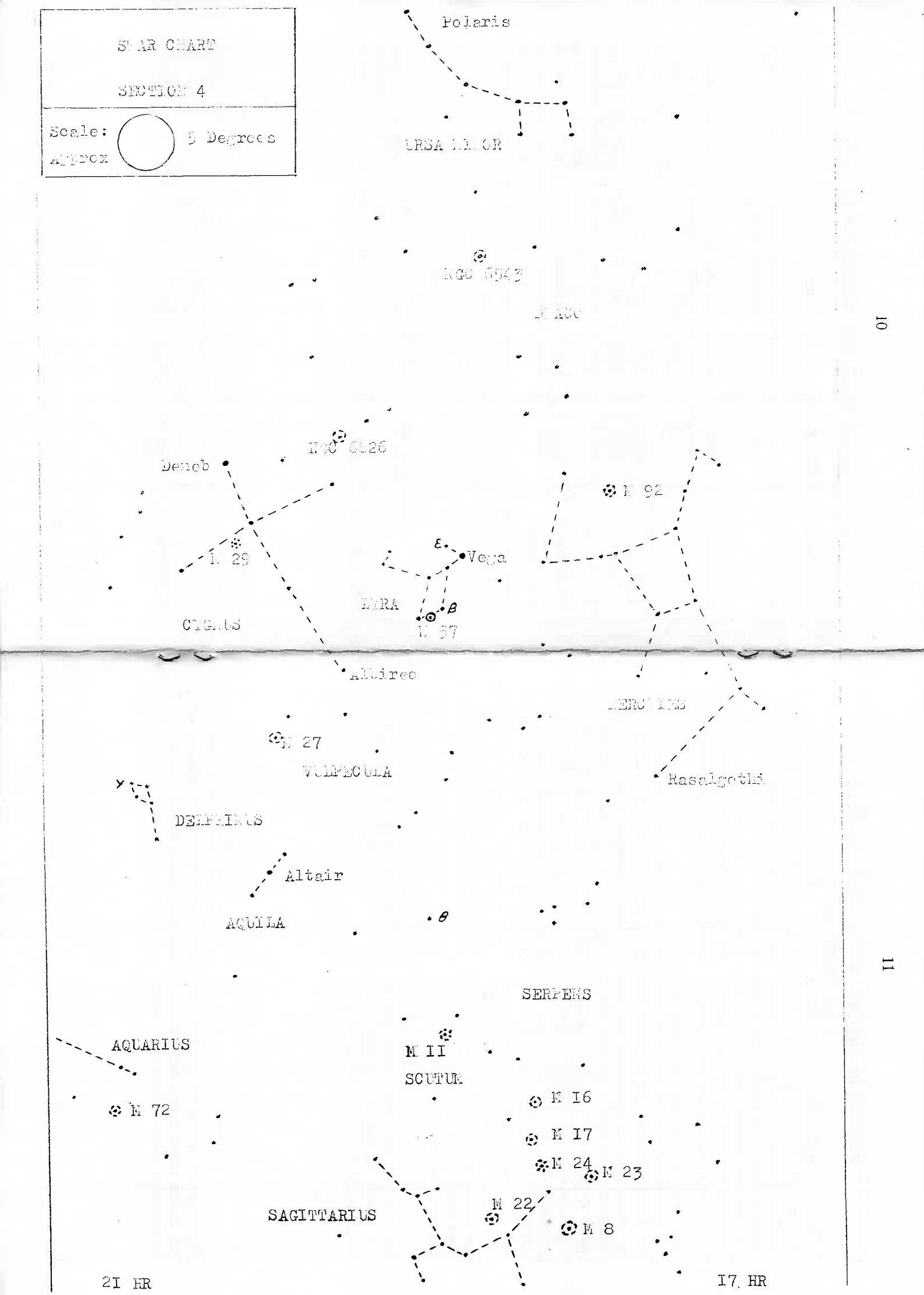
STAR CHART - SECTION 4

Constellation	Object	Type (○○ = Should be visible with binoculars)	Coordinates RA h m	Dec degs
CYGNUS	Beta β	Double star (*Albireo*)	19 31	+ 28.0
	NGC 6826	(*The Blinking*) planetary nebula	19 45	+ 50.5
	M 29	Open cluster	20 24	+ 38.5
LYRA	M 57	(*The Ring*) planetary nebula	18 54	+ 33.0
	Epsilon ε	Quadruple star (double-double)	18 44	+ 39.7
	Beta β	Double star	18 50	+ 33.3
HERCULES	Alpha α	Double star (*Rasalgethi*)	17 15	+ 14.4
	M 92	Globular cluster ○○	17 17	+ 43.3
SAGITTARIUS	M 8	Diffuse nebula and cluster ○○ (*The Lagoon Nebula*)	18 04	- 24.4
	M 24	Open cluster ○○	18 18	- 18.4
	M 17	Diffuse nebula and cluster ○○ (*The Omega* or *Horseshoe Nebula*)	18 21	- 16.2
	M 22	Globular cluster ○○	18 36	- 23.9
	M 23	Open cluster ○○	17 57	- 19.0
DRACO	NGC 6543	Planetary nebula	17 59	+ 66.6
DELPHINUS	Gamma γ	Double star	20 47	+ 16.1
VULPECULA	M 27	Planetary nebula (*The Dumbbell*)	19 57	+ 22.6
AQUARIUS	M 72	Globular cluster	20 54	- 12.5
SCUTUM	M 11	Open cluster ○○ (*The Wild Duck Cluster*)	18 51	- 06.3
SERPENS	Theta θ	Double star	18 56	+ 04.2
	M 16	Diffuse nebula and cluster (*The Eagle Nebula*)	18 19	- 13.8

STAR CHART

SECTION 4

Scale: Approx 5 Degrees



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11

STAR CHART - SECTION 4 OBSERVATION LOG

Date	Constellation	Object	Observation notes, etc

Archæo-astronomy and the pyramids
by Geoff Falla

The pyramids of Egypt have always been regarded with awe, for the sheer scale of construction and the methods used to achieve great accuracy in building, at a time when the ancient Egyptians possessed none of the technology available to builders of our own modern age.

Archæo-astronomy, and the pyramids in particular were the subject of lectures at London University's Imperial College on the 25th May, with speakers Graham Hancock and Robert Bauval, authors of the best-selling books *Fingerprints of the Gods* and *The Orion Mystery*, and co-authors of the more recently published book *Keeper of Genesis*.

To illustrate the accurate positioning of the Great Pyramid, a comparison was made with the Greenwich Meridian building. Here, the building accuracy, as is to be expected, is fairly precise, with the building aligned to True North to an accuracy of three-twentieths of a degree.

The builders of the Great Pyramid achieved even better accuracy, with an alignment to within one-twentieth of one degree of True North. Moreover, the Great Pyramid is not built on level ground, and has a seven-metre high mound of unexcavated rock at its base, which would have made accurate layout and building more difficult. The Great Pyramid is perfectly symmetrical, aligned to the cardinal points with four sides equal to within inches, and perfect right-angled corners.

In his book *The Orion Mystery*, Robert Bauval explains the discovery that the positioning of the three pyramids at Giza appears to match precisely the stars in Orion's Belt. The two largest pyramids, and the third, smaller one offset at an angle out of line, are matched by the two brightest stars and the third, less bright star similarly out of line in Orion's Belt.

The picture is completed by the Milky Way, to the east of Orion, matched by the Nile flowing to the east of the pyramids. In Egyptian mythology the God *Osiris* is linked with Orion, and the Goddess *Isis* with the star Sirius. Shafts within the Great Pyramid have been found to be accurately aligned with the Meridian, with the stars in Orion's belt and with Sirius. The shafts have always been assumed by archæologists to be for ventilation purposes, although it has been pointed out that if this was the case it would have been simpler to make them horizontal, along the line of the stone layers.

Nobody really knows, in fact, why the Great Pyramid was built or whether the presently accepted dating of around 2,500 BC is accurate. There is no evidence that the Great Pyramid was ever used as a tomb. No inscriptions of any kind have been found, either on the outside or inside, while remains of Pharaohs have been found elsewhere, including the Valley of the Kings, in concealed tombs.

The problem of dating the pyramids accurately also applies in the case of the Sphinx, a monumental figure with a man's head and the body of a lion facing due east, and considered by archæologists also to date from around 2500 BC. There is no accurate way to date the Sphinx, as it is carved out of natural rock. »»

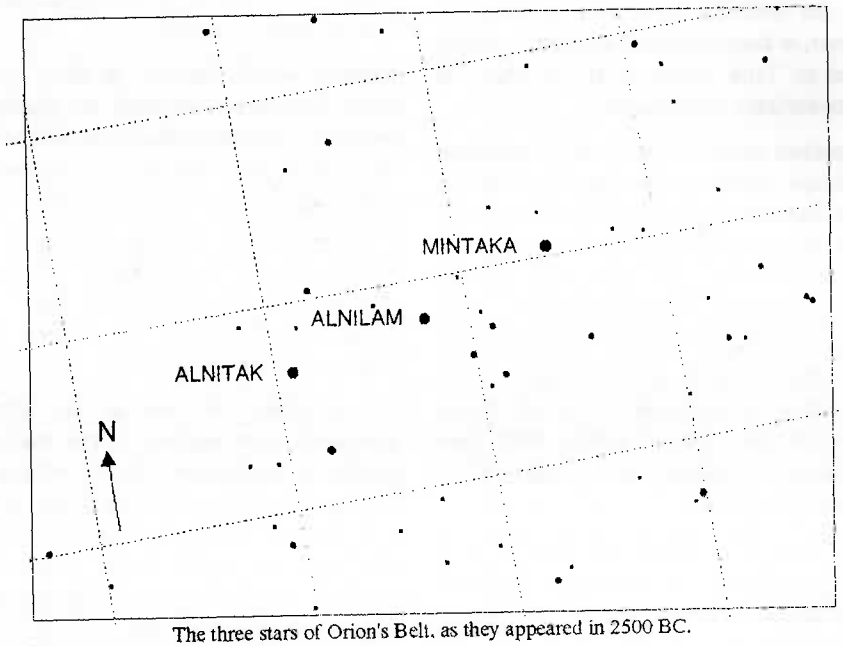
Archæologists concede that the dating method is to place the monument 'in context' with its surroundings. However, a recent study of the Sphinx, which has indicated that the erosion features can only have been produced by rainfall and water run-off, has now been widely accepted by geologists. Such a climate only existed in Egypt before around 10,000 BC.

The phenomenon of precession of the Earth's axis and of the equinoxes over a 26,000-year cycle means that sunrise at the Spring Equinox passes through all twelve Signs of the Zodiac during the cycle. At present the Sun rises at the Spring Equinox against the background of the constellation Pisces, but in 10,000 BC the Sphinx would have faced the sunrise in Leo, the Lion.

There also appear to be curious links between the pyramids of Egypt and pyramids on the other side of the Atlantic. Near Mexico City the ancient citadel of *Teotihacan* has three pyramids set out in a similar pattern to the pyramids at Giza. The *Pyramid of the Sun* has a base perimeter only slightly less than the Great Pyramid in Egypt. The height is almost exactly half.

The *Pyramid of the Sun* and its neighbour, the *Pyramid of the Moon* are level at the apex, as is the case for the two largest Egyptian pyramids. In each case one is larger than the other, as they are constructed on slightly different levels.

Elsewhere in Mexico, at *Chichen Itza*, the *Temple of Kukulkan – the Feathered Serpent* – has 91 steps on each of its four sides, with a platform at the top, making 365 in total, the number of days in a year. The pyramid is again perfectly aligned so that on two days each year, at the Spring and Autumnal Equinoxes, triangular patterns of light and shadow combine to create the illusion of a giant serpent »»



The three stars of Orion's Belt, as they appeared in 2500 BC.

undulating on the northern staircase. The effect lasts for around three hours on each occasion. Archæologists put the appearance of the effect down to chance, because, it is reasoned, the ancient builders of the pyramid did not possess the technology to place the pyramid that accurately.

It is known, however, that the Mayan culture possessed an advanced knowledge of observational astronomy, and used a complex and very accurate calendar, more accurate than the basis of our own calendar. The Mayan calendar may have been inherited from the even earlier Olmec culture. As in the case of the Egyptian monuments, the accurate dating of ancient sites in both North and South America is by no means certain.

Another geometrical mystery is that both the Great Pyramid in Egypt and the Pyramid of the Sun in Mexico seem to incorporate the concept of π (Pi), the relationship between the radius, or the diameter, and the circumference of a circle. The value of π, at just over 3.14, was calculated by Archimedes in the third century BC, yet the height of the Great Pyramid multiplied by 2π, as in the case of a true hemisphere, gives the exact perimeter of its base.

To achieve this shape the sides of the Great Pyramid are sloped at an angle of 52°. In the case of the Pyramid of the Sun in Mexico, almost exactly half the height of the Great Pyramid, but with an almost matching base area, the height multiplied by 4π produces once again an accurate measurement of its base perimeter, and to achieve this the slope of the sides is set at a different angle, at 43°.5. Such a precise mathematical correlation in both cases can hardly have come about by chance.

With these mysteries to consider, only some of which have been covered here, is it possible that an advanced civilisation may indeed have existed in a previous era? In many countries throughout the World there are legendary stories of a major flood, similar to the Biblical account. There is also the legend of Atlantis sinking beneath the sea, recorded by Plato as having occurred 9000 years previously.

The sudden mass extinction of many species of large mammals has been identified with a period between 9000 and 11,000 BC, and with a similar pattern of events recorded in North America, Europe, Asia and in Australia. If the Biblical account of the Flood and the legend of Atlantis are more than just legends, the remnants and some of the technology of an advanced civilisation may have been incorporated into civilisations on both sides of the Atlantic.

In examining the mysteries and wonders of the ancient world, we must be wary of rejecting out of hand any evidence for anomalies or unexplained phenomena which do not fit in with currently held theory or beliefs. This, needless to say, goes against the very basis of Science, the unbiased examination of evidence in the search for knowledge. It seems certain that on the road of discovery there may yet be many surprises. ✯

Geoff Falla

References and further reading:

Fingerprints of the Gods, by Graham Hancock (William Heinemann Ltd, 1995)

The Orion Mystery, by Robert Bauval and Adrian Gilbert (William Heinemann Ltd, 1994)

Letter to the Editor

Dear David,

Thanks for sending the newsletter. I've been refurbishing all of the web pages, and it would be really nice if I could have some contributions from others to put on them. Is it possible to get copies of some the newsletter articles, in *txt* or *rtf* format? The more the better. I can also put images on if anyone has any prints they would like on the pages. Take a look when the computer gets connected to the net. (*The URL is listed on the back page of this issue - Ed.*)

I was thinking about the solar telescope the other day, particularly about what Geoff had said in regard to the possible dangers of people looking along the beam of light. I was thinking that since the mirrors are only 6 inches in diameter, compared to the solar image's 6-8 inches diameter, looking into the beam will be no worse than looking at the Sun with the naked eye. This is because the light is not actually focused to a point, but to a rather large disc. In fact, if the image formed is larger than 6 inches in diameter, then the beam will actually appear dimmer than looking at the Sun with the naked eye. Obviously we don't want to encourage people to try it, but I think the argument is sound, and so no extra-special precautions need to be taken. Let ne know if you think otherwise! (*I think he is correct, but people may look at it by mistake, not expecting it there – Ed.*)

Debbie's article in the newsletter raised an interesting point, namely: are there any of Messier's 21 comets that have short enough periods to be seen today, or are they all comets with very long periods similar to Hyakutake? I suspect that the orbits of any of his comets are ill defined, and therefore would be difficult to identify as being discovered by him, but maybe not. An interesting bit of research for someone (not me!) might be to answer the question: "*When will a Comet Messier return?*".

You wrote in the newsletter: "*Unfortunately, we cannot yet reproduce colour in this newsletter . . .*". Well, I was thinking maybe we can. If we wanted to for special occasions (maybe a couple of times a year) I could run off 100 colour prints in about one hour on my printer, if I ran it in draft mode. If we wanted higher quality it may take me an evening to do. We could put two pages of colour in the newsletter, ideal for reproducing images. If the newsletter is put together as usual with the two pages left blank (which have to be on the same side of the same sheet of paper) you could send me just the 70 or so sheets that needed colour. I could put them through my printer and then send them back to you so that you could collate and staple them. I've enclosed a print in colour draft mode and one in standard mode . . . see what you think. (*Looks good! – Ed.*)

Some really neat images of M51 have just been released from the HST. They are centred on the core of the galaxy and show an unusual region of star formation just around the nucleus. I've enclosed a copy of it along with the caption. (*Perhaps will be our first colour image in the next issue? – Ed.*)

See you later in the year,

☆ *Daniel Cave*

Outlier

A poem by K.V. Bailey (who is based in Alderney)

An archipelago is a cluster
of islands –
as a galactic cluster is a cluster
of island galaxies.

In a galaxy are stars,
each star potentially a home for planets,
each planet potentially a home for algae,
ferns, crustaceans, insects, men;
but when you look at a galaxy you cannot
see these –
when you look at galaxies
you cannot even see the stars,
only those great islands, grouped together,
glowing in the universe.

Looked at from Telegraph Tower or
Judemarre,
Guernsey, Sark, little Jethou, and Herm
are galaxies swimming together:
the strongest glass resolves a beach, a
village,
hardly a dwelling or a stable or a man.

From Herm, Alderney is a galaxy
isolate, a dim shape in space,
no hint of all the richness it contains.

Often in an archipelago,
even among far-clustered nebulae,
there is an outlier,
a lonely one,
a world alone,
a world guessed at, unknown potential,
radiant, cloud-like,
beckoning.

☆

Two books received

We have received a most interesting offer from Springer-Verlag publishers. They have sent us a copy of ***The Observational Practical Astronomer***, free of charge, on condition that it is displayed at a few of our meetings. And two more books in their *Practical Astronomy Series* are coming.

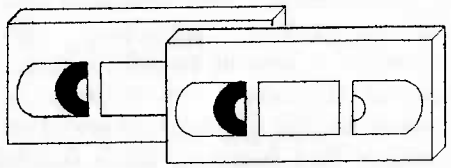
This first book is edited by Patrick Moore, and contains 18 chapters by various authors, including our own Michael Maunder (writing on eclipses). There are chapters on: the Sun, the Moon, the planets, asteroids, meteors, comets, occultations, aurorae and noctilucent clouds, variable stars, supernovæ, deep sky observing, artificial satellites, and how to draw what you see.

A lot of thought has clearly gone into this book, which is produced to a high standard, with an attractive layout. It is certainly a book for the serious amateur. Springer have not given us the price, but you may look at it at the Observatory over the next few weeks, and it will then be available for loan from our library.

Five copies of ***Comet Hale Bopp: Where it is, What it is*** have been received from the author, Robert Stevens Bassett. However, they are not free; these are supposed to be returned if not sold. The price is £2.99.

This is a month-by-month account of the expected appearance of the comet. Sad to say, it is not a well-produced publication, the text being full of irritating punctuation (surely *Hale-Bopp* should be hyphenated) and other errors. The accompanying star charts are of poor quality, and, rather puzzlingly, some of them seem to omit depicting the position of the comet. Nevertheless, it might be a useful reference for the months ahead. ☆ ***DLC***

New videos available



The Section has acquired two new videos which can be rented to members.

Nasa: the 25th Year is a 52-minute video covering highlights from the first 25 years of NASA.

It is the complete chronicle of NASA's history, from the Explorer 1 in 1958 to the present Space Shuttle and pioneer missions probing deep into the solar system, and beyond. "It is a sheer delight to all who have ever wanted to learn more about America's space programme, the greatest one on Earth."

Sundials is a 15-minute educational video, produced by the British Sundial Society. It shows something about the history of sundials, their theory and examples of different types of sundials. It is an attractive video, explaining the concepts in clear detail. ☆

Did you see this fireball?

Mr B J Pyke of Alderney has reported seeing a fireball at 10.20 pm BST on Saturday, the 25th May. He says it was large, about ten times the size of Venus, moving in a slight arc downwards at a bearing of approximately 125°. ☆

Meeting Point

The Big Bang – A Day Without a Yesterday? Talk by David Le Conte at the Town Church, 1.00 pm Friday, 28th June. (Sandwiches available from 12.30 pm) ☆

Big 1999 Conference here

Members may have read in the *Guernsey Evening Press* confirmation that *NAM99*, the National Astronomy Meeting of the Royal Astronomical Society, will be held in Guernsey in August 1999.

This is a real coup for Guernsey. It is a major Conference, with between 400 and 500 delegates expected, including top astronomers from all over the world. The Conference will take place during the week of the total solar eclipse. This is also National Astronomy Week, so we can expect that Guernsey will be a real focal point for astronomical activities, and will be widely covered in the national and international media.

Early indications are that, while the Conference arrangements will be made by the Tourist Board in conjunction with JPR Consultants, *La Société Guernesiaise* will probably act as the host learned Society. The Astronomy Section will therefore be very much involved in the Conference.

So far, I have been consulted by the Tourist Board, and have been involved in discussions with representatives of the RAS and consultant John Richards. Dr Steven Bell and Dr Margaret Penston of the Royal Greenwich Observatory, and Dr Derek McNally of the City University Observatory, London, have visited the Island.

The plan is for delegates to be ferried to Alderney on the day of the eclipse (11 August 1999). Veteran eclipse watcher and Alderney resident Michael Maunder, who is also an Astronomy Section member, is coordinating arrangements there.

With just over three years to go, there will be a lot of planning ahead for this exciting event! ☆ ***DLC***

Did you know? – Dog days

We are just entering the period known as the "Dog days". This is the hottest time of the year, but where does it get it name?

The *Chambers Twentieth Century Dictionary* defines **Dogdays** as:

"the period when the Dogstar rises and sets with the sun (generally reckoned July 3rd to August 11th) – erroneously supposed to be the time when dogs are specially liable to hydrophobia."

The *Oxford English Dictionary* goes into considerably more detail:

"The days about the time of the heliacal rising of the Dog-star [ie when Sirius first emerges from the Sun's rays and becomes visible before sunrise]; noted from ancient times as the hottest and most unwholesome period of the year. They have been variously calculated, as depending on the greater dog-star (Sirius) or the lesser dog-star (Procyon); on the heliacal, or (by some in modern times) the cosmical rising [ie coincident with the rising of the Sun] of either of these (both of which also differ in different latitudes); and as preceding, following, or both preceding and following, one of these epochs; and their duration has been variously reckoned as from 30 to 54 days. In the latitude of Greenwich, the cosmical rising of Procyon now takes place about July 27, that of Sirius about Aug. 11; in Mediterranean latitudes, the former is somewhat later, the latter earlier. The heliacal rising is some days later than the cosmical; and all the phenomena now take place later in the year than in ancient times, owing to the precession of the equinoxes. Thus very different dates have been assigned for the dog-days, their beginning ranging from July 3 to Aug. 15. In current almanacs they are said to begin July 3 and end Aug.11 (i.e. to be the 40 days preceding the cosmical rising of Sirius).

The name . . . arose from the pernicious qualities of the season being attributed to the 'influence' of the Dog-star; but it has long been popularly associated with the belief that at this season dogs are most apt to run mad". ☆

DLC

Blue Moon month?

How many times have we said "once in a blue moon"? Does it mean never, or is there some ulterior meaning? The *Chambers Twentieth Century Dictionary* defines blue moon as "a very long but indeterminate time". It does not appear in the *OED* at all.

I have occasionally heard the term referred to a month in which there are two full moons. The June issue of *Astronomy* magazine makes a definite claim for this, and points out that June 1996 is a blue moon month in America. However, in Britain (and Guernsey) it is the month of July 1996 which contains two full moons – at 0359 on 1 July, and 1036 on 30 July. These times are in GMT, but even in BST the full moons both fall in July. Not so on the other side of the Atlantic, however, where the time is at least five hours behind GMT. ☆

DLC

Daniel does it again

Daniel Cave's multiple picture of the lunar eclipse is published in the July issue of *Astronomy Now* magazine. ☆