Sagittarius

The Newsletter of the Astronomy Section of La Société Guernesiaise

April – June 2005

Forthcoming Events

Observatory Public Open Evenings

12th April	8.30 pm
17th May	9.30 pm
14th June	9.30 pm
12th July	9.30 pm

Observatory Open Evening for Readers of St Saviours and Forest Parish Magazine

26th April 9.00 pm

In addition, the Section meets at the Observatory every Tuesday evening, and Friday if clear for observing.

Inside

Inserts

Star chart

Sunset, sunrise, moonset and moonrise times

Section News

Open Evening: 26th April at 9 pm

Readers of the St Saviours and Forest parishes magazine 'Shore to Shore' are being invited to the Observatory on Tuesday 26th April, with an alternative date on the following Friday 29th April) if the weather is found to be unsuitable on the day. Astronomy Section members are most welcome to attend.

The 'Hands On' Open Evening in February saw a good number of families turn out despite a cold and blustery evening.

David Le Conte's lecture at Candie Gardens on De La Rue and Naftel also saw a good turnout despite the weather (Just as I left home a heavy snow squall suggested a blizzard was imminent!). To illustrate his talk David had original stereoscopic photographs of the Moon by Warren De La Rue and a painting by Naftel of the 1870 total eclipse. Michael Maunder who is also an expert and researcher on De La Rue and has contributed two articles recently in Sagittarius travelled from the mainland to attend. Michael's interests not only extend to De La Rue the astronomer but De La Rue the chemist. Michael gave the vote of thanks at the meeting.

The WEA course was again over subscribed. Like last year overcast skies meant that observing was difficult. We understand there has been good feedback from the course and thanks go to regular members who prepared a talk or helped out.

Geoff, myself and David turned out on 12th March for a computer assisted attempt at the Messier marathon. (This is strictly cheating since this idea of this 'marathon' is to navigate your way between each of the Messier objects without artificial aids!). Nevertheless over a period of a couple of hours we did manage to 'bag' some 44 of the 110 Messier objects. I must admit that some of the objects, particularly in the Virgo clusters are little more than smudges when directly viewed through the Meade telescope. However, these will provide ideal candidates for the CCD camera in the coming months as they are prominent in the Spring sky.

As you can see from the Business Meeting/AGM minutes, rather than spending 'visitor free' cloudy Tuesday evenings drinking coffee and reading astronomical magazines, discussion questions are posed carried forward from the previous week. So far questions raised have been , is the universe spherical?, why are planetary cores hot?, what creates the annual meteor showers?

Colin Spicer

Minutes of the Astronomy Section AGM 2005

Present: Jessica Harris,
Colin Spicer,
Frank Dowding,
Geoff Falla,
David Le Conte,
Peter Langford,
Debby Quertier

1. Apologies
There were no apologies for absence.

2. Election of Officers
The officers of the Astronomy Section of La Société Guernesiaise were all re-elected en bloc.

3. Treasurer's Report
The Treasurer then presented his report and accounts for the financial year ended 31st December 2004 showing the section to have adequate funds for ongoing work and purchases. It was noted that the subscriptions were down on last year.

The purchase of a new eyepiece for the Meade was discussed and it was agreed that as David Le Conte had an eyepiece this would be used on trial and then a decision would be made in six months whether to buy one.

There had been extra expense during the year due to maintenance costs on the building. It was agreed to renew the existing magazine subscriptions and to upgrade the subscription to the BAA to a full one.

Thanks were expressed to the Treasurer for his report.

4. Equipment
The weather had hampered progress with the CCD camera. It was agreed that training was needed and also further training or refresher for the Meade telescope so that all regular attendees were able to use the telescope . A date for this was set for 1st March 2005. The laser pointer had been a great success and it was agreed that a second one would be purchased.

Computers were discussed. The computer in the meeting room is functional but there is problem with the battery which causes the date and time to be lost. The computer which operates the Meade telescope is not adequate for the CCD. There was then a general discussion on what our computer requirements were and it was agreed to get some prices and to consider purchasing one or more flat screen monitors.

David Le Conte advised that he would be attending a cultural meeting with the States, he wondered whether there could be an opening for some support for La Société here in the same way that there is support for sports, music etc.

It was agreed that we should upgrade Starry Night Pro software and it will be investigated how best this should be done.

5. Open Evenings, Visitors and Groups

Imperial College Marine Biology students would not be using our premises in 2005 so we would lose this source of income.

The open evenings had been arranged for the coming year; the publicity has the observatory telephone number so it was suggested that a better answer phone may be needed. Posters were currently being printed and the usual circulation would apply.

It was agreed that there should be someone at the entrance to collect the monies as people arrived and also put a donations box with the visitor book.

The Messier marathon was planned for 11th March 2005 (back up date for Meade training as well).

The Perseid barbecue date was agreed as 12th August 2005 and it was suggested that we purchase the food in advance and charge per head, but not necessarily as a fundraiser. It was then suggested that our barbecue be extended to be advertised for La Société members generally along the lines of the Dell Nursery barbecues. Further consideration would be needed and if it was to go ahead on this basis it would need to be advertised in April's La Communiqué. Possible problems were discussed, one being what would happen if it rained. Jessica Harris and Debby Quertier agreed to consider the barbeque further.

6. Viewing Programme

Weather has made it difficult to assign specific dates for viewing and monthly targets were more practical. Meade training/refresher would enable fresh ideas for viewing.

The October eclipse was discussed and whether the Observatory would be open to the public that day. We would need to check with the school first concerning parking. We could invite the children up for an hour as we did with the Venus transit and perhaps open for the public for a further hour to avoid congestion.

7. Premises

Thanks were expressed to Geoff Falla who has spent several Fridays clearing the library and tidying up. The books of the late Lawrence Guilbert have been added to the library. It is intended that eventually all the books will be listed and a list issued to members.

We now have about 20 archive boxes with everything up to the year 2000 archived. The books for Peter Hingley have also been archived and the cost of getting them to the RAS will be investigated.

Nothing further has been done concerning the proposed gate which is thought necessary to keep dogs and their mess out. Hugh Lenfesty has agreed to pay for the guttering if we arrange for a firm to do it. Debby Quertier will get some quotes.

8. Fund Raising

Various new ideas were discussed but none were agreed as really practical or suitable.

9. Any Other Business

Frank Dowding suggested that in order to learn from each other we should utilise cloudy evenings better by nominating discussion topics. The first discussion is to be 'Is the universe a sphere?' on 1st February.

David Le Conte expressed concern about the lack of talks, which he felt would bring in other people.

David Le Conte had received thank you letters from the Oakvale School children who had just recently visited – they were lovely letters from a great bunch of children who had clearly enjoyed themselves.

It was suggested that we prepare a 'welcome' pack for new members including a welcome letter. Also it was felt that the membership form for the Section should include joining La Société on the same form.

The meeting closed at 10.30 pm.

Debby Quertier

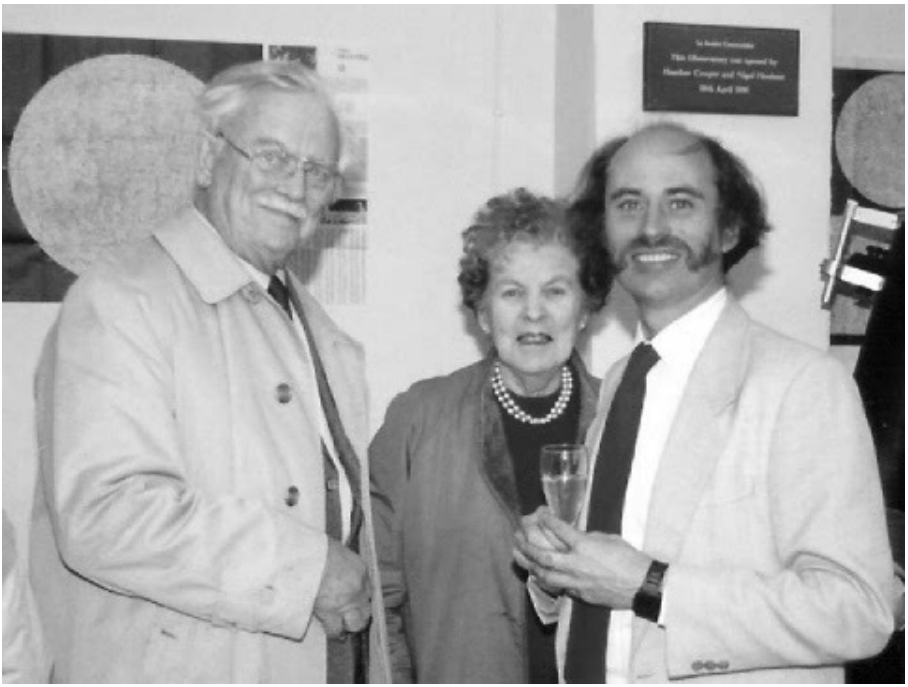
Obituary: Lawrence Guilbert

Lawrence Guilbert, who died recently at the age of 91, was one of the keenest members of the Astronomy Section. Although he was not a founder member, it was not long after that he joined the section, well before it became established at our present St Peters Observatory site.

During his working life, Lawrence was employed at Bucktrout's in Cornet Street before the site was redeveloped as part of the Albany premises. He was manager of the Guernsey Tobacco Company's purpose built factory premises at La Ramee until the making of cigarettes in the island was discontinued, and worked for a while at the States Agriculture Department before his retirement.

His interests included photography, painting, and drawing, apart from his long held interest in astronomy. It was his skill in drawing, and attention to detail which he used to good effect when he became interested in sunspot activity, using a home built projection box system attached to the telescope to display and make accurate drawings of the sunspots - particularly during peak years of the solar cycle. He also built a box for holding and adjusting the solar mirror for projection of the Sun's image onto a screen within the observatory's main building. This was very useful in observing the recent rare transit of Venus.

He was also very interested in meteor activity. The most reliable annual meteor shower, the August Perseids, coincided with his birthday, and he would always like to mention that these meteors are also known as 'the tears of St Lawrence'.



Lawrence pictured with his wife Mary and Astronomer, writer and broadcaster Nigel Henbest at the opening of the St Peter's Observatory in 1991

Lawrence was always very practical, and would save any lenses, wheels, tubing or other equipment which could come in useful for telescopes or accessories. When the section was developing its observatory site, he made a sturdy trolley mount for the Celestron C11 telescope so that it could be moved easily in and out of the main building, and made all of the signboards. The trolley has served us well, and the system has proved to be a valuable facility when it is not practical to use the main Meade telescope, and when we have a large number of visitors on open evenings or groups on other occasions.

Lawrence's collection of astronomy books has been kindly donated to the section, and has been added to the library.

Geoff Falla

The Latitude Connection 3 - Towards a Solution?

There are now found to be many examples in our solar system where the largest eruptive type features and craters are located at a latitude of 19 to 20 degrees north or south of the equator. This applies both to the inner planets and to the outer gaseous giants. It can be found on the most volcanically active of Jupiter's moons, and may also apply in the case of our own moon. Further information is emerging, and it has been discovered that some research on the subject may be leading towards an explanation.

Although there are a number of examples in our solar system, it was thought at first that our Moon did not provide any such example of this apparent 'latitude connection'. There seemed to be no obvious features on the Earth-facing side at these particular latitudes. When looking at a map of the Moon's far side, it becomes clear that this largely hidden part of the Moon is very different. There are few of the smooth dark areas so evident to us when looking at the part of the Moon which is facing Earth.

When the Russian Lunik-3 became the first camera-carrying spacecraft to go behind the Moon in October 1959, a much rougher landscape was revealed in the photographs. One prominent feature which was noted in particular was a large dark-floored crater with a central mountain peak. This was later named Tsiolkovsky, after a pioneer in the principles of rocket powered space flight.

With more recent and complete survey work, the largest feature of the Moon's far side has turned out to be far more impressive. This is a huge ringed feature named Mare Orientale, the edge of which was first noted in observations by Sir Patrick Moore. The Mare Orientale has been found to be one of the most important features of the Moon, and has a massive diameter of about 600 miles - more than a quarter of the diameter of the Moon.

The question which now arises, in considering examples of the latitude connection, is why these two most obvious features of the Moon's far side should not only share the same line of south latitude, but also why they should be centred at the same recurring latitude of around 19 and 20 degrees, as noted now in many other examples.

The origin of the craters and other features of the Moon has been generally accepted to be a result of chance impacts, mostly during the early formation of the solar system. It seems, however, that characteristic volcanic features are also to be found, with an acknowledgement that vulcanism must also have been widespread during the Moon's earlier history.

Comments relating to the possible origin of the Mare Orientale, and the crater Tsiolkovsky are found in the book 'Volcanoes and Impact Craters

on the Moon and Mars', by Piero Leonardi. Here the view is expressed that the huge Mare Orientale formation seems to have typical features of an eruptive caldera, with successive collapses creating the large concentric rings. The large crater Tsiolkovsky is also interpreted as an eruptive cauldron with a consolidated lava lake.

This appears to provide some support for the view that these most prominent features of the Moon's far side may be of eruptive origin rather than being caused primarily by impact events. An eruptive type event could perhaps follow a large impact, but it would seem unlikely that two such widely separated impacts would both be at the same latitude.

The innermost planet of the solar system provides another example of major features being found at these particular latitudes. The Mariner 10 spacecraft was unable to photograph all of the surface of Mercury during its mission there in 1974, but the largest crater found on this survey was named Beethoven, with a diameter of more than 400 miles. This is considerably larger than the many other craters on the known surface of Mercury. Although the origin of this particular crater is unknown, and perhaps it is just a coincidence, but this does not alter the finding that it also happens to be located at 20 degrees south latitude.

Together with such observations as the Great Red Spot on Jupiter, a semi-permanent eruptive type feature, and the solar cycle of Sunspots, particularly at maximum activity, the reason for what must now be considered to be more than just an extraordinary coincidence seems difficult to understand. There may, however, be significant clues, and it has been found that some scientific research has been undertaken which may in time help in explaining these observations.

Towards a Solution?

The pattern of events could, it is suggested, be related to a largely unrecognized form of energy, which may already be evident in the solar system.

It has been known for some time that there are planets which appear to have an unexplained excess of energy. This has been discovered as a result of infrared detection methods, and other research which is providing more information. From measurements obtained in 1989 by the Voyager 2 mission, the planet Neptune was found to be producing three times as much energy as it is receiving from solar radiation. Saturn has also been discovered to be producing about twice as much energy as expected, again for unknown reasons.

Conventionally, the internal heat of a planet or moon can be produced in several ways. It can come from the primordial heat left over from its formation. Additionally, it can be produced by gravitational effects or by the radioactive decay of heavy elements within a rocky core.

This does not seem to have provided a

satisfactory explanation for the current findings relating to excess energy, which is being revealed in the form of higher temperatures, or in some cases stronger wind speeds than are expected to be found in planetary atmospheres. In the case of Earth's own atmospheric conditions, it could be noted that the region where hurricanes are at their most active also seems to be at a latitude around 19 to 20 degrees. The latitude connection findings, in solar system examples already noted, may be evidence that the excess energy being recorded is emerging at these particular latitudes, as have been outlined in a number of examples.

It has been found that research is being undertaken, in particular by scientists in the United States and in Japan, relating to the physics of rotating bodies. The work also involves a study of angular momentum effects which may be produced by an extended solar system. In this way, a lever effect produced by the outermost parts of the system becomes more important. The recent discovery of further planetary objects beyond the orbit of Pluto is therefore seen as adding significance to research in this direction. It is also anticipated that further research may confirm that the unexplained energy identified in the form of infrared radiation may vary with the orbits of planets and moons. Planetary positions have already been found to be of some significance. In research published by the Radio Corporation of America in 1951, it was established that particular planetary alignments are linked with magnetic disturbances, with effects noted on shortwave radio reception.

In time, there may be more definite confirmation that an additional kind of energy may exist in the solar system. The radical idea also suggests the possible involvement of another dimension in this process, with energy being extracted in electrical form to be absorbed by planetary bodies, before emerging as excess energy at particular latitudes. The possible existence of other dimensions is being acknowledged more openly by scientists. It is also suggested that this kind of energy is increasing, with more energy being produced by the Sun as evidenced by the amount of sunspot activity in recent years.

The Sun itself provides some further evidence of the apparent latitude connection. Sunspot activity is usually concentrated between latitudes 10 and 30 degrees, with some of the smallest sunspots being seen further north or closer to the equator, particularly near the beginning and end of the sunspot cycle. Towards the end of 2003, well after the recorded peak of the solar cycle in year 2000, there was a surprising and major increase in sunspot activity. On 23rd October, 2003, the largest of all the sunspot groups appeared, with one of the most significant solar flares ever seen appearing on the morning of 28th October. The location of this largest group of sunspots was at a latitude of 20 degrees, as with other described examples of major eruptive features in the solar system.

Another example of this recurrent latitude of major activity is to be found in Mexico, where a surprising connection with other unexplained phenomena is to be found. Volcanic activity in Mexico in recent years has been associated with the appearance of strange, mostly luminous objects in the same areas. This also seems to be very relevant. The reports of such unknown objects, more frequent it seems in Mexico than in many other countries in recent times, have been mostly concentrated in Mexico's volcanic zone - and close to its most active volcano, at a latitude of 19 degrees north. Many of the reports have also come from the area around Mexico City, at a similar latitude, and with the objects also being recorded on film on numerous occasions.

Astrophysicist Dr Claude Poher, a leading scientist of the French National Centre for Space Studies, has also suggested the remarkable possibility that geomagnetic disturbances may involve dimensional effects. This could fit in with the unexplained events reported. As mentioned, this possibility has also been suggested in some of the more recent research related to the apparent latitude connection.

Whatever the full explanation eventually turns out to be, it seems probable that the latitude connection findings may prove to be of some relevance in extending our knowledge of the solar system - perhaps even in a rather unexpected direction.

Geoff Falla

Geoff Falla's regular roundup of articles from popular Astronomy and Space Journals

Astrology - Fact or Fiction? At one time, each sign of the Zodiac corresponded with its particular constellation, but because of the gradual precession of the Earth's axis the position of the constellations has changed appreciably. This is seen as one of several reasons for questioning the validity of astrology. (Astronomy, December 2004)

Killer Impacts. Can anything be done to change the path of an asteroid if one is found to be on a collision course with Earth? The detection of such objects, and what could be done in the event of a predicted collision. (Astronomy, December 2004)

Anomalous X-Ray Pulsars. Most X-Ray pulsars form part of a binary system, the neutron star being powered by rotation or gravitational accretion. A few lone neutron stars have now been discovered, and it seems that these may be powered by magnetism. (Sky and Telescope, January 2005)

Planetary Harmony. In our solar system, harmony can be seen for example in the orbits of three of Jupiter's four major moons. The study of the orbits of 'exoplanets' (discovered in other star systems)

suggests that the importance of gravitational interactions and resonances has been underestimated. (Sky and Telescope, January 2005)

Titan - What lies beneath? A set of articles on what is at present known about Saturn's largest moon. It is known that Titan has a dense atmosphere including nitrogen and methane, but the nature of the surface is largely unknown. It is hoped that much more will be discovered by the Cassini mission, following the January landing of the European Huygens spaceprobe. (Astronomy Now, January 2005)

Colliding Galaxies. Galactic collisions can be seen in many cases, and it is thought that at some time in the future the Andromeda Galaxy, M31, will collide with our own Milky Way. It seems, however, that such collisions can also produce the birthplace for new stars. (Astronomy Now, January 2005)

Deep Impact - Comet Rendezvous. The deep impact mission launch in January is to rendezvous with comet Tempel I in July. Article contains details of the plan to impact the comet nucleus, so that cometary material can be analysed.
(Astronomy Now, January 2005)

Top Ten Space Stories of 2004. The ten space stories judged to be the most significant in 2004. Including a year of remarkable solar activity, and the Genesis project to capture solar particles, the transit of Venus, the Saturn Cassini/Huygens mission, and the success of the two Mars rovers. Top place goes to the unexpected discovery of a minor planet in the outer reaches of the solar system. This has been named Sedna, and is being compared in importance with the discovery of Pluto. (Astronomy, January 2005)

Digital Sky Survey. Perhaps the most ambitious of sky surveys is the Sloan Digital Sky Survey. Details of this survey, which is of the northern sky, and uses CCD technology. Apart from galaxy distribution, it is revealing unknown asteroids and far distant quasars. (Sky and Telescope, January 2005)

The Universe in the Mirror. The best telescopes of the late 19th century were refractors, but this changed with the improvement in large telescopes using reflecting mirrors. Speculum metal as a reflector was replaced by silvered-glass mirrors, which proved to be a turning point in the development of the giant reflector telescopes. (Sky and Telescope, February 2005)

A Year on Mars - Roving the Planet. A set of articles detailing the investigations since the successful landing on Mars of the rovers Spirit and Opportunity. These include confirmation of water on Mars in its recent history, future missions including European Space Agency plans, whether Britain should take a more active role, and hopes for

another Beagle project. (Astronomy Now, February 2005)

Titan - Saturn's moon unveiled. Following the successful landing on Titan by the European Huygens spaceprobe, the first photos on the descent and after landing. Revealing large and complex flow channels, and a very varied surface. (Astronomy Now, March 2005)

Astronomical Controversies. A set of articles focusing on controversial ideas, and the way that they have been received by scientists - who sometimes do not want to examine the evidence for themselves. From Galileo, with scientists refusing to look through his telescope, to the more recent case of Velikovsky, whose well researched book "Worlds In Collision" was condemned by leading scientists while admitting that they had not read any of it. (Astronomy Now, March 2005)

Dark Energy. The discovery a few years ago that the expansion of the Universe is accelerating came as a complete surprise. The existence of an unknown kind of energy behind the expansion, 'dark energy', is the subject of further research to discover its nature. (Sky and Telescope, March 2005)

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