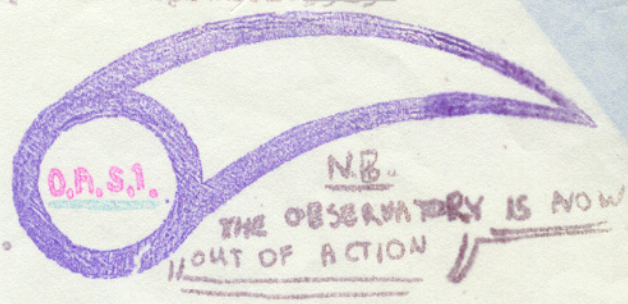
JUNE 1973

[illegible] OPTICAL SOCIETY (IPSWICH)
[illegible] SECTION:
Secretary: C.F.Radley, [redacted],
Wherstead, Ipswich, IP2 8NQ., Suffolk. Telephone: Ipswich: [redacted]

We would like to welcome the following new members into the society:

Mr.Voss, [redacted],
Woodbridge.
Mr.T.S.Law, [redacted].,Shotley,
Ipswich, IP9 1NP.
Mr.R.Y.McAlister, [redacted].,Sproughton.
Mr.W.C.Carry, [redacted].,Ipswich.
MR.W.M.Dunnet, [redacted].,Felixstowe.
Mr.K.P.Dye, [redacted], Ipswich.



Trouble in Space: Recently the USSR launched Salyut-2. After launch on April 3, its orbit was too eccentric, and was adjusted on April 4th. This corrected the orbit, which would have allowed cosmonauts to have been launched on April 9th or 10th. But they were not; another orbital correction was carried out on April 14th. Fragments were detected by radar, suggesting that either the Salyut or the launcher Proton rocket had suffered an explosion. It was announced that the space station had "terminated its mission", or contact had been lost with it. The USSR's attempt to beat the americans to a long duration space laboratory. Salyut-1 was launched in 1970, and was visited by two teams of cosmonauts: the first team could not get in, and the second team died of decompression before landing after 23days(a record)in space.

The american space laboratory "Skylab-A" packed with equipment, and somewhat larger than Salyut, was launched on Monday 14th May at 17.30U.T. It successfuly entered geocentric orbit; however, because of excessive vibbation by the Saturn-V rocket, a micrometeorite/radiation shield was torn, and has interfered with the mechanism to deploy one of the solar battery wings. Because of this, the solar cells could not generate power, and the cabin, unprotected from radiation from the Sun, became very hot, reaching 100°f and more. The launch of three men in an Apollo Command Service Module vehicle on a Saturn-1b rocket was postponed.

The men were not allowed to go up to dock with Skylab because the cabin was too hot. Sending them up to repair the fault was impractical since their umbilicals (carrying water & air to spacewalkers)is not long enough to reach the faulty part, and if they could reach it, unexploded bolts nearby may detonate, constituting a hazard, and if the solar panels suddenly deployed, they could injure the EVA Astronaut.

More information will be published when it is available.

Lunokhod-2....& 3? According to US Intelligence, a Proton type Russian rocket was lsumched carrying a third Lunokhod towards the end of April, but it crashed in the Pacific.

Meanwhile, Lunokhod-2 is still operating on the Moon. The vehicle had covered 25.6km by the time it ended its third lunar day towards the end of March. After lunar dawn on 9th April, it started its fourth day, and spent the whole day examining a large tectonic feature, south of LeMonnier. It is a fault, or furrow up to 100metres wide and 16kms long. Lunokhod was parked 2 kilometres from the furrow at the end of Day 3. At the start of Day 4 it drove to within 200metres of it, and waited until the Sun was at a suitable elevation.

The previous(3rd)day had been spent investigatin a crater showing landslides. Examining the tectonic fault, local terrain was found to include lareg area of bedrock exposed, and loose regolith covering the rest to a depth of 5-30metres. The vehicle moved faster on rocky surfsce, and is slower in the dusty material. By April22nd the vehicle had covered 36.2kilometres. It was then shut down for the lunar night until May 7th.

MORE INFORMATION ABOUT SKYLAB NEXT MONTH.

MEETING OF BHA IN LONDON ON WEDNESDAY JULY 18th TO PUBLISH FIRST PICTURES OF SOLAR TOTAL ECLIPSE OF JUNE 30. IF YOU WOULD LIKE TO COME, PLEASE LET ME KNOW.
PATRICK MOORE WILL BE THERE!! TRACK OF ECLIPSE CROSSES SAHARA, NORTH OF L. CHAD, TO KENYA & INDIAN OCEAN. NOTHING VISIBLE FROM IPSWICH. C.F.R

Welcome to the following new members:

Mrs.Randell, [redacted], Ipswich.
Mr.Fulcher, Graham Smith, [redacted], Kesgrave.

OBSERVATORY STATUS

The observatory of Orwell Park School is now out of use for the duration. On May 20th the objective glass was taken out of the telescope and prepared for transportation. On May 22nd Mr.G.Collier was due to take it to Luton where Mr.Horace E.Dall will see what he can do with it. Mr.Dall is the leading optical expert, perhaps in the country, he is an active observer, and vice-president of the British Astronomical Association, so our object glass(insured for £2,000)is in good hands, the best available.

After the OG was taken out on Sunday May 20th other repairs and adjustments were started. The 3"OG of the transit telescope, with its eyepieces, plus the set of eyepieces of the telescope, were dispatched to Mr.Dall.

The declination circle has been 45° out for some time(we don't know exactly how many years, or whether it was assembled incorrectly)and so a start was made in the operation of its adjustment. The telescope was allready out of balance along the length of its tube without the OG in the end. To get at the Declination Setting Circle it was necessary to take off the massive lead counterweight on the other end of the declination axis and this made it extremely unbalanced in another direction as it was allready rather unbalanced. When the counterweight finally came off there was a tense momemnt as the telescope(tons of cast iron)started to swing which would have been disasterous to the telescope(meaning it would fall to bits) and dangerous to us. All manpower available was diverted to restraining the rampaging telescope while others rapidly fastened a system of ropes to hold it steady!! The telescope is now secure, held by a strange looking spider's web of ropes.

We are not sure when the observatory will be back in operation, it depends how long it takes Mr.Dall to complete the refiguring of the OG. It will probably be back in action during August. Full details will of course be published in the next couple of editions of this newsletter.

In the mean time, being summer not much will be visible anyway since it takes a long time to get dark(officially, the sky is never dark in June in these latitudes, further north of course, it is never night time in June) However, in July & August you might go somewhere to the south of Ipswich for your holiday. The further south the better, the Mediterranean being the best place conveniently close. In the Mediterranean darkness occurrs more quickly after sunset, and sunset is earlier; the sky is nearly always clear, it is usually warm out at night, so if you have some free time it is pleasant to take some binoculars with you, and keep an eye open for meteors, several meteor showers are visible.

When darkness occurrs earlier, "star-gazing" nights, as well as the usual nights at the observatory, have been proposed. They will be held in Geoffrey Collier's back garden in Chelmondiston, using binoculars, unguided 35mm cameras, small telescopes and naked eyes; if you have any of the above-mentioned articles, please bring them along. Geoffrey Collier's home is miles from the nearest street light, and only 100 yeards from the nearest pub!! An ideal combination!! If you wish to know more I will endeavour to help. I do not live far from Geoffrey Collier.

These "star gazing" nights will probably be held on Tuesdays, any better suggestions for venue and times are welcome, let me know them.

NOTE DOWN THE FOLLOWING IMPORTANT FORTHCOMING EVENTS:- BAA MEETING, LONDON JULY 18th (WED.) SOCIETY OUTING TO ROYAL GREENWICH OBS IN LONDON SATURDAY SEPTEMBER 1st. BAA MEETING, NORWICH ON AFTERNOON SATURDAY 15th SEPTEMBER. IF YOUR ARE INTERESTED IN GOING, PLEASE LET ME KNOW, IF ENOUGH ARE ENDORSED, IT MAY BE POSSIBLE TO ORGANISE A COACH.

I NOW HAVE TRANSCRIPTS OF OUR CONVERSATION WITH PATRICK MOORE.

THE CONTINUING STORY OF LUNOKHOD II - MOUNTAINEER!!!!

Since the last edition of this news letter, more information has reached my ears about this interesting vehicle. During its' second Lunar Day, it travelled South towards the Taurus Mountains.

In my last account of the vehicle, I could only supply detailed information of its' progress until February 16th, the Sunset was on February 23rd.

After February 16th, it had entered the Taurus Mountains proper. In subsequent communications sessions, the vehicle continued to move in a Southerly direction. At times, the steepness of the slopes reached 25° , and skidding reached 80%. The vehicle was in no difficulty overcoming such hard conditions.

Originally, shortly after the vehicle had been deposited on to the Moon and it was on the wide flat plain, only the Mountains a few kilometres away to the South could be seen, the Mountains fifty five kilometres to the North of the landing point were below the horizon.

Towards the end of the second Lunar day, the vehicle ascended some high slopes until it reached the top of a peak four hundred metres higher than its original landing site. It was stopped to take panoramic pictures. At the top of this Mountain, the cameras could see all the way across the flat plain of Lemonnier Crater/ Bay, to the Mountains fifty five to sixty kilometres away to the North. In addition, the panoramic view included the Mountainous areas up to twenty five kilometres to the South of the vehicle.

The compilation of this panoramic stereoscopic view of Lemonnier and surrounding regions was started on February 20th, and finished by the following day. Scientists on Earth were interested to see the Earth in the sky as seen from the Mooncar. The altitude of the Earth and Sun in the sky, and the difference in azimuth between the Earth and Sun in the sky could be used to determine the exact position and bearing of the Mooncar. The Earth was seen as a very thin crescent in the sky.

The survey of Lemonnier from L-2's vantage point will give information about the crater concerning its' formation, and how it was changed from a crater into a bay in the Mountains of the Lunar Continent.

On February 21st, the vehicle descended the opposite slope of the Mountain, travelling still Southwards, and, as expected, it came across a crater about a mile, or two kilometres across. This large crater came into existence about 3,000 million years ago, about the same time as Lemonnier, and had ejected material from a depth of more than two hundred metres.

To interpret a number of peculiarities of the huge outburst it was essential to photograph the bottom of the crater and its' inside walls. A series of photographs were obtained in two communications sessions on February 21st and 22nd.

After this, Lunokhod II once again returned to the crest of this crater with its bow East-West to meet the onset of the dawn of its' third day of the Moon. Systems were checked and the solar battery lid closed to protect the vehicle from the rigours of the lunar night on February 22nd. It had travelled a total of 11,067 kilometres, clocked up on its' milometer, a little more than $7\frac{1}{2}$ miles. This distance may seem short, but L-2's predecessor, Lunokhod I, took eleven months to cover slightly less than what Lunokhod II had covered in little more than two months, reflecting the increased skill and experience of the ground driving crews. Lunokhod I broke down after eleven months of operation on the Moon, and after having covered 10,5. kilometres, compared with Lunokhod II, still operating and having covered 11 kilometres in two months.

The sun rose over Lunokhod II on March 9th, after another cold

Lunar night. During a communications session on March 11th, the vehicle was reactivated. After recharging its batteries from the Sun, L-2 was moved about 30 metres, taking T.V. pictures as it went. It was announced that the vehicle would spend some time studying the crater under sunrise angle of illumination at the start of this Lunar day. At the end of the previous Lunar day it had studied the crater under sunset illumination.

Lunar mid-day occured on March 16th, shadows were then very short and it was not easy to discern relief with the T.V. cameras. At the start of the Lunar afternoon, with the Sun moving Westwards to sunset, the vehicle started another long traverse.

On March 17th, it travelled 2,230 metres, and on March 18th, it travelled another 3,130 metres. By March 19th, the vehicle had covered a total of 17,680 metres, the milometer had clocked up some 11 miles therefore.

On March 23rd, the vehicle was shut down for the third time, and sunset occured on March 24th. The next Lunar sunrise was due for April 7th.

PIONEERS TO JUPITER.

Pioneer 10 was launched over a year ago, and should reach Jupiter in December this year. It has successfully passed through the Asteroid belt between the orbits of Mars and Jupiter. According to the findings of Pioneer 10 there are not enough Asteroids around to cause a serious hazard to spacecraft passing through the region. Indeed, it is more hazardous from the Meteorite impact point of view, for a manned spacecraft to orbit the Earth, as the Earth's gravity pulls in many Meteors, and the meteor density in the vicinity of the Earth is greater than that in the Asteroid region.

Pioneer 11 was launched on April 5th, and is identical to Pioneer 10. The reason why two spacecraft were launched thirteen months apart and not a few days apart, is that it is known that Jupiter emits a great deal of radio noise, and this may interfere with the radio transmissions of the Pioneer craft when they are near the planet. If there is communications trouble with Pioneer 10, there would be time to think of a way of overcoming this difficulty when Pioneer 11 approaches Jupiter. If Pioneer 11 came only a few days after the trouble with Pioneer 10, there would not have been time to solve the problems caused by Jupiters' radio interference, and this same trouble would beset Pioneer 11.

The Equatorial diameter of Jupiter is 142,800 kilometres, polar diameter 133,500 kilometres. The average diameter is about 136,000 kilometres. Pioneer 10 will pass by Jupiter at a distance of 87,000 miles (140,000 kilometres) and will hence be accelerated by Jupiters' gravity to 78,000 m.p.h. or (125,00 k.p.h.) If Pioneer 10 experiences no difficulty from Jupiters' radiation and radio noise, a decision will be taken to pass Pioneer 11 even closer to Jupiter than its' predesessor, as close as 27,000 miles (35,000 kilometres) which will accelerate it to the incredible speed of 107,000 m.p.h (173,000 k.p.h.) or over 1/400th the speed of light. Pioneer 11 may also pass close to one of Jupiters' four largest Moon's. If it is passed this close to Jupiter, it will pass close to Saturn in 1980. If Pioneer 10 has trouble, Pioneer 11 will not be sent close to Jupiter. Instead it will repeat Pioneer 10, and pass the orbit of Saturn after four years.

Pioneer 11 passed the Moon's orbit in eleven hours. Within a few days the probe has travelled one and a half million miles. In early summer it will pass Mars' orbit. In August 1973 it will enter the Asteroid region. It will reach Jupiter on December 5th 1974.

Pioneer 10 will pass Jupiter in early December 1973, giving T.V. coverage of two thirds of the planet's surface. The journey of pioneer 11, since it was launched at the most favourable time, will last only 609 days. If it had been launched at the end of the launch window, its journey would have lasted 825 days.

SPACE PROBES TO BE LAUNCHED IN THE FUTURE.

The launch window of launching probes to Mars this year is from July 15th until August 10th. The U.S.A. will not attempt a Mars probe this year, but it is very likely that the U.S.S.R. will attempt to launch one or more spacecraft intended to soft-land on Mars. The next launch window for Mars will be in 1975 for the month of September. The U.S.A. will then launch two Viking soft-lander Mars probes. The U.S.S.R. will probably then launch their second generation Mars soft-lander which will probably be a Mars roving vehicle similar to Lunokhod.

The U.S.A. will launch a space probe this year which will pass Venus, and in 1974 it will pass Mercury, a planet about which very little is known, and so it will reveal much information. The spacecraft will be known as Mariner 10 Venus/Mercury.

A Pioneer probe will be launched in 1977 towards Jupiter and Saturn. In that same year will be the launch window for the Grand Tour probe to visit all the outer planets. The U.S.A. will not attempt to launch a probe, but the U.S.S.R. may attempt to send a probe or probes to the outer planets in 1977 to 1979, to survey the outer planets during the 1980's.

POSSIBLE RUSSIAN MANNED SPACEFLIGHT?

It seems that on April 3rd/4th, the U.S.S.R. launched the Space Station Salyut II. Salyut I was launched in April 1971, and was visited by two Russian manned Soyuz spacecraft. This suggests that they will soon launch a manned spacecraft to visit Salyut II. At the time of writing, the spacecraft has not yet been launched, but if it has been by the time you read this, I shall do my best to include it in this months late news, or next months edition.

SPACE PROBE FROM EPSILON BOOTIS.

Duncan Lunan's interesting paper about the possibility of a Space probe from Epsilon Bootis, about which there is another article in this newsletter, is in a copy of the British Interplanetry Society magazine 'Spaceflight', which has been kindly donated to the Society by Mr. Malcolm Laurie. Members can borrow this magazine from the Society library, and of course, any other book in the library.

As well as the magazine containing this article, the Society's library contains many books and magazines which members can borrow by contacting me or another Committee member.

B.A.A. Journals can be borrowed from our Library, this months' B.A.A. Journal contains a full report on the Pioneer 10 Space Probe.

MEETINGS OF THE B.A.A.

The exhibition meeting of the B.A.A. is on Wednesday May 30th at the Royal Commonwealth Society, Craven Street, London W.C.2. The nearest underground station is Charing Cross. We hope to exhibit some photo's of our Observatory there.

There is a National Astronomical Society convention at the York Hall of Caxton Hall, Caxton Street, London S.W.I. I hope to go along. If any member would like to come, tickets are available from Michael Hadden (Secretary O.A.S.I.) on payment of 35p. The meeting will last all day. Details from me or Michael Hadden.

INTERNATIONAL ASTRONOMICAL YOUTH CAMP.

This will be held from July 21st to August 11th in Holland. Many recreational amenities, and time available for other relaxation on the course. Participants should be between the ages of 14 to 20 years, and must pay their own transport to Holland.

A ferry from Felixstowe to Rotterdam/Eurcport, is quite cheap, about £10.

If you are worried about language, don't be! The working language will be English. A number of telescopes and activities will be available. It seems to be quite interesting. I am trying to get in on it, anybody interested, please contact me as soon as possible for details.

WEEKEND COURSES IN ASTRONOMY.

The B.A.A. Weekend course in observational astronomy for July is fully booked, but if you are interested, there are still probably places left for two other courses: October 5th - 7th at Preston, November 16th - 18th at Hornleigh College, Lincolnshire. Anybody interested, full details obtained from me. Fee for each course is £7.00.

BRITISH ASTRONOMICAL ASSOCIATION MEETING.

The June meeting of the B.A.A. has been postponed until July. it will be held at 23, Saville Row, London, near Piccadilly, from 3.00.p.m. on Wednesday July 18th. I shall probably go. It should be very interesting, because the first observations of the June 30th total Solar Eclipse will be shown.

Concorde 001 will be used to stay in the Eclipse shadow for about 1½ hours, normally the Eclipse would only last about five minutes. The Eclipse track is across the Sahara Desert, Western and Eastern Africa are crossed by it also.

THE OBJECTIVE OF THE OBSERVATORY TELESCOPE.

The objective lens will be taken to Luton on May 22nd to be refigured. This means that from May 20th until further notice, (probably August) the observatory will be closed for repairs.

OPEN DAY OF APRIL 21st.

This Open Day was at least as successful as the Open Day held last September, perhaps more so. Advertisment consisted of: Newspaper Article by Bob Maulster in the Evening Star, and a small article in the East Anglian Daily Times, Posters displayed throughout the town, a mention on Alan Freemans Youth Club Call on B.B.C. Radio One, articles in the B.A.A. Journal and Lunar section Circular, official invitations to some prominent people, a mention in the Week Ahead column of New Scientist Magazine, as well as this newsletter and of course spreading of the word informally to friends by members.

All amenities were available to the visitors.

Refreshment Stall organised by the Wives and Mothers of members, to whom we must express our grateful thanks. As well as refreshments, there were on sale Raffle Tickets, Pens with 'Orwell Astronomical Society, Ipswich' engraved in letters of gold upon their sides, photographs of the observatoryin full colour taken from inside and out.

Exhibition of Astronomy both in the refreshments area and the Club Room. Several telescopes, reflectors from two inches (Phil Lucas) to six inches (Ipswich School) aperture, and refractors 30 m.m. to 62½ m.m. (Roy Cheeseman) aperture. Many, many photographs including some by Mark Rogers (whose photograph of the Moon was in the Evening Star), Charlie Radley, Roy Cheeseman. Apollo photographs by Phil Lucas and Mark Rogers. Many excellent books, magazines and posters of Astronomical interest were also on display. Many thanks to all who contributed exhibits.

Film and Slide Shows. The programme was two lots of slides and two 16 m.m. Movie films. Apollo slides by Charles Radley, slides of the Universe by Geoffery Collier, 20 minute Lunokhod 1 Russian Film, 8 minute film about our observatory as it was in 1970/71 (we all had a good laugh about that!!) Thanks to Phil Lucas, the only member in the Society conversant with 16 m.m. projectors and operatoed the

one used. Thanks to Eastern Electricity who loaned the beautiful old 3½"x 3¼" slide projector.

155 people came to see the Films and Slides in the three film shows throughout the afternoon and evening.

Last year we had a display of telescopes organised by Dixon's Camera Shop. However, this year, although they wanted to have a display again, they did not have any staff as they were all on holiday and therefore could not come.

Evening Viewing The day and evening was quite cloudy, but there were frequent small gaps in the cloud cover, allowing the Sun to be projected during the afternoon, and from 21.00 hours until 23.00 hours Saturn and the Stars could be observed, and were by a large number of visitors, (surprising what a weight of people can be supported by our old, one hundred year old floor!!).

The Grounds of Orwell Park were open for visitors to wander around. Between the April showers, when the Sun showed its photosphere, it was very pleasant to wander through the vast park over the huge, green, well-kept lawns.

A Raffle was Held Tickets selling at 3p each, sold in 15p books of five. It was perfectly legalised, at cost of about £1.25 for a licence. Here is a list of the lucky winners:

(1) Binoculars 533 A. Chevron, [redacted].
(2) Double Sherry 785 J. Fisher,
(3) Old England Ruby Wine 00045 Channing.
(4) All Gold Easter Egg 420 Roy Cheeseman
(5) Pommagne 737 M. Stowe.
(6) Black Magic Easter Egg 200 R. Hazelwood.
(7) Milk Tray Easter Egg 218 D. Gaff, [redacted].
(8) Champagne Glasses 947 J. Maguil SM/BP
(9) Observers Book of Astronomy 565 C. Radley
(10) Observers Book of Astronomy 418 T. Rayment SM/BP
(11) Astronomy 395 RAS sm/BP
(12) Makintosh's Easter Egg 1206 D. Brown SM/BP
(13) Moon Map 909 Mr. Hi[illegible]ner, Severn Green Chelmsford
(14) Fruit Jellies 1163 David Mansi, [redacted].

£50.38 was raised by the Open Day. This made the total in our treasury up to £150, which was deemed sufficient by the Committee to start spending it on some rather expensive, necessary matters, which we were saving up for, including repairs to the 250 m.m. objective glass, and electrical re-wiring (to a certain extent) of the observatory tower's lighting and power system. Fire extinguishers are also necessary. There are still many things that must be bought for the place, so more money is still needed but at last the kitty has something fairly substantial.

Here is a balance sheet from the last Open Day, compared with the 1972 Open Day:

Type of Income	April 1973	September 1972
Admission at gate	+ £30.52	+ £21.00
Refreshment	+ £ 9.72	+ £ 7.41
Raffle	+ £21.37	+ £12.58
Souvenirs	+ £ 1.25	xxxxxxxx
Films	- £ 3.06	- £ 3.30
Donations	+ £ 6.00	????????
Total (Approx)	+ £50.38	xxxxxxxx

Raffle: Expenses - £1.25 for licence, £4.50 binoculars, £1.38 case, £1.45 book prizes. The nett profit was £21.37.
Souvenirs: Photo's and Biro's, these are not yet sold out, so the figure is arbitrary. If you would like any of these items, they are still for sale.

Once again, I would like to pay tribute to everybody who helped at the Open Day. Many thanks to Geoffrey Collier, Phil Lucas and Nigel Gage in the Film Show. A medal should be awarded to Dr. Craig, who took the admission fees in the freezing cold

entrance. How can we repay Nigel Gage and John Easty who were soaked in the rain outside showing people the way in, and guiding and parking cars. Also thanks to those who came to clear up on the following Sunday (the same day in fact, we arrived home around 1.00 a.m.) D. Bearcroft, Roy Cheeseman, Barry Horne, Janet and John Haywood and Michael Hadden. Thanks also to Jairaj Mohtram and Mark Rogers who helped on the Open Day. Many thanks also to David Brown and Michael Stowe and their Wives, and the other Wives and Mothers of members who helped at the refreshment stall. Again of course, many thanks to the hard work of Roy Cheeseman.

From about the middle of May until August, the observatory will be out of action while the objective lens is being taken out to be repolished, and if necessary reground by Horace Dall. Because of this there will be no nights for observation during June and July.

'WHATS UP?'- THE PLANETS IN MAY.

MERCURY is not visible until the very end of the Month, and during the Month of June. During June, it will be visible as an Evening Star in the West immediately after Sunset, you could start to search for it using binoculars. Maximum elongations will be on June 22nd, and it should be visible best shortly around this date and the revious week, when it will set 1 hour 40 minutes after the Sun.

On June 1st, the Moon will be 1.2° North of Venus at 08.00 hours U.T., which means that it will be quite close to Venus on the evenings of May 31st and June 1st. On June 2nd, an important event will occur. The planet will be very close to the Moon. The planet will be to the North of the Moon, reaching the closest point on the morning of June 2nd, which means it will be closest to the Moon and Venus on the evening of June 1st if it is clear. On the evening of June 1st, Mercury will be to the North - East of the Moon, and to the North - North - East of Venus. On June 9th at 18 hours 22 minutes U.T., the planet will be very close to the Third Magnitude star Epsilon Geminorum.

VENUS will be very close to Mercury on June 1st. (see above). It will not be really well seen until late June when it will be an Evening Star as seen from the Southern Hemisphere. In the Northern Hemisphere it will not become well visible until the month of August, when it will be well seen. After that it will not be well seen until the month of November and December. The planet will be visible in the South - West after Sunset.

MARS becomes better as the year carries on. Mars will reach its perihelion on July 26th, usually there seems to be massive dust storms on the surface of Mars about the period of its perihelion or closest approach to the Sun. Opposition (closest approach to the Earth) will not occur until October. During May the planet rises a couple of hours before the Sun, and will be visible in the South - East before dawn, not very far from the planet Jupiter.

JUPITER reaches its' maximum Northerly declination of 17°40' South in May. May is the best time to observe the planet. The planet will be South of the Equator all year, and will, therefore, be poorly visible from Britain this year, although if you spend a holiday in the Mediterranean or even further South, the planet will be rather better visible. During the month of June, the planet rises about 00 hours U.T., 11.00 p.m. B.S.T., about four and a half hours before the Sun. Some interesting mutual occultations and eclipses involving the satellites of Jupiter are visible during the year, details of some of them will be given in later editions of this newsletter. A large telescope is really needed to observe these events properly. Transists of the four larger Moons of Jupiter across the face of Jupiter, and occulatations and eclipses behind Jupiter, happen all the time, there are too many to include predictions in this newsletter, keen members can look up predictions in publications such as the Astronomical Ephemeris and the Handbook of the B.A.A. both available from the Borough Library - Handbook of the B.A.A. available from me.

SATURN is no longer well visible, being very close to the Sun. Next Winter and Spring, the planet will be visible again in the constellation of Gemini, since this is in the Milky Way the planet may well occult several dim stars.

NEPTUNE reaches opposition in the constellation of Scorpio on May 27th, which means it will be magnitude 8.3. It will be a tiny disk, and a telescope comparable with the Orwell Park instrument will be needed to show it as a disk.

METEORS There are two Meteor showers in June:

The June Lyrids, June 10th - 21st, maximum of ten per hour on the evening of June 15th. Oppiuchids, June 17th - 26th, maximum June 20th of nine per hour. Both are, unfortunately, unfavourable. In July there will be a large number of Meteor showers.

THE MO N Lunation 624 starts on June 1st, with a New Moon. First Quarter is at 21 hours 11 minutes U.T. on June 7th. Full Moon will be on June 15th at 20 hours 35 minutes U.T. Last Quarter will be on June 23rd. New Moon will occur again on June 30th when Lunation 625 starts. Apogee (furtheat from Earth) will be on June 15th, perigee will be on June 1st and June 30th when the Moon will be very close to Earth. On June 30th, the Moon will be visible as a total eclipse of the Sun in the Atlantic, Sahara and the Central and Eastern parts of Africa. No eclipse will be visible from Ipswich.

On June 15th, there will be a penumbral eclipse of the Moon when part of the Moon may dim slightly as it touches the Earth's shadow. It will last from 19 hours 05 minutes until 22 hours 35 minutes U.T., reaching a maximum at 20 hours 05 minutes U.T.

A VERY EASY PHOTOGRAPHIC PROJECT Do you have some sort of 35 m.m. camera? This is a project involving my favourite subject Variable Stars. It is really too easy to be true, it just needs lots of 400 A.S.A. film.

It consists of using a 35 m.m. to make UNGUIDED 30 seconds full arperture exposures of selected regions of the sky on every clear night (if possible) using 400 A.S.A. film. This short an exposure will have negligeble star trails, and should easily reach 8th Magnitude stars. Participants are asked photograph: (1) Along the entire visible length of the galactic equator, (Milky Way) (2) The North Polar Area (3) Any other parts of the sky you want or can, IN DUPLICATE. ie. take two exposures of the same region before aiming the camera at a different region. Subjects (1) and (2) along will use up to 24 exposures, and thus much film each night can be expensive, so if enough people express interest, I shall see what can be done about buying large amounts (tins of 50 foot length bulk films) of T.R.I. - X (Kodak) Ilford HP4 film.

The object of the project is to check up on many things. In the 1972 December edition of the 'Astronomer' and the B.A.A. Variable Star Section Circular number 15, there were articles about this project. This photographic sky patrol can: make pre-discovery observations of Novae, act as a check if somebody observes a fluctuation in a Stars' brightness, as it is unlikely that another observer would be observing at the same time. In addition, Meteor trails may well be recorded.

If anybody is interested in participating, contact me for further details. You could either process the film yourself, or send me the unprocessed but exposed film for me to deal with. You must, of course, document each frame you take, saying the exact U.T. it was taken and what area of the sky it is.

it is really incredibly easy to perform, and is scientifically useful. If you do have a 35 m.m. camera, let me know as I would very much like to see a branch of the photographic sky patrol operating from Ipswich.

Similarly, I have some information on Variable Stars which can be observed using only binooulars or a small telescope.

REMEMBER TO LET ME KNOW ABOUT METEORS YOU HAPPEN TO SEE AS SOON AS YOU CAN AFTER SEEING THEM.

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PS.

The CLACTON ASTRONOMICAL SOCIETY is holding a film night on the first Thursday in June (the 7th). For the venue of this showing please ring me.

TRIP TO THE OLD ROYAL OBSERVATORY GREENWICH PLANETARIUM.

SATURDAY, 1st SEPTEMBER, 1973.

We propose hiring a 'bus to visit the above and have initially arranged to see two programmes and to visit the National Maritime Museum.

The Greenwich Planetarium only seats 48 people so we have to book as early as possible to avoid dis-appointment.

The two programmes scheduled for that day are

1. Mars Exploration starting at 2-30pm.
2. Astronomy at Greenwich. " 3-30pm.

The cost would be: maximum for coach £1.00 per person and entry to see the programmes 30p. for adults and 10p. for children under 15 years old.

We propose that the coach leaves Ipswich Electric House at approx 9-30a.m. so that we can have some dinner in London Before going to the Greenwich Planetarium and we would arrive back in Ipswich approx 10.00p.m.

If you would like to come on this trip please reply to the undersigned as soon as possible so that we can book the required number of seats at the Planetarium and order the right size coach.

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To. R.M. Cheesman, [redacted], Ipswich.

TRIP TO THE ROYAL GREENWICH PLANETARIUM.

Please reserve..... seats for the above visit and I enclose a non-returnable deposit of .....(0.50p. per seat).

(Cheques/money orders should be made out to "The Orwell Astronomical Society (IPswich)

Name:

Address:

No. of adults..... No. of children.....

FOR SALE £50. O.N.O.

3" refracting telescope, focal length 1250m.m. complete with 4 eyepieces and many accessories equipped with 2 Vernia drives. The telescope is approx 3 months old and when new cost £72.

Anyone who would like more information should contact
Mr. D.A. Toms,
[redacted],
Lexden, Nr. Colchester.

.....

CLUB NIGHTS AT THE OBSERVATORY.

As you can see from page two of this journal the eyepieces and main object lens of the telescope has gone away for cleaning etc. During the summer months a great deal of work has to be done to the observatory and many volunteers are needed, no skill needed, but if you have got some so much the better. Work parties are required on Sunday mornings from 9a.m. to 12noon and also I will be working at the observatory on my usual Lunar Section nights from 7.30p.m. to approx 10.p.m. on

Wednesday: June 6th
" 20th
July 4th

Any member who could form a work party and would like to do some repair work should contact me for details of what is required to be done.

Roy Chessman

MONTHLY JOURNALS

As you can see on page 1 our membership keeps increasing and the distribution of the monthly Journal becomes more and more of a problem. As the Journal costs the society nothing, and we hope to keep it so, it would be appreciated if as many members as possible would supply the editor, (C. Radley) with stamped addressed envelopes (foolscap size) so that you can receive your Journal promptly and save the distributors a lot of work.