

Editor: C.F.Radley, [redacted],
Wherstead, Ipswich, IP2 8NQ., Tel Ips [redacted].

We would like to welcome the following new members into
The Society.

75. Mark Rogers, [redacted], Ipswich, Tel: Ipswich [redacted].

76. Jairaj Mohtran, [redacted], Ipswich.

79. Cyril Cornelius, [redacted], Ipswich.

77. David Nelson, [redacted], Wherstead, Ipswich, Tel Ips: [redacted]

78. Geoffrey Collier & Family, [redacted], Chelmondiston, Ipswich.
Telephone: [redacted] Woolverstone [redacted] (TREASURER)

The Observatory will be used on the following nights:

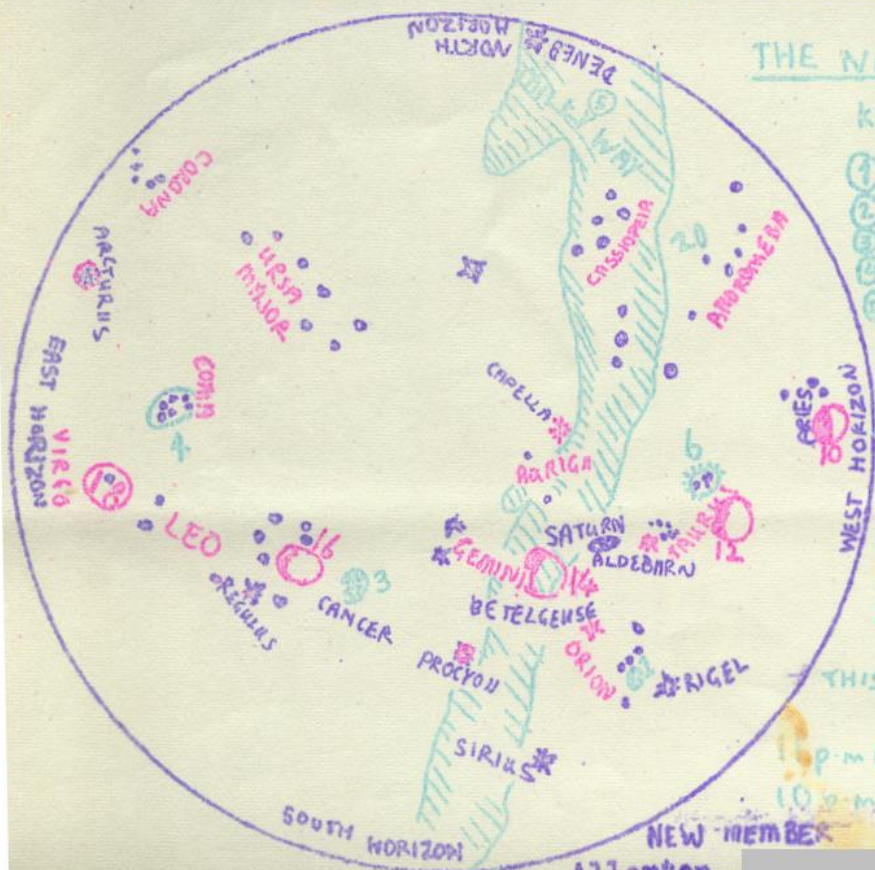
ALTERNATE MONDAYS: Ken Harris (Tel: Ipswich [redacted]) of [redacted],
and Terry Day, [redacted], Elmsett, IP7 6NZ., Tel Offton [redacted], are jointly
organising nights at the Observatory from 7.30p.m. on the following Mondays:
29th Jan, 5th February, 19th Feb, 5th March.

WEDNESDAYS: Roy Cheesman of [redacted], Ipswich, Organises Wednesday
nights at the Observatory. See separate article inside this JOURNAL.

THURSDAYS (ALTERNATE) David Bearcroft organises alternate Thursdays at the
Observatory, 7.45p.m. onwards. He can be phoned at Ipswich [redacted].
He will be going up on the following Thursdays,
February 8th, Feb 22nd, 8th March, and alternate Thursdays so on.

Richard Hazelwood and Michael Stowe are organising Friday nights at the
observatory. For details phone Richard Hazelwood at Ipswich: [redacted].
IF TRANSPORT IS A PROBLEM, I CAN PROBABLY HELP.

COMMITTEE: There will be monthly meetings for Committee Members only
unless other members are individually invited. They will be held at
the house of the Chairman, Roy Cheesman, at [redacted], Ipswich.
The first meeting will be on Monday 12th February at 7.30 p.m.



THE NIGHT SKY IN FEBRUARY

KEY TO OBJECTS ON MAP

- ① M-42 ORION NEBULA
- ② M-31 ANDROMEDA SPIRAL NEBULA
- ③ PRAESEPE, M-44 CLUSTER IN CANCER
- ④ COMA BERENICES, STAR FIELD.
- ⑤ MILKY WAY
- ⑥ THE PLEIADES

THE SIX OBJECTS ABOVE ARE BEST SEEN
THROUGH BINOCULARS, A FINDING TELESCOPE, OR
THE LOWEST POWER OF A TELESCOPE.

RED DISK IS THE MOON ON THE MAP, WITH
ITS POSITION MARKED & PHASE SHOWN FOR
5 DATES THIS MONTH.

THIS MAP IS FOR: MIDNIGHT AT THE START OF
THE MONTH.

11 P.M. M.T. FOR THE MIDDLE OF THE MONTH &
10 P.M. G.M.T. FOR THE END OF THE MONTH.

NEW MEMBER: Mr. Frank Allerton & Miss
Allerton, [redacted], Levington, Ipswich

Observing Sessions Using the Telescope

Members are more than welcome to come along to these observing sessions. Details of them, when they will be held, who runs them etc. can be obtained by ringing me up. These meetings are usually on a certain day of the week on alternate weeks.

Two new sections should be formed using the telescope soon.

Alternate (usually) Mondays - Ken Harris of [redacted], Tel: Ipswich [redacted], and Terry Day of [redacted], Elmsett, Tel: Offton [redacted]. Exact days and times can be obtained by telephoning them.

Most Wednesdays you will find Roy Cheesman up in the Observatory.

Roy Cheesman lives at [redacted], and can be contacted via me, for the exact times, or through David Bearcroft, Tel: Ipswich [redacted].

Alternate Thursdays usually David Bearcroft holds his Planetary Section meetings at the Observatory, his number is Ipswich [redacted].

Alternate Fridays - Richard Hazelwood of [redacted], Tel : Ipswich [redacted], and Michael Stowe of [redacted] hold the Stars and Nebulae Section of the Observatory.

Now that the Observatory is being used more regularly, we hope to be seeing more members coming along. The sections are fairly flexible, and will look at anything of interest in the sky.

If transport is a problem, let me know and I may be able to help you.

The New Officers of the Society elected at the A.G.M.

Chairman: Roy M. Cheesman, [redacted].

Secretary: Michael Hadden, [redacted], Ipswich, Tel: Ipswich [redacted].

Treasurer: Geoffrey Collier, [redacted], Ipswich.
Tel: Wolverstone [redacted].

Committee Members: C. Radley, David Bearcroft, John Easty, Vernon Wilkes, Michael Stowe.

PRESIDENT: Mr. B.H. Bell, Orwell Park School, Nacton, Ipswich.

Trustees: Mr. John Easty, Mr. Vernon Wilkes, Mr. David Brown.

BAA Handbooks: These contain all the details of everything that happens in the sky throughout 1973. It can be obtained from me for just 55p. Send me a postal order or cheque made out to the British Astronomical Association, and I will obtain one for you within a week or so. Somebody at the AGM asked me for one, I shall gladly get you one, just give me your name and address, and 55p.

Nortons Star Atlas

This is the basic star atlas, which is extremely good. It is published by Gall and Inglis at a price of about £1.50 and worth every penny of it. The 1973 edition of this edition of this excellent publication will be coming out by the end of March, and can be ordered from any bookshop.

Armed with a BAA Handbook and Norton's Star Atlas, the Amateur Astronomer is very well equipped for information on the sky.

The Norton's Star Atlas contains a Moon Map, 18 Star Maps and 70 pages of essential information.

Project Skylab.

The next manned American space programme is project Skylab. The skylab orbiting laboratory will be launched at the beginning of March if all goes well. A few days later, a smaller rocket will launch three men to dock with Skylab and spend 28 days there. One of the major experiments aboard the lab' is the Apollo Telescope Mount which will enable astronomers to make the first continuous study by photography of the Sun and Stars in X-ray and Ultra-violet wave-lengths. Orbiting Astronomical Observatories - 2 and 3, have previously made unmanned ultra-violet observations and UHURU satellite has made X-ray observations. Sounding rockets are also used, but they only observe for a matter of minutes, satellites and manned spacecraft stay up for many months.

"Whats Up?" The Planets in February

MERCURY is visible for a short time in the middle and end of the month, in the south west after sunset, best visible on about February 25th. At that time the declination will be about 0° , and you could the night before, memorise the approximate position of a star in the scuthwest about declination 0° , and scan that area the next evening with binoculars after sunset, you might find Mercury.

VENUS will not be seen until the summer. It is the other side of the Sun at the moment.

MARSIS in Scorpius, and beginning to be visible in the dark sky shortly before dawn. During the year it will become better and better placed for observation as the year progresses, reaching opposition in late October.

JUPITER is in the constellation of Capricornus and can be seen in the morning sky an hour or so before dawn. Unfortunately it will be quite low down above the horizon throughout the year.

SATURN is still quite well visible in Taurus, and will be well seen until around April.

THE MOON New Moon occurs on the 3rd of February. It will then be visible after sunset as a crescent until on the 10th it reaches first quater and is half full. Full moon accurrns on 17th February, and after that the Moon will wane, reaching last quater on the 25th, and continuing to wane. On the evenings of the 7th and 8th, southerly libration will expose the south edge of the moon. Perigee (when the Moon comes closest to the Earth each month) occurs on the 11th.

No meteor showers are predicted by th BAA Handbook this month.

Meetings of Other Astronomical Societies

Clacton-On-Sea Astronomical Association meets on the first Thursday of each month, at 7.30 p.m. the Quaker Hall in Grenville Road, not far from the railway station. Meetings will be on the 7th February and 7th March. Details from me.

Norwich Astronomical Society meet on Saturday, February 17th with a talk by Cyril D. Blount F.R.A.S. entitled "ERTS No-One, Helps Everyone".

A talk about the Earth Rescources Technology Satellite.

Saturday March 17th "Climate in Early Civilized Times".

Prof. Hubert Lamb of the Climate Research Unit at the University of East Anglia gives a talk with this title. 7.30 p.m. for both meetings.

The Norwich Astronomical Society meet at THE SPINNEY, the community centre at Earlham Five Ways, Norwich. Details from me.

The British Astronomical Association meet on the last Wednesday of each month from October to June. They will therefore be meeting on the 28th February and 28th March, at 23 Saville Row, London W.1, at 17.00 hours GMT. These are well worth going to if you are on the area at the time.

Thank you to everybody who has sent me stamped addressed envelopes.

ADAPTORS FOR CAMERAS AND EYEPIECES

By the time you read this, some adptors for the telescope should have been made. 1) Adaptor to allow Japanese/Dixons/Prinz push type eyepieces to be used with the big telescope. 2) Camera adaptor allowing EXA type single lens reflex cameras to be fitted on to the telescope. Also I hope to have completed on the near future two more adaptors. 3) Camera adaptor allowing PENTAX thread type single lens reflex typecameras to be fitted on to the big telescope and 4) ZENITH thread type cameras to be fitted on to the 10" refractor.

This means that if you have your own eyepieces on you own camera, bring them along when you come along to the bservatory, your eyepieces will probably be of better quality than those of the Observatory.

Your camera when fitted on to the telescope can take some good pictures, especially now that the drive is working properly. I have had some pleasing results with photography of the Moon and Saturn.

ADVERTISEMENT:

FOR SALE: 3" Aperture refractor. Altazimuth mount, garden tripod. Made by Broadhurst Clarckson. Better than mint condition. Two eyepieces plus barlow lens which will give a total of four possible magnifications. Three feet focal length. Has its own sighting telescope. Original cost new was £90.00 Any reasonable offer accepted. Contact Mr. Mills, [redacted], Ipswich, telephone Ipswich [redacted].

Society Library Service

Mr. E.H. Collinson F.R.A.S. Director of the BAA Mars Section has very kindly donated to the Society some excellent slides of various astronomical objects, several back-dated issues of the American magazine "Sky and Telescope", and a set of seven excellent maps of the Moon (in Russian, but translated by myself) complete with index and information about the Moon, published in 1967. Together with a book donated by the maintenance man of Orwell Park School, and the BB Journals and literature sent to us, we hope to start up a library service to members. Any old astronomy books or magazines or chart etc. etc., that you want to get rid of, give to me or Roy Cheesman to be put in the library. Roy Cheesman is at present organising the library.

New Journal Format: You will have noticed that this Journal and the last edition are a lot clearer and neater than previous editions. For this we have to thank Mr. Terry Day and Ken Harris who organise the typing out and duplicating of the Journal, while I am still editing it.

Variable Star Observation

During two separate conversations with Patrick Moore F.R.A.S. and Mr. Edward Collinson F.R.S.A., they told me independently that one of the most useful ways the Orwell Park School 250mm (10") refractor could be put to work is in the observation of variable stars. This is one field of astronomy about which I know very little on the observational side at least. There is a leading amateur variable star observer living in Ipswich, Mr. C.R. Munford F.R.A.S., who has offered to give the society a talk on the observation of variable stars. Therefore some time during the year a General Meeting of the society will be arranged, at which Mr. Munford will give us his talk. It is my sincere hope that his talk will stimulate a few of our members to observe some of the many variable stars in the BAA's programme. This can be obtained from me after the talk. Observe these stars either through the society's large refractor when the stars are dim, or through your own telescopes or binoculars when they are medium brilliance, magnitude +6 to +9. I hope to be able to observe a few variable stars myself, but I cannot get to the observatory every time it is being used, and there are too many variable stars around for one observer to cover all. If there is sufficient support, I would like to start a variable star observation section in the society.

Observing Meteors

This is another field where the amateur can perform very useful work. There are three forms of meteor observation: (1) Naked eye, (2) 5 to 10 minute exposure high speed photography, (3) observations of telescopic meteors. Any amateur with a 35mm camera whose shutter can be made to stay open for a few minutes can perform type (2), anybody can perform type (1), type (3) can be performed when using very low powers telescopes or binoculars. I am an active member of the BAA meteor section. The usual technique for type (1) observation is to recline in a deck chair for one hour periods at night, if this does not appeal to you, just record when you happen to see a meteor whenever you venture outside.

When you see a meteor, note down the following details:

(1) Magnitude (v. important) (2) Time and date (to the minute accuracy) when it was seen (3) Whether it was one of a shower or sporadic. (4) Any unusual features, such as fragmentations, trains etc., If the meteor leaves a train, record how long the train takes to fade, this can be any time from 1/10th second to a few minutes.

Just note down these points whenever you happen to see a meteor, and send them to me. Even vague reports like "during a period of one hour I saw 3 Geminid and 4 Sporadic periods on July 20th in the evening".

Another Open Day

At the time of the last Open Day of the Observatory, we did consider making it an Annual occasion. Mr. Bell has said that if we can arrange the Open Day to fall at a time when the pupils of Orwell Park School are on holiday, he will show visitors around the magnificent school buildings and the picturesque grounds, which will be a great added attraction. The Open Day will probably be around Easter.

Lunokhod - 2

On January 8th, at 9.55 a.m. Moscow time, another Russian moonprobe was launched, named Luna - 21 (Moon-21). Five days later it went into orbit around the moon. The USA moonprobes manned or unmanned usually takes three days to reach the Moon. The USSR use a minimum energy trajectory which takes five days, enabling a greater amount of equipment to be sent to the Moon. Luna 21 landed on the Moon at 1.31 a.m. January 16th. The same day Lunokhod - 2 (Moonrover-2) was driven off it and onto the Moon, by remote control at 4.14 a.m.

Luna-17 Lunokhod - 1 was landed onto the lunar surface in the Sea of rains in November 1970. Since then, Luna-18 crashed in the Sea of Fertility, Luns-19 went into to Moon orbit and was a great success, making scientific explorations of the Moon, it has been operating for over six months. Luna-20 successfully retrieved a sample of moonrock from the Sea of Fertility. Articles on Lunas-18 to 20 have appeared in previous editions of this Journal.

I will publish further details when I receive them. The USSR's Lunokhods are powered by batteries, continuously recharged by solar cells, and therefore can last very long times. Lunokhod-1 operated on the lunar surface for nearly 11 months without a hitch, compared with the Apollo missions which last for a matter of days, although the Lunokhods do have their limitations. The argument over whether men or robots should be sent to the Moon is, in my opinion, invalid. Both have their advantages, therefore both should be sent. Unfortunately, there are not likely to be any manned Moon missions for many years.

Lunokhod-2 is exploring the region around its landing site which is near the Eastern edge of the Sea of Serenity, not far from where Apollo-17 landed not long ago. Apollo-17 landed in a mountainous region, Lunokhod-2 landed in the smooth mare region. The data from the two probes, when compared, could be interesting, perhaps even giving a clue to the origin of the Mare Serenitas.

The USSR performed an apparently similar experiment with Lunas 16 and 20, who both recovered moonrock from the Eastern part of the Sea of Fertility. Luna-16 recovered rock from the smooth Mare itself, and Luna-20 recovered rock from the mountainous region on the Eastern edge of the Mare. See the map of the area included in the 1972 March (Vol: 1 No.2.) edition of this Journal.

Lunokhod-2 can negotiate crevasses up to 0.5 meters (1½ feet) wide, medium sized boulders, deep dust and craters, according to Radio Moscow. Radio Moscow also say that the design of the vehicle is highly rational, eight wheels in the hub of each being a motor, a brake, a temperature gauge and load gauge. It can turn while stationary or moving, backwards or forwards. It is one of the 2nd generation of moonprobes, introduced in the early 70's starting with Luna-15. The Mare Serenitas site where it was chosen to land, said Radio Moscow, is a very interesting region. It was formed probably 3,000 million years ago by a lava flow solidified and is in a layer several miles thick, thinner at the edges. The volcanic eruptions causing the lava could have started if a comet or asteroid had hit the Moon forming a basin. The lava layer is in a discus shape and is 150 miles in radius. The lava forms a very high density mascon, and caused Apollo-15 to dip 130 feet in its orbit about the Moon.

Lunokhod - 2 started its scientific programme as planned on January 18th, when 3rd communications session was held with the vehicle, lasting 2 hrs.

All mechanisms functioned well. Despite weighing 840 kgs, Lunokhod-2 had touched down with a velocity 1/5th that of a parachute landing on Earth. Sunset occurred over the Sea of Serenity on January 24th, when the vehicle had to cease operations for lack of electric power until sunrise, which is due on February 8th. After that the vehicle is expected to be regenerated for a fortnight until the next sunset, and so on.

Omission to Last Journal

In the last Journal I forgot to mention a significant event. On 1973 January 18th there was a PENUMBRAL ECLIPSE OF THE MOON. It started at 19hrs 17m, reached a maximum at 21hrs. 17m, and ended at 23hrs 17m. I watched this event through my 6cm refractor, and it was not impressive. There are two more penumbral eclipse of the Moon during the year, but only the one due on 1973 June 15th shall be mentioned. The 1973 January 18th was the best of the year, and even then all I noticed about the Moon was that the north-western limb of the Moon was somewhat darker than usual even at maximum. A penumbral eclipse of the Moon is when the Moon does not totally enter the Earth's shadow, but a small part of the Moon dips into the edge of the Earth's shadow. An umbral, but not total eclipse of the Moon, occurs at around midnight on the night of 1973 December 9th/10th.

EAST ANGLIAN ASTRONOMICAL CONVENTION

The idea of an East Anglian Astronomical Convention is being considered. The location has been chosen as Colchester in Essex. It has been suggested that the University of Essex would be a good location in Colchester. There would be an exhibition of astronomy, photographs and drawings made by observers of the Moon, planets etc., instruments exhibited, and anything else of astronomical interest. Prominent speakers could be invited from various places in the country. A tentative date has been suggested as October 21st, a Sunday. On this date, the activities of the day could be wound up by an evening of observation of the interesting phenomena of Jupiter's satellites, including some mutual occultations. Also Venus, Mars and Jupiter will all be visible. The Maximum of the Orionid meteor shower is on that date, which will be very well seen because the Moon is a waning crescent and therefore not visible until the early hours of the morning. Saturn will also be visible on that day after 7.30 p.m. This date, 1973 October 21st, is still only tentative, and not fixed.

SERVICING OF THE 250mm (10") OBJECTIVE LENS

The Committee are considering having the objective lens of the Orwell Park telescope taken out and sent to Luton to be reground, cleaned and generally re-adjusted. The initial estimate places the cost of the operation within our grasp. The operation will probably take place in May. Some years ago, the objective lens was taken out and cleaned by a Mr. Wilton who has now moved away from Ipswich.

The Annual General Meeting of the
ORWELL ASTRONOMICAL SOCIETY (IPSWICH)
3rd January, 1973.

The Annual General Meeting of the Orwell Astronomical Society (Ipswich) was held in the library of Orwell Park School and was attended by approximately fifty members of the Society.

The meeting was opened by the Chairman, Mr. J. Easty, who informed the members that the Society was now in the final phases of being registered as a charitable organization and that the Society must now comply with the Law in that new officers and trustees must be elected.

Mr. Easty then gave a summary of the past year's events and thanked those members who did so much in the arranging and organization of the Open Day. He gave special mention to Messrs. D. Bearcroft and R.M. Cheesman who had devoted a great deal of their time and efforts to making the Open Day such a tremendous success.

Mr. Easty then called upon Mr. R.M. Cheesman to give details of the past year's events. Mr. Cheesman stated that the Observatory had been opened fifty-eight times during 1972 although a great many of these times were for repair to the Observatory to make it ready for the Open Day. Out of the five sections which were proposed at the last A.G.M. only two sections had ran successfully. These were the Planetary Section under the directorship of Mr. D. Bearcroft and his own Lunar Section. During the year two trips to Norwich were organized one to hear a talk on 'The Grand Tour' and the other to see Apollo films, both these events were held by the Norwich Astronomical Society. The Open Day was a tremendous success and realized a net profit of forty-seven pounds towards the Society's funds. Thanks were received from the boys of the Orwell Park School and the newly formed Colchester Astronomical Society for their visits to our Observatory. During the year the automatic drive to the telescope was repaired by Mr. D. Bearcroft.

The Treasurer, Mr. V. Wilkes then gave a summary of the accounts for the year which shew an excess of income over expenditure of £66.10p which was mainly due to the profit made at the Open Day. Mr. Wilkes said that the expenses for redecorating the Obsevatory were nominal as many members had given paint and equipment.

Mr. Easty then said that because of business commitments he wished to retire as Chaimman although that in the future he would give all the help he could to the Society in future ventures.

The new committee which was elected is:

PRESIDENT Mr. Bell, Orwell Park School.

CHAIRMAN Mr. R.M. Cheesman, [REDACTED], Ipswich.

TREASURER Mr. G. Collier, [REDACTED], Chelmondiston, Ipswich.

SECRETARY Mr. M. Hadden, [REDACTED], Ipswich.

COMMITTEE MEMBERS.

J. Mr. J. Easty, [REDACTED], Ipswich.

Mr. V. Wilkes, [REDACTED], Ipswich.

Mr. D. Bearcroft, [REDACTED], Ipswich.

Mr. C. Radley, [REDACTED], Wherstead, Ipswich.

Mr. M. Stow, [REDACTED], Ipswich.

TRUSTEES OF THE SOCIETY.

Mr. J. Easty, [REDACTED], Ipswich.

Mr. V. Wilkes, [REDACTED], Ipswich.

Mr. D. Brown, [REDACTED], Ipswich.

AUDITORS. Messrs. Patterson & Thompson, 12 Lower Brook Street, Ipswich.

BANK. Lloyds Bank, 132 Bramford Road, Ipswich.

Mr. G. Collier (Treasurer) and Mr. R.M. Cheesman (Chairman)
authorized to sign cheques on the Society's behalf.

The Chairman then gave his proposals for the coming year.

1. He hoped that the Observatory would be open more nights in the week and those members who would like to hold regular nights at the Observatory would contact him.
2. Patrick Moore, director of the Lunar Section, B.A.A. suggested that we hold one of his meetings at our Observatory and we would try to arrange this during the coming year.
3. To arrange, if possible, an East Anglian Astronomical Convention.
4. To organize lectures and film shows on various aspects of astronomy.
5. To establish a library of books, slides and maps.
6. To arrange another Open Day.
7. To invite schools and astronomical societies to visit our Observatory.

The chairman then stated that many jobs had to be done to the dome, tower and telescope which under the deeds signed by us to become a charitable organization were now our responsibility and although many jobs we could do ourselves and the cost nominal many jobs had to be done which were required to be done by a professional, e.g. repairs to the shutter, pointing the outside walls, rewiring the tower and dome, etc. This would require a great deal of money and our present financial position could just about stand the cost of rewiring the dome and tower estimated at £60. As money which we would receive as a charitable organization was an unknown quantity the chairman proposed an increase in membership subscriptions with effect 1st January, 1974.

these were	Junior membership	75p.	(was 50p.)
	Adult membership	£1.50p	(was £1.00)
	Family membership	£2.00p	(was £1.50)

The increased membership subscriptions was seconded by Mr. J. Easty and was voted unanimously to be effective from the 1st January, 1974.

Under any other business, C. Radley said that he was having made up adapters to fit most popular single reflex cameras so that now the automatic tracking system was working on the telescope serious photography work could be undertaken. Also adapters were being made so that members could use their own eye-pieces in the telescope.

Mr. Cheesman brought up the question of security in the school and pointed out that there were many doors into the school always unlocked and that members were asked to keep to the observatory tower and dome and if they saw anything suspicious they should report it to the headmaster immediately.

A trip to Greenwich Observatory was suggested and Mr. Cheesman said that he would ask the committee to look into whether such a trip could be organized.

As there was not any more business the Chairman called the meeting to a close.

After the meeting C. Radley shew slides of the Apollo 17 Mission and P. Lucas played his tape recording of the conversation members had at Felixstowe with Patrick Moore.

MEMBERSHIP SUBSCRIPTIONS.

Some subscriptions are still due for 1973 and should be sent to the treasure as soon as possible. Cheques/money orders should be made payable to 'Orwell Astronomical Society (Ipswich)

Subscriptions are: Junior 50p.
Adults £1.00.
Family £1.50.

Please send to the treasurer
G. Collier,

Chelmondiston, Nr. Ipswich.

SECTION MEETINGS

The Observatory will be open on the following evenings.

MONDAY EVENINGS. Directors Messrs. T. Day & K Harris
from 7.30 P.M. on 5th February,
19th "
5th March.

WEDNESDAY EVENING Lunar Section director J.M. Cheeman .
from 7 P.M. 31st January
14th February
28th February
14th March.

THURSDAY EVENINGS. Planetary Section, director D. Bearcroft.
from 8 P.M. 8th February
22nd February
8th March.