JOURNAL OF THE ORWELL ASTRONOMICAL SOCIETY(IPSWICH)
VOLUME:2 NUMBER:7 EDITION:18 JULY 1973

Editor: C.F.Radley, [redacted], Wherstead, Ipswich, IP2 8UQ.,
Telephone: Ipswich [redacted].
Articles, comments, questions, adverts, please send to the above.

Before all else let me please express my relief at hearing of the successful rescue of two of the oceanographers trapped in a submarine, and regret at the sad death of their two companions. Although it has nothing to do with astronomy, oceanographic research is as vital space research, although it receives little publicity, and I would like to congratulate them on their good work.

A few of us visited Clacton Ast.Assoc.Open Day on June 16th. They are an excellent society, at present trying to build an observatory for their 8" telescope, later to become a 12"reflector. Good luck to them.

The Provincial Meeting of the BAA in Norwich looks like being the event of the year. It will be on Sat.Sept.15th, from 2.15pm until 5pm. Then at 7.30pm a lecture by Dr.Simmon Mitton(of Cambridge University Astronomy Institute). After you can go to a dinner for £1.75.

I shall definitely go along by hook or by crook. If you would like to go along also, please let me know. If enough people are interested, a coach will be organised at a cost of about 50p a head. If there are not enough people for a coach, we will probably organise car loads.

The Norwich Astronomical Society is an excellent society, one of the biggest and best in the country. I have visited them several times, and thoroughly enjoyed meeting them each time. In addition, with the BAA there it will be a most enjoyable afternoon and evening for anybody interested in astronomy. ← at 6p.m.

If you wish to have the dinner as well after the meeting, please let me know by the middle of August, as you will need to book a ticket.

Dr.Simon Mitton who will give his lecture after the BAA Meeting will be in Ipswich the following Saturday, with two other qualified professors in astronomy for the Belstead House course of Residential Astronomy. Full details inside this edition.

Another date for your diary is the society outing to the old Greenwich observatory and Planetarium on Saturday September 1st. Full details inside this and last month's edition of this newsletter. It is an all day outing. Please send in your replies as soon as you can.

P.S: Dr Lair hours out Astrostake on P.6 of June '73 BAS Journal "What's Up?" JUPITER & SOR 11pm BST READ 04 h.a.m. BST

IF YOU SEE ANY METEORS, PLEASE LET ME KNOW.

By the time you read this, the Skylab-1 team should be back on Earth. I am sure that you await the results of their astronomical studies with the Apollo Telescope Mount(ATM)as eagerly as I do.

The Skylab-2 team of astronauts will be launched to Skylab on July 7th.

The Observatory should be back in action in a few weeks time. Although the observatory has been dormant, the committee has been as busy as ever trying to sort out the various matters involved in society organisation.

P.S.:Patrick Moore will be at the BAA Meeting in Norwich!!!

Again I would like to repeat a sore point. If you live outside the borough of Ipswich, could you please send me a dozen stamped addressed envelopes to facilitate and speed deliveries of this newsletter. Many thanks to all those who have allready sent them to me, sorry to have reapeated myself again. It is a bit of a waste to have to use society funds to post newsletters; I don't think is is unreasonable to ask a little help from each individual, but for the society to keep posting several month after month at 2½p a time it soon mounts up. Thanks again if you have allready sent me SAE's or money for postage.

This time of year is when I think of coming out of my summer hibernation to scan the heavens again. When I "can't be bothered to make systematic observations" I derive much pleasure from scanning the August sky(especially the Milky Way) with my binoculars, and seeing what Messier objects I can find. I shall have more to say about this next month.

A COMET IS COMING!!

A name to remember for later in the year is "Comet Kohoutek", official designation 1973f. It was discovered by Dr. L. Kohoutek, Bergedorf, on the 7th March 1973, when it was a dim diffused object with central condensation but without a tail, magnitude +16, very dim.

Dr. L. Waterfield, D. Griffiths and G.H. Rutter on March 30th and April 2nd, showed the comet as a heavily condensed comma 20" arc in diameter, and slightly elongated. Magnitude +15.8, still very dim.

It is likely that the comet will become a bright, naked eye object by the end of the year. It is still too early for detailed predictions to be made yet, but Dr. B.G. Marsden calculated a fairly detailed ephemeris, indicating that the comet will be between Leo and Virgo at the start of November when the magnitude will be about +9, bright enough to be seen in the 10" O.G. In November the comet will move through Virgo. During December it will move through Libra into Scorpio, Ophiuchus, and will move through Sagittarius from Christmas until early 1974. During January it will pass through Capricornus, Aquarius and Pisces, and then it will fade to obscurity. It will be brightest on about December 29th, when it will probably be quite bright, perhaps around magnitude -2.5., it should be visible to the naked eye during December 1973 and January 1974. It will traverse the entire sky from one side to the other in just four months.

Britain is not the best place to observe this from, however, because the object will have a Southerly declination for much of its apparition, meaning that it will be quite low above the horizon from Britain. Also, for much of its apparition, it will be necessary to rise very early in the morning to glimpse it.

Further details of this comet will be published later, nearer to the time of its appearance.

IN SEPTEMBER

On Saturday September 1st, the O.A.S.I. is organising a trip to visit the Old Royal Greenwich Observatory in London. This will include special features not normally available to the general public. Firstly a look at the giant 28" aperture refractor housed there, secondly a couple of shows in the Greenwich planetarium.

The whole visit, fully inclusive, is at the very low price of about £1.00. Full details from me or Roy Cheesman, 3, Tasmania Road, Ipswich. Book early to ensure a place.

On Saturday September 15th there will be a Provincial meeting of the British Astronomical Association, which will be held at Norwich. This will be extremely interesting. Prominent Astronomers from all over the country will be attending including Patrick Moore, and it will be well worth going. There will be talks and discussions on Astronomy, and in the Tea Break you will be able to get to meet some of the characters there. I shall certainly go, if you are interested in going please let me know. If there are enough people interested, we may even organise a coach trip there for about 50p charge.

About this Newsletter

All the time our readership is changing, and it is not easy to keep track of everybody. This means that unintentionally I may sometimes forget to get one to you, or may not be able to have one delivered quickly as I try to. If you have not been receiving newsletters, or have received them very late, please let me know and I shall do my best to rectify the situation.

There is a very simple solution which I have not mentioned often enough. If you live outside Ipswich please let me have some stamped addressed envelopes, this will make matters much easier for me, and

will enable you to receive them on time. It is not too much to ask I think, as it is a free service.

I would like to thank the members who have sent re stamped addressed envelopes already, it makes distribution of these newsletters so much easier.

Exploration of Mars

This year more space probes will probably be despatched to Mars. Up until now, the Americans have had it all their own way, but this may well soon change, the U.S.S.R. have a flourishing Mars programme now.

The first American probe - Mariner - 3, of November 1964, lost control, but in the same Month, Mariner - 4 was launched, and reached Mars in June 1965. It sent back 22 T.V. pictures of Mars, the first ever from close range. It also gave us the first true idea as to what the Martian atmosphere was like. The 22 blurred and over-soft T.V. pictures showed for the first time that Mars was cratered. Mariner - 4 completely changed our views on what Mars is like.

In 1969, Mariners 6 & 7 were launched (Mariner - 5 went to Venus). They provided an even more informative picture about Mars. Better T.V. pictures and equipment to investigate the composition and temperature of the Martian atmosphere and surface.

In 1971 Mars approached closer to Earth than it had since the 1920's, the U.S.A. launched Mariners 8 & 9 to Mars. Mariner 8 had a ten minute trip culminating in a dive into the Atlantic, but Mariner 9 reached Mars and became the first artificial satellite of Mars. Instead of whizzing past the planet snapping a few photos as it passed by, the spacecraft slowed down and orbited the planet twice a day, carrying out long term experiments. It mapped the entire surface of Mars in great detail, discovering huge volcanoes vast canyons and systems resembling dried rivers to make but a sample.

Mariner 9 was launched in May 1971, reached Mars in November 1971 and was shut down in October 1972. It exceeded N.A.S.A's wildest dreams. After some analysis of the results of Mariner 9, a tentative decision has been made as to the landing sites of America's Viking probes which should soft-land instruments on to the surface of Mars in 1976. Four landing sites have been selected, although only two Vikings will be sent.

SITE 1: Chryse, 3000 mile long canyon, 19.5°N, 34°W. (Martian Equator)

SITE 2: Back-up for site 1. Tritonis Lacus, 20.5°N, 252°W.

SITE 3: Cydonia (Martian Artic) 44.3°N, 10°W.

SITE 4: Alba. Back-up for site 3. 44.2°N, 110°W.

For Map of Mars see Journal of O.A.S.I. Vol. No. 3. April 1972.

There had been some controversy about these sites. Sites 1/2 seem definite. However, there is some doubt as to what the Viking 2 landing site should be. One of Vikings main aims is to find life on Mars. Geologists wanted Viking 2 to land at a geologically interesting site, either 73°N or 9°S (one Polar the other equatorial). Biologists, however, think the 73°N site would be too cold for life, and that the 9°S would be too dry. They would like the Viking 2 to land on the edge of the North Polar cap at about 44°N, which they believe the only site with much chance of life. Even so, its dryness is comparable with that of a terrestial desert, and its coldness with that of the terrestrial North Pole.

Personally I do not believe that life will be found on Mars but I have no degree in biology as the N.A.S.A. advisors have, but even they are not very hopeful, I think. Even if life is not found, each Viking will carry a T.V. camera, sesismometer, Meteorology experiment and rock analyser.

Viking will not be launched to Mars for two or three years yet, so let us turn to the U.S.S.R.

Their first Mars probe, Mars 1, was launched in 1962, but contact was lost shortly before it reached Mars. Similarly with Zond 2, which was very close in space to Mariner 4 during its flight.

Their first successes came with Mars 2 & 3, which operated at the same time as Mariner 9. Mars 2 & 3 were each in two parts. Two packages were crash-landed onto the planet's surface, the first man-made objects to hit Mars. Two more packages, very similar to Mariner 9, orbited Mars in August 1972.

The U.S.A. will not launch any Mars probes this year, but it is very likely that Mars 4 and probably Mars 5 will be launched in August this year.

Far less publicity was given to the Russian probes than to Mariner 9, partly because hardly any of the Russian T.V. pictures of Mars were released, but all 10,000 odd of Mariner 9 pictures were. But the U.S.S.R. released many of the interesting findings of the two probes, which I published in Vol:1 No:3 April 1972, of this newsletter, of which I still have a few FREE copies left if you want them.

The next Russian probes will probably operate in much the same way as Mars 2 & 3, i.e. landing on and orbiting Mars, like the Vikings will in 1976. Mars 4 & 5 will probably reach Mars late this year or early in 1974.

After then? The Russians have been optimistically talking of landing Lunokhod-type vehicles on to Mars. This second generation type of Mars lander will probably be operated on Mars about the same time as the American first generation Vikings. This means that the Russians are at last pulling ahead of the U.S.A. in the field of Mars exploration.

DATES COMING UP IN THE 1973 APPARITION OF MARS

July 26th

Perihelion, closest point in Mars' orbit to the Sun.

July/August

Month long launch window, possible Russian launch to Mars.

October 17th

Closest approach to Earth of Mars, seperation will be 0.4360 AU = 65.2 million kilometres, apparent diameter = 21.5".

October 25th

03.h. U.T. Declination $+10^{\circ}$.

September 19th

Stationary point, Aries, commencement of retrograde motion.

November 27th

Second stationary point, start of direct motion again.

From July to October, Mars will be in Pisces, and from October onwards it will be in Aries.

RESIDENTIAL ASTRONOMY COURSE IN IPSWICH

In September, there will be a Residential course in Astronomy in Ipswich, organised by the East Suffolk Education Committee, at Belstead House near Sprites Lane.

It starts at 5.p.m. on Friday the 21st September, finishing at lunch time on Sunday 23rd September. There will be a series of lectures and discussion by three University Proffessors at the Institute of Theoretical Astronomy at Cambridge University, Dr. Simon Mitton (Qualified Radio Astronomer), and his wife, Mrs. Jacqueline Mitton (a Researcher in Stellar Astronomy), who are organising the course. The third speaker is Dr. Andrew Fabian, a research fellow in X-Ray Astronomy.

For further details or application to attend the course, contact Mr. Derek Barbanell, The Warden, Belstead House, via. Sprites Lane, Ipswich, IP8 3NA.

The cost of the course is at the following rates:-

	Resident at course	Non-Resident
Those who live in Ipswich & East Suffolk	£4.80	£3.10
Those who live outside East Suffolk	£6.60	£3.10
Students with full-time Education	£1.60	£1.40

In the case of cancellation, fees, less a handling charge of 35p for Residential Candidates, or 20p for Non-Residential Candidates will be returned, provided cancellation is in at least two working days' notice.

If you would like to join the course, send this application form, WITHOUT sending the fee, to the above mentioned address.

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Title of course: MODERN ASTRONOMY. Date: September 1973

I would like to attend the course as a *RESIDENTIAL/NON RESIDENTIAL CANDIDATE. * Delete which does not apply.

*I am/am not a Student engaged in full-time education.

If Student: Age .....& School or College .....

Name .....(Mr, Mrs, Miss) Address: .....

.....

.....

WHAT'S UP? THE PLANETS IN JULY

Mercury The Planet is not well visible this month. Inferior conjunction when the planet passes almost directly between the Earth and the Sun, occurs on July 20th, and so throughout the Month the planet will be hidden by the glare of the Sun. In August the planet will be visible as a Morning Star in the East shortly before dawn. Elongation, or maximum angular seperation from the Sun occurs on the 8th August, the planet will be visible for a couple of days around this date. From the fourth of August until the 14th, the planet will rise at 4.a.m. B.S.T., the Sun will rise about 1½ hours later.

If the Observatory is in action by then, it will probably be opened early on a couple of mornings to try and catch Mercury. Alternatively, if you wish to find the planet by yourself, you can by using a Star Map. Get up about 4.a.m. B.S.T. with your map and look to the East. Mercury will be in the constellation of Gemini or Cancer. So find Orion, which will be in the South-East, and using your Star Map, look in where Gemini should be rising in the East, and look out for Mercury, which will be about first magnitude.

Your best chance would be on August the 8th until the 12th, as it becomes brighter from day to day.

If you cannot see Mercury when you get up so early, you will be able to see Saturn as a consolation anyway. See the Section on Saturnin this article. Mercury will be about 10° from Saturn, being nearer the Horizon.

Venus This planet is starting to become visible during the evening in the South-West shortly after Sunset. On July 23rd, the planet will be 1½° North-West of Regulus (Alpha Leo), and in 1½° North-East of Regulus on July 24th. The planet sets about an hour after the Sun, and will therefore not be easy to catch, although it is quite bright (magnitude -3.3).

Mars This month Mars in in the constellation of Pisces. It is becoming more visible as time goes on. The planet rises at about 11.p.m. B.S.T., If you look in the South-East about midnight, if it is clear you cannot mistake it, it is the only bright star, brilliant red, in the region. See article about Mars earlier in this Newsletter.

Jupiter Jupiter is now visible in the South-East in the evening when the sky becomes fairly dark, in the constellation of Capricornus. Jupiter comes into opposition on July 30th.

When you look at Jupiter through any small telescope, you can see the four bright sattelites of Jupiter which are in different positions from night to night.

Saturn The planet is visible in the East an hour or so before dawn, it is between Taurus and Gemini. It rises two hours before the Sun.

Meteors A large number of meteors are visible this month.

Capricornids, maximum on July 25th of 8 per hour.

Aquarids, from July 15th to August 15th, maximum of 34 per hour on July 28th.

Pisces Australids, maximum on July 30th.

Alpha Capricornids, July 15th to August 21st, maximum 9 per hour on August 1st.

Iota Aquarids,July 15th to August 25th, maximum of 9 per hour on August 6th.

Perseids, July 15th to August 18th, maxiumum 65 per hour on August 11th and 12th in those two evenings. Best on the 12th.

The Moon unfortunately, interferes with the display somewhat.

COMET

As stated previously, Comet Kohoutek is coming. This is very important, it will be the brightest Comet since Comet Bennett in 1970. Comet Kohoutek will be visible in the late Autumn and Winter 1973/74, it will be the brightest object in the sky apart from the Moon and possibly Venus. It will pass from Virgo through Libra and Saggitarius during November and December, and Capricornus in January 1974. Further details later.

SOCIETY STATUS

At the moment the Observatory is closed, and there is a lull in activities Astronomy-Wise, although there is much work going on in repairing the Observatory. If you can lend us a hand in this, please telephone me soon. The Observatory should be back in action in a month or two.

A programme of Lectures talks and discussions for the Autumn are being organised, to be held either at the Civic College or else the

Friends Meeting Place in Fonnereau Road. They will be on the first Saturday of each Month, starting in October. Further details will be published later.

September 1st

Coach trip to Greenwich Observatory. Further details earlier on in this Newsletter.

September 15th

Provincial Meeting of the British Astronomical Association. Details of this mentioned previously in this Newsletter.

September 21st - 23rd

Is the course in Astronomy at Belstead House, Ipswich, further details in earlier article in this Newsletter.

NOTES ON OTHER ASTRONOMY SOCIETIES

The Clacton Astronomical Society hold their meetings on the first Thursday of each month at the Quaker Hall, Granville Road, Clacton, not far from the Railway Station. On the 5th July, Mr. E.G. Curtic will give the C.A.A. a talk on an Astronomical subject.

The British Astronomical Association will hold a meeting in the Scientific Societies Lecture Theatre, the Civil Service Commission, 23, Saville Row, London W.1., near Piccadilly, on Wednesday July 18th.

At this meeting the first photographs and slides of the total Solar Eclipse in Africa of June 30th will be shown. It will be well worth going, I shall try to get along. If you are interested in going, I would like to hear from you.

There will be a meeting of the Junior Astronomical Society in Clacton in September. Further details later. Apart from the B.A.A, the Junior Astronomical Society (J.A.S.) is the major national astronomical society, specialising in teaching beginners in all the various fields of astronomy.

SKYLAB

Weren't those T.V. pictures from Skylan fantastic!!!
Especially in colour. I was most impressed by the ones taken during redezvous with Skylab, and the first pictures from inside the vehicle. The sight of the massive Space Station hanging in Space - brilliant white, and the close inspection of the vehicle from all exterior angles. I was extremely impressed to be able to see the detail of the Earth's surface passing by 270 miles below, with the Space Station in the same field of view.

The first pictures of the interior of Skylab were very good, it was very pleasant to see an Astronaut propelling himself the entire length of the Spacecraft in weightlessness, and swimming around.

The deployment of the sunshade as seen from inside the Skylab was spectacular, the orange foil suddenly bursting out to form its' deployment position. All that we can do now is to wait until the trio return to Earth with their Scientific results, especially those concerning Astronomy. I can't wait to see the photographs of the Earth, Skylab, Sun and Stars which will be processed upon their return. Keep your eyes open for articles in such publications as "Flight International", "Nature" and "New Scientist" about the results of Skylab.

It seems that the launch date of the second Skylab trio has been put forward from August to July 28th.

One report on the television said that the orbit of Skylab

was to be changed in June. This would probably be done by using the S.P.S. rocket of the Appolo service Module, as the Skylab proper does not have a large manouvering rocket. Prior to the manouvre, Skylab frequently passed into the Earth's shadow, which meant that the Solar Cells could not collect sunlight for electric power. The manouvre was intended to increase the time which the Space Station was in sunlight, allowing it more time to collect sunlight for its' electric power supply which is already depleted by the failure of the main Solar Panels, although, by the time you read this, a spacewalking Astronaut may have freed the jammed Solar Panel, increasing the power supply. On the 7th June the E.V.A. seems to have succeeded, if the panel does thaw in the sunlight, Kerwin and Conrad have at last broken two taboos of Spacewalking, introduced for safety reasons, and man has proved his usefullness in space.

AMERICAN MANNED SPACE PROGRAMME

After Skylab there will not be another American in space until 1975, when the joint Russian/American spaceflight is scheduled. Plans for this great venture are well under way. It will necessitate the Russians announcing the exact time of launch, and giving live coverage of a Russian lift-off for the first time. There will be Russians at Houston Mission Control and Americans at Tyuratam/Baikonur Mission Control in Russia.

Already diagrams of the mission Spacecraft have been published with the labelling in Russian and English.

The mission will proceed as follows: An Apollo Command Service Module will be launched from America with three Americans aboard. They will rendezvous and dock with a Russian Soyuz(Union) Spacecraft with two Russians aboard. The Americans have announced the names of the crew of their Spacecraft as: Tom Stafford (veteran of Apollo 10 and Gemini 9 Missions, Tom is due to go up in a Skylab mission I believe.) Will be the Commander. Deke Slayton will be aboard. Deke was one of the original seven American Mercury Astronauts chosen in 1961, but was grounded because of suspected heart trouble. He has at last been given medical clearance. I am not sure who the Third American will be.

For the first time in history, the U.S.S.R. have announced the crew of one of their Spacecraft before the mission. Not only that, they have announced the back-up and support crews, something they have rarely done before, even after a Space Mission. The Crews, for the record, are:-
Primary Crew Alexei Leonov (the first man to walk in space in 1965) and Valery Kubasov (veteran of Soyuz 6)
Back-up Crew Anatoly Filipchenko (veteran of Soyuz 7) and Nikolai Rukavishnikov (veteran of Soyuz 10/Salyut 1)
Support Crew - 1 Vladimir Dzhanibekov (he's never been into space yet, but was born in South Kazakstan in 1942, and entered Cosmonaut training in 1970) and Boris Andreyev (another newcomer, born Moscow 1940, commenced training in 1970)
Support Crew - 2 Yuri Romanenko (another "Rookie", born 1944 started training in 1970) and Alexander Ivanchenkov (born 1940 near Moscow, started training in 1970). Both Alexander and Boris were born in 1940 in Moscow, and both worked in design bureau's, and both entered Cosmonaut training in 1970, could they be good friends?)

The above information is unprecedented, the U.S.S.R seem to be easing up on their publicity freeze of the past fifteen years.

After the joint Soyuz-Apollo Mission, the U.S.A. do not plan to go into Space again until the first manned tests of the Space Shuttle vehicle in the 1980's.

STOP PRESS

Lunokhod 2 is no longer working!!

The Sun rose over Lunokhod 2 on May 7th for the fifth time. In a communications session on May 8th the Solar Panel was opened and the vehicle reactivated after its fourth period of hibernation. On May 9th the vehicle resumed movement. It left the tectonic fracture it had been studying and started moving in a North-Easterly direction towards the nearest shore cusp of the Taurus Massif.

Further details of its programme during the fifth day will be published when I receive them. The fifth hibernation period would have started on May 22nd, at the Lunar Sunset. It seems that attempts to rouse the vehicle on about June 3rd, failed, and it has been lost from radio contact.

Lunokhod 1 lasted nearly eleven months, after a few months its moving parts were wearing out, and after eleven months it ran out of radioactive heating and froze to death. The exact cause of the Lunokhod 2 failure has not reached my ears yet. More news in the late news section of this Newsletter. Full reports of the vehicle's progress were given in each of these newsletters from February to June inclusive, as well as this newsletter.

'O' LEVEL ASTRONOMY

The University of London Board 'O' Level Astronomy Examination was on June 4th. Did any members take it? I did, and I now have all the 'O' Level Astronomy papers that there have been, from 1968 until 1973. If anybody hopes to take 'O' Level Astronomy next year, let me know, I would be glad to give some help. It is not all that difficult, I think, but if you had trouble passing Mathematics and Physics 'O' Levels (Especially 'O' Level Mathematics) a little coaching may be in order. I also have a copy of the book by Patrick Moore, based on the 'O' Level Astronomy syllabus, entitled 'Astronomy for 'O' Level'. published by Gerald Duckworth. I am donating it into the Society Library, so you can borrow it from there if you like.

The Library is now in a nice bookcase in the Club Room, members can borrow any book by writing their name and address in the book in the Club Room provided, as well as the title and author of the book you are borrowing. There is no charge for using the Library. Reading is the best way of getting to grips with Astronomy, as well as observations.

If you take Astronomy 'O' Level, you will have to do THREE practical observations or otherwise, Astronomical. I can probably give you a hand with them if you like.

ADVERTISEMENTS

Free Advertising space is given in this Journal to anybody who wants me to include their Advertisement.

FOR SALE 3" aperture refractor, many accessories. Original cost £72.00, selling at £50.00 o.n.o. Focal length 1250 m.m. 4 eyepices, two vernier drives. About three months old. Anyone interested please contact Mr. D.A. Toms, [redacted], Lexden, Colchester.

FOR SALE 3" refractor, many accessories. Prinz, biggest and best model they have. £35 o.n.o. [redacted], Ipswich, telephone Ipswich [redacted].

FOR SALE Special Orwell Astronomical Society (Ipswich) blue ballpoint pens, selling at a mere 5p each. Buy now before stocks run out. from David Bearcroft telephone Ipswich [redacted], or C. Radley telephone Ipswich [redacted].

FOR SALE Full colour photographs of the Orwell Park Observatory A mere 7p each!! (It would cost you about 15p in the shops) (1) The telescope itself (2) The observatory dome, shutter open, from outside. (3) The entire Orwell Park Mansion building of Orwell Park School.

Economy set of three pictures special offer only 20p per set of three. Otherwise, standard cheap rate of 7p each. Full colour $5\frac{1}{3}$ x $5\frac{1}{2}$" ($13\frac{1}{2}$ cm x 9 cm) buy from Roy Cheeseman [redacted], Ipswich, or place your orders through C. Radley telephone Ipswich [redacted].

FOR FREE Limited number only: transcripts of our conversation with Patrick Moore, an hour after the Apollo 17 splashdown, in Felixstowe. I have a tape recording (on cassette) of that conversation which you can borrow if you like.

THE EDITOR OF J.A.S. JOURNAL "HERMES" asked me to straighten out a controversy that he had inadvertantly stirred up.

At the Astronomical Association in May in London, he mentioned that he believed that publication of the magazine "Astronomy & Space" edited by Patrick Moore, had been suspended. This is what he says:-

" You may recall my remarks about the availability of Astronomy & Space, for sale, etc., at the Astro' Convention. While this is still true. I am told by Messrs. David & Charles in no uncertain terms that publication of the magazine is still going ahead. Rumors put around at a recent B.A.A. Meeting by a certain large Gentleman, that I am going to be sued, seem, alas, to be misguided, but there is always time, so keep tuned. In the meantime, everybody dash out and renew your subscriptions."

So there you are - "Astronomy & Space" goes ahead as usual. In case you didnot know, "Astronomy & Space" edited by Patrick Moore is the quarterly magazine, subscription £2.50 per annum, 65p per single copy, from David & Charles, Newton Abbott, Devon.

Another leading national Astronomical magazine is the "Astronomer". It is extremely good value for money, being monthly at a mere £1.50 per annum. For sample copy, send 5p to: Peter B. York, 130, Derrington Road, Tocting, London, SW17 8HY.

SATURN'S RINGS

It was mentioned in the May edition of this Newsletter, that Radar bounced off Saturn's Rings, revealing it to consist of large boulders, more than 1 metre across. At Hawaii's Mauna Kea Observatory, Robert Murphy measured the 20 micrometre infra-red emmission of Saturn's Rings. He found that their temperatures were: 89°K (-184°c), 94°K (-179°c), and 89°K (-184°c) again, from the innersmost to the outermost Rings, in August 1972. This can be explained if they are boulders about 1 kilometre across. Comparison with previous results shows that the temperature depends on the angle of the Rings to the Sun. When the Ring system if fully illuminated, shadows are short and the temperature rises. One puzzle - Saturn casts a shadow on the Rings, which means the innermost Ring should be somewhat cooler. Perhaps it is heated by particles from Saturns' Van Allen zones. Alternatively, the outer rings could be made of finer, smaller particles.

TRIP TO THE OLD RAYAL 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.N. Cheesm[illegible]

[illegible]

Please res[illegible]