

JOURNAL of the
ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

MARCH, 1974.

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WHAT'S UP? The Planets in March.

MERCURY: Inferior conjunction on February 24th means that Mercury is a morning star during March, not very favourably placed. Maximum elongation on March 23rd, when it will rise 1 hour before the Sun. In the middle of March it will rise 50 minutes before the Sun. In mid and late March it will be about magnitude +0.5. **ON MARCH 21st** Mercury will be just 0.1° South of Jupiter, who will then be magnitude magnitude -1 or more. So on the mornings of March 21st and 22nd, it may be possible to see Mercury near Jupiter in the south-east before dawn at around 05h30m U.T. Why not arise early on those two days to see it, in the constellation of AQUARIUS/CAPRICORNUS border.

VENUS is a morning star visible in the south-east $1\frac{1}{2}$ hours before dawn, best seen at about 05h20m U.T. Maximum elongation will be on April 4th. You may be able to see it as Mercury. On March 21/22 in relation to the horizon, Venus will be about 25° above and to the right of Mercury, being in the constellation of Capricornus.

MARS can still be seen in the evening sky, but it is very dim, distant and small, not rewarding through a telescope.

JUPITER is just emerging from behind the sky, and is visible in the morning twilight. On March 21/22 it will be near to Mercury, see above.

SATURN WILL BE OCCULTED BY THE MOON ON MARCH 2nd, don't miss it!! The Moon will then be just past first Quarter. Disappearance will be at 23h45m UT. Reappearance will be at 00h40m UT on March 3rd. This will be a very interesting event, if it is clear it will be well worth staying up late to see it.

THE MOON New Moon, Feb 22nd. First Quarter March 1st at 18h03m UT. Full Moon on March 8th, Last Quarter March 15th. New Moon March 23. First Quarter March 31st, Full Moon on April 6th at 21h UT.

Meteors only one feeble shower this month, but keep any eye open for fireballs, which are totally unpredictable.

COMET Kohoutek has been and gone, but Enke's Comet, the second brightest periodic Comet known (Halley's is the brightest) makes an appearance this year. It will be visible in the evening sky. At the moment it is magnitude 15 in the morning twilight, but in April it moves behind the Sun, and in April/May it may be visible in the evening twilight in binoculars, brightest of magnitude 4.1 on May 3rd. Maximum elongation of the Comet occurs at the end of April, when it will only be 15° from the Sun in the evening sky. It will be in the constellation of TAURUS/ARIES border. Mercury will be near the Comet at the end of April and will be about magnitude -1.4, and could act as a guide to the comet.

SPECIAL OBSERVATORY NIGHTS There may be special nights organised to observe

- 1) Mercury, around 5am onwards March 20-22.
- 2) Saturn, evening March 2nd until 1am March 3 to observe occultation of Saturn by the Moon.
- 3) Sunset onwards in late April early May to observe comet Enke and Mercury

See other pages in this and next month's newsletter for further details.

MARINER-10 passed Venus on Feb 5th, will pass Mercury on March 29th. **ANNULAR ECLIPSE OF THE SUN** on December 24th 1973 was the longest until 600 years time, lasting nearly 12 minutes, visible in Brazil, Atlantic Ocean, and North Africa. Photographs of this event are in New Scientist 7th Feb 1974, Vol 61 No. 884, page 317.

COMET KOHOOTEK It seems that the display was so feeble in Europe because of bad weather mostly. In the New Mexican desert it was seen and photographed very well, a 17° tail being visible to the naked eye. The comet was a naked eye object until January 20th out there. A great deal of scientific information has been gathered about the comet.

SCIENCE FICTION Hands up all you science fiction addicts. This is nothing to do with astronomy, but I have a feeling that there are several readers of science fiction and possibly those who are hooked on the habit like me. If so I would be interested in meeting and discussing science fiction. If there is sufficient support and you know of plenty of others interested in Science Fiction, I have vague ideas of trying to organise an Ipswich Science Fiction Circle.

I can recommend the new "Science Fiction Monthly" newspaper published by New English Library at 25p a month. I understand it is available from Smith's in the town. There is the British Science Fiction Association, and the Easter Convention of this organisation will be in Newcastle. At these conventions, I understand, one has a great time, many writers and readers are there; you can meet others of your own kind, and there are book auctions, magazines, films and wild parties with people dashing about dressed as robots!!

Anyone interested?

SKYLAB and NASA So at last the Skylab missions are over. Three of them, lasting 28, 56 and finally a record breaking 85 day flight. The final twelve week stint is likely to be unbeaten for many years, until the Russians can make their Soyuz/Salyut spacecraft fully operational. The question now remains, what is left for NASA to do. The Skylab programme, although less dramatic, has yielded much more data about spaceflight than Apollo in many ways. It is now clear that the only limitations to man's endurance in space will be political and financial, but not physiological. Mars? Skylab has now yielded the necessary data on long manned flights to make Mars trips possible, but it is unlikely that an American effort will be launched there this century, although it will be technologically possible to do so in the 1980's. It is known that the USSR are very interested in Mars..... However, until they have ironed out their troubles with Soyuz (two Soyuz flights have ended in the deaths of their crews) and Salyut (Salyut-2 disintegrated after a short period in orbit). The next scheduled American flight is in June 1975 when there is a spaceflight for an Apollo capsule to dock with a Russian Soyuz. After that, nothing more until the space shuttle, which will not be operational until the 1980's, although without doubt it will extend man's horizons in space for a fraction of the cost. Nobody seems to have made any concrete plans beyond the shuttle; it all depends on how much money is available. There was talk of closing down NASA altogether, but they have been given a small budget to subsist on.

Nearer home, ELDO (European Launch Development Organisation) and ESRO (European Space Research Organisation) are well on the way to forming one European space agency, whose three programmes are: development of a European orbital rocket so that we can launch our own satellites without depending on the USA, Spacelab, where the USA depend on us!! to design and build an advanced version of Skylab to be launched by the shuttle in the 1980's (drawn by European and American scientists, we will see Britons in space!!) and a European communications satellite for shipping.

NASA plan to send an advanced space probe to Venus in 1978, and an advanced Jupiter/Saturn probe, to replace the grand tour.

VISIT TO CAMBRIDGE OASI are planning to organise a visit to the University of Cambridge Institute of Astronomy optical observatories, and the Mullard Radio Astronomy Observatory. All day Saturday April 6th. If there is enough support a coach will be organised. If not, there will be a couple of car loads.

If you want to come, send your booking NOW to Roy Cheesman at [redacted], Ipswich, NOT ME. The charge will be something like 75p. You will have to supply your own lunch.

BOOK NOW further last minute details in the April edition.

KOHGUTEK's comet will probably be long remembered (or forgotten) as the comet that wasn't. To my knowledge, only three people in Ipswich saw it, including Roy Cheesman our Chairman. The most detailed report comes from Mr. Barbrook (not of OASI) who actually photographed the comet with his 6" reflector and 1,200ASA film. The pictures were good enough to confirm its existence, but not much else. He tracked it in January from Capricornus to Andromeda/Pegasus. It was only 6th magnitude or so, and he never saw it with the naked eye.

We would like to welcome the following new member :-

Mr. & Mrs. B. Garrad, [redacted], Straight Road, Battisford,
near Stowmarket (Telephone Stowmarket [redacted]) Suffolk, IP14 2LZ

M. & Mrs. R. Mills, [redacted], Ipswich, telephone Ipswich [redacted]
who own a 6cm OG 700mm focal length, with a 6 & 20 mm eyepiece.

S. J. Macfarlane, [redacted], Ipswich, IP4 4BP,
telephone number only at work. owns 30x70 and 20x45 binoculars.

Philip Worthington, [redacted], Ipswich, IP3 8RQ,
telephone Ipswich [redacted], owns a 6cm OG, 700mm focal length, with
25mm, 15mm, & 6mm eyepieces.

Kieth Cook, [redacted], Ipswich, IP2 09X,

SOYUZ ASTRONOMICAL EXPERIMENT:

You may have read in last month's edition that the two Russian cosmonauts aboard Soyuz-13 launched in January, took spectrograms of various stars, using modified astronomical equipment, known as Orion-2. Orion-1 flew in the Salyut station in 1971. Ultra-violet spectrograms of over 3,000 stars were obtained, in the course of 8-days 10,000 spectrograms were made. Clear spectrograms of stars down to tenth magnitude, and in one case, in the part of the sky around Capella in Auriga, eleventh magnitude, were made. The pointing accuracy was a few seconds of arc, achieved by a unique three-axis stabilised platform.

These Ultra-violet spectra provide important information for solving many topical problems of astrophysics and cosmology/cosmogony.

Source of information:- Soviet News, January 29th 1974, published by the Novosti Press Agency (APN).

Radar Reveals Mercury's Surface

If you read last month's edition of this newsletter, you will know about the recent discoveries about Saturn's rings using radar. Now radar has been turned on to Mercury. Using the 210foot Goldstone dish, Mercury hills with height difference as fine as 1kilometre were picked out. Signals from several areas indicated craters 50km across and 700m deep. 14 soundings of the area between Latitude 12°N and 4°S were made. There is some evidence for craters of up to 500km diameter. The hills seem to be of slow slope, or gently undulating. One feature described as "promontory" rises 1300m from a base 120 km wide.

SMALL TALK The recent economic and so-called energy crises have not left amateur astronomy unaffected. The BAA main meetings are being postponed left, right and centre, while Patrick Moore has postponed all his Lunar Section Meetings indefinitely. Meanwhile in Ipswich, with trains thundering past my house every five minutes, and petrol flowing non-stop a hundred yards from my house, I have only benefited, since Samford rural district council have at last turned off all the street lights in my road!!!

Advert:- P. Skinner has asked me to ask if anybody can sell him a (24.5mm swift push-fit) eyepieces, preferably of a Kellner or orthoscopic type. He did not specify the focal lengths. If you have any excess eyepieces, or can help at all, please contact either me, or Mr. P. Skinner at [redacted], Felixstowe, IP11 8US. P. Skinner has been telling all about his activities tearing up trees in his back garden to clear his skyline!

BINOCULARS I know that many members have binoculars, so why not participate. Michael Foxon of the Great Yarmouth Astronomical Society wants to compile a binocular observers' handbook and would like everybody to send him any sort of binocular observations, as many as you can supply. If you have ever looked at the sky through binoculars, just contact me as soon as possible!!! A vague observation is better than nothing at all, so tell me what the Moon or ~~Rix~~ star clusters or anything looks like through your binoculars.

JAS PROVINCIAL MEETING Plans for this event are now well advanced. It should be held at Orwell Park School starting at 14h30m May 4th (Saturday) 1974. The principal speaker will be Dr. David Dewhurst, leading scientist at the Cambridge University Institute of Astronomy. He will be giving a talk entitled "Any more Planets Out There?" a talk about planets past Neptune. As well as that, there should be plenty of people there, and we can promise you an interesting afternoon.

Space Probes to Mars Arrive

The four space probes launched to Mars from the USSR last summer are now nearing their destination. Mars-4 approached Mars on February 10th, but went straight past, failing to go into orbit around the planet, so that mission seems to have been lost. However, Mars-5 has successfully entered Mars orbit. Mars-4 missed by 1,380 miles (2,200 km). Mars-4 was supposed to work with Mars-6, one or other of them would land on Mars, however this may not now be able to be done.

However, if Mars-7 can successfully enter martian orbit, a soft-landing may then be attempted in co-operation with Mars-5. Mars-6 & 7 are scheduled to reach Mars in mid-March.

MARINER-10

As well as Michael Haxell's article, there is an article with photographs in New Scientist 14th February 1974.

SUGGESTION TO THE WORLD Here is my suggestion to the world, or at least the USA Atomic Energy Commission and NASA and the Whitehouse. Recently doubts have been voiced as to the safety of nuclear reactors for widespread. What it boils down to is a lack of hard data, nobody really knows what will happen in the event of a pile meltdown. It is too dangerous to perform such an experiment on the Earth anywhere, even in the Sahara Desert, there is just the chance that nuclear contaminants may be spread over the entire Earth's surface via the atmosphere. However, if a test were performed on the Moon, there would be less risk. **AND IT WOULD NOT BE IMPOSSIBLE I THINK.**

I understand that NASA have one Saturn-5 left, and a few Apollo Command/Service Modules, although Lunar Modules have gone out of production. However, a Viking Mars lander due to be launched next year could be doctored for the purpose. Perhaps a manned mission to the Moon could be launched next year (Viking will be ready by then) with a nuclear pile mounted on a Viking lander, in the slot where the LEM used to be. In the event of an abort shortly after launch the Viking could be attached to the CSM and a powerful launch escape tower might be used, otherwise the usual safety systems would probably suffice. Once in lunar orbit, Viking could touchdown on the Moon, and a meltdown experiment could be performed. The Apollo crew would not land on the Moon, merely orbit watching from above, and photographing from a low orbit (8 miles?) and a camera could be landed with the Viking to watch. If it is spectacular, maybe Earthbound astronomers could watch the experiment also.

This is perhaps unlikely to happen, but bear in mind:-

The hardware for such an experiment will be available next year. There does not seem to be to be any technological obstacle unsurmountable by the brilliant NASA team which got Apollo-13 back without a hitch.

The only drawbacks are political-financial, but since the hardware exists already, surely the sum needed for launch, tracking, and the small modifications on the Viking/Apollo spacecraft will be well worth it if it will save humanity from a completely devastating nuclear accident. Unlikely though such a catastrophic accident is, surely it would be worth the sum to save us from the **POSSIBILITY** of such a disaster.

It's a thought!!!

Magistrate v Martians!! After two boys reported a UFO landing in a small town in southern Italy, charges against the Martians were laid by a magistrate "for violating public property by landing a flying saucer on it."^{USA}

USSR MARS PROBE The USSR admitted using over 1,700 American Mariner-9 photos of Mars for planning their Mars probes, without releasing any of their own to NASA.

VISIT TO CAMBRIDGE Arrangements are being made to visit the RADIO AND OPTICAL astronomy observatories in Cambridge on April 6th. The outing may not return until late in the evening. Full details in next month's edition which will be published a few days or a week before the outing.

Apply to Ray Cheeman, [redacted], Ipswich, to book a place.

THANKS TO MICHAEL HAXELL
FOR THIS ARTICLE

MARINER 10 VENUS-MERCURY PROBE

Pioneer 10 first proved, a couple of months ago, the theory of the gravitational sling-shot manoeuvre. The Mariner 10 Venus-Mercury project will be the first to put this into practice. This technique uses the planets' gravitational field and orbital motion to change a space craft's speed and motion.

Mariner 10 was launched on 3rd November, 1973, and it is hoped it will arrive to within 5,311 km (3,300 Mls) of Venus on 7th February, 1974. At this distance it is calculated that the planet would sharply turn the path of the space craft, and change its velocity to 10,000 m.p.h. (16,093 km/hr) towards Mercury. It is expected to pass within 1,006 km (625 Mls) of the sun's innermost planet on 29th March, 74.

The experiment has been planned to observe both planets closely by television, measuring atmospheric constituents, surface temperatures, magnetic fields and cosmic radiation. Secondary objectives include measurement of the interplanetary environment.

Two T.V. cameras, fitted with Cassegrain telescopes, are expected to show Venus's dense cloud blanket, it is also hoped that ultra violet clouds may also be seen - these appear to rotate around the planet every five days.

Pictures of Mercury are expected to have a resolution similar to that of the moon, taken through earth based telescopes, increasing overnight our knowledge of this obscure planet, supplying much more information than astronomers would ever have been able to observe. It is hoped that some 5,700 pictures will be taken of Venus with 2,740 frames at Mercury - where the camera will be capable of producing a picture every 42 seconds.

The scientific experiments for this spacecraft are as follows:-

Scanning Electronic Analyser to measure ions - thus helping to define how the solar wind interacts with Mercury and Venus - further correlation of these measurements with those obtained by Pioneers 10 and 11.

Two Magnetometers to measure magnetic fields during the flight are also placed in the scientific package.

An Ultraviolet Spectrometer to obtain direct measurements of airglow, which together with occultation techniques should give the likely structure and composition of the Venerian atmosphere and search for an atmosphere on Mercury. The experiment will also monitor galactic and inter-planetary background radiation and observe the earth's geocorona.

There is also an infra-red radiometer to measure thermal emissions from the two planets.

The results of this probe should thus be interesting and enlightening, especially concerning Mercury, a planet we knew virtually next to nothing about.

SKETCH OF VENUS-MERCURY PROBE - MARINER 10

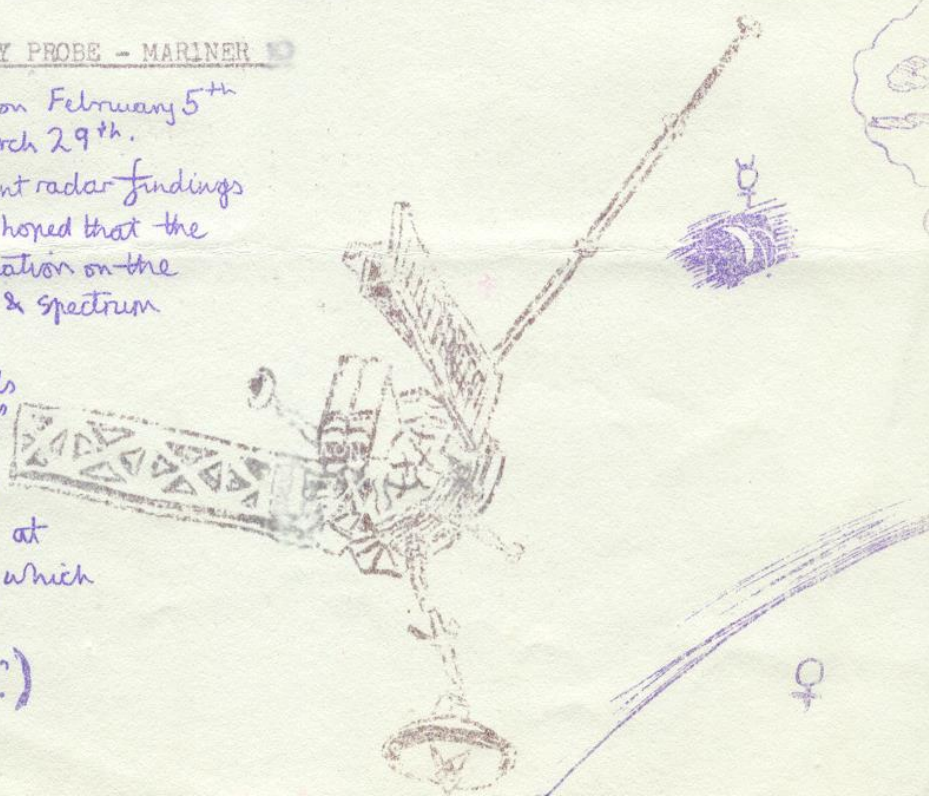
Mariner-10 Passed Venus on February 5th
& will pass Mercury on March 29th.

Perhaps it can confirm recent radar findings about Mercury. It was hoped that the probe could supply information on the pulsating of Venus' clouds & spectrum recently discovered.

Some structures layering ^{in clouds} seen in the photos of Venus;
some pictures of

Earth & Moon were taken at the start of the mission, which were of a fairly quality

(Ed?)



Our Society wants a typewriter for the assistant Secretary. If you have one which you would like to sell to the Society please contact either Mr. R.M. Cheesman, [REDACTED], or Mr. G. Collier, [REDACTED] Church Street, Chelmondiston.

STAMPED ADDRESSED ENVELOPES.

At the last Committee Meeting the distribution of the journals was discussed and it was found that many members were not receiving their monthly journals. As the distribution of the journals seems to get more and more of a problem with our ever increasing membership it would be appreciated if members, especially those living outside the Ipswich area, would send a supply of stamps to cover postage of their journal. These should be sent to the Editor, Mr. C. Radley, [REDACTED], Bourne Hill, Sherstead, Nr, Ipswich.

LIBRARY BOOKS.

Will members who have borrowed books from the Society's Library please return them this month as a lot of them have been out for some considerable time.

We have been given about six new books on various aspects of astronomy by Mr. W. Carey one of our members. If you have any books on astronomy that you no longer require and would like to donate them to the Society please contact Mr. R.M. Cheesman.

PROPOSED TRIP TO CAMBRIDGE.

It is proposed to hold a trip to Cambridge on Saturday 6th April to see the Cambridge Institute of Astronomy Optical Observatories and the Mullard Radio Astronomy Observatory.

The cost for transport would be in the region of 75p per person. If you are interested in going on this trip please contact Mr. R.M. Cheesman, [REDACTED], Ipswich, as soon as possible so that arrangements can be made.

Further details of times, etc. will be in next month's journal.

J.A.S. MEETING AT ORWELL PARK SCHOOL.

On Saturday 4th May the J.A.S. is holding their meeting at Orwell Park School. A talk will be given by Dr. J. Dewhurst on 'Any more Planets out there?'

If any members would like to come to this meeting they will be most welcome. Assistance is required on this day by members to help in organising the day and if any members would like to offer transport to visitors to Orwell Park School from the Ipswich Railway Station please contact Mr. R.M. Cheesman, [REDACTED], Ipswich.

ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

MINUTES OF THE COMMITTEE MEETING

held on 11th February, 1974.

Present: R.M. Cheesman (Chairman) M. Hadden (Secretary) G. Collier (Treasurer)
M. Stow, D. Bearcroft, P. Carroll, J. Jeans & C. Radley.
Apologies: V. Wilkes.

The Chairman opened the meeting by welcoming the two new members to the committee.

BANK ACCOUNT.

Mr. D. Bearcroft proposed that the Society should transfer a greater part of it's funds from a current account at the bank to a deposit account. The committee agreed this and the treasurer said that he would arrange to have the money transferred.

PURCHASES:

Members of the committee suggested that the following items be purchased:

1. A typewriter for the new secretary. It was hoped that the Society could purchase a second-hand one suitable for typing stencils.
2. An eyepiece which would give about 150X and some filters.

TELEPHONE: It was suggested by Mr. Radley that a telephone box should be installed in the observatory but the cost of installation was in doubt. Mr. Radley said that he would try to get a price for this.

PHOTOGRAPHIC EQUIPMENT:

The Secretary informed the committee that he had recieved a letter from Photographic Services, Ltd., Ipswich who had offered members of the Society discounts off purchases from their shop. For further details members should contact him.

J.A.S. MEETING.

Mr. Radley informed the committee that arrangements had been made for the J.A.S. to hold their meeting at Orwell Park School on 4th May starting at 2-30p.m. It was hoped that members would offer transport to visitors from Ipswich Railway Station to Orwell Park School.

LUNAR SECTION MEETING B.A.A.

P. Moore, director Lunar Section B.A.A., had advised us that because of the present transport difficulties the B.A.A. meeting in Ipswich had had to be postponed.

OPEN DAY, 1974.

It was hoped to hold another Open Day during 1974 and the date suggested was Saturday, 28th September.

VISITORS TO ORWELL PARK TELESCOPE.

The Chairman reported that he had been approached by many organisations for visits to our observatory. If any member recieved enquireries about organized visits they should arrange them through the Chairman.

As there was no other business the Chairman called the meeting to a close.

Next meeting Monday 11th March, 1974.

ORBITAL ASTRONOMICAL SOCIETY (IPSWICH)

CLUB NIGHTS MARCH, 1974.

MONDAYS: from 8p.m. Weather permitting.
Directors: K. Harris, [redacted] Ipswich, Tel [redacted]
and T. Day, [redacted], Elmsett, Tel. Offton [redacted]
March 4th
" 18th
April 1st.

TUESDAYS: from 8p.m. Weather permitting
Directors: G. Collier, [redacted] Church St. Ch-Imondiston
Tel. Woolverstone [redacted]
and A. Farthing, [redacted], Winesham.
March 11th
" 25th

TUESDAYS: from 8p.m.
Director: D. Bearcroft, [redacted] Ipswich, Tel. [redacted]
March 5th
" 19th
April 2nd

WEDNESDAYS: from 7p.m.
Director: R.M. Cheesman, [redacted], Ipswich.
March 13th
" 27th
from 8.30p.m. March 20th

FRIDAYS: from 8p.m.
Directors: M. Stow, [redacted], Ipswich.
and T. Cardot, [redacted], Ipswich
March 1st
" 15th
" 29th

FRIDAYS: from 8p.m.
Directors: J. Deans, [redacted], Chapel St. Mary,
Tel. Ipswich [redacted]
and K. Dye, [redacted], Ipswich, Tel [redacted]
March 8th
" 22nd

SPECIAL MEETINGS. Weather permitting. IF YOU COME TO ANY
OF THESE MEETINGS PLEASE KEEP QUIET AS WE DO NOT WISH TO
UPSET THE BOYS AT THE SCHOOL.

Thursday and Friday, 21st and 22nd March to observe Mercury.
5 A.M. to 7 A.M.

Saturday 2nd March Weather permitting. to observe occultation of
Saturn by the Moon
10p.m. to mid-night.

Director of these three meetings, R.M. Cheesman, [redacted],
Ipswich.

THURSDAY 16th March. 7.30p.m.
Visit to observatory by Society of Surveying Technicians
organised by Mr. R.M. Cheesman.