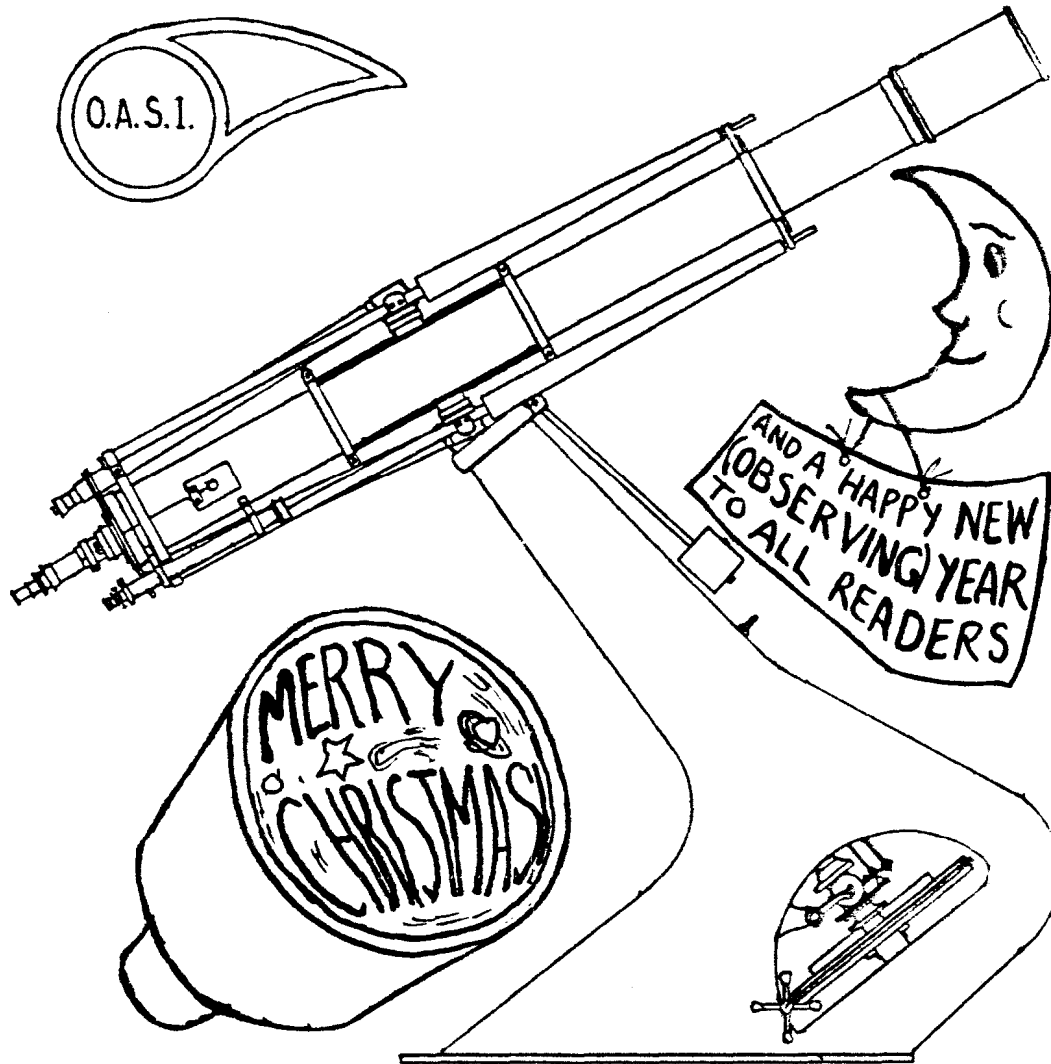


Your submissions of items for the Journal will be welcome.

# THE NIGHT SKY AS SEEN FROM ORWELL PARK IN DECEMBER

by Roy Adams



ORION is the dominant southern sky constellation of the month, pursuing Taurus' Hyades and Pleiades. Auriga and Gemini show brightly above Orion; Perseus to the west is still visible for some hours.

Canis Minor follows with Cancer and Leo appears later in the night. The Milky Way spreads its sparkling arc across the heavens from the south-eastern Canis Major and Sirius, over to Andromeda.

Camelopardus and Lynx, both devoid of very bright stars, occupy the zenith this month, preceded by Cassiopeia and followed by the 'realm of nebulae and clusters' in Ursa Major.

**THE SUN** The Sun leaves Scorpio, entering Sagittarius. Time of sunrise delays from 07h 50m on the first day, to 08h 10m at New Year. Sunset is virtually stable at about 15h 55m throughout the month. There is a PARTIAL ECLIPSE of the Sun on December 15th, at Sunrise (visible in the British Isles).

**THE MOON - Phases**

Full Moon	1d 00h 21m	New Moon	15d 09h 18m
Last Quarter	7d 15h 53m	First Quarter	23d 14h 17m
		Full Moon	31d 11h 33m

**Occultations - Star Phase Mag. Time**

	1702	D	4.2	8d 06h 12.7m	
D- Disappearance	1702	R	4.2	8d (Sun may interfere)	
R- Reappearance.	3228	D	6.5	20d 18h 51.5m	
Stars listed according	3349	D	4.2	21d 18h 15.6m	Times listed
to Zodiacal Catalog	3484	D	6.8	22d 19h 35.0m	are those
III, numbers.	306	D	6.9	25d 21h 45.9m	for the lat-
	454	D	5.8	27d 02h 12.2m	itude and
	590	D	6.3	28d 00h 31.8m	longitude of
	610	D	6.2	28d 03h 51.2m	Greenwich.

**Eclipse** - There is a total eclipse of the Moon on the 30th.

**THE PLANETS**

**Mercury** is at greatest elongation of 20° on the 30th, but visible only in early evenings at the very end of the month, when its arc diameter will be 7".

**Venus**. Also 'invisible' until the end of the month, when it will be seeable in the early evenings at mag. -3.4, with arc diameter 10".

**Mars** is low in the western sky at mag. +1.3. Although setting in basically receding sky in the evening, it is travelling increasingly northward and will be better seen at month-end. Diameter 5" arc.

**Jupiter** can be seen at mag. -1.3 in the mornings, by the end of the month visible before 06h. On the 13th, the Moon will be a couple of degrees to the east. Jupiter's equatorial diameter at this time will be 31" arc.

**Saturn**. A +0.9 mag. object in Virgo, for morning observation, equatorial diameter then being about 16" arc.

## METEOR NOTES FOR DECEMBER 1982

There are two showers active this month.

- 1) The Geminids Maximum on December 14th but active from 7th to 15th. Radiant 07h28m +32°. Radiant daily motion, RA +1.02, Dec -0.07. Telescopically active. ZHR 60. This shower is rich in fireballs and faint meteors.
- 2) The Ursids Maximum on December 22nd, active from 17th to 24th. ZHR about 5. Radiant 14h28m +78°. Radiant daily motion RA +0.88, Dec -0.45. Rich in faint meteors.

There will be meteor counts to observe this shower at the observatory on Tuesday and Wednesday, 21st and 22nd December, at 7.30 pm.

D. Barnard

### OCCULTATION SECTION

There is a grazing occultation on Tuesday, December 7th at 05h20m (approx.). The track is around the Colchester area. Contact Alan Smith on [redacted] as there will be a field expedition to monitor this event.

### AN AMATEUR ASTRONOMY CENTRE

The Society has recently received from Peter Drew and Linda Simonian of Bedford Astronomical Supplies a circularized letter setting out their plans for the construction of a major astronomical complex to be called "The Amateur Astronomy Centre".

The aim of the Centre is to provide amateurs in the U. K. with a wide variety of powerful instruments for both photographic and visual observation of all types of astronomical objects, thereby filling a gap left by the existing amateur organizations in this country such as the B. A. A. and J. A. S.

The list of instruments and facilities is very impressive. It includes a 40-inch Cassegrain-Newtonian reflector, fork-mounted and electrically-driven, and housed in a 25-foot dome. In addition there will be 30-inch and 17-inch Newtonians, a Schmidt camera, 5-inch apochromatic solar refractor, 120-mm o.g. binoculars, camera obscura, planetarium and library, as well as many small, portable telescopes. The major building on the site will be 25 feet by 50 feet and will incorporate the dome for the 40-inch reflector. Educational facilities and basic catering services are also to be provided.

The site itself has apparently already been negotiated for by Bedford Astronomical Supplies, some 12 acres on the site of a former clay pipe works on the A681 Bypass to Todmorden road in West Yorkshire, roughly between Manchester and Burnley. It is 1150 feet above sea level and has fairly clear horizons to the East, South and West. There will be space for car-parking.

As for the all-important subject of financing, I shall quote a brief section from Peter Drew's letter:

'The original purchase of the land and provision of a large proportion of the instrumentation will be financed by Bedford Astronomical Supplies, additional funds for the remainder and future running costs will hopefully be raised by subscription membership to the Centre by the amateur astronomers of the U. K. We envisage a membership fee of £2.50 per annum (school children free).'

Regular conducted tours and observing sessions will be arranged for individual societies as well as at least four weekend meetings per year of the American 'Star Party' kind. Early subscribers to the Centre will receive special privileges as founder members such as priority consideration for special events and services.

In my personal opinion this seems to be an interesting and ambitious scheme that is well worth backing. However, we would like to know more about the project,

particularly concerning the financing and running of the Centre. Since several other O. A. S. I. Committee members feel the same way, it is hoped that we shall be able to invite Peter Drew down to Ipswich in the near future in order to learn more about the project. In the meantime, the original letters are on the Club-room notice board for members to read.

Incidentally, many of you will remember Peter Drew from the Society's last Open Day. He brought along a selection of telescopes that he manufactures.

Micheal Barriskill

P.S. by Roy Adams: Peter is hoping to use the Sun and wind (also of course generated by the Sun) to provide heating and electrical supplies for the complex. So this should be an interesting platform for those interested in 'Alternative Technology' too.

### THE SOCIETY 'FIREBALL' CAMERA

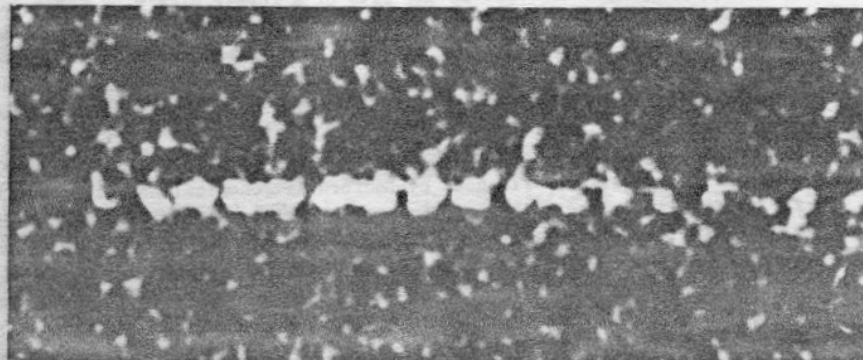
Some years ago a secondhand Zorki 4 camera with a fisheye auxiliary lens attached was purchased from a (now retired) O. A. S. I. member. Although the lens was slightly damaged a reasonable image was still obtainable and it was with some interest that the strange circular photographs of the whole sky were viewed. After some tentative experimentation and a rather poor response from the B. A. A. Meteor Section, the camera was passed to me to run on a regular basis in 1978.

After cleaning-up and testing the camera and lens I mounted the assembly in a small wooden box with just the lens surface poking out of the top. A metal cover, fitted around the lens, was heated using 18-Watt resistors to keep the dew off optical surfaces and the complete assembly made as waterproof as possible.

The first film taken from 18th September 1978 was sent to the B. A. A. Meteor Section and a prompt reply spurred me to ensure that the O. A. S. I. would become a regular member of the Fireball Network of Great Britain.

However, by September 1980, despite continual requests from myself for feedback from the B. A. A. concerning several fireball reports and possible photographs, I became completely disillusioned with the efficiency of the B. A. A. and decided that I would develop my own films and report the results to the British Meteor Society of which I was a member.

In March 1981 I fitted a rotating shutter (a set of 'helicopter' blades) in



front of the . This allows the speed of any fast-moving objects photographed to be measured, and as a 'by-product', reduces the amount of background fogging mainly caused by terrestrial lights. The 'dotted line' image produced on the film is also much easier to spot when scanning the film negatives using some very high-powered viewing optics that I have recently acquired.

Also in March 1981 the camera was semi-automated so that it would start and stop filming at pre-determined times of the night allowing more exposures to be made, especially after midnight when I had previously to stop filming.

So far, since September 1978 I have taken 830 photographs, over a total observing period of 1 475 hours, 53 minutes, 23 seconds. I have recorded five fireballs, (statistically, one fireball is photographed every 400 hours approximately so I am batting slightly above average at the moment) the most spectacular being on 3rd February 1982, a copy picture showing this being reproduced with this article.

The drawbacks of the fisheye lens system for all-sky photography are that the camera is photographically slow, that is, it will photograph only quite bright objects, mag. -4 and above, the total image size is small, and the fireball tracks are very small.

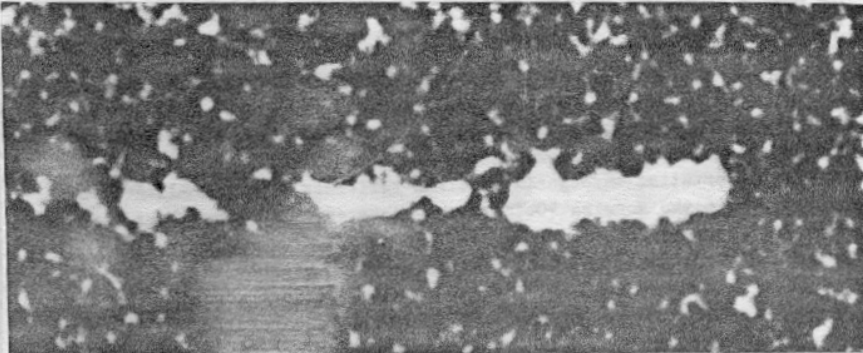
A more sophisticated system that is presently under construction for some new optics purchased by the O. A. S. I. will shortly (I hope) be finished and no further improvements will be worthwhile using this system because of the drawbacks already mentioned. However, a more expensive but very much more useful system using several 35-mm cameras with standard lenses is very much a possibility for the future.

If anyone who operates regularly, an all-sky camera could contact me on Ipswich 686103 I would be very interested to hear from you.

Remember, you need no equipment to observe meteors. Just your eyes and some of your time can yield spectacular observations from your own back garden.

A. J. Smith

The fireball track shown below was photographed on 3rd February, 1982 between 2217.20 hrs and 2310.35 hrs. The mottled effect in the dark background is due to the enormous enlargement employed - something of the order of 100 times - of the negative, so individual grains of the photographic emulsion unavoidably appear.

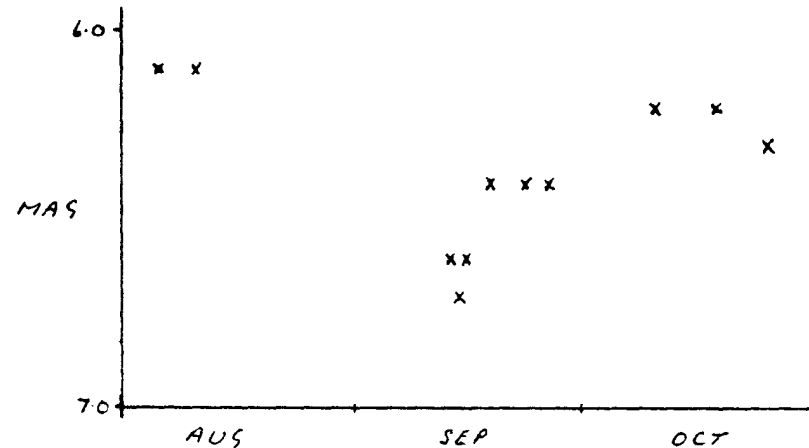


#### VARIABLE STAR OBSERVATIONS

by Miss Nicholls

This month's light curve is that of R Coronae Borealis over the 3-month period from August to October 1982. For over a year this star has remained constant at around magnitude 6.1 give or take 0.1. During the period shown, however, it dropped in brightness and then rose up again. Unfortunately, I have not been able to observe it recently. Its next move is uncertain. It may remain constant for a considerable time or it may drop sharply to the 12th magnitude or fainter. Ideas about the mechanism of this type of star will be discussed in a later journal.

Observations were made using 10x50 binoculars.



#### SOLAR OBSERVATIONS

by Roy Adams

A quite extensive sunspot group was present near mid-disk on 15th November. In fact, one could almost call it a 'system' rather than just a group. I have not been able to photograph this group but from its size and complexity it will be worth awaiting the return on or about Monday, 6th December. Later last month, on 25th, some fair other activity was visible using a 55-mm o.g. telescope in back-projection. It seems that this '11-year' maximum is reluctant to fade.

## SOCIETY NEWS

#### VISIT TO NORWICH ASTRONOMICAL SOCIETY

by Roy Adams

We are indebted to members present of Norwich Astronomical Society at their Colney Lane Headquarters on Friday evening, 19th November, for a very interesting time being shown over, in, down below and further below in the basement, their new Observatory building. Nine O. A. S. I. members, taking advantage of a fine dark sky, joined in observation through the 10-inch reflector with flyball-governor-regulated weight drive in the Norwich 10-foot dome, then saw what marvellous work had been done on the 30-inch reflector.

If not told, one would never know that the main drive assembly in R.A. was a large oil-rig bushing - a massive piece of metal about three feet across. The drive will involve a heavy cycle chain. 'Teeth' for this will be carefully pinned-in at intervals on the originally smooth outside of the bushing to provide positive 'grip'.

The diagonal has a minor axis of 6.5 inches and its housing and the shrouding cylinder at the diagonal end is rotatable on a tube rail with 'V'-action supports.

done for a 30-inch is truly a space-age construction: The steps giving access rotate with the rest of the dome which rotates on a series of wheels on the outwardly nearly invisible base. The galvanized-iron sphere opens by a pivoting door much reminiscent of the ultimate in sports cars, or of what might be expected in a science-fiction interplanetary craft. The inside, though in later stages of construction and finishing, is no let-down. Preliminary operation is expected to start in about four months.

Down in the basement next to the pier concrete on top of its prodigious man-made mound with suitable flat top, necessitated by the earlier unevenness of the site, is the large mirror-grinding machine, which had to be dismantled to enter and after some further work lined-up for it on other mirrors, it will have to be taken apart again to get out. This machine in itself is an education: many strange disks and rods with holes in to fire one with the enthusiasm to make one's own large mirror.

The Clubroom, scene of our later departure, has a nice lot of room in it for lecture meets as well as homely chats. Some detailed members' work appeared on the walls showing what can be done, observing, as well as in making telescopes.

Norwich now 'owe' us a visit and we expect this will be soon. In the meantime, they are always glad to see folk and anyone making the trip would find it well worth the while.

**METEOROLOGICAL INSTRUMENTS FOR THE O. A. S. I.** Mr. F. Byers, one of our members living in Felixstowe, has kindly donated a barograph and whirling hygrometer to the Society. The barograph will be installed in the Clubroom once a suitable cabinet is made.

**SOCIETY PROJECTOR** A Hanimex plus editor and autofocus, preview screen and facility for taking universal and rotary magazines has now been purchased by the Society.

**DRAW TICKETS** Counterfoils should be returned by December 1st if possible, but there are still supplies available if anybody wishes to buy more.

**JANUARY'S JOURNAL & CHANGE OF ADDRESS OF ROY CHEESMAN** Because of the Christmas Mail the deadline for the January Journal is Thursday, 9th December. All items to be included in January's Journal should be sent a. s. a. p. to Mr. R. M. Cheesman, AT HIS NEW ADDRESS - [REDACTED], CHELMSFORD, ESSEX CM1 4DF.

**NEW SOCIETY MEMBERS**

Mr. T. Gillan, [REDACTED], Felixstowe.

Mr. & Mrs. A. Krailing, [REDACTED], Kirton, Ipswich.

Mr. Neil R. Taylor, [REDACTED], Walton, Felixstowe.

**1983 SUBSCRIPTION REMINDER** The subscriptions for continued membership are due on January 1st 1983 and should be sent to the Membership Secretary, Mr. M. Barriskill, [REDACTED], Ipswich. THE NEW RATES ARE: JUNIOR £3.00; ADULT £4.50; FAMILY £5.50.

The monthly Society newsletter (Journal) will be posted to members at an additional cost of £1.50, otherwise it will be left in the Clubroom at the Observatory for collection.

**AN 'EARLY' MECCANO MOUNTING FOR A SMALL TELESCOPE (Part III)** by Roy Adams

The main Declination gear was composed of similar Meccano racking and identical in diameter to the R.A. gear, but was only 7/12 of a circle. I had chosen the main gear diameter on the basis of its being the best for an even disposition of the small choice of rackstrips round the circle and the '16-interval' format round the main flanged wheels, diskplates, hub disks etc. What came out of this was a compromise of 'coarse' gearing interval - 1.1/3 teeth to 10, or 4 teeth to 30 viewing arc. The best pinion to mesh primarily on each main gear was a 25-teeth one: a smaller gear would have increased irregularities and a larger one, likelihood of slipping on its shaft. A worm drive would have meant no fast swing-round was possible, without an awkward mesh-d: engagement. Gearing-up to each handwheel/fine indicator by 5x gears

ORWELL ASTRONOMICAL SOCIETY (IPSWICH) - PROGRAMME FOR DECEMBER

at the Observatory, Orwell Park School, Nacton, near Ipswich.

**TUESDAYS** from 8 pm General Observations Section 7th, 14th, 21st and 28th.

Directors: Mr. N. Gage, [REDACTED], Felixstowe IP11 8ED. Tel: Fel. [REDACTED].  
Mr. R. Hebbs, [REDACTED], Felixstowe IP11 7BL. Tel: Fel. [REDACTED].

**WEDNESDAYS** from 8 pm Nebular and Faint Objects Section 1st, 8th, 15th, 22nd & 29th

Directors: Mr. D. Payne, [REDACTED], Wickham Market, IP13 OSD. Tel: Wickham Market [REDACTED]. Wartlesham Youth Club Visit, 7.45 pm, 8th.  
Mr. M. Cook, [REDACTED], Ipswich IP4 5QA. Tel: Ips [REDACTED].

**FRIDAYS** from 8 pm Variable Stars Section 10th 31st

Directors: Mr. M. Nicholls, [REDACTED], Capel St. Mary, Ipswich IP9 2EX. Tel: Gt. Wenham [REDACTED]. 1st Trisley Cubs Visit, 7.15 pm, 10th.  
Mr. R. Gooding, [REDACTED], Ipswich IP1 6AE.

**SUNDAYS** from 8 pm General Observations Section 5th and 19th

Directors: Mr. M. Barriskill, [REDACTED], Ipswich IP1 2EZ.  
Mr. R. Adams, [REDACTED], Ipswich IP2 9ST. Tel: Ips [REDACTED].

**SATURDAY** 7.30 pm GRAND DRAW AND COMMITTEE MEETING, DECEMBER 11TH 1982.

The Grand Draw will take place during the Committee Meeting at the Observatory, to which all members are invited. Owing to the meeting there will be no Geminid Meteor count.

**1983 LECTURE PROGRAMME:** The following lectures have been arranged. Reserve dates NOW!

- 1 Interstellar Molecules by Dr. J. E. Baker, on Thursday, 24th February, at the Suffolk College in Lecture Theatre 1. Starting at 7.30 pm, this lecture is in conjunction with the Royal Society of Chemistry.
- 2 A talk on Comets by Mr. M. Hendrie, on Friday, 25th March, at the Friends' Meeting House, 39 Fonnereau Road, starting at 8.00 pm. Mr. Hendrie is the Director of the B. A. A. Comet Section.

the slow-motion wheel on each axis, 1 rev. per 3.3/40. The picture in October's Journal may just reveal 15 intervals on each of the disks, which were of indian-inked card bolted onto a 3-inch pulley - one circumferential 0.6-inch interval for each 1/40 of sky. The 1:5 gear-up from the primary pinion was achieved by 95- and 19-teeth gears.

A compression-spring-operated clutch consisting of two 2-inch pulleys plus 'motor' tyres in each axis transmission allowed some of the transmission mass and the clock-shaft to be excused rotation at the faster slewing speeds. An ultra-slow-motion worm drive was engageable on each axis for hand guiding without a clock and for corrections. The clock drive shaft (never having a clock fitted, but ready for it) went through the centre of the R.A. axis and via 90° bevel gears to the handwheel/indicator/main pinion R.A. gear. The coarse indication circles were indian-inked on cardstrips after taping. In time, the tape had to be renewed: it didn't like dew!

A counterweight was used to balance the weights of the R.A. and Dec transmission and telescope. It was a necessity to avoid gearstrain (maximum about 3 lb attemptedly before clutchslip) and without clutchslip the exigencies of 'dark' observing would have made the 'nudges' it got in return for getting in the way, somewhat damaging to the gears and shafts it was supposed to protect ... (To be concluded next month.)



'HEY, MATE! (HIC!) HOW DO THEY EXSHPECT TO HOLD UP THAT XMAS PUDDING & KEEP IN THE BRANDY WITH THAT MASSIVE HOLE IN ITSH PLATE?!

[REDACTED]  
Ipswich,

Suffolk

IP1 6AE

1st December 1982

Dear Member,

ANNUAL GENERAL MEETING

You are invited to attend the Annual General Meeting of the Orwell Astronomical Society (Ipswich) to be held in the Library of Orwell Park School, Nacton, on Saturday, 8th January 1983 starting at 8.00 pm.

At this meeting new officers of the Committee will be elected to represent you for 1983. Also the Society's progress during 1982 will be discussed together with proposals for the future of our Society.

Yours faithfully,

(signed) Roy Gooding,

Hon. Sec., O. A. S. I.