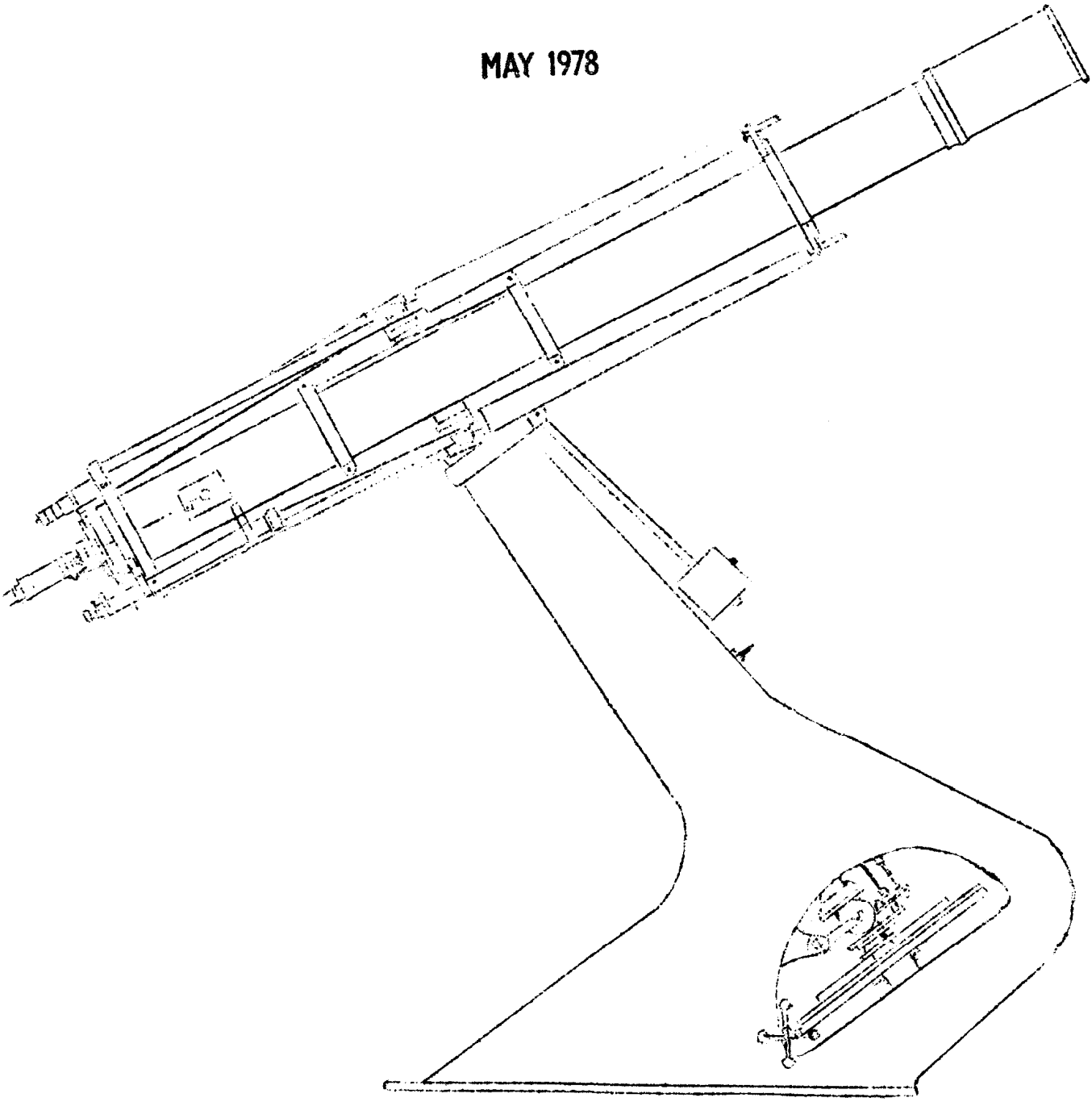
O.A.S.I.

JOURNAL OF THE

ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

MAY 1978



Editor: Mr. Mark Howe,
[redacted],
BURY ST. EDMUNDS,
Suffolk.
'Phone Bury St. Edmunds [redacted]

Editor: Mark Howe, [redacted], BURY ST. EDMUNDS, Suffolk
'Phone Bury St. Edmunds [redacted]
Producer: Roy Adams, [redacted], IPSWICH (IP2 9ST)
'Phone Ipswich [redacted]
Your submissions of items for the Journal will be welcome

PROGRAMME FOR MAY 1978 At ORWELL PARK OBSERVATORY, NACTON, IPSWICH

TUESDAYS from 7 pm: Planetary Section May 2nd, 16th and 30th
Directors Mr. J. Deans, [redacted], Capel St. Mary 'Phone Gt. Wenham [redacted]
and Mr. J. Hood, [redacted], Ipswich

TUESDAYS from 7 pm: Solar, Lunar and Planetary Section May 9th and 23rd
Directors Mr. J. Hood, [redacted], Ipswich
and Mr. M. Barritt, [redacted], Ipswich

THURSDAYS from 8 pm: Double Stars Section May 11th and 25th
Director Mr. D. Bearcroft, [redacted], Ipswich 'Phone [redacted]

FRIDAYS from 8 pm: Variable Stars Section May 12th and 26th
Directors Mr. R.S. Manning, [redacted], Ipswich 'Phone [redacted]
and Mr. M. Siggers, [redacted], Ipswich

Other meetings at the Observatory may be arranged by prior agreement.

Meetings held on FOXHALL HEATH, IPSWICH

SATURDAYS Meteor Section Director Mr. D. Barnard, [redacted], Ipswich
'Phone [redacted]

Other meetings are occasionally held, and for further information about the Orwell Astronomical Society and activities, please contact any of the persons above, or Mr. Alan Smith, [redacted], Ipswich 'Phone [redacted] or our Treasurer, Mrs. P. Long, [redacted], Ipswich 'Phone [redacted]

PRINTING YOUR JOURNAL

Many of you will have heard that Mr. Roy Cheesman now works away from Ipswich and can no longer carry out the production of the Journal. The job has been taken on by Yours Truly, Roy Adams, who would like to make some apology for the 'stardust and black holes' quality of this issue and lesser volume than usual. This is directly due to a limited time for the 'takeover', and to the vagaries of the Society's duplicator, long unused, Roy Cheesman having duplicated the Journal under his own auspices. Principal problems encountered with the newly de-mothballed duplicator have been differential transmissivity of the ink pad round the drum and erratic auto-feed, hence all work had to be hand fed. A decent overhaul may do the trick, but there wasn't the time.

Your stand-in Chairman, Alan Smith, and I have discussed possible new Journal formats and it's believed that 'dry' photocopying en-bloc of several sheets at once, in microtype and near-pocket format is the answer for better, quicker, cleaner, more even and more efficient results. The cost should be cheaper, too.

This issue has been made without the usual front cover; and some article material of my own writing that I would have included, I have omitted owing to duplicator trouble. The duplicating is on one side only of sheets to relieve the already poor readability, and I hope you will bear with those concerned. As you will, I hope, appreciate, the main thing is that the Journal should 'go on' or 'go out' on or near on time in spite of problems, short-term. Meanwhile, thanks to Roy Cheesman for his particular efforts, long-term, on the Journal, and to all those who have contributed, by mind, pen, arm, and legs (or wheels) getting the issues round. It is not every society that has a journal as regular and newsy as ours, and <u>your</u> interest will help maintain this fact.

THE OBSERVATORY TEN-INCH TELESCOPE DRIVE ELECTRIFICATION

A couple of months ago, interest in providing an easily workable, more accurate and 'foolproof' drive for the big telescope was revived, as it was a necessity to realizing the aim of using the telescope better. Several interesting options exist: These were evaluated mainly by me but discussed with many others, and further found-out about. Contact with several Trade suppliers was made with a view to seeing what was currently available in the way of motor systems particularly. I hope to prepare a series of articles on these Drive Possibilities, but meanwhile, Alan Smith and other workers are setting-up a system which will be at least, provisional, for the equatorial axis, consisting of a squirrel-cage motor, variable frequency oscillator and gearing. May we commend them on grasping the challenge and look forward to using the new facility soon.

Roy Adams

ADVERTISEMENTS SECTION We intend to trial-run a short Adverts. Section for Members' use, free of charge. Send your entries to Roy Adams. Alan is kicking-off with:

@ WANTED for Society Telescope Drive:- 1/ 12V Car battery with lugs (not posts),
2/ 12V Car battery Charger 3/ 3 x 2'x1' sheets of 1/4" ply.
Contact A.J. Smith, Ipswich 51593

@ GOOD QUALITY Telescope mirror wanted at reasonable price - about 6" diameter and F.4 to F.6 preferably. Also, nice eyepiece/s. Roy Adams (address/phone above).

THE NIGHT SKY as seen from Orwell Park this month.

At around midnight Corona Borealis is due South; it is one of the few constellations which looks alot like the object it is named after. Before midnight Libra will be visible low down in the South; its brightest star Beta Librae is the only star in the sky which appears green to the naked eye. Even lower down the bright star Antares in Scorpius may be glimpsed - this star has a green 7th. magnitude comes which is notoriously difficult to see, both because of the brightness of the primary and because of the low altitude. Most of this magnificent constellation is not visible from Gt. Britain.

THE SUN

The Sun starts the month in Aries and passes from there into Taurus. At mid-month Sunrise is at 04h00m and Sunset at 1950.

THE MOON - Phases

New Moon	May 7d04h47m
First Quarter	May 15d07h40m
Full Moon	May 22d13h27m
Last Quarter	May 29d03h50m

Occultations

Star	Phase	Mag.	Time
1599	D	5.0	16d23h29.8m
1708	D	6.2	17d23h13.3m
1814	D	7.0	18d22h42.5m
*3015	R	5.3	27d01h29.8m

D=disappearance, R=reappearance, *denotes double star. Stars are listed according to Zodiacal Catalog (ZC) numbers.

THE PLANETS

Mercury is a morning star reaching maximum elongation from the Sun of 26° on the 9th, when its magnitude will be 0.7.

Venus is still an evening star, reaching mag. -3.4 this month. It is in apphse with Jupiter towards the end of the month.

Mars decreases from mag. 1.0 to 1.4 this month, passing from Cancer into Leo.

Jupiter, in Gemini, passes 1.6°S of Venus on May 29.

Saturn: Not much of interest here, in Leo.

Uranus is at opposition on May 5, when its magnitude will be 5.7 and its angular diameter 3.9". It will then be 2.63 thousand million miles distant from the Earth.

FROM OTHER JOURNALS

Extragalactic Black Hole Discovered

A vast black hole of 5000 million Solar masses has been discovered EX in M87 in Virgo. Astronomers at the California Institute of Technology and Kitt Peak in Arizona have observed a dark circular patch, believed to be a black hole, in the centre of this giant galaxy which is 50 million l.y. away. (Guardian)

The Sunspot Cycle

Evidence to support the theory that the vagaries of the Solar atmosphere affect the climate on Earth has been unearthed. Observations made at the Kitt Peak National Observatory since 1975 show that in the second half of 1977 the temperature of the sun's visible surface (photosphere) fell by 6°C whereas in previous years the temperature had remained constant to within 2 degrees. This change coincides with the beginning of the new Sunspot cycle.

The evidence comes from spectroscopic observations and depends on the fact that the light-absorbing power of atoms in the photosphere depends on the temperature. (Nature-Times News Service)

Our Shaky Moon

Two astronomers at a French observatory have shown that American laser measurements reveal an oscillation of the Moon of about 25 yards amplitude and period 5 years. They believe it was caused by a meteor impact 800 years ago which was observed by a monk called Gervase of Canterbury in June 1178. The crater which it left behind, Giordano Bruno, is 22km in diameter and was discovered by satellites. (Sunday Times)

BAA EXHIBITION MEETING

The above meeting will be held this year on May 31 at the rooms of the Royal Commonwealth Society, Northumberland Avenue, London, and will last from 4pm to 8pm. The ordinary meeting, lasting one hour approximately, will begin at 6pm. Visitors should use the Craven St. entrance, just round the corner from Charing Cross Underground station and railway station.

THE VOYAGER MISSION pt.3

The Experiments (i)

The following is a summary of the different experiments aboard the Voyager spacecraft and are in no particular order.

The infrared spectrometer will measure temperatures at various depths in the planetary atmospheres, giving information about gas flow and general chemical composition. The ultraviolet spectrometers will also be useful in providing information about the atmospheres, and should yield the most information about the lightest elements, hydrogen and helium. The polarimeters will provide useful information about the chemical group called the aerosols and gives us characteristics of the satellites' surfaces. To information about the types and flow of charged particles (protons, electrons, etc.) in interplanetary space and in close proximity to the planets - several different types of detectors will be used. For example high-energy particles occurring in interplanetary space will be detected by the cosmic ray telescope. These measurements of charged particles and of magnetic fields can give scientists a better understanding of the process that allows electrons to be accelerated to a high velocity by Jupiter. Information on the radiation belts around Saturn and more especially Jupiter will give us a better understanding of their composition and mechanism. Magnetic fields that will be detected by the Voyagers will enable us to make better predictions about the internal structure of the planets.

The satellites of Jupiter and Saturn offers a barrier to charged particles that rotate with the planet much as the planets do to the Solar Wind (a complicated stream of charged particles originating from the Sun). The close approaches to Io, Ganymede and Callisto will allow the instruments to detect possible 'wakes' in the ocean of charged particles (like a ship's wake in the sea). The presence of charged particles in Jupiter's magnetosphere should also be analysed. This of course yields figures for the sweeping-up of particles by the satellites, and how fast they close in afterwards.

The 10m long whip-like antenna of the planetary astronomy experiment will be used to detect Jupiter's large output of radio waves. The spacecraft will let nothing to waste as it were, since the small amounts of radio transmission from the Voyagers will be re-received while passing Saturn, its Rings, each satellite, and Jupiter, to give information much like radar does. This information gives us very accurate knowledge of the size of the planets, their satellites, the composition of Saturn's rings, etc. Also, using their own radio signals, the mass, orbital motions and positions of all the planets and satellites that the Voyagers will pass will be accurately measured.

At Saturn the spacecraft should determine the presence or otherwise of a magnetosphere, and thus a magnetic filed. Some earlier experiments with an Earth-orbiting satellite suggest that Saturn does possess a magnetic fibld, but of course it is difficult to make a final decision from as far away as the Earth. Voyager can look for the shock wave caused by the Solar Windsitting Saturn's magnetosphere, and the effect Saturn's rings have on it. The experiments will also try to find out if Saturn's magnetic field is fixed to the planet's axial rotation (the Earth's and Jupiter's are). The rings may have major effects on charged particles if Saturn has a magnetic field.

SG Harvey.

ECOLOGY and Spaceflight

Man at the moment seems to bea rather homebound animal. he is tied to the Solar System by such things as the speed of light and even our undeveloped technology. In time, of course, the latter will be resolved, but the first problem is rather more of a barrier.

The nearest star is over 4 l.y. away, and the nearest planet on which intelligent life exists may be around 12½l.y. away. If a spaceship using present chemical fuels were to set off for such a planet now, it would reach its goal in about ½ million years time. Obviously this is hopelessly inadequate, and so first of all we must have a suitable fuel. This is relatively simple, as fusion generators are already being developed and are likely to be in use in a few years time. In time perhaps we will develop ways of using the annihilation of matter to obtain energy, which represents 100% efficiency in transforming matter to energy.

However, journeys are still bound to take a long time since nothing travels faster than light (but see later) and even light takes over 100 years to reach the nearest civilization. One way of getting round this problem might be to populate a large spaceship with people of all ages and skills, and send it off like a great ark. The crew would be specially chosen and would take their families with them so they could have children who, in their turn, would learn skills such as engineering or food supply, and take command of the ship. One could envisage many generations of families being borne and raised on the ship in this way, but would they like the situation they had been forced into? The possibilities are endless and many science fiction stories have been woven round this theme. It is possible that over a period of many generations the inhabitants could forget about the original purpose of the mission and end up as wanderers in space.