

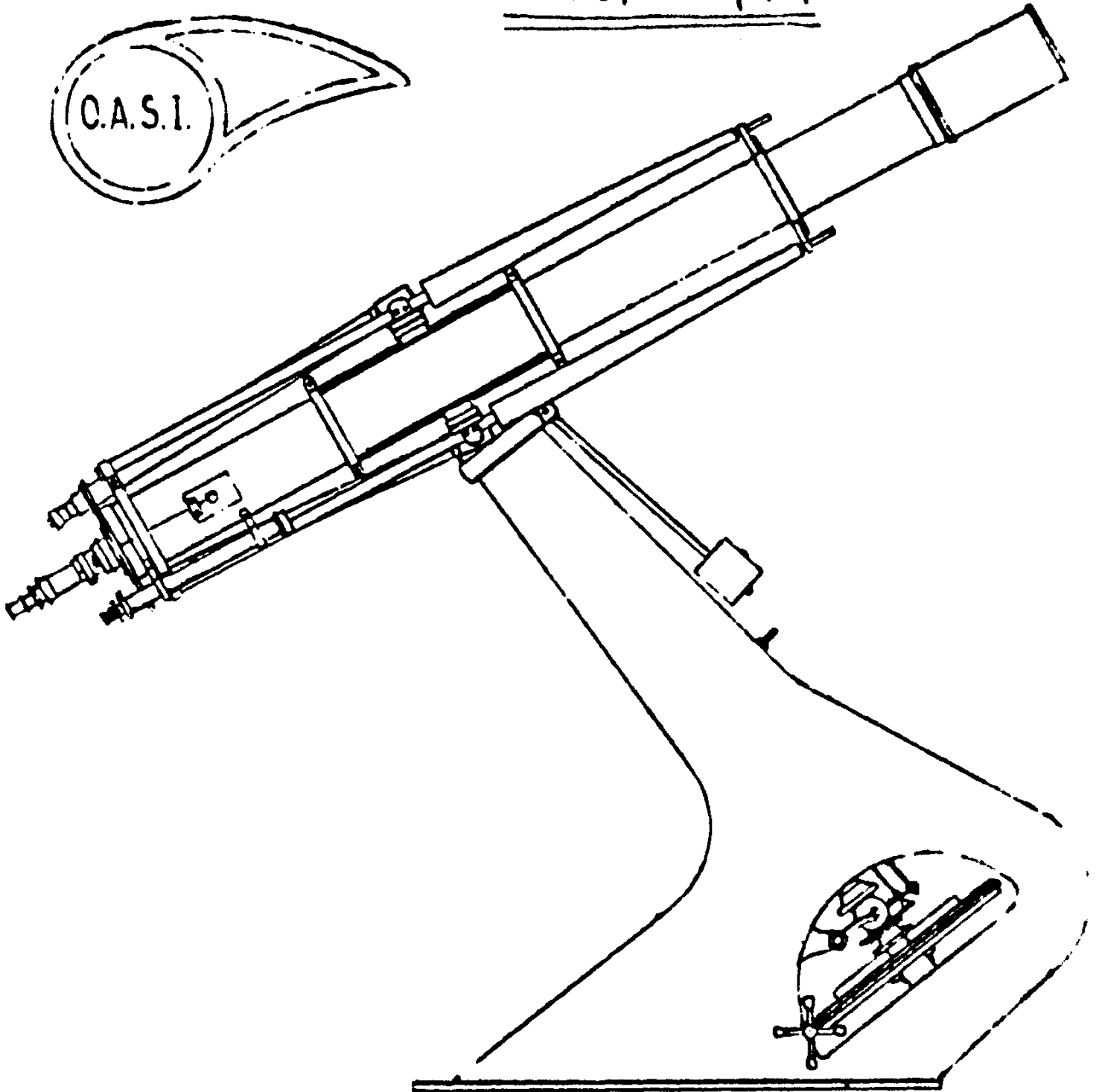
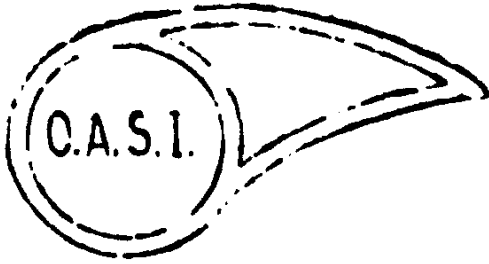
THE JOURNAL OF THE ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

Editor: Mr. Paul Burt, [REDACTED], Ipswich IP1 6PP 'Phone Ipswich [REDACTED]

Producer: Roy Adams, [REDACTED], Ipswich IP2 9ST 'Phone Ipswich [REDACTED]

Your submissions of items for the Journal will be welcome.

JULY 1979



The Orwell Park Observatory 10-inch Astronomical Telescope at Racton near Ipswich

The head of Draco is in the zenith around midnight, with Cygnus and Lyra now high in the sky to the east of it. Andromeda and Pegasus are stretched horizontally above the north-eastern horizon. To the south-east, between epsilon Pegasi and Altair (alpha Aquilae), lies the neat little constellation of Delphinus, the Dolphin. Hercules and Ophiuchus still dominate the meridian, and on the southern horizon, Antares can be found in the head of Scorpius. Also on the southern horizon, east of Antares, lies Sagittarius, worth sweeping with binoculars or with a low magnification for its "star clouds" pointing to the centre of our galaxy. The western sky is dominated by Bootes and Ursa Major, with Virgo heading for the western horizon.

THE SUN

Sunrise is at 03h40m at the beginning of the month, changing to 04h20m at month-end. Sunset changes from 20h30m to 20h00m. The Sun moves from Gemini to Cancer during the month.

THE MOON - Phases (July)

| | | | |
|---------------|----------|--------------|-----------|
| First Quarter | 2d15h24m | Last Quarter | 16d10h59m |
| Full Moon | 9d19h59m | New Moon | 24d01h41m |

Occultations

| Star | Phase | Mag. | Time | D - Disappearance. | Stars listed according to Zodiacal Catalog (ZC) numbers. |
|------|-------|------|-------------|--------------------|--|
| 1849 | D | 6.2 | 2d21h23.7m | | |
| 2032 | D | 7.3 | 31d21h34.8m | | |

THE PLANETS

Mercury is an evening star this month, reaching greatest elongation east, of 26° on the 3rd, at mag. +0.7, setting about 80 minutes after the Sun. Inferior conjunction is on the 31st.

Venus will be rising an hour before the Sun at the start of the month, at mag. -3.3, but will be lost in the sunrise by the end of the month.

Mars rises at around 0100h at mag. +1.5, moving across Taurus during the month.

Jupiter will be setting two hours after the Sun at mag. -1.3 in Cancer at the beginning of the month, but will be lost in the sunset by month-end.

Saturn is setting an hour after Jupiter, at mag. +1.1, in Leo.

Neptune is still above the southern horizon, due east of Antares at RA 17h11m, Dec. $-21^\circ 30'$. Its magnitude is 7.7.

Source: BAA Handbook 1979. All times are U.T. (= B.S.T. minus 1 hour).

NOVALIKE OBJECT IN VULPECULA

If you get the chance, try and have a look for and at this object, which before about a year ago, was usually of magnitude only about 16 to 16.5, with occasional rises to near mag. 15 (for example in 1926 and 1955).

Harvard College's Damon Patrol (not Demon Patrol, please note) has found from photo-plates of theirs taken at their Observatory, that the magnitude has increased a great deal in the past eighteen months or so:

| | |
|------------------|------|
| 1977 November 2 | 12.5 |
| 1978 July 1 | 10.9 |
| 1978 November 26 | 9.5 |

G.M. Hurst of The Astronomer suggests that the brightness is still increasing, but that not enough observations of the object are being made. So we should 'get on' to this object, which is possibly an extra-slow nova, the brightness now surely within the grasp of moderately-sized instruments in spite of the shortness of the night and somewhat less pure black of present skies. Position: RA 20h19m01s.08, Dec $+21^\circ 24' 43''.1$. (1950.0) as notified in BAA Circular 594.

RETIREMENT OF MR. BELLE, HEADMASTER OF ORWELL PARK SCHOOL

We have reluctantly to report that Mr. B.H. Belle, the Headmaster of Orwell Park School for many years, will be retiring from office on July 18th.

The Orwell Astronomical Society members have much to thank Mr. Belle for in regard to the use of the Observatory and other facilities and his very valued interest in the Society in so many ways. We would like to express a token of such gratitude to Mr. Belle, and wish him a long, happy and active retirement.

Mr. Angus, whom many members know, is taking over the duties of Headmaster at the School, and we would also like to take this opportunity to extend thanks to Mr. Angus for his always ready interest and help over past years, and welcome him to his new position.

TWO ANTIQUE GREGORIAN TELESCOPES TO RESTORE

Mr. Michael Harriskill has recently purchased, on behalf of our Society, a pair of rather aged Gregorian telescopes. This type of telescope has a centrally perforated primary, which reflects light from the field observed, to a small concave secondary mirror at the 'top' end of the tube, thence back toward the primary, through the primary's hole and to the eyepiece position.

The condition of the steel telescope tubes left a great deal to be desired - one tube literally disintegrated - what was left of it - in the hands of our Secretary (/Antiques-Purchaser) but the primary mirrors of about 5.1/4" and 6" (133mm and 150mm) still have a very good surface, with a reasonable but somewhat tarnished silver coating still adhering.

The mirrors are retained in respective close-fitting steel cells. The secondaries seen likewise in fair condition, and of three eyepieces between the two telescopes, one was judged to be only about 20 to 25 years old, and is of extremely good quality (it was immediately pressed into service on the Orwell Park 10-inch, where it proved itself on Jupiter observation). The other two eyepieces need some cleaning and are of an age more commensurate with the primary mirrors and secondary mirrors. A proper test of these still has to be made, the eyepiece mounts being of non-standard shape. A brass finder telescope of about one-inch aperture and seemingly good optical quality also came with the 'package'.

It was decided at the last committee meeting that two renovation projects for these telescopes would be instigated and 'manned' (or 'womanned') by Society members. After renovation and retubing as required, the telescopes would be expectedly added to the stock of loan instruments available to members.

BARRELL TELESCOPE AVAILABLE FOR LOAN

The very substantial and useful Barrell reflector kept by the Society as a loan instrument is now available again, loan fee £1 for a year and (perhaps not entirely due to petrol price rises) removal charge to new resting place also £1. A secure garden is a pre-requisite for borrowing this 8.5-inch reflector. Please contact Roy Cheesman if you are interested.

OPEN DAY

Arrangements for this are now in hand, draw tickets have already been received

from the printers. This will leave much more time than last year for the (Page 5 distribution and sale of draw tickets, and with a proper and even better Open Day this year, we have had 50 per cent more tickets printed, and will be giving even better prizes.

A Committee meeting mainly to discuss arrangements for the Open Day has been called for Saturday, July 7th, at 8 pm at the Observatory, and we are asking all with ideas to put forward, and instruments and other items to exhibit or bring for a stall, to let us know what you can offer, to help with the planning. If you can bring yourself to the Committee meeting, so much the better.

VERY SUCCESSFUL GREENWICH TRIP

A 28/29-seat yellow-hued Tornado whirled gently out from behind the Odeon Cinema not unduly late, with a happy and expectant crowd of astro. supporters on board for Greenwich at 8.25 am on Saturday 23rd June. We were in Greenwich at 11.15 am and had ample time off on the journey for coffee (or milk or cream cakes or whatever else fitted the personal taste) and plenty of time after to fight and/or succumb to the temptations of the Maritime Museum 'sale bar' which sported anything from the sixpenny 'I've been there' badge to things the order of brightly-shining 3-inch Gregorian (souvenir?!) reflecting telescopes in excellent reproduction fashion costing upwards of £500. (The slides available are excellent, and though seemingly costly, it is well to work out how much money and effort goes into taking ones own slides or prints, and those of the historical instruments there at Greenwich, and of Moonrock samples are not so easy to take, if one can get at the subject at all - !)

We took turns to pirouette on the 0.0000...° meridian, adding banally to the countless meridians of film exposed in this place, then got down to the more serious business of studying the very interesting and beautifully constructed telescopes and equipment in the Octagon Room and in other parts of the Museum under the valuable guidance of one of the Museum's directors.

At one point, when we were told that the 28-inch refractor was having some renovation and redecoration to its dome and building, hearts sank to Thames level, but seeing our disappointment, our kindly host took us all up to see the 28-inch, which is one of the biggest refracting telescopes in the world. A lot of its attributes and intricacies were explained to those of us who were not camera-bent, and here for the time being must be a little gap in information.

When my film had run out, however, I was just in time to hear that O.A.S.I members who most use the Orwell Park 10-inch (or in other words, reasonably experienced observers) are invited to use the 28-inch refractor by special arrangement in small, organized groups on something like three nights this coming Autumn. Persons to ask about this are Roy Cheesman or Mike Barriskill.

After lunch, the main body of our party attended the Planetarium's first afternoon 'house' - entitled to anyone with a 15p ticket who still found room left in there - a talk principally on Venus, but showing the Planetarium's capabilities generally. As everyone apart from the odd exception (my wife will shoot me for this!) wanted to see the Planetarium as soon as possible, and no-one else was apparently going to see the second show, we decided to wait and go to the second show, basically on the Moon. We could thus compare notes afterwards.

Both shows were an hour long although to us it did not seem like it. At the start, some time was given for our eyes to accustom themselves to the near-darkness of the Planetarium, then the star projector and afterwards the planets, Sun and Moon projectors were revolved in different combinations to show us the Moon's phases speeded up over a period of a year. The star sphere projector was stopped for this and used as a background, otherwise we would all have been giddy (and worse?!) or seen nothing! Some excellent slides of the Moon were shown projected onto the roof of the Planetarium,

Page 6) which helped us get our day-eyes back again. Soon we were out in the open again - all too soon, but the broad expanse of the grounds of Greenwich Park have other wonders, including the panoramas of the Thames and squirrels so tame they will come and feed from your hands!

At 5.30 pm we departed in the capable hands of our lady co-driver, for a little something extra - a guided tour of part of Central London. In spite of our 'detour' we were in Chelmsford at about 8 pm and exploring (without telescopes) for a fish-and-chip shop. Some 'fell short' by just a few yards, and ended up in a Wimpy. At 9.45 pm we were home again - part of us at any rate. The other part of us was thinking about when we would be back in Greenwich again, for another fine day (or night!) out.

RCA

Any other specific accounts of matters of the Greenwich trip, especially in relation to information given about the 28-inch refractor, will be gratefully received. This article is pressed for the July Journal, obviously, while waiting for any other material to be received. Next issue, Roy Gooding has an article in preparation about Flamsteed - very relevant.

SKYLAB RE-ENTRY I understand the latest most likely day for re-entry is the 5th of July, possibly to allow American Independence Day celebrations to come first. But the shadow (or should we say, the glare?) of probability reaches for about ten days either side of this. Do I hear someone enquiring about a short holiday early this month, on Lizard Head?

ARIEL-6 LAUNCH As one comes down, so one goes up, we might say. Ariel-6, the all-British Marconi cosmic- and X-ray satellite (before launch, UK-6) went up on a Scout rocket, after a 10-day delay. Built at Portsmouth, it was launched somewhere round Jubo 2nd, and is now travelling round the Earth at from 360 to 400 miles (600 km) up, circling every 97 minutes. We are told, however, that it is too faint to see.

APOLOGY My apology is hereby offered to the French Premier and to readers for my in-haste-for-deadline misspelling of the Premier's name, which should have been entered in the Franco-Soviet Satellite brief report, as Valery Giscard D'Estang, in the last (June) issue of this Journal.

ARIANE DIARY DATE It is now ripe to mention from a long list supplied earlier by Charlie Radley, that Ariane LO-1 is due to go up from Kourou in French Guiana, South America, on July 15. This one will be launched without payload. Ariane is Europe's 'oheap', expendable heavy launch rocket vehicle. The equatorial site is used to get Earth spin advantage, whatever type of orbit - low-Earth, geosynchronous (24-hour) or interplanetary, is concerned.

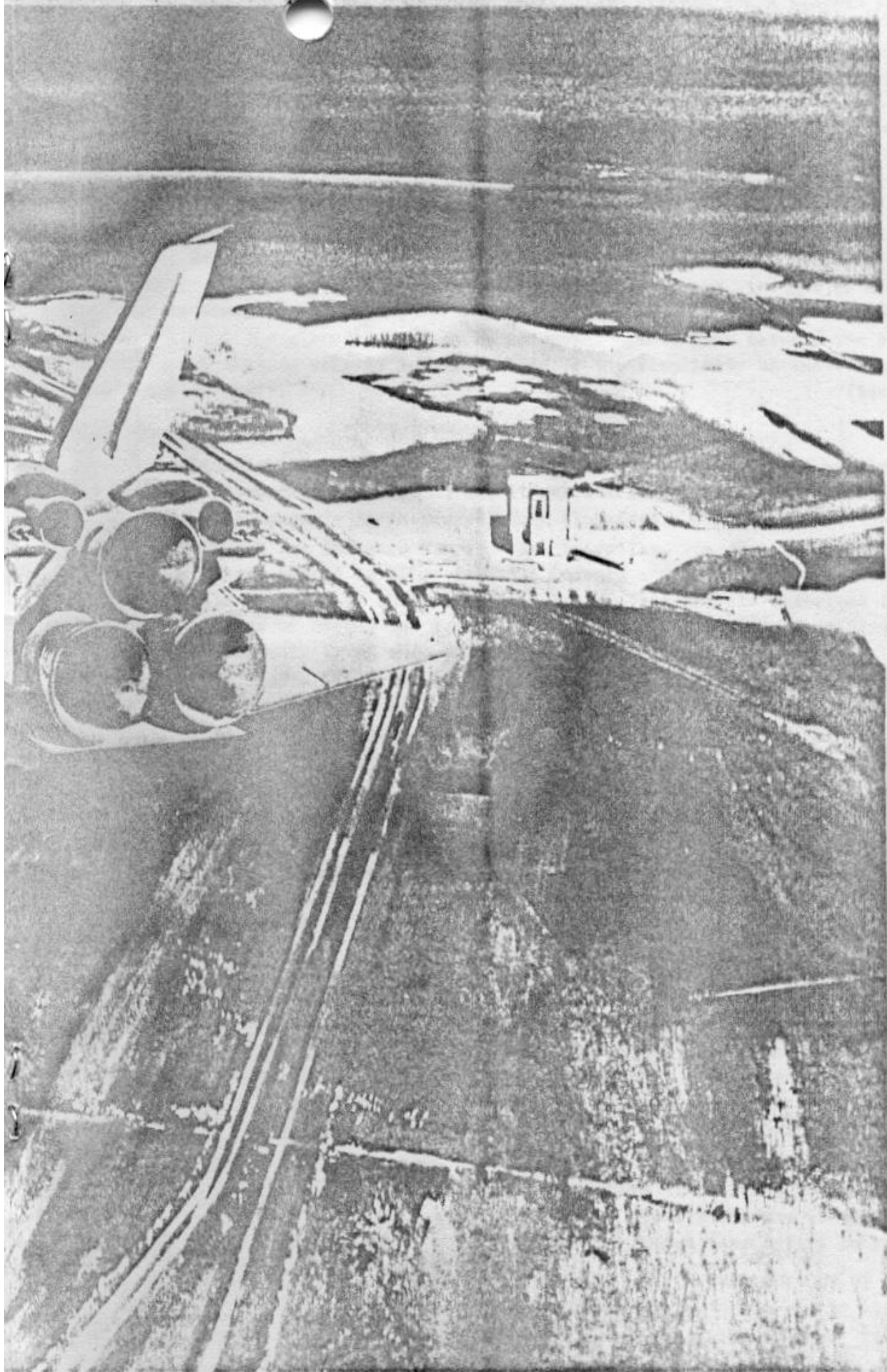
VOYAGER-2 JUPITER FLY-BY Also on Charlie Radley's Diary Date list is Voyager-2's Jupiter Fly-by date for July 10th.

FROM OTHER JOURNALS - Supernova in M100 We covered this item at some length in the last issue, it being noted that this supernova is only the third in history to be discovered by direct visual observation - usually, such objects are found later on seeing changes in brightness of objects on photographic plates taken at different times, or seeing an object where there was none before. The lucky discoverer was Gus E. Johnson, observing with an 8-inch telescope. We mention it again here because according to the New Scientist, the discovery has created another 'first', in that the International Ultra-Violet Explorer satellite has been turned towards the supernova to record the first ultra-violet spectrum of a supernova taken from space.

More Venus Surprises From Pioneer The Pioneer Orbiter spacecraft, still circling



SHUTTLE ORBITER LANDING APPRO



MOUCH AT KENNEDY SPACE CENTER WNS N

Venus, has detected by radar a mountain taller than Everest and a plateau larger than Earth's Tibetan plateau. (Page 7)

The plateau measures 3 000 km by 1 600 km, and lies in the planet's northern hemisphere at a level 5 km higher than the land to the south of it. The plateau is bordered by three mountain groups, on its western, northern and eastern edges. The most spectacular is that to the east, which boasts a mammoth peak, unofficially named Maxwell, that rises over 12 000 metres above the Venusian equivalent of sea-level. Scientists involved on the project were reportedly "astounded" by the steep contours around the peak, which had previously shown up as only a bright spot in Earth-based radar images. Two other spectacular ranges having been found also in the northern hemisphere, rising up to 6 000 metres and together being part of a chain 1 000 km long must have fed their astonishment.

Another discovery, this time in the Venusian atmosphere, is that of a 650 k.p.h. wind in the middle cloud layer, where most of the sunlight and infra-red radiation reflected back from the planet's surface is absorbed. This link between the strongest winds and strongest heating effects merely highlights the simplicity of the virtually waterless Venusian atmosphere. (New Scientist)

ARTICLES TO READ

"The Rehabilitation of Stephen Gray" - New Scientist, 24th May. An account of this little-known astronomer's work, and how it was stifled by Isaac Newton because of Gray's association with Newton's 'arch-enemy', John Flamsteed.

"Sky eyes go South for Northern Stars" - New Scientist, 7th June. On May 26th the Spanish Government agreed to allow Britain, Denmark and Sweden to erect observatories on the superb site at La Palma in the Canary Isles. This article describes the project, and the advantages of moving the 2.5-metre Isaac Newton telescope from Herstmonceux to the atmospheric stability of more-southern skies.

"Galactic Evolution" - New Scientist, 14th June. Describes how astronomers are piecing together a picture of the evolution of the Universe and the processes of distribution of the chemical elements, by using information from stellar spectra.

"What Cooks With Gamma Rays?" - New Scientist, 14th June. An account of how gamma ray astronomy is now fulfilling its potential of the last few years, and how the success of satellites such as COS-B will hopefully pave the way for more funds to be made available to follow up recent discoveries.

Incidentally, if anyone interested in reading these articles has difficulty in gaining access to New Scientist, they are quite welcome to borrow the back issues gathering dust on my bookshelf. Paul Burt.

JULY METEORS

There is one main shower this month - the delta-Aquarids, peaking on July 28th. This shower has a double radiant, RA is the same for both, 22h36m (3390) but Dec. is 00 and -170. Expected zenith hour rate at maximum is 35. Normal limits July 15-Aug 15.

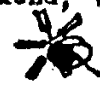
Other showers are the Capricornids, max. July 26th, RA 21h00m (3150), Dec. -150, ZHR 6, N.L. July 10-Aug 15; These are said to be bright, and the Pisces Australids, max. July 31st, RA 22h40m (3400), Dec. -300, ZHR 8, N.L. July 15-Aug 20. (Data: BAA Handbook, 1979)

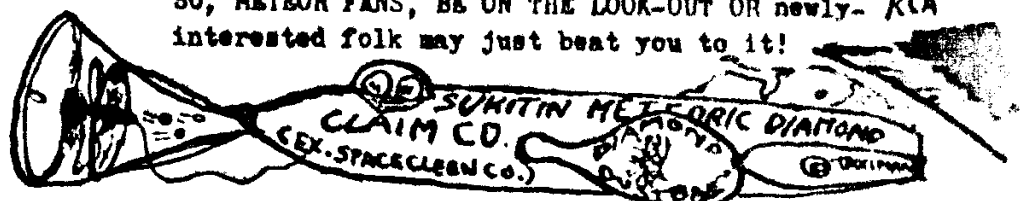
METEORIC INCOME?

According to scientists Yuri Polkanov and Eduard Vitrichenko of Russia, the Earth has an annual income of about 10 kg of diamonds. Apparently, the diamonds, which are very tough, survive while the bulk of the meteoric bodies they arrive in is destroyed. (Weekend, 1979 April 11th-17th)

SO, METEOR FANS, BE ON THE LOOK-OUT OR newly-RCA interested folk may just beat you to it!

WITH APOLS. TO BARNEY


"If we don't get in a little extra something else soon, our fans will pack up!"



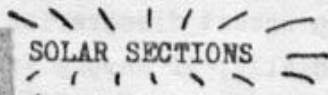
Friedrich Bessel started his working life as an accountant. His knowledge of astronomy came entirely from self-tuition. Bessel's first achievement was in 1804, when he had recalculated the orbit of Halley's Comet, and subsequently sent the result to Olbers. Olbers was quite impressed with Bessel's work and managed to obtain for him a job at an observatory. Bessel was aged twenty at this time, having been born on July 22nd 1784, in Prussia.

During the next six years Bessel gained much fame from his work, both in astronomical and in higher circles. Amongst his admirers was King Frederick William III of Prussia, who offered him a position in which he was in control of construction of a new observatory at Konigsberg. After the Observatory was completed Bessel remained Director until his death.

Soon after the Observatory was operational he began to make accurate star positional measurements for inclusion in a new star catalogue. The completed Catalogue was an extension of an early one compiled by James Bradley, that Bessel had revised. On completion in 1818, Bessel had recorded some 63 000 accurate star positions. Bessel's measurements were precise enough to show up irregularities in the proper motions of Sirius and Procyon, from which he surmised that they must each have an object in orbit around them. This proved correct and in the second half of the century two companions were discovered by Clark in 1862, and Schaeberle in 1892 respectively.

Bessel is best known today for being the first to determine a star's distance from parallax measurements. He chose a star that had a large proper motion and hence could be assumed to be relatively nearby. He reported his result in 1838, quoting a parallax of 0.31"arc for 61 Cygni. (The modern value is 0.30"arc.) Bessel was not alone in measuring a star's parallax at this time. Struve (see April's Journal) and Henderson were also actively involved, independent of each other.

Toward the end of his life he started researching into the anomalous motion of Uranus. By calculating the masses of Jupiter and Saturn with more accuracy than had been achieved before, he was able to rule out their gravitational influence as being the cause of the irregularities. Bessel died in March 1846, some six months before Neptune was discovered.



SOLAR SECTIONS

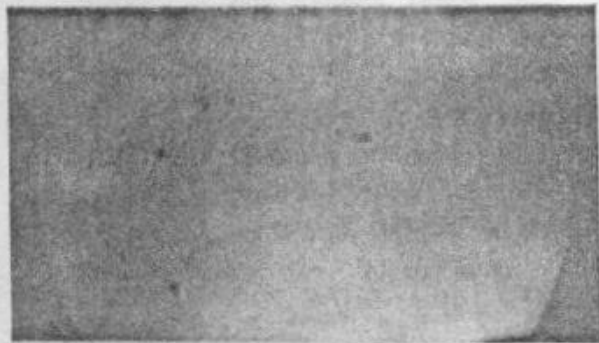
(Well, there's not enough room for any whole disks here) ..

◀Sunspot group 1979 May 13 1620 UT

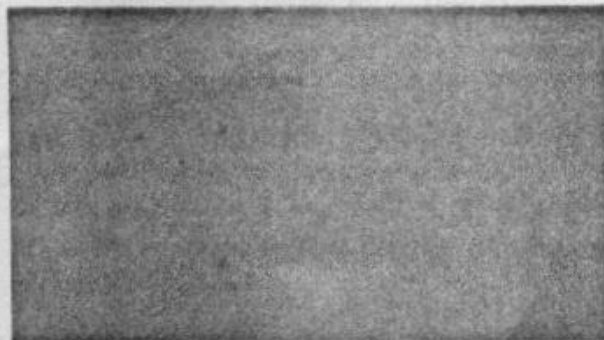
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1979
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1917 UT



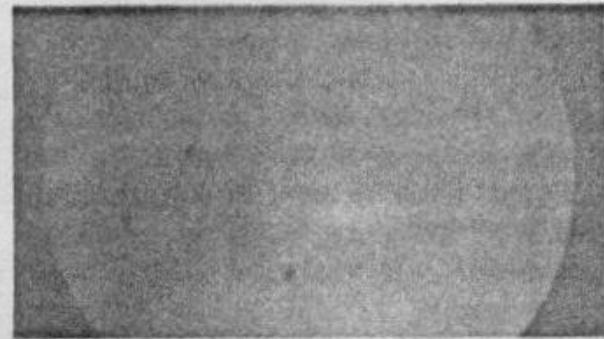
1979 June 3 1755 ut



June 4 1640 ut



June 5 1917 ut



June 6 1715 ut



June 7 1917 ut

YES! The montage to the left really (Page 9) is a set of solar pictures taken on five successive days this year - this last month! With all the cloud we have had it does hardly seem possible. Actually, the 'run' went on for another four days, but the 'sixth' day's pic fell a little below photocopy contrast limits, the 'seventh' day pic was taken at smaller image scale and likewise fell below contrast limits, though quite acceptable for direct viewing (no intermediate photocopy process). The 'eighth' day was full of cloud, and on day Nine the Sun was so glary that higher image scale pics I took just gave black negs.

Anyway, the five pictures aside are intended to prove that the Sun rotates (though you'll have to take it from me that they are the right way up). The Day Five, June 7th pic shows the extent of patience astronomers have at times to display (or lose!) as it was taken when the Sun was setting behind horizon cloud - the oblateness of the image may be obvious. But the spots seem to be clearly visible. At my home location, this was the only time that a solar pic was possible that day.

The pictures, including those on the opposite page, were all taken with a 60mm F11.5 Prinz refractor, with a before-o.g. 8x (12.5%) nominal red filter (density and transmission respectively) which unfortunately stopped the lens down to 46mm. Instead of the provided Barlow being used (I found some time ago it wasn't much good) I used a home-made Barlow consisting of a -75mm f.l. negative single lens, making an 'extended prime focus' image of the Sun's disk 22.3mm diam. on the film plane.

The camera used was a single-lens-reflex type which can have its lens removed (interchangeable lens facility). With this type of camera, now increasingly popular, one can look through a prism/mirror system viewfinder/composer, the mirror flipping-up when the picture is taken. On the Zenit-E camera, the fastest shutter speed is 1/500th second. Although a slow-speed, (32 ASA) film (Kodak Panatomic X) was used, and some cloud haze intervened generally, the negs were perforce, having no correct density filter, very overexposed - so much so as to need at 2.3x enlargement as aside, up to 15 minutes under the ordinary home enlarger with enlarger lens at F4 for needed sharpness. (continued overleaf)

TUESDAYS from 7 pm: Planetary Section July 10th, 24th; August 7th

Directors Mr. J. Hood, [redacted], Ipswich

and Mr. J. Hanson, [redacted], Ipswich 'Phone Ipswich [redacted]

TUESDAYS from 7 pm: Solar and Lunar Section July 3rd, 17th, 31st; August 13th

Directors Mr. J. Hood, [redacted], Ipswich

and Mr. M. Barritt, [redacted], Ipswich

WEDNESDAYS from 8 pm: Nebulae and Faint Objects Section July 4th, 11th, 18th, 25th;

Directors Mr. D. Payne, [redacted], Wickham Market, August 1st & 8th
Suffolk 'Phone Wickham Mkt [redacted]

and Mr. M. Cook, [redacted], Ipswich 'Phone Ipswich [redacted]

FRIDAYS from 8 pm: Variable Stars Section July 6th, 20th; August 3rd

Directors Mr. R.S. Manning, [redacted], Ipswich

and Mr. M. Siggers, [redacted], Ipswich

SATURDAYS from 8 pm: General Section July 21st; August 4th

Directors Mr. M. Barriskill, [redacted], Ipswich 'Phone Ipswich [redacted]

and Mr. R. Adams, [redacted], Ipswich 'Phone Ipswich [redacted]

*Best 'phone times between 6 pm and 7.30 pm any evening except Fridays.

METEOR SECTION No planned meeting this month (yet). Details of this section work from Mr. D. Barnard, [redacted], Ipswich 'Phone Ipswich [redacted].

NEXT COMMITTEE MEETING Saturday, July 7th, 8 pm at the Observatory - re Open Day.

SOUTH-EAST ESSEX ASTRONOMICAL SOCIETY VISIT TO OUR OBSERVATORY Saturday 28th July, 3 pm to 6 pm approx. (See rear cover)

NORTH ESSEX CARAVAN CLUB RALLY AT ORWELL PARK August 1st to 5th. (See rear cover)

MAY 25th's SURPRISE PACKET In the end, we don't know who was more surprised - O.A.S.I. members or Colchester's. But about 25 Colchester Astro. Society members turned up by surprise, and a quickly arranged visit was made to Orwell Park to save disappointment. This was because at the last moment, it had been decided to cancel the room at the Friends' Meeting House that evening.

OPEN DAY DRAW TICKETS will be available by August Journal (when sorted and allocated).

SOLAR SECTIONS (cont. from previous page)

The camera was bolted to a piece of 50mm x 25mm timber in turn clamped by a metal strip to the main telescope tube. A shroud consisting of a couple of pieces of PVC and interior-blackened cardboard tube and black elastic rubber over-Barlow piece made sure all stray light was excluded. The Prinz telescope was mounted on a tripod which used to be altazimuth, but which now is an equatorial with 10Vdc battery drive, but for these pictures, the drive wasn't used. To aid rigidity of the unit, a bit of juggling with a chair and some bricks was done, as although converted, the whole is still not really rigid enough on its own for good resolution photography.

The first picture slither of a sunspot group was taken with the same Prinz telescope, and camera and film, but with a black-violet 20x density, 5% nominal transmission filter as well as the 8x red glass 46mm clear aperture one, before-o.g., and with an H15mm eye-piece back projection image scale of about 70mm to the Sun's equivalent whole disk. Exposure here was .004s (1/250s). Similar shrouding/rigidising methods were used.

The large pic is simply a 5x enlargement of the same neg. as for the small June 5 pic.

If reproductive quality turns out to be poor in the Journal, I will endeavour to copy some of the photowork again - in ink if necessary, for inclusion in the August issue. RCA

SOLAR FOOTNOTE: When I looked by projection, at the Sun on the 2nd July, I found the display very similar to that of June 5th last, showing a 'main' rotation of about 27 days (apparent, as Earth's rotation round the Sun has to be considered). RCA

MEMBER'S AD: FOR ALL CLOCK REPAIRS B I G or small, ancient or modern by competent craftsman Society member, 'phone Ipswich [redacted] (evenings) for all enquiries.



Saturday 7th July at 8p.m. in Observatory:

A special meeting to which all members are invited to discuss arrangements for the Open Day. Please come along and give us your ideas on what we should do at the Open Day.

Saturday 28th July, 1979, 3p.m. to 6p.m. approx.

Visit to Orwell Park Observatory by the South East Essex Astronomical Society of Southend-on-Sea. Please come along and meet other fellow amateur astronomers.

Help is required at the Observatory from 1p.m. on that day to get refreshments ready - volunteers urgently required!

August 1st to 5th.

North Essex Caravan Club Rally at Orwell Park.

From approx 8p.m. on the Wednesday, Friday, Saturday and Sunday during the Rally we propose opening up the Observatory and would like as many members to help as possible. Come along and have a good time (the bar will be open!)

SATURDAY 29th SEPTEMBER, 1979 2p.m. to 11p.m. approx.

ANNUAL OPEN DAY

Arrangements are in hand for our annual Open Day at the Observatory and as many members as possible are required to help out before and on the Day. If you have any items of astronomical interest which we can put on display please contact Mr. R.M. Cheesman, 3 Tasmania Road, Ipswich as soon as possible or better still come along to the meeting at the Observatory on Saturday 7th July at 8p.m.