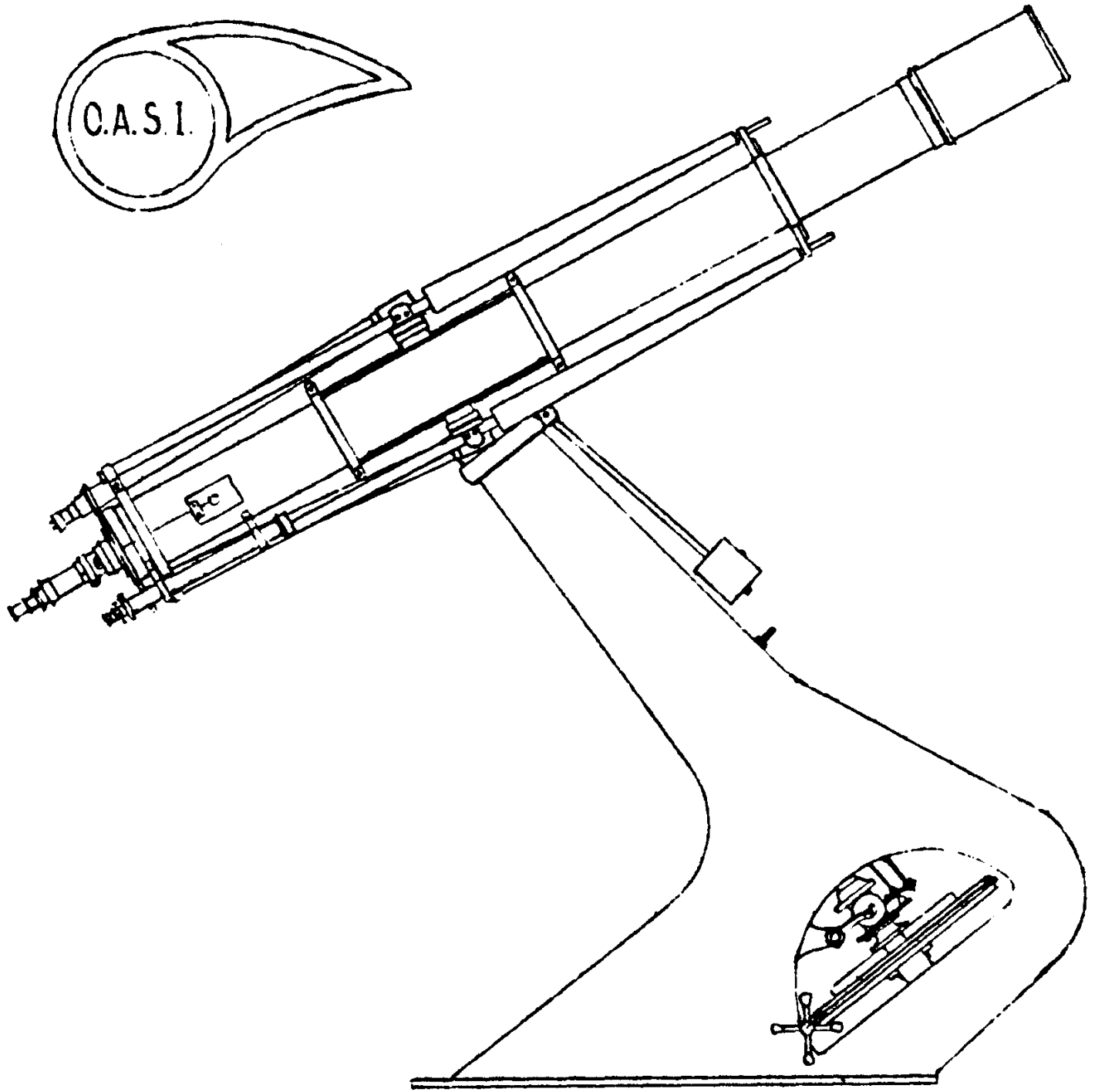


Editor: Mr. Paul Burt, [redacted], Ipswich IP1 6PP 'Phone Ipswich [redacted]

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

Your submissions of items for the Journal will be welcome.



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

The zenith area is fairly barren this month, containing the inconspicuous Lynx and Camelopardalis, but to the south the sky is filled with the winter zodiac constellations from Virgo in the east, rising during late evening, through Leo, Cancer (due south at Midnight), Gemini, Taurus and Aries, now low in the west. The head of Hydra, the water snake, lies directly below Cancer, the rest of the constellation winding south-eastwards and disappearing below the horizon. The constellations of Canes Venatici and Coma Berenices, renowned for their abundance of galaxy clusters (most of which require larger telescopes for viewing), will be well up in the eastern sky by the end of the month, lying to the west of the strikingly orange Arcturus.

#### THE SUN

Sunrise is at 07h50m at the beginning of the month, changing to 06h50m at month-end. Sunset changes from 16h40m to 17h30m. The Sun moves from Capricornus to Aquarius during the month.

There is a total eclipse of the Sun on Feb 26th, visible in the U.S.A. and Canada. The beginning of the eclipse will be visible from the western half of the British Isles at sunset.

#### THE MOON - Phases

First Quarter	04d00h36m	Last Quarter	20d01h17m
Full Moon	12d02h39m	New Moon	26d16h45m

#### Occultations

Star	Phase	Mag.	Time	Star	Phase	Mag.	Time
398	D	6.7	3d18h21.1m	820	D	6.0	7d01h08.5m
401	D	6.3	3d18h34.4m	944	D	5.7	7d22h16.7m
516	D	7.3	4d18h02.2m	970	D	6.5	8d02h18.6m
526	D	6.9	4d21h41.2m	*975	D	6.8	8d03h02.0m
659	D	6.4	5d18h16.4m	*1730	R	6.5	15d04h43.4m
669	D	4.0	5d20h13.8m				
671	D	3.6	5d20h26.2m				
*672	D	6.6	5d20h33.0m				
677	D	4.8	5d21h31.1m				
680	D	6.7	5d21h37.0m				
685	D	6.5	5d23h23.1m				
806	D	5.1	6d22h57.9m				

D = Disappearance

R = Reappearance

Stars listed according to

Zodiacal Catalog (ZC) numbers.

\* denotes double star

#### The PLANETS

Mercury will not be visible in early February, being in superior conjunction on the 9th, but by the end of the month it will be setting an hour-and-a-half after the Sun, at about mag -1.0 (decreasing).

Venus is a morning star rising about two hours before the Sun at mag. -3.8.

Mars is too near the Sun for observation.

Jupiter is visible all night in Cancer at mag. -2.1.

Saturn will be rising during early evening, at mag. +0.6 in Leo.

Source: BAA Handbook 1979. All times are U.T.

#### METEORS

There are no major showers this month, but Norton lists the alpha Aurigids which are said to produce very slow fireballs. The radiant as listed is 05h00m R.A., 41°N Dec. but this may be somewhat out of date. Look from Feb 5th to 10th, however, and you might just see something.

#### ORWELL PARK TELESCOPE TEN-INCH OBJECTIVE CLEANED AND REPLACED

Our Hon. Sec Mike Barriskill recently took on the very hon. job of transporting the big lens to Mr. Horace Dall at Luton for him to clean away the 'snowflake' fungus which had recently cut down viewing thresholds. It was out on Jan. 22, back in on Jan. 25.

I have now received a sheaf of data from Peter Muller in regard to this very worthwhile project. In the letter accompanying, Peter says that several hundred observers have written from 15 different countries in connection with the programme, and as a Society or as individuals, we are again welcomed to take part, (and some of us I know have already declared their interest). I will attempt here to give a sort of precis coverage of the contents of the letter and data received.

Letter from P. Muller (London) and R. Servajean (Paris)

All paper data records should be on A4 size (28.5 x 21 cm - same as this open page pair) and each should be accompanied by an entry on a data punching form (copies of which will be available from a selected few of us, e.g. Alan Smith, our Assistant Chairman, or Mike Barriskill). The send-backs should be to Paris only - to Dr. R. Servajean, 'IJVTOP', Centre de Documentation, Observatoire de Paris, (I.A.U.P.P.C.), Section d'Astrophysique, 92190 MEUDON, FRANCE. (This address is the one in the supplement Number One on its Page 6).

Any data from September to November '78 should be in the same format as for December '78 (and for January '79 and on), if possible.

At Voyager mission-end, progress reports and details of an international meeting to be held at the end of 1980 will be sent.

Any data for inclusion in publications will be acknowledged and a copy sent back. A Voyager Imaging Sequence Timetable (VIST) for the following month plus data punching forms in a quantity that is thought by the participant/s to be needed will be forwarded before the beginning of each month. (At present we have one of these for Dec. '78 and Jan. '79 in one.)

Supplement No. 1, Nov. '78

This contains detailed instructions and a short guide (though quite comprehensive) to nomenclature and feature description of what can be seen on Jupiter. The purpose of the data punching forms is explained - basically we are asked not to be put off by the computerization of our results which is very useful for quick retrieval and recognition. The nomenclature and feature description is for currently extant bands and forms in the Jovian atmosphere, and to be treated as a guide only. Its real use is for the data-punching forms. Page 3.3 advises us to leave blank where any doubt occurs as to the varying of latitudinal bands, the column 71, dealing with code letters for these bands. It would have been nice to copy the guide as from Page 1.6 to 2.8 of this work, but space here doesn't permit, and copies can be made available photo- to those wishing to take part. It seems colour filters are useful for enhancing certain details on Jupiter - for example, red and blue.

Page 3 of the Supplement 1. suggests 35mm film or a 35mm x 60-frame-on-A4-size microfiche. All this sounds 'big-stuff' but apparently humbler efforts are accepted - your skill in observation (or ours) is recognized as the primary essential - and our experience, whatever we have.

Times of observations should be checked reliably at start and finish.

Page 4.9/5.0 says that through-filter observation gives hints on vertical make-up. Visual observers do better than photography re determining lifetimes of features.

Pages 5.3 to 6.5 are also worth copying - Briefly, here, the relationship of interior bursts to cloud-layers is mentioned. A rotation timing method is used called 'System III'. Other systems can be interconverted or related to (Systems I and II) by formulae and the use of Julian dates.

Pages 8 and 9 show an example observing list of feature transits and accompanying band zones drawing with the features numbered sequentially, and a list with these features' data converted to the IJVTOP format code.

Page 10 gives example Data format for features measured from drawings.

Page 11 shows a normal drawing in (stippled) shading, whole-disk, with below it,

an example of what is described as 'D2 Data Format' which shows the same (Page 5) features but by means of lines corresponding with the perimeters of the features in the sketch or shaded drawing. (The stippling - use of a pen or dark pencil to dot-in the shading of features could be a useful technique to adopt where low-contrast work such as planetary detail is to be drawn for photocopy reproduction (such as in our Journal). The dots are made as equal as possible in strength, but distributed more closely or more widely apart to illustrate respectively darker or lighter shaded areas. As I have found, if you wish to copy your drawings for any reason by photocopying, the photocopy machine doesn't do well with pencil soft-tone sketches. Apparently, your normal type sketch, shaded in pencil or dotted or whatever, would be accepted but it is better for photocopying to do it stippled, the dark dots being handled very well by the photocopy machine, the eye translating to shades. Such dotted drawings like newspaper dotted pictures (examine some newspapers closely and you will see what is meant) may take time to do, but practice should shorten the time and you don't have to painstakingly resketch for every copy you may want. A slight digression of detail, but worth it, I hope.

An example of a longitudinal drift chart is shown at Page 13.

Page 14 gives a schematic diagram of Satellite Observation period schedules - one is enlarged, of the period around March 5th, Close-Encounter time.

Pages 15 and 16 give tables of longitude of the central meridian of the illuminated Jovian disk in System III (1965) for midnight of every day from December '78 to July '79 inclusive, with correction data for every minute (usable for seconds too by interpolation). Next The set of sheets V.I.S.T. 1 tells when picture sequences with certain filters (and cameras) are to be taken in U.T. to the minute, so that visual or photographic from-Earth observations can be made knowing what the comparison picture-taking mode is at any time by Voyager.

#### Detailed Set of Notes

This contains details of relative response of filters used in earlier work - in Pioneer 10/11 cameras, and classification of codes on timing, type of detail, filters, observers' latitude and longitude etc, and other instructions.

The intro. on Page 1 of this states the aim is to help analyse Voyager images (and also to show what we are looking at) re Jovian meteorology, in past, present and future, including computation of features and study of interactions. Objectives, methodology and organization are treated. Each observer should make his or her own project programme and use their own judgement and experience. Some biography is given at Page 5.

Page 2 mentions that Jupiter is visible from Earth well from before this to July end, the diameter of the disk equator being from 42 arc-seconds to 31 arc-seconds. Voyager 1 Close-encounter is 790305, Voyager 2 close-encounter on 790809.


Page 3 says that any telescope 15 cm diameter or more is suitable, and that one might try (a great hope, we know) for 4 successive nights of 5 hours a night. (This must be for hardened observers!) Starts should be with timings for 30 minutes, of features passing central meridian. Belt and zone edges (conspicuous) should then be gone on to, then fainter stuff that is on the going-to-disappear side. After this, a choice of an area to study in detail is worthwhile, bearing in mind there may be evidence of special activity, and an attempt to follow the lifetime of a feature (or features?) or record one complete longitude band as a strip chart. A filar micrometer would be useful, it says. The schedule should as far as possible be planned beforehand.

All data records, pics, and forms should be sent at the end of each month. All entries should be in capital letters only (apart from the figures!)

V.I.S.T.s will be sent up to July 1st for Voyagers' Jupiter encounters. Then will come a lull and respite before (if one wishes to continue) one gets stuff for the Saturn proximity work.

Page 4.9. For the 1979/80 Jupiter opposition and thereafter, it is hoped to carry on at a lower level. But a repeat of the Programme as ISVTOP for Saturn encounters is hoped for: Pioneer 11's on 790901, Voyager 2's on 810827 and Voyager 1's on 811113. RCA

## OTHER JOURNALS - More Satellites for Saturn?

Two astronomers from the Lunar and Planetary Laboratory, ona, have concluded from examining photographic plates that there may be another satellite close to Saturn's outermost ring system, ring A. Also, two astrophysicists of the Harvard-Smithsonian Center have said that the region between Mimas (the second closest satellite) and ring A could contain two or more satellites. 1979-80 will be an ideal time for searching for these moons, as the Earth will be passing through the plane of Saturn's rings. The last time this occurred was in 1966, when Janus, the tenth and innermost moon of Saturn, was discovered. (Icarus)

### Neptune and Pluto Change Places

It's common knowledge (amongst us astronomers, anyway) that Pluto's highly eccentric orbital path brings it inside Neptune's orbit for part of its 248-year trek around the Sun. This occurred on Jan. 23rd this year, when the two planets were equidistant from the Sun at 30.3 AU, and for the next twenty years, Pluto will be nearer than Neptune (but still at mag. 14, sorry to say). There is no chance of the planets ever colliding at the time of 'cross-over', as they are locked in orbit-orbit resonance, Pluto completing exactly two revolutions for every three of Neptune. In fact, the closest they come to each other is 18 AU, when Pluto is at aphelion. (New Scientist)

### Was the Crab a Double Supernova?

The Crab Nebula may be the product of a second supernova explosion in a binary system that had already undergone one such upheaval, according to Dr. R.K. Kochhar of Göttingen University. The abundance of helium in the nebula filaments and the acceleration of these filaments suggests an explosion of a helium-rich star of three solar masses. Such a star can be produced by mass transfer in a binary system, after which its partner star explodes, stripping off the outer layers of what is now the helium star, and leaving a neutron star pulsar in orbit around it. If the separation between the two stars after this explosion was sufficiently small, the neutron star would be slowed up by the outer layers of the helium star's atmosphere, eventually spiralling in to trigger a second explosion. This in turn could 'spin up' the neutron star, disguising a relatively old pulsar as a new one.

Dr. Kochhar suggests that the site of the original Crab explosion was in the star group iota Geminorum, and that this gave the pair a velocity of 125 km/s, so that it took 3 million years to travel the 380 parsecs to the site of the 1054 AD explosion in Taurus, where the pulsar PSR 0532 was produced in its modern form. (Nature/New Scientist)

Articles to read - 'Our Inconstant Sun', New Scientist, 18th January 1979.

Written by Dr. David Clark of Herstmonceux, this very interesting three-page article traces sunspot activity records right back to around AD 1 in the pre-telescope days of China, and suggests that several other 'Maunder minimum' gaps similar to that of the 17th century have occurred in the sunspot cycle. Many facts are presented to support the link between solar inactivity and extreme climatic conditions on Earth. Well worth reading.

### NEWS REVIEW

Pioneer Venus Orbiter. The Orbiter spacecraft of the Pioneer Venus duo went into orbit around Venus on Dec. 4th last year. At periapsis the spacecraft approaches the planet to within 150 km. This means that it is flying through the upper reaches of the atmosphere, enabling samples to be taken and analyzed, as well as enabling radar maps of the surface to be obtained. Apoapsis of the Orbiter is 66 600 km. Throughout the complete orbit ultra-violet and infra-red pictures are being taken of Venus' atmosphere, the latter enabling scientists to determine where the 'hot-spots' are on the planet's surface and in the atmosphere. The spacecraft has no visual cameras, as they would be of no use in observing surface features through dense cloud cover. By making precise measurements of the Orbiter's path around Venus, scientists hope to detect different densities immediately below its orbit. In this way we can learn much about the internal structure of Venus -

whether: <sup>contains</sup> heavy metals, and whether it contains structures similar (Page 7) to those found on ICAL Moon called MASCONS. (NASA)

Spacelab. NASA has decided to fit all the experiments and equipment for Spacelab at the actual launch site rather than at other individual NASA centres and have them shipped in. The main reason for the decision is to reduce costs. When Spacelab becomes completely operational, the fitting of equipment for its missions is expected to require 100 man-years of work each year.

The five European and American scientists selected for the first Spacelab flight began training last month. Their itinerary will take them to nine cities throughout North America, where they will be familiarized with the experiments to be conducted during the first flight in 1981. However, only one American and one European will eventually be selected for the mission, the others backing them up in different situations from Mission Control. The scientists selected are: Michael M. Lampton (US), Byron K. Lichtenberg (US), Ulf Merbold (W. Germany), Claude Nicollier (Switzerland), and Wubbo Ockels (Holland). (NASA)

Landsat-D. General Electric of Philadelphia has been awarded the contract, worth \$77million, to build Landsat-D, the most advanced satellite in the series to date. There is also an extra incentive clause worth \$4.3million, depending on how well it performs once in orbit. Landsat satellites provide 'pictures' of the Earth's surface taken at various wavelengths, which provide information on crop yields, types of crop, geological formations, position of mineral deposits etc. Landsat-D is due to be launched in autumn 1981, and put into a 640-km orbit. Not only will this satellite carry a Multi-Spectral Scanner, as did the previous three Landsats, but it will also carry a Thematic Mapper, which should give a resolution 3 times better than the MSS's. (NASA).

Chinese-American Co-operation Agreement. Dr. Jen Hsin-min of the Chinese Academy of Space Technology has signed an agreement with NASA to increase the exchange of information between China and the U.S., following a visit of Dr. Frank Press to China last July. The Chinese are most interested in using Landsat-D data, as their large agricultural industry is in need of better planning. (NASA)

Intelsat Launcher Decision. Intelsat, a 95-strong group of countries concerned with the forwarding of satellite tele-communications, has chosen ESA's Ariane launcher to put into orbit its sixth satellite in the Intelsat 5 series. This is the first commercial sale of Ariane, and the decision was made because of continuing lags in the Shuttle schedule. Intelsat wanted their satellite launched in 1981-82, but because NASA can now offer only the older Atlas and Delta launchers, costing twice as much as the Shuttle or Ariane, the only alternative was to buy Ariane. (Flight International)

Shuttle 099 Tests. The Shuttle used in vibration tests at NASA's Marshall Center is thought to have exceeded the stiffness requirements for which it was designed, from initial analysis of results obtained. Loads of 3 000 p.s.i. were applied to various parts of the Shuttle, and stress variations measured. Shuttle # 099 will shortly be returned to Rockwell to be made operational. (Rockwell)

American Defence Agency Launches. Two new American defence satellites were launched by Titan IIIC rocket on December 13th last year. As in many satellite systems nowadays, these represent two satellites in a complete network. Each satellite when fully operational will be able to re-transmit 1 300 voice channels simultaneously. Their main purpose is to provide communications between command posts and associated ships/aircraft/tanks, etc. (Flight International)

Skylab Abandoned. As briefly mentioned in last month's News Review, NASA announced on December 19th that they were abandoning attempts to save Skylab from falling back to Earth. The decision was taken following a number of set-backs in the rescue attempt plans. Skylab's gyros. were malfunctioning, and increased sunspot activity meant that the space station was experiencing more drag. Also the rocket motor designed to boost Skylab to a higher orbit has fallen behind schedule, as has the entire Space Shuttle

NASA Launches in '78. A total of 20 launches were conducted by NASA during 1978, mainly for other users. One of the highlights, of course, was the Pioneer Venus mission, similar in scientific magnitude to the 1976 Mars Viking landings. 1978 also saw the testing of the Shuttle during its return to Earth, by dropping it from a Jumbo jet, 747. HEAO 2 was launched, adding still further to the results obtained by HEAO 1 on the high energy radiation emanating from all directions in space. (NASA)

Forward to 1979. NASA is undertaking 16 launches during 1979, of which 11 are for other agencies or corporations. The main highlights will be the first launch of the Space Shuttle (September 28th hopefully), the Voyager encounters with Jupiter (see next news item), and the Pioneer 11 Saturn fly-by on September 1st. The U.K., by the way, will be launching a satellite called U.K.-6. It will be put into orbit by 'Scout' rocket from NASA's Wallops launching area. (NASA)

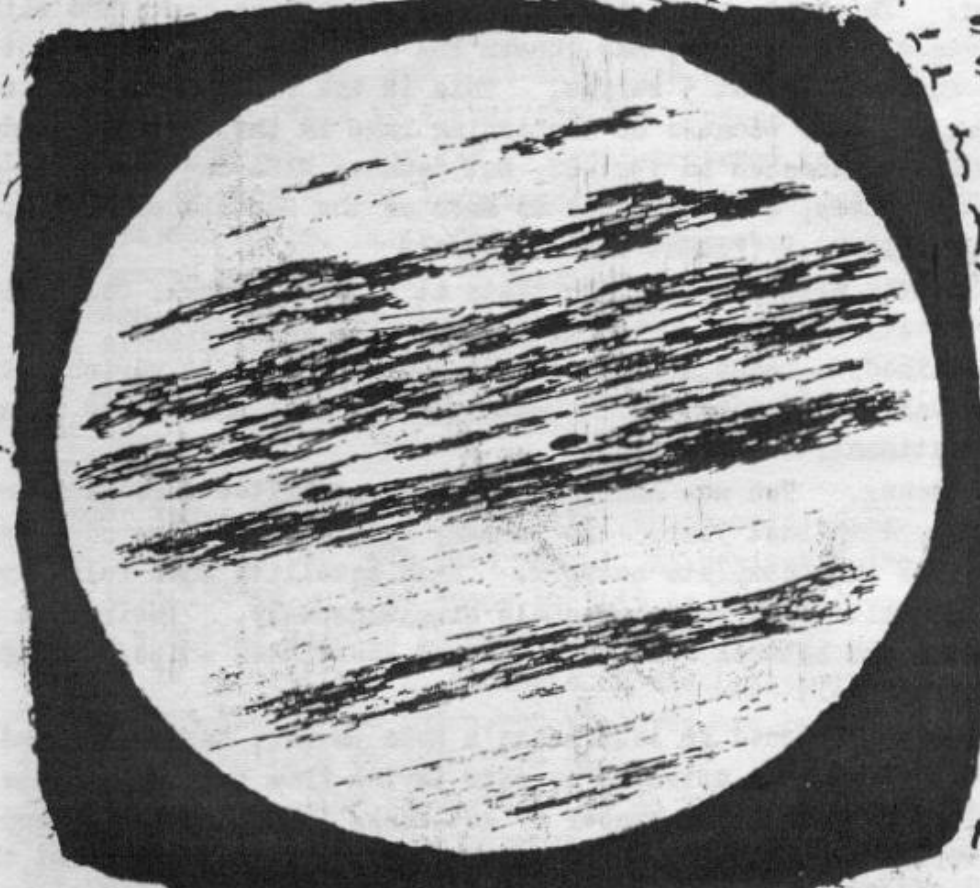
Voyager Statistics, January 1st 1979

	Voyager 1	Voyager 2
Distance from Earth (km)	598 975 000	544 445 000
One-way communication time (minutes)	33.3	30.2
Distance to Jupiter (km)	62 381 000	134 393 000
Distance to Saturn (km)	891 356 000	888 486 000
Distance travelled from launch (km)	931 872 000	936 428 000
Velocity relative to Earth (km/hr)	70 830	68 537
Date of closest Jupiter encounter	5th March '79	9th July '79
Date of closest Saturn encounter	12th Nov. '80	27th Aug '81

(NASA)

JUST TO WHET YOUR APPETITE FOR JUPITER, THIS IS HOW IT LOOKED on 790114 0120-0140h through the Orwell Park Observatory 10-inch refractor, minus the added contrast I have applied to this drawing by ink-shading in order to make it better reproducible. Drawing by RCA, with check by MB (Mike Barriskill). Sky clear, cold, little wind, seeing medium. O.g. still requiring cleaning.

ZENITH ↑ APPROX.



- (SPB)
- SSSTB
- SSTB
- STB
- SEBS
- SEBN
- EB
- NEBS
- NEBN
- NTB
- NNTB
- NNNTB
- NPB

Particular notes:  
 The SEB is split and a bit zig-zaggy.  
 Narrow EB.  
 2 disturbances on S edge of the NEB.  
 NEBs perhaps a shade darker than SEBs.  
 Slight N polar area shading.

The band abbreviation letters aside the drawing and their approximate positions are as the Guide on Page 11, Supplement 1 of the IJVTOP data.

RCA The everchanging face of Jupiter



William Huggins was born in London on 7th February, 1824. He had no scientific education, joining the family business of clothes and fabric merchants on leaving school. His first interest was in microscopy, but his astronomical pursuits slowly took precedence. In 1856 Huggins had built an 8-inch refractor. The lens was obtained from a leading American lens maker, Alvan Clark.

During the first half of the nineteenth century several famous physicists and chemists (Fraunhofer, Kirchoff, Bunsen and others) had been experimenting with prisms and the dispersion of light. The work led to modern spectroscopy. They only dabbled in astronomical spectroscopy, this not being their prime interest, leaving it to others to discover the importance of this new astronomical tool.

Three years after acquiring his telescope Huggins sold the family business to concentrate entirely on astronomy. During the year 1859, he attended a lecture held by the Pharmaceutical Society, where the new spectroscopic technique was demonstrated. Huggins considered that this new tool was just what he was looking for - a new astronomical research method. He approached a leading English spectroscopist present at the lecture, a Professor Miller. Professor Miller was sceptical about Huggins' intentions. Miller was aware of the immense technical problems of constructing equipment sensitive enough for astronomical work, as none was as yet available. Undaunted Huggins set about the task of building just such a spectroscope. Miller provided encouragement but was unable to give much of his own time to the project. After much difficulty Huggins finally succeeded in pioneering a new branch of astronomy.

After four years of work (1863) Huggins had obtained sufficient data to present a joint paper with Miller at the Royal Society, on the spectral lines of several of the brighter stars. A more complete report was presented the following year, which contained a major discovery. Both of the Herschels and Rosse had observed many nebulae that could not be resolved into separate stars. All concluded that this was due to the equipment they had at their disposal not being large enough. At the end of August, Huggins obtained the spectrum of a planetary nebula in Draco. The spectrum was unexpected, having only one bright line. This showed that the reason some nebulae could not be resolved into stars was that they were luminous gas clouds.

About seven-and-a-half years after he had started his research, Huggins presented a paper on his findings to the British Association. The paper contained results that took astronomy a major step forward. He showed that all the stars he had observed contained the same elements that are to be found on Earth and in the Sun. Some variable stars showed spectral changes, indicating that their change in magnitude was due to some physical process. As well as some nebulae, comets were also gaseous.

Huggins was greatly assisted in his work by his wife, after marrying in 1875. About this time Huggins succeeded in obtaining stellar spectra by photographic methods. This enabled the spectra of faint stars to be investigated. In succeeding years the Huggins were able to determine the radial velocities of some thirty stars.

William Huggins was knighted in 1897 for recognition of his work. He continued observing until 1908 and died two years later.

**FIREBALL REPORTS -** Re-entry fireball of 1978 Dec 31 (BAA Circular No 592, Jan 18)

Widely observed from N. England and Scotland, at 1903 UT, the slow-moving -10 mag. object crossed Scotland, ending in the North Sea. Virtually certain this was re-entry of Cosmos 1068 rocket (1978-123B) launched Boxing Day, Dr. Keith Hindley, BAA Meteor Section Director, [redacted], Dringhouses, York YO2 2NE, would like any data re observations.

Wayne Breiske, one of our members, reports seeing a fireball 'as bright as the Moon, if not brighter' in which case it really should go down in the annals of history! This was on 1979 Jan. 13th (lucky for some!) at between 1916-1918 UT. Start was at RA 8 hrs appx, Dec. 37°N appx, and finish at 9.5 hrs (RA) and 80°N Dec (approximately). The passage lasted 15-20 seconds, but no trail was left. The colour was white, there was flaring before fragmenting - broke into 2 unequal parts just before finish. Observer location, half-way down Britannia Road, Ipswich. Wayne's address for contact: [redacted], Ipswich.



TUESDAYS from 7 pm: Planetary Section Feb. 6th, 20th; Mar. 6th

Directors Mr. J. Deans, [redacted], Capel St. Mary 'Phone Gt. Wenham [redacted]  
and Mr. J. Hood, [redacted], Ipswich. Whilst Mr. Deans is still a  
section director, his presence during the next few sessions can not be guarant-  
eed owing to severe pressure of other work, but Mr. Hood and others will be there.

Tuesdays from 7 pm: Solar, Lunar & Planetary Section Feb. 13th, 27th; Mar. 13th

Directors Mr. J. Hood, [redacted], Ipswich  
and Mr. M. Barritt, [redacted], Ipswich

WEDNESDAYS from 8 pm: Nebulae & Faint Objects Section Feb. 7th, 14th, 21st, 28th;

Directors Mr. D. Payne, [redacted], Wickham Market, Mar. 7th &  
Suffolk 'Phone Wickham Market [redacted] 14th  
and Mr. M. Cook, [redacted], Ipswich 'Phone Ipswich [redacted]

THURSDAYS from 8 pm: Double Stars Section Feb. 8th, 15th; Mar. 1st, 15th

Directors Mr. D. Bearcroft, [redacted], Ipswich 'Phone Ipswich [redacted]  
and Mr. J. Ranson, [redacted], Ipswich 'Phone Ipswich [redacted]

FRIDAYS from 8 pm: Variable Stars Section \*Feb. 9th, Mar. 2nd, 16th

Directors Mr. R.S. Manning, [redacted], Ipswich 'Phone Ipswich [redacted]  
and Mr. M. Siggers, [redacted], Ipswich. \*Plus Constable Rangers

SATURDAYS from 8 pm: General Section Feb. 10th, 17th, 24th; Mar. 10th

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

\*\*Mike works nights; 'phone times somewhat restricted.

METEOR SECTION MEETS are usually held on Martlesham Heath outside Ipswich. Details of  
meetings and activities from Mr. D. Barnard, [redacted], Ipswich ('Phone Ipswich  
[redacted]) or from Mike Barriskill.

The next COMMITTEE MEETING is on Mar. 17th.

WINTER LECTURE PROGRAMME. FEBRUARY 16th at 8 pm, (Friday) at the FRIENDS' MEETING HOUSE  
39 FONNEREAU ROAD, IPSWICH. Michael Hardwick from the Imperial College of Science and  
Technology will be speaking on extragalactic astronomy using electronology. This  
subject should prove very interesting, and we hope a lot of ears will hear what he says.

Other meetings occasionally take place - for example, visits of other organizations to  
us, and of us to them. We aim to arrange at least a couple of trips to big observator-  
ies this year. Our provisional date for another OPEN DAY is September 29th (Saturday).

Sometimes special observing projects are organized (such as participation in IJVTOP).  
For MORE DETAILS about the ORWELL ASTRONOMICAL SOCIETY and activities, please contact  
any of the people already mentioned in the Observatory Programme, Editor Paul Burt, or  
Assistant Chairman, Mr. Alan Smith, [redacted], Ipswich, 'Phone [redacted] Ipswich, or  
Treasurer, Mrs. P. Long, [redacted], Ipswich, 'Phone Ipswich [redacted].

PROSPECTIVE NEW MEMBERS ARE ALWAYS WELCOME. Ones and twos can be shown the Observatory  
(and weather permitting, some views through the telescope) after making sure someone will  
be or is up there - if you come on spec. you may be disappointed. All GROUP visits,  
however, must be arranged only through Chairman Roy Cheesman, [redacted], Ipswich  
(contact week-ends only, or in emergency reachable by Roy Adams or certain other members).

UFOS HOTLINE If you see anything you feel can not be attributable to normal astronomical  
subjects, is otherwise unidentifiable and may be giving you a weird feeling, there is  
a new UFO hotline available (as mentioned in the local Evening Star) to contact. Two  
phone numbers are given, Ipswich [redacted] and Ipswich [redacted]. We imagine they are prepared  
for anything of this type - at least, it is hoped so - so don't be afraid to ring up.

#### MEMBERS' ADVERTS

© FOR ALL CLOCK REPAIRS big or S M A L L, ancient or modern, by competent craftsman  
Society member, 'phone Ipswich [redacted] (evenings) for all inquiries.

© For sale: CROOKES VANE RADIOMETER, very useful instrument (and conversation piece).  
Rotates on incidence of less than 1/20 Watt (evacuated glass bulb), in sunshine simply  
whizzes round. Only £3.50. Contact R. Adams, [redacted], Ipswich ([redacted]).