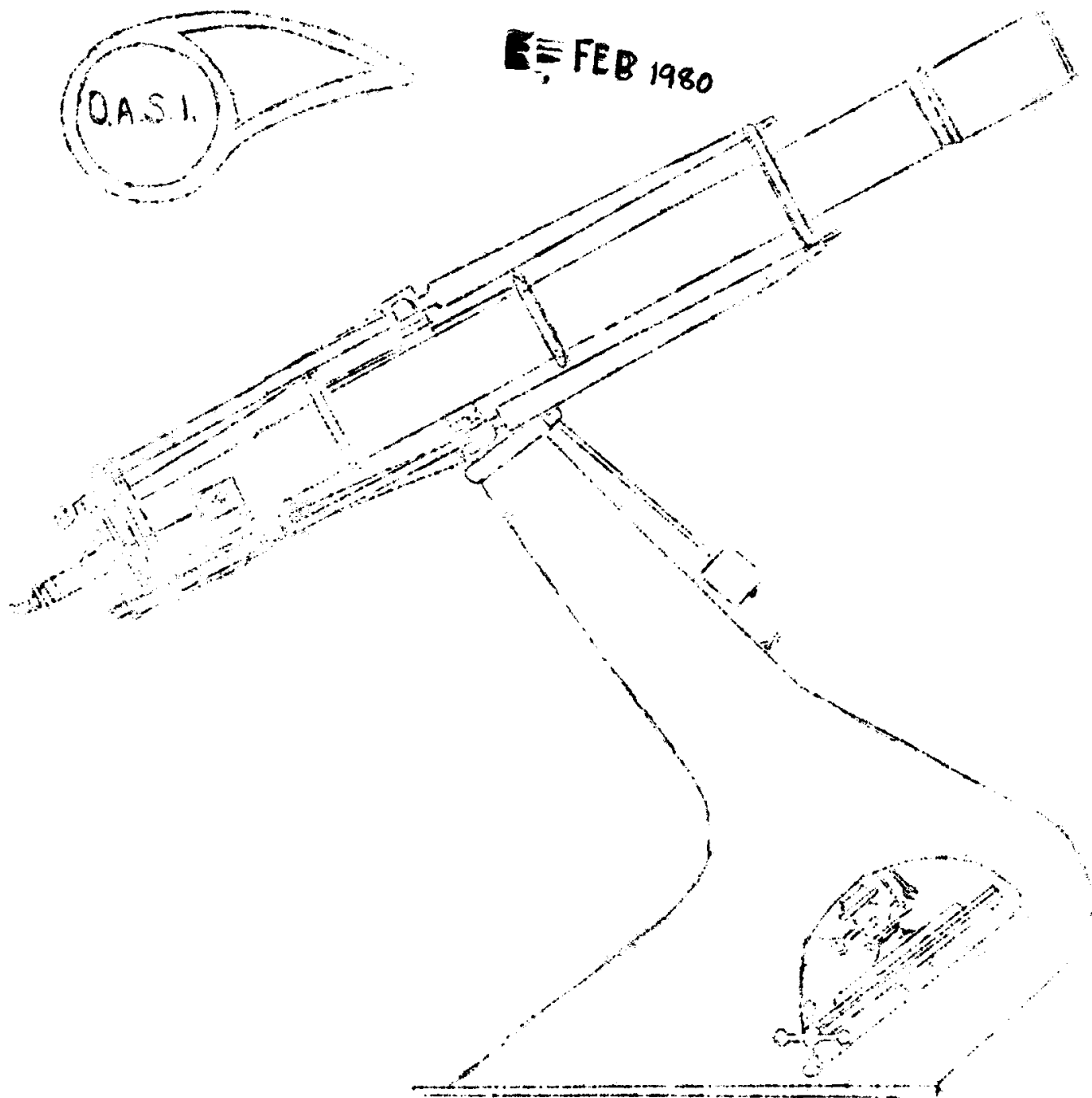


JOURNAL OF THE ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

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WEST HANNINGFIELD, Chelmsford, Essex. CM2 9LQ



The Orwell Park 16 inch Astronomical Telescope
at Nacton near Ipswich

JANUARY'S JOURNAL printing did not come up to expectations but we hope that this month's turns out a lot better now that we think that we have found the mechanical fault in it.

STAMPS FOR JOURNAL

The distribution of the monthly Journal creates a lot of hard work, and expense, by some of our members and we would like to see as many Journals posted as possible. If you would like your Journal posted direct to you please supply STAMPS ONLY. Members living outside of Ipswich are urged to send stamps as the distribution service is pushed enough just trying to cope with the Ipswich deliveries. STAMPS ONLY should be sent to R.M. Cheesman, [REDACTED], WEST HANNINGFIELD, Chelmsford, Essex. M2 9LQ.

SUBSCRIPTIONS FOR 1960.

All membership subscriptions to Orwell Astronomical Society (Ipswich) became due on 1st January 1960 and are at the following rates: Junior Membership (those under 18 years of age) and members still in full time education £2. Full Membership £3 and Family Membership £4. If you have not renewed your subscription and would like to do so please send your cheque made out to 'Orwell Astronomical Society [Ipswich] to Mr. M. Barriskill, [REDACTED], Ipswich.

CLUB NIGHT DIRECTORS

As you can see from our 'Meetings at Orwell Park' we have only three nights going a week at the Observatory whereas a couple of years ago we had six nights. If you would like to run a night at the Observatory on a regular basis please contact Mr. R.M. Cheesman, Mr. A. Smith or Mr. M. Barriskill.

ARTICLES FOR JOURNAL.

If you have any articles of astronomical interest which you would like to have published in the Journal please send them direct to Mr. R.M. Cheesman, address as above.

DEADLINE FOR MARCH JOURNAL

All articles for publication in the March Journal should be sent to Mr. R.M. Cheesman, address as above, by February 18th.

THE NIGHT SKY AS SEEN FROM CRWELL PARK IN

FEBRUARY

The zenith is quite barren-looking this month, being host to the inconspicuous Lynx constellation. However, Ursa Major, is now climbing well up into the sky during the evening, and will be due east of the zenith around midnight. The southern aspect boasts a fine array of bright constellations:- Leo, to the south east has three additional members in Jupiter, Mars and Saturn, Cancer is on the meridian at midnight; and the south-western quadrant is filled by Gemini, Taurus and Orion. Sirius is still high above the southern horizon, and winding down to the south-eastern horizon from Cancer is the upper half of Hydra. To the west Auriga and Perseus are still quite high up, and over to the east Bootes and the unmistakable orange of Arcturus will be easily visible later in the month.

THE SUN

Sunrise is at 07h 50m at the beginning of the month, changing to 06h 50m at month-end. Sunset changes from 16h 40m to 17h 30m. The Sun moves from Capricornus to Aquarius during the month.

There is a total eclipse of the Sun on February 16th, the path of totality crosses central Africa, India, Burma, and southern China.

THE MOON - Phases

Full Moon	1d 02h 21m	New Moon	16d 08h 54m
Last Quarter	9d 07h 35m	First Quarter	23d 00h 14m

OCCULTATIONS:

<u>Star</u>	<u>Phase</u>	<u>Mag.</u>	<u>TIME</u>		
			<u>d.</u>	<u>h.</u>	<u>m.</u>
1547	D	3.8	3	3	19.3
1547	R	3.8	3	4	05.3
*1821	R	2.9	5	22	57.8
1825	R	6.1	6	0	14.5
453	D	7.3	21	20	15.4

cont.....

Star	Phase	Mag.	TIME		
			d.	h.	m.
462	D	5.9	21	22	20.5
*608	D	6.0	22	23	28.7
741	D	5.7	23	20	34.7
1158	D	5.2	26	20	28.6

D = Disappearance

R = Reappearance

* denotes double star

Stars listed according to Zodiacal Catalog (ZC) numbers.

THE PLANETS:

Mercury is an evening star this month, reaching greatest elongation on the 19th, when it will be setting about an hour and a half after the Sun, at mag. -0.2

Venus is setting nearly four hours after the Sun, at mag. -3.6

Mars reaches opposition on the 25th, at mag. -1.0, in Leo.

Jupiter reaches opposition on the 24th, also in Leo at -2.1

Saturn at mag +1.1, completes the trio of planets visible throughout the night in Leo.

Source: B.A.A. Handbook 1980. All times are U.T.

FROM OTHER JOURNALS:

Doomsday Asteroids- A team from the University of California has proposed a hypothesis that the extinction of 75% of all terrestrial life 65 million years ago was caused by a wayward Apollo-type asteroid some 7-10km in diameter which ploughed into the earth. Their theory is based on the existence of a one centimeter thick layer of iridium-rich clay which covers the earth's surface at the level coinciding with the extinction period. (Iridium is absent from the Earth's crust relative to its abundance in space, and is a good indicator of an influx of extra-terrestrial material). The theory says that the asteroid impact caused a 100 million megaton explosion, creating a 175km diameter crater and throwing up material 100 times the object's mass. The resultant dust layer stayed in the stratosphere for

3 to 5 years, creating **global** darkness before settling on the surface to form the clay layer.

The period of **darkness** suppressed **photosynthesis**, giving rise to the pattern of **extinctions** observed in fossil records. The team further **suggests** that **statistically** the Earth is hit by an asteroid every 100 million years, a figure which **roughly** matches the **interval** between major extinctions.

Chinese Workers have identified another similar clay layer at the **Permian/Triassic transition level**, a period of mass extinction of even greater proportions.

New Scientist.

ARTICLES TO READ:

"Bending Saturn's Rings" - New Scientist 20th Dec. 1979.

An intriguing illustrated article on the effect of gravity on light. The Sun is presumed to be a black hole, with S₂ turn passing behind it. A sequence of pictures shows the resultant distorted view as seen from Earth.

"Mission to the Comets" - New Scientist 10th Jan. 1980.

An account of the proposed combined cometary mission to Tempel-2 and Halley. The main spacecraft will carry out a one year rendezvous with Temple-2 in 1988, after flying-by Halley's Comet in 1985 and releasing a probe into it.

OCCULTATION OF VENUS report by David Barnard.

On Sunday 20th January at 11h 37.1 minutes was the occultation of Venus. At 1100hrs Martin Cook and I arrived at the Observatory to be met by Roy Gooding and a few minutes later Alan Smith arrived. The morning had been quite cloudy but there was a lot of large spaces between the clouds. Alan found the Moon and Venus through his binoculars and the big telescope was turned. The area of sky was clear at 1130, still clear at 1135 and 1136 then everything hid behind clouds and yet again we missed a good occultation. Even the reappearance was clouded up for those vital minutes!

Note : Unless otherwise stated, the following News Items come direct from the organisation or contractor. To these we are once more very grateful.

October - SHUTTLE SPACE SUIT: SPACECRAFT UNTO ITSELF

Everything is proceeding OK with the Shuttle Space Suits, or EMU's as they are known by the Astronauts. The suits have a protective 'fuselage', life support subsystem, displays, controls, instruments and even an on-board computer. Once maneuvering units have been added to the EMU's, they will even have propulsive capability. NASA's Johnson Space centre is responsible for following the suits from inception to completion. Sixty suits will be maintained at the JSC, and shipped to Kennedy Space Centre once needed.

- Hamilton Standard Division of United Technologies Inc.

November - SPACELAB 2 GO AHEAD LOOKS FAVOURABLE

NASA and ESA have both looked favourably on the cost estimate put forward by the contractor for a follow on Spacelab. The German firm ERNO put forward a value of DM 292 million as the very minimum for a basic Spacelab. Under the memorandum of understanding signed by the two Space agencies in 1973, NASA will procure one Spacelab from European industry for sole use by itself and U.S. firms. At a Bremen press conference, ERNO's commercial managing director - Bernd Kosegarten said that the contract would virtually assure the jobs of the Spacelab team.

- ERNO Raumfahrttechnik GmbH.

Nov 23rd - POLYESTER/RESIN COMPOUND A PROMISE FOR SPACE.

Under development and examination at the Hughes Aircraft division - Electro-Optical and Data Systems, is a Sun sensitive material that offers a large step forward in the construction of large Space structures. The material is stored as a flexible material and when exposed to Ultraviolet light soon hardens, becoming rigid. The material would in fact harden of it's own accord, but the UV light acts as a catalyst speeding up the hardening process. Many different types of material were investigated before the present material was chosen; mainly on weight and storage factors. The composite would be stored in a Shuttle cargo bay, inflated outside the bay, and left to harden. It takes 30 minutes for it to stiffen, and is completely rigid six hours latter.

- Hughes Aircraft Company 'HUGHESNEWS'.

Nov/Dec - THRUST AUGMENTED SHUTTLE TESTS UNDERWAY AT MSFC

Marshall Spaceflight Center recently received 20 small scale strap-on motors (SOSM) to determine the effectiveness of attaching motors to the Shuttles present SRB's. The solid propellant motors, 60 inches high by eight inches in diameter, are reduced in size by 6.4%. That means the full scale solid propellant motors would measure 78 feet by 10.4 feet respectively. The SOSM's are to be tested in ten simulations at the Spaceflight center laboratories, Tomahawk missiles taking the place of present, Solid Rocket Boosters.

-Chemical Systems Division, United Technologies Inc.

Dec 13th - ENORMOUS CLUSTER OF GALAXIES DISCOVERED?

Using a converted U-2 spy plane, a NASA/University of California at Berkeley team may have discovered the largest galaxy group to date. Measurements taken during 1978 of the microwave background radiation have indicated that our galaxy is hurtling toward the constellation of Virgo, but at a rate larger than expected. Astronomers believe the supercluster in that region of Space to have 30 to 40% more matter than normally found in a similar galaxy conglomeration. One of the researchers - Dr Smoot, has indicated that not enough time has elapsed since the beginning of the Universe for such a supercluster to be formed. Therefore the only credible explanation is the Supercluster was part of a lumpy 'primordial atom' at the time of the Big Bang.

-N.A.S.A.

Dec 13th - INTELSAT III(F-3)'s HONOURABLE RETIREMENT

A mere radio signal was all that was needed to send a faithful satellite hurtling 4-5000 km from it's Geostationary orbit. Positioned at 66°E longitude over the Indian Ocean, Intelsat III(F-3) was first placed in stationary orbit in February 1969. It's initial assignment was over the Pacific Ocean, but a few month's after the launch it was decided to re-position it at the previously stated position. In July 1972 the satellite ceased to be the primary Indian Ocean satellite, and it's circuits were leased to Algeria. On May 1977 the satellite was placed on standby, but with the de-spun antenna array stalling, the decision was made to boost it out of stationary orbit using what fuel was still available to the craft's thrusters. One of it's first tasks was to relay the investiture of Prince Charles as Prince of Wales. The satellite operated for a total of approximately 2.1 million minutes and was inoperable for 69.7 minutes!. It will take four to five million years for the satellite to once more reach it's original stationary orbit altitude.

- International Telecommunications Satellite Organisation.

* (April 1979.)

Dec 13th - CONTRACTORS PUSH FOR VOIR CONTRACT AWARD

Martin Marietta Aerospace and Hughes Space and Communications Group have both been awarded similar half million dollar contracts for a conceptual design of NASA's proposed Venus Orbiting Imaging Radar spacecraft. The contracts were awarded by the Jet Propulsion Laboratory. Both designs will be submitted and compared in 1981 so that a contract for the whole spacecraft can be awarded, a craft built, and hopefully launched by Shuttle in 1986 subject of approval from Congress. VOIR will essentially use radar to map the Venusian surface, studies of a suitable Synthetic Aperture Radar being already underway.

-Martin Marietta Aerospace/N.A.S.A.

Dec 14th - RADIO CONTACT LOST WITH VOYAGER 1

Late Thursday afternoon, Scientists at J.P.L. lost contact with Voyager 1 following a maneuver to refine its path to Saturn. A faint signal was gained later, but soon stopped. The loss happened when the Spacecraft was commanded to orient itself with its dish antenna pointing directly to Earth. Studies are underway into how to alleviate the trouble without the use of too much maneuvering gas.

-N.A.S.A.

Dec 18th - INTERNATIONAL SOLAR POLAR MISSION CONTRACT

Martin Marietta Aerospace has been awarded a one million dollar contract to design and build a Solar Wind Analyser under the auspices of the J.P.L. Dr Devrie, S. Intriligator of the University of Southern California is principal investigator for the instrument. The wind analyser will fly on the ISPM spacecraft to be launched by Shuttle in 1983. Under the mission definition, two Spaceprobes will fly above and below the Sun's poles respectively. The Wind Analyser will attempt to measure the charge's of the various ions emitted by the Sun. It will also measure the Intensity of the ion stream, as well as its direction. The data should provide us with a better picture of Solar surface movements with regard to high energy particles.

- Martin Marietta Aerospace.

Dec 20th - JAPAN LAUNCHES SECOND EXPERIMENTAL COM-SAT

Ford Aerospace & Communications Corporation teamed with Mitsubishi Electric Corporation of Japan have jointly announced that the second Experimental Communications Satellite, ECS-b, will be launched from Japan's Tanegashima range this month (Feb). The satellite is the second in a series to investigate the higher frequency bands of the electromagnetic spectrum for a possible future Japanese domestic satellite system. ECS-b is spin stabilised, 1.4 m in dia by 1.9 m long.

-Ford Aerospace & Communications Corporation.

Jan 4th - PERUMTEL ANNOUNCES FOLLOW ON SATELLITE NETWORK

Perumtel, the Indonesian government owned telecommunications company, has announced that Hughes Aircraft Company will build a new system of Palapa satellites to succeed the first generation at present in service. Designated Palapa B-1 and B-2, they are twice as big and four times as powerful as the first generation of Palapa satellites. Both will resemble the Anik C, D and Satellite Business System satellites at present under construction. The power available in orbit is almost doubled by a solar cell jacket that slides down the outside of the satellite once in geostationary orbit, leaving solar cells on the actual body of the satellite still able to receive sunlight. It is interesting to know where the name Palapa arises. In 1975, President Suharto decided on the name after remembering that Prime minister Gajah Mada, six centuries earlier, had vowed not to eat the national delicacy-Palapa until all the islands were unified.

- Hughes Aircraft Company

Jan 4th - SPACE TELESCOPE SCIENCE INSTITUTE

NASA is seeking proposals for a Space Telescope Science Institute to handle the data from the 9,100 kg telescope to be placed in orbit by Shuttle in the early 1980's. A contractor will build, staff, provide investigator facilities, archive data and control the Telescope. Flow of data will be from ST via a Tracking and data relay satellite to Goddard SFC and thence to the Science Institute. The Space Telescope will operate for at least 15 years, every five years being taken from orbit for major refurbishment. Minor repairs will be undertaken by Shuttle about every 30 month's.

- N.A.S.A.

IN SHORT.....

*Solar Electric Propulsion is now being studied by two companies under contract to NASA. -N.A.S.A.

*A Titan IIIC recently put in orbit two D S II satellites for the department of Defense. It is the 57th successful Titan IIIC firing. -Chemical Systems Div, United Tech's.

Here is how Mr Trevitt of INTELSAT recently described TDMA/DSI while announcing Intelsats push towards digitization. Readers may find it amusing. "For the layman, TDMA/DSI stands for Time Division Multiple Access/Digital Speech Interpolation. What it means is that, when you call your Grandmother overseas in the future, you may end up talking, not to Grandmother but to electronic equipment that sounds like her. ...And you wont be able to tell the difference. ..At each scan, the equipment would send a digitally encoded signal...to the satellite. But only when Grandmother has something to say.!!!!

FIRST ARIANE LAUNCHED 24th DECEMBER 1979.

Report by Simon Harvey

Like many Space launcher programmes of the day, Ariane too has been forced to cancel till a later date a launch, time and time again. However, finally at 17:14:38 G.M.T. on December 24th the first Ariane took to the sky, with E.S.A. and C.N.E.S. describing it as a complete success. Launched from Kourou, French Guiana, the launch site is but a 5 degrees north of the equator, imparting to the launch vehicle virtually the maximum velocity obtainable from Earth spin anywhere on Earth. Ariane can place a 1,700kg satellite plus apogee motor into a 35,800km (geostationary) orbit.

E.S.A.'s plans call for an increase in that capability to 2,300kg by the year 1983. This will enable the launcher to place in orbit two spinning solid upper stage (Payload Assist Module D type payloads). Something unique to expendable launches is Ariane's dual launch facility whereby as stated, two satellites may be launched at the same time, one above the other. At present one of the most important payloads as far as E.S.A. is concerned is the launch of Intelsat V communications satellite. INTELSAT* have their eyes on other Ariane flights if all goes well, and could launch as many of the ones not assigned to any launch at present to Ariane.

Although E.S.A. and C.N.E.S. only expect two of the four launches in the flight test series to be successes, E.S.A. has still placed major payloads such as METEOSAT B on test 3 and MARECS on test 4.

Undoubtedly E.S.A. is placing great confidence in Ariane. However, this will inevitably attract business and commerce look at Ariane, and not just N.A.S.A.'s. As of December 1979 fifteen launchers had been called for. To make the use of Ariane easier, E.S.A., with joint agreement with the contractor set up the organisation 'Arianespace'.

With it's sole purpose to get things rolling, it will

Ariane available to those who wish to use it in a much smaller time.

Ariane's next flight is scheduled for May. LOZ carries a German satellite on experiment called 'Firewheel' and instrumentation to record all parameters of the flight.

* INTELSAT is the 102 member organisation of countries that uses a common system of satellites to obtain a versatile world-wide communications system.

For more information on this and recent month's items in News Review, please write to Mr. S.G. Harvey, Code NRH 53, [redacted], Needham Market, Nr. Ipswich, Suffolk or Mr. S.G. Harvey, Code NRU, Map 1, School of Maths & Physics, University of East Anglia, Norwich, Norfolk, NR4 7TJ. Your items for inclusion in this Journal will be greatly appreciated. Organisations interested in receiving more up to date information and news should contact me at the University address.

Simon Harvey

Note:

Large posters and booklets on Ariane are available in the Observatory at Orwell Park.

My thanks go again to Paul, Simon and Roy for sending in material for inclusion in this month's Journal. If you have anything of astronomical interest which you would like to have printed in the Journal please send them direct to me. Such things could be crosswords, questions you might want to ask, comments, items which you have read in newspapers, magazines or even comics, jokes which are astronomically biased, etc.

Roy Cheesman.

NOTABLE ASTRONOMICAL ANNIVERSARIES

PIETRO SECCHI

February 26th marks the 102nd anniversary of the death of Pietro Secchi. Secchi was born sixty years earlier on June 29th 1818 in the Italian town of Reggio. At the age of fifteen he entered the Society of Jesus, where he continued his principle interest of astronomy. As a Jesuit he taught in many of the Orders schools, up until 1848, when due to religious persecution then prevalent on the Continent, he was forced to leave Italy. He settled in the U.K. for a short time, before going on to the U.S. where he taught at Georgetown University, Washington D.C.

When the political climate changed in Europe, Secchi returned to Italy taking up the post of Director of the Georgetown University Observatory in Rome. His principle interest was to enter the new field of astronomical spectroscopy. In this he was pioneer and contemporary of Huggins in England (see February's Journal 1979). Secchi carried out a systematic observational programme, recording the spectra of about 4000 stars between 1864 and 1868.

Up until this time the only information known about stars was their position, brightness and colour. Secchi noticed the stellar spectra had a great diversity, discovering for the first time that stars had different chemical compositions. During 1867 he suggested that stars could be classified by their spectra. Secchi divided the stars into four spectral classes. This first attempt at stellar classification has subsequently been expanded to ten spectral types.

Secchi was also a pioneer in the use of photography for astronomical research. During an eclipse in 1851 he took photographs of the sun, recording the various phases. By 1859 he had photographed the whole of the moon's visible side.

report by ROY COODING.

ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

MEETINGS FOR FEBRUARY, 1980.

Orwell Park Observatory, Naston.

MONSDAYS from 7p.m. Planetary Section

Directors: Mr. J. Hood, [REDACTED], Ipswich
Mr. J. Ranson, [REDACTED], Ipswich
'phone Ipswich [REDACTED]

February 12th and 26th

TUESDAYS from 7p.m. Solar & Lunar Section.

Directors: Mr. J. Hood, [REDACTED], Ipswich.
Mr. M. Barritt, [REDACTED], Ipswich.

February 5th 12th and 26th

WEDNESDAYS from 8p.m. Nebulae & Faint Objects Section

Directors: Mr. D. Payne, [REDACTED],
Wickham Market, Tel Wickham Market [REDACTED]
Mr. M. Cook, [REDACTED], Ipswich
Tel. Ipswich [REDACTED]

February 6th 13th 20th and 27th

THURSDAYS from 8p.m. General Observations Section

Directors: Mr. M. Barriskill, [REDACTED], Ipswich
Mr. R. Adams, [REDACTED], Ipswich,
Tel. Ipswich [REDACTED]

2nd 16th and 23rd.

THURSDAY 9th FEBRUARY at 8p.m.

COMMITTEE MEETING

//

at The Friends Meeting House, Fonnereau Road, Ipswich.

FRIDAY 16th FEBRUARY AT 8p.m. an illustrated talk given by
DAVID PAYNE entitled 'BENT MINDS & CURVED SPACE'

ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

presents

an illustrated talk entitled

"BENT MINDS AND CURVED SPACE"

given by

DAVID PAINE

on

FRIDAY 8th FEBRUARY, 1980

starting at 8p.m.

at

THE FRIENDS MEETING HOUSE

FONNEREAG ROAD,

IPSWICH.

Admission Free - Everybody welcome