JOURNAL OF THE ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

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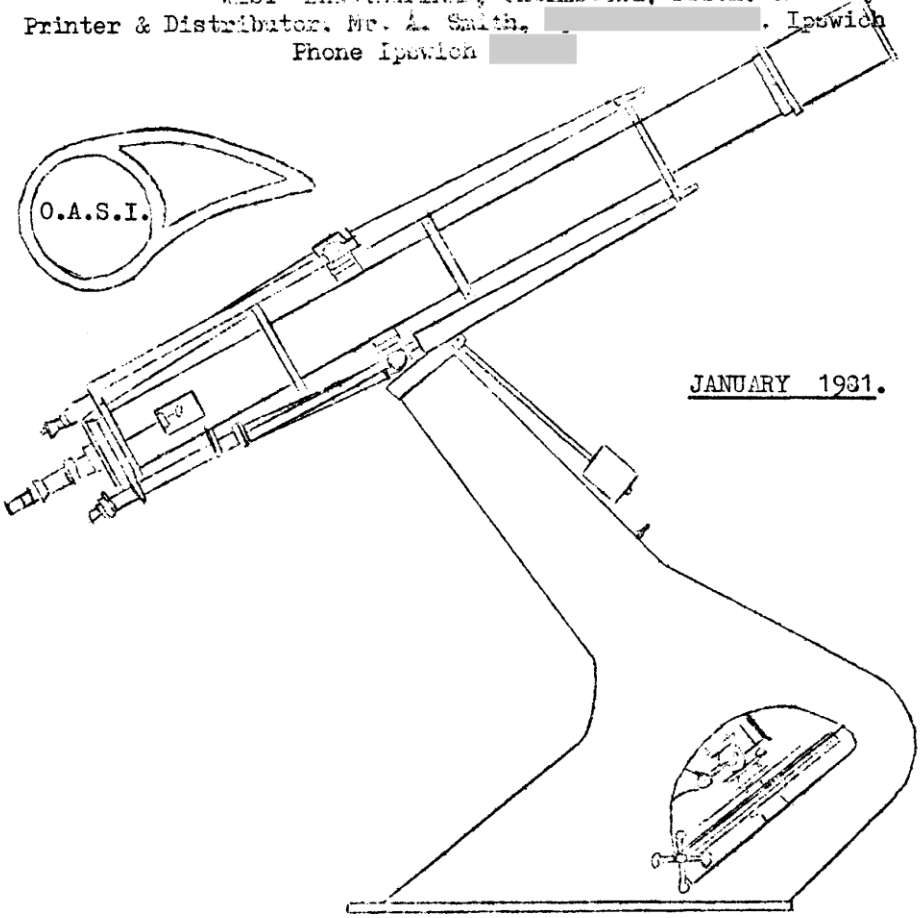


JANUARY 1981.

The Orwell Park 10 inch Astronomical Telescope
at Nacton near Ipswich.

ANNUAL GENERAL MEETING

The Annual General Meeting of Orwell Astronomical Society (Ipsw will be held on SATURDAY 17th JANUARY, 1981 in the Library of Orwell Park School, Nacton to which all members are invited to attend.

Please note that the meeting will COMMENCE AT 7.30p.m and NOT 8p.m. as advertised in last month's Journal.

THE NIGHT SKY AS SEEN FROM ORWELL PARK IN JANUARY.

by Paul Burt.

Auriga is in the zenith during late evening in the first half of January, with it's yellow main star Capella directly overhead. During the latter part of the month the zenith area is much more barren, containing the faint constellations of Lynx, pointing westwards, and Camelopardalis, pointing northwards (forming a straight line between Polaris and Capella. The southern aspect is at it's glorious best this month, containing from east to west, Leo, Cancer, Gemini, Orion, Taurus and Aries, with Canis Major and Lepus directly below Orion. To the west Perseus is still very high, as are Cassiopeia and Andromeda, while to the north Polaris in Ursa Minor is surrounded by it's ever present neighbours Cepheus Draco, and Ursa Major.

THE SUN rises at 0800 hours at the beginning of the month changing to 07h50m at month-end. Sunset changes from 1600 hrs to 16h 40m. The Sun moves from Sagittarius to Capricornus during the month.

THE MOON - phases:

New Moon	6 d 07h 24m	Full Moon	20d 07h 39m
First Quarter	13d 10h 10m	Last quarter	28d 04h 19m

OCCULTATIONS:

Star	Phase	Mag.	Time d.	h.	m.
3126	D	4.3	8	17	12.0
3275	D	6.1	9	18	12.4
* 150	D	6.2	12	21	23.9
291	D	7.1	13	22	12.6
444	D	6.2	15	1	6.6
* 692	D	1.1	16	15	3.2
* 692	R	1.1	16	15	59.2
729	D	7.2	16	22	44.8

D = Disappearance R = Reappearance.
Stars listed according to zodiacal catalog (ZC) numbers
* denotes double star

THE PLANETS:

Mercury is an evening star, setting an hour and a half after the Sun at mag. -0.9 by month-end

Venus will be almost lost in the sunrise by the end of the month.

Mars is an evening object, setting an hour after the Sun at mag. +1.4, though not really observable.

Jupiter rises at 2300 hours in mid-month, at mag. -1.7 in Virgo.

Saturn is rising alongside Jupiter, at mag. +1.0

Source: B.A.A. Handbook, 1981, All times are U.T.

FROM OTHER JOURNALS:

New Observatory Network.

The U.S. Air Force is to build a world-wide network of space observatories to monitor the skies for unusual events. The prototype has been built at Newbury Park, near New York, and five more sites are proposed, in New Mexico, Hawaii, Korea, Spain, and an island in the Indian Ocean.

Each observatory will consist of one 0.6 metre and two one meter telescopes, mounted to enable rapid scanning of the sky. The primary objective of the network is to watch for satellites orbiting the Earth above the 5000Km level, where radar monitoring is unreliable, and in particular the 35,000Km level, where spy satellites can remain in geo-stationary orbit, thus being inconspicuous. The network will also provide astronomers with an instant way of discovering sudden events such as novae, supernovas, variable stars and distant quasars which can suddenly change in brightness, events which so often pass unnoticed because astronomers cannot be looking everywhere at once, which is exactly what the new network will be doing. This all depends, of course, on the premise that the results of the network will be declassified.

-New Scientist 4th Dec.

ARTICLES TO READ:

'Saturn's secrets revealed' New Scientist 20th Nov.

A comprehensive [illegible] the results received from Voyager 1's Saturn flyby complete with photographs.

METEOR NOTES by David Barnard.

On the night of Saturday 13th December six members met up at the 'Levington Ship' for the Geminids meteor count. Even though it was the night of the maximum, we were rather disappointed because all other previous meteor counts (when clear!) we have only seen a half dozen members or so.

BUT THIS WAS THE NIGHT TO REMEMBER. Altogether 281 meteors were seen, including two spectacular fireballs of mag. -5. The watch started at 2038 and continued until 0130 hours on the Sunday apart from a short break from 2245 to 2315 hours. The previous record of meteors seen was 80 on a meteor count and that was way back in 1975 for the Perseids Meteor watch held on Foxhall Heath. No doubt many more would have been seen during this month's count had it not been for the cloud invading from the south-west, which it had been threatening to do all evening.

METEOR SHOWERS DURING JANUARY:

During January we haveone main shower, the Quadrantids. Again, as with the Geminids shower we havearranged to hold a meteor count on the DAY OF THE MAXIMUM which is SATURDAY 3rd JANUARY 1981.

This shower, which was recently the subject of a 'Sky at Night' programme has a very sharp maximum, occuring at about 0400 on the morning of January 4th. So it should be very interesting observing this shower and there should be a steady and then a sharp rise in the number of meteors seen. The ZHR is in the region of a hundred but it could be more

as this shower is becoming more active. The radiant is near Ursa Major/Draco, and the characteristics of these meteors are fast and blueish.

MEET OUTSIDE THE 'LEVINGTON SHIP' at 8p.m. irrespective of weather conditions and do not forget to wrap up warm.

EXPERIMENTS ON A PHOTOELECTRIC GUIDANCE SYSTEM AND PHOTOMETER ELEMENT by Roy Adams.

The subject of electronics to some may be a very obscure one, but if there is any possibility that things such as phot-transistors can help us get a better picture and more accurate and consistant results in measuring star and other object apparent magnitudes, I still want to know about it.

To this end, and quite mindful of the pitfalls awaiting those who forget about Temperature Control, Humidity Control, Voltage Regulation and other desirables, or at least some form of compensation for them, I made up my alittle circuit with a new phototransistor and a well-tried ordinary transistor, together with a couple of resistors and a diode and two sens-itive meters, 2-volt to 6-volt battery, 300mm Prinzgalaxy F5.6 camera lens,and a surveyor's tripod.

I had tried a similar experiment before, with an ordin-ary photoconductive cell, which was quite promising, on my 710mm local length F11 Prinz telescope. With that, I had managed to detect Jupiter to the tune of a 3 micr-amp reading, on a 12-volt D.C. supply, with possibility of much improvement with better circuitry and defocussing of the eye-piece, or removal of the cell back a little [illegible] focal plane with no eye-piece. The cell [illegible] rather higher voltage. With the best of intentions regarding actual improvements however, the idea got left for other duties.

Now, however, [illegible] I was with a more compact but similar [illegible] deep, too bothered to put on mycoat [illegible] tion was up and between cloud, the

continued on page 13.....

CHEAP BOOKS.

Our Roy Gooding has arranged with the Orwell Book Shop in Fore Street Ipswich for members on production of their current membership card to get about 10% off the current price of any type of book purchased for cash.

TWO NOTES:

1. The A.G.M. of our Society takes place in the Library of Orwell Park School, Nacton on Saturday 17th January commencing at 7.30p.m. and not 8p.m. as advertised in last month's Journal.

2. All membership subscriptions for our Society become due for 1981 on the 1st January. All renewals should be sent to Mr. M. Barriskill, [redacted], Ipswich.

JOURNAL.

JOURNAL PRINTING.

As from the December Journal, the Society's monthly Journal until further notice will be printed by Mr. Alan Smith, [redacted], Ipswich which will mean that the deadline for material for the Journals will be required that much earlier so that it can be typed up on stencils and then sent to Ipswich for printing and distribution. All stamps to cover posting of the Journal should be sent to Mr. A. Smith.

The Editor of the Journal is still Paul Burt and the typing of the Journal still remains with Mr. R.M. Cheesman.

All material for inclusion in the Journal should be sent as soon as possible so that Journal size can be worked out. Mr. Cheesman, [redacted], WEST HANNINGFIELD, Chelmsford, Essex. CM2 8LQ starts typing up the Journal as soon as the 'old' Journal has been posted off to Mr. Smith so please send in your articles as soon as they are ready.

Observation of Messier and Herschel Objects

report by David Barnard.

Many members who regularly attend the Observatory may have noticed the new Observation Book in the Clubroom, where observer are invited to log and comment on these objects.

An extract from the book:

'12th November, 1980, seeing fairly good, crescent Moon in low west, M76 Perseus, Faintest object in Messier's Catalog at mag 12.2, a planetary nebula.

Through a wide angle eyepiece the object appeared rather elongated with a dark patch in the centre giving the appearance of two bright areas, rather difficult to define, good rich field.

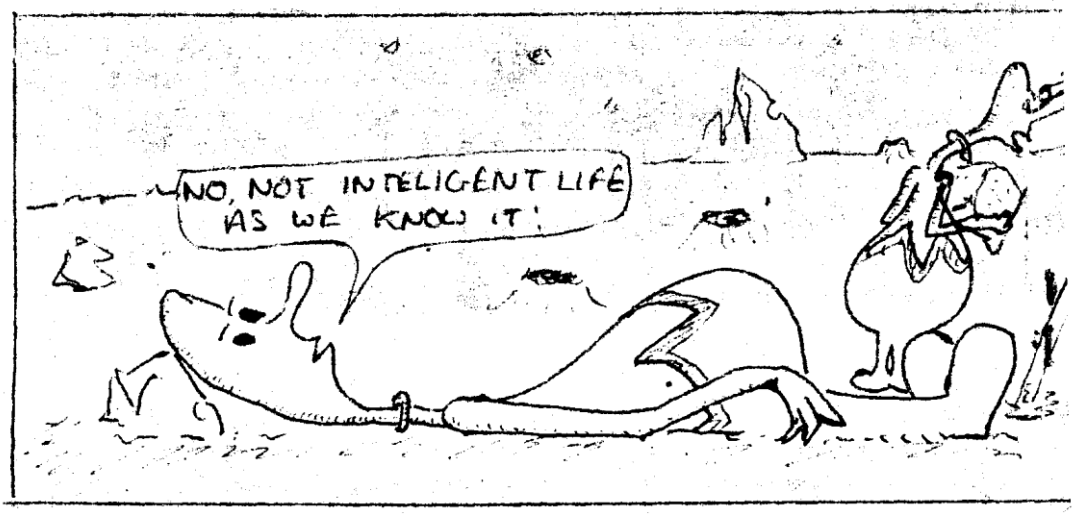
M74 Picis - spiral galaxy, Mag. 10.2 in Norton's Star Atlas while in the Coeli Star Atlas it's mag. is given as 8.5! I personally think it should be about 13. Certainly a faint object. A face on galaxy near zeta Piseis though difficult to find.

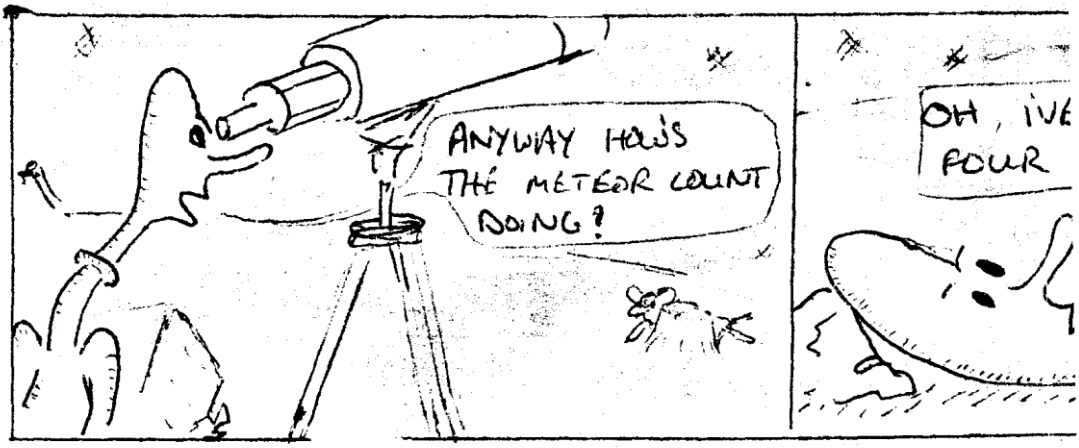
34(IV) Orion. - planetary nebula at 12th mag which is 15seconds in diameter with a 14th mag. central star which we could not find as the object was faily low down to the horizon. Appears as a small fuzzy object not unlike the Saturn nebula, though much fainter. Nearby according to the Star Atlas, is a diffuse nebula which we could not detect.

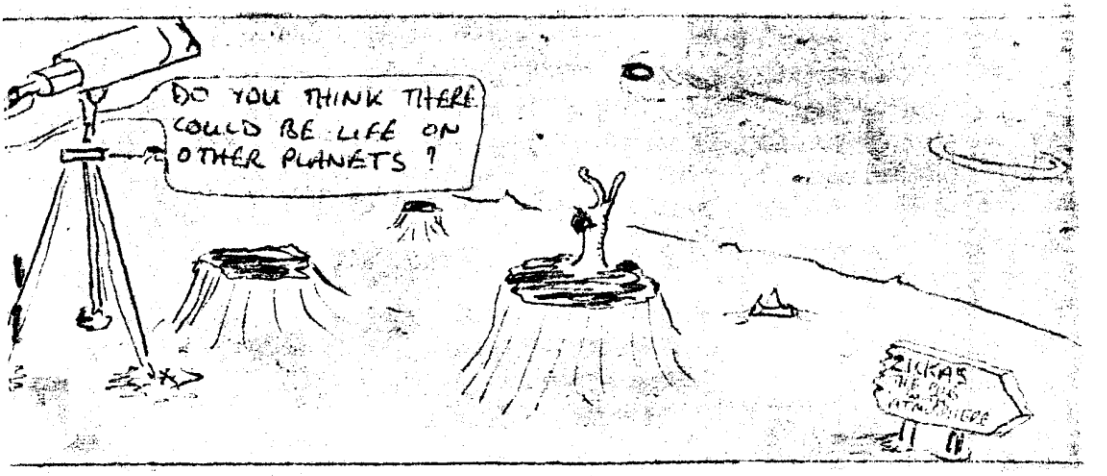
This extract is one of a few so far entered in the new log book and we hope that many members will participate in observing these objects and recording their observations in the book so that at the end of 1981 we can look back and say that we are at last doing some serious astronomical work.

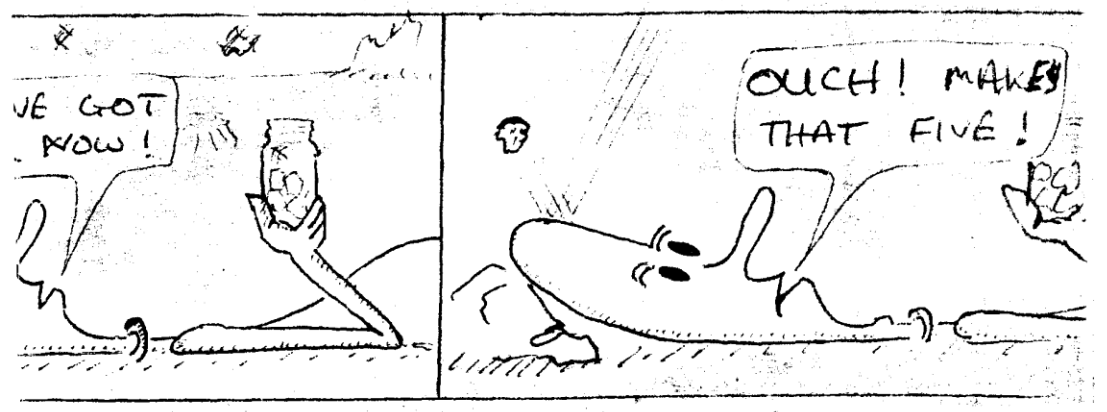
David Barnard.


CARTOON
FUN


NO, NOT INTELIGENT LIFE AS WE KNOW IT!


ANYWAY HOW'S THE METEOR COUNT DOING?
OH, IVE FOUR


DO YOU THINK THERE COULD BE LIFE ON OTHER PLANETS ?


VE GOT NOW !
OUCH ! MAKES THAT FIVE !

NEWS REVIEW

by Simon Harvey.

All the items contained in this publication are original and therefore I should like to express thanks to the credited organisations for supplying stories. For those interested in revieving further details of these and other items they can be obtained from me :S.G. Harvey, [redacted], Needham Market, Ipswich, Suffolk. IP6 8AL.

N.A.S.A. Administrator to resign.

Dr. Robert A. Frosch, N.A.S.A. Administrator, is to resign in January of 1981. Dr. Frosch will take up post as the First President of the American Association of Engineering Societies which was created in January of this year. The Association covers 39 professional engineering societies representative of over one million engineers. Dr. Frosch was nominated by President Carter in May 1977 to the office of Administrator and has been a driving force in the readying of Shuttle Columbia for it's first flight in March 1981. Dr. Frosch received all his degrees from Columbia University, New York, and gained his doctorate in theoretical physics in 1952. The resignation is not expected to impact the current schedule for the launch of the first shuttle Columbia in March 1981.

N.A.S.A.

Nov. 10th. Major Shuttle Engine test fails.

Main propulsion test number 11, a Shuttle Columbia main engine certification. was stopped early November only 22 seconds into the firing. The test took place at N.A.S.A's National Space Technology Laboratories, Mississippi. The test was scheduled to last 9½ minutes, but abnormally nigh temperature in the hydrogen coolant tubes in the number 2 nozzel sent a command to shut the test down. The engines were using full flight nozzels, each weighing 10001bs, and are the sort Columbia will use on her maiden voyage in March 1981. The test was to have verified that the engines are

OK for 102% rated power thrust, with no pgo pulsing. Those engines are due to be fitted to Columbia soon, ready for OFT-1 (STS-1) in March.

- Rockwell Space Systems Group.

Nov 10th British Aerospace Chosen for Comet Project:

The European Space Agency has chosen BAeD to build it's first extra-terrestrial probe, called 'GIOTTO'. The probe will rendevous with Hally's Comet in 1985/6 time period. GIOTTO will be based on experience gained with the GEOS 1 & 2 projects which were also managed by BAeD. Halley's Comet visits the Earth every 76 years and GIOTTI will carry a number of Scientific instruments mainly to study the comet's "coma". In addition, measurements will be made of the comet's magnetic properties and photographs will be taken of it's nucleus. GIOTTO will only be in the close proximity of the comet for a few years. Total contract value is put at £27 million.

British Aerospace Dynamics.

Skylark Rockets in lower atmosphere exploration.

Two 'Skylark Rockets' will play a prominent part in finding out more about the Earth's atmosphere energy budget. The launching of the rockets began on November 5th and a total of 57 rockets will be launched in three stages to measure the effects of a magnetic storm on the Earth's atmosphere. They will be launched from either Andoya, or Kiruna in Sweden. The energy budget campaign has turned from being purely German to a joint European effort. British Aerospace is supplying two Skylark 7 rockets. They will each carry 372kg of scientific instruments to an altitude of 234Km.

British Aerospace Dynamics.

Britain prepares for INMARSAT service.

British Telecom has placed a contract worth £6.05 millio

with Marconi, Ltd., to supply a steerable antenna and associated electronics for the Goonhilly Downs Earth station complex. The antenna will serve satellites of the INMARSAT system. INMARSAT plans to launch it's satellites in 1981 and they will operate in the new high frequency ranges. The new antenna will be 13.7 meters in diameter, the smallest of the four antennas presently at Goonhilly. Britain has a 11% share in INMARSAT, which has it's headquarters in London. By the mid 1980's it is projected that 2,000 ships will be using the INMARSAT service. Present maritime satellite communication is accomodated by the MARISAT satellite network, operated by the United States company - Comsat General Corporation

COMSAT/TELECOM HIGHLIGHTS.

SATURN exhibits a multitude of new features:

Photographic imagery taken by the Voyager 1 during it's flypass of Saturn revealed curious 'spokes' in the planet's rings. Images taken while still 52m Km away shew a distinct spoke in Saturn's 'B' ring. In subsequent images, other such items have been found, some lasting for comparitively short times while others for much longer periods. Scientists consider this find as incredible considering that outer and inner parts of the ring rotate at vastly different rates. One suggestion as to the cause of the 'spokes' comes from the Voyager imaging team who suggest that they might be sparce regions containing few particles.

Dr. Thomas (Tim) Mutch dies.

Dr. Thomas (Tim) Mutch was killed while on a Himalayan mountain trip on October 6th. He suffered a fatal fall while climbing Mt. Nun with seven other Americans. Dr. Mutch became N.A.S.A.'s associate Administrator for Space Science in 1979 and was prime driving force within the Space science field. He was Professor of Geology at Brown University before joining N.A.S.A. In recent years his achievemnts included; head of 'Viking' lander imaging team, Chairman of the post Viking Mars planning committee, and he was involved with both the Pioneer and Voyager probes.

Jet Propulsion Laboratory.

INTELSAT ensures compatibility with other systems:

At it's recent meeting in Venice, signatory representatives of the International Telecommunications Satellite Organisation agreed to measures both technical and economic to enable INTELSAT satellites to be 'compatible' with other national systems. The systems planned and which INTELSAT shall aim to merge with include: the European Eutelsat , German TV-SAT, Indian INSAT, Indonesian PALAPA, Russian INTERSPUTNIK, Japanese GMS-2 and the ARABSAT systems. INTELSAT considers the EUTELSAT and PALAPA networks to be least damaging economically, as they are largely regional systems. The Algerian request to connect to the INTERSPUTNIK network was given a great deal of consideration by the parties. Not only would that system carry specialised communications, but ordinary public telephone communications. The Assembly of Parties stressed at the end of the meeting that they hoped there would continue to be "a single global communications satellite system"

INTELSAT.

INTELSAT V ready to go.

The first in a series of high capacity satellites called 'INTELSAT V (F-2) was shipped from the California manufacturers to Kennedy Space Centre during mid- October ready for their launch during early December. The INTELSAT V network (9 satellite orders have been placed) will replace the International Telecommunications Satellite Organisation's aging INTELSAT IVs and INTELESAT IVA's. Flight 2 will be placed in a standard geostationary orbit above the Atlantic Ocean. Each INTELSAT V is capable of relaying 12,000 simultaneous telephone calls plus 2 TV channels. The world-wide INTELSAT satellite network now carries an estimated 2/3 of the global inter-continental communications traffic. Although INTELSAT placed the order for it's satellites with a U.S. firm, approximately one-quarter of the satellite components originate in other countries.

- International Telecommunications Satellite Organisation (INTELSAT)

RMS Contractor Assigns Sub-Contractorships.

Unknown to many, Canada has a major share in the Space Transportation System project. Spar Aerospace of Canada is manufacturing the highly specialised 'arms' or 'Remote Manipulator System' in jargon. The 'arm' is fifty feet long and displays incredible dexterity. By the use of three joints, resembling the human shoulder, elbow and wrist, the arm is able to position itself by the use of a dedicated computor, to within two inches of it's planned position. Spar Aerospace of Canada is manufacuring uder the auspicious of the National Research Council of Canada, one arm each for the Shuttle Orbiters. Spare recently announced that it had received follow on contracts to build arms 2, 3 and 4 and subsequently named sub-contractors for the major undertaking. Spare named CAE Electronics of Quebec to build the display and control subsystem. CAE is one of the leaders in the aircraft flight simulator field. Spar has already delivered the first RMS to Rockwell International and it has now been installed on the Shuttle 'Columbia'. Three other Shuttle Columbias are to be built, although there is a possibility government and military sources in the U.S. may press for a fith.

- Spar Aerospace Limited.

BOEING in Joint Effort to build Sweden's Viking Satellite:

Boeing Aerospace has been awarded a contract to build the platform for Sweden's first satellite, called 'Viking'. The satellite will be used to investigate the interaction of the Sun's plasma with the Earth's magnetosphere. The interaction is commonly associated with the Auroa Borealis (Northern Lights). The Swedish Space corporation awarded the prime contract to Saab-Scania of Sweden, with Boeing producing the superstructure. Viking will be launched by Ariane in 1984, in tandum with the French Earth Resources satellite (SPOT).

Boeing Aerospace.

Experiments on a Photoelectric guidance system continued from page 5

....sky was very dark and clear (as much as one would expect in Ipswich). Carefully assuring the Moon did not shine into my lens, I connected to just 2-volts. I stopped-down the lens to F22 and aimed at the Moon, using the little thin paper ring round the phototransistor as an aimer. Just the edge of the three-quarter full Moon shot the meter needle right over so fast that I immediately charmed the meter. Good job I did, because the actual reading for F22, at maximum, was at least ten times that of full scale on the first meter, at 2-volts supplied - over ½mA. Opening to F11 at 6-volts gave 5mA. (this is 5000 microamps)

With this promising start, I tried to get onto Capella, butthe Moon was rather bright and lighting up everywhere outside the camera lens, and I could not quite see the image on the paper screen. Once I thought that I saw my (now reconnected) very sensitive meter needle move about 0.2 microamps above dark current of 1 microamp, but I was not sure.

In next month's Journal -'Up the Dome with my Box of Tricks'

O.A.S.I. MEMBERS FIND COMET P/STEPHAN-OTERMA (1980g)

report by Roy Adams.

This comet, discovered in 1867, was picked up on 30th November last by Martin Cook from a plot of B.A.A. published prediction figures. David Barnard marked the line out on Norton's Star Atlas and after a little while, one tiny hazy spot was noticed where nothing else should have been.

At the time of finding it, the comet was in Taurus, and when this is published, it will be going over the boundry into Auriga. It is at about peak brightness for Earthbound observers just now. Recent B.A.A. figures

put the predicted mag at about 8.3, apparently just a little brighter than it actually is. Earlier figures gave a brightness of at least 3 magnitudes dimmer, and positioning about 5° in error, (which goes to show how hard it is to make predictions of this sort) but the later figures were very close.

Moving slowly, almost directly northwards, the comet is in an ideal line for viewing. The object was far from spectacular, but it is a trill to see a comet as it is not often we can see such things. I made a location drawing of the comet on 30th November between 20h35m and 21h10m, and kept it under observation through intermittent hazy cloud until 21h55m. The visibile diameter in the 32mm focal length eyepiece of the Orwell Park Telescope was only 30" arc or so, rather diffuse and seemingly circular. At the time, the comet was near the star 119R in Taurus.

The predicted track extends to pass about 1.5° to the left of B Tauri, where it should be about 17th December, on it's way to to B Aurigae (between B Aurigae and Capella it appears to aim at first, then the path curves to point to B Aurigae on or about 20th January).

It is hoped to pick up this comet again shortly. It has an orbital period of about 38 years, and this is it's fourth time round including it's time of discovery.

PREDICTIONS FOR the comet, from the B.A.A. Circular dated 15th October:-

December	17th	05h 31.83m	$+ 28^{\circ}20.8'$	mag. 8.6
	27th	05h 32.14m	$+ 33^{\circ}23.6'$	
January	6th	05h 34.38m	$+ 37^{\circ}31.3'$	mag. 9.0
	16th	05h 39.88m	$+ 40^{\circ}34.7'$	

Roy Adams.

ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

MEETINGS FOR HANUARY, 1981.

at The Observatory, Orwell Park School, Nacton:-

TUESDAYS: from 7p.m. Solar, Lunar & Planetary Section.

Directors: Mr. J. Hood, [redacted]. Ipswich
Mr. J. Ranson, [redacted]. Ipswich
phone [redacted]
Mr. M. Barritt, [redacted]. Ipswich

January 6th 13th 20th & 27th.

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

Directors: Mr. D. Payne, [redacted]
Wickham Market, phone Wickham Market [redacted]
Mr. M. Cook, [redacted]. Ipswich

January 7th 14th 21st & 28th

SUNDAYS: from 8p.m. General Observations Section.

Directors: Mr. M. Barriskill, [redacted], Ipswich.
Mr. R. Adams, [redacted] Ipswich
phone [redacted]

January 11th & 25th.

SATURDAY 17th JANUARY in the Library of Orwell Park School, Nacton, near Ipswich.

ANNUAL GENERAL MEETING 7.30 for 8p.m.

OTHER MEETINGS.

QUADRANTIDS METEOR COUNT ON SATURDAY 3rd JAN.
Meet OUTSIDE the 'Levington Ship' at 8p.m. irrespective of weather conditions.

anybody and everybody welcome to come along

director: Mr. David Barnard, [redacted]. Ipswich
phone Ipswich [redacted].