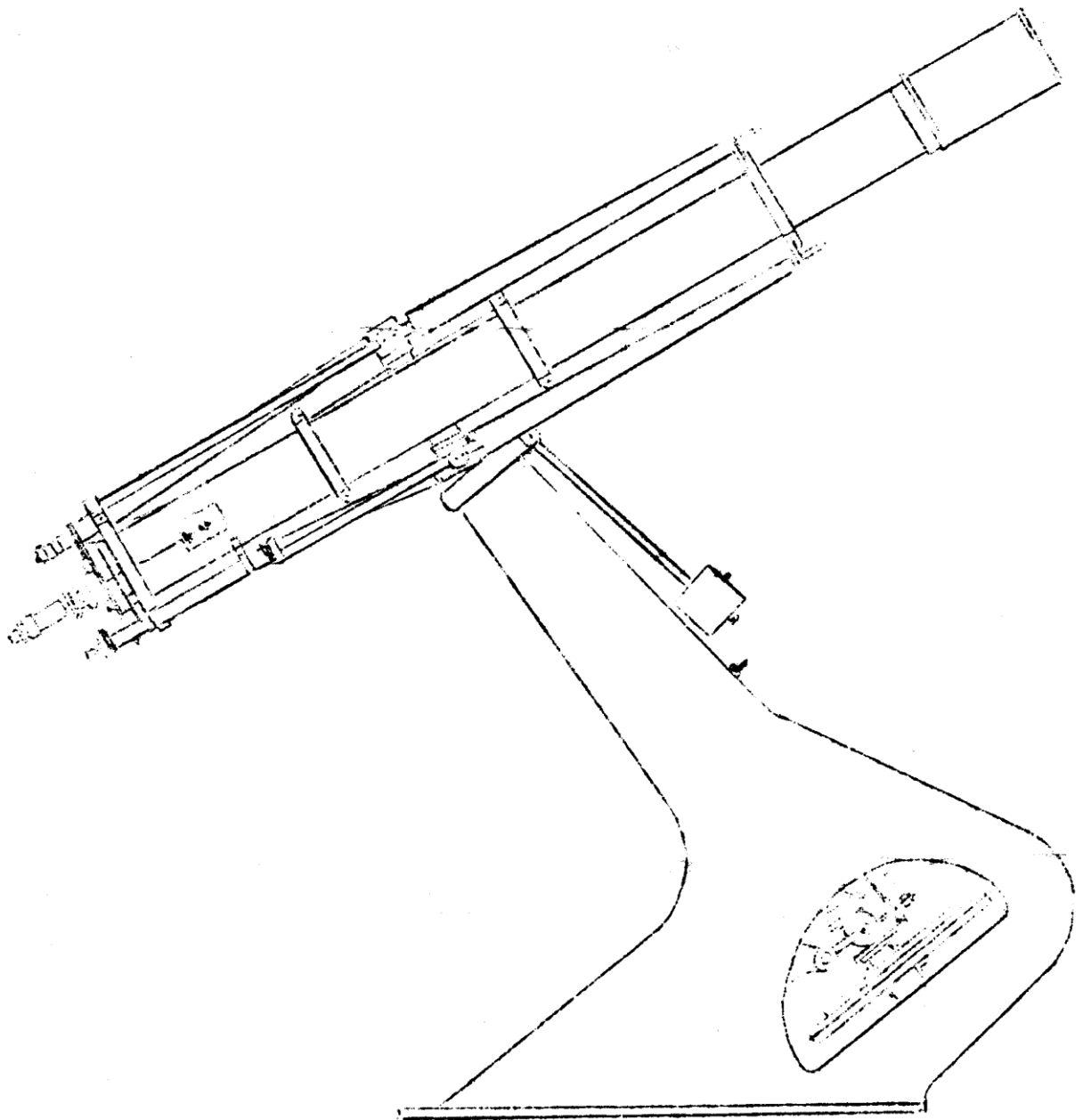


JOURNAL of the
ORWELL ASTRONOMICAL SOCIETY (IPSWICH)

APRIL 1977.



Editor: Mr. N. Howe,
BURY ST. EDMUNDS,
Suffolk.
'Phone Bury St. Edmunds

THE NIGHT SKY as seen from Suffolk this month.

The spring constellations are now coming into view more prominently - Coma Berenices, looking like a large scattered star cluster, is due south at about midnight. At about 10p.m. the Plough is in the zenith. Following the curve of its handle about 30° brings you to Arcturus, the second brightest star visible from Britain. Continuing an equal distance will take you to Spica in Virgo, a star 140 times as bright as the Sun.

THE SUN

At the start of the month the Sun rises in Pisces at 05h40m UT (note not BST*) and sets at 1830, finishing the month in Aries with sunrise at 04h30m and sunset at 19h30m. Synodic Rotation no. 1653 commenced Mar. 23.848 and finishes April 20.128.

Heliographic Co-ordinates at Noon UT

	P	Bo	Lo		P	Bo	Lo
Apr. 2	-26.2°	-6.5°	239.1°	/	17	-26.0°	-5.4° 41.1°
" 7	-26.3°	-6.2°	173.2°	/	22	-25.5°	-5.0° 335.1°
" 12	-26.2°	-5.8°	107.2°	/	27	-24.9°	-4.5° 269.1°

THE MOON - Phases

Full Moon	Apr. 4d04h09m UT
Last Quarter	Apr. 10d19h15m UT
New Moon	Apr. 18d10h35m UT
First Quarter	Apr. 26d14h42m UT

Occultations

Star	Phase	Mag.	Time (UT)
944	D	5.7	23d22h26.0m
1073	D	6.0	24d21h15.6m
1183	D	7.2	25d19h57.4m
1649	D	6.3	30d00h24.1m

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

Eclipse - there is a small (19.8%) Partial Eclipse of the Moon on the 4th. The Moon enters the Earth's umbra at 03h30m and leaves at 05h06m, with mid-eclipse at 04h18m.

THE PLANETS

Mercury - best conditions for observing this elusive little planet occur this month with an elongation of 19° on the 10th. It is an evening star in Aries, inferior conjunction April 30.

Venus is not really observable this month as it is in inferior conjunction on the 6th. It will be a morning star after mid-month.

Mars is in Pisces this month at mag. 1.4-1.3.

Jupiter decreases from mag. -1.7 to -1.5 at a distance of 5.8 AU.

Saturn reaches a stationary point in mid-month, thereafter moving direct in Cancer at mag. 0.4.

Uranus is at opposition on April 30 when its angular diameter will be 3.9" and its magnitude will be 5.7. It should be just visible to the naked eye in Libra between Alpha Librae and Lambda Virginis.

*** BST = UT + 1h.

* * *

Any articles, news, useful information, puzzles, views or comments of a vaguely astronomical nature will be gratefully accepted. Send them to the editor, or, if after the 18th of the month prior to publication, direct to the printer Roy Cheesman ()

On Thursday 3rd March the O.G. of the Orwell Park Telescope was removed and sent to Mr. H. Dall via Mr. D. Bearcroft. Mr. Bearcroft collected the O.G. and it was put back in the telescope on Saturday 19th March. The night sky was perfectly clear and after a few minor adjustments turned the telescope into the sky. The result was far above our wildest expectations for we could see clearly the bands on Jupiter, the rings of Saturn were crystal clear and we were able to resolve double stars with a lot more definition than ever before. We had only intended putting the O.G. in that night but were so pleased with the work carried out by Mr. Dall that we found it hard to leave the telescope alone! For those members who do not visit the observatory very often I would advise them to come up and have a look through the telescope before the night nights are upon us.

METEOR NOTES by Mr. D. Barnard, [REDACTED], Ipswich, Tel. Ipswich [REDACTED]

The report for the Sporadic Meteor Count to be held on Saturday 26th March and a report on the B.A.A. Meteor Section Meeting in London on 2nd April will be reported in next month's Journal.

This month we see one of the Main Meteor Showers of the year, THE APRIL DELTAS. This meteor shower is between 18th and the 24th April with the maximum Z.H.R. of 12 on April 21st. R.A. 18.08 Dec. +32. These meteors are reported to be very fast and brilliant. WE WILL HOLD A METEOR COUNT to observe this shower on Saturday 23rd April starting at 9p.m., meeting outside the Golf Hotel at 9p.m. irrespective of weather conditions. PLEASE, PLEASE do come along and help us to cover this meteor shower watch.

COMET 1977b, P/Grigg-Skjellerup.

'THE ASTRONOMER' reports that the earth will pass 0.0123AU from the point of the comet's ascending node on April 23rd. This is 12 days after the comet will have occupied the same position and the possibility exists for a meteor shower. If anything is observed, the activity should centre around the radiant at R.A. 07h 18m Dec -44°. If enough people turn up for the meteor count on the 23rd we hope to cover this area of the sky, although the radiant will be very near the horizon.

REMEMBER THE DATE: Saturday 23rd April.

WHERE TO MEET; outside the Golf Hotel, Foxhall Road, Ipswich

WHEN at 9p.m.

CAN ANYBODY ATTEND : YES - bring yourself, your friends (if you have any) wives, sons, daughters, dogs, girlfriends, granny, grandad, neighbours, boyfriends, etc. etc. etc.

As it is now getting warmer there is now no excuse for not coming along!

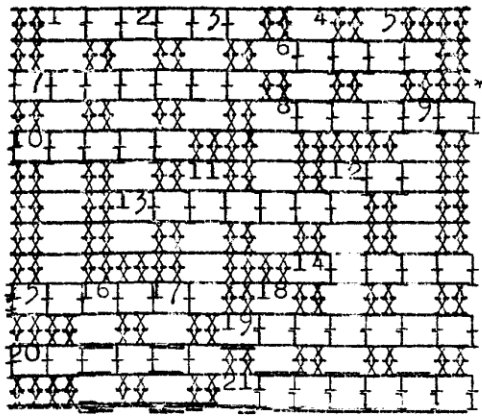
These meetings generally finish about midnight but you can come along just for an hour or so if you wish, conversely you can stay and observe all night if you want to!

P.S. you have not forgot the Meteor Count on Saturday 23rd April yet have you? make a note in your diary NOW

Also see April's programme at back of Journal

CROSSWORD

This crossword has been specially compiled for the Journal by Mr. P. Burt of Needham Mass.



ACROSS

1 - Charted(6); 6 - Very conspicuous constellation (5); 7 - According to the Steady-State Theory, the Universe is this(7); 8 and 10 - The focal point of a telescope?(6-5); 12 - Matter from which stars are formed(3); 13 - Of the charioteer (7); 14 - Family of planets in the Solar System(5); 15 - Constellation containing the South Celestial Pole(6); 19 - Famous early astronomer(7); 20 - A body's motion directly away from the Earth, as measured by its spectral red-shift(6); 21 - Famous communications satellite(7).

DOWN

1 - These clouds are Galactic satellites(10); 2 - Alpha Ursae Minoris (4-4); 3 - Arcturus will be found here on Spring evenings(4); 4 - Well known wreck of a supernova(4); 5 - German astronomer who discovered a numerical relationship between the planetary orbits(4); 8 - 24th. letter of the Greek alphabet(5); 9 - Circumpolar constellation(10); 11 - Zodiacal constellation(5); 12 - Annual meteor shower(8); 16 - See 17 down; 17 and 16 - This occurs on Earth at first and last quarter of the Moon(4-4); 18 - Horse swimming on the Moon?(4).

EXO BIOLOGY pt.2

The Evolution of Higher Forms

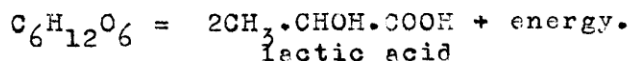
Under the right conditions it is possible for large molecules such as proteins to group themselves into aggregates known as coacervates. These coacervates are held together by a kind of skin made by some of the molecules, and have some properties similar to those of living organisms. For instance, a coacervate has the power to split into two separate coacervates, although the daughter groups are not necessarily very similar to the parent. Scientists believe that the right conditions may have existed something like 4000 million years ago.

At this time the various proteins, carbohydrates and nucleic acids (chemicals responsible for the duplication of characteristics from generation to generation) formed what is known as an organic soup, which covered much of the Earth. It is possible that coacervates formed in this early broth, and they may even have had simple enzymes (biological catalysts which can speed up the rate of chemical reactions). These 'chemicals' grew in complexity and eventually synthesised their own nucleic acids.

Thus about 3500 million years ago simple life had truly evolved since:

- (a) they had a means of replicating themselves exactly,
- (b) they had enzymes with which to obtain energy from chemical reactions. The mechanism by which this can occur is called anaerobic (without oxygen) respiration.

In anaerobic respiration complex sugars such as glucose are broken down to simpler molecules. The energy obtained from this reaction is 'stored', in the form of chemical bonds, in a chemical called adenosine tri-phosphate (ATP). The overall, much simplified equation for the reaction is:

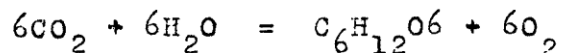


The amount of energy obtained from this process is not as much as that obtained from aerobic respiration which occurs in our own bodies; the atmosphere at that time was still a reducing one with no oxygen, which is a requirement for aerobic respiration.

At this time the life-forms present were very simple ones known as procaryotes. In these bacteria-like animals the nucleic acids, responsible for the genetic coding, were to be found in the cytoplasm of the cell, and not separated from it in the nucleus, as they are in ourselves.

After this situation had persisted for hundreds of millions of years, the original soup of chemicals which were used by the animal to obtain their energy was beginning to be used up. The bacteria which existed then had no means of producing food since the food had originally been synthesised from ammonia, methane and hydrogen. These chemicals were gradually being used up and replaced by the lactic acid formed during anaerobic respiration.

It was at this point in history that plants first arose. At first they were simple, unicellular organisms very similar to the blue-green algae today, which had evolved from the original proto-bionts (first organisms). The important mechanism which these plants developed was that of photosynthesis. This is the means by which blue-green algae use light energy from the Sun to actually build up the complex molecules needed from simple inorganic chemicals. It is a process summarised by the following equation:



Notice also that an end product of the reaction is oxygen, which later allowed animals and plants to develop the more efficient process of aerobic respiration.

Another development which probably occurred some time later was the evolution of organisms which could make use of the oxygen provided by the algae in this way. This reaction is essentially the reverse of photosyn, i.e. complex molecules are broken down to simpler forms, as in aerobic respiration except that carbon dioxide and water are formed instead of lactic acid.

FROM OTHER JOURNALS

Jupiter - Exobiologist Carl Sagan has written a paper with astrophysicist E.E. Saltpeter in which they postulate the existence of large floating creatures in the primitive Jovian atmosphere. Three different types of gas-bag-like organisms labelled sinkers, floaters and hunters could move by expelling helium gas. Jupiter is the target of Mariners 11 & 12 which are to be launched this Autumn, and an entry mission has been mooted for 1982 (New Scientist).

Uranus - Astronomers at the Kitt Peak National Observatory, Arizona, have shown by spectroscopic observations of Uranus' limbs that its rotation period is about 23 hours, as opposed to the 10.8 hrs as previously thought. The period is determined by measuring the spectral shift of the approaching or receding limb and hence the velocity of rotation. Similarly, the day-length on Neptune has been revised to 22 hrs instead of 15.8 hrs. Thus it appears that they are more like the terrestrial planets than formerly believed, rather than being gas giants like Jupiter and Saturn (Nature-Times News Service).

CROSSWORD ANSWERS

Across - 1 - Mapped, 6 - Orion, 7 - Ageless, 8 - Object, 10 - Glass, 12 - Gas, 13 - Aurigae, 14 - Minor, 15 - Octans, 19 - Galileo, 20 - Radial, 21 - TeIstar.

Down - 1 Magellanic, 2 - Pole star, 3 - East, 4 - Crab, 5 - Boöe, 8 - Omega, 9 - Cassiopeia, 11 - Aries, 12 - Geminiids, 16 - Tide, 17 - Neap, 18 - Mare.

Society's Library.

Mr. N.C.C. Barrell has donated about 35 books to the Society covering all subjects in astronomy. Apart from four books which range in age from 100 to nearly 200 years old which will be kept by the Chairman and only issued to members on request to Mr. Cheesman, the other 31 books have been placed in the Society's library in the Observatory.

Mr. J. Hood has also donated to the Society about 35 books nearly all of which are Science Fiction novels which have also been put in the Society's Library in the Observatory.

Our thanks go to Mr. Barrell and Mr. Hood for these books.

LIBRARY BOOKS OUTSTANDING

Looking through our Library Lending Record Book we find that there are a few books which have been on loan to members for some months. As you should know books lent by the Society are for ONE MONTH duration and must be returned or renewed. Please return these books or renew them as soon as possible.

OTHER SOCIETY'S JOURNALS.

We have a rack in the Observatory which has all current Astronomical Journals from other Societies. These books should not be removed from the Observatory without prior notice to the Secretary or the Chairman.

N.C.C. BARRELL TELESCOPE.

Mr. Barrell has donated a step ladder to use with the telescope which he donated to the Society a few months ago. This step ladder is at the moment in the Observatory and will be placed in the N.C.C. Barrell telescope observatory when it has been completed.

B.A.A. METEOR & FIREBALL SECTION MEETING.

If you wish to come to this meeting in London on April 2nd please contact Mr. D. Barnard NOW!

VISITS TO THE OBSERVATORY BY CLUBS.

If you are approached by any club or society who wishes to visit the Observatory please advise them to contact direct either Mr. R.M. Cheesman or Mr. H. Stow. DO NOT ARRANGE A VISIT YOURSELF as we had an embarrassing episode when a club arranged a visit to the Society when the O.G. was out of the telescope! This visit was their fault as they were informed by our member to contact the Chairman direct which they did not and the Chairman only found out about the meeting ten minutes before it should have started and had to have about 12 members of that club round his house looking through his telescope.

SUBSCRIPTIONS FOR 1977.

There are still one or two members who have not renewed their subscriptions to our Society for 1977. If you have not renewed your subscription and would like to do so please send your subs to Mr. P. Long, Hon. Treasurer, [REDACTED], Ipswich as soon as possible.

FOR SALE

CAMERA single reflex camera (ideal for using with the telescope)
Make. ZENITH B
NEVER BEEN USED!

£25

apply Mr. S. Flory, [REDACTED], Ipswich telephone Ipswich [REDACTED].

ITEMS FOR SALE.

If you have any items of astronomical interest for sale please send details to the editor. We do not charge for advertisements but if you do manage to sell the item a little donation to Society's funds would be in order.

programme for APRIL, 1977.

AT ORWELL PARK OBSERVATORY NACTON.MONDAYS: from 7.30p.m. General Observations Section.Director Mr. N. Gage, [REDACTED], Felixstowe, Tel. Felixstowe [REDACTED]
and Mr. S. Flory, [REDACTED], Ipswich Tel. Ipswich [REDACTED]4th April
18th "
25th "
2nd MayWEDNESDAYS: from 7.p.m. Solar, Lunar & Planetary Section

Director. Mr. R.M. Cheesman, [REDACTED], Ipswich.

6th April
13th "
20th "
27th "
4th MayTHURSDAYS: from 8p.m. Double Stars Section

Director Mr. D. Bearcroft, [REDACTED], Ipswich, Tel. Ipswich [REDACTED]

14th April
28th "FRIDAYS: from 8p.m. Nebula and Faint Objects Section.Director Mr. R. Hazelwood, [REDACTED], Ipswich Tel. Ipswich [REDACTED]
and Mr. R. Gooding, [REDACTED], Ipswich

22nd April

FRIDAYS: from 8p.m. Variable Stars Section.Director Mr. R.S. Manning, [REDACTED], Ipswich, Tel. Ipswich [REDACTED]
and Mr. M. Siggers, [REDACTED], Ipswich1st April
15th "
29th "VISITS TO OBSERVATORY: arranged by Mr. R.M. Cheesman

SATURDAY 9th April from 7.30p.m. Kesgrave Wine Circle

SATURDAY 16th April from 7.30p.m. Kesgrave Wine Circle

FRIDAY 8th April from 8p.m. Suffolk Camping Club.

OTHER MEETINGS:SATURDAY 2nd April, B.A.A. Section Meeting of the B.A.A. Meteor & Fireball Section.
at Imperial College, London, arranged by Mr. D. Barnard, [REDACTED],
Ipswich, Tel. Ipswich [REDACTED].SATURDAY 23rd April. Meteor & Fireball Section, Director Mr. D. Barnard,[REDACTED],
IPSWICH
Tel. Ipswich [REDACTED]APRIL LYRIDS METEOR COUNT.

Meet outside Golf Hotel, Foxhall Road, Ipswich at 9p.m. irrespective of weather conditions. Everybody welcome to come along for a few hours.