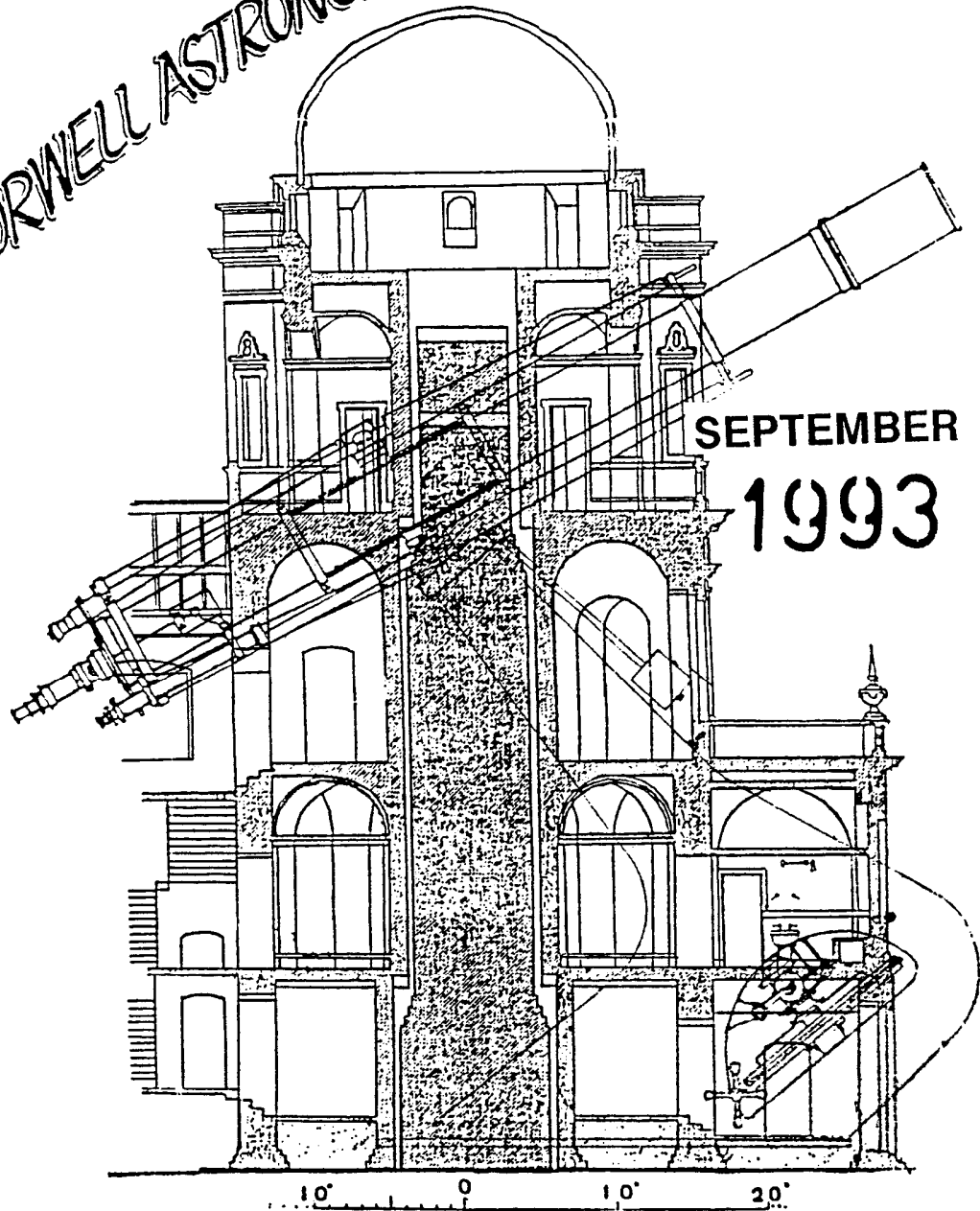


# ORWELL ASTRONOMICAL SOCIETY IPSWICH



SEPTEMBER  
1993

## SOCIETY NEWS

### 1 COMMITTEE MEETING

The next committee meeting will be on Saturday 2nd October, with a start at 7.30pm in the club room. As usual this is an open meeting and any member who wishes to attend will be welcome.

### NIGHT SKY

All times GMT

SUN Rises approximately between 05.10 to 06.30  
Sets approximately between 19.00 to 17.50

**MOON** 1 st 9 th 16 th 22 nd 30 th

MERCURY Mercury will be in the evening sky this month, but will be very low in the sky, thus making observation difficult. Mag. -0.4

VENUS Venus is still visible in the morning sky. It will be rising at about 02.50 in mid month. Mag -4.0

MARS Mars will be very low down in the western sky after sunset, making it very difficult to see this month.

JUPITER Jupiter is also low down in the western sky after sunset. It will be setting less than one hour after sunset by the end of the month.

SATURN Saturn will be visible most of the night, setting at about 03.00 in mid month. Mag. 0.4

URANUS Uranus will be setting at about 23.30, in mid month. Mag. 5.7

NEPTUNE Neptune is close to Uranus in the sky and will be setting at about the same time. Mag. 7.9

*R. Gooding*

## How to see Greenland from your back garden

by Mike Harlow

Given that light travels in straight lines you might think this a little unlikely---but not so!! The key is to use radio (even less likely?) and listen in to the American or Russian polar orbiting weather satellites. O.K. it is cheating a bit but for the price of a medium sized telescope it is possible to gain access to the weather pictures transmitted continuously by NOAA and Meteor satellites as they become visible above your horizon. As the NOAA's orbit at about 800 Km up and the Meteors at about 1200 Km, and the radio signals are received directly, when they become 'visible' over the horizon they may be up to 3500 kilometers distant. Geographically this means, for the Russian Meteors, they may be over the Sinai peninsular or the Canaries in the south or over Greenland or Spitzbergen in the north. These satellites therefore enable all of Europe to be seen as well as parts of North Africa, Greenland and the old Soviet Union across to the Caspian Sea.

To receive the pictures you will need a simple crossed-dipole aerial, a radio receiver, a demodulator which plugs into your computer and of course the software to decode and display the pictures. Assuming that you already have the computer all the rest is available as a complete system from at least two suppliers in the U.K.(1,2) with the basic system costing about £500 ready to receive pictures. The radio receiver is tuned to the satellite band which is around 137 MHz and as it has a loudspeaker the signals from the satellites can be heard as they pop up over the horizon. The NOAA (American) satellites sound like the Crocodile in Peter Pan that swallowed the clock; a regular, snappy tick-tock!! The Russian Meteor's, on the other hand, have a definite 'chug-chug' sound more characteristic of Eastern European technology powered by steam and held together by large nuts and bolts; you'll know what I mean if you've heard them!

The satellites transmit in two different 'modes'. The first is APT (Automatic Picture Transmission) which means that the satellite transmits continuously what it sees directly below it.

When you are receiving you will see the picture build up on the computer screen line by line at 2 lines per second. If the satellite is flying over from south to north the picture comes out upside down, and if its a Meteor transmitting in infra red the picture is effectively a negative so finding out what you are looking at (on a cloudy day) is often rather difficult!

The other transmission mode is HRPT (High Resolution Picture Transmission) which is just what its name implies. In APT the resolution on the ground is approximately 5 Km which is fine for general cloud patterns and coastal outlines as can be seen from pictures 1 and 2. The HRPT images have a resolution of only 1.1 Km however and use 5 different wavelengths to make up the image. The result is much clearer pictures with considerable detail becoming visible including cities and towns and even differences in vegetation. There is a price to be paid for this extra detail however--about £2000 to be precise!! The HRPT images are transmitted at 1.6 GHz and require a steerable dish to receive



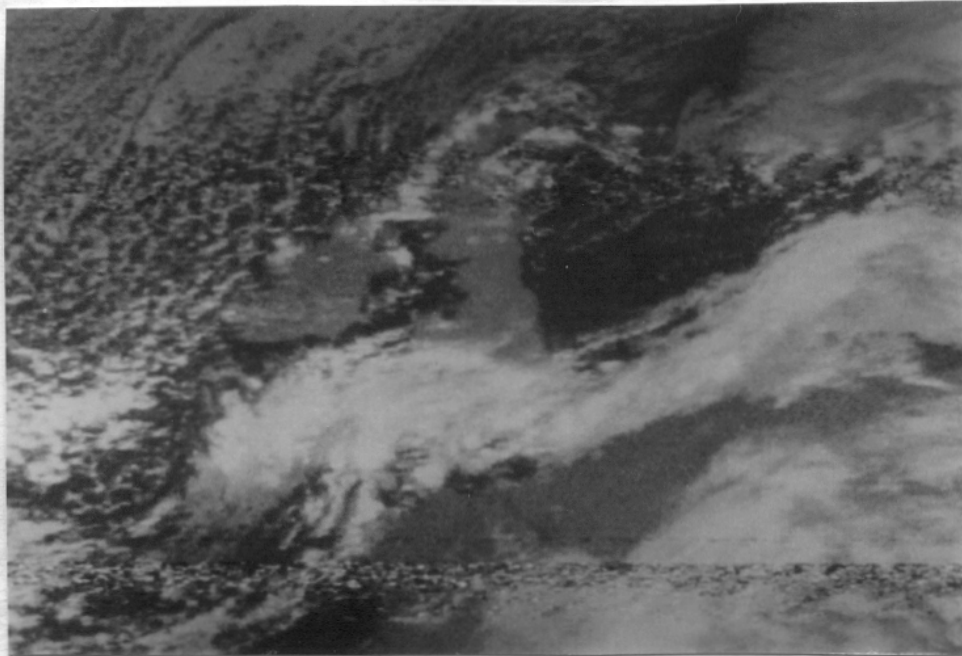
Enlargement from a Meteor APT image of the North Atlantic showing Iceland. Four of Iceland's glaciers are visible as light areas in this image.

them which makes the whole set-up much more specialised. A third option is to receive images from the Geostationary satellites. These also transmit at 1.6GHz but don't appear to move in the sky so that a stationary dish can be used and they also have the advantage that the entire hemisphere below the satellite can be imaged. They transmit a sequence of pictures on a regular timetable giving not only whole disk images but also close-ups at regular intervals. From these pictures it is possible to make the time-lapse sequences that are often seen on the TV weather updates.

Looking down rather than up is a little strange for an astronomer but being able to predict that the sky is going to clear in a couple of hours although it is tipping down with rain now is quite useful sometimes!

#### Suppliers

- 1) Comar Electronics, Unit 10, Samuel Whites Estate, Medina Road, Cowes, Isle Of White, PO31 7LP. Tel. 0983 200308
- 2) Timestep Weather Systems, Wickhambrook, Newmarket, CB8 8QA. Tel 0440 820040



East Anglia under cloud! Although it was raining when this image was aquired the sky cleared within two hours----as predicted!

# CORONA BOREALIS

Corona Borealis is a small constellation in the northern hemisphere of the sky between Bootes and Hercules.

There are interesting variable stars to keep an eye on, the first one is R Coronae Borealis which remains near maximum (about 6th mag) most of the time, then drops rapidly to 12th or even 14th mag. Recovery may begin almost immediately or even wait for several years before a slow recovery begins. The variations are thought to be due to the ejection of clouds of carbon, which obscures the light until being reabsorbed or blown away.

The other one is T Coronae Borealis which is the best known example of another rare variable class, the recurrent nova. Generally it remains at about 10th mag but in 1866 and again in 1946 it suddenly blazed up to 2nd and 3rd mag respectively. These outbursts happen in a matter of hours and then a rapid decline began, returning the star to its normal 10th mag in about 20 days. This means its worth watching this area in case it happens again.

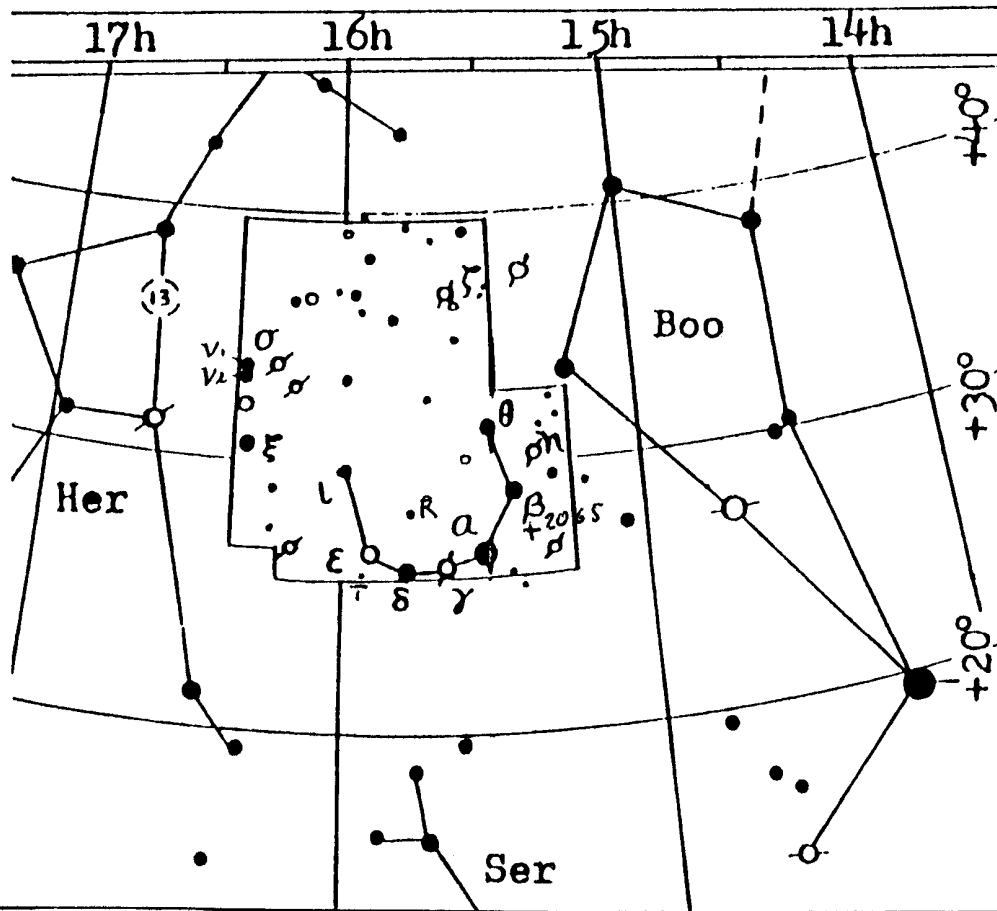
Abell 2065 is a very rich cluster of galaxies from 16th mag down so only visible if you have a telescope of 16 inch appature or more. Even then using high power will only reveal fuzzy blobs. On a clear dark night you might be able to see dozens of them but it is said that there are about 400 known members concentrated into about half a degree of sky.

E.Sims

#### Double Stars

Pos.	1 m 2	D	d"	P A	No.
151627	7.2-7.3	b	0.8	235	E1932
2130	5.7-6.0	b	0.3	41y	n
3736	6.0-5.0	b	6.3	305	♂
4026	4.2-5.6	b	0.4	91y	γ
160933	6.4-10.	b	5.8	263	OE305
1026	6.3-10.	b	2.5	141	E2022
1233	5.7-6.7	b	6.2	229	σ

# CORONA BOREALIS



ζ Delicate colors of blue-white and greenish.  
 ν<sub>1</sub>-ν<sub>2</sub> form a wide 370" pair.  
 use binoculars or very low power. Both deep yellow.

## PROGRAMME FOR SEPTEMBER

DAYS & DATES	DIRECTORS	SECTION & ADDRESSES	PHONE INC. STD CODE
<b>Mondays from 7.30pm GENERAL OBSERVATION SECTION</b>			
6-13-20-27	Mr R Newman Mr J King	[redacted] Felixstowe, IP11 9DY [redacted], Felixstowe, IP11 9LQ	[redacted]
<b>Tuesdays from 7.30pm GENERAL OBSERVATION SECTION</b>			
7-14-21-28	Mr R Newman Mr J King	(Address above.) (Address above.)	(Number above.) (Number above.)
<b>Wednesdays from 8.00pm NEBULA &amp; FAINT OBJECTS SECTION</b>			
1-8-15-22-29	Mr M Cook Mr D Payne	[redacted], Ipswich, IP4 5PZ [redacted], Wickham Market, IP13 0SD	[redacted]
<b>Thursdays from 7.30pm OBSERVATORY VISITS FROM OUTSIDE GROUPS</b>			
2-9-16-23-30	Mr P Richards Mr G Marriott	[redacted], Nacton, Ipswich, IP10 0HS [redacted], Ipswich, IP4 4JB	[redacted]
<b>Fridays from 7.30pm (may be postponed to Saturday) PLANETARY &amp; LUNAR SECTION</b>			
3-10-17-24	Mr P Richards Mr R A Lobbett Mr G Marriott	(Address above.) [redacted], Felixstowe, IP11 8UJ (Address above.)	(Number above.) [redacted] (Number above.)

All members are welcome to come but, on nights other than Wednesdays please check with directors that the observatory will be open. Directors will also be able to tell you if a group visit is taking place. All of the sections observe anything of interest but the title of each section suggests a popular subject.

Lectures and other events: COMMITTEE MEETING  
 The next committee meeting is on Saturday 2nd October at 19:30 in the club room. As usual this is an open meeting so all members are welcome to attend.

### 1993 COMMITTEE

			Home Phone:	Work Phone:
CHAIRMAN	D Payne	(Address above)	[redacted]	[redacted]
VICE CHAIRMAN & MEMBERSHIP SECRETARY	D Barnard	[redacted], Ipswich, IP3 8RN	[redacted]	[redacted]
SECRETARY	R Gooding	[redacted], Ipswich, IP1 6AE	[redacted]	[redacted]
TREASURER	M Nicholls	[redacted], Capel St Mary, Ipswich, IP9 2EX	[redacted]	[redacted]
MAINTENANCE CO-ORD	M Cook	(Address above)	[redacted]	[redacted]
JOURNAL CO-ORDINATOR	E Sims	[redacted], Ipswich, IP1 4HA	[redacted]	[redacted]
PUBLICITY & VISIT CO-ORD	P Richards	(Address above)	[redacted]	[redacted]
EQUIPMENT CURATOR	J King	(Address above)	[redacted]	[redacted]
SPECIAL EVENTS CO-ORD	A Smith	[redacted], Ipswich, IP4 5RZ	[redacted]	[redacted]