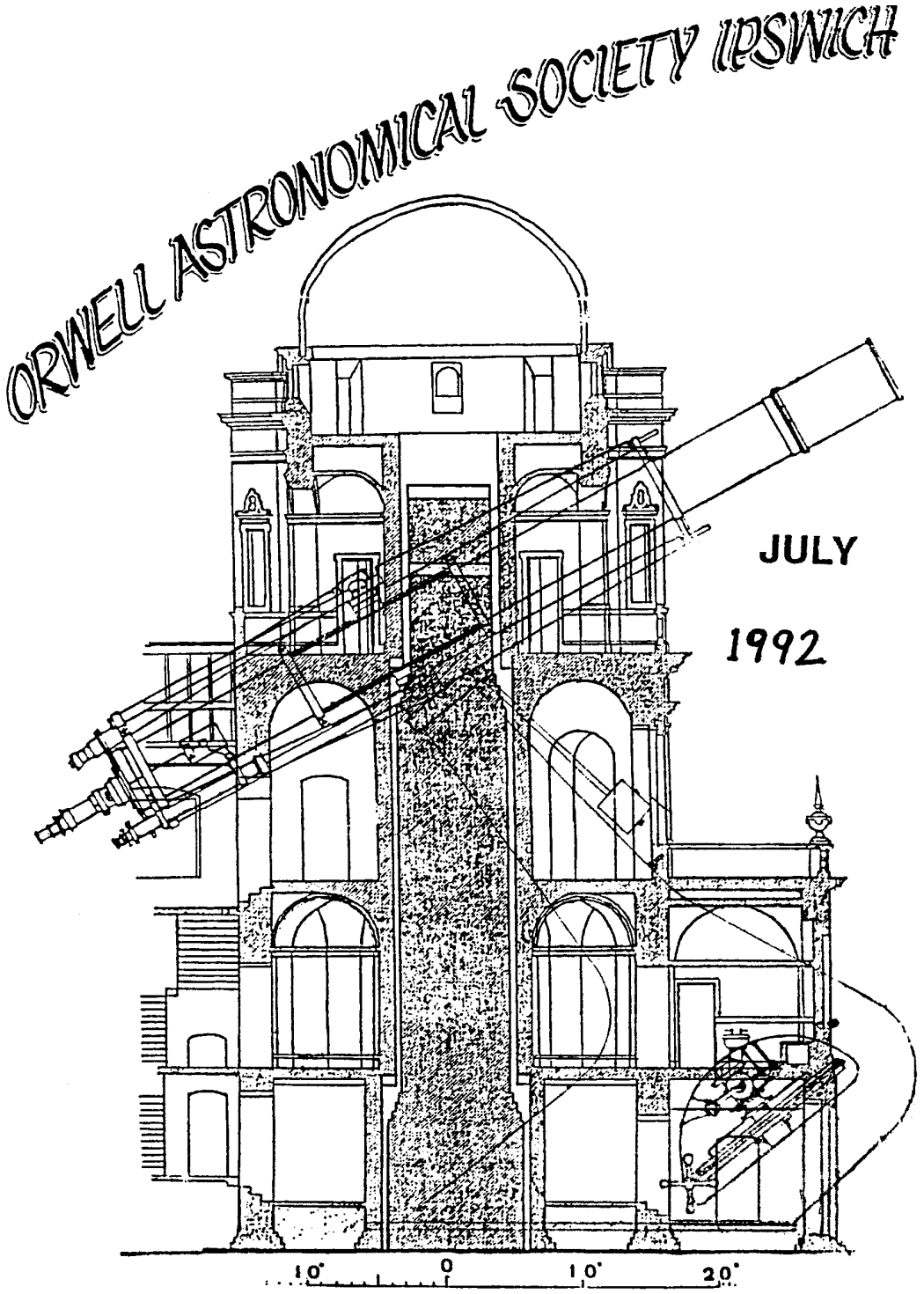


SOCIETY NEWS

1 SOCIETY LOGO CLOTHING

Pete Richards will be sending in a new order for society logo clothing in the near future. Any member interested in obtaining a new items, please contact Peter.

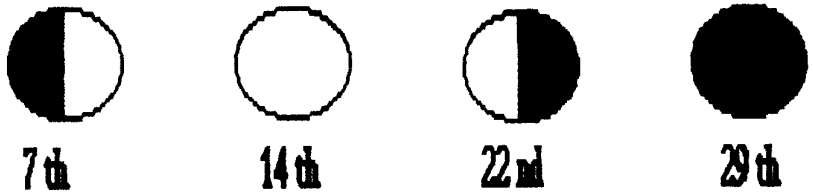
NIGHT SKY

All times GMT

SUN

Rises approximately at from 03.50 to 04.20
Sets approximately at from 20.20 to 20.00

MOON



MERCURY Mercury will be visible in the evening sky all month, through the bright twilight sky will make it difficult to see. Greatest eastern elongation on the 6th.

VENUS Venus has now moved into the evening sky. It will be setting less than one hour after the sun, which makes it difficult to see this month.

MARS Mars will be rising before midnight by the end of the month. It will be moving from Aries into Taurus.

JUPITER Jupiter will be setting by 21.00 at the end of the month.

SATURN Saturn rising at 21.00 in mid month, and will be visible all night. Mag. 0.4.

URANUS Uranus will be at opposition on the 7th.

NEPTUNE Neptune will be at opposition on the 9th.

R.Gooding

AURORA HOTLINE

This is an up dated Aurora Hotline list. If you wish to be be included please contact Roy Gooding.

Name	Availability	Phone
Alan Smith	24 Hours	
Martin Cook	24 Hours	
Michael Harlow	24 hours	
Peter Richards	24 Hours	
Dave Payne	24 Hours	
James Appleton	24 Hours	
Roy Gooding	24 Hours	
Michael Nicholls	Up till midnight	
Ian Swann	UP till midnight	
Eric Sims	Up till midnight	
Gary Marriott	up till midniht	
Les Lamb	Up till midnight	
Brian Lister		
Ron Greening		

The last two names are members of the Cambridge Society and they will in turn contact other groups in East Anglia.

Famous Astronomers (2)

Nicolaus Copernicus 1473-1543

By J.Walsh.

Nicolaus Copernicus was born at Thorn a town siuated on the Vistula in Poland. The son of a merchant who had emigrated from Crakow in 1458. When Nicolaus was ten his father died and he was brought up by his uncle Lucas Watzelode who in 1489 became bishop of the diocese of Ermland.

In 1491 Nicolaus entered the University of Crakow renown for it's flourishing schools of mathematics and astronomy. In 1496 Nicolaus finished his course at Crakow and studied Canon Law and Medecine in Italy. It was during this time in 1500 that he started lecturing in astronomy in Rome. In 1503 he took his doctorate degree in Canon Law and in 1505 went to stay Heilsburg as companion and physician to his uncle, Lucas Watzelrode who was still bishop of Ermland. The next few years were very difficult, his uncle was a very firm ruler and Nicolaus had a lot of administrative duties to preform. In 1512 his uncle died and Nicolaus went to live in Frauenburg. It was during this time he started thinking of a new concept of how the solar system evolved and in 1514 he circulated a manuscript among his friends.

At that time it was commonly belived that the Earth was the centre of all things, and that the Sun, Stars and Planets all revolved around the Earth. Copernicus held the view that the Planets including the Earth revolved around the Sun, and that the Sun and background Stars were fixed.

For the next three years or so Nicolaus worked on the first draft of De Revolutionibus Orbium Coelestium, by about 1529 he must have reached final draft stage. But realizing what a storm this new work would cause, he did not publish it. In 1539 Georg Joachim known as Rheticus a young professor from Wittenburg, went to Frauenburg to find out more about this new theory. He was so impressed that he wrote an account of the theory and had it published in 1540, it was known as Narratio Prima. It received such a good reception that Copernicus had to agree to publish his own work. The publisher was Andreas Osiander from Nerenburg, also realizing what trouble this publication could cause, inserted a preface at the begining of the publication without Copernicus knowing, that the theories were just hypothetical.

The completed publication reached Copernicus as he lay in a coma dying from an apparent stroke, just hours before he died. He never read the publication.

Although some of his theories were incorrect his idea of a Heliocentric Solar System was a major step forward at that time and although they caused many arguements between church leaders and scientists, they were eventually founded and helped set the trend for future discoveries and ultimately the facts as we know them today.

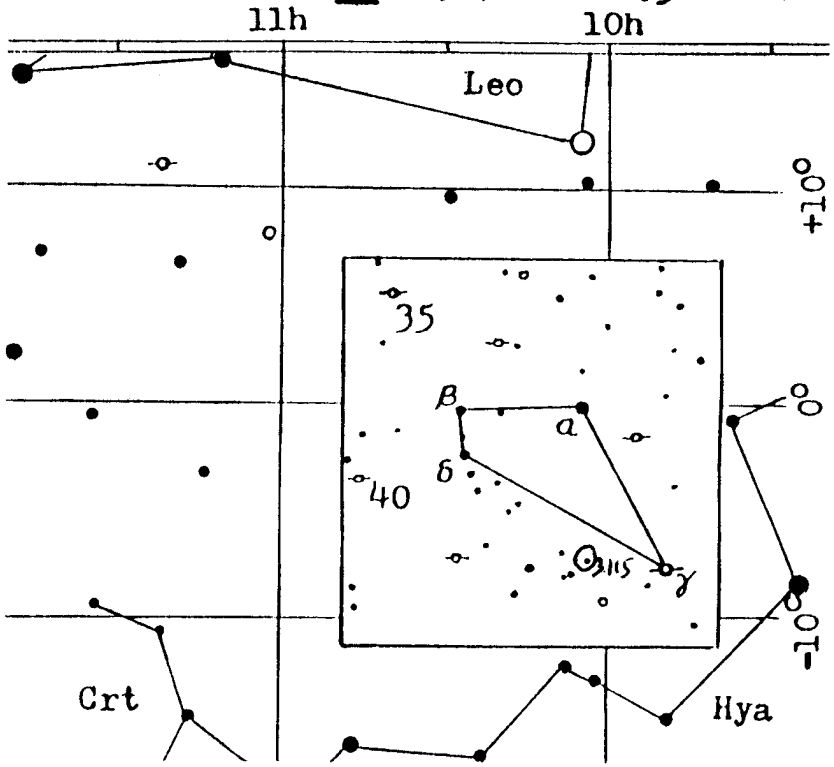
SEXTANS

The Sextans is a barren constellation just below Leo in the equatorial region of the sky. It represents the sextant an instrument used by astronomers for measuring the positions of the stars befor the days of the telescope. the brightest star is only Mag 4.5 making this a hard constellation to find.

There is also a small 10th mag galaxy (NGC3115) seen edgee on it appears spindle-shaped, a medium sized telescope will be needed to show it

Double Stars

Pos.	1 m 2	d"	P A	No.
095007	5.8-6.1	*	78y	γ
5501	6.8-11.	1.7	13	A1767
102303	7.5-7.5	0.4	320	A2570
2807	6.4-10.	2.7	167	E1441
4005	7.4-6.3	6.4	325	35
4603	6.9-7.6	2.3	4	40



Hubble's Constant

David Payne

On 12th July at the Friend's Meeting House, Fonnereau Road, Ipswich, Dr. David Dewhurst from the Cambridge Institute of Astronomy presented a fascinating talk to the Society, on the subject of Hubble's Constant. Hubble's Constant represents one of the fundamental properties of the observed universe. It was first discovered by Edwin Hubble in 1929 from observations obtained with the 100 inch Mount Wilson Telescope.

Hubble had been measuring the spectra of distant galaxies and discovered that nearly all the galaxies he had measured had the position of absorption lines shifted towards the red end of the spectrum. This shift was at that time interpreted as a Doppler shift which meant that the galaxies were receding from us at high speed. Hubble noticed that the fainter galaxies (and therefore presumably the most distant ones) had the greater red shift and that the shift was approximately proportional to the distance. If this relationship holds then the recessional velocity v is given by:

$$v=H_o r$$

Where H_o is known as Hubble's Constant and has units - km per second per Megaparsec, r is the radial distance.

The generally accepted explanation for the observed red shift is that it is due to the expansion of space time which carries the galaxies along with it. It is not strictly a Doppler shift but the stretching of space time causing the wavelengths of the photons emitted by the galaxies to increase in length.

The value of Hubble's Constant is determined by measuring the recessional velocities and distances of remote galaxies. The recessional velocity measurement is relatively easy to make and is very accurate. However interpretation of these measurements

can be difficult due to local velocity variations of galaxies within their respective clusters. One way of reducing the effect of these errors is to study very distant galaxies where the recessional velocity due to the expansion of the universe is very much greater than expected local velocities. Unfortunately distance measurements, which are based on a hierarchy of progressively increasing inaccuracy, are very uncertain at these vast distances. The effect of these uncertainties has been to produce two schools of thought on the value of Hubble's constant - one finds the value of H_o to be in the range 45-60 Km/s/Mpc the other a larger value in the range 75-100km/s/Mpc.

If the universe has been expanding at a constant rate since the big bang then the age of the universe is given simply by $1/H_o$. This represents an upper limit for the age of the universe for standard cosmological models. In standard models the effect of gravity is to slow down expansion of the galaxies as time passes giving larger values for H_o in the past corresponding to a younger universe. For a value of H_o = 50 km/s/Mpc (corresponding to the first school of thought) the maximum age of the universe is 20 billion years for a value of 100km/s/Mpc (second school of thought) the age of the universe would be 10 billion years. Dr. Dewhurst is now of the opinion that the evidence is mounting up to support the larger value of Hubble's Constant corresponding to the younger age of the Universe. He admits that this raises some important problems concerning our understanding of cosmology and astrophysics. One problem is that using favoured models for stellar evolution the computed age of the older globular clusters around our galaxy is 14 to 20 billion years and this seems to favour the smaller value for Hubble's constant. However the argument is by no means clear and there are major questions about our understanding of stellar evolution. For example we still do not have a good explanation for the observed lack of neutrinos emitted by our sun indicating some gap in our knowledge of stellar physics.

David's talk was stimulating and thought provoking those who attended had a very interesting evening.

PROGRAMME FOR JULY-1992

DAYS &DATES	DIRECTORS	SECTION & ADDRESSES	PHONE INC. STD CODE
Mondays	from 7.30pm	GENERAL OBSERVATION SECTION	
6,13,20,27	Mr R Newman	, Felixstowe, IP11 9DY	
	Mr J King	, Felixstowe, IP11 9LQ	
Tuesdays	form 7.30pm	GENERAL OBSERVATION SECTION	
7,14,21,28	Mr R Newman	(Address above.)	(Number above)
	Mr J King	(Address above.)	(Number above)
Wednesdays	from 8.00pm	NEBULA & FAINT OBJECTS SECTION	
1,8,15,22,29	Mr M Cook	, Ipswich, IP4 5PZ	
	Mr D Payne	, Wickham Market, IP13 0SD	
Thursdays	from 7.30pm	OBSERVATORY VISITS FROM OUTSIDE GROUPS	
2,9,16,23,30	Mr P Richards	, Nacton, Ipswich, IP10 0HS	
	Mr G Marriott	, Ipswich, IP4 4JB	
Fridays	from 7.30pm (may be postponed to Saturday)	PLANETARY & LUNAR SECTION	
3,10,17,24,31	Mr P Richards	(Address above.)	(Number above)
	Mr R A Lobbett	, Felixstowe, IP11 8UJ	
	Mr G Marriott	(Address above.)	(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:

1992 COMMITTEE

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