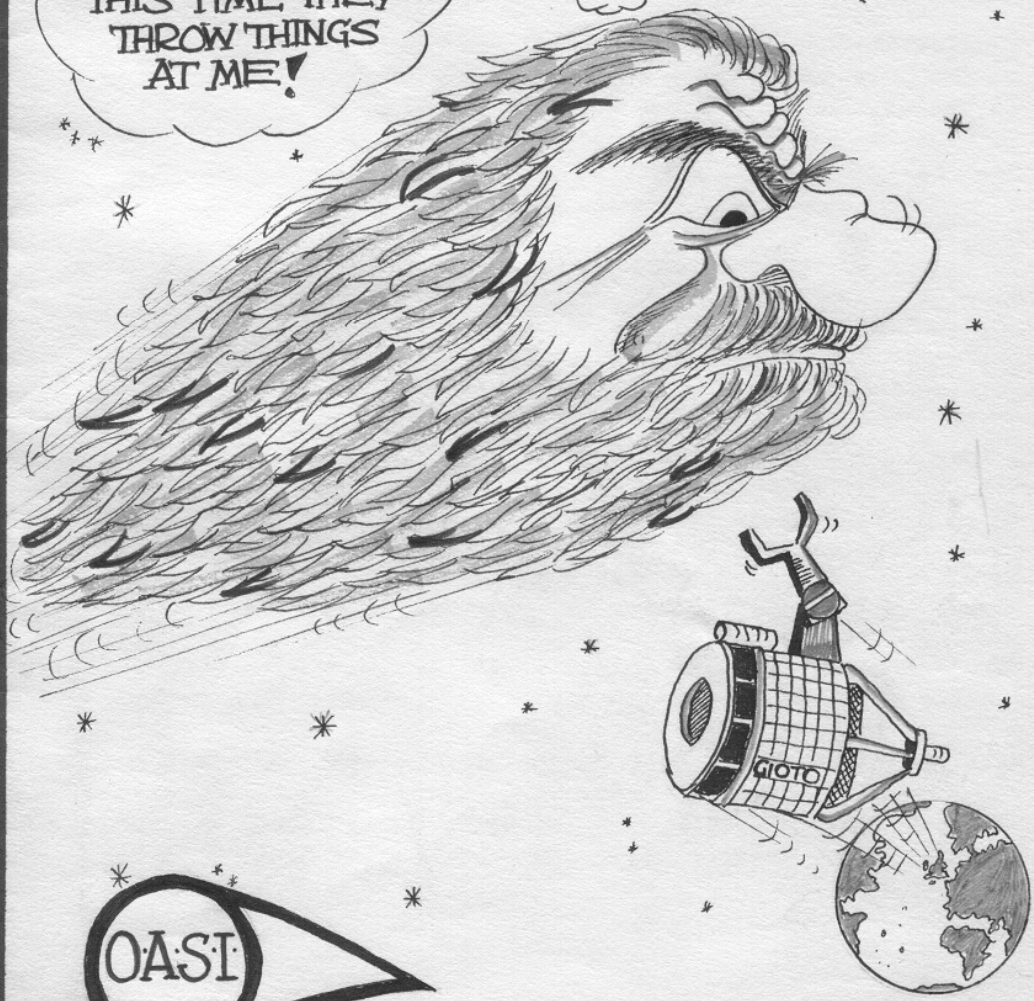


MARCH 1986 \*

HUH! EVERY  
76 YEARS I COME  
TO SEE THEM AND  
THIS TIME THEY  
THROW THINGS  
AT ME!



OASI

John D. © 86

# SOCIETY NEWS





1. A non-astronomical visit to R.A.F. Bentwaters is proposed provisionally for May. As only a limited number of places are available please contact Roy Gooding as soon as possible.
2. The F.A.S. Herstmonceux convention will be held on Saturday 4th October. More details when they are available.

## NIGHT SKY

Constellations (all times G.M.T.).

The brightest winter constellations of Orion, Gemini, Taurus, Auriga are now being replaced by the spring constellations of Leo, Virgo, Bootes.

Sun Rises between 07.00 - 15.40  
Sets between 17.30 - 18.30

Moon  3rd  10th  18th  26th

### Occultations

|      |    |      |          |   |            |
|------|----|------|----------|---|------------|
| 13th | ZC | 272  | mag. 5.9 | D | 20hr. 8.6m |
| 15th |    | 500  | " 7.0    | D | 20hr.20-7m |
| 16th |    | 624  | " 7.1    | D | 20hr.57.5m |
| 17th |    | 762  | " 6.6    | D | 20hr.51.3m |
| 18th |    | 909  | " 6.1    | D | 21hr.30.8m |
| 19th |    | 1056 | " 7.0    | D | 21hr.26.8m |

Mercury Visible in evening sky at beginning of month sets about 2 hours after sunset. inferior conjunction on 16th mag.2.1

Venus Visible in evening sky very low in the western sky mag.-3.9

Mars Rises at 02.00 in mid month Mag.0.3.

Jupiter Visible in morning sky. Rises about ½ hour before the sun Mag.-2.0

Saturn Rises at 01.40 at beginning of month and before midnight at the end. Mag. 0.4

Uranus Rises between 03.00 and 01.00 during month Mag.5.8.

Neptune Rises between 04.00 and 02.00 during month Mag. 7.7

There are still a handful of subscriptions still outstanding. If you wish to continue receiving the monthly newsletter please remit the appropriate amount. Subscriptions are due if there is a black cross on the cover of this newsletter.

Wanted

Mr M Cook requires a 3" Diameter 2" Long aluminium disc for an eyepiece adaptor. If anyone can help please contact him on Ipswich [redacted].

Latest on the Shuttle Crash from New Scientist Feb 20th.

The booster rockets that may have caused the space shuttle Challenger to explode were known to contain a fault. Attention has been focused on the right hand rocket booster. Smoke was coming from this booster 1.4 seconds after launch. 53 seconds later, flames were seen at this same point which eventually engulfed the craft. Past documents dating back to 1982 warn that the boosters' seals were faulty. On the past 23 occasions the seals have suffered varying amounts of erosion.

The heart of the seals are two O-rings, vulcanised rubber strips 0.71cm thick. These are stretched like a pair of 5 metre long rubber bands around the booster. They sit in grooves, set inside one arm of a U-shaped joint on one booster segment. The arm mates with the adjoining segment in tongue-and-groove fashion. Each joint is secured with 177 metal pins, which are then sealed under cork and a final metal band.

The four main segments contain solid fuel that is 70% ammonium perchlorate, 16% powdered aluminium, a binding agent and a trace of iron oxide to control the rate at which the fuel burns. A zinc chromate putty is applied to the point where the fuel segments meet. When the rocket is fired the putty is compressed and squeezes the primary O ring into the gap in what NASA calls a "pressure activated seal". The secondary is a backup. Without a perfect seal the fuel burning at 3204 degrees Celsius, would burn and possibly melt the steel casing. Overall, O-rings were damaged or eroded on 13 of the first 24 flights, the erosion being caused by the hot exhaust gases.

( David Barnard)

On Christmas Eve, together with a bundle of almost belated Christmas cards - presumably posted with complete indifference to the yearly plea from the Post Office to 'Post early for Christmas,' - was a brown envelope. Inside was a letter from the Mid-Kent Astronomical Society giving details of a forthcoming convention to be held on Saturday 1st February, 1986, at the Mid-Kent College, Horsted, Chatham, in association with the Institution of Electronic and Radio Engineers.

It was impossible to circulate details of this event in the January Newsletter, as it had already been distributed. However, I made known the details of the meeting at the A.G.M. held in January. Several members showed an interest in attending and tickets were subsequently purchased. Unfortunately as the date approached, 4 of the original members had to cancel the trip due it clashing with other commitments.

On Saturday, 1st February, 4 members - Michael Harlow, Roy Lobbett, Gary Marriot and I left Ipswich for (need I say) the Dartford Tunnel again! where we arrived at 9.40, meeting Roy Cheesman at the tunnel car park, together with another member from the Chelmsford Astronomical Society. Roy said that he knew the way, so we followed, reaching our destination with ease in about 30 minutes.

The day's programme comprised of 8 lectures heavily biased towards Voyager II at Uranus, Giotto and Halley's Comet, together with various trade stands. The morning's programme began with a talk by T.V. South's weatherman Ron Lobeck. He talked about his use of the weather satellites and what they can and cannot do, along with the numerous pitfalls of live broadcasting. His lecture was concluded with a video recording of time lapse photography of changing cloud formations over the U.K. for about a 10 day period.

The second lecture was given by Gregory Smye-Rumsby on Voyager II at Uranus. Before the start we had been assured that he was suffering from jet-lag, having recently arrived hot-foot from the Jet Propulsion Laboratory, Pasadena, California, the head-quarters of the Voyager programme. What followed, all one could say was quite amazing. His lecture presentation was more a comedy act than a serious talk. Within in the 1st 5 minutes I must have had quite a puzzled expression, originating from thoughts of 'what have we got here'. Amidst roars of laughter our speaker bounced about the stage, dashing between a black board, an epidioscope, a large globe of the earth, accompanied with his own sound effects when describing the solar wind

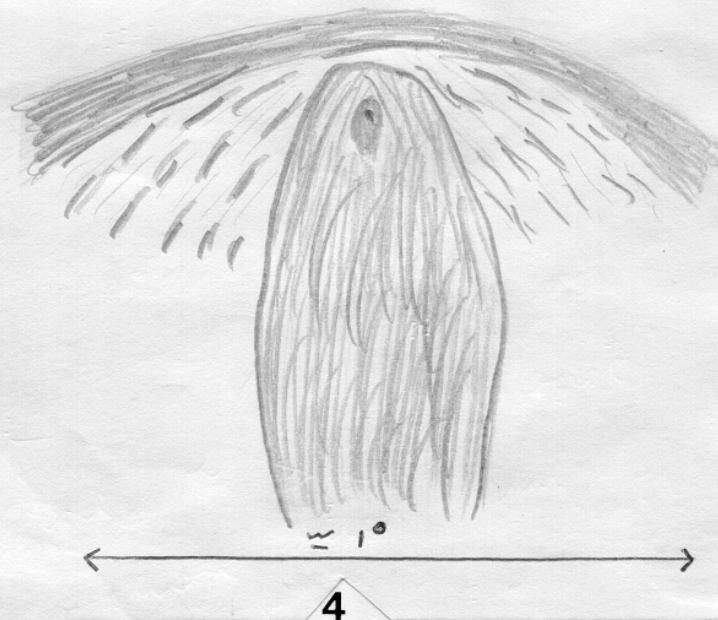
intercepting the earth's and Uranus' magnetic fields. If this speaker was jet lagged, what were we missing?

One more lecture on the history of Halley and Herschel followed before every one adjourned to the college refectory for lunch. The time after lunch and before the start of the afternoons programme was spent perusing the trade stands, where most of our group succumbed to the temptation of buying something. The afternoon's programme consisted of talks on Halley's Comet, 3 lectures from people who are involved in the design and operation of experiments on board Giotto and concluded with a recitation on comets and meteor stream formation.

The convention was concluded at 6.30 p.m. having over-run about 30 minutes from the planned programme. We left for home about a quarter of an hour later. It was still raining at this time having never stopped since we had left Ipswich some 10 hours previously.

R. Gooding.

Reprint of Halleys Comet observation which did not print properly last month



## A HISTORY OF ASTRONOMY

### PART 1

NEIL TAYLOR.

Astronomy is probably the oldest of all sciences, although its beginnings may well have been from a superstitious and astrological viewpoint. Practical benefits could be gained by observing the skies however, and undoubtedly the primary practical reason for the consideration of Astronomy for many of the ancient civilisations was to establish an accurate calendar system. This was crucial to the early farmers in order to judge the best time at which to plant and gather their harvests. Astronomy is and was a world-wide activity and ancient astronomical evidence has been found in places from South America, through Europe, Australia and many other sites.

The earliest written astronomical records are believed to date from ~3000 BC. and originating in the Mesopotamian region.

Egyptian astronomy was undoubtedly advanced, and the correlation between the helical rising (first appearance in the morning star before Sun) of the star Sirius at Memphis and the flooding of the river Nile was determined.

By 3000 BC Babylonian astronomers had determined that an almost exact number of lunar months fitted into a period of 19 years (The METONIC cycle which was later rediscovered by the Greeks).

Within South America, perhaps the most advanced of the early cultures was that of the Olmecs, centered on where we now call Mexico, who by ~1250 BC had established a standard calendrical system based upon solar position.

However, perhaps the most dominant influence on Astronomy of all S. American civilisations were the Maya's. The Maya's interpretation of the skies were that god Itzamma was the creator and ruler of the Universe who lived beyond its limits, the Moon Sun and Planets (wandering stars) were lesser gods, and the Earth was governed by 4 levels of Earthly god, the Sky, the surface of the Earth, the material of the Earth, and the god of the underworld. Sighting stones ('stelae') were used to mark positions over considerable distances, although perhaps the most impressive feature of Mayan astronomy were the 'Caracol'

(Observatories). One such caracol at Chich'en Itza is believed to be a temple of a specialist group of astronomer priests, where most of the views out of slit like windows have astronomical significance.

Although many of the early civilisations had a good knowledge of the movements of the skies, it was left to the Greeks to propose models as to why and how the movements occurred.

#### F.A.S. Articles.

You may be wondering what the new addition to the committee, which first appeared in last months newsletter, is all about--well, let me explain.

Lets start with the Federation of Astronomical Societies, the FAS, which is just what it's name implies. Currently throughout Britain there are about 80 local astronomical societies who belong to the Federation. Every few months they produce a newsletter, which you've probably been sent with your OASI journal at some time. As a regular contributor the OASI was asked some time ago if it would like to become more involved with the FAS and produce an Observational supplement to the FAS newsletter. With the start of a new year it was decided to get things underway, so the new committee post was created and I was given the task of organising things.

In order to make this new project a success I need your help. The supplement will carry a wide range of observations made by individuals and groups from member societies of the FAS, and this includes you and me. The broad aims are to i) popularise observational astronomy and introduce more people to it and ii) to communicate what you have seen to others all over the country--after all, comparison of observations is of immense value, and its good to know that someone else is doing the same thing.

In short then if you have made any observations that you would like people to know about send them to me and I'll see what I can do about getting them into print. Remember to include as much information as possible; especially important are the *time, date* and *location*.

I must just say that it won't be possible to return any notes, drawings, photos etc. unless you send me a stamped, self-addressed envelope for their return.

I look forward to hearing from you.

During the early evening in March the constellation Puppis lies to the south. This is the best time to observe the three Messier objects lying in this rather southerly constellation. All three objects are open star clusters M46, M47 and M93.

The cluster M46 is the most northerly of the three and lies about 14 degrees to the east of Sirius. The cluster is easily seen in binoculars as a circular misty patch of light about 1/2 a degree in diameter. In small telescopes resolution into many faint stars can be achieved. In a ten inch telescope with low power eyepiece the cluster is magnificent with dozens of stars resolved. A fascinating feature of this cluster is the presence of a small planetary nebula apparently embedded just north of the centre of the cluster. Although there was once considerable controversy over whether or not this planetary nebula was a true cluster member, it has now been proven by radial velocity measurements that they are two independent bodies. In fact it is estimated that the cluster is about 5400 light years distant and the planetary about 3300 light years so that this is a chance alignment with the planetary nebula between us and the cluster.

Situated about 1.5 degrees to the west of M46 is the bright loose cluster M47 the brighter members of the cluster are easily seen with binoculars and is a good object in small telescopes. However the majority of the cluster members are fairly faint stars and so the true beauty of the cluster requires an aperture of around 10 inches to be fully appreciated. M47 is estimated to be much closer than M46, lying at a distance of about 1500 light years from the Earth.

The final Messier object the cluster M93 lies 9 degrees south of M46. It is a bright cluster but due to its low southerly position will require good clear skies to be seen well. Under good conditions it is an easy object in binoculars with the brighter members being resolved. In a small telescope a distinctive wedge shape of stars can be seen, and with a 10inch about 50 stars can be seen within the 18' diameter of the cluster. The distance of the cluster is estimated to be about 3400 light years giving a diameter of about 18 light years.

If weather permits and you get a chance to observe during March, come up to the observatory and use the 10 inch refractor, the view of M46 with the faint planetary is highly recommended.

Star Map at bottom of page 8

ASTRONOMICAL TERMS.

Globular Clusters

A globular cluster is a roughly spherical cluster of stars, containing from tens of thousands to over 1,000,000 stars within a small volume of space. Over 120 of these clusters are known to be distributed round the galaxy in a spherical 'Halo'. Most of these are seen to lie in regions of the sky away from the Milky Way.

The brightest globular cluster in the Northern Hemisphere is M 13 in the Constellation of Hercules. M 13 is about 25,000 light years away and contains some 300,000 stars and is visible as a small misty patch.

Star Map of Hercules and how to find M13  
at the top of page 8

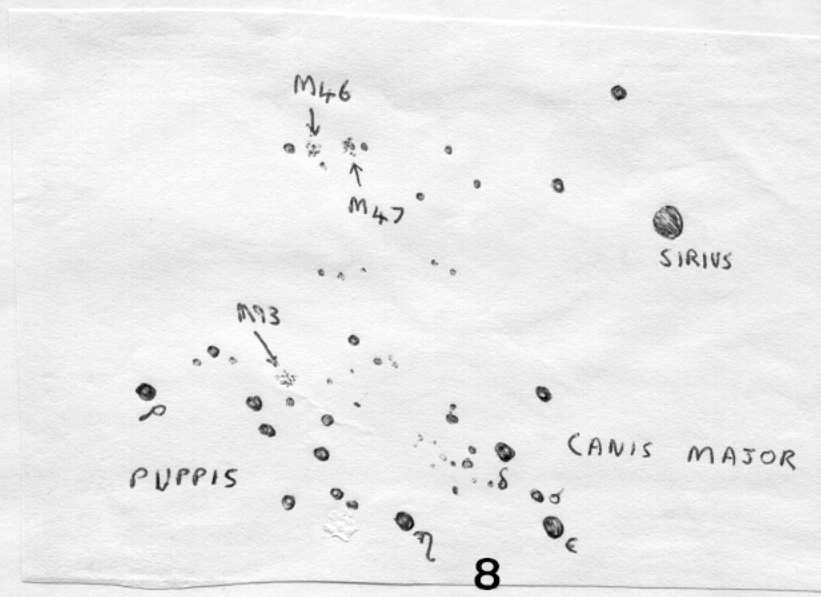
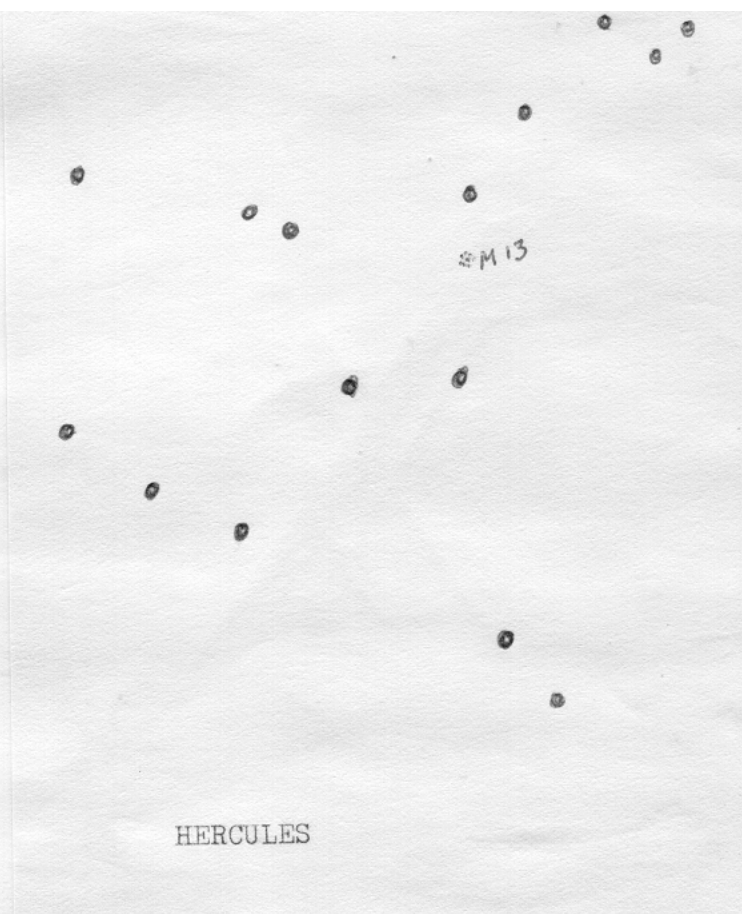
Galaxy

A galaxy is a massive star system which can contain between 1,000,000 and 1,000,000,000,000 stars plus interstellar material such as gas and dust. Our own galaxy which is amongst the largest contains about 100,000,000,000 stars and is disc shaped with a diameter of just under 100,000 light years.

The sun is located about 32,000 light years from the centre so when you look at the Milky Way you are looking towards the centre of our galaxy.

Everything in the galaxy is rotating around the centre. The inner regions move faster than those towards the edge. It takes the sun nearly 250,000,000 years to complete one circuit.

Eric Sims



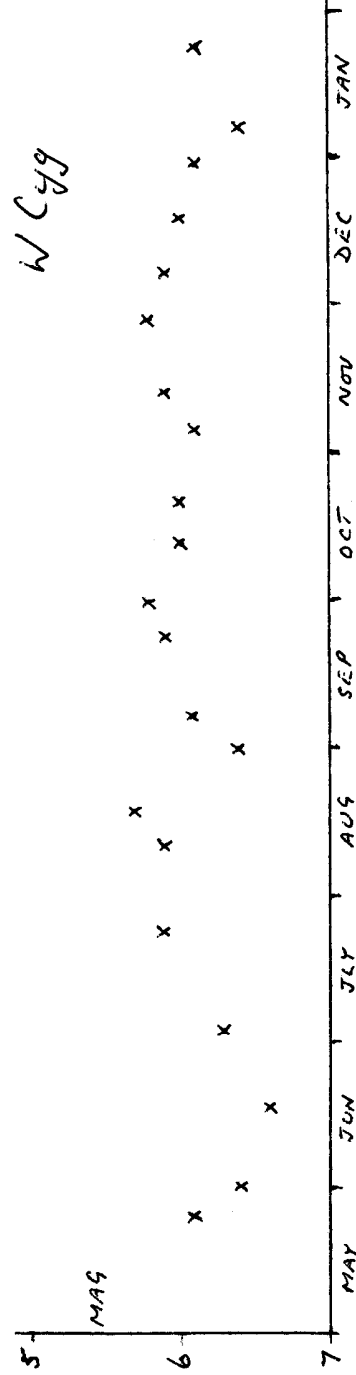
# VARIABLE STAR OBSERVATIONS

by Mike Nicholls

This light curve shows W Cygni from May 1985 to January 1986. This star is a member of the semi-regular class of variables. Like most stars in the class it is an old red giant. Theory suggests that in the case of this class, the variations are due to pulsations of the stars; in the case of W Cygni it is believed that at least three different modes of pulsation are operating at once, with three different periods. This light curve suggests a period of around 60-70 days, but this is not one of the three mentioned in the literature. This star is well observed but there always seems to be a large spread on the results, probably due to its redness.

The range of light variations is less than two magnitudes which is characteristic of the class.

All observations were made using 10x50 binoculars.



## PROGRAMME FOR MARCH

| Day        | Time              | Section                         | Members         | Location                     | Contact                |
|------------|-------------------|---------------------------------|-----------------|------------------------------|------------------------|
| MONDAYS    | 8pm               | DOUBLE STAR & PLANETS SECTION   | Mr N Taylor     | [Redacted], Farlands Trimley | Tel: Fel. [Redacted]   |
|            | 3, 10, 17, 24, 31 |                                 | Mr T Gillan     | [Redacted], Felixstowe       | Tel: Fel. [Redacted]   |
|            |                   |                                 | Miss M Edwards  | [Redacted], Felixstowe       | Tel: Fel. [Redacted]   |
| TUESDAYS   | 8pm               | GENERAL OBSERVATION SECTION     | Mr N Gage,      | [Redacted], Trimley          |                        |
|            | 4, 11, 18, 25     |                                 | Mr R Newman     | [Redacted], Felixstowe       | Tel: Fel. [Redacted]   |
|            |                   |                                 | Mr J King,      | [Redacted], Felixstowe       | Tel: Fel. [Redacted]   |
| WEDNESDAYS | 8pm               | NEBULEA & FAINT OBJECTS SECTION | Mr M Cook,      | [Redacted], Ipswich          | Tel: Ips. [Redacted]   |
|            | 5, 12, 19, 26     |                                 | Mr D Payne,     | [Redacted], Wickham Market.  | Tel: W.Mkt. [Redacted] |
| FRIDAYS    | 8pm               | GENERAL OBSERVATION SECTION     | Mr R A Lobbett, | [Redacted], Felixstowe.      | Tel: Fel. [Redacted]   |
|            | 7, 21,            |                                 | Mr J Hood,      | [Redacted], Ipswich.         | Tel: Ips. [Redacted]   |
|            |                   |                                 | Mr M Harlow,    | [Redacted], Felixstowe       | Tel: Fel. [Redacted]   |

## 1986 COMMITTEE

|                        |            |                                              |                                      |
|------------------------|------------|----------------------------------------------|--------------------------------------|
| CHAIRMAN               | D Payne    | [Redacted], Wickham Market, IP13 OSD         | Work: [Redacted]<br>Home: [Redacted] |
| VICE CHAIRMAN          | R Cheesman | [Redacted], Corringham, Essex SS17 9BU       | Work: [Redacted]<br>Extn: [Redacted] |
| SECRETARY              | R Gooding  | [Redacted], Ipswich IP1 6AE                  | Work: [Redacted]<br>Home: [Redacted] |
| TREASURER              | M Nicholls | [Redacted], Capel St. Mary, Ipswich, IP9 2EX | Work: [Redacted]<br>Home: [Redacted] |
| MEMBERSHIP SEC. /P.R.O | D Barnard  | [Redacted], Ipswich, IP4 5PP                 | Work: [Redacted]<br>Home: [Redacted] |
| MAINTENANCE            | M Cook     | [Redacted], Ipswich, IP4 5QA                 | Work: [Redacted]<br>Home: [Redacted] |
| LIBRARIAN              | E Sims     | [Redacted], Ipswich, IP1 4HA                 | Home: [Redacted]                     |
| FUNCTIONS              | R Lobbett  | [Redacted], Felixstowe                       | Home: [Redacted]<br>Home: [Redacted] |
| F.A.S. ARTICALS        | M Harlow   | [Redacted], Felixstowe                       | Home: [Redacted]                     |