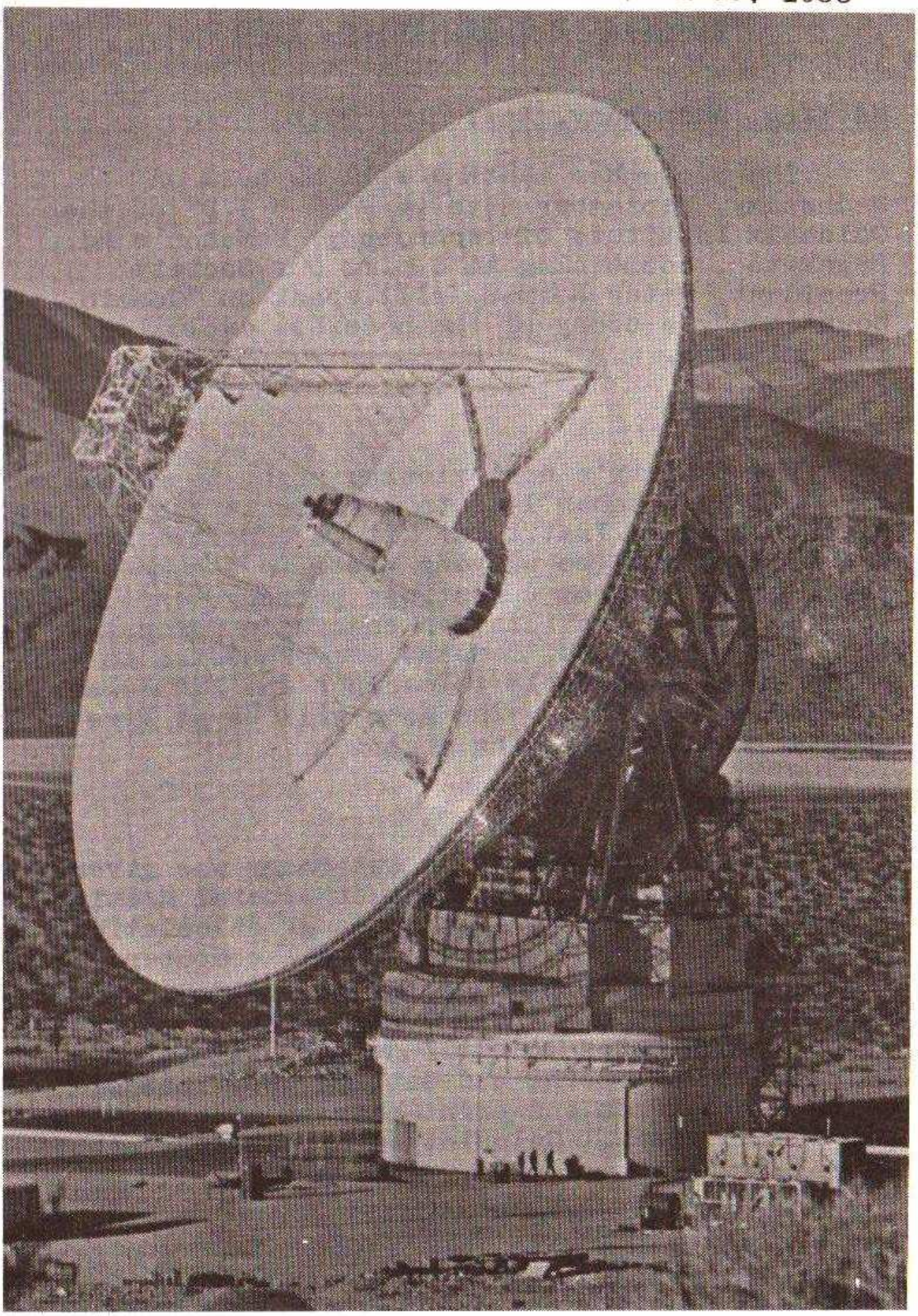
Astronomical Society of Frankston

September, 1983



ASTRONOMICAL SOCIETY OF FRANKSTON

Newsletter - September, 1983

Meeting, Wednesday, September 28th

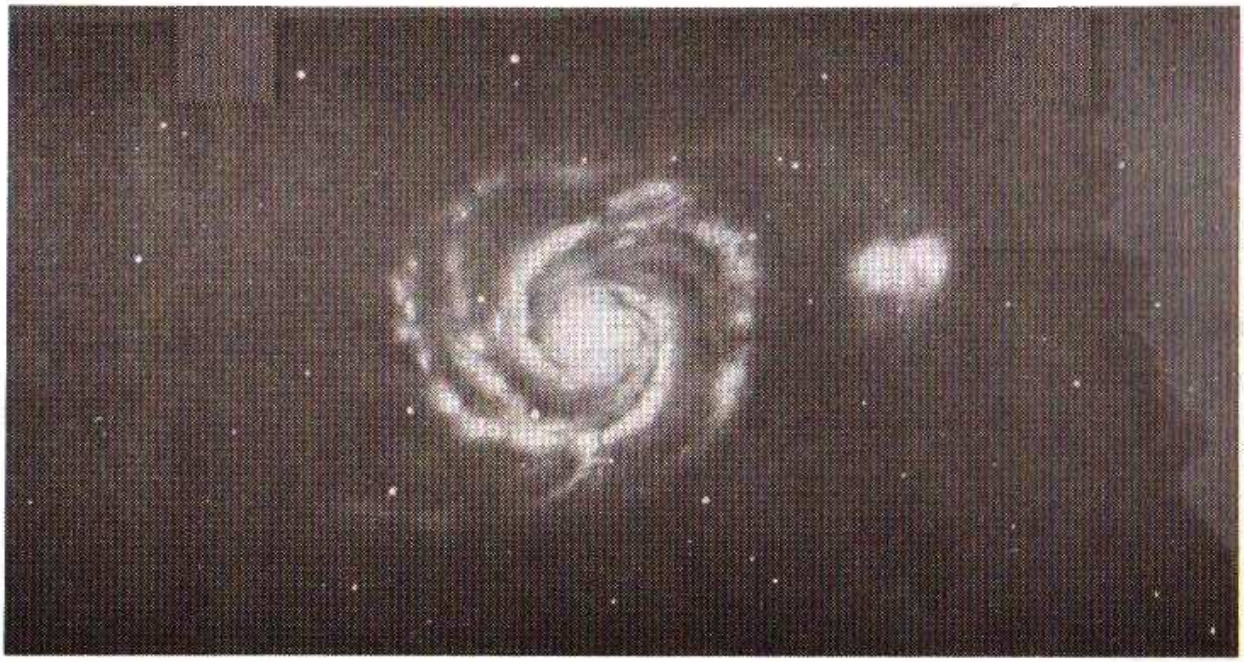
The September meeting will be held on Wednesday, September 28th in Room B 1.37 of the Chisholm Institute of Technolgy, McMahon's Rd., Frankston, commencing at 8 p.m. Our Society President, Peter Norman, will speak on "Cosmic Countdown", a story of the possible evolution of the universe.

Viewing Night

The Society's next viewing night is scheduled for Friday, October 14th to be held in the grounds of the Chisholm Institute. It is expected that the Society will be playing hosts to a number of young children from a Hastings primary school. To assist with providing an enjoyable demonstration for our guests, members are requested to bring as many portable telescopes and binoculars for use as possible. The Moon will be at First Quarter for this viewing night.

Society News

A talk on Computers in Astronomy was given by Steve Wilbourne at the August General Meeting. Steve outlined the various types of calculations which can be carried out by a small computer which are of interest to the amateur astronomer. These include conversion of Right Ascension and Declination co-ordinates to altitude and azimuth, the calculation of rising and setting positions of celestial objects and print-outs of sidereal time and Julian dates. Calculation of cometary orbits



Sky Notes

In late September and October the Milky Way, the plane of our own Galaxy, extends around the horizon with the Southern Cross sinking to a position due South and just above our horizon. In the zenith, or region directly overhead, the sky is relatively barren of stars as we look out away from the Milky Way into intergalactic space. The bright star Achernar is conspicuous to the south of the zenith and in mythology is the end of the Celestial River Eridanus, a long twisting trail of stars from Achernar to Beta Eridani, adjacent to Rigel in Orion, now rising above the horizon to the east. High in the eastern sky is the consetallation of Cetus, the Whale, and observers with a sky chart can identify in Cetus the star Mira - 'the Wonderful' - a long period variable visible to the naked eye for about half of its 11 month cycle and the first variable to be recognised as such. Mira has the designation O - for omicron - in the constellation of Cetus.

Numerous galaxies are to be seen in the faint constellations near the zenith and one easily located is NGC 7213. This galaxy is to be seen in the same field as the bright star Alpha Grus - Al' Nair - at about 16 minutes of arc southeast.

from observed positions is a further possibility and Steve suggested that enough information could be obtained for the compilation of a Year Book specific to the location of Frankston. For a suitable introduction to astronomical computing Steve recommended the book "Practical Astronomy with your Calculator" - Volume 2.

Fund Raising

The Society is now entering a period which will involve significant financial expenditure for re-establishment of the Observatory at Peninsula School, Mt. Eliza, insurance of the Observatory at B. J. Smith telescope, purchase of the 16" mirror from Astronomical Society of Victoria, and in the longer term the cost of constructing a second larger Observatory to accomodate the 16" telescope. The Committee is considering various means of fund raising for these projects, and now extends an invitation to members to provide suggestions for additional activities suitable for Society fund raising. All such ideas or suggestions should be made either directly to Committee members or to a Society meeting.

Basic Optics of Lenses, Part 2 - by Clive Nicholls

The basic foundation of a lens is to bring all the rays of light entering it to a common focus. In the case of an achromatic lens combination this action can be understood by considering a combination of two prisms, acting to recombine the coloured rays in the same as would the edge of an achromatic lens constructed of two types of glass.

In Fig.1, as light enters the first prism it undergoes refraction and dispersion as governed

by that medium's refractive index and dispersive properties, both of which are set quantities.

It then enters the second prism. This has the job of putting the chromatically dispersed rays back together at a common focus. The second prism thus needs to be of a higher dispersive power to achieve this, though its refractive index is close to that of the first prism, and the materials are selected specifically for this reason.

We need to know now how the shape of a lens alters the path of a ray and its related focal point. In Fig.2(a) with a plano-convex lens its focal length is in proportion to twice its radius of curvature, the exact focus depending on refractive index of the glass.

In Fig.2(b) with a bi-convex lens its focal length is proportional to its radius of curvature, the focus again depending on refractive index of the glass.

These convex lenses are also known as positive lenses, due to them having a real focus as their rays converge to a point. Plano-concave lenses also have focal lengths proportional to twice the radius of curvature, whilst bi-concave lenses have focal lengths proportional to radius of curvature (see Fig.3(a) and (b)).

As these lenses cause light rays to diverge, not converge, they have a "virtual" focus only, and are known as "negative" lenses.

Fig 1

R = RED V = VIOLET

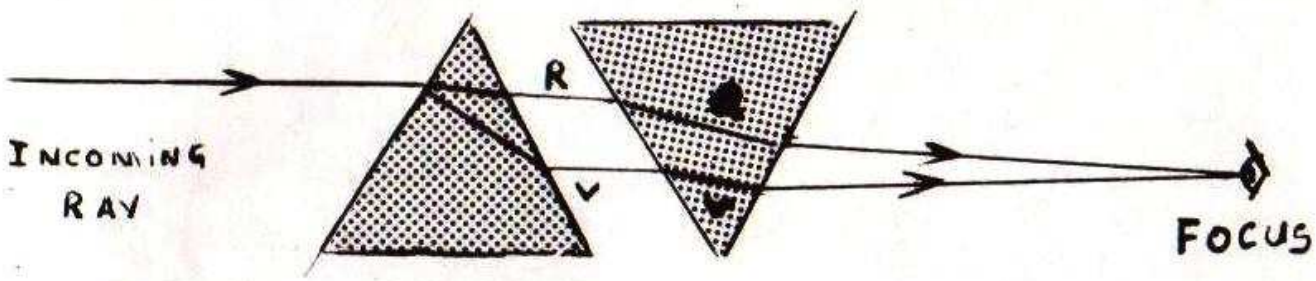


Fig 2a

PLANO-CONVEX

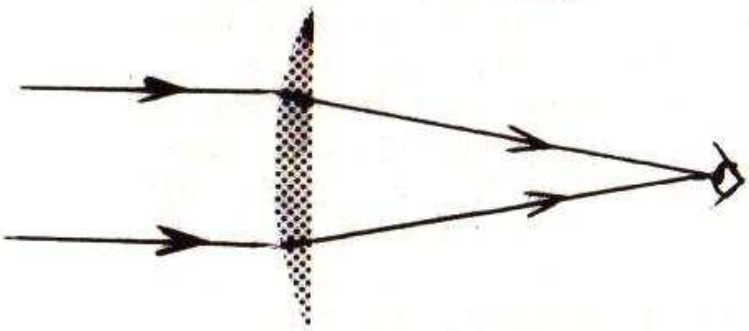


Fig 2b

BICONVEX

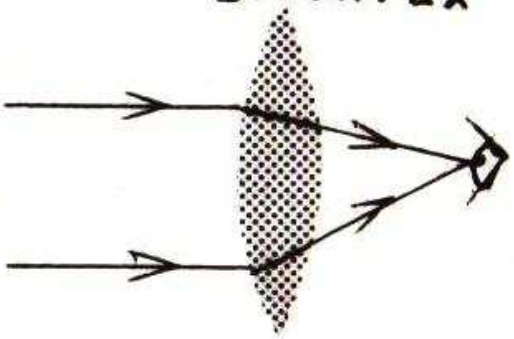


Fig 3a

PLANO-CONCAVE

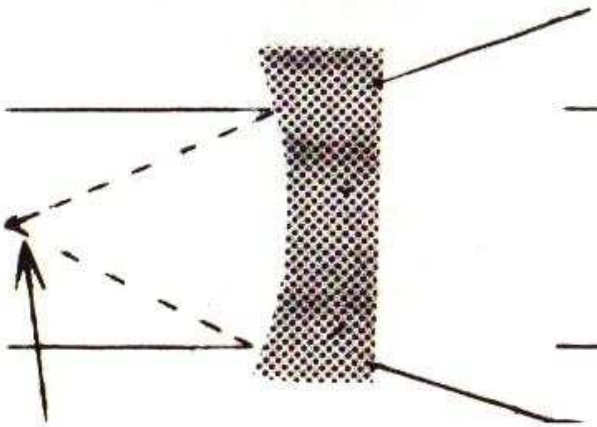
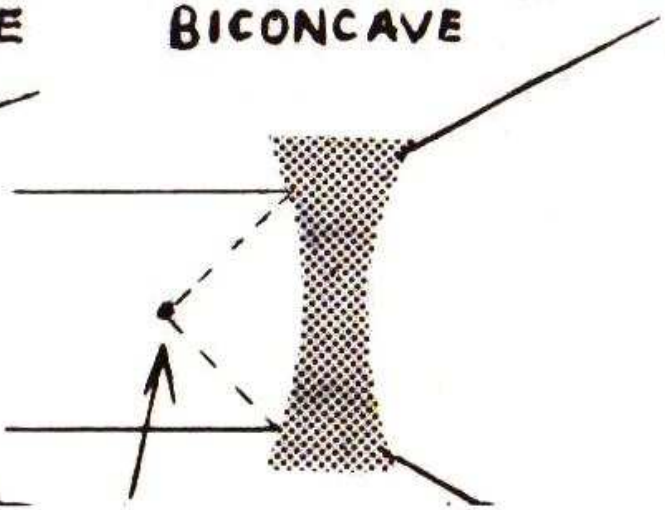


Fig 3b

BICONCAVE



Amongsthe planets Mercury moves between Earth and Sun at the end of September, having been a bright early evening object at the end of August. Saturn in Virgo and Jupiter in Scorpius remain visible in the early evening, whilst in the early morning sky Venus is a brilliant "Morning Star" rising around 3.30 a.m.

The Moon

New Moon	Sept 7	Oct 6
First quarter	Sept 14	Oct 14
Full Moon	Sept 22	Oct 22
Last Quarter	Sept 30	Oct 29