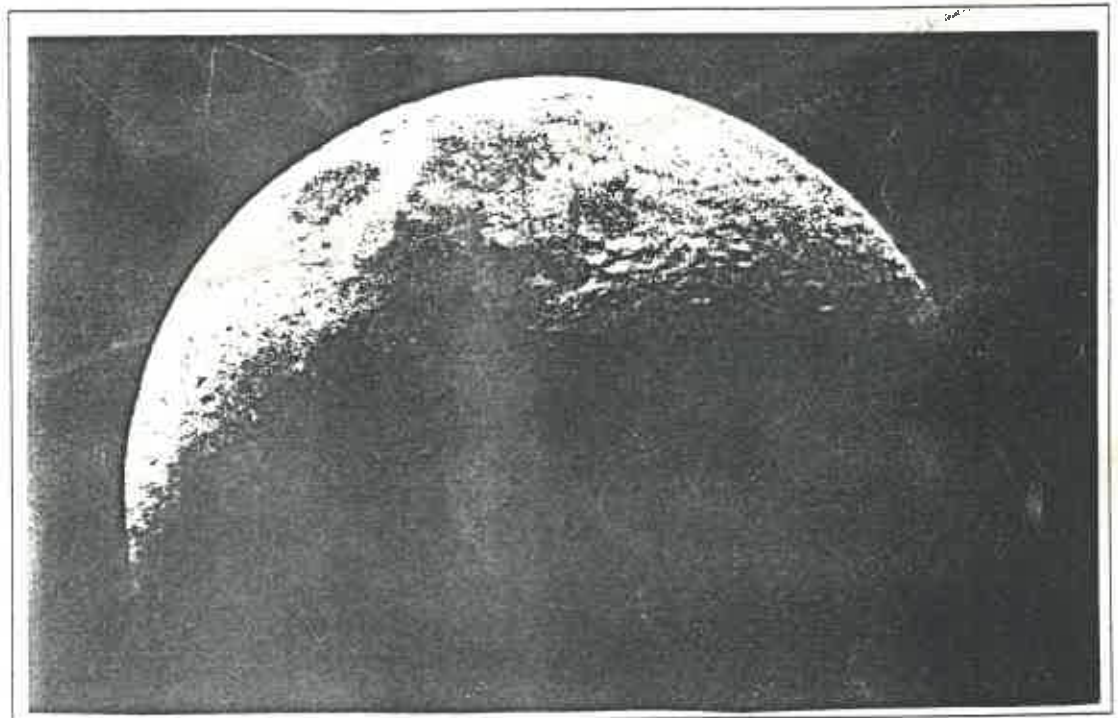


NEWSLETTER

**Journal of the Northern Districts
Society of Amateur Astronomers**

Picture by Graham Davies



Inside :

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- **Library List**
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MISCELLANEOUS INFORMATION

THE COMMITTEE

President	Bob Feeney	86-2496
Vice-President	John Curdie	484-5394
Secretary	Gordon Stott	871-7838
Treasurer	Dawn Kemsley	888-1306
Members	Spencer Stanley	871-8811
	Warwick Thomas	428-4448

THE EDITORIAL COMMITTEE

Editor	David O'Driscoll	92-1156
Members	Grahame Crowhurst	560-2839
	Gordon Stott	871-7838

The numerous contributions to the newsletter should be addressed to the Editor, 25/28-34 Bent Street, Neutral Bay, 2089. All other correspondence to the Secretary, 29 Robert Street, Telopea, 2117.

MEETING NIGHT PROGRAMME

March	21	Guest speaker, David Allen. "Infrared Astronomy".
April	18	Talk. "A Visit to Parkes Radio Telescope". Geoff Welch. Equipment Night. Beginning of Course in Elementary Astronomy.
May	16	Video Night. Course continued.
June	20	Talk. "Some Crackpot Theories". Grahame Crowhurst. Course continued.

SKY WATCH NIGHTS

March	4	
April	8	Saturdays
May	6	
June	3	

It is all very well to publish a list of dates on which we can take our telescopes out to Galston for a night of observing, but there seems to be a conspiracy afoot to cover the sky with clouds on these nights. It is now some four months since we were able to gather together for this purpose. Even Warwick Thomas, from whose calling one would expect to have some influence in high places, has sadly let us down. But a clear night must eventually come and there will be much rejoicing thereon.

EDITORIAL

Some of our members may recall that in May, 1987, I launched Vol.1 No.1 of our Society's Newsletter, and confidently predicted that this production would continue to appear regularly every two months. For various reasons, which for the moment escape me, this didn't happen, and Vol.1 No.1 remained the sole monument to the Committee's efforts in communicating with our members and the outside world. That is, until now. For a sub-committee of three has been formed; Grahame Crowhurst, David O'Driscoll and yours truly, and this group has given birth to Vol.1 No.2, or should it be Vol.3 No.1. Perhaps it would be better to forget all about the first abortive attempt, and begin again with Vol.1 No.1. Of course, we confidently predict that this production will continue to appear regularly every three months.

In the intervening time, the N.D.S.A.A. has grown somewhat from the ten most enthusiastic pupils from two Evening College courses held during the Year of the Comet. Grown, in fact, to four times that size. The enthusiasm with which we started out is unabated, and expertise, a vanishingly scarce commodity at the beginning, is starting to catch up.

Equipment also has proliferated, from a measly brace of Newtonians in 1986, to the point where we were able to supply almost half of the telescopes operating at last year's Open Night at Macquarie University. But telescopes do not an astronomer make, and we all have a long way to go to reach the standards most of us have set ourselves. Let's hope that the achieving of these standards will continue to bring us the same sort of fun that we've had so far.

Gordon Stott

It is meet that this journal should have a name, so we are instituting a small competition to find one. It should be original and appropriate, but not pretentious. The first prize is a week's holiday on Heard Island with Bob Feeney.

There is also a competition currently running to find a Society logo, to go on letterheads, badges, etc. So far nothing startling has emerged.

ASTROQUIZ

Test your knowledge of your favourite hobby. You'll find the answers on Page 8., after you have tried them yourself.

1. In which constellation would you find "The Jewel Box"?
2. Why do sunspots appear dark?
3. Antares has a magnitude of 1.0, Procyon 0.4, and Arcturus -0.1. Which is the brightest of these three stars?
4. How would you find the magnifying power of a telescope?
5. What are the two basic types of telescope?
6. Why do photographs of nebulae appear red?
7. What is peculiar about the star at the centre of the Crab Nebula?
8. What are the "seas" on the moon?
9. What is an annular eclipse of the sun?
10. Which planets in our Solar System are known to have rings?

NOTICE BOARD

On Wed., April 19th, at the monthly meeting of the British Astronomical Association (N.S.W. Branch), Dr. D. Manchester will talk on "Pulsars, Celestial Clocks". Visitors welcome.

Another Open Night will be held at Macquarie University on Saturday, 29th April. Members with telescopes are requested to bring them.

On Fri., May 12th, the Astronomical Society of N.S.W. will hold an Auction Night for surplus equipment. Buyers and sellers welcome.

Again at the B.A.A., Dr. David Allen will tell us "What can happen when a Stellar Astronomer is let loose in the Solar System". May 17th.

For Sale. 75x1200 Unitron refracting telescope with tripod and accessories. New. Worth \$1000 but any reasonable offer considered. Contact Mrs. Ilona Watkins, 412-2603.

S O C I E T Y N E W S

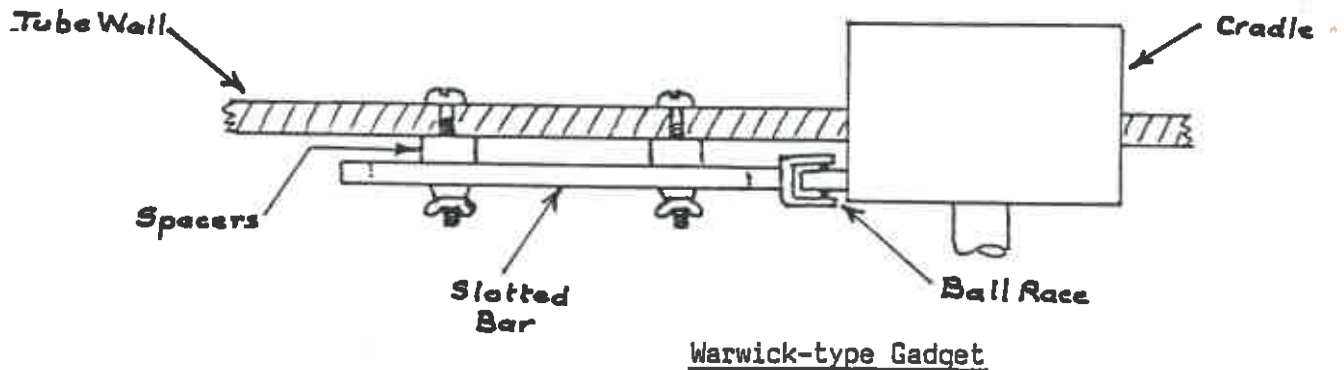
With the year only two meetings old, we have already acquired seven new members, so we extend a sincere welcome to Robert and Joyce Barnett, John Connolly, Greg Johnston, David Lloyd-Jones, Karen Sniegon and Haren Sthalekar. Welcome also are two visitors, John Melki and Robert Walker, who, we hope, will approve of us sufficiently to join our ranks.

On the debit side, our Treasurer, Carynne Law, has gone to Newcastle to study for a career in occupational therapy. With regret we bid her farewell, and wish her every success in this new venture. Her place in charge of what is: euphemistically termed our Finance Department has been taken by Dawn Kemsley, who should have no trouble in keeping us solvent.

Warwick Thomas, our man with his nose to the ground, has discovered a veritable treasure trove of optical bric-a-brac, the fruits of a life in optical engineering by a gentleman named Ernie Grunwald. Included in this collection are the parts of a 15" telescope, including the main mirror (polished but not figured), the tool for figuring, blanks for the secondary mirror, a cast and machined cradle to take an 18" tube, and sections of a very substantial pedestal. For all this he wants \$1500, a price which made the Committee very reluctant to pass up such a bargain (just the blank for a mirror that size would come close to \$1000). A motion to purchase this telescope was put to the February meeting and was passed with virtual unanimity, together with a decision to raise the money by the issue of unsecured notes. A letter confirming these decisions and giving further details will be sent to all financial members.

Have you ever struggled to turn a Newtonian telescope so that you can see through the eyepiece while it is pointing at a steep angle? Almost impossible without the stupid thing sliding down out of balance. Well, Warwick Thomas has constructed a simple gadget to make this operation quite painless. It consists of a flat metal bar (steel or aluminium), having a long slot down the centre and a ball race fixed to one end. It slides on two bolts set in that part of the tube which is lowest when the eyepiece is pointing upwards, and so that the ball race contacts the front face of the cradle. When the 'scope is balanced, the bar is locked in place by wing nuts, so that, when the tube is rotated, the ball race, rolling on the face of the cradle, prevents the tube from slipping.

On the next page you will find a somewhat crude drawing of the device.



Under the heading "Notice Board" a few pages back, you'll find the name Mrs. Ilona Watkins. Mrs. Watkins was once assistant to the Government Astronomer in Perth. She is interested in asteroids, and came within a whisker of having one named after her. Our Secretary has threatened to give her no peace until she joins our Society.

At the February meeting, Graham Davies talked of his first efforts in astrophotography, and showed some slides he had taken of the Moon, Mars, Jupiter and Saturn, and an impressive series of the previous night's lunar eclipse. He conveyed the impression that, in the initial stages at least, it was not at all difficult, so it is certain that others will now follow into this field where they once feared to tread. For the benefit of these people, here are a few points that Graham made during his talk.

The Camera : For amateur use the single lens reflex camera is the most popular. Desirable features are: a. A lockable reflex mirror. b. Interchangeable focussing screens. c. Capability for non-automatic operation. d. A high magnification viewfinder.

Film : There is a wide variety of fast film available. Graham uses Fuji 400.

The Telescope : A telescope is not always necessary; good pictures can be taken with the camera alone, especially if it is fitted with a long focus (telephoto) lens. If a 'scope is used, it should be on an equatorial mount, properly aligned with the South Celestial Pole. For long exposures it is very desirable that it be clock driven, but for short exposures, manual tracking usually gives satisfactory results.

Camera Attachment Methods :

Piggy-back : The camera is attached to the side of the 'scope, using only its tracking facility. Graham found that a 50 mm lens gave a fairly broad view of the sky.

Secondary Focus Connection : A tele-extender holds the lensless camera with its film plane at the Newtonian or Cassegrainian focus of the telescope. It gives moderate magnification.

Eyepiece Projection : A camera adapter is fitted over the telescope eyepiece, so that the eyepiece focus is at the lensless camera's film plane. Gives good detail with planets.

Accessories : A short tele-extender with a prism allows you to look at the camera's field of view. Good for deep sky objects, as it allows tracking adjustment during long exposures.

A rich field adapter gives a doubling of the field of view. A problem is that the image which remains does not fill the field of view.

Telescopic extender tubes allow continuous change in the size of the image.

Filters. There is a thread inside extender tubes for the fitting of filters.

Vibration : The vibration caused by a focal plane shutter can be eliminated by using the "black hat" technique. Cover the telescope aperture, open the shutter, then uncover the 'scope. Repeat when closing the shutter. A pneumatically operated camera trigger also helps.

MACQUARIE FOUNDATION NEWS

In its quest for funding for the projected Observatory, the Board of the Foundation has consulted a firm which specialises in the arrangement of sponsorships. They have advised that a more profitable approach would be to first build a Planetarium, a project which had been previously considered as being well down the track. Their rationale is that a Planetarium, being a tourist attraction, would be more attractive to sponsors than an Observatory, and that the latter could be built with the profits from the former. The Board is at present giving careful consideration to this idea.

The Board has been appraised of our intention to acquire a 15" telescope, and they have offered to store it for us. When both the telescope and the Observatory are at a more advanced stage of construction, consideration will be given to the best means of siting it.

Herewith a brief comment on the indiscriminate use of the term "prime focus". Everyone and his dog who takes a photograph through a telescope seems to do so at the "prime focus". But in every book in which I can find this term defined it goes something like this, "The point at which the primary mirror focusses an image. The advantages of using the prime focus for photographic work include greater efficiency, since only one reflection occurs; -----". Large telescopes, e.g. the A.A.T., have at this point a "prime focus cage" for photographic purposes, but it is not possible to use the prime focus in small instruments, as the camera would block out most of the incoming light. Hence a "secondary focus" must be used, either the Newtonian or Cassegranian.

G.S.

JOURNAL JOTTINGS

Sky and Telescope, Dec. 88, reports on an occultation by Pluto of an obscure 12th magnitude star in eastern Virgo. This first ever observation was a major feat in astrometric prediction and positional calculation, for Pluto is so distant that its disc is 350 million times smaller in area than the moon. Errors in position could not be greater than the planet's radius, only 0.06 arc second as seen from the earth.

But the star's light did not cut out and reappear suddenly as expected. It faded and returned gradually, showing unequivocally that Pluto has an atmosphere, a surprising fact, seeing that Pluto is so small (only 2/3 as massive as the moon) and so cold.

In Astronomy Now, Dec. 88, is a note on a supernova observation by a Danish astronomer using the Danish 1.5 metre telescope at La Silla in Chile. The star is in an inconspicuous galaxy within the cluster AC118, a mere 5 thousand million light years away, which makes it the most distant star ever seen. At this distance even the light from a supernova is 4 million times fainter than can be seen by the unaided eye, but despite this, spectra were obtained by the European Southern Observatory and our own A.A.T. at Siding Spring.

Sky and Telescope, Oct. 88, contains an interesting article giving a simple method of making an illuminated graticule. And the Nov. 88 issue is devoted entirely to amateur astronomy.

BOOK REVIEWS

Revealing the Universe -- Prediction and Proof in Astronomy. Cornell, J. and Lightman, A.P. (Eds.). M.I.T. Press, 1982. Available from N.D.S.A.A. Library.

Ernest Rutherford once said that "Science is either physics or butterfly collecting.", and to some extent I agree with him. I think science often involves classifying observations into artificial categories, without really understanding why they are as they are. Of course, Rutherford came a cropper when he was awarded a Nobel Prize in chemistry, but never in physics.

I am, however, aware that Rutherford's allegation can be levelled at much of astronomy, with our plethora of observations and our dearth of understanding of what is actually going on in many celestial objects. It is for this reason that I believe the understanding of astronomical theories is very interesting and important; theory provides a basis for unifying and making sense of the many observations to which we have access.

"Revealing the Universe" is an excellent collection of papers written by professionals for amateurs. Each chapter explores a facet of astronomy, discussing the existing observational evidence, and explaining the development of a theory or theories to explain it. Each topic is addressed by both a theoretician and an experimentalist, and so the reader has a unique opportunity to appreciate the co-operation between them. The topics include many at the forefront of astronomical understanding, including Einstein's perceptions of space and time, the evolution of the Solar System, the heating of the solar corona, quasars, black holes and X-ray sources, yet the book is not overly technical or obscure. It concludes with a chapter on the unexplained questions in astronomy.

This book conveys the excitement of discovery and the enjoyment of scientific investigation. It is inspiring to me that there is very much good science being conducted and that there is much still to discover, not only about what the universe is like, but why it is like this.

Grahame Crowhurst.

Can You Speak Venusian -- A Trip Through the Mysteries of the Cosmos. Moore, Patrick. Star Books, 1972. (Paperback).

This is a good humoured, slightly tongue-in-cheek Cook's Tour of crackpot theories. Patrick Moore, the well known populariser of astronomy, presents the ideas of a menagerie of "independent thinkers", whose theories have placed them on the edges of the scientific community. At worst, these thinkers are sincerely wrong, and at best they might provide startling new insights into science. Moore does not generally waste his good humour on fraudulent pseudo-scientists of the Uri Geller type, who make money out of the credibility of the public, although he does discuss the theories of von Daniken.

Included in this collection of oddball ideas are arguments for a flat earth, a cold sun and a solid sky. There are chapters on flying saucers, Atlantis, astrology and communication with other intelligent life in the Solar System. It might surprise you to know that the inhabitants of Pluto have long hands and egg-shaped heads. It might astound you that a translation into Venusian of Hamlet has been completed, that it would be possible to prevent earthquakes by sawing the moon in half and towing one hemisphere round to the opposite side of the world, and that there was an active space exploration programme being developed in the 1960s -- in Zambia.

I thoroughly recommend this book. It is short, non-technical and easy to read, and it beautifully shows the diversity of human originality. It is very difficult to obtain copies of it, but you are welcome to borrow mine. Ring me on 560-2839 and I will bring it to the next meeting.

Grahame Crowhurst.

T H E L I B R A R Y

Below is a compendium of the books and periodicals held at present in our embryo library. There is also a mess of maps, pamphlets, reprints and such which will be listed later. These lists will be updated in each issue as the library grows.

Books

Building a Low Cost Telescope	Eric Witcombe
Pocket Book of Astronomy	James Muirden
Stars and Planets	W.Widmann & K.Schutte
Daytime Star	Simon Mitton
Halley - The Once in a Lifetime Comet	David & Carol Allen
The Southern Sky	David Reidy & Ken Wallace
Pictorial Guide to the Planets	Joseph Jackson & John Baumert
100 Billion Suns	Rudolph Kippenhahn
Atlas of the Solar System	Bill Yenne
Revealing the Universe	J.Cornell & A.P.Lightman
Tools of the Astronomer	G.R.Miczaika & W.M.Sinton

Periodicals

Sky and Telescope	Nov 87 to Feb 89
Astronomy Now	Apr 88, Nov 88
Southern Astronomy	Pilot 88, Apr/May 88, Jan/Feb 89
Aust. Journal of Astronomy	Apr 88, Oct 88
Universe (J. of the A.S. of N.S.W.)	Jul 87 to Feb 89
The Bulletin (J. of the B.A.A.)	Apr/May 87, Jun/Jul 87
Southern Observer (J. of the Sutherland A.S.)	Jul/Aug 87
Iris (J. of the N.A.P.O.)	Jul 88, Sep 88
Countdown	Jan 84, Jul 84, Jan 85, Jul 85 Jan 86

Answers to ASTROQUIZ

1. The Southern Cross.
2. Sunspots are cooler (4000 degs.C) than the rest of the sun's surface (6000 degs.C).
3. Arcturus. The smaller the magnitude number, the brighter the star.
4. The focal length of the objective divided by the focal length of the eyepiece.
5. Reflectors and refractors.
6. Nebulae contain hydrogen gas, which, when activated by ultraviolet light from hot stars, emits light at its spectral line in the red part of the spectrum.
7. It is a pulsar -- a rapidly spinning dwarf star which gives out very regular pulses of radiation, like a lighthouse.
8. Solidified lava flows, which were mistaken for seas by early astronomers because they appeared dark and smooth.
9. An annular eclipse occurs when the moon is further from the earth than usual, and its disc doesn't quite cover the sun. A ring of photospheric light is visible, which is so bright that the corona cannot be seen.
10. At least three. Jupiter, Saturn and Uranus.

T H E N I G H T S K Y

The charts overleaf* are valid for the following dates and times:

March 1	midnight	
April 1	10 p.m.	
May 1	8 p.m.	E.S.T.
June 1	6 p.m.	

By evenings in April we have more or less lost our main guide; Orion is setting in the west, and of his retinue only Sirius remains well placed. The Southern Cross is now almost overhead, together with the Centaur. The Cross and the two Pointers, Alpha and Beta Centauri, are quite unmistakable. Achenar is so low that it may well be lost in horizon mist. Scorpius is rising in the south-east, and its red leader, Antares, is already conspicuous. Leo is high in the north, followed round by Virgo; the barren Hydra occupies much of the sky near the zenith. This is a good time for trying to see the stars of Ursa Major, which is skirting the northern horizon. Arcturus is coming into view in the north-east.

T H E M O O N

	<u>Empty</u>	<u>Full</u>
March	7	22
April	6	21
May	5	20
June	3	19

T H E P L A N E T S

		<u>Mercury</u>		<u>Venus</u>		<u>Mars</u>		<u>Jupiter</u>	
		R	S	R	S	R	S	R	S
March	11	0413	1733	0520	1807	1128	2131	1124	2138
	25	0512	1741	0548	1757	1114	2106	1040	2051
April	8	0630	1753	0616	1747	1100	2045	0957	2005
	22	0751	1808	0644	1739	1044	2026	0916	1920
May	6	0816	1804	0713	1736	1027	2009	0835	1836
	20	0713	1719	0742	1740	1008	1953	0755	1753
June	3	0540	1614	0807	1753	0947	1940	0715	1711
	17	0507	1536	0826	1814	0923	1927	0635	1629

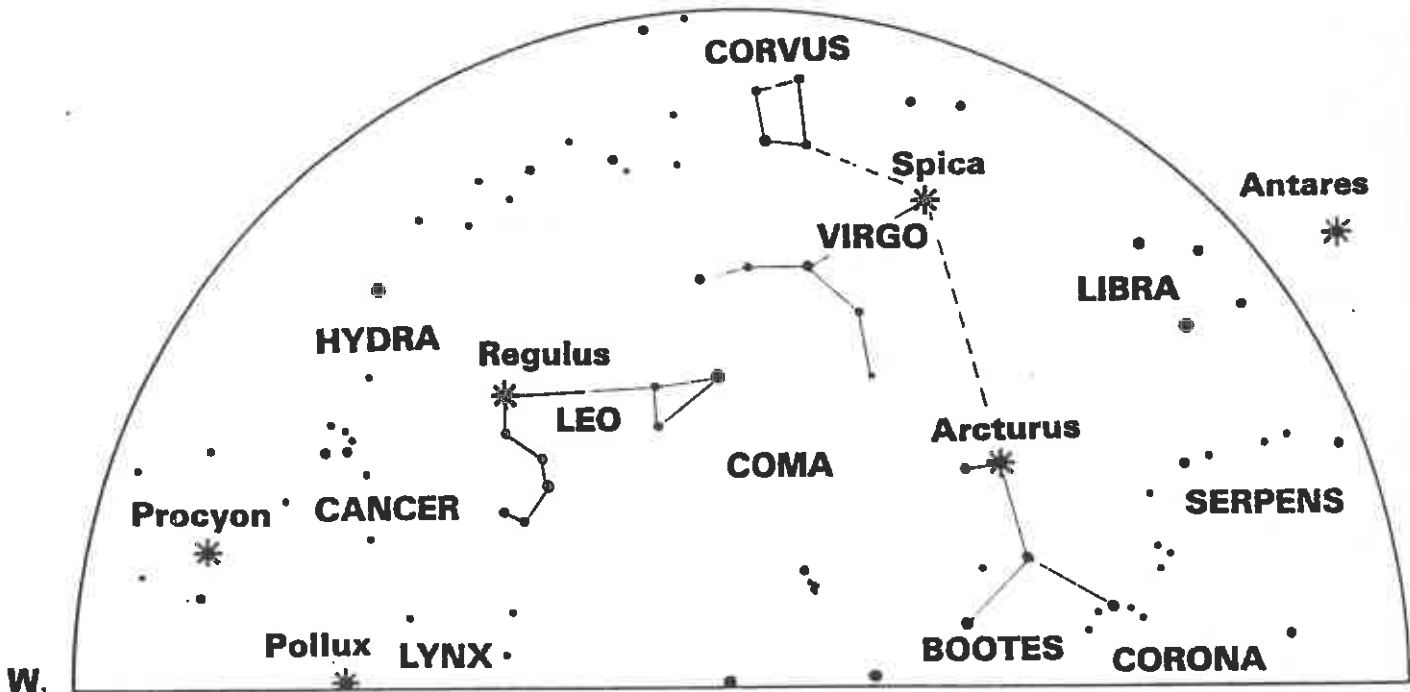
		<u>Saturn</u>		<u>Uranus</u>		<u>Neptune</u>	
		R	S	R	S	R	S
March	11	0029	1440	2349	1413	0028	1438
	25	2334	1348	2255	1319	2330	1344
April	8	2241	1255	2200	1224	2236	1249
	22	2147	1201	2105	1129	2141	1154
May	6	2051	1105	2009	1033	2045	1058
	20	1954	1008	1912	0936	1949	1002
June	3	1856	0911	1815	0839	1853	0906
	17	1757	0812	1717	0742	1756	0810

We have it on the undoubted authority of Mike Smith that Pluto is out chasing cats.

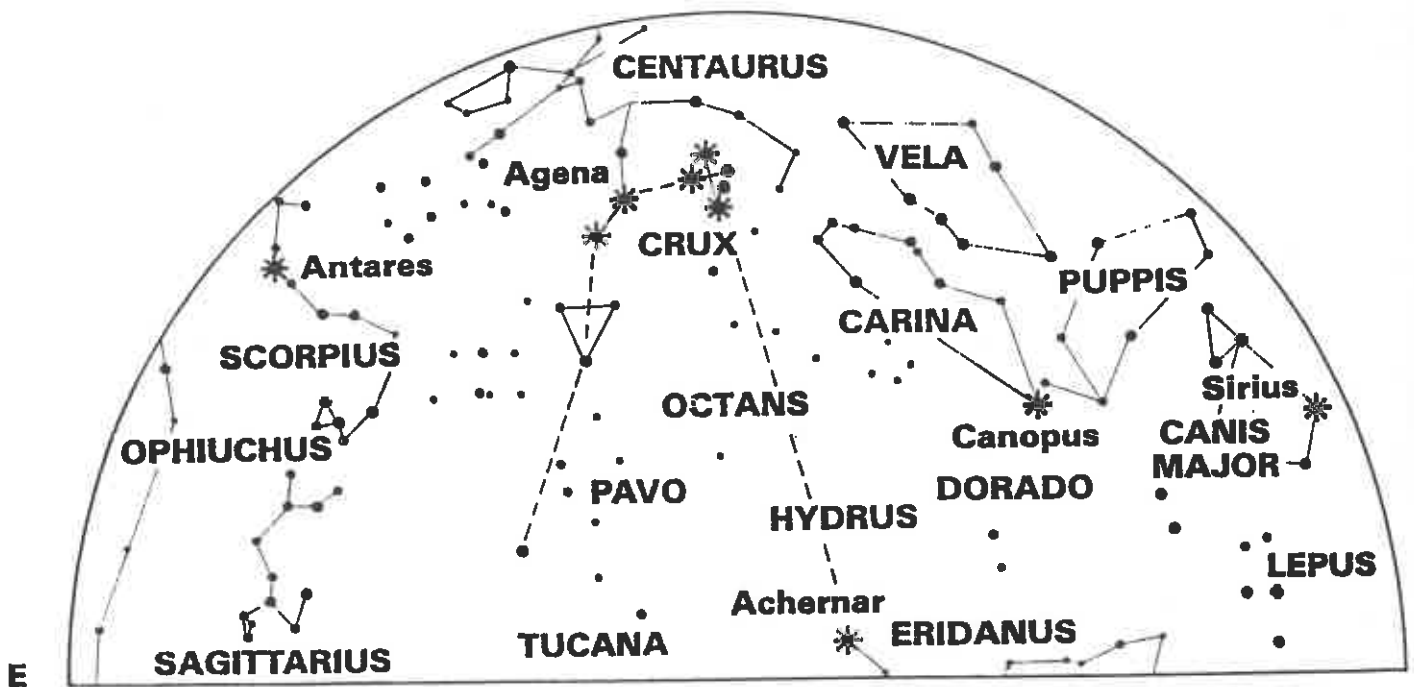
* These charts, and the accompanying descriptions, are reproduced from the book "Stargazing -- Astronomy Without a Telescope", by Patrick Moore.

STAR MAP 16

35° S 15 Apr 10 p.m.



NORTHERN ASPECT



SOUTHERN ASPECT

