

ASSA

Pretoria Centre



Issue 1/88

EDITORIAL.

Welcome to the second edition of "new" Urania. This copy follows hard on the heels of the first edition which has had a few teething troubles at the printers. To keep up the schedule however, I hope you will accept a somewhat thin issue for the first quarter of 1988.

Because of the delays, the number of articles submitted has been nil. I hope that by the closing date for the next issue (end June 1988) I shall have much more to offer, providing you write to me.

All contributions welcome. Please submit to:-

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CONTENTS

1. The South Celestial Pole.
2. Notes on Meteor Observing.
3. Planets Review for 1988.
4. Observations of the Velaid Meteor Shower.

The South Celestial Pole.

Whilst sky-watchers in the Northern Hemisphere are fortunate to have an easy reference to the North Celestial Pole by way of the Big Dipper and Pole star, we in the Southern Hemisphere are not so blessed. There are no bright or obvious stars to mark our path, especially if you have to look through the glow of urban civilisation.

But why should one want to know where the South Celestial Pole is anyway? Apart from being able to determine true south should you be lost or perhaps a member of the "Boy Scouts", it is a definite requirement for anyone seriously considering accurate work at the telescope. Here I am considering the equatorially mounted telescope rather than the alt-azimuth. Most people who have used such an instrument will know that if the telescope is not accurately aligned, images seen through the eyepiece slowly drift out of sight, even if the telescope is driven by some form of sidereal following mechanism. For anyone doing astro-photography, correct alignment is a must.

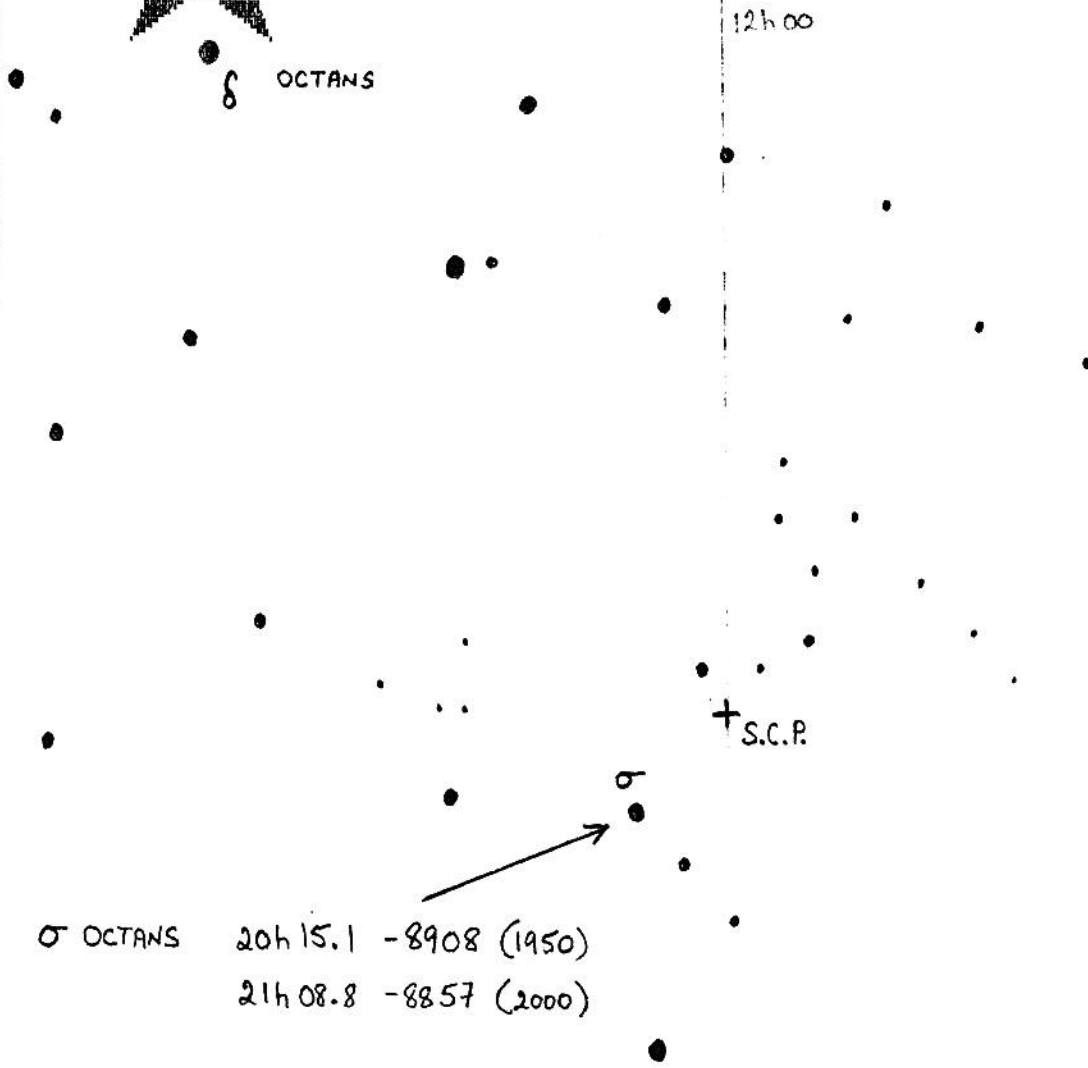
So where does one look, and how does one find the true South Celestial pole. This problem came to me when building my own permanent observatory. Previously I had only done approximate alignment by pointing my telescope at the general area of the pole (four and a half times the length of the Southern Cross in the direction pointed by the cross). Now, for the accurate use of setting circles, I had to achieve a much better standard on a permanent pier.

Star maps available to the amateur such as Norton's or even the later Tirion Sky Atlas, of course include the S.C.P. but with no detail to allow really accurate positioning prior to the final alignment "finishing". The solution? Well I made my own! I took chair, drawing board and materials along with my binoculars mounted on a tripod and sat out in the garden on several nights to complete it. It was a bit like a detective hunt to track it down through the sky-glow from Johannesburg (hence the drawing rather than photography), but now I find the area so distinctive, I can easily identify it through my view-finder.

Can you find S.C.P? Why not go out and have a look. To help you, I have reproduced part of the map I made on the next page. Perhaps you could send me your map and comments. I have to build a new observatory and mount!

The South

★ Celestial Pole



σ OCTANS 20h 15.1 - 8908 (1950)
 21h 08.8 - 8857 (2000)

+ S.C.P.

00h 00

Meteor observing is a part of astronomy which can be entertaining to all participants without the need to have complex or expensive equipment on hand. Little more than a clock, pencil, paper and a dash of enthusiasm are all that is required to get started. It is also a good way to learn the constellations as a lot of time is spent looking at areas of the sky with which one soon becomes quite familiar. The only drawback is that the best times for observation are those when all good citizens are fast asleep in bed!

Meteors (not meteorites! A meteorite is the name of an object which actually manages to penetrate right through the atmosphere and hit the ground) are usually observed as one of two classes.

a) Sporadic Meteors.

Sporadic meteors can be seen at any time of year in any area of the sky. They come in different brightness and colour with various speeds. Their major similarity is their randomness.

b) Meteor Showers.

Meteor showers occur at certain times of the year which are quite predictable. It is thought that they are caused by the passage of the earth through the deritus of a long past comet, for example the Orionid meteor shower is associated with comet Halley. The dates of such showers are published each year in the notable astronomical handbooks, and for South Africa such data may be obtained from the Astronomical Handbook for Southern Africa, published by ASSA. The feature of these showers is that all the paths of meteors for a certain shower appear to come from a certain point in the sky called the RADIANT.

An observer should plan the session well in advance and the site ought to be as free from pollution (both light and dirt) as possible. For most of us it means the back garden with neighbours floodlighting, bonfires and all the hazards of urban civilisation, but this should not put off the intrepid observer. The use of comfortable seating and during the winter, warm clothing, will make the session more enjoyable. The line of sight to the radiant should be about 45 degrees.

Observe for about one hour at a time. Longer observations tend to cause fatigue and a loss of concentration. Watch a particular area without interruption which is not as easy as it sounds, and record what you see using one of the suggested methods as follows.

- 1) A tape recorder and radio tuned to ZUO for time signals.
- 2) A star chart upon which paths and times are noted.
- 3) Use the form reproduced here which is based upon the ASSA report form, kindly provided to me by Jose Campos.

It is very important that certain information is recorded. This is as a minimum, the number of meteors, the start and end time of the observing session, and the seeing conditions.

Observing sessions may be held individually or as a group, however for groups it is important that each viewer reports his own data independantly. If the results are combined they become useless. The major advantage of group observation is that a large area of sky may be covered.

The Meteor report form allows you to record the most pertinent data in the simplest form. Here then is an explanation of the entries.

Most of the first part is self evident. The magnitude limit is obtained by noting the magnitude of the faintest star(s) visible near the zenith. Please allow about 20 minutes for dark adaptation before beginning.

Time: is given to the nearest minute. State whether you are using South African standard time or universal time (UT).

Mag : The nearest whole magnitude is sufficient but half magnitude can be given.

Col : The observed colour. Use the first letter e.g. W(hite) Y(ellow) etc.

Type : S for sporadic meteor or the standard 3-letter abbreviation for the constellation used to identify the shower members e.g. TAU (taurids).

Dur : The duration. You may use the terms Very fast, fast, slow, very slow to describe them or give the time in seconds and fractions of seconds.

Length : The length in degrees to the nearest half degree. Most meteors are shorter than 10 degrees.

Train : Duration in seconds. Sometimes fireballs can leave a train that is visible for several minutes. A fireball is a very bright meteor with a visual magnitude equal to or greater than that of Venus (about mag -4.0).

No : the consecutive number of the meteor seen during the observing session.

Notes : any information concerning the meteor not already recorded.

Planets Review for 1988.

Observing the planets is fun for everyone whether your telescope is 200" or just 2". You don't even need a telescope at all to watch their stately progression through the heavens. The planets lie in the region of the sky known as the Zodiac, an area you must know by now as we have been following the Zodiacal constellations each month in our newsletter. If you are still in doubt where to look why not ask one of our members at the monthly meetings to help you. Those who attended Michael Poll's excellent naked-eye viewing night can now try out their new found knowledge.

Mercury : is a difficult planet to spot as it is always quite close to the sun. It can be seen rising before the sun from mid June to mid July and also October to November. It may be seen in the Evenings following sunset, during May and again for the periods mid August to end September, and at the end of December. The best viewing in the Southern Hemisphere is in mid-September.

Venus : is the "evening star" until early June and then from early July becomes a "morning star". On August 21st Venus reaches greatest elongation and rises some 3.5 hours before the Sun.

Mars : is an early morning object at the beginning of the year. By early July however, it has moved into the constellation Pisces when it can be seen for more than half the night. It reaches opposition on September 28th when it should be visible low in the East at sunset. If you have never attempted mars through your telescope then this is the time to try. At this time Mars is only about 59million miles away and with a disc about 24 arc-seconds across and magnitude -2.5 will be a most splendid telescopic sight. I hope to receive many drawings or photographs of Mars for Urania this year.

Jupiter : is an evening object until mid April, re-appearing in early June's morning twilight. It passes the Pleiades on July 20 and stops before Aldebaran on Sept 24. It reaches opposition on Nov 22nd when it will be at magnitude -2.4 and visible all night. At the end of the year it will be found high in the East at sunset. Jupiter is always an excellent target for Planetary observers. It's four main satellites are plainly visible even with binoculars and the surface markings are quite obvious. Would anyone like to send me pictures or drawings?

Saturn : Remains in the constellation Sagittarius for most of the year. Opposition occurs on June 20th when it will be visible all night. This year the rings are at maximum tilt being nearly 27 degrees from edge on.

Uranus : can be found quite close to Saturn (within 3 degrees) during the year. The planet appears disclike and has a distinct blue-green colour (what colour through Perseus's strange glow?). It reaches opposition on June 20th. From early December it becomes too close to the sun for observation.

Neptune : may also be found in Sagittarius. Opposition is on June 30th. At magnitude 7.9 and diameter 1.1" it is quite a difficult object.

Pluto : requires a telescope of at least 25cm diameter to be seen (prove me wrong!). It also is in the constellation Sagittarius and may be located about 2 deg. North of R22.

Data taken from the ASSA handbook and JHR Planetarium Year Book.

Observations of the Velaid Meteor shower.

Meteor observing has been reduced by the many clody nights. I missed the predicted peak of the Velaid and out of 4 attempts only managed one. The results are as given on the following page:-

