R E G U L U S

THE NEWSLETTER OF THE

ROYAL ASTRONOMICAL SOCIETY OF CANADA - KINGSTON CENTRE

SEPTEMBER, OCTOBER 1984

A BOOK REVIEW: B.A.A. Star Charts drawn by Wil Tirion, 5 pages, 45.7 cm. x 34.3 cm. Enslow Publishers, Hillside, New Jersey, 1984 Price: (US) $9.95

A new simplified star atlas, drawn in 1981 by Wil Tirion and commissioned at that time by the British Astronomical Association for the use of its members, has now appeared on this side of the Atlantic, reprinted by Enslow Publishers of New Jersey. This is the B.A.A. Star Charts—a group of five maps—three of the equatorial region of the sky from +45° Declination to -45° Declination and one for each of the polar regions from 45° Declination to the pole. Each of the equatorial region maps covers 8 hours of Right Ascension with 20 minutes of overlapping on each side; as would be expected from maps that cover such a large area of the sky, there is necessarily some distortion in certain regions. The only edition of these charts currently available has black stars on a white back ground and all of the maps are folded once.

On seeing the name of the cartographer, Wil Tirion, who is justly famous for his production of Sky Atlas 2000.0, many amateur astronomers will quickly suspect that comparisons may be made between these five charts and the landmark atlas of a couple of years ago. In most cases, such a comparison would be quite unfair to these charts which are intended only as an elementary atlas that can serve a limited purpose. The stars marked on these charts are only those to about magnitude 6.5, whereas Sky Atlas 2000.0 included about 43,000 stars brighter than magnitude 8.1. The charts' cartographic conventions for designating stars, clusters, nebulae, and galaxies are the same as these used in the Sky Atlas and, years before it, in the Skalnate Pleso Atlas of the Heavens. The major difference is that, in addition to the very limited number of variable stars named, only the Bayer system of stellar designation (with Greek letters) is used; the Flamsteed numbering system is simply not employed and so literally hundreds of stars (even on an atlas down to sixth magnitude) that were unnamed by Bayer are simply not labelled. On the one hand, the feeling may have been that many small numbers would clutter up the charts; on the other hand, the result is that large areas of some of the charts appear as masses of unlabelled dots.

The major question that one must ask regarding this atlas produced in the 1980's is why the coordinate epoch is that of 1950. Most ventures in celestial cartography undertaken during the present and the next several decades should be expected to have the coordinate lines drawn for the standard epoch of 2000 A.D., as was the case for the heralded Sky Atlas.

All of the Messier Objects are marked as such and the equivalent NGC designations are given; a certain number of other NGC objects are also marked. The ecliptic longitude coordinates are given, marked at 10-degree intervals along the ecliptic, as well as the galactic longitude which is marked in a similar way along the galactic equator—a somewhat surprising fact since the Sky Atlas 2000.0 (of which this atlas will, in some ways, be called a simplified version) does not itself have the ecliptic coordinates marked.

A sobering fact for potential buyers may be the realization that the B.A.A. originally sold these charts for the equivalent of about $3.00 while the current North American price is over three times that amount. In general, these charts could be found useful by observers who might wish to plot the paths of comets or asteroids or possibly meteor trails—the large area of the sky on each one making them suitable for such purposes. Beyond that, the occasional and casual may find them helpful for binocular observing. For the serious observer, however, there is simply not enough information given on these charts whose limiting magnitude is only about 6.5—a fact that is especially noticeable at a time when there are superb atlases to 8th and 9th magnitude readily available at less than twice the price.

CORRESPONDENCE FROM A SKILLED OBSERVER

In this issue of our newsletter we are pleased to have correspondence from our member in Peterborough, Warren Morrison. As you will see from the letter, he has been named a recorder for the International Halley Watch (I.H.W.), and for that distinction we sincerely congratulate him.

955 Ford Street,
Peterborough, Ont.
Aug. 30, 1984

Dear Leo and R.A.S.C.-Kingston Centre Members:

The purpose of this letter is twofold. First, please find enclosed a cheque for #25.00 to pay my membership fee for 1985.

The second reason for writing is to convey information that might be useful for inclusion in Regulus, regarding the International Halley Watch, and the planet Pluto.

For those interested in making serious observations of P/Halley (magnitude estimates, coma diameters, tail lengths, degree of condensation of the coma, etc.) there is still time to join the International Halley Watch (I.H.W.). Please refer to the note by Chris Spratt in the National Newsletter, June 1984, pages L47 -L48 for details on how to become involved. It is important to obtain a copy of the amateur observer's manual for the I.H.W., so that all observers will be making obervations in the same manner, and using idential sequences of comparison stars. It is also important that those becoming involved in the I.H.W. practise their observation techniques by viewing all available comets during the coming year.

I am serving in the I.H.W. as Northeast Visual Recorder. I will be receiving all visual observations and drawings made by amateurs for the I.H.W. in the northeast quarter of North America. Chris Spratt of Victoria is serving in the identical position for the northwest quarter of the continent. Please contact me if anyone would like more information.

With regards to the planet Pluto, my question is: "With how small a telescope can this planet be seen?" Having used my 6-inch/f/5 refractor at my rural observing site in Cavan township, southwest of Peterborough, for very faint variable stars, I realized a few years ago that Pluto, at a predicted magnitude of 13.7 might be glimpsed under favourable conditions. Using my 6" scope at 111x (the high power making the sky background darker, hence faint stars

more easily seen), I was able to see a very dim object at the expected position in the early morning of March 25, and near midnight of May 26-27, of this year. The Pluto charts in the Observer's Handbook for 1984, pg. 107, and Sky & Telescope, Jan. '84, pg. 58 assisted me in my search. In each case, the object seen was not visible on either chart, which claim to show stars as faint as Pluto. In addition, the March 25 field was examined on May 26-7, and the former object had disappeared. Ideally, I should have reobserved the field on the following night, in which case the suspect would (hopefully) be seen to have shifted its position slightly. However, I was unable to reobserve the field under perfect sky conditions before Pluto began dropping too low in altitude in evenings (in June and July) after evening twilight ended.

Hence, I am pretty well convinced that I have seen Pluto with my 6-inch f/5 refractor, but I look forward to repeating the observation early in 1985, when Pluto again becomes well placed for viewing. With Pluto reaching perihelion in 1989, the planet is now nearly as bright as it ever gets. However, it is shifting southwards in declination by about a degree per year, becoming less well placed for Canadian observer. In 1984, it is about 5° north of the equator, but it crosses the equator in 1988, and in the year 2000, will be 11° south of the equator, reaching a maximum altitude of 35° for southern Ontario, as compared to 51° this year. Pluto is now too near the sun to see, but I would challenge other amateurs with access to dark-sky sites and six-to-ten-inch telescopes to look for it in 1985. The next few years are the best for observing Pluto until the twenty-third century.

Yours truly,
Warren Morrison.

P.S. The Observer's Handbook places Pluto about one minute of arc north of the path in Sky and Telescope throughout 1984. My observations would appear to show the Observer's Handbook to be more nearly correct.

In answer to Warren's question about seeing Pluto with a 6" instrument from his dark site, there is no doubt in my mind that it can be done under the conditions described, especially by an observer of Warren Morrison's skill.

Pluto is currently listed as being at magnitude 13.7. The chart listing Telescope Parameters in page 13 of the current Observer's Handbook gives 13.6 as the limiting magnitude for instruments of 150mm.; that is slightly less than 6 inches. Using the revised and refined edition of the formula for limiting magnitudes given in the article on the subject in the June 1973 issue of Sky and Telescope, I calculate a limiting magnitude of 13.68 for an instrument of 6 inches. Like the task of locating Crater Beals on the limb of the moon, seeing Pluto with a 6-or 8-inch instrument is very challenging, but it can be done.

TYPES OF SUNSPOTS

As a result of my talk and slide presentation entitled "Observing Sunspots" given at the Kingston Centre meeting on September 14th, I have been asked to publish the listing of standard designations that have been used for types of sunspots. Listing the types of sunspots observed is, of course, only one of pieces of information that should be given, when an observer records or reports his observations. In addition, he should give the time, the Relative Sunspot Number, and as well, a brief anecdotal report on the spots seen; merely naming the types and giving the R.S.N. is not enough.

The following descriptions of the types are not intended to describe with extreme precision every possible sunspot; they are general guidelines regarding the main types that are usually seen. However, even among skilled and experienced solar observers there is sometimes disagreement about the description of the sunspots seen—even when the observers have seen them under similar conditions and through instruments of similar aperture.

By international agreement, sunspots are classified into nine types designated by the letters A to J. The classification is as follows:

A - A small single spot or group of single spots with no surrounding penumbra.

B - similar to A, but the spots show definite association with one another or definite formation or pattern.

C - a bipolar group in which one of the major spots or the largest spots are surrounded by one penumbra.

D - a bipolar group in which the larger major spots are surrounded by penumbras.

E - a large bipolar group (larger than 10° across) with the major spots having penumbras and with smaller spots between them, sometimes also having penumbras.

F - a very large bipolar group (larger than 15° across) with major spots having penumbras and also with small random spots.

G - a large bipolar group (larger than 10° across) but without the small random spots.

H - a large major spot surrounded by a penumbra with small single spots nearby (larger than 2.5°).

J - a single spot with a penumbra (smaller than 2.5°).

Best of luck in your solar observing!

CONGRATULATIONS TO THREE MEMBERS OF OUR SOCIETY

He has done it again! For the fourth time in a few short years Rolf Meier has discovered a comet.

This time Rolf's discovery was made after 86 hours of searching with the Ottawa Centre's 16-inch telescope. The event happened on the night of September 17-18th when a faint, fuzzy object of 12th magnitude was seen in the constellation Bootes. Subsequently it was confirmed as Comet 1984O and it will bear the name Comet Meier 1984. Members of the Kingston Centre join with astronomers across the country in congratulating Rolf on this significant achievement.

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Three minor planets have also been named after noted Canadian astronomers. On May 15 of this year the announcement was made that Minor Planet 2917, which had previously received the designation 1980RR, would be called Minor Planet Sawyer Hogg. It is a tribute to Dr. Helen Hogg of the Toronto Centre, former president of our Society, and for over 35 years an astronomy educator, author, columnist, and researcher. The 13th magnitude asteroid was discovered on September 2nd, 1980 by Dr. E. Bowell of the Anderson Mesa Station of the Lowell Observatory in Arizona, and the name was proposed by Chris Spratt of the Victoria Centre of our Society.

On September 10th, 1984 the announcement was made that a minor planet of 12.5 magnitude, previously and temporarily designated Minor Planet 1981YB, would be henceforth called Planet Mailman. This asteroid which is number 2904 was discovered on December 20th, 1981 by Dr. Bowell and the name pays tribute to Dr. Millman, the honorary president of our Society, who has been a member for over 60 years and is known to astronomers everywhere as an authority on meteors, meteorites, comets, and planets. The name for the asteroid was proposed by the discoverer following a suggestion made by Mr. Spratt.

We extend our sincerest congratulations to both Dr. Hogg and Dr. Mailman. There are not very many Canadians who have served the cause of astronomy any better than they have!

The September 10th announcement also listed an asteroid whose designation will memorialize the names of two famous Canadians of previous generations. Minor Planet 2905, previously designated 1982BZ2 and discovered by Dr. Bowell on January 24, 1982, will be called Planet Plaskett after J.S. Plaskett (1865-1941), director of the Dominion Astrophysical Observatory in Victoria from 1917 to 1935 and a great pioneer in stellar research. It will also commemorate his son, Henry Hemly Piaskett (1893-1980), a theoretical astronomer and authority on galactic rotation.

An appreciative remark should be made on behalf of Mr. Chris Spratt whose suggestions led to the naming of all three of these minor planets.

FOR YOUR CONPENDIUM OF ESOTERIC FACTS

When we think of variable stars we usually think of stars whose period of variability is expressed in days—often in terms of weeks, months, and sometimes years. Did you know that there are, however, stars whose period is expressed in minutes? In 1952, the discovery was made that the star SX in the constellation Phoenix had a period of 79 minutes! Another similar object exists in the constellation Aquarius, which can be seen from our latitude, unlike the star previously mentioned; it is CY Aquarii and has a period of only 88 minutes! These strange stars and a few others like them, all with very short periods, have been designated “Dwarf Cepheids”.

REPORTS AND OTHER ITEMS

1. Bad weather has hampered observing, but some of us have been able to take note of a few events. Solar observers have been surprised at the complete absence of sunspots on quite a few days in the past two months; granulation and faculae, however, have been noticeable. On the night of August 25-26, the shadow transit of the satellite Callisto across the northern region of the disk of Jupiter was a remarkable event. On August 30th and 31st and September 30th there were opportunities to observe and photograph Crater Beals because the longitudinal lunar libration was very favorable on those dates. On several nights particularly September 4-5 and September 22-23, I also observed an auroral display.

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2. In a letter written on August 29th and received on September 7th, Gus Johnson informs us of a supernova suspect he has spotted in NGC 7606 in Aquarius. He first noted it on August 21st at 1:20 a.m. E.D.T.

3. A letter from Paul Brown in Calgary tells us that things are going well with him and his family and that he is enjoying the challenge of a new job.

4. Dues are due! The membership year begins this month and now is the time to remind all our Regular and Youth Members that their membership fees for 1985 are now due. For Regular Membership it is $25.00, and for Youth Membership it is $15.50. Payment should be made to the Treasurer — R.A.S.C. Kingston Centre and mailed to the address given below or handed in at one of the regular meetings.

5. Here is a list of events which should be considered worth observing in the next two months:
   1) Mars is a delight to observe as it moves away from Jupiter in the evening sky and moves through Sagittarius, Capricornus, and Aquarius.
   2) Venus will become more noticeable as it moves higher into the western evening sky. On the night of November 18-19, try to observe it, as it will be extremely close to the star, Lambda Sagittarii, the star at the peak of the teapot of Sagittarius. On the night of November 25-26, the close conjunction of Venus and the three-day-old crescent moon will make a spectacular picture low in the western sky.
   3) Asteroid observers should note that one of the biggest and brightest, Ceres, is near opposition and may be observed fairly easily. Consult the map on page 118 of the Observer's Handbook.
   4) Among the upcoming meteor showers, don't miss the Leonids which may be seen between November 14th and 20th.
   5) The solar eclipse of November 22 is not visible from this hemisphere, but we extend good wishes to the members of the Toronto Centre who are travelling to the South Pacific for what should be a spectacular minute and a half of totality.

6. This is a calendar of upcoming events and meetings:

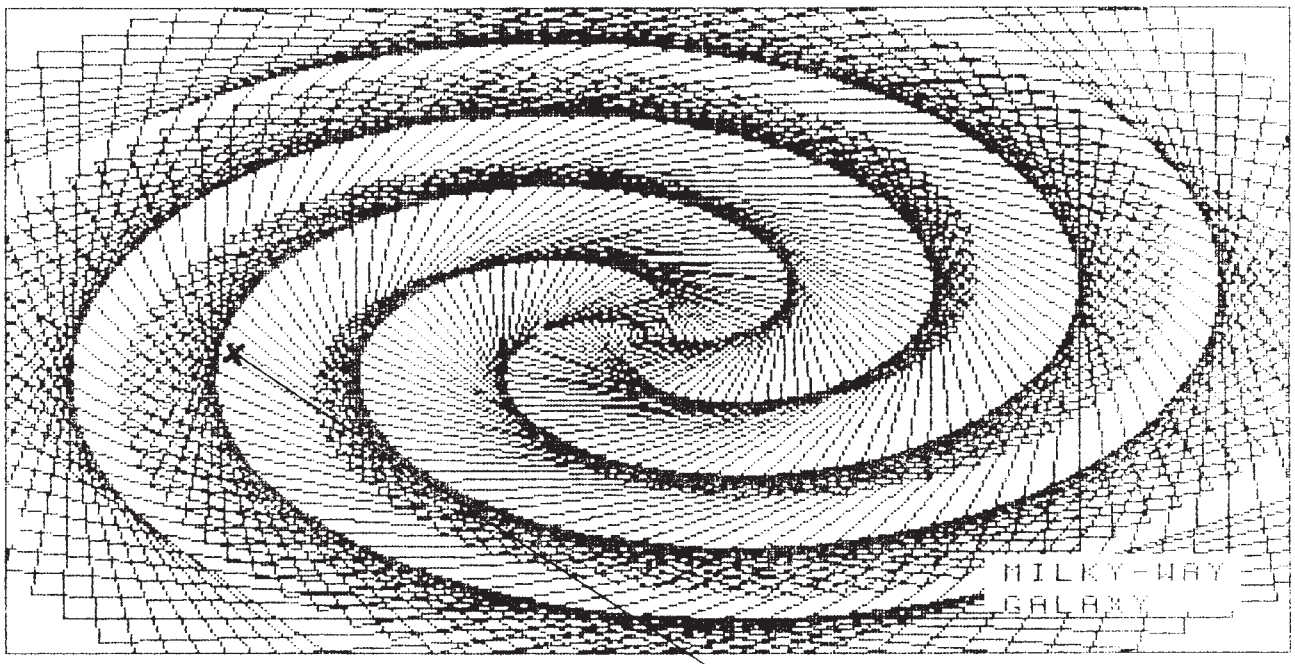
Oct. 26	Leo Enright:	Amateur Planning to Observe Comet Halley
Nov. 9	Sue Sorensen:	Outstanding Women Astronomers
Nov. 23		Annual Dinner and Annual Meeting
Dec. 14		The 1985 Handbook: A Wealth of Information
Jan. 11/85	Murray Anderson:	Planetary Trajectories & Rocket Equations
Jan. 25/85		To be announced

   The executive would be glad to hear suggestions concerning speakers and topics for meetings in 1985.

   The meetings begin at 8:00 p.m. and are held in Room 222 in Ellis Hall on University Avenue.

7. We are glad to hear from our readers, Our address is:
   R.A.S.C. - Kingston Centre,
   P.O. Box 1793,
   Kingston, Ontario K7L 5J6

Clear skies!
Good observing!
Leo Enright



THE KINGSTON CENTRE IS HERE!

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