R E G U L U S

THE NEWSLETTER OF THE

ROYAL ASTRONOMICAL SOCIETY OF CANADA - KINGSTON CENTRE

APRIL AND MAY, 1982

SPECIAL ASTRONOMY DAY '82 ISSUE

A SPECIAL ISSUE WITH CORRESPONDENCE FROM FOUR DIRECTIONS

Your editor is very happy to have received correspondence from almost every point on the compass. In this special issue you will be reading about members of our centre who have written to us from Peterborough and Calgary in Canada and from Swanton and Tucson, south of the border. Keeping in touch with some of our far-flung members is one of the great joys of our very active centre. Reading about the adventures of Mr. Gus Johnson in Maryland or hearing about our special friends in Arizona and the star party they held in March will be the special treats of this issue.

RESULTS OF CONTEST NUMBER ONE

THE HANDBOOK WAS SCRUTINIZED

In the last issue of our newsletter we announced two contests, the first one of which was designed to help our members become more familiar with our Observer's Handbook, the national publication which has become famous around the world for its wealth of astronomical data and information and which is recognized as the finest in its field anywhere. This Handbook has been, for three quarters of a century, one of the most useful tools available to the amateur (and the professional) astronomer.

To make us all more knowledgeable observers and more familiar with its contents, the contest sent us searching through the Handbook trying to spot any errors--spelling mistakes, typing errors or mistakes of any kind.

As a result of the search, many of us learned a great deal, and your editor thanks those who took part and hopes that you enjoyed it.

The winner was Warren Morrison who pointed out the errors in the maps of Uranus and Neptune on pages 96 and 98. It is a tribute to Warren's skill as a careful observer that he could quickly spot the observed positions of these two planets as being different from their places on the maps even though the difference was less than half a degree.

The prize that Warren received was small but our congratulations are hearty.

Besides the error discovered by Warren, I have observed a number of other small errors or "miscues". Here is a listing of the items that I have noticed to date:

(1) As mentioned above, the paths of Uranus and Neptune on the maps on pages 96 and 98 are slightly incorrect. (See Warren's letter which follows this article.)

(2) An innovation this year was the use of a "symbol-index" in the left-hand margin of the even-numbered pages. However, the one on page 118 is missing.

(3) On page 9, among the Satellites of Jupiter, the one called Sinope, discovered in 1914, has the accompanying Roman numeral "XI". The Roman numeral with Carme, a satellite discovered in 1938, is also "XI". To correct the situation, the numeral with Sinope should be changed to IX mine).

..2

(4) On page 9, assuming the convention is to list the Satellites of Saturn in order of their mean distance from the planet, the satellites listed as “Thethys A” and Thethys B" should be moved up two positions on the list and placed next to the satellite "III Tethys" because they are co-orbital with it.

These objects are very interesting, by the way, since they are the first known Lagrangian moons in our solar system. It should also be noted that the object called “Thethys A” on the list and noted as librating about the trailing Lagrangian point (L_5) is also frequently called “1980 S25”. Similarly, the one called “Thethys B”, librating about the leading Lagrangian point (L_4) is often called “1980 S 13”.

(5) The spelling of the two Lagrangian moons mentioned above should be "T⌣ethys A” and "T⌣ethys B"--the same as that for Tethys, the satellite with which they “co-orbit”.

(6) Alternative listings name the “leading Lagrangian moon” first (1980 S13) and the “trailing Lagrangian moon” (1980 S25) afterward. However, it probably remains to be seen--what the conventional order of listing them will be.

The seventh item is not an error but just an inconsistency because a convention has not yet been established. The co-orbital moon of Dione is given as 1980 S6, with its letter (B) given in a footnote, while the moons of Tethys are given their letters (A and B) in the main part of the chart. Doubtless, a "naming convention” will be established within a couple of years for such "co-orbital satellites”.

Here is the letter I received from Warren:

Peterborough, Ontario
Feb. 11, 1982

Dear Sir:

Regulus, for Feb.-Mar. 1982, pg. 5 announces a contest asking readers to find and report any errors in the 1982 Observer's Handbook.

The article prompted me to report an error I found a few weeks ago to Roy Bishop, the handbook's editor, and I also report it here. The charts for Uranus on pg. 96 and Neptune on page 98 show each planet about half a degree too far east on any given date. This error is evident from my own observations and also from comparing these charts to those in Sky and Telescope, Jan. 1982, pg. 65. Evidently, in preparing the handbook, planetary coordinates given for epoch 1982 were plotted on a star chart for epoch 1950.0. The precessional shift during this period is almost half a degree, thus explaining the discrepancy.

Pointing out this error will make things a little easier for members of the Kingston Centre who wish to observe these planets during 1982.

Yours truly,

Warren Morrison

I would like to point out that Dr. Bishop has informed other observers of this error, through a letter of his which appeared in the March issue of Sky and Telescope.

FROM OUR ACTIVE OBSERVER IN MARYLAND

This month I received another very interesting letter from Gus Johnson. He was kind enough to send along with it an A.A.V.S.O. map of the area around the

..3

variable star R Monocerotis along with his calculated predictions of where the asteroid 433 Eros would be from March 18th to March 21st. Unfortunately cloudy weather and a snow storm prevented our trying to spot the asteroid on those dates. (Note: In a previous letter I had asked Mr. Johnson if he had ever observed Auroras or Zodiacal Light.)

Swanton, Maryland,
Feb. 22, 1982.

Dear Mr. Enright:

Although cold, January permitted a fair turnout of variable star observations. Only twelve have I for February and, of course, the Eros crossing of the V Tauri chart was missed. But I got to miss the crossing for twice as long as "Sky and Telescope" readers who had only its chart! If my calculations (?) are correct, Eros will cross the R Monocerotis chart March 18-21; so we have another opportunity. Enclosed are two charts for this area. R Mon was the first object photographed with the new 200-in. reflector and is a curious object even in 6 to 8-in. telescopes. Photos with large telescopes show details moving at the speed of light, and are assumed to be therefore shadows. The Christmas Tree Cluster also is a nice one and contains the Cone Nebula or as some call it, "The Madonna and Child. Until recently I had not plotted the nebula in the cluster and therefore missed this dim object. It is worth seeking on a very clear night. There is dim nebulosity in the area. I see in my observation notes of 8 yrs., 1 month ago that with my 6-in. at 59x I mistook it for the Rosette, seeing a ring, one quarter illuminated and 3/4"visible" by obscuration.

Last month I sent off my 4¼-in. f/7 and my 8-in, mirrors for re-aluminizing and now have them back, in time for the spring galaxies, weather permitting. Before cleaning my 8-in. primary last summer I think I rinsed any large dirt particles off using my iron-rich faucet water. Evidently microscopic iron particles stuck to the mirror and proceeded to deteriorate the surface. It looked very badly in December and had to be re-coated. I had not cleaned the diagonal, and it showed no sign of deterioration, but I had it re-coated so both would be at maximum reflectivity.

Only once have I seen zodiacal light, and not from where I live where the horizons from only SE through SW are low, but at Cranesville Pine Swamp on the Maryland-West Virginia border, some 15 miles from here, an area with a cold sub-arctic climate, and a biological preserve. The horizon is flat in the west. I didn't take any photos. Aurorae are also rare. I suspected one last month as (if I recall rightly) I struggled to get in some more observations of some Lacerta variables as they went behind the trees to my NW.

I have not done any serious observing of the planets of late. Since I use the Julian Calendar I thought it might be interesting to get in a few observations at the very end of a thousand-day period, Jan. 28th JD 4999.0, so I did have a 2.4-in. out viewing the four bright planets. Poor conditions did permit one hazy observation of that suspected Pleiad variable two evenings hence. JD 5000.5.

I have only seen a few asteroids in my life. Variable stars take most of my observing time. If I was not an AAVSO-er, I think seeking out asteroids could be fun, but without adequate charts they can indeed be elusive, and sometimes with charts. Since I have charts for over 220 variables, asteroids often cross my fields, I am sure, but I do not get “Tonight's Asteroids” to be made aware of it. Time dose not permit it. As with Eros, two of my areas, at least, could be used for this apparition. Just picking out a "new" star in a field is a good observational exercise. (Last month I came upon a mag. 12.8 star in the R LAC, area worth my keeping an eye on, ere I lose that part of the sky. (It could be simply a chart misplacement or error or omission.)

..4

I see in "Regulus" that there is to be a talk about “Astronomy In the Bible” on April 2nd. I have studied the Bible, having read it 11 times, and of late have made notes of astronomical references, and they are not a few.

At the Amateur Astronomers Association of Pittsburgh meeting recently I heard that the Sun has been unusually active and 150 spots were sighted at one time at Allegheny Obsy. I then looked at the sun and noted that they were indeed numerous. I had the idea that sunspot maximum was already past. So we know what fed the flames of your early February aurora.

Gus Johnson.

Once again we thank Mr. Johnson for a very informative letter.

THE LETTER FROM ALBERTA

The correspondence from Alberta was about the arrival in Calgary on January 8th of Lindsay Erin Brown whose proud parents are Paul and Elwyn.

Some of us remember Paul as one who served our centre for many years before moving west. He is still an interested member and we wish “Best of luck!” to him and his young family. Our calculations show that the young daughter should be eligible for youth membership until about the year 2000!

FOR YOUR COMPENDIUM OF ESOTERIC FACTS

You may know that because of precession all our star atlases eventually become dated. (It may take many years before an appreciable change is noticed in the coordinates of any given star, but for stars near the equator, the increase in Right Ascension amounts to one degree every 71.6 years).

However, you may not know that if you were living on Mars, your star atlases would become outdated far less quickly even than they do on earth. In fact, it would take approximately four times as long for any star atlas of the Martian sky to become as outdated as its earth-bound counterpart. (Imagine the savings! One atlas could last in a family for many generations!)

The reason is quite simple. Earthlings have noticed that their North Celestial Pole describes a circle in the sky and the Vernal Equinox moves completely round the sky--all in a period of 25,800 years. Exactly the same events occur in the Martian sky but the time it takes for them to occur is much longer; it is 97,000 Martian years. In other words, for stars near the celestial equator in the Martian sky, the displacement in Right Ascension would amount to only one degree every 269.2 Martian years! (Remember, too, that a Martian year is almost twice as long as an Earth-year.)

An additional fact about observing the Martian sky: The stars near the Celestial Equator in the Martian sky are not exactly the same as their counterparts in the earthling's sky since the Martian North Celestial Pole Star is not Polaris. For Martians the Pole Star is much fainter. It is a sixth magnitude star not far from the bright star Deneb in the constellation Cygnus.

REPORTS AND OTHER ITEMS

1. February and early March brought along several nights with good weather for observing. There were a few outstanding Auroral displays and two or three evenings on which Zodiacal Light was easily observable. The best Auroras were on Feb. 1st, 14th, 22nd, 24th, 25th with the best one being that of the 22nd. My best

..5

observations of Zodiacal Light were on Feb. 14th and March 14th, though doubtless, there would have been others if weather had allowed.

2. For Astronomy Day on Saturday, May 1st we have reserved space at the Frontenac Mall for our Centre's display. It is hoped that the weather may be clear so that we may put a sun filter on one of the telescopes and observe sunspots during the day. If weather permits we intend to have a Public Star Night the same evening at MacDonald Park near the Murney Tower.

3. In the month of April, we look forward to having three interesting meetings. Our centre's honorary president and our Society's president will be speaking to us on April 2nd and 16th respectively. We look forward to hearing a talk by Terry Hicks, also, on April 30th. The full schedule for upcoming meetings was given in the last newsletter.

4. We have been informed that our president, Angelika, and her husband will be moving west to Edmonton in December. We certainly wish them well and trust that we will continue to hear a great deal from them.

5. Our centre has accepted an invitation from Parks Canada to put on a Star Night, give a talk, and show slides at one of our national parks this summer. The dates will be June 30th and/or July 28th, depending on the weather, and the place will be the St. Lawrence Islands National Park. We trust that several members will be willing to help with this important educational endeavour.

6. There is a new product on the market that may be of interest to astrophotographers. It is called an "illuminated guider with movable reticle", and is available from University Optics. This gadget differs from most illuminated reticle eyepieces in that it enables any star in the field of view of the eyepiece to be used as a "guide-star", without the need to move the telescope until the chosen star is centred in the field of view at the intersection of the cross-hairs. In this device, the reticle moves to where the proposed guide star is located. It should be a boon to the serious astrophotographer.

7. For the benefit of those who may be interested in past issues of our newsletter, your editor has recently inserted into a binder one copy of all past newsletters that he had in his possession. This binder now presents a kind of running history of the centre. It would be good to be able to say that we had all the newsletters for the past two decades but that is not the case. The first one in the binder is the one for November 1973; and there are all the issues from November 1976 to the present. If anyone has any newsletters of our centre prior to that of November 1973, please let me know.

8. There are a number of celestial events worth planning for in the coming months:
   (1) Over the next three months, <u>all</u> of the superior planets are at opposition and are very favourably placed in the sky for easy evening observation. In the same period of time three of the brightest Asteroids and at least one fairly bright comet are well placed for observation in your telescopes. The dates of the oppositions of the planets and asteroids are as follows: Mars (March 31st), Jupiter (April 26th), Saturn (April 9th), Uranus (May 24th), Neptune (June 17th), Pluto (April 15th), Ceres (May 10th), Pallas (April 1st), Juno (June 24th).
   Be sure not to miss observing Mars which is brighter and larger in your telescope than it has been for a number of years. It is a very interesting sight. (I have recently observed some of its surface features probably more clearly than I have ever seen them.) The comet to be observed is Comet Bowell which is moving eastward through the constellation Scorpius, and, at magnitude 9.4, is much brighter than any of the other predicted comets for this year.

..6

Don't forget also to observe Venus which continues to be very bright in the morning sky.

Mercury will be easy to see in the evening sky during the first two weeks of May. On the ninth of the month, it reaches greatest elongation from the sun and around that date it should be easily spotted low in the west and north of the star Aldebaran.

(2) During the first week in May, do not miss the passage of the planet Uranus between the two components of the double star Omega Scorpii. Uranus is currently retrograding (apparently moving from east to west) and this is the second passage this year of this planet through the double. There will be a third one in November after the planet has begun to move forward again. The two stars are not a binary system but rather are a very wide apparent double near the north-west corner of the constellation Scorpius.
It should be a good time to study precisely the motion of this planet. On April 30th it is only 6'42" north of Omega 2 (also called 10 Scorpii in the atlases), and by May 4th it is only 3'27" south of Omega 1 (also called 9 Scorpii).

(3) There are two major meteor showers which peak in the coming months--the Lyrids on April 22nd and the Eta Aquarids on May 4th. Besides these there are the "April fireballs", a sparse but long-lasting shower that extends over the entire last half of April and often brinqs a few very bright "fireballs". These three showers may be well worth looking for.

9. The month of May brings us our annual General Assembly--this year in Saskatoon. We hope our centre may be represented. If anyone wishes to have details about the events he should see Angelika or me as soon as possible.

10. Here once again for all who are interested is our centre's address:

R.A.S.C. - Kingston Centre,

Box 141, Station A,

KINGSTON, Ontario K7M 6R1

CLEAR SKIES AND

GOOD OBSERVING!

Leo Enright.

The final page is the TUCSON BRANCH REPORT.
"Thank you, Judy and David, for a personalized introduction to our friends in Arizona."

REGULUS
Tucson Report

Edited by Judy Stowell

Guest Editor this month: David Levy

Greetings once again from Tucson, where I have been busily completing my variable star book. Right now, Judy has been busier than I, for she is in the process of final typing of the ms. That's why I am handling this part of Regulus this month.

Our members have been active on an individual basis. Vivian Lewis, our local expert on light pollution, has unfortunately had to move to Utah, but we expect that who will continue to keep up her interest and correspondence with both the Tucson Amateur Astronomy Association and the Kingston Centre.

Jim Scotti had an unusually interesting winter vacation with his parents in Washington, DC. He was visited by none other than Peter Jedicke and Diane Kapitaniuk of the London Centre, and together they memorised all the exhibits at the Smithsonian's Air-and Space Museum. I'm sure that Peter tried to get Jim to transfer to London, and I'm just as certain that Jim wants to stay with Kingston. Imagine a rivalry between two RASC centres to see who can get the most Tucson members!

Terri Lappin has begun work on a 100 -sorry- a ten-inch reflector. Her 6-inch telescope is one of the finest I have seen and used and that one had been made entirely by Terri.

And now, ladies and gentlemen, meet Stuart Cramer, whose work at Flandrau Planetarium has now spanned over a year. His observing equipment consists of an 8-inch celestron, and his site is in Tucson, not far from the Planetarium.

Jim Wright also is with the Planetarium staff as one of our most competent technical assistants. In charge of maintaining the exhibits, many of which are of the interactive type, Jim spends many hours tinkering with them.

On Saturday, March 13, the Tucson Branch will hold a special meeting at Jarnac Observatory in conjunction with the Astronomical Society of Albuquerque, N.M.

Of course, I must not forget our senior members, Rik and Dolores Hill who are better known than most of us to the members in Kingston. Both now happen to have jobs at locales that would be the envy of astronomers of many countries. Rik finds himself working for an observatory on Kitt Peak and Dolores is now working at the Lunar and Planetary Lab. in Tucson.