



## R E G U L U S

THE NEWSLETTER OF THE

ROYAL ASTRONOMICAL SOCIETY OF CANADA - KINGSTON CENTRE

MAY, JUNE, 1985

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### INTERNATIONAL ASTRONOMY DAY, 1985 A PLEASANTLY SUCCESSFUL EVENT FOR THE KINGSTON CENTRE.

On Saturday, April 27th, the members of the Kingston Centre enjoyed one of the more memorable and successful Astronomy Day events since beginning such activities at least five or six years ago. The Cataraqui Town Centre was the setting as we took advantage of this day to join with astronomers in many countries of the world in order share with the public our fascination with astronomy. The success of the mall display we organized was due only to the hard and patient work done by a good number of our members. Some of our members spent over an hour on Friday night setting up tables at the Town Centre and preparing for the following day. At 8:00 a.m. the next morning they were back again working on the many exhibits which drew favorable comments from a good number of the public. Throughout the day and right up until 10:00 p.m. some of our members were there hour after hour - meeting the public, discussing our projects, talking about our Society and our activities, and generally being fine ambassadors for the science of astronomy. The equipment display included two eight-inch Schmidt-Cassegrain telescopes, a pair of Zeiss binoculars, and other small astronomical telescopes. On display also were award-winning photographs, magnificent posters, a constellation-recognition game, a book exhibit, and an astronomical "trivial pursuit game". Hundreds of pages of information were distributed free of charge - a five-page package of information on Halley's Comet in which there was considerable interest, a star map for the month of May, and information on the Society, our Centre, and our upcoming meetings with their special guests. The publications of the Society were also on display. A slide projector gave a continuous showing of over two hundred slides provided by our members. A new feature for this year was the display provided by David Stokes of computer calculations for the orbit of Halley's Comet.

Throughout the day the weather was very cooperative and two half-hour sessions (from 11:30 a.m. until noon, and from 3:00 to 3:30 p.m.) for solar observing were organized by David Stokes and Leo; a properly filtered telescope was set up near the mall entrance, and the sun, also unusually cooperative for the day(!), provided one of the largest groupings of sunspots in a long while - a display, in fact, of twenty-two spots, three of which were exceptionally large and in groups near the centre of the solar disk.

In the evening the weather, which had looked so promising during the day, was less than ideal for our Public Star Night, as persistent and murky clouds prevented any serious observing of objects other than the moon. However, a half-dozen telescopes were set up near the shopping mall and for a period of almost two hours a good number of people showed up to have a look at lunar craters. As on previous occasions, it was rewarding to hear children exclaim with delight on having their first telescopic view of an array of craters and mountains on the moon. Such are the

experiences that make the efforts all worthwhile.

Every year our Kingston Centre activities provide us with ideas for improving the concept and the methods we use in "taking astronomy to the people". A careful noting of the successes and of the things that require improvement is bound to lead to further improvements in our public presentations for this very important occasion.

A note of thanks for making our Astronomy Day venture a success must certainly go to David, our president for his displays and organizational efforts, to Martyn and Leo for their contributions of equipment and exhibits, to Murray Anderson and Ruth and Terry Hicks for their time also. Another factor in our success, surely, was the publicity provided by the local media; two of the radio stations aired an interview and the newspaper provided a short article on our activities. Above all it was the co-operation of many members of the Kingston Centre which made possible our feeling that the long and eventful day had been a very full and rewarding one.

OUT OF THE CRADLE: A BOOK REVIEW  
by TERENCE DICKINSON

[Editor's Note: After publishing in our last newsletter his review of the movie, 2010, I am very pleased to have received a second review from Terence Dickinson, this time for the book, Out of the Cradle.]

Everyone has vivid memories from childhood of certain pivotal events that act as stepping-stones toward a lifelong interest or avocation. One of these moments for me happened 30 years ago this month when I first explored the astronomy section of the local public library. Among the half-dozen or so astronomy books was The Conquest of Space, written by Willy Ley and illustrated by Chesley Bonestell.

The magic moment occurred when I opened the book and saw for the first time incredibly realistic colour paintings of humans exploring other worlds. There were spacesuited explorers floating in front of the face of Mars in the low-gravity environment of its moon, Phobos. Elsewhere, astronauts clamoured over the rocks of Saturn's moon, Mimas, with the giant ringed planet as a stunning backdrop.

Bonestell's renderings of the planets, from the seething surface of Jupiter to the icy landscape of Pluto, were so realistic I could scarcely believe my eyes. And this was 1955, a time when few people gave credence to the possibility that humans would ever walk on the moon, let alone that it would happen within 15 years.

Bonestell was decades ahead of his time. He began painting what are now called spacescapes in 1947. A few years later, his work appeared in Look and Collier's magazines to illustrate articles by Wernher von Braun, another visionary who, at that time, was describing in reasonably accurate detail a space station not unlike the one the United States is planning for 1992.

Today a new generation of space artists is creating illustrations equally as imaginative as Bonestell's but with far more technical accuracy because so much more is known. Yet, it is rare when a book appears that has the impacts of that 1950's classic by Ley and Bonestell. The best one that I have seen in years, one which I feel is a landmark work in the field, is Out of the Cradle: Exploring the Frontiers Beyond Earth (Workman Publishing) by William K Hartmann, Ron Miller, and Pamela

Lee, three skilled space artists. Hartmann is also a professional astronomer and provided the text for the book. This is a hard combination to beat: 103 wonderful paintings, all in full colour, accompanied by a readable and authoritative text.

Many of the illustrations have a freshness and appeal that reminds me of the pacesetting Bonestell work. We see astronauts exploring a dry riverbed on Mars and climbing an ice mountain on one of Saturn's moons with the giant ringed planet filling the sky behind. Using an aircraft, astronauts explore the atmosphere of Saturn's giant moon, Titan, and robots land on a comet's nucleus, and on and on.

There are views of every planet and most of their satellites in astonishing realism and technical accuracy. Out of the Cradle is published in a high-quality paperback edition selling for less than \$20 in most bookstores. This is the best book of its type in print.

A LIST OF "STAR CHAINS" COMPILED BY GUS JOHNSON

[Editor's Note: I was very pleased when, about a month ago, I received a letter from Mr. Gus Johnson, our member and well-known observer who resides in western Maryland, south of the border. Mr. Johnson ought to be equally well-known for his astronomical record-keeping and compilations, as will be evident from the letter I refer to -- part of which is printed below. In it there is mention of approximately twenty "star chains", a listing that could provide an observing project for any amateur with a small to medium-size telescope. Our thanks are extended to Mr. Johnson for sharing this list with us.]

RD 2, Box 67,  
Swanton, MD. 21561  
March 30, 1985.

Dear Mr. Enright,

Observing has fared rather well. Early this month I came upon a feature that I couldn't find in the moon books I have and wondered if I had a previously unrecognized impact basin. I wrote it up for the president of the American Lunar Society. He was delighted but later found that the big maps made from the Orbiter photos had the area identified indeed as an impact basin.

I have long been interested in star chains. Dr. B. Cameron Reed's article in the recent Journal of the R.A.S.C. on star clusters prompted me to put in writing my ideas and send them off to him (copy enclosed). There hasn't been time for a reply.

A few nights ago I saw a meteor cross the moon. I was using my 8-inch at 192x, viewing the unilluminated part, when it crossed in about 1/4 sec., firecolor. About 12' were traversed, going westward. May I suggest this as a unique project for meteor watchers? When a rich shower is expected and the moon is a crescent phase, especially morning crescent, view the moon with the bright portion just out of the field.

Clear skies,  
Gus

Following is the letter to Dr. Reed:

Dr. B. Cameron Reed,  
Department of Physics,  
St.. Mary's University,  
Halifax, N.S.

Dear Dr. Reed:

Your recent report on the cluster Ruprecht 36, in the Journal of the RASC was read with interest. It brought to mind a subject of interest to me for many years, but as an amateur astronomer, I haven't the facilities to make a proper study as you did of Ruprecht 36. The subject is star chains. Are they chains of alignment or are there some indications of a common origin? Certain of the known star clusters show chains, like M35, M41, and M30. While some must be optical alignments, I cannot but feel that some of the chains tell something about how the stars came to be formed. Otto Struve wrote an article on the subject in the April 1954 "Sky and Telescope" showing two chains in Northern Cygnus and in particular studying alleged chains in the filaments of the Veil Nebulae which he concluded were unfounded, yet without discounting that chains could have a common origin. The Veil Nebula seems clearly to be the result of an ancient supernova blast wave that swept up material over the thousands of years, too tenuous to produce stars, but the principle is accepted that shock waves from supernovae hitting dense interstellar clouds can trigger star formation. While globular nebulae can be set to forming stars, it seems possible that sheets of gas and dust, if dense enough, might also be capable of forming stars; where seen face-on, the new stars would blend with the starry background and foreground, but where seen nearly on edge, the appearance would be as a chain. The star chains seen in certain clusters may well evince a gravitation affinity to themselves to a greater degree than to other members of the cluster and retain this long after the rest of the cluster has dispersed, and so give rise to isolated star chains. It may be that some techniques that you employed on Ruprecht 36 could show a common origin for some of the star chains.

My astronomical work is mainly monitoring variable stars for the AAVSO and searching for supernovae. I also make note of curious asterisms like triangles and star chains. Following are chains I have noted in addition to the ones mentioned above:

1. The Ursa Major Moving Cluster has at least four in a curve.
2. The lesser UMa Cluster, N. of Zeta and Eta, are in a gentle curve.
3. The Pleiades show several possible chains.
4. "The Kemble Cascade" is rich with stars, running about 3° N. and W. of the cluster NGC 1502 in CAM.
5. One runs SW. of 13 LAC.
6. A four-star chain noted approximately 1 1/2° from Mu CEP.
7. Struve 385 CAM may be central in a chain running N. and S.
8. M35 in GEM has an obvious chain, my attention to it being brought by George Kelley Jr. of Glade Spring, Va.
9. Near (within a degree or so of)  $\zeta$  2470 and 2474, which I call the "Twin Doubles", I noted two chains, the one with five stars and the other, being dimmer, may also have five. This is in Lyra.
10. Near  $\beta$  975 in Lyra I noted a 5-star chain.
11. In Taurus making an isosceles triangle with Zeta and M1 I saw a chain running approximately away from Zeta, with a triangle at the end.
12. In M24 SGR in the main dark lane at apex of two curved star chains is a triple star, but being in such a rich area optical alignments are more likely.
13. In the Delta SGR - NGC6624 field is a long chain crossing the 8 - inch 58x field.
14. In CAS 3/4° from M103 is a tight five-star chain, the second star from one end being cross-wise equal double. 116x is better than 58x for viewing it.

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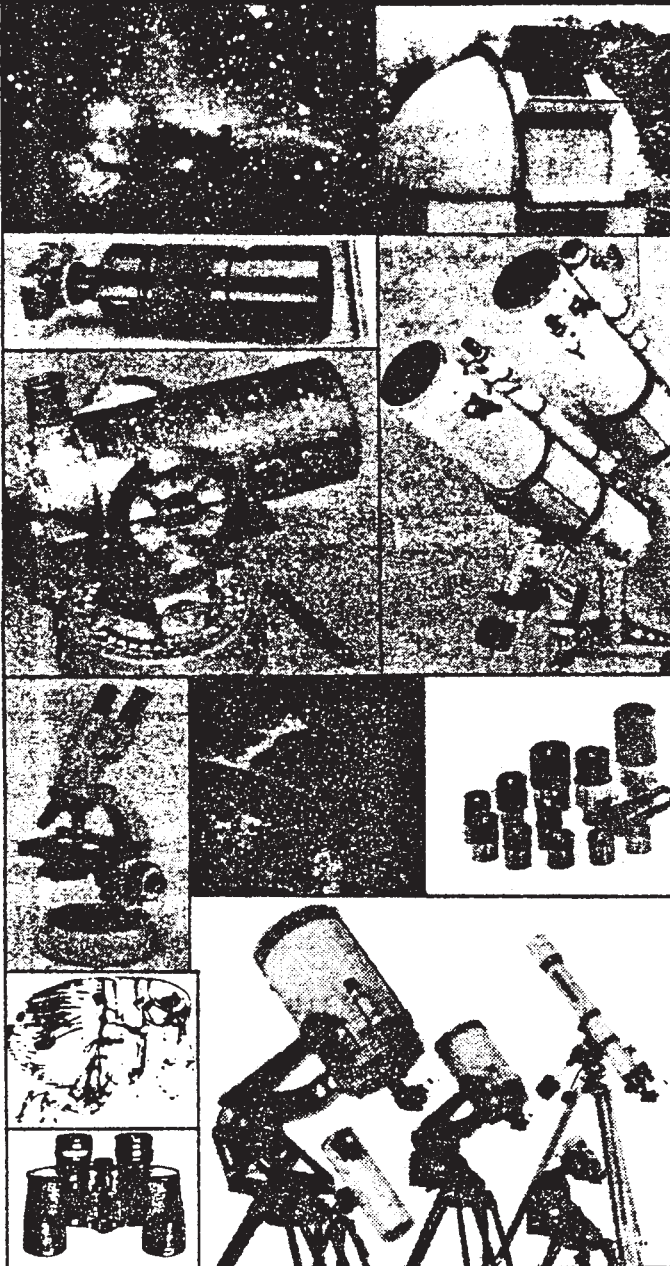
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15. A chain was noticed in NGC 752 AND.

16. At 17h 25m , -35°, in SCO is a four-star chain running approximately N. and S., nicely seen with binoculars.

Sincerely yours,  
Gus E. Johnson.

## TWO "COMET" BOOKS

Observe Comets: The Association of Lunar and Planetary Observers' Guide To Cometary Studies by Stephen J. Edberg and David H. Levy. Pages 56; 21.5cm X 28cm. Astronomical League Publication. 1985. Price (U.S.) \$5.00.

Anyone interested in observing, studying, or generally reviewing what is known about comets would surely be interested in the latest of the Astronomical League's observing guides. It is called simply Observe Comets and was written by two individuals who are eminently qualified to direct those who might be interested in observing the noted visitors from the outer reaches of our solar system.

David Levy, our Centre's vice-president, has spent almost a thousand hours in the past two decades searching the skies for new comets. His recent discovery of Comet Levy-Rudenko (1984t) is noted with the cover of the booklet featuring two photographs of "his" comet, one taken by the Lowell Observatory's 13-inch Pluto Telescope, and the other by the Stewart Observatory's 36-inch telescope of Kitt Peak. The superbly clear text regarding search procedures and techniques was obviously written by someone who has hunted carefully for many years; such sections as those dealing with comets in history were evidently written by one who understands how Victorian poets and writers of past eras could appreciate and describe these mysterious visitors from space - how they described them with awe and words of poetic power.

Stephen Edberg, the Coordinator for Amateur Observations during the International Halley Watch, is also an experienced amateur astronomer and he has worked professionally as a researcher in solar physics for a number of years. His contributions to the booklet are evident in the areas describing cometary phenomena and certain procedures for cometary studies.

This booklet can be an extremely useful guide to observers, especially of comets. It has a small amount of mathematics, but this should not frighten away anyone who cringes at formulae and numbers; its organization is simple and straightforward. There are clear explanations of the forms to be used; the glossary of terms is very good; an extensive listing of publications and "comet organizations" is provided; and a superb up-to-the-moment bibliography is included at the end.

Observe Comets is highly recommended as a most useful compendium for all who presently do, or in future plan to, observe these fascinating interlopers in our solar system.

HALLEY'S COMET: A MYSTERIOUS VISITOR FROM SPACE by Terence Dickinson. Pages 125. 15.5cm. x 23.5cm. Edmund Scientific Barrington, N.J. 1985. No price given.

One of our recent newsletters (November, December, 1984, page 4) listed a bibliography of 15 important pieces of writing regarding Halley's Comet. Another book that should be added to that list is Terence Dickinson's contribution, Halley's Comet: A Mysterious Visitor from Outer Space.

This short non-technical book has a number of attractive features that may make it popular with those who wish to acquaint themselves with basic straightforward information concerning comets, their history, and popular beliefs that have grown up around them at the times of certain comet appearances. The approach is anecdotal and the presentations are interesting; a good many fascinating stories are related in connection with cometary appearances over the past millennia. The book examines in simple terms the theory of the origin of comets, speculates on cometary catastrophes, and give very practical hints for the beginner who wants to view or photograph a relatively bright comet. The selection of photographs and charts was excellent; they include sky maps for observers of Halley's Comet and some of the best photographs of that comet at its last appearance but there are also very fine reproductions of images of the spectacular comets of previous centuries, long before photography was the standard method of recording these intriguing visitors from space.

It may be of interest for our Centre members to note a connection between this book and one of the authors of the previously mentioned Observe Comets. On page 33, a sentence refers to "one of the world's most persistent comet sleuths (who) had spent hundreds of clear nights" searching for these visitors from space.

Terence Dickinson's book can be welcomed by the layman who wants a concise guide to the information available on comets; it will be of interest, too, to many amateur astronomers who will refer to it as Comet Halley approaches visibility this fall.

#### FOR YOUR COMPENDIUM OF ESOTERIC FACTS

Did you know that on the planet Venus the difference in extremes of elevation on the surface are far greater than on Earth. On Earth the difference between the lowest point on land and the peak of the highest mountain is about 9,640 meters. On Venus, it is over 13,680 meters from the lowest elevation to the summit of Maxwell Montes, one of the highest mountain ranges in the solar system. Imagine the rush to build telescopes there if that mountain range were near the equator on Earth! Imagine, too, the cases of altitude sickness if that range were on Earth!! ("Wear your space suits, or don't go up the mountain! ")

#### REPORTS AND OTHER ITEMS

1. Mid-March brought several nights of superb transparency during which your editor observed the Zodiacal Light more clearly than ever before; it was on several occasions clearly brighter than the Milky Way. In fact, it was quite easy to photograph.

Amid times of very little sunspot activity, there was a period in late April when a very large sunspot group marched across the solar surface. Luckily for Astronomy Day observers, the group was almost in the centre of the disk on April 27<sup>th</sup>.

There have been a few occasions when Auroral activity has been surprisingly good though sometimes for only brief periods. One occasion was about two hours after midnight during the night of May 1-2.

2. Although the "Spot an Error In The Handbook" Contest ended over two months ago with none others mentioned to me than the one I had found, David Stokes recently pointed out another one to me. Without designating it specifically, I will say that it is on page 69, near the bottom of the page, and if any observer turns to that page, he should spot it within half a second. Try it!!
3. FOR SALE - A telescope - Tasco 11T, a 4 1/2-inch f-8, body only, would make a good guide scope for a large Newtonian. Contact Mark Kaye. Phone 384-2060.
4. We congratulate Warren Morrison of our centre on his discovery of the variable star RS Ophiuchi during one of its very rare outbursts. We hope to hear from him soon about the details of his discovery.
5. Over the next few weeks you may wish to observe the following:
  - (1) Saturn, at opposition this month, is in the sky all night and is a very beautiful object in the eyepiece.
  - (2) Jupiter, Uranus, and Neptune are all approaching opposition and will be rising earlier as the next two months move by. They will be interesting "summer objects" this year.
  - (3) Vesta continues to be a very bright asteroid. Last month I watched it as it approached naked-eye brightness in the constellation Virgo.
  - (4) Venus is a very brilliant object in the morning sky. Note the interesting configuration it forms with the waning moon in the mornings of May 15, June 14, and July 14.
6. Here is our calendar of upcoming meetings:

May 24	Rolf Meier	A talk by Canada's foremost comet-hunter.
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June 14	OPEN	
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MEETING OF JUNE 28 - CANCELLED BECAUSE OF THE GENERAL ASSEMBLY

July 12	Leo Enright	General Assembly Reports
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July 26	OPEN	
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Aug. 9	OPEN	
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Aug. 23	OPEN	
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At one or two of our meetings during the months of July and August, we sincerely hope to have our vice-president, David Levy, speak to us for the first time since the discovery of Comet Levy-Rudenko. We look forward to the occasion(s) but cannot at the moment say which meetings they will be.

Our meetings are at 8:00 p.m. in Room. 222 in Ellis Hall on University

Avenue. We hope to see you there.

7. LAST MINUTE INSERTION: In a recent letter written to me by Mr. Johnson, he informs us that the lunar crater referred to at the beginning of the letter printed on page 3 above has been pointed out to him by a member of the Association of Lunar and Planetary Observers as the 'Schiller-Zucchius Basin'; the area has a name but it is indeed an area that has received very little mention in the literature on the moon. It is overlooked by most observers of the moon.

8. Our address is:

R.A.S.C. - Kingston Centre,  
Box 1793,  
KINGSTON, Ont.  
K7L 5J6

Clear skies!  
Good observing!

*Les Enright*