



R E G U L U S

THE NEWSLETTER OF THE
ROYAL ASTRONOMICAL SOCIETY OF CANADA - KINGSTON CENTRE

MARCH, APRIL, 1984

NOTICE TO ALL OUR READERS

Our New Address is: R.A.S.C. - KINGSTON CENTRE
P.O. BOX 1793
KINGSTON, ONTARIO
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A Review of

NIGHTWATCH: AN EQUINOX GUIDE TO VIEWING THE UNIVERSE

By Terence Dickinson
160 pages, softcover, \$17.95
Camden House Publishing Limited

There are hundreds of amateur astronomers who would like to have an introductory guide to their hobby, but have never found a satisfactory one. They have turned away from the introductory manuals with their charts, lists, and drawings but no apparent hint at the excitement and wonder of viewing the heavens. They have been equally repulsed by a type of book that presented them with theory or jargon or technical explanations based on a prior knowledge of advanced mathematics or the rudiments of spherical trigonometry. Little wonder that novice amateurs, and many others who are potentially serious observers, should despair of ever finding a guide to the heavens that does not either appear absolutely lifeless, or on the other hand talk down to them and make unfair demands and unwarranted assumptions.

The new book, Nightwatch: An Equinox Guide To Viewing The Universe, written by Terence Dickinson and illustrated by Victor Costanzo and Adolf Schaller, appears to be a long-overdue answer to the needs of many amateur astronomers. Far from being a traditional introductory manual, this invitingly colourful book presents in words and pictures a personable, almost friendly, introduction to the kind of observational astronomy that has captivated its author for many years. A unique publication, it is really a combination of three things: an introductory, non-technical textbook of astronomy, a collection of stunning amateur and professional photographs, and a manual and star atlas with spiral binding for use at the telescope as well as the desk. A few of the chapter titles reveal the range of topics considered: Discovering The Cosmos, Backyard Astronomy, Stargazing Equipment, The Planets, Moon and Sun, and Solar and Lunar Eclipses. The second chapter, The Universe In Eleven Steps presents a kind of "powers of ten" view of the cosmos with the first of the eleven illustrations (all beautifully done by artist Adolf Schaller) being that of a cube of space large enough to contain the earth, the second one considerably larger than the earth-moon system, and the third the inner solar system, and so on with each cube a million times larger in volume than the previous one—until the tenth cube contains superclusters of galaxies in our region of the cosmos, and the last one is larger than the observable universe.

The contents of Chapters Four and Six form an excellent star atlas for any beginning observer in the Northern Hemisphere; in fact, they can be an assurance for him that he will not have to buy any other atlas for at least a couple of years. In Chapter Four, the seasonal maps, to third and fourth magnitude, placed opposite photographic-type planetarium projections of the visible sky, provide simple-to-follow "road maps" of the heavens with arrows emanating from the Big Dipper, the area whence even the most inexperienced observer can learn to navigate the heavens and learn the stellar configurations. Chapter Six contains twenty, much more detailed star charts, each an area of $55^\circ \times 45^\circ$ with stars to fifth magnitude and many galaxies, clusters, and other inviting objects considerably fainter. A handy feature on all the charts is a list of information beside all the telescopically interesting objects: magnitude, diameter, luminosity, distance, sometimes other special facts or a brief comment about the view to be expected in a small telescope or binoculars. Information that may be useful at the telescope is in blue; other facts not relevant to observing are in red and do not pose a distraction to the observer who uses a red flashlight when consulting his atlas. The moon chart, too, is an excellent one listing over 120 distinctive features.

Unlike many guide-books, this one is very practical and up-to-date in recommending what the novice should consider when purchasing his first telescope or binoculars. Chapter 5 explains the traps that many buyers have fallen into in recent years and the factors a wise consumer must consider before making his initial purchase; otherwise, a once or twice-used piece of equipment may spend many years gathering dust in a closet.

One of the most welcome sections is the one called Telescope Experience in Chapter 6 for it tells the beginner that observing is a skill at which he must work; his first telescope is not a television that shows him M42 on Channel 21 and the technicolor vistas he saw in the observatory photographs would not be seen even if he looked through the eyepiece of the telescope that took those ninety-minute photographs. Excellent recommendations are given about recording observations and about using the "star-hopping" method of locating objects rather than relying on setting circles. The section on telescope accessories is adequate for all but the advanced observer, and the comments on eyepieces are up-to-date, non-technical, and should be very beneficial to the beginner who may be perplexed by the array of types currently available. Coverage of the topic of astrophotography is wisely very limited—being no more than two and a half pages—because recent developments have made it a specialized area which the enthusiast is better to explore in periodical literature or pamphlets devoted exclusively to the subject. Well told anecdotes add a "human-interest" to the book. There is a fascinating little story on page 117 of the ancient Chinese astronomer, Gan De, who in 364 B.C. observed one of the moons of Jupiter and wrote that the planet had "apparently... a small reddish star appended to its side." The story of the discovery of the first asteroids in the 19th Century and of the search for a "missing" planet in the asteroid belt of our solar system is unlike all other texts on the subject; it is done without any reference to the Titius-Bodes Law and all technical and mathematical terms are avoided. The author's retelling of his witnessing the awesome spectacle of the 1979 solar eclipse made the chapter on eclipses a special kind of personal writing.

The last chapter, Resources, could be among the most useful for the beginning amateur. The coverage is both thorough and very appropriate, listing, and commenting on, not just the standard annual publications and the periodicals, but also the best of the useful guidebooks and general astronomy references, as well as the suppliers of equipment and accessories, organizations and clubs, and the major observatories in North America.

A few typographical errors appear, but none of them detracts from the generally fine production of the book. The third column on page 118 refers to an illustration of Jupiter which is "far larger in the telescope than any other planet." The illustration showing this is not on page 113 (as stated) but on page 110. Also on page 118, the warning about trying to observe Mercury from a location with an unobstructed horizon should not appear on the Jupiter and Saturn charts; it already appeared on the previous page below the Mercury chart. On Page 112, the words "telescopic subject" should be "telescopic object", and on page 115 the last word is misspelled; the Martian area is "Tharsis", not "Tharis". The chart on page 120 lists Mars in the constellation Capricornus in June 1991, whereas it should be in the constellation Cancer. On page 143, the last sentence of the third paragraph incorrectly refers to "the ancient description stella cometes, Latin for hairy star"; rather, the sentence should be: "The English word comet is derived from cometes (italicized) which is synonymous with the Latin phrase "stella crinita"—translated as "hairy star". Finally on the back cover a painting depicting a view from one of the far distant satellites of our solar system is credited as a "photograph by Ron Miller" (Short of it being a trick photograph, I doubt it!!)

It is very hard to imagine any amateur stargazer who would not be fascinated by at least some parts of this guide to the night sky, whether it is the outstanding, sometimes stunning, photography, the handy informative star charts, the contagious enthusiasm of a knowledgeable author, or his many hints about how to become a better observer. Nightwatch: An Equinox Guide To Viewing The Universe is strongly recommended as the best of its kind.

REPORT OF THE JANUARY NATIONAL COUNCIL MEETING

The National Council of the R.A.S.C. met on Saturday, January 28th, 1984 in the Library of the Society's headquarters at 136 Dupont Street, Toronto. Mr. Franklin Loehde, the National President, chaired the meeting and ten Centres of the Society were represented.

The agenda included reports from officers and several of the standing committees as well as a number of significant decisions and announcements. Mr. Loehde reported that the legal firm which had been consulted concerning the Society's establishment of an endowment fund, as recommended at the last meeting of Council, saw no problem in the institution of such a fund and the measures suggested for its establishment seemed to be quite satisfactory. As a result, Council passed a motion to set up the fund, amalgamating the previously diverse funds (except the Ruth J. Northcott Memorial Fund which is under a separate trusteeship). Mrs. Fidler, our National Treasurer, reported that Mr. Morris Altman, who has served as Auditor for the Society for many years, had indicated that his schedule would not allow him to complete an audit of the Society's finances before March 1, 1984 as was required, and as a result, by a motion of Council, the Finance Committee was instructed to appoint an auditor, subject to ratification by the membership at the forthcoming Annual Meeting.

On behalf of the Property Committee, Mr. Broughton reported that the attempts being made to have the Society exempt from property tax, because of its status as a public scientific institution, were proceeding very well, and though not finally settled, it appeared the Society could confidently expect a refund of last year's tax payed on the office portion of its property. Mr. Broughton also announced his intention of resigning from the committee, after serving on it for seven years, four of them as its chairman. The Society is indebted to him for an enormous amount of work done over those years.

Dr. Halliday reported that the Awards Committee had received nominations for six Service Awards which were approved by Council—to Leslie Powis and James Winger of the Hamilton Centre, Cyril Hallam and Henry Lee of the Windsor Centre, Hugh Maclean of the Niagara Centre and Peter Jedicke of the London Centre. He also reported that the Nominating Committee had accepted six different nominations for a new Honorary Member of the Society and a decision would be announced at the General Assembly in Hamilton. The Committee's slate of officers was as follows: for President: Dr. Bishop; for First Vice-President: Mrs. Grey; for Second Vice-President; Dr. Higgs; and for Secretary: Mr. Broughton. A nomination had been received for Second Vice-President: Mr. Harlan Creighton. An election will be held and ballots will be mailed to members.

As Astronomy Day Coordinator, Mr. Enright reported that very extensive planning had been done in the United States and Britain which is "gearing up" for Astronomy Week, and that he was looking forward to May 5th when a number of centres plan innovative kinds of activities to go along with the "tried and true" projects of mall displays and public star nights. A package of information with ideas and suggestions was approved by Council and is to be sent out to all Centres. It was also announced that in 1985, Astronomy Day would be on April 27th. Dr. Halliday expressed the wish that Halley's Comet Bulletin #2 could be prepared and sent out in time to be used for Astronomy Day this year.

Dr. Percy noted the approaching fiftieth anniversary of the David Dunlap Observatory and to mark the occasion extended to Society members an invitation from the University of Toronto's Department Of Astronomy to attend a special symposium on variable stars tentatively scheduled for July 12th to 14th, 1985.

On behalf of the Hamilton and Niagara Centre, Mrs. Fassel spoke of preparations being made for this year's General Assembly in Hamilton. She reported that Air Canada recognized the G.A. as a convention for which it would give considerable air-fare discounts (and for further information, she suggested telephoning Air Canada's Convention Central at 1-800-361-7585).

Council was happy to have received a letter from Mr. Harlan Creighton who reported that he had received a donation from the C.P.R. of a valuable old railway clock—something that will serve as a reminder of Mr. Malcolm Thompson, a Past-President of the Society, and the transfer of the clock to the Society is to take place at the General Assembly in Hamilton.

Complete approval was given to the amendments made in November to the Kingston Centre's Constitution. In fact, the National Constitution is to be amended so that it says substantially the same thing as the Kingston Centre's Constitution regarding Associate Members who, if the amendment is ratified at the Annual Meeting, may be not just a spouse or children but any other family member, of a member of the Centre.

Further details of these items and others discussed at the meeting may be found in the minutes of the meeting which have been mailed to Centre Presidents and National Council Representatives. Financial statements from the Treasurer and reports from the Editing Committee and Handbook Editor are attached as appendices to the minutes.

In all, a great deal of business was conducted in the second National Council meeting held in the new headquarters of the Society.

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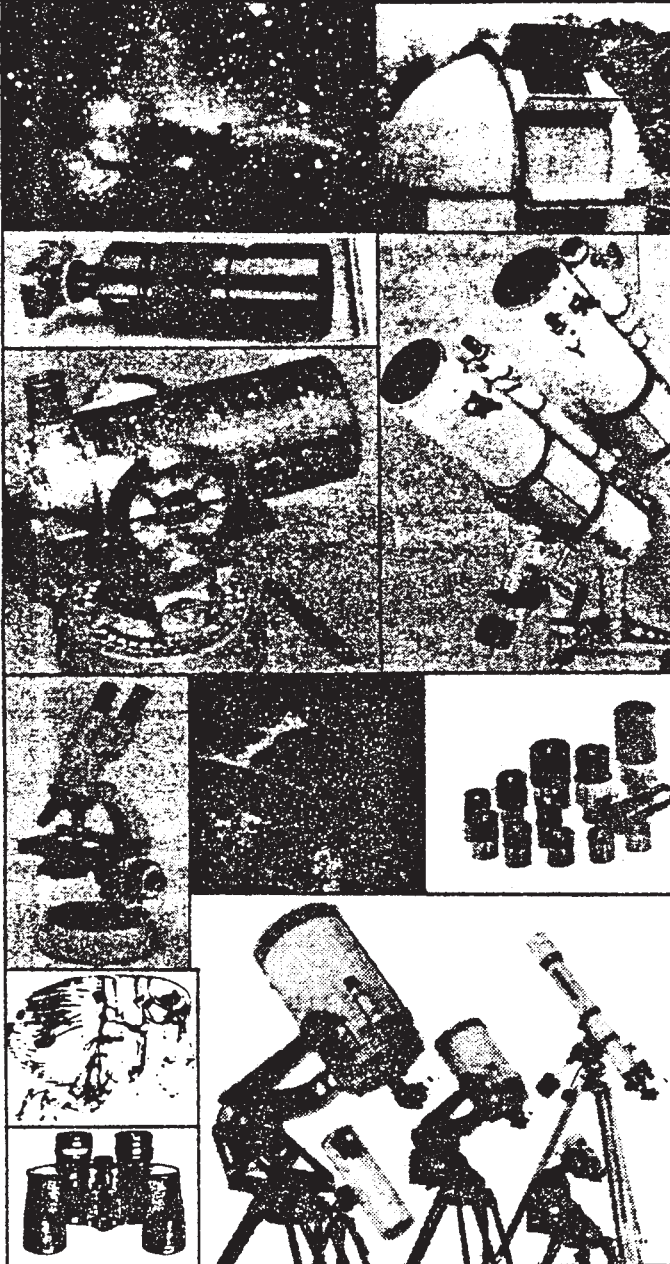
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FOR YOUR COMPENDIUM OF ESOTERIC FACTS

Our esoteric fact in this issue is concerned with how incredibly small a period of time we are dealing with when we use the term Planck time. (Those who attended Dr. Hendrickson's talk at our Centre meeting of February 10th will recall that he used the term to define the tiny fraction of a second after "the Big Bang" within which the conditions of the Universe cannot be explained by any theory.) Einstein's General Theory of Relativity can describe the Universe back to a point 10^{-43} seconds after "the Big Bang" which is the amount of time referred to as "Planck time". (It would take ten-million-trillion-trillion-trillion of such periods of time to take up one second.) Another way of stating it is to say that we could try to think of how long it takes a beam of light (travelling at 300,000 kilometers per second) to travel the thickness of this sheet of paper (0.07 millimeters). That period of time would be inconceivably short, but at the same time inconceivably long when compared to Planck's instant. In fact, Planck's instant would be in the same proportion to that period of time as that period of time is to the total age of the Universe: Inconceivably inconceivable !!!

TWO SPECIAL THEMES FOR THIS YEAR'S ASTRONOMY DAY

As May 5th draws closer and our plans become more definite for International Astronomy Day 1984, we could well remind ourselves that this year's event is being marked by two special themes in addition to the usual concept under which the event has operated for over a decade. Since its inception Astronomy Day has been an occasion when our Centre and quite a few others across the country have had a fine opportunity to realize the first of the five major objectives of our Society, namely "stimulating interest and promoting and increasing knowledge in astronomy and related sciences." The idea of "taking astronomy to the people" is what has given rise to very interesting projects undertaken here and elsewhere—many of them far more innovative and interesting than the usual type of mall display and public star night—both of which can be extremely popular and successful, if well organized.

This year a joint international news release being prepared for the media by the Astronomy Day Coordinators of five large astronomical organizations (the second largest of which is the R.A.S.C.) will stress two themes not prominently mentioned in the publicity surrounding the event in previous years. The first one is Halley's Comet. May 5th will be an occasion when members of the public can talk about the coming apparition of this once-in-a-lifetime heavenly visitor, and obtain some information about when, where, and under what conditions it may be viewed. For this reason, those who are to be involved in I.A.D. activities should make themselves aware, from publications available, of correct and basic information about the comet in order that they may create only realistic expectations about viewing it. Special brochures on Halley's Comet are available from the executive of our centre. Two major publications (mentioned elsewhere in this newsletter) are required reading for those who are seriously interested in the comet; all our members should at least know where such publications can be obtained in order to answer the serious inquiry. A familiarity with the main ideas of some of the major magazine articles of the past year (such as Halley Watch '86 by Stephen Edberg from Astronomy, March 1983; or A User's Guide to Halley's Comet by

Dennis DiCicco From Sky and Telescope, page 210, September 1983; or Brighter Prospects for Halley's Comet, from Sky and Telescope, page 9, January 1984) would be a great help in being able to give correct and definite information on a topic which has certainly fascinated the general public. In fact, we owe it to the public to be as well informed on this matter as we possibly can be.

The second theme mentioned in the joint news release will be light pollution, a subject about which all serious observers know something and have some definite opinions but with which many members of the public have only a slight acquaintance. This topic is one that is of pressing interest this year and next because of the very sobering possibility that the coming apparition of Halley's Comet—though firing the popular imagination—may be something remembered only as a gigantic disappointment, in fact, something not even witnessed at all by countless thousands, maybe millions of the Northern Hemisphere's city and suburban residents, and all because of a problem of artificial light pollution. What a tragedy it would be if the hopes of the present generation were cheated and this generation were the first one in over a thousand years not to see Comet Halley because of the overwhelming brilliance of our city lights. Little wonder that many groups of astronomers have begun to realize that now (and during the coming months) is the time to act and to do something effective about light pollution, to share our concerns with the public and perhaps bring about a "dimming of the lights" during the very early morning hours in March and April of 1986. The effort would be worthwhile if it could give people a proper view of a once-in-a-lifetime spectacle. It would be more than worthwhile if it could mean a marked decrease in excessive illumination which has been identified by Ralph Nader as one of the few "most important forms of energy waste" on the continent.

Let us try to make ourselves as conversant as possible with the information available on these two themes and thereby make Astronomy Day 1984 the best one ever.

REPORTS AND OTHER ITEMS

1. During the month of January, the array of planets in the morning sky was a memorable spectacle. Photographing them at temperatures below -30°C , however, was a considerable challenge for both equipment and exposed skin.

The rapid increase in solar activity as the month of January progressed was quite remarkable. On December 30th, not a single sunspot was to be detected; yet by the third week of January groups of very large sunspots were making their way across the solar disk.

In all there were very few evenings that did not have either heavy clouds, snow, or rain, or else a bright full moon in the sky. One exception was the night of February 1-2, when transparency and seeing were excellent and deep-sky objects stood out against a very dark sky. Such evenings did not come frequently enough to make an observer forget that the Quadrantid Meteor Shower had been completely clouded and snowed out.

2. The "Errors In The Handbook" Contest is over and your editor has awarded his prize to Mark Sorensen for spotting error number four on the list below. Here is the list of errors in the 1984 Observers' Handbook:

- (1) On page 32 the last sentence of the paragraph on the Moon states that there is an occultation of the planet Mercury "on May 18th". This is wrong. The date should be changed to "May 28th".
 - (2) On page 64 the time of Moonset at 44° North Latitude on January 24th is given as 1001. It is incorrect by one hour and should be changed to 1101.
 - (3) On page 78, the first word, "penumbral" is spelled incorrectly.
 - (4) In the Galaxies section, on page 164, the dual designation of NGC 205 is not given; it should be given as M110. The same omission occurs in the chart of nearby galaxies on page 167 where the eighth item on the chart should be "M110 = NGC 205".
3. All members are reminded that the time of the General Assembly, June 29th to July 2nd, is rapidly approaching and they should plan their papers and their displays before long. Details about the display competition are given on page L95 of the December 1983 National Newsletter.
4. A list of events which should be considered well worth observing in the next two months would include the following items:
- (1) For the serious observer the occultation of an eighth magnitude star by the planet Saturn is an important and very interesting event. On the night of March 24-25th a star of magnitude 8.8 will be occulted by the rings and disk of Saturn. Those who plan to observe the event or time it precisely should study the information given in the Observer's Handbook.
 - (2) Observers who have a medium or large telescope and who wish to observe Pluto are reminded that April is the most favorable month this year with the opposition of the planet occurring on April 20th.
 - (3) It may be possible to observe two comets low in the western sky for a period of time after sunset. They are Comet Crommelin and Comet Encke. More information about them may be found in the February issue of Sky and Telescope, page 195.
 - (4) It will be very interesting to observe the brightening of the planet Mars over the next two months, especially as we draw closer to opposition which occurs on May 11th. Also, observe how its size increases noticeably in the eyepiece.
 - (5) Those who were involved in the Sky Search Program from the beginning may wish to return to Stage One and continue the search in the first area which they chose.
5. All those who are seriously interested in observing Comet Halley even if they do not join in the International Halley Watch should consider acquiring one of the following books which contain a great deal of data on the comet:
- (1) The International Halley Watch Amateur Observers' Manual For Scientific Comet Studies is a very thorough guide for observing this comet. As well, it contains a great deal of information about observing any comet, and even about observing many other objects. The cost is \$9.95 and it may be ordered from Sky Publishing Corporation, 49 Bay State Road, Cambridge, Mass. 02238.
 - (2) The Comet Halley Handbook, An Observer's Guide by Donald K. Yeomans is filled with data on Halley's Comet but contains fewer general observing guidelines. A NASA-JPL publication, it is available from Herbert A. Luft, 69-11-229th Street., Box 91, Oakland Gardens, N.Y. 11364 and the price is \$5.25.

6. Here is our list of upcoming meeting dates with the proposed list of speakers and topics:

Feb. 24	Mark Sorensen	<u>The Shape of the Universe</u>
Mar. 9	Leo Enright	<u>Lunar Astrophotography</u>
Mar. 23	Martyn Mcconnell	<u>Frank Drake's Equation For Extraterrestrial Civilizations</u>
Apr. 13	Peter Jedicke	<u>London centre Speaker Exchange</u>
Apr. 27	Leo Enright	<u>Lunar And Planetary Conjunctions</u>
May 5	** INTERNATIONAL ASTRONOMY DAY **	
May 11	Sue Sorensen	<u>Famous Women Astronomers</u>
May 25		<u>Plans For Observing The Partial Solar Eclipse</u>
June 8		<u>Last Minute G.A. Plans</u>
June 22		To Be Announced
June 29 to July 2		<u>G.A. at McMaster University, Hamilton</u>
July 13		<u>General Assembly Reports</u>
July 27		To Be Announced

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

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7. A Poetic Thought:

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(by E. J. Ritter, Jr.)

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