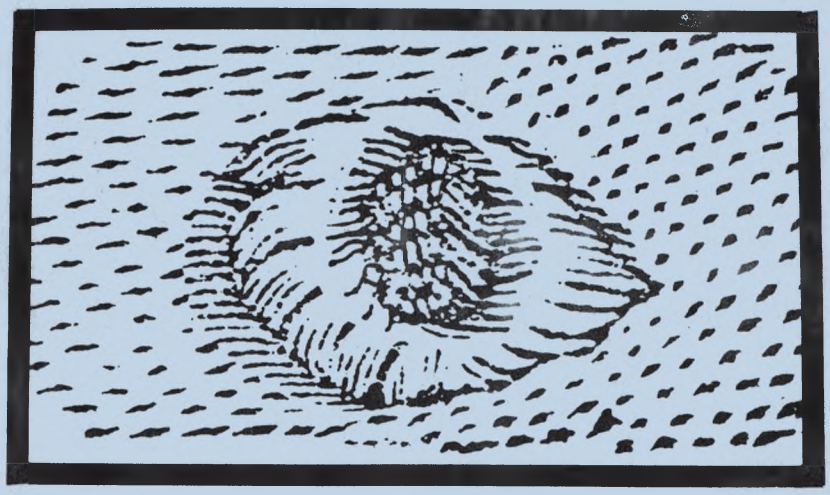
NOVA NOTES



Halifax Centre

May-June 1986
Volume 17
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1986 Halifax Centre Executive

Honorary President	- Dr. Murray Cunningham
President	- Norman Scrimger 12 Lynwood Drive HALIFAX, N.S. B3M 1Y9 443-7455
Vice-President	- Darrin Parker Rm.7-1-2 Saint Mary's University HALIFAX, N.S. B3H 3C3 425-2626
Secretary	- Ralph Fraser 40 Murray Hill Drive DARTMOUTH, N.S. B2Y 3A8 466-5106
Treasurer	- David Tindall 3231 Glendale Road HALIFAX, N.S. B3L 3S4 455-7456
NOVA NOTES Editor	- Patrick Kelly 2 Arvida Avenue HALIFAX, N.S. B3R 1K6 477-8720
National Rep.	- Doug Pitcairn 13 Ferguson Road DARTMOUTH, N.S. B3A 4J8 463-7196
Librarian	- David Chapman 8 Lakeview Avenue DARTMOUTH N.S. 463-7664
Observing Chairman	- Gordon Hawkins 327 Arklow Drive DARTMOUTH, N.S. B2W 4S1 434-1787
Mailing Address	- Halifax Centre, R.A.S.C. c/o 1747 Summer Street HALIFAX, N.S. B3H 3A6

NOTICE OF MEETINGS

Date: Friday, June 20th : 8:00 P.M.

Place: Nova Scotia Museum: meeting to be held in the lower theatre. Access from the parking lot and side entrance.

Topic: This meeting will be used as a members night to "reminisce" about all of the observing we have done over the last little while regarding Halley's Comet.

Bring along any observations you might have made including photographs, etc.

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NOTE: As usual there ll [illegible] eting for the month Jul

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Date: Friday, August [illegible] - Mo[illegible] August 4th

Place: West Point, Prince Edward Island

Topic: ANNUAL CAMPING OBSERVING WEEKEND see inside [illegible] more details

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NOTE: The above list is tentative and subject to change.
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About the cover: The cover this issue reproduces lunar craters as drawn by Galileo in 1611 and published in "Operere di Galileo Galilei in 1655.

EDITOR'S REPORT

Many of you may have noticed that both this issue and the last issue of NOVA NOTES had more pages than usual. The reason for this is that for the last two issues I have found myself in the unfamiliar position of having more articles than I can print. Hopefully this situation will not rectify itself and you can look forward to a larger issue from now on.

Because of the timing of the printing deadline for NOVA NOTES, I was unable to collect enough information regarding the recent tragedy involving the space shuttle Challenger in time for the last issue. The feelings people felt as they witnessed this event are hard to describe. I know that personally, I felt as if a part of me was missing during the days following the Challenger's explosion. You will find the responses of four other members of the R.A.S.C. on the next few pages and I am sure that they will strike a familiar chord. The first article, however, entitled "The Space Shuttle" has special significance. It was written by one of our members, Leonard Larkin of Saint John. I had the pleasure of meeting Len at our last camping observing weekend. In January, Len and his wife were at Cape Kennedy to see a shuttle launch in person for the first time, and as a result witnessed the destruction of the Challenger in person. In his article, he recollects that fateful day.

The other articles are from various centres: "Reflections" was written by Jack Ruitenbeek of the Calgary Centre; "To the Stars" was penned by Guy Westcott of the Winnipeg Centre and "Ode to the Challenger Seven" was published in ASTRONOMY LONDON.

Lastly, I would like to thank Roy Bishop for supplying me with the cartoon regarding Haliey's Comet (yes the name really is Norman in the original) and the article on comets by David Levy.

Patrick Kelly

ODE TO THE CHALLENGER SEVEN

There's a pure white column rising
made of smoke beneath the flames
and it rides upon ambition
and it carries forth your names.

Then a sudden bifurcation
of that thrusting puffy plume
sends a million tiny contrails
to mark your fiery doom.

There are seven in our family
who we'll never see again
since the price of true adventure
is paid with grief and pain.

We will never find your bodies
but your souls are in the sky
since we waved goodbye this morning
and sent you off to die.

TO THE STARS

Seven souls rushed into the skies,
Seekers of life, their spirits won't die.
Pushing frontiers out on the edge,
We need the heros, that was their pledge.

Teachers, explorers, scientists and dreamers,
For each, a star that shine bright and glimmers.

All loved life and its challenges,
All left Earth to its ravages.

The Universe shouts, they were humankind,
Their quest, new horizons to find.
Let the heavens mourn at their passing,
To us their courage will be everlasting.
In our memories they will travel afar,
For someday soon we'll reach to the stars.

How ephemeral life is...

January, 1986: It was to be the start of the finest year for NASA's STS system. A more aggressive space program had not been witnessed since the events leading up to Neil Armstrong's first paces in the lunar dust not two decades earlier. Yet, as I write this, the world is still reeling from a disaster which lashed out at our collective vision of attempting to grasp the stars. The vision - to discover and experience beyond our earthly realm - is momentarily shattered as our hearts sink and stomachs wrench at the news of the ill-fated Challenger and its brave crew on this day.

How will history judge us? ...As impatient fools defiant of nature's forces? ...As fanatical idealists bent on achieving goals beyond our clutches? One hopes not. For, from the tragedy, our methods will become more refined, more measured, and ever-strengthened in a conviction to achieve those ends so nobly sought. And history will judge us not by this event, but rather by our reaction to this event.

The wounds will heal, although the scars shall always exist as a reminder of our failed attempts of today. But let us not lose this precious vision we have of reaching the stars. That vision is in our minds and in our hearts and cannot be destroyed by the loss of any one of us. That same vision of discovery has driven us across continents, across oceans, and across the voids of interplanetary space; it has persisted through centuries of both failure and success; it is universal to man and knows no bounds of race, color or belief. It unites us with the rest of the world, with our past and with our future.

Though blinded we may be today, let us allow ourselves to see and build again for tomorrow.

...yet how permanent our vision.

THE SPACE SHUTTLE

While vacationing (for the first time) in Florida this January, I had the opportunity to fulfill a lifetime dream - to be present at a spacecraft liftoff.

As my wife and I traveled the highway to South Titusville, thoughts of the earlier Mercury, Gemini and Apollo missions went through my mind. After getting the car parked we joined the people waiting alongside the road on the shoreline. The crowds all the way up and down the coast proved that a shuttle liftoff was still a major event even though it would be the 25th such event. At ten or twelve miles away, the 39B launch pad and its payload were tiny; in the 8x40 binoculars, the gantry covered about half a degree field of view. Originally scheduled for 9:40, the launch was delayed until 11:30. At 11:28 it was two minutes to liftoff and counting - everything was go. At 15 seconds to go it hit me - its really going to launch! Hearing that classic countdown made me oblivious to the rest of the world; 10 - 9 - 8- 7 - 6 - 5...

Things weren't so straight ahead in the previous three days. Probably the most satisfying day was even a few days before this when I explored Spaceport USA (i.e. the visitors' complex at Kennedy Space Center). After a two hour bus tour showing the main facilities, buildings and other structures of the space center (including a tour through the old Apollo Mission Control Room) I took in the IMAX movie. It is a dynamic you-are-there experience of a shuttle flight from early preparation through to landing presented on a screen five stories high, with a suitable matched sound system. Don't miss this! The Gallery of Space Flight and the full size "Rocket Garden" covering the main lawn finished the visit off nicely.

Before leaving I picked up two launch tour tickets for mission 51L on Saturday and found it had been postponed until Sunday. Sunday morning, my wife and I were awake at 5:30 (!!)

and were showered and dressed before discovering that the launch had been delayed again until Monday morning. Monday (at 5:30 of course) the liftoff had a go and we drove back to Spaceport where a bus (one of many) took us to a viewing site 6 miles distant from the launch pad. After five hours of waiting in 4 degree temperatures and very brisk winds, the launch was again deferred until Tuesday and we drove back to Orlando, cold and tired.

But all that was behind us now. 5 - 4 - 3 ; binoculars up - starting to see some smoke - 2 - 1 - LIFTOFF! The smoke clouds must stretch half a mile each side of the gantry! And that flame - it makes me feel that 10 miles isn't very far away. It's a color of deep yellow, almost orange, but its too bright to view through the binoculars. With great ferocity and purpose this magnificent creation is shirking Earth's gravity. What an incredible sight! The smoke trail looks like a giant tree growing up out of the ground. And all this in dead silence. Oh yes, that's right; at this distance there is a 50 - 60 second delay. When the sound hits it takes five seconds of so to build to maybe 90 or 100 decibels with a tone quality resembling the lowest tones of rolling thunder.

What's this? Have the solid rockets separated already? There sure is a large bulge in the cloud. The binoculars should show the shuttle - but where is it? That's strange, those solid rockets are still going full blast and quite erratically. The voice of Mission Control (on a nearby radio) announces that a major malfunction has occurred. What kind of malfunction? Why can't I find the shuttle? There's just nothing along the right trajectory. A radio announcer calmly states that the orbiter has been destroyed. Isn't that what they call the shuttle? No, it can't be. I must have heard wrong. Must have. Oh God - under the bulge in the smoke trail the binoculars show things glittering in the sky. White, not shiny, just white pieces gyrating (almost serenely) in the sky. Oh no...

A tragedy. Seven highly skilled and competent people dead. A complete space shuttle system and its satellite payload destroyed. This major disaster will bring a dark cloud over the whole space program. To me it started as a stunning performance of a finely tuned machine which abruptly ended as a an ugly lesson concerning the frailities of men and machines. I will not forget the tragic outcome of this event, but the personal experience of seeing a craft liftoff from the planet reminds me that we have already achieved a dream that the ancients may not have ever known. To not only have escaped the bounds of earth, but already with remote sensing craft, to have journeyed so far that our home planet has dwindled to insignificance in the night sky. The rest of the universe awaits and we shall always press forwards.

Randall Brooks - outstanding service!

The following is a copy of the nomination that the executive of the Halifax Centre (on behalf of the membership) presented to the Awards committee of the National Council for their January 1986 meeting. We are pleased to announce that Randall Brooks will be awarded the Service Award for the Royal Astronomical Society of Canada at the Sunday banquet of the General Assembly in Winnipeg on June 29, 1986. The only other recipient from the Halifax Centre was Fr. M. W. Burke-Gaffney some 22 years ago. CONGRATULATIONS RANDALL!!!!

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The executive and membership of the Halifax Centre of the Royal Astronomical Society of Canada wish to nominate our outstanding member, Randall Brooks, for the Service Award.

In the minds of many of the Halifax members, Randall is synonymous with the R.A.S.C.; and indeed in the minds of many Halifax residents, with Astronomy. He has consistently encouraged the advancement of Astronomy in the Maritimes through his very many contributions both to the membership of the R.A.S.C. and the general public.

Randall has filled almost every position on our executive over the past dozen years, as well as stimulating the growth of several satellite centres throughout the region. He has served on the National Membership Committee and the National Editing Committee.

Randall edited the Centre newsletter, "***Nova Notes***" from 1975 to 1979 and the membership of the Centre tripled, and enthusiasm grew. The articles were always of high quality and under his editorship, the newsletter gained a much needed consistency and continuity. Subsequent editors have been able to build on the solid foundation he established. He still is a major contributer to the Centre newsletter as well as supplying many articles for the ***Journal*** and the ***National Newsletter***. Randall also has been a regular contributer to the ***Handbook***.

The Halifax Centre can boast one of the highest percentages of life members in the country. This strong commitment to astronomy can in most cases be attributed to Randall's enthusiastic leadership. He himself is a life member.

Randall initiated a Junior Astronomical Society for young people in the mid 1970's. He developed a "Centre Slide Set" for loan to schools and is still in charge of its distribution and growth. He has been co-ordinator of the Centre's participation in the Nova Scotia Museum's "Societies Show" a number of times between 1976 and 1981. The 1975 General Assembly was held for the first time in Atlantic Canada because of Randall's leadership. In 1980, the first ever joint meeting of CASCA and the RASC was also held in Halifax. This event took place because of Randall's capable leadership as president of the Centre that year. Randall was instrumental in the establishment of the Simon Newcomb Award and the Burke-Gaffney Award and he helped to draft the constitution of the Centre. Randall has done much to make the Halifax Centre members aware of their local astronomical heritage through his historical research on surveyors and instrument makers in Nova Scotia during the 18th and 19th Centuries. He has spoken at several of the Centre's monthly meetings over the years. He initiated the annual family camping-observing week-end and our annual Fall Astronomy Day for the public. He's a frequent guest on commercial radio and television programs and has written a regular column for a Nova Scotia newspaper. He has spoken to many school classes in Nova Scotia and Prince Edward Island. Through his encouragement, two active astronomy clubs have been formed in outlying communities, Bridgewater and Sydney. The members in these groups are able to come to Halifax for special occasions, but with Randall's support are carrying on regular activities in their own communities as well.

When individual members were asked for their opinions on this nomination, their agreement was unanimous. Some quotations from their letters of support will illustrate clearly the high regard in which Randall is held:

"splendid--he is a tremendous asset to the R.A.S.C."

"common sense plus experience makes him a good decision maker."

"he is the life of the Centre"

"he has ideas and is always willing to pitch in and do more than any one person's share of the work"

"he's approachable and knowledgeable"

"the Halifax Centre has several able people, but in terms of total effort and intitiative extending over more than a decade, I believe that Randall is the most deserving of the Service Award"

Respectively submitted on behalf of the entire membership of the Halifax Centre,

J. Norman Scrimger,
President, 1985-1986.

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The general principles governing the Service Award read as follows: "The service Award is a major award given to a member in recognition of outstanding service, rendered over an extented period of time, where such service has had a major impact on the work of the Society and/or a Centre of the Society. The award is a small bronze medal which is given only by resolution of the National Council upon recommendation of the Awards Committee of the Council. The Award shall be presented at the annual meeting of the Society.

Why do transits of Venus occur in pairs ?

David Chapman

Transits of Venus across the Sun's disk are amongst the rarest predictable phenomena in the science of astronomy. There are none during the present century: the last was on 6 Dec 1882 and the next is on 8 Jun 2004. As shown in Table 1, taken from Simon Newcomb's "Astronomy for Everybody" (Garden City Publishing Co., New York, 1902), they seem to occur in a curious cycle. The number of years between successive transits forms the cycle 8, 121.5, 8, 105.5, 8, 121.5, ... and so on. They seem to occur in pairs, the

Table 1: Transits of Venus 1631-2012

7 Dec 1631	4 Dec 1639
5 Jun 1761	3 Jun 1769
9 Dec 1874	6 Dec 1882
8 Jun 2004	6 Jun 2012

transits within each pair separated by 8 years, and the pairs themselves separated by much longer intervals. Not only that, but the 8-year interval between transits within a pair is *almost exactly* 8 years, just 2 or 3 days under. Why is this so?

Perhaps it is easier to answer the question: why do transits of Venus not occur at every inferior conjunction, which take place about every 584 days or 8/5 year? If the orbits of Earth and Venus were in the same plane, this would so; at every inferior conjunction, Venus would pass exactly through the centre of the Sun's disk. In fact, the orbit of Venus is inclined 3.4° to the Ecliptic plane, so Venus usually appears above or below the Ecliptic at inferior conjunction, as much as 8.9°. In order for a transit to occur, Venus at inferior conjunction must be very near one of the nodes of its orbit, those positions where the orbit crosses the Ecliptic plane. Since the Sun's disk subtends an angle of 32', and if Venus randomly appeared in the interval (+8.9°, -8.9°) at conjunction, we should expect the average period between transits to be (17.8 x 60/32) x 8/5 = 53 years. This is approximately the true average of 61 years, but that average does not at all represent the clumpiness of Table 1. Why do the transits tend to group in pairs?

A partial answer to the question posed in the title is provided, I believe, by the orbital resonance that Earth and Venus display. Their orbital periods (365.26 days and 224.70 days, respectively) form the ratio 1.6256, which is very close to the ratio of integers 13:8 = 1.6250. In simple terms this means that, in the same period of time that Earth takes to orbit the Sun exactly 8 times, Venus completes slightly over 13 orbits. Any geometrical configuration of Earth, Venus, and the Sun will therefore recur on an 8-year cycle. During this time, 5 inferior conjunctions will occur, so there should be 5 series of inferior conjunctions of similar types that take place at similar dates in the year and recur on this 8-year cycle.

In case the reader thinks that I am delving onto numerology, I offer Table 2 as evidence of this 8 year cycle. The Table lists the dates of inferior conjunctions of Venus from 1977 to 1999; it is taken from Patrick Moore's "Guinness Book of Astronomy Facts and Feats" (Guinness Superlatives Ltd., Enfield, UK,1983).

Table 2: Inferior Conjunctions of Venus 1977 - 1999

6 Apr 77	7 Nov 78	15 Jun 80	21 Jan 82	25 Aug 83
3 Apr 85	5 Nov 86	13 Jun 88	18 Jan 90	22 Aug 91
1 Apr 93	2 Nov 94	10 Jun 96	16 Jan 98	20 Aug 99

The conjunctions evidently group into five series equally spaced around the calendar year, each element of a series occuring 8 years after the previous element, less 2 or 3 days. The series to which the transits of 8 Jun 2004 and 6 Jun 2012 belong is the centre column of Table 2. This series places Venus very near one of its nodes at inferior conjunction.

Now that we have accepted the Earth/ Venus resonance and the 8 year/5 conjunction cycle, how do we explain that transits do not occur every 8 years? If the resonance were perfect (i.e. exactly 13:8) and if transits occured at all, this would be so. At every transit, Venus would cross the Sun's disk in exactly the same way. However, the imperfect resonance causes the alignment of conjunctions 8 years apart to "slip" a little each time, so successive paths of Venus across the 32' target of the Sun's disk are displaced

slightly Rough calculations of this displacement of the path give an estimate of 23', so one can see that 2 transits separated by eight years are possible, but not three transits spanning 16 years.

This line of reasoning is rapidly approaching the point at which we will need to perform some sophisticated calculations if we want precise answers to our questions. For anyone interested in pursuing the celestial mechanics of these phenomena, I'm sure you will find the appropriate information in Jean Meeus' "Astronomical Formulae for Calculators" (3rd ed., Willman-Bell Inc., Richmond, VA, 1985). I will leave you with the following questions:

- How long does the 8, 121.5, 8, 105.5 cycle last?

- Why 121.5 and 105.5?

- Can there be a solitary transit?

The 1631 transit was the first predicted transit of Venus, but the first verified observation was in 1639. There have been 4 transits since then, all observed. With luck, many of us will see the pair of transits in 2004 and 2012.

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CAMPING OBSERVING WEEKEND

The COW will be held at West Point, P.E.I. from August 1st to August 5th. West Point 60 km west of Summerside on the south-west shore of P.E.I. The observing site is a dark site at the end of the point which looks south over the Northumberland Strait. Accomodations in the area are varied. Further details including a map will be published in the July-August issue of Nova Notes.

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DOUBLE STAR MARATHON

An observing form listing all of the double stars from the 1986 Observer's Handbook along with several others to make it more interesting is now available. If you live out of town, send a letter to the editor to get a copy.

The Art of Comet Hunting

On September 8th, 1965, Kaoru Ikeya, a piano-factory worker, was peering through the eyepiece of his homemade eight-inch reflector when he spotted a little spot of haze in the field of view. Ikeya, knowing the sky, was fairly certain that the object was not supposed to be where it was. His star atlas showed nothing in that position, and a look through the eyepiece a short while later convinced him that he was looking at something new, for the fuzzy patch had moved.

This new object was doubtlessly a comet, and Ikeya lost little time in sending a wire to the Tokyo Observatory. Just one hour later, Tsutomu Seki found the same object and the finding of the new comet Ikeya-Seki was made known to the world.

The rest of that story is familiar to most of us - an eight magnitude fuzz that sprouted a tail and danced around the Sun, rivaled the full moon in brightness and the Sistine Chapel in beauty, displayed a gorgeous tail seventy million miles long and started to move away toward the dark void of interplanetary space from where it came.

All of this started through the effort of one amateur astronomer, who, with a little enthusiasm, quite a bit more patience, lots of warm clothes and an eight-inch telescope, has since found several comets.

Although there are several modes of comet hunting, the type that is the most challenging, and in my opinion the most fun, is the telescopic comet hunt. Point your fairly short focus telescope at any area of the sky. Looking through the eyepiece you check the field of view for any fuzzy object. After a five second gaze you move on to the next field and to the one after that. Sooner or later a little spot of haze will enter your field and you must refer to a star atlas to locate the precise position of the object you see. In almost every case, something will be shown there, for the sky is full of galaxies, star clusters and

nebulae (gas and dust clouds) which are thousands of light-years from us. In a telescope, however, a comet bears a strong resemblance to these masqueraders. Luck and perseverance will one night bring you an object that does not belong, and before panicking, make sure of the position and see if there is any motion. If there is, panic. The Smithsonian Astrophysical Observatory in Cambridge, should know the reason for your unusual psychological state, in the form of a telegram stating all of the information about your new object. The observatory will try to confirm your discovery, and if it succeeds, the comet will be named after you; otherwise you try harder next time.

Comet hunting has attracted the fancies of many men, including William Brooks, who in the late 19th century hunted in his yard with a nine-inch refractor and picked up over twenty comets; Charles Messier, better known for his "non-comets"; Leslie C. Peltier, who between 1925 and 1954 gathered twelve comets and an assortment of novae; and David H. Levy, who between 1965 and 1970 has found nothing - absolutely nothing.

How long should you count on hunting before a little comet hails you? A rough average is 400 hours for your first comet and 200 hours for each subsequent comet (almost like using a parking lot, isn't it?) But you could go on almost forever without any luck. Or to be more optimistic, you could have the luck of Alcock, who found two comets within a week, or Brooks who dared discover three comets in five weeks.

How can we justify these many hours at the eyepiece in a seemingly hopeless search? Leslie Peltier (Starlights Nights, 1965) rationalizes it this way:

> Time has not lessened the age-old allure of comets. In some ways, their mystery has only deepened with the years. At each return, a comet brings with it the questions which were asked when it was here before, and as it rounds the sun and backs away toward the long slow night

of its aphelion, it leaves behind with us those questions, still unanswered.

To hunt a speck of moving haze may seem a strange pursuit, but even though we fail, the search is still rewarding for in no better way can we come face to face, night after night, with such a wealth of riches as old Croesus never dreamed of.

David Levy

EDITOR'S NOTE: This article was originally written published in NOVA NOTES back in 1970 when David was a student at Acadia University and a member of the Halifax Centre. One should note that if he were to re-write this article today, the period during which he found "absolutely nothing" would have extended from 1965 to 1983. However, as you are all aware, David finally found his first comet in the fall of 1984 in the form of Comet Levy - Rudenko (1984t).

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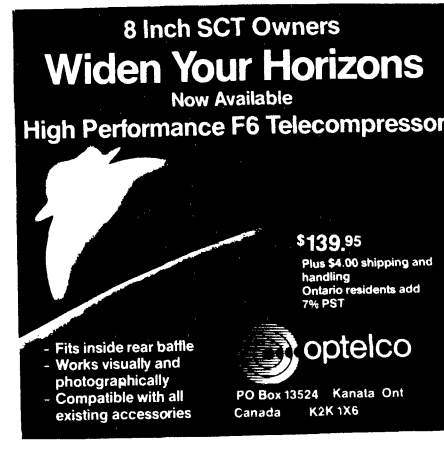
ASTRO ADS

4-year old C-8 w/fork mount and tripod, clock drive, starbright coating, star diagonal, heated dew-cap, T-adapter for camera, eyepiece projection tube, piggyback mount, 6-piece filter set, 5 eyepieces (6, 12, 18, 25 and 40 mm). Asking $2600. call Craig MacDonald 421-3346(w); 462-2540(h)



HANDBOOKS AND OUR CENTRE

Of recent years, our centre has been among the leading sellers of the Observer's Handbook; in fact, most years we have been the leader in sales across Canada. This is a statistic we can be proud of especially when one compares our size to that of some of the larger centres.

Handbook sales are the most important single source of centre funds after membership fees and they help us to avoid the surcharge on regular membership fees that some centres charge.

Anyone can sell a handbook. Simply mention the handbook and its incredible wealth of easy to understand information. Now tell the person where to pick one up:

Nova Scotia Museum

Pair of Trindall's Books

N.S. Government Bookstore

If you like, you may pick up or send for one or more handbooks from me if you think that you know of someone interested in obtaining one. Just hand in the money or return the unsold book at some future point! Keep in mind that each handbook sold contributes $3.00 to our centre and it is not uncommon to gain a member through a handbook sale.

So the next time someone wonders about sunrise or moonset times, mention the Observer's Handbook and if you have any ideas about increasing Handbook publicity, please do not hesitate to contact me.

Darren Parker
423-4473 (Halifax)
543-3104 (Bridgewater)

HALLEY: IT'S THE PEOPLE; NOT THE COMET!

Monday evening, December 30th, 1985. Comet Halley was rushing inbound at approximately 85,000 km/h past Earth towards a February 9th perihelion. On this particular night, the comet was over 170 million kilometres from Dayspring, Nova Scotia, a small community overlooking the banks of the Lahave River just east of Bridgewater.

Through the local Department of Parks and Recreation, Wilf Morley and myself (despite headlights and some bad tempered clouds) had set up three telescopes and successfully shown over 120 people the great comet they had been waiting (some of them all their lives) to see. Some had come from as far as 70 km away. Some were only three years old and hoped to see the comet again. One was eighty-three and although he knew that he would never see it again, he could say that he had seen Halley's comet twice.

This old fellow told of how his father rushed into the kitchen one evening in 1910 and "dragged" the children out into the cold evening to see this "once in a lifetime" sight. Maybe this fellow's father was right; what he saw in 1910 was indeed a once in a lifetime sight. His son, however, after looking through the eyepiece, (which he did several times) would just shake his head at that faint "seeded dandelion head" and go back to enthusiastically describing what he saw in 1910. It just could not be the same object!

What is fascinating is that 120 people gazed at a comet which by any other name would not have interested them, but that night I can honestly say that no one went away severely disappointed.

What then is the magic that this comet works? Maybe it is the history associated with its quite often timely apparitions. Maybe it is the timepiece feature of this comet, for no other well known astronomical body measures pace in human lifetimes. A funeral was held just today for a man who was born when the

comet last visited us. Maybe this comet's appeal stems from the fact that man enjoys being reminded now and then of how much can happen in just one lifetime (orbit): The establishment of 15 R.A.S.C. Centres, six generations of British royalty, Pluto, lasers, phasers, $E=mc^2$, soup lines, disposable everything, two world wars, air conditioning, television, Dr. C.A. Chant, Dr. Frank Hogg, Rev. Burke-Gaffney, comet pills; flappers, crewcuts, Titanic, Hindenburg, Sputnik, Friendship 7, Soyuz, Gemini, Apollo 11, Columbia, ESA, Buy Canadian, Made in Hong Kong, plastic, "Who's on first?", the Charleston, insulin, fast food, fast cars, fast planes, energy crisis, Dr. Holden, quasars, neutrinos, masers, pulsars, black holes, Newfoundland, the Stock Market Crash, "Gone with the Wind", "1984", "2001", James Bond, transistors, silicon chips, the Halifax Explosion, The League of Nations, THe United Nations, galaxies, the 200-inch, IRAS and more!

Giacobini-Zimmer was much more interesting to observe than Halley, but it did not have the same meaning that Halley has. When I look at Halley, I see a faint comet which is boring compared to IRAS-Aracki-Alcock or Giacobini-Zimmer, but that December night Halley's Comet was fascinating more people than either the Ring Nebula or the Hercules Cluster did at previous observing sessions.

It clearly is not the comet itself that creates "Halley Fever", but what this giant dirty snowball means to people like the previously mentioned eighty-three year old gentlemen. Halley's Comet is a people experience. Leave the brighter comets to tantalize the amateur. If you feel let down by Halley, go outside when the comet is outward bound, point your telescope and show others the comet! Take the comet not for what it is, but for what it means and try to imagine the world and the people in 2061. Will an article similar to this one appear in a 2061 issue of NOVA NOTES?

Darren Parker

GAWKER'S REPORT

Time: Tuesday March 31, 1986
Place: Kidston Lake, Halifax
Present: P. Kelly
M.V.M.(Minimum Visual Magnitude): 6.0
Weather conditions: calm
Equipment: 20x80 binoc.; 60 mm refractor
Objects observed: M1, M50, M65, M66, M68 M95, M96, M104, M105

Time: Tuesday March 31, 1986
Place: Ferguson Road, Dartmouth
Present: D. Pitcairn
M.V.M.(Minimum Visual Magnitude): 4.5
Weather conditions: calm
Equipment: 10x50 binoculars
Objects observed: M41, M46, M47, M48, M93

Time: Wednesday April 2, 1986
Place: Beaverbank Road Observing Site
Present: G. Roberts, D. Pitcairn, P. Kelly
M.V.M.(Minimum Visual Magnitude): 6.0
Weather conditions: no wind, mild, dry
Equipment: C8, B&L4000, 20x80, 60 mm refractor
Objects observed: M3, M13, M53, M58, M59, M60, M65, M66, M68, M84, M85, M86, M87, M88, M89, M90, M91, M95, M96, M97, M98, M99, M100, M101, M104 (Sombrero Galaxy), M108, NGC 4565 (Saturn galaxy)

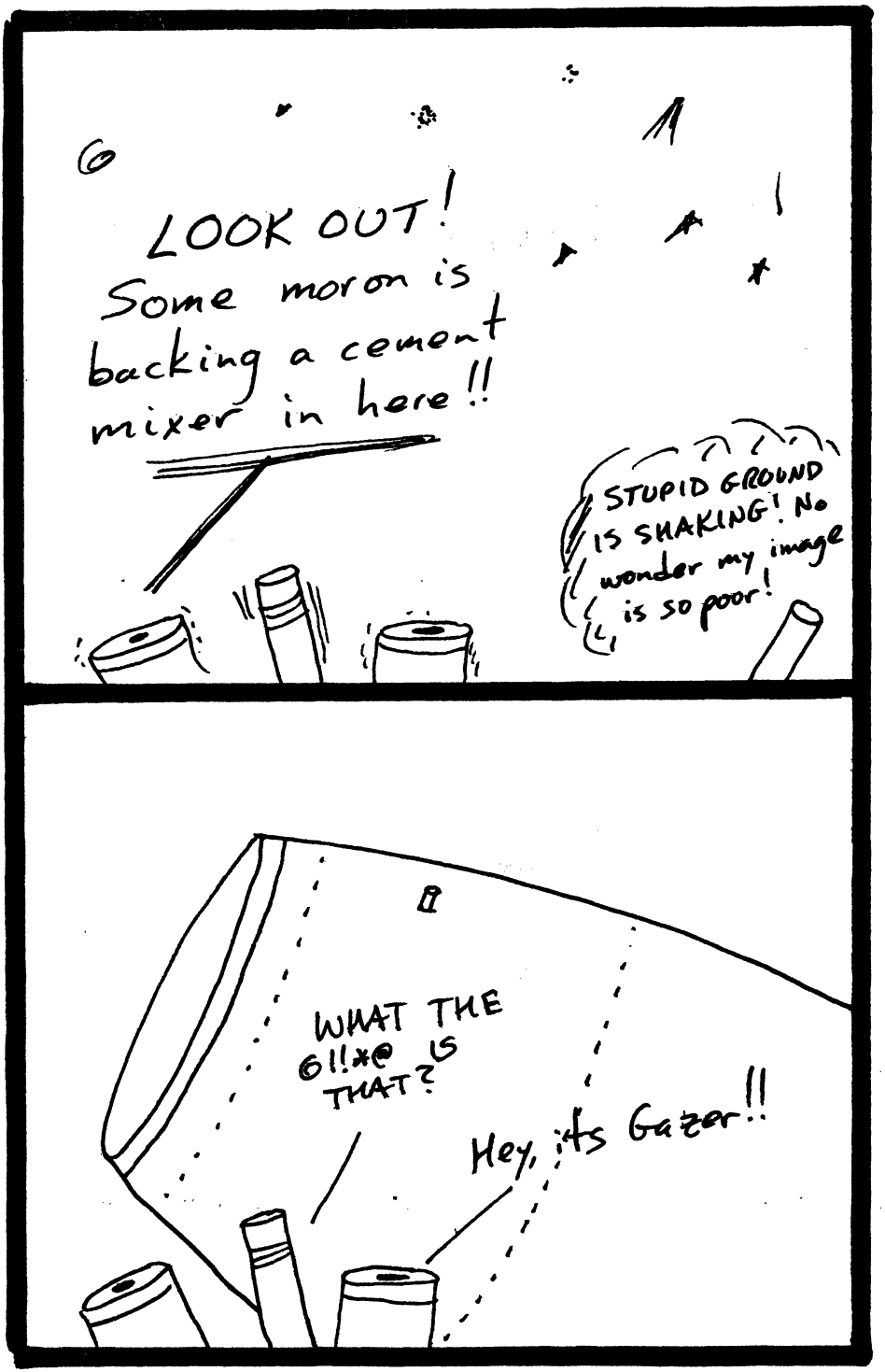
I was able to use Pat's 20x80 binoculars on the Virgo cluster which was well placed overhead. Although it does not give the detailed views of a larger aperture scope, the binoculars "right side up" image as well as the 3 degree field of view allowed me to mop up the area in less than 30 minutes. This instrument would definitely "blow the doors off" a telecope in any Messier object race.

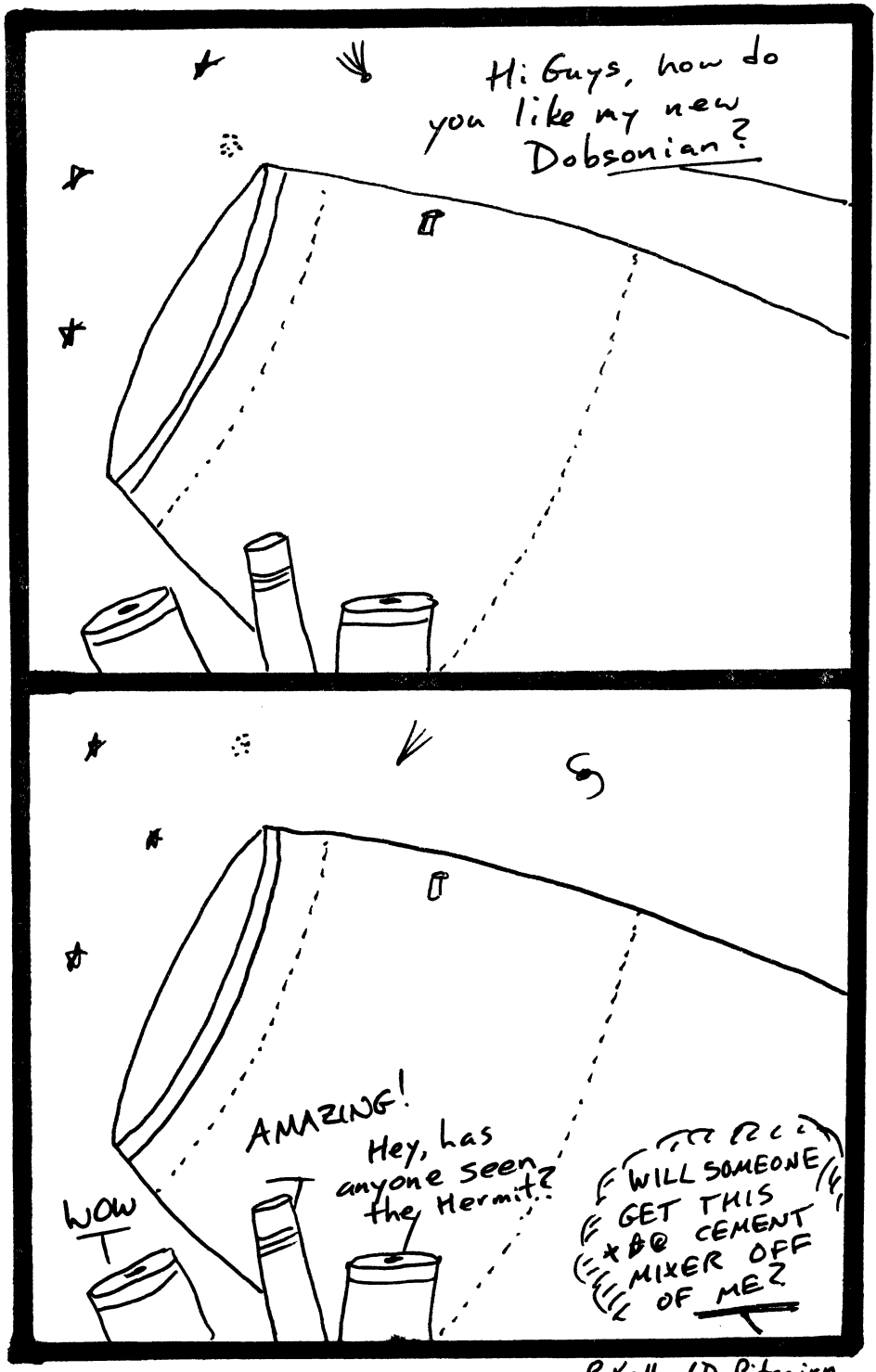
---

compiled by Doug Pitcairn

GA★ZER


I wonder where Gazer is?
Yeah, he's never missed an observing session before.
QUIET! I'm trying to concentrate!
Gee, there's something awfully big turning in off the road!
Yeah, I hear it too!!
STUPID NOISE! How can a person concentrate?
GRRR


LOOK OUT! Some moron is backing a cement mixer in here!!
STUPID GROUND IS SHAKING! No wonder my image is so poor!
WHAT THE @!!*@ IS THAT?
Hey, it's Gazer!!



P. Kelly / D. Pitcairn

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Patrick Kelly
2 Arvida Avenue
Halifax, Nova Scotia
B3R 1K6
477-8720

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R. A. S. C. - HALIFAX CENTRE 1986 CALENDAR OF EVENTS

January 1986

S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	**11**
12	13	14	15	16	17	***18***
19	20	21	22	23	24	25
26	27	28	29	30	31	

February 1986

S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	**8**
9	10	11	12	13	14	***15***
16	17	18	19	20	21	22
23	24	25	26	27	28	

March 1986

S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	**8**
9	10	11	12	13	14	***15***
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

April 1986

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	**12**
13	14	15	16	17	18	**19**
20	21	22	23	24	25	26
27	28	29	30			

May 1986

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	**10**
11	12	13	14	15	16	***17***
18	19	20	21	22	23	24
25	26	27	28	29	30	31

June 1986

S	M	T	W	Th	F	S
1	2	3	4	5	6	**7**
8	9	10	11	12	13	***14***
15	16	17	18	19	20	21
22	23	24	25	26	**27**	**28**
29	**30**					

July 1986

S	M	T	W	Th	F	S
		1	2	3	4	**5**
6	7	8	9	10	11	***12***
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

August 1986

S	M	T	W	Th	F	S
					1	**2**
3	**4**	5	6	7	8	9
10	**11**	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

September 1986

S	M	T	W	Th	F	S
	1	2	3	4	5	**6**
7	8	9	10	11	12	***13***
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

October 1986

S	M	T	W	Th	F	S
			1	2	3	**4**
5	6	7	8	9	10	***11***
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

November 1986

S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	**8**
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	**29**
30						

December 1986

S	M	T	W	Th	F	S
	1	2	3	4	5	**6**
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Key to calendars:
Meetings: **outlined**
Special days: **shadowed**
Observing sessions: **bold and underlined**
Observing session alternates: ***italics and underlined***

Additional Observing sessions:
August 1,2,3,4 is camping observing weekend

Meteor Showers:
August 11 is the Perseids (6-day old moon)
November 16 is the Leonids (full moon)
December 14 is the Geminids (12-day old moon)

Meetings:
The 3rd Friday of each month at the N.S. Museum.

Special events:
April 19 is International Astronomy Day.

June 27-30 is the General Assembly.
Banquet will be on a Friday in May - yet to be announced - **watch for it!**
October 1 - 1987 Memberships due.

Halifax Centre
Royal Astronomical Society of Canada
c/o 1747 Summer Street
HALIFAX, Nova Scotia
Canada
B3H 3A6

R.A.S.C. National Office
136 Dupont St.
Toronto, Ont.
Canada
M5R 1V2