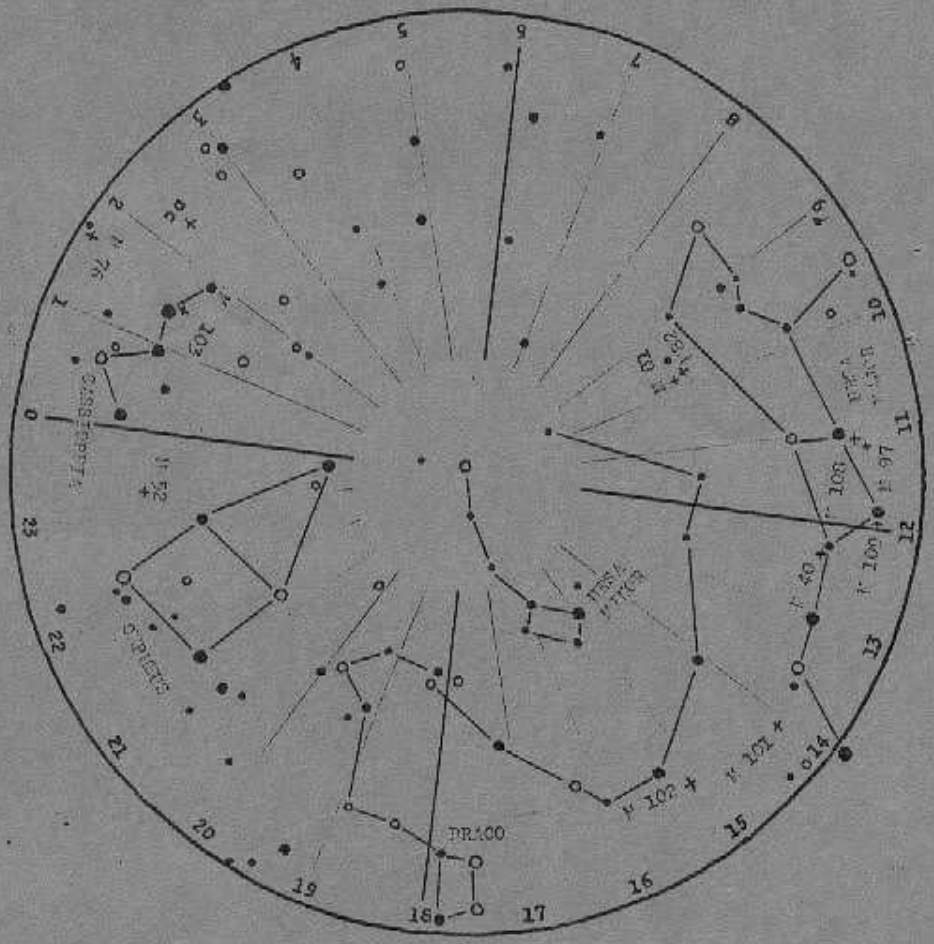
Vol 20 SUMMER 75 No 10

STARDUST



STARDUST

July/August 1975

VOLUME 20 #10

Editor: Paul Deans

Contributors: Christine Kulyk, Andrew Lowe, Gary Prideaux, Anthony Whyte

Cover: Denis Vig

Deadline for September STARDUST and for STARNIGHT brochure is August 15.

STARDUST may be purchased each month at the planetarium bookstore for 25¢.

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CITY OF EDMONTON

Remember when we used to say: "Astronomy is a subject where things are always looking up?"

Come on out and help keep things looking up. The theme of this years STAR-NIGHT is Amateur Telescope Making which, with the rising telescope prices encountered these days should be a popular topic. If you would like to help but don't know what you can do, call FRANKLIN LOEHDE at 477-8881. There is a meeting at his place in mid-August.

EDITOR'S MESSAGE

This summer STARDUST is quite a collection of odds and ends that will hopefully wrap up the summer and prepare for the autumn season and STARNIGHT. After some regular features, STAR-NIGHT INFORMATION will follow, with a short story by Christine Kulyk ending the issue.

Contributions for the September issue of STARDUST must be in my hands by August 15, 1975. This will insure that STARDUST is ready for STARNIGHT since I will be away the last week in August and the first week in September.

The cartoon above was filched from The Griffith Observer, January, 1975, Volume 39, No. 1

Paul Deans

PRESIDENT'S MESSAGE

The idea of a June meeting seems to have been well-received by our members, so perhaps we might want to make it a permanent part of our yearly program. It is important to remember, however, that the sun causes some problems for film showings at both the May and June meetings. We'll try to keep that in mind next year. Mea culpa!

The 1974-75 season was a great success for the Edmonton Centre. We had interesting programs, many new members, the organization of the Telescope Makers Group, and the continuation of an enthusiastic Observers Group. Our success this past year is due chiefly to all the interested persons who contributed their time and enthusiasm to many different areas of astronomy. To everyone who helped: Thanks very much indeed. I would like to extend special thanks, on behalf of the Edmonton Centre, to John Hault and the staff of the Queen Elizabeth Planetarium for their constant support, assistance, and interest. Both the Edmonton Centre and the Planetarium have benefitted greatly from the collaboration.

Even though the sun still sets late in the evening now, it is not too long until our September STARNIGHT 75 evenings. Franklin Loehde indicated that a planning meeting will be held in August, so if you are not on his list of people to contact, be sure and get in touch with him soon. We will need all the help we can get.

Finally, I would like to remind members of the Edmonton Centre that you are admitted free of charge to the Planetarium shows. Those who don't take advantage of this privilege miss many a good adventure. The "Universal Carbon" show was extremely good. So be sure and try to take in some of the summer shows. Have a pleasant and enjoyable summer!

Gary D. Prideaux

SUMMARY OF THE MINUTES OF JUNE 9, 1975 MEETING

The meeting was held in the Queen Elizabeth Planetarium at 8:00 P.M. Franklin Loehde reported that planning for STARNIGHT was well under way and that the next organizational meeting would be late in August.

Jack Winzer said that the fifteen 6-inch and three 8-inch telescopes were presently under construction by members of the Telescope Making Group.

John Hault reported that "Universal Carbon", the current presentation, was one of the Planetarium's best programmes so far.

Doug Hube mentioned that the aluminum pillow blocks for the polar axis of the U of A 20-inch telescope were complete. But the main drive gears still had not been received from Byers in Arizona.

Two NASA films, "Space in the 70's- the Knowledge Bank" and "Jupiter Odyssey" were shown. It was decided that only the "Jupiter Odyssey" was worth showing at STARNIGHT.

Barry Arnold showed some slides of the U of A 20-inch telescope illustrating the grinding, polishing, and edging of the mirror blanks and the apparatus used.

Franklin Loehde showed some slides of the lunar eclipse which he photographed with a 500 mm lens in Quebec.

Alan Dyer then showed some astrophotography slides taken with a variety of film types and developing procedures.

Anthony Whyte

FROM OTHER CENTRES

Following is a list of exhibits for the 1976 General Assembly to be held in Calgary. Since the 1975 conference was in Halifax, few Edmonton Centre members made it, but hopefully we can overrun Calgary in 1976. If you want to enter any category, see especially Section 9 of the regulations. Remember, the deadline for entries is MAY 4, 1976 so get busy. Let's have a large entry from the Edmonton Centre.

GENERAL ASSEMBLY 1976 EXHIBITS

THE CATEGORIES

1. NAKED-EYE Best report on an observing project carried out without optical aid.
2. BINOCULARS Best report on an observing project using binoculars.
3. MOON Best black-and-white photograph of a thin lunar crescent either less than 48 hours old or less than 48 hours before new.

4. MOON Best set of three eyepiece drawings of any one lunar crater, the three drawings to be done under different conditions of illuminations at least two days apart.
5. SUN Best series of either drawings or photographs showing a sunspot group moving across the surface of the sun.
6. METEORS Best report on the observation of a meteor shower, with paths plotted on a star chart and the radiant point indicated.
7. OCCULTATION Best report on an occultation project successfully carried out.
8. PLANETS Best report on an observing project involving Jupiter and/or its satellites.
9. OPEN CLUSTERS Best set of black-and-white photographs of any four open (galactic) clusters from the Messier Catalogue.
10. GLOBULAR CLUSTERS Best set of eyepiece drawings and descriptions of any four globular clusters.
11. GALAXIES Best report on observations of any four galaxies in any one constellation, with descriptions and field drawings.
12. COLOUR PHOTOGRAPHY Best set of three colour slides of any three astronomical subjects.
13. OPEN CATEGORY Best submission by an entrant of a report on an OBSERVATIONAL project (which may include photography) of his or her own choosing - double stars, aurora, variable stars, asteroids, conjunctions, nebulae, variations of any of the other categories, or whatever.
14. AND FINALLY, A "FUN" PROJECT The most imaginative proposals for dividing the constellation of Hydra and the constellation of Eridanus each into two new constellations, with new outlines and names which may be mythological or modern or anything in between.

THE REGULATIONS

1. This competition is open to all paid-up members of the R.A.S.C.
2. The work on a project entered must be done by the entrants between May 1st, 1975 and April 30, 1976. Old observations, photographs, drawings, etc. must not be submitted.

3. One prize will be awarded in each category, along with 1st, 2nd, and 3rd prize ribbons. In addition, a Grande Prize will be awarded for the best overall exhibit.
4. No individual may enter in more than three categories, and may enter only one exhibit in each category chosen.
5. The judges will be appointed by, but will not necessarily be members of, the Calgary Centre.
6. All entries which qualify will be on display during the 1976 Assembly, and the names of the prizewinners will be announced before it closes.
7. In judging the "best" entries the judges will take into account the location of the observing site(s), the size and type of the instrument(s) and equipment used, the age and experience of the entrant, the time of year the work is done, the initiative, imagination, care and thoroughness shown in the project, and the neatness and clarity of the presentation.
8. All entries must be mailed in before the Assembly begins; and it is not necessary for the entrant to attend the Assembly in order to qualify. It will be a help if entries are sent in as soon as can conveniently be done when the project is completed; no entry will be accepted bearing a postmark later than May 4th, 1976.
9. Each entry must be accompanied by an offical entry form which can be obtained from Mr. U. Haasdyk, 3123-48 St. S.W. Calgary, Alberta, T3E 3X6. Members planning to enter are asked to write for entry forms at their earliest convenience, stating the categories in which they are interested, in order to give us some idea of the probable exhibition space required.
10. Some categories (e.g. No. 6 or No. 7) may require assistance from other people; this is permissable, but the entry should be submitted over the name of the one person only.
11. Any entry which qualifies in more than one category may be entered in one only, e.g. a binocular observation of an occultation may be entered in Category 2 or Category 7, but not both.

12. Entries may be submitted in either English or French.
13. More detailed information about the categories will accompany the entry forms; any queries should be addressed to Mr. Haasdyk.

SEND FOR YOUR ENTRY FORMS TODAY!!!

PLANETARIUM NEWS

This summer the Planetarium is running two different programs. "Celebrate the Sun" describes our star and the effects it has on our planet while "One Summers Night" deals with the constellations, planets and other objects of interest visable during the evenings of summer. "Celebrate the Sun" runs at 3:00 P.M. and 9:00 P.M. every day -- "One Summers Night" happens each evening at 8:00 P.M.

Production for "The Last Question" is now in full swing with an opening date for the science fiction dramatization set for September 9th. At the same time as the effects are being built and the visuals adapted for this show, a script is being written for the annual production of "The Star of Christmas". Nothing like trying to get ahead!!

As many of you probably know, Mr. Gary Finley has been recently hired as Community Programmer. This summer he has been preparing astronomy courses for various levels of age and interest which will be presented this fall through the Parks and Recreation Department. Gary has also been dropping in on various day camps and overnight camps (both run by the city for the younger children). Here he gives a short talk on the sun or the night sky depending on the situation.

SOL III

The latest concern of environmentalists is that freons, gases used in refridgerators and aerosol spray cans, are building up in the atmosphere and ionosphere. In the ionosphere freon is broken down by sunlight releasing chlorine which attacks the ozone and converts it into oxygen causing damage to the Earth's ultraviolet radiation shield. An increase in UV radiation on the ground would cause a rise in skin cancer cases. The OAO-3 (Copernicus) satellite is being used to monitor the key factor- chlorine- of this hazard. OAO-3 will make occultation observations in the UV range of a bright star through the Earth's atmosphere. A decrease in the brightness of the star at the relevant wavelengths would indicate increased absorbtion by an increase in chlorine.

The versatile OAO-3 satellite is also being used in the search for extraterrestial civilizations. An engineer, Herbert Wischnia, proposes that ultraviolet lasers could be used by an extraterrestrial community as beacons to announce their presence to us. He points out that stars similar to the Sun (and thus suitable for life-bearing planets) emit very little UV light and thus a flash from a UV laser would be conspicuous. The UV telescope on the OAO-3 satellite was trained on Epsilon Eridani and the data is now being analysed; later this year it will be pointed at Tau Ceti and Epsilon Indi. These three stars have been suggested as possible candidates for planets with intelligent life.

Most astronomers agree that the universe is open or closed- that is, is the universe destined to expand forever or will it eventually collapse inwards? Four astronomers have

presented data which they say, points to a third alternative: the expansion of the universe is accelerating. They propose the following scenario: the universe begins with a big bang; the expansion decelerates at first under the influence of gravity, then when the universe is big enough, a long-range repulsive force operating between galaxies takes over and the expansion accelerates. This repulsive force is the so-called cosmological constant which was discarded by Einstein (though for other reasons than lack of evidence at that time of an accelerating expansion).

Einstein versus the others. Again. Another point on which rival theories of gravitation differ is whether the strength of gravitational forces varies with time. Thomas Van Flandern of the U.S. Naval Observatory insists that his observations ranging from lunar occultations to ancient eclipse records indicate a decrease in gravitational strength. Expressed as a ratio of the rate of change of the gravitational constant over the constant, Van Flandern's determination comes to 6 ± 2 parts in a hundred billion. Recent figures from a program of laser ranging to the moon give 3 ± 3 parts in a hundred billion, consistent with both Van Flandern's 6 and zero, which is Einstein's value. Result: a draw.

Anthony Whyte

Gigantic Galaxy Sighted

Berkeley, Calif. - A galaxy five to 10 times larger than the Milky Way has been discovered by a University of California scientist. Professor Hyron Spinrao has photographed the galaxy through a 120-inch reflecting telescope. The group of stars is the most distant ever seen from earth - about eight billion light years away.

Ganymede Probed By Radar

Jupiter's largest satellite, Ganymede, has been probed by radar for the first time and found to be rougher surfaced than the inner planets. The big Jovian moon -- slightly larger than the planet Mercury -- is considerably rougher than Mercury, Mars or Venus, according to Dr. Richard M. Goldstein of Caltech's Jet Propulsion Laboratory. Goldstein, manager of JPL's communications research section, has headed radar investigations of all these bodies. The Ganymede test over a distance of 600 million kilometers (380 million miles) was conducted on six nights last August, employing the 64-meter (210-foot) antenna at the NASA-JPL Deep Space Network tracking station at Goldstone, Calif.

"Perhaps the most likely possibility for the surface of Ganymede is rocky and/or metallic material imbedded in a matrix of ice. Such a surface could be relatively smooth, with a top layer of ice rubble, but it could be rough to radar since the ice would be transparent." The finding is particularly interesting in view of verification by Pioneer 10 and 11 flybys that Jupiter itself is gaseous with no solid surface that could sustain a radar echo.

The material on Ganymede probably is meteoritic in origin, Goldstein theorizes. He says only one other celestial body -- a small asteroid named Toro -- has appeared as rough to JPL's radar scans. However craggy Ganymede may be, the radar was unable to delineate craters because of the extreme distance, Goldstein said. A recent Pioneer 11 photograph of Ganymede showed apparent craters and two mares, perhaps like those on Earth's moon. Ganymede's orbit is about one million kilometers, or 625,000 miles, from

Jupiter.

One of four large Jovian satellites discovered by Galileo, Ganymede is 1 ½ times as large as our moon. All of the Galilean satellites will be studied in 1979 by a Mariner spacecraft flyby of Jupiter and Saturn to be conducted by JPL for the National Aeronautics and Space Administration.

Optical astronomers have believed Ganymede's brightness indicated it is composed largely of ice. Infrared spectra suggest water ice. The radar astronomers, however, found "a simple sphere of ice does not fit well with the radar data." A hard rocky surface coated by frost or light ice could be possible, but the JPL radarmen think the mixed rock-metal and ice surface more likely.

"Ganymede scatters to Earth 12 per cent of the power expected from a conducting sphere of the same size and distance," Coldstein's team reported. "Roughness is made evident in this experiment by the presence of echoes away from the center of the disk. A perfectly smooth disk would reflect only a glint from the center. A very rough one reflects power from the entire disk."

STARNIGHT

News seems to be rather scarce concerning this topic, except for a few known facts:

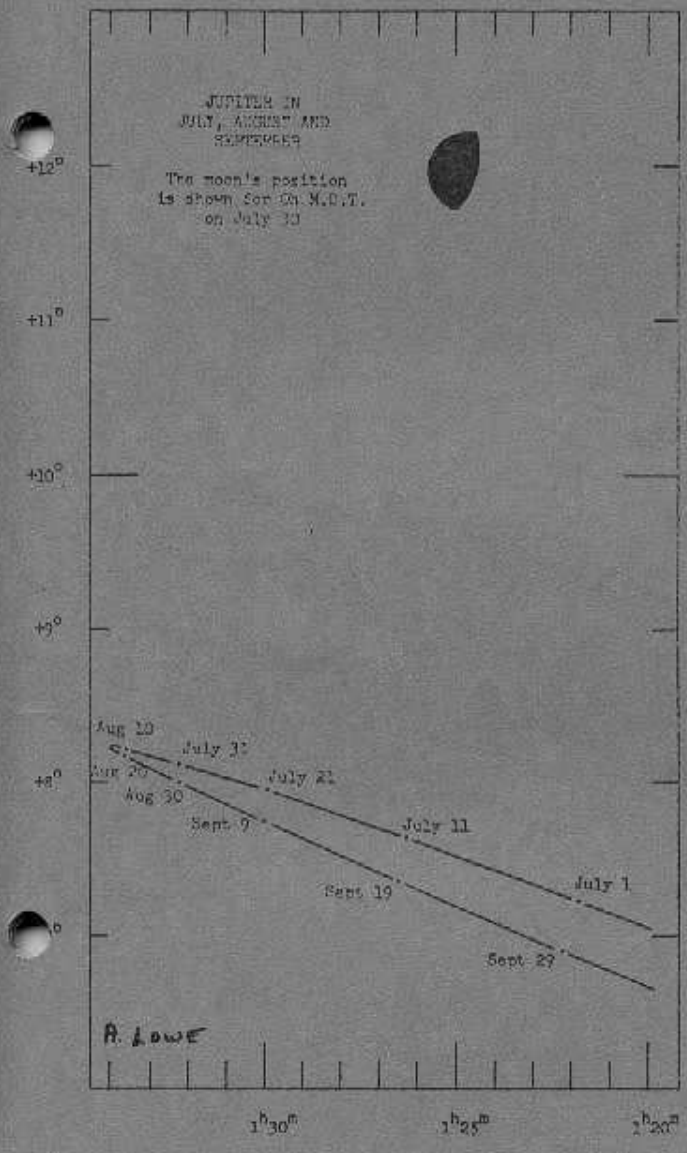
1) STARNIGHT, held at the Queen Elizabeth Planetarium, falls on September 13/14 this year, which is just after First Quarter.
2) The theme is Amateur Telescope Making and displays along these lines are being planned.
3) Other displays, plus movies, plus telescopes set up out

front, plus a short planetarium show are also happening.

4) Ideas and help are still needed.

There will be a meeting sometime in August regarding STARNIGHT. If you are already involved, or want to get involved, please phone Franklin Loehde at 477-8881 AS SOON AS POSSIBLE. The more people who help, the better it will be. The Edmonton Centre received quite a boost last year from STARNIGHT...don't let it be another "one-shot affair".

I would like to dwell for a moment on one area of STARNIGHT that does concern me... the brochure. You may remember that last year's brochure was rather nice and included many diversified topics such as Amateur Observational Astronomy, Amateur Telescope Making, Astrophotography, Astronomy in Canada and Alberta and so on. The June issue of STARDUST requested articles for the brochure to be in my hands by July 15. It is now (as I write these words) July 18 and so far I have been flooded with 0 submissions. In otherwords, NOBODY HAS BOTHERED TO SEND ANYTHING IN. I hope this is not an indication of the kind of support STARNIGHT is going to receive. I will therefore provide a new deadline of AUGUST 15, 1975! Why August 15th? Because I leave for Toronto and the Planetarium Association of Canada conference on August 22 and I will NOT be back at work until Monday September 8. Since printing takes 7 to 10 days, the brochure MUST be ready to go by August 21, unless someone else would like to play Editor. So get writing and let's see if we can outdo last year.



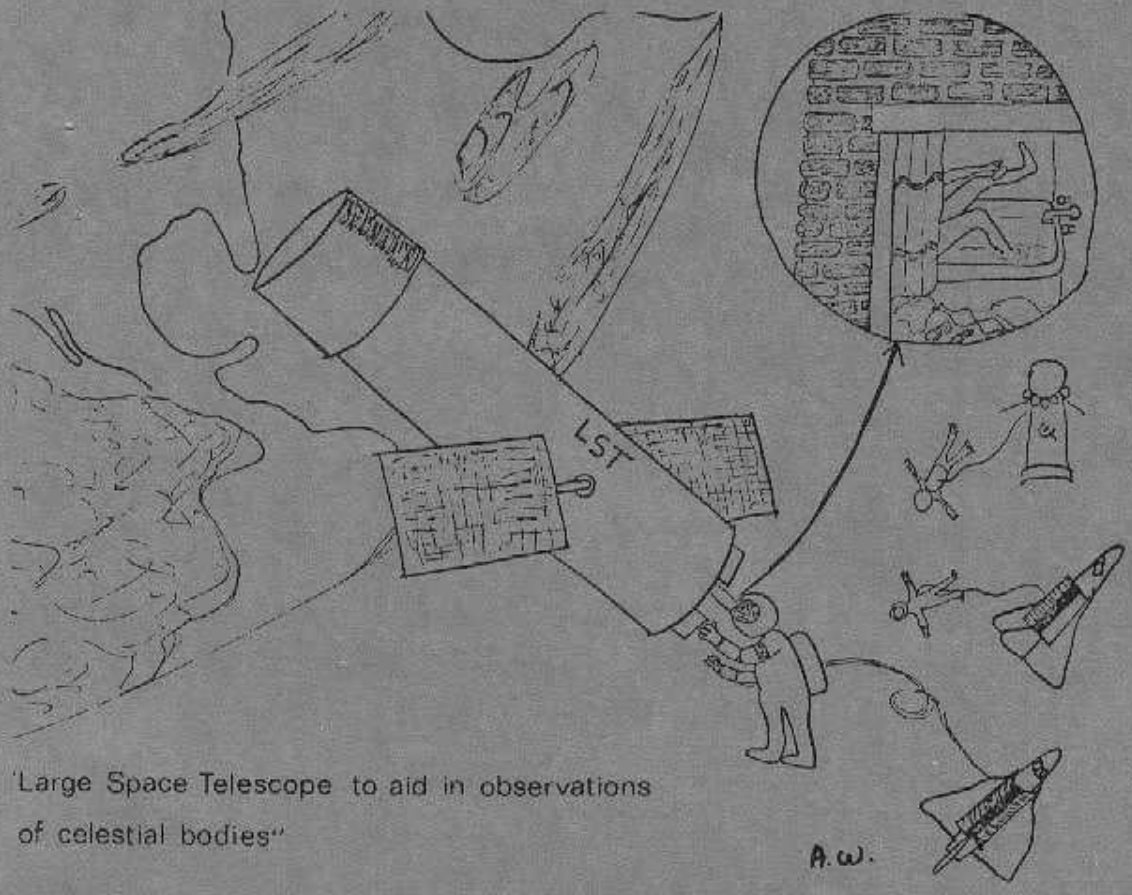
OBSERVING

Get the telescope and binoculars out...a comet has arrived!! This one is no great shakes, but it is easily visible in binos since it is hovering around 4th magnitude. The name is Comet KOBAYASHI-BERGER-MILON (1975h) and was found in early July. The most recent I.A.U. Circular describes the comet as being diffuse with a central condensation but with very little in the way of a tail. The following table lists predicted comet positions and magnitudes until the time of perihelion on September 5, 1975. The dates are 00:00 hrs U.T. which translates to 18:00 hrs M.D.T. of the day before.

The size of the central coma seems to range (according to who did the observation) from 6 to 25 minutes of arc. There is a small tail now visible (July 22) which may get longer later on. The comet has been seen in a variety of instruments down to 7 x 50 binoculars. This provides an excellent opportunity for everyone to get out, observe

and photograph the comet. It seems that after perihelion not only will it be in the morning sky, but it will head rapidly for the southern skies.

DATE		RA	DEC	MAG	DATE		RA	DEC	MAG
July	31	14:11	57°06'	5.2	Aug	18	11:44	42°14'	
Aug	2	13:37	55 11			20	11:37	40 56	4.8
	4	13:11	53 11	5.3		22	11:30	39 39	
	6	12:50	51 16			24	11:23	38 19	4.6
	8	12:34	49 29	5.3		26	11:17	36 55	
	10	12:21	47 50			28	11:10	35 25	4.3
	12	12:10	46 18	5.2		30	11:04	33 49	
	14	12:01	44 53		Sept	1	10:59	32 05	4.1
	16	11:52	43 32	5.0		3	10:53	30 13	
						5	10:48	28 12	4.1



"Large Space Telescope to aid in observations of celestial bodies"

A.W.

THE HISTORY TEMPLE

Old Jorrl moved slowly, dragging his heavy feet over the rough concrete of the floor, breathing in short wheezing gasps, leaning wearily on his thick gnarled cane. Age was all about him -- in the air, in the incessant ticking of the ancient clock on the wall, in every inch of the History Temple. Jorrl often chuckled when he thought of that strange title -- he lived in a "temple" and therefore he was a "priest". Well, perhaps the idea was not so incongruous after all: for a priest is a saver of souls, and was not he, Jorrl, also the guardian of men's souls? Yes, he was the caretaker of a graveyard, in charge of the preservation of a memory.

Pulling himself steadily along, Jorrl arrived inside the great Inner Chamber. His cracked old lips separated and he sighed a heavy sigh of pride. This was where he spent most of his waking hours, and where he often slept too, surrounded by the high broad walls with their countless stacks of name-plaques waiting constantly for the slight pressure of an anxious finger on a particular button to cause them to slide instantly into view. Jorrl's fingers fondly stroked the control panel. He hesitated a moment, pondering, then made his selection and stood back in the centre of the room, watching as plaque No. 547 slid silently outwards from the wall. He shuffled stiffly over to it and peered at the engraved words. Ah! The "J's"! Jackson, Jacob, Jefferson, Johnson,... Thousands more, each name belonging to some long-dead historical figure who had left his mark indelibly etched upon the face of time, and his name indelibly imprinted on this metal slab. Jorrl's rough grey hand gently patted the plaque. His calloused old fingers traced lovingly over the grooves of a famous name. For each name -- a man! For each man -- a memory!

For all the names, all the men, all the memories -- one Keeper -- One Jorrl!

"Good morning, Jorrl."

The voice was like a hammer, crushing the silence with one vicious stroke. Jorrl turned quickly -- as quickly as his feeble legs and his plodding brain patterns would allow.

"Ah!" The exclamation caught in his throat and it tasted sour. "It is you, Mindra. I had forgotten your appointment." The old man's voice was confused, and tinged with a subtle hint of annoyance, perhaps even of anger -- although that was an emotion which Jorrl has so long ago worn out that he scarely recognized it -- anger at this unaccustomed invasion of his privacy. "I have few visitors here, you know."

Mindra had turned from the old man and was now allowing his young eyes to roam the walls, swiftly memorizing its even patterns of rectangles and buttons, filing each detail away for future use. He looked at Jorrl, and the rugged lines of his handsome face melted into a wide smile. "So this is the famous Inner Chamber!" he said, the youthful eagerness of his words echoing strangely in this place of shadows. "Quite impressive!" Mindra walked over to the plaque which was still jutting from the wall. "I see you have been looking at some of the "J's". He glanced quickly down a few columns. "Most interesting," he commented. Jorrl pressed the control button and the plaque swiftly slipped back to hide itself among its brothers. Mindra whirled about to face the old man. He spoke, choosing his words carefully, softening his tones with understanding and a knowing compassion.

"It is time, Jorrl. I am ready to begin my apprenticeship."

"I have my papers here." He removed a thick roll of documents from his pocket and handed them to Jorrl, who took them quietly without unfolding them. Jorrl looked thoughtfully at Mindra's young face for a few moments, then he said, "Come," and taking the other's hand in his own he led him in silence through the Temple corridors to the outer door.

Together they stepped out onto the narrow porch. A space many acres in area had been completely given over to trees, grass, well-cared-for colourful flowers, and here and there a fountain or two. In the distance could be seen the gleaming white towers of the Cities, scarely hinting at the bustling tumult of life within. But here all was peace and the eternal quiet of the past, of the dead men whose names were enshrined here inside the Temple.

Jorrl pointed to a City. "It was They who decided to build the Temple. They were possessed by a deep craving which most of them barely understood, a craving for something which they were rapidly losing through their own inability to comprehend their needs. You see, after many years of continually looking toward the future with all hopes and promises it held, they became unwilling to consider the past any longer. It was regarded as a burden in the minds of men, an unwelcome thorn pricking their memories and their happiness. For each glorious event or thrilling hero of history there was another reminder of man's inhumanity, a record of the terrible pageant of human suffering. But for the most part, it was simply laziness which caused people to become less and less interested in the past, until eventually the only history books left were the battered and ancient copies on display in museums and libraries. Students of history became very rare creatures indeed."

But the ties with the past were too strong to be broken so abruptly; man has always been a sentimental animal. The people needed a way to preserve just enough of the past to satisfy their consciences without troubling their sensibilities. After much deliberation and frustration, they built the History Temple."

Jorrl's arm swept a wide circle in the direction of the Temple. His eyes were glowing with the satisfaction of a proud father. Mindra had listened patiently to the discourse, and now he made a dissatisfied frown.

"I have been told most of this before, in preparation for my succession to your post," he said. "But always I have been unable to understand how the History Temple can fully satisfy the needs of the people. Inside are many rows of name-plaques, names -- and that is all. There is no record of the deeds accomplished by the men whose names are there. What possible purpose can the names serve? A name is meaningless in itself."

Jorrl smiled tolerantly. He should, he realized, be grateful that there would be an intelligent, energetic young man to carry on after he was gone; for Jorrl deeply loved his work. It gave him great pleasure to speak of it now to Mindra.

"My boy, the names on those plaques are deeply significant in the very fact that each of them represents a man. To me, the men live on in their names. I feel no longing to know them personally or to discover their accomplishments. It is enough for me to know that they did once walk this earth, and that their names are engraved within."

"A name means nothing, old man!" Mindra spat, angrily. "A name is just a combination of letters, arbitrary, soulless symbols! My God, Jorrl! Don't you realize how disgusting, how callous it all is? Think, Jorrl! Men strove for a lifetime, gave all they had, sacrificed their body and soul, so that their descendants might enjoy a better life, might benefit from their experience and their wisdom. And how do we show our gratitude? Do we at least give them the credit due them by remembering the lessons they tried to teach us? No! Oh, No! We, fools that we are, push them deeper into their graves and content ourselves with keeping their names! Jorrl, we have re-murdered our ancestors. We are heartless idiots, all of us!"

He clasped his head in his hands, and leaned weakly against the Temple. Jorrl stared at him in shocked incredulity. He moved closer and patted his shoulder.

"Poor lad. How can you speak this way? You must chase these foolish notions from your brain if you are ever to be happy here. You must learn to look upon the Temple as I do, you will be spending the rest of your life here. See, here are your papers." He waved the roll in front of Mindra's face. His old voice sounded deeply distressed.

"Yes, my papers," said Mindra scowling at them. "And because the government chose me for this position by some random selection of numbers, I am condemned to spend my life among stacks of rubbish that do not have even sentimental value. I am doomed to live a worthless existence in isolation, for even though they will never

admit it, the people know that they have killed something precious which can never be regained, and they can never come to visit the Temple. They know the names have no value, though they stubbornly preserve them and sing their praises. There is not one of them who remembers what deed a single one of those "names" was responsible for. Why, I believe it actually would trouble their consciences if they were to come here and see this eternal monument to their folly. Perhaps the History Temple really does serve a purpose, in preserving itself, it is a shallow, savourless purpose, unworthy of regard."

"Now, now, Mindra," said Jorrl in his most patronly tone, "I can see that you have a restless spirit, a scrupulous mind which will never be satisfied. I too was once somewhat like you. But it passes with the years." He smiled reassuringly. "As you grow older you will come to feel as I do. You will love the Temple and all it represents. You will see the names live and are important. You will not mind any longer the separation from your fellows. Take my word for it -- you will soon enjoy the peaceful life here; you will soon be proud to be Keeper of the Names."

Mindra looked deeply into the dim emptiness of Jorrl's eyes, and with a sudden chilling horror at the thought, he knew that the old man was right.

Miss Christine Kulyk

FOR SALE

Tasco Astronomical Telescope, 4½ inch Reflector. Phone Gordon Kijek at 424-9784 or 422-6930. Price is $180.00. NEW CONDITION. Has Equitorial mount with adjustable wooden tripod, slow motion controls on both axis, setting circles, 45X and 150X lenses with a 2X Barlow, 5X Finder Scope, sun and moon filter, dust cap and sun cap included. This is the standard Tasco model 4½ inch. (Get it just in time to see the comet!)

Edmonton Centre Council

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Social Committee Chairperson	Audrey Loehde	477-8881
Observer's Group Representative	Eric Peterson	465-2814

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

Anyone interested in one of the many facets of astronomy; be it star-gazing, telescope making, Astronomical or Space Science theory can find an opportunity for sharing and increasing those interests by becoming associated with the Royal Astronomical Society of Canada, Edmonton Centre. Membership in the R.A.S.C. includes complementary admission to the Queen Elizabeth Planetarium as well as receiving the annual R.A.S.C. Observer's Handbook; STARDUST, the monthly bulletin of the Edmonton Centre and the Journal of the National R.A.S.C. published bi-monthly. The R.A.S.C. has centres in major cities across Canada with headquarters in Toronto.

Meetings of the Edmonton Centre are normally held on the second Monday of each month (From October to June inclusive), at 8:00pm in the Queen Elizabeth Planetarium. These meetings feature guest speakers including astronomers (radio and optical) and other individuals interested in various aspects of the science. In addition to these regular meetings we organize each year in September an observing session called STARNIGHT for the public, and a banquet held in November.

Enquiries regarding membership may be directed to the President, Mr. Gary Prideaux or the Treasurer, Miss Christine Kulyk, or come to a monthly meeting and ask at that time.