NATIONAL NEWSLETTER

December, 1979

Supplement to the JOURNAL OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

Vol. 73, No. 6

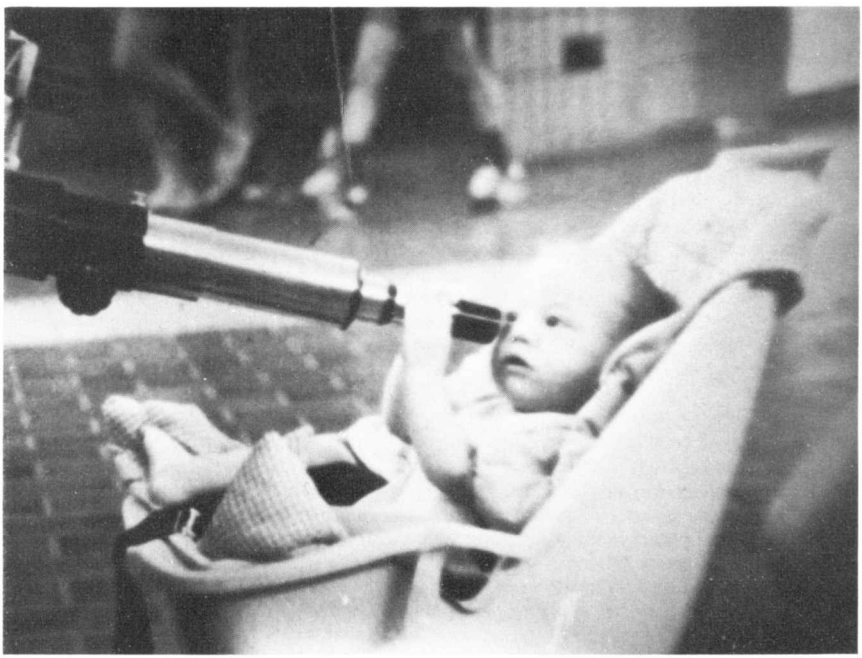


Photo by Leo Enright

Miss Jones! Call up my colleague in Bethlehem and ask HIM for the spectral classification of HIS star. I think I've found it!

NATIONAL NEWSLETTER

December, 1979

Editor: B. Franklyn Shinn
Associate Editors: Ralph Chou, Ian McGregor
Assistant Editors: Harlan Creighton, J. D. Fernie, P. Marmet
Art Director: Bill Ireland *Photographic Editor*: Richard McDonald
Press Liason: Al Weir

Regional News Editors
East of Winnipeg: Barry Matthews, 2237 Iris Street, Ottawa, Ontario, K2C 1B9
Centres français: Damien Lemay, 477, Ouest 15ième rue, Rimouski, P.Q., G5L 5G1

Centre and local items, including Centre newsletters should be sent to the Regional News Editor. With the above exception, please submit all material and communications to:

Mr. B. Franklyn Shinn,
Box 32 Site 55, RR #1,
Lantzville, B.C.
V0R 2H0

Deadline is six weeks prior to month of issue

The Mall Display in Kingston

by Leo Enright
Kingston Centre

The Kingston Centre's mall display at the Kingston Shopping Centre on Saturday, August 4th was an excellent success. It was a chance for members of the Centre to display their instruments, astrophotography, and other resources, and to talk to the public about their projects and interests.

There was considerable interest in the Centre's new 10″ reflector and in David Levy's Talking Telescope (shown on our cover intriguing one of the youngest visitors to the display) which just a week before had been a prize-winner at Stellafane. Other attractions included the astrophotography displays such as the writer's eclipse photos and auroral shots, and Leslie Robert's Deep Sky Objects. Four of the photos were used in constructing two games which people stopped to play. One of them involved locating on a lunar map the areas shown in Leo Enright's lunar crater photos, and the other was the challenge of locating the planet Pluto (the faint object which moved) on two of Leslie's recent photographs. It was a real challenge, but many enjoyed the fun of trying to spot the remote planet.

There were few dull moments between 9:00 am. and 5:00 p.m. as a steady stream of people stopped to talk about everything from comets to black holes, and what we did when we observed and how we did it. There were numerous explanations of how a Newtonian reflector works, and how a folded refractor (the Talking Telescope) operates, but for an answer in the latter case the inquirer merely had to listen to the beautifully done recording which the instrument itself provided. Information about our Society was provided in a three-page

handout which explained the purposes and activities of the RASC Centres and the advantages of belonging to one of them. We hope to acquire a few new members as a result of the effort.

For the success of this event, our first mall display, we want to thank those who contributed photographs, Mike Payette and Leo Enright who organized it, and David Levy, Doug. Baker, and Denis Belanger who were also there for most of the day, or all of it.

A Talking Telescope

by Leo Enright
Kingston Centre

For most astronomers the name "Mintaka" means one thing – the name of the bright star δ Orionis, the westernmost and first-rising of the three stars in the Belt of Orion. For members of the Kingston Centre, however, the name now clearly means something much more. It is also a "star" in the field of astronomical instruments; a telescope that in a short life-time has won fame and acclaim.

Mintaka is the name given by David Levy to the newest member of his very large family of telescopes. It could be described in many ways. Probably unique in the world, it incorporates several unusual ideas. Basically it is a four-inch folded Unitron refractor designed and built by David Levy of Kingston Centre and Constantine Papacosmos of Montreal. Using a system of light-bending by means of two optically excellent plane minors placed between the four-inch objective and the eyepiece unit, the system gives an arrangement whereby the observer faces in the opposite direction to the object being observed. Alignment simply involves looking through the finder scope which looks back toward the eyepiece end of the tube and is conveniently located near the eyepiece. The light-folding arrangement is inside a compact cabinet, beautifully designed and a reminder of the speakers of a fine stereo sound system. This compact cabinet fits on a base which provides the system with an altazimuth mount. By such an arrangement, far more compact and convenient than most four-inch refractor systems, the whole setup can be transported in two pieces. In addition to these distinct advantages, the telescope affords convenience and ease of viewing – in fact it is a delight to use. Incredible as it may sound to many users of telescopes, a vast area of the sky can be viewed from sitting comfortably in a chair.

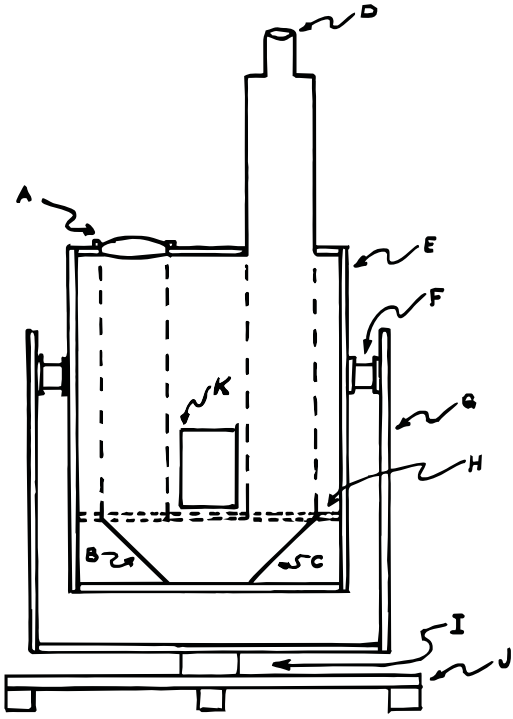
Now a word on what makes this a really unusual instrument! Inside the cabinet is a tape recorder which plays voice recordings and music, and the quality of reproduction here rivals that of the optical system (if it is possible even to be a rival to that optical system). In effect it is a talking telescope. The audio system has fine potential. It can be used to prerecord for the observer a list of and descriptions of objects he wishes to observe on a certain night, and he can have the list and positions of each read off to him as he finds them. Meanwhile classical music wafts through the air around the observer maintaining his spirits and adding to the ease of the observing session. (David claims that the music does not affect the optics of his system!) (Imagine the future potential if there is ever found to be a type of music both pleasing to man and frightening to mosquitoes!)

The whole system is not just a showcase of unusual ideas, not just a beautiful curiosity. It is a genuine telescope which does in extremely fine fashion what telescopes are supposed to do. On the occasion when members of our Centre had a chance to use the Talking Telescope, its performance was nothing short of amazing, and a tribute to the work done by Constantine and David. The view of the lunar craters was simply superb, remarkably clear and defined at every power we used, and that ranged from relatively low to extremely high. All of that was under conditions that were less than perfect because of atmospheric haze and light pollution. The optical system, in other words, is outstanding.

Mintaka, the talking telescope, was entered at Stellafane last month in the Refractor Category, and it won Third Prize. As I observed the lunar craters on the occasion mentioned above, I kept thinking to myself, "If only the judges at Stellafane had had the chance to

observe through this instrument!" I thought it surely would have won even a higher prize. However, as Walter Scott Houston said, "When you win at Stellafane, you don't need to win anywhere else."

"Mintaka" has provided us with a milestone, for it is the first time a member of our Centre has entered and has won at Stellafane. For a remarkable accomplishment, congratulations to David Levy and Constantine Papacosmos.



A. 4 inch Unitron objective.
B. 4 inch optical flat.
C. 3 inch optical flat.
D. Eyepiece.
E. Plywood box housing speaker. Unitron drawtube continues inside as shown by dotted lines as cardboard tubes to reduce reflection and restrict dust.
F. Altitude bearings of black plastic pipe.
G. Plywood fork.
H. Plywood shelf within box as baffle.
I. Azimuth support from car water pump.
J. Wooden base.
K. Cassette recorder housed inside box.

Diagram of "Mintaka", David H. Levy's Talking Telescope.

Call for Papers

Bluenose General Assembly
Halifax, June 27–30, 1980

The next General Assembly of the RASC is to be held in Halifax on the July 1st weekend at Saint Mary's University. This will be a unique General Assembly because it will overlap with the annual meeting of the Canadian Astronomical Society/Societe Canadienne d'Astronomie (CASCA). This is the first joint meeting of the two societies since the formation of CASCA almost ten years ago. For those who may not be aware, CASCA is the organization of the professional Canadian astronomers. Their membership numbers about 250, most of whom work in Canada

but with a number of others in the USA, Britain and elsewhere. Their meeting is scheduled for Wednesday June 25 to Saturday June 28 and RASC members are cordially invited to attend their sessions and they may of course reciprocate by participating in ours.

Joint RASC/CASCA paper sessions are to be held on Saturday June 29 in which it is anticipated that members will present papers which are of interest to both amateur and professional astronomers. Sunday paper sessions will only include RASC paper sessions. Topics for either Saturday or Sunday sessions may deal with any aspect of astronomical activity. Please note that because of the nature of our Society, we will not be able to accept papers for these sessions which may be commercially oriented. Authors may request a Saturday or Sunday time for presentation of their paper, however, the Organizing Committee will set the final timetable to establish a suitable balance of subject material.

The following procedures for submitting papers for a GA have been specified by National Council. All *members of centres* must present to their centre's executive or council a draft of the paper (not just the abstract) for approval. The abstract may then be forwarded by the centre executive to the Organizing Committee. *Unattached members* may submit their draft to the Organizing Committee directly for approval. Any member who cannot attend the GA may request to have his/her paper read in his/her absence by either someone appointed by him/her or by someone appointed by the Organizing Committee. *Abstracts and drafts* are to be sent to:

Dr. R. Murry Cunningham
Paper Sessions Chairman
6299 Payzant Ave.
Halifax, N.S.
B3H2B2

Anyone presenting a paper who requires audio-visual equipment other than 2 x 2 slide projector or overhead projector should notify:

R. C. Brooks
Dept. of Astronomy
Saint Mary's University
Halifax, N.S., B3H 3C3

In addition any member who requires diagrams drafted and slides prepared for a paper, may contact R. C. Brooks. This service is being provided by the Halifax Centre at no cost. All that is required is a detailed draft of the material along with any special instructions.
Because this is an overlapping meeting with another society, the Organizing Committee in Halifax would like to encourage our members to come up with a wide variety of subject material which demonstrates the diversity of activity within our group. We would also request that you adhere to the following deadlines:

Friday 16 May:	receipt of abstracts and drafts from unattached members
Monday 2 June:	receipt of approved abstracts from centre executives
Monday 9 June:	receipt of material to be prepared for slides
Monday 9 June:	receipt of papers to be read for members
Monday 15 June:	receipt of request for special A-V equipment.

Randall C. Brooks,
Halifax Centre
Organizing Committee

Nouvelles des Centres Québécois

de Damien Lemay

CENTRE D'ASTRONOMIE DE MONTREAL

Le réseau Radio-Québec est à préparer une série de 36 émissions de télévision, intitulé "Sciences et Fiction" . La SAM a été invitée a y participer (à temps partiel), à titre de pourvoyeur de bonne idées. C'est une bonne occasion de démystifier l'astronomie et d'apporter une touche scientifique à l'explication des phénomènes OVNI. Un effet inattendu de cette implication de la SAM est le nombre d'appels téléphoniques de la part de badeaux supposément témoins d'OVNI. Si celà continue, ça va finir par occuper une part non-négligeable du temps du personnel au secrétariat.

Le premier CAFTA (Concours Annuel des Fabricants de Télescope Amateur), à la fin du mois d'août fût très satisfaisant pour les organisateurs. On y a reçu plus de 100 amateurs, dont près de 20 concurrents au concours proprement dit. L'année prochaine, ce concours se répètera et, étant donné une publicité plus a l'avance, on espère agrandir le cercle des participants.

CENTRE DE QUEBEC

La collection du "Journal of The RASC" de 1907 à 1922 a été cédée à la bibliothèque des Sciences de l'Université Laval pour lui permettre de compléter sa collection. De l'avis général, ces documents historiques auront une meilleure résistance à l'usure du temps à leur nouvelle résidence, tout en demeurant accessibles.

Conformément aux statuts de la SRAC, le Centre de Québec a créé une nouvelle catégorie de "membre associé". Ce dernier n'a pas droit de vote, ne reçoit pas le "Journal of the RASC", ni l'annuaire astronomique de l'amateur mais reçoit le Bulletin et la revue Magnitude Zéro de l'AGAA(10 numéros par année), etles publications gratuires. Coût: $6.00 par année.

Le Temps: La Mesure de l'Astronomie

par Real Manseau
Drummondville

Depuis quelques années, ma curiosité à été toujours grandissante sur les évènements et les réalisations du passé. Je me suis laissé attirer par les vieilles méthodes de mesure du temps dans l'histoire antique. Mes premiers goûts m'ont été donnés par de magnifiques photos et documentations sur les monuments de Stonehenge en Angleterre. Par la suite l'avant propos de plusieurs livres sur l'astronomie est toujours consacré aux premiers peuples qui commencèrent à remarquer le mouvement de la voute céleste et à attribuer à tous ces phénomènes du ciel, des mythes ou de vieilles religions archaiques.

Dans un des ces livres, une représentation d'une sphère armillaire ou globe armillaire m'a frappé par sa beauté artistique et son style. Une sphère armillaire est une représentation du système solaire, avant Nicolas Copernic (1473) qui à énoncé que la terre n'était pas au centre de l'univers mais qu'elle tournait autour du soleil. Quelques sphères armillaire ont été construitent par Archimède 300 ans avant J.C. Il placait le globe terreste au centre de la sphère fabriqué de cercles tout autour, elle représentait les cinq planètes de l'époque et la bande du zodiaque, graver des constellations représentant les étoiles fixes.

Mes voyages de vacances annuelles m'ont perois de photographier quelques vieux cadrans solaires qui ornaient les muses ou les parcs nationaux. Je me suis procuré de la documentation sur les différents types de cedran solaire et j'ai opté pour le plus près de mes goûts et aspirations pour la construction de mon cadran solaire. Voici quelques détails sur l'origine du cadran solaire. Les plus anciens proviennent des fouilles de Earl of Carnavone à Thebes en Egypte, un simple bloc de pierre taillé à la latitude teneste et marqué de quelques lignes qui au passage de l'ombre du soleil permettent de lire l'heure. Les Egyptiens eux, en fabriquaient 300

ans avant J.C. d'un bloc de pierre surmonté d'un autre bloc plus grand, ce qui faisait une ombre sur le plus petit un peut comme les corniches font de l'ombre sur le mur de la maison. Par la suite les artistes sculpteurs et forgerons du temps en produisirent dans tou.t 1' Europe jusqu'à nos jours.

On trouve des cadrans horizontaux qui peuvent être rectangulaires ou ronds, I'ombre est produit par un style placé à la latitude du lieu, ce sont les plus conventionnels.

Le cadran vertical déclinant ou mural est très beau, il orne souvent une facade de maison ou une porte de garage. Le cadran équatorial est communément employé mais indique l'heure que six mois par an. Les dernières techniques sur les cadrans solaires ont apportées la correction du temps ou équation du temps entre l'heure solaire et l'heure moyenne de nos montres par le gnomon, qui est une tige de laforme d'une carotte et qui après uncertain calcul fait au préalable, corrige l'heure solaire vrai automatiquement. Un modèle qui m'a beaucoup impressionné, est celui qui se trouve devant le Planetarium Dow de Montréal. J'ai étudié ce style de cadran équatorial etj'y ai mis ma touche personnel dans le corps du cadran, qui est futuriste, un mélange d'antique et de futuriste, donne ce que vous voyez dans la photo.

Cadran Equatorial 46″ Diametre. Il manque la fondation en pierres.

Slide Catalogue

A revised catalogue of the 35 mm slides in the National Library is now available. Copies can be obtained by writing to the Executive Secretary, Royal Astronomical Society of Canada, 124 Merton Street, Toronto, Ontario, M45 2Z2.

Occultations and Eclipses of Saturn's Satellites for 1980

Predictions of these phenomena have generously been provided by the British Astronomical Association in advance of publication in their *Handbook*. Unfortunately, the predictions were received too late to be included in the 1980 *Observer's Handbook*. A copy of the predictions has been sent to each Centre, and additional copies can be obtained by sending a stamped self-addressed 4″ x 9″ envelope to John R. Percy, Department of Astronomy, University of Toronto Toronto Ontario M5S 1A7.

Nominations for RASC Officers 1980–81

The By-Laws of the Society provide for a Nominating Committee composed of the three surviving immediate Past Presidents, whose duty it is to prepare a slate of candidates for the offices of the Society.

Next June, we must elect the following officers: President, 1st Vice-President, 2nd Vice President. Normally, there is a progression through these offices: the 2nd Vice-President becomes 1st Vice-President; the 1st Vice-President becomes President. However, this progression is not dictated by the Constitution, and alternative nominations may be made for any of these offices.

If any member wishes to make suggestions in this regard, he should contact the Committee Chairman, Dr. A. H. Batten, c/o the National Office, 124 Merton Street, Toronto, Ontario, M4S 2Z2.

As well, the By-Laws provide that "any five members of the Society, in good standing, may nominate additional candidates for any vacant office, provided that such nomination, accompanied by a letter of acceptance from the nominee shall be received by the Secretary of the Society, not less than sixty days before the date of the annual meeting".

It would be appreciated if any such nominations, (together with a short résumé) were submitted no later than April 1, 1980, in order to allow for the printing and mailing of ballots. Full details pertaining to nominations are outlined in By-Law 1, Article 11(a), as published in the June, 1969 Journal, pages 155–168.

Duty-Free Astronomical Equipment???

By Peter Jedicke
London Centre

Over two years ago, the federal government's Minister of Revenue instructed the Tariff Board to investigate a wide range of items in the schedule of tariffs which fell under the general classification of hobby equipment. In late August, 1979, the Tariff Board presented its report to the new government, after receiving over 700 submissions and holding many hours of hearings in some centres across Canada. The report recommends the removal of duty on most types of astronomical equipment.

There are, however, a typical number of qualifications and unstated rules which dilute the joy which this decision has caused. For instance, cameras are not considered astronomical equipment

Another specific item which is of concern to telescope makers deals with mirror and lens blanks. According to tariff schedule 32633-1, "glass shapes not further manufactured than rough cut or unwrought for use in the manufacture of optical instruments" qualify for duty-free entry. The catch here is the word "manufacture." In order to qualify under this item, the importer must be a licensed manufacturer of optical instruments, and not merely an end-user such as an amateur telescope maker, says Gordon Coady of the Tariff Department at the Customs Office in London, Ontario.

If an importer tells a customs officer that an article being imported qualifies under a low-tariff provision, but the customs officer can find another item in the schedule of tariffs (all 2000 pages of them) which he is convinced also applies, then the higher rate applies, explained Mr. Coady.

The good news is that, once the Tariff Board turns its recommendations into official procedure – and this seems imminent – there will be a schedule entry which will provide free entry under the British Preferential and Most Favoured Nation tariff (the United States is a Most Favoured Nation) for "astronomical telescopes having an objective minor not less than 3 inches and not more than 20 inches in diameter or having an objective lens not less then 2½ inches and not more than 8 inches in diameter; mountings therefor; parts of all the foregoing." A special phrase, "n.o.p.", which stands for "not otherwise provided for," has been omitted from the recommendation. The result of this intended omission, according to the Tariff Board's report, is that parts of telescopes must be "classifiable as such" in order to qualify. In other words, it is up to the importer to convince the customs officer that those funny looking nuts, bolts, shafts, gears and tubes really belong on a telescope, or pay the regular rate on nuts, bolts, shafts, gears and tubes.

Not that all this bureaucracy has ground to a halt, of course. The Tariff Board is still inviting suggestions and comments, even though they do not plan to hold further hearings. And if you still aren't pleased with what the customs officer has charged you, it is always possible to Complain To Your Member. You could even Launch An Appeal, although finding out how to do this might be a very painful learning experience.

Bibliography for Amateur Radio Astronomy

Compiled by Dr. W. Lonc, Saint Mary's University
Halifax

A. *BOOKS AND MAGAZINES*

Heiserman, David. *Radio Astronomy for the Amateur*, TAB Books #714, 1975. Blue Ridge Summit, PA., 17214.

Heywood, John. *Radio Astronomy and How to Build Your Own Telescope*, Arc Books Inc., 219 Park Ave. S., N.Y. 10003, 1969.

Hyde, F. *Radio Astronomy for Amateurs*, Norton Co., N.Y., 1963.

Lichtman, J., and R. M. Sickles, *Amateur Radio Astronomer's Notebook*, 421 SW. 79th Terrace, North Lauderdale, florida, 33068. $20.00; includes cassette tape of pulsars, sun noise, and Jovian bursts.

Shields, J. P. *Introduction to Radio Astronomy*, Howard W. Sams, #21246, 1976.

Smith, F. Graham. *Radio Astronomy*, Penguin Books, 3rd ed. 1966.

National Radio Astronomy Newsletter, edited by Todd Ferson, 4900 E. Hillcrest Drive, Des Moines, IA 50317.

B. *ARTICLES*

Alexander, J. K., and L. W. Brown, "A Radio Telescope for Amateurs", *Sky and Telescope*, April, 1965.

Burns, S. J. "Radio Astronomy for Radio Amateurs", *73 Magazine*, December 1972.

Cadmus, R. C. Jr., and J. L. Warren, "A Solar Interferometer Operating at 3 Centimeters", *Sky and Telescope*, Sept. 1968.

Codling, J. C. “Radio Astronomy as a School Activity” , *Wireless World*, May 1974.
Downes, D. N. “A Simple Radio Telescope”, *Sky and Telescope*, August 1962.
Doylerush, E. “The Development of a Total Power Radiometer”, *J. Brit. Astr. Assoc*. 1969, 79,4.
Duncan, “Radio Telescope Project at Frensham Heights School”, *Wireless World*, June, 1975.
Elmegree, Debra Meloy, “Tuning in on Radio Astronomy”, *Astronomy*, December, 1977.
Hancock, Dale, “Monitoring Solar Flares at Radio Frequencies”, in *Observe*, Astronomical League, Science Service Building, 1719 N. Street, NW, Washington, D.C., 20036.
Heiserman, David, “An Introduction to Radio Astronomy”, *Popular Electronics*, January, 1976.
Luehrmann, Paul, Jr. and D. Meisel, The *AMS Radio Scatter Program*, AMS Bulletin No. 203. Available for $1 from: P. Luehrmann, 7969 Hunters Knoll, Cincinnati, OH 45242.
Lund, “Using Sun Noise”, *QST*, April, 1968.
Smith, J. R. “A Basic Radio Telescope”, *J. Brit. Astr. Assoc*., 1974, 84, 5.
Smith, J. R. “Amateur Radio Telescopes – Their Design and Adjustment”, (Parts I and II), *J. Brit. Astr. Assoc*., 1970, 80, 5 and 6.
Smith, J. R. “Reduction of Radio Telescope Recordings”, *J. Brit. Astr. Assoc*., 1969, 79, 5.
Stong, C. L. (ed) “About Two Radio Telescopes”, in *Scientific American*, Feb. 1962, p. 163.
Swenson, G. W. Jr., “An Amateur Radio Telescope” (Parts I to VI), beginning in the May 1978 issue of *Sky and Telescope*.
Tapping, K. F., “Amateur Radio Astronomy” (Parts I to IV), beginning in the February 1978 issue of *National Newsletter* of the RASC, 124 Merton St., Toronto, Ont. M4S 2Z2.
Tapping, K. F. “The Distribution of Solar Radio Flux Levels and Oscillatory Bursts” ,*J. Brit. Astr. Assoc*., 1976, 86.
Taylor, J. H. Jr., “Low Cost Radio Telescope”, *AM. J. Phys*. 1964, p. 546.

The Rystrom Observatory: Part I

By G. N. Patterson

Like all Centres, the Saskatoon Centre has had a dream of owning its own observatory located at a readily accessible dark site. The major problem was putting all these requirements together and coming up with one location. The site obviously had to be out of the city, to the south to get away from city glow, away from the brightly lit potash mines, on a tenanted farm (to prevent vandalism), and accessible even after heavy snow storms. Above all, we had to have the owner’s permission and cooperation.

All these conditions and requirements came together on the farm of Mr. Ed. Rystrom, five miles south-east of the city. The Observers’ Group of the Centre had used this area for two winters, from 1976–77, and 1977–78. The Grand Prize winning Star Atlas, (Toronto GA ’77) was photographed from this site from a portable pier without wind shelter. The 77–78 winter showed that some form of shelter was mandatory. Centre members had established an excellent rapport with Mr. Rystrom by their dedication to their hobby, and by their behaviour so that when he was approached by Mr. Patterson, he readily agreed to the construction of an observatory on his property. This permission was received just prior to the 78 GA in Edmonton so all planning was shelved until after this event.

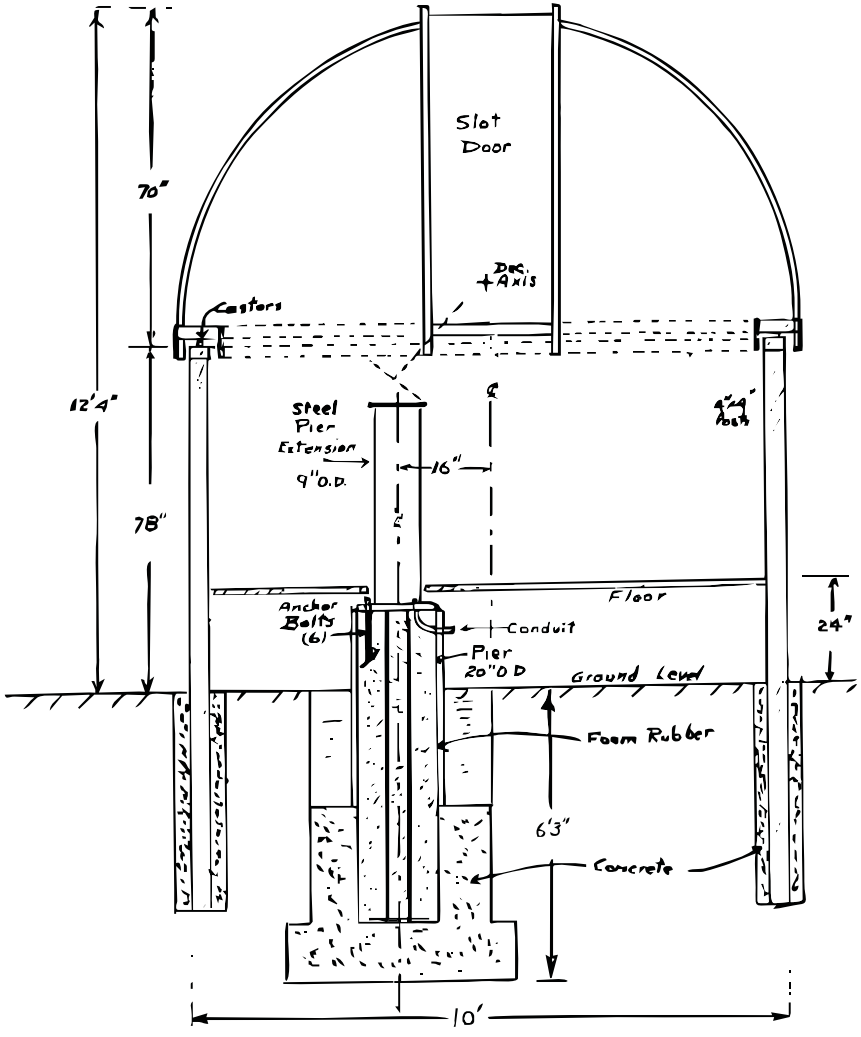
Before the project could get started, two major requirements had to be settled: Specifications and Funding. What kind of an observatory, how big, shape, etc, and how was the Centre to raise the money?

It was generally agreed that with five Celestron-8’s in the group, the observatory should be designed around the C-8, but with the capability of being modified if and when the Centre should acquire a larger telescope. On this basis, a list of specifications was drawn up, modified, and then modified again, and then ... ! ! ! It turned out that a lot of the specifications had to be tailored to circumstances and availability of materials and tools, so the specifications

listed in this article represent the end product of many false starts, etc. The initial costing, based on incomplete data from early specifications, gave a guesstimate of about $600.00. Actual costs ended up much higher. However, on the basis of the above the project got under way.

SPECIFICATIONS

1. The observatory to be circular, ten feet in diameter, with a rotating dome.
2. The pier base to be concrete with its footing below frost level, and its top to be 16 inches above mean ground level. The center of the pier to be off-set to the south of the observatory so that the fork mounted declination axis will be at the center of the observatory.



Schematic Diagram of Observatory

3. A heavy steel pedestal to be mounted on the concrete pier to carry the wedge for the telescope.
4. The walls of the observatory to be built around eight 4″ x 4″ cedar posts spaced equally apart on a ten-foot diameter circle, with the posts imbedded in concrete and braced apart by ¾-inch thick plywood arc segments, each four inches wide. The tops of the posts to support a laminated plywood ring, two and one-half inches thick, with an outside diameter of ten feet, and a width of four inches . Sixteen castors to be mounted in this "castor" ring to mesh with a circular track in the underside of the dome ring permitting the dome to rotate. Walls of the observatory base to be covered in one-quarter inch thick tempered hardboard.
5. The floor of the observatory to be three-quarter inch thick plywood mounted on 2″ x 8″ floor joists, two feet above ground level. The floor of the observatory to be covered with carpet.
6. The dome to consist of a framework of curved laminated ribs, suitably braced, mounted on a laminated plywood base ring, grooved to mesh with the castors in the castor ring. The observation slot door to have a clear opening of two feet, carried over top center to permit vertical observation. Covering of the dome to be one-eighth inch thick untempered hardboard.
7. The observation slot door to be galvanized steel, carried in a slot frame permitting positioning of the door wherever required. Some provision to be made to secure slot door against outside entry.
8. An entry door to be provided into the observatory wall, fitted with a snap catch and dead-bolt lock. A concrete step to be provided to assist entry into the observatory.

Now the big question – where was the funding to come from? One approach was to apply to Council for a grant. The other was to try and go it alone. It was decided to see how much support the Centre could muster. Members were canvassed and asked to contribute twenty dollars if possible. Additionally, the Centre treasury was able to provide $200.00. Cash donations plus Centre funds amounted to just over $600.00. It was decided the Centre could handle this project alone. Several members offered their time and tools, and some who could not afford much money gave more than their share in work.

The site, approved by Mr. Rystrom, was on the southern edge of his farmyard area on the highest ground available, and was partially screened on the west and northwest by trees. As this was the direction of the city and the main highway, this screening was considered to be beneficial rather than detrimental. The area was used for storage of farm machinery but this caused no problems for the observatory.

Work on the project began on May 28th. While this article may lead one to think work at the field site and that at Mr. Patterson's place were separate, the work actually went on at both places at the same time. Several items had to be prefabricated in town and then moved to the field site for assembly. Most field work was done during week-end periods, whereas the work in town was largely done in the evenings after normal working hours, and during some members' summer holidays. For purposes of clarity, the work has been divided into two sections – that at the field site, and that at Mr. Patterson's home.

THE FIELD SITE

On May 28th the site was cleared of all tall grass and any debris, partially levelled, and a hole dug for the pier, all by hand and shovel. The hole measured three feet in diameter except for the last foot, which was enlarged to five feet in diameter. Depth was six and one-half feet. The footing for the concrete pier was mixed and poured on June 4th and allowed to set while the form for the pier was being prepared in town. This form consisted of a 20″ diameter Sonatube eighty-two inches long with a 4½″ diameter steel pipe mounted co-axially down the center of the sonatube, and held there with one-half inch thick steel reinforcing rods, top and bottom. The top of the steel tube was cut off square, and a sixteen-inch diameter, 4-inch thick round steel plate was mounted to the top of the tube with provision for levelling with push-me-pull-you screws. Six, three-quarter inch diameter, threaded holes were placed equidistant around the plate, about an inch in from the outer edge of the plate. These holes positioned the mounting

bolts for the pier pedestal, and the bolts extended down about two feet below the plate to provide anchoring in the concrete of the pier. Three additional holes in the plate permitted the installation of three electrical conduits to bring control lines and power up to the telescope inside the pier pedestal.

The pier form was taken out to the site, positioned upright and centrally on the pier footing and held there with special bracing. On June 24th the concrete was mixed and poured completing the installation of the pier. Later after the cement had set, plastic-wrapped foam rubber, two inches thick, was wrapped around the top three feet of the form below ground level and the rest of the hole back-filled, leaving the top sixteen inches of pier with its mounting bolts, sticking above ground level. The reason for the foam rubber was to minimize transmission of ground level vibrations. A special jig was made to mount on the pier, carrying a vertical pipe, offset sixteen inches north of the pier centre. This vertical pipe became the "center" of the observatory base. A special "compass" mounted with this pipe as its center, was used to scribe a ten-foot diameter circle on the ground. The circumference of this circle was carefully divided into eight equal parts, marking the positions of the post-holes for the 4″x 4″ cedar posts for the wall. The eight post-holes, nine inches in diameter and three and one-half feet deep, were dug very quickly using Merlyn's power posthole auger. The treated 4″x 4″ cedar posts were placed in these holes, and each post was rigidly braced top and bottom from the centerline pipe, all at exactly the same distance using 2″x 2″ wood bracing and pulling the posts back using baling wire twisted to act as clamps. The same technique was used to position the posts from each other, so that all posts ended up rigidly mounted in the correct positions for cementing. The construction at this time looked like a complicated bird cage. On July 9th the posts were securely cemented into position and, when the concrete had set, all the bracing structure and the false centering pipe were removed. A transit level was used to establish a common height mark on each post so that all posts could be cut off at exactly the same height to support the castor ring.

In July 22nd, Merlyn brought out the pier pedestal for fitting and welding. It was then removed for final fitting, and the castor ring was fitted to the top of the posts. Next followed the 2″ x 8″ floor joists, and then all the sub-flooring surfaces had to be treated with preservative. On August 5th the floor was installed, and work started on the walls. Braces were installed, the entry door framed in, and the sides covered in one-quarter inch thick tempered hardboard that had been previously treated with wall sizing. Panels were joined with T-moulding, and fastened to the posts and braces with screws. All panels were undercoated twice, then given a coating of good exterior white enamel. Once the paint was dry, a plastic cover was fastened to the base to keep out the weather until the dome was ready for mounting. The base was completed to this status by August 10th. Later the interior was undercoated and painted dark green by Mike, (a hot job working in under green plastic), and indoor-outdoor carpeting installed. Also, a concrete step was poured complete with landing to facilitate entry into the observatory. A railing still has to be installed to finish this part of the installation. The door was fitted with a standard door catch and a dead-bolt for security.

NATIONAL NEWSLETTER

Index for the Year 1979

Supplement to the JOURNAL OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA
Vol. 73 No. 1 through No. 6

First Space Shuttle Launch Visit

by Peter Jedicke

When the first space launch takes place in summer 1980, it is hoped that some R.A.S.C. members will be on hand to witness the historic event. In order to facilitate participation in this, it may be possible to obtain permission from the National Aeronautics and Space Administration to enter the viewing area which is relatively near the launch site. The R.A.S.C.'s National Council will have considered a plan at the meeting in Edmonton on December 9 to pass on to NASA a list of our members who will be attending.

Any members who are considering travelling to Florida for the first space shuttle launch and who would like to join other R.A.S.C. members near the launch site should have their names added to this list. This can be done by writing to RASC Space Shuttle Launch Visit, P.O. Box 842, Stn. B., London, Ontario, N6A 4Z3 before February 29, 1980. Members should include a description of plans for travel, accomodation and observing activities.