

THE ^{DAVID} DUNLAP DOINGS

Vol. 15, No. 5.

June 25, 1982

Beginning the Observatory's 48th year

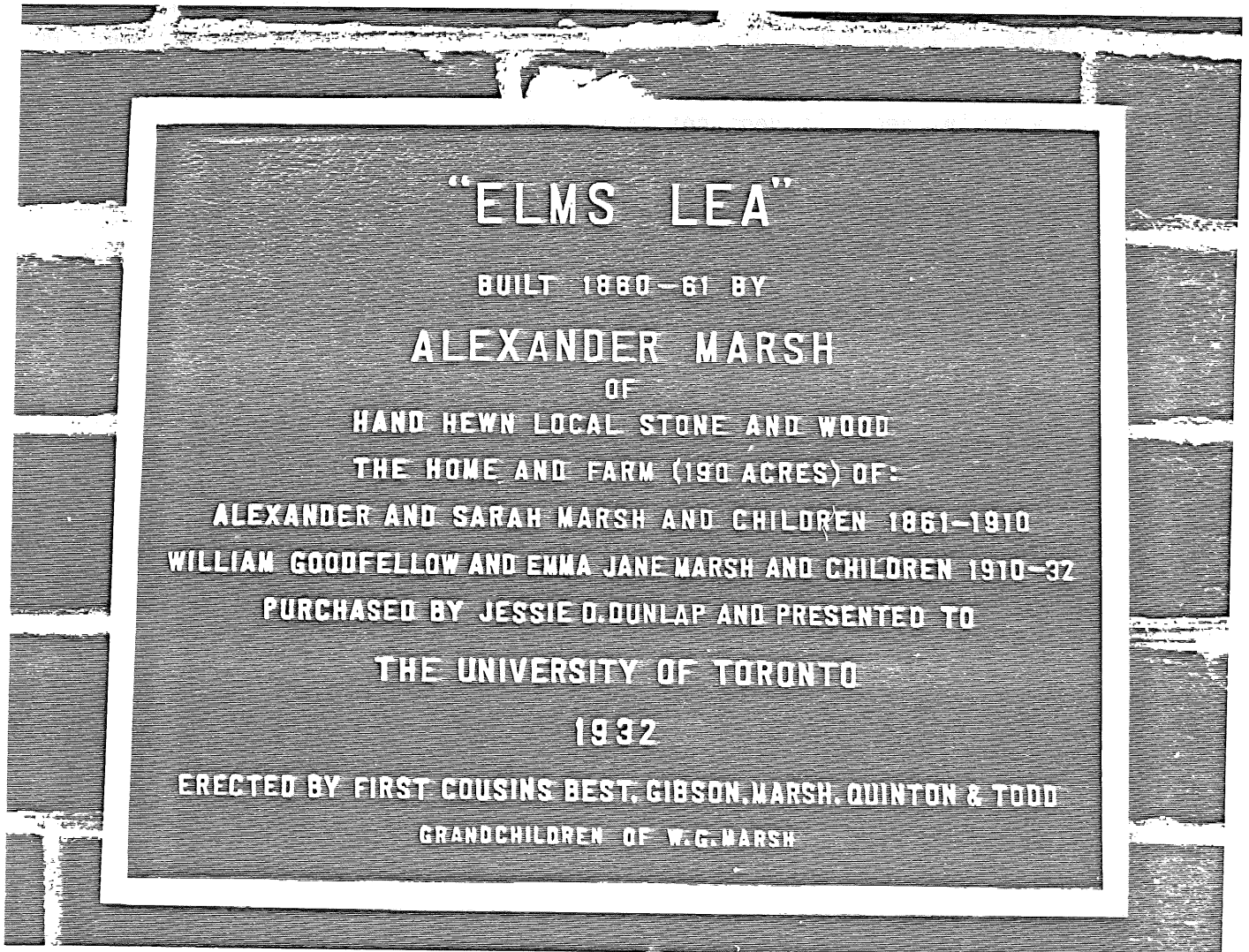


Photo: Karl Kamper

C O N G R A T U L A T I O N S

To *Rick McGonegal* who on 8 June successfully defended his Ph.D. thesis entitled "The Cepheid distance scale: a new application for infrared photometry". Bill Harris (McMaster, U. of T. Ph.D. 1974) and Barry Madore served as external examiner and internal appraiser respectively. The thesis was supervised by Bob McLaren.

To *Raymond Rusk* who passed his Ph.D. general examination on 28 May.

* * *

We have another Professor Emeritus among us! I am happy to say that as of right now *Don MacRae* has that title, thanks to recent actions of the Governing Council of the University. One's happiness, however, must be tempered by the fact that the University has decided to award the title to every professor of retirement age and beyond. Previously, in our Faculty at least, the title was only accorded those who had finished with teaching and whose meritorious careers were deemed worthy of special recognition. Don would have been nominated under those rules too, but the University has undercut us. Nevertheless, I'm sure everyone will join me in congratulating him on a well-earned title, even if the pride that attaches to it is now officially diminished. It need not have been so.

Fe

Cover Story

A PLAQUE FOR ELM'S LEA

by J. Donald Fernie

Some of you may recall from the Doings of about a year ago that the Marsh family, whose forebears built and owned for generations what is now Observatory House, held a family reunion there last summer.

At that time several of them remarked that they were hoping to have the appropriate government commission declare the house part of Ontario's historical heritage, which would result in the erection of a plaque describing its origins. As it turned out their bid was unsuccessful, so the family clubbed together and - having ensured that the University had no objections - arranged their own plaque.

It arrived last month, a neat 12 by 15 inch rectangle in pleasing bronze, and is now mounted on the north wall near the side door that has long been the main entrance. Karl has provided a photograph of the plaque for the front cover of this issue. Despite a dismal, rainy day, a number of the family gathered for an informal unveiling on June 5.

Although the plaque commemorates only the house - Elm's Lea to the family, and so much warmer than the impersonal 'Observatory House' - the Marsh association with the land goes back much further. The first Marsh here was James Robert, an Empire Loyalist who left Pennsylvania in 1776 for Upper Canada. He acquired 400 acres of the dense forest that then mantled the countryside between lakes Ontario and Simcoe, and in 1802 built the first Marsh home a few hundred yards northwest of the present house.

When James' son died in middle age, James settled 200 acres of the property on his grandson Alexander, and it was the 21-year-old Alexander and his 16-year-old bride Sarah Adeline who eventually built today's Elm's Lea.

The elms are now long gone, and the lea is being marched across by housing developments, but it is good to know that the family still cares. On a corner brick a few inches from the plaque, when the afternoon sun is just right, one can barely discern a weatherworn scratching: W.T. Marsh, 1906. Whoever he was, W.T. would doubtless be proud. May the plaque long survive

Erindale Visiting Professorship

Nancy Evans has been appointed visiting assistant professor for 1982-83 at Erindale College to replace John Percy who will be on sabbatical leave. Nancy is also teaching AST 200 as a summer course there.

COMINGS AND GOINGS - a preview

Bob McLaren and family will leave on 13 July for a well-earned sabbatical year in Waimea at CFHT headquarters. This has indeed been a busy year for Bob who acted as Associate Chairman in Sq's absence. As if that weren't enough Bob had 3 Ph.D. students graduate within the past 6 months, a feat which will surely earn him a nomination for a Sirgay award for bravery in the face of manuscripts and/or for poor planning! Finally it should be noted that for the second time in recorded history (4 years back) Bob topped the undergraduate teaching evaluation. Have a good year and may Madame Pele be kind to you.

Ernie Seaquist is scheduled to return in mid-July from sabbatical in Socorro at the VLA. He will add the responsibilities of Associate Chairman to his already full plate.

Our Departmental secretaries, Pam Sullivan and Maria Wong, are expected to be back at their posts in July after their recent maternity leaves.

The ABC's of IUE

Last week I travelled to DC to observe on IUE at GSFC. As PI of programme IEEGC, I was the GO and since my targets were all in the LMC which has a hot BETA, I traded 1/2 of my US2 for 1/2 of a US1. While observing, the TO PREP-ed the SWP and the LWR while the RA and I (GO or PI) tried to identify my target on the FES. Then we exposed on SWP or LWR until we reached the proper DN, remembering to avoid PINGS and watching out for hot PIXELS. When the shift was finished the images were sent to IUESIPS and then we examined the data at RDAF with the help of IDL. I'll make a full report as soon as I figure out what I did down there.

CTN

June Institute, CASCA, ETC.

Thanks to the efforts of the local organizing committee - *Bob Garrison, Louis Noreau, John Percy, and Joan Tryggve* - the week of 30 May - 4 June was an unqualified success, with 71 registrations from outside the Department and 26 local participants. During the first three days we were treated to stimulating lectures by R. Humphreys, P. Schecter and W. Press (see details in last issue of DDD). Following this were the scientific sessions of the CAS, at which the following papers were presented by our staff and students:

"The Effect of Rapid Rotation on Stellar Pulsation Modes"
M.J. Clement.

"A Catalogue of Peculiar and Interacting Galaxies"
H.C. Arp (Mt. Wilson), B.F. Madore.

"Mass Loss in the Binary Cepheid SU Cygni"
N.R. Evans, C.T. Bolton.

"The Cepheid P-L-C-X Relation - A Third Parameter Emerges"
R.J. McGonegal, R.A. McLaren, B.F. Madore, C.W. McAlary.

"The Status of Planetaria in Canada"
T.R. Clarke (ROM).

"Is V986 Ophiuchi a Tidally Driven Variable?"
C.T. Bolton, A. Fullerton.

"The Detection of Magnetic Fields Out to Large Redshifts"
P.P. Kronberg, J.J. Perry (Max Planck).

"The Pulsational Mode Switching in HD 161796"
J.D. Fernie

"The Wavelength Dependence of Interstellar Polarization
in the LMC"
G. Clayton.

"Holographic Studies of the Algonquin 46 meter Telescope"
C.H. Costain (DRAO), J.L. Yen, C.J. Wu, A.W. Woodsworth,
R.S. Richards, N.W. Broten, J.M. MacLeod.

Other CAS highlights included an illuminating President's address entitled "Only photons count" by G. Walker (UBC), a presentation to R. Racine (see separate item), special sessions on the CLBA and CFHT and a well attended business meeting.

On Saturday 5 June the ACA of NRC met in a day-long session; local representatives were Bob Garrison, Bob McLaren and John Percy. The principal item on the agenda was the draft report on priorities entitled "Astronomy in Canada in the 1980's". After a discussion of a number of suggested changes in the report, the editorial subcommittee (Halliday, Michaud, and Routledge) was asked to prepare a second draft for circulation to committee members before the next meeting in October.

The week was not inactive on the social side either. Things got off to a good start at the welcome party on Sunday hosted by Peter and Camie Martin. Continuing a fine tradition GASA held their wine and cheese (mountains of it) reception in the Croft Chapter House on Tuesday. Wednesday saw the institute banquet, this year at the Faculty Club and on Thursday a large group toured the DDO, hosted by Don Fernie, and were treated to pizza and beer. These social events rounded out what was a stimulating week for Canadian astronomy.

AT THE CFHT

Barry Madore reports:

Barry Madore, Wendy Freedman and Al Busch observed at the CFHT on three nights in June. Using the prime focus camera they obtained direct plates for a variety of projects including a study of the luminosity functions of near-by globular clusters (following the discovery by Edwin Zukowski of a gap in the subgiant branch of the luminosity function of M15, unaccounted for by stellar evolution theory) and a study of the colour-magnitude diagram of AM-4 (a very distant globular cluster discovered last year by Chip Arp and Barry during their search for peculiar galaxies). Plates were also taken of the new cluster associated with the Cepheid BB Sgr for a joint project with Mario Pedreros and Dave Turner (Laurentian).

Wendy, a veteran of the CFHT, came away with some beautiful plates of M51 and several exposures of NGC 6822 and M101 for her thesis on the brightest stars in near-by galaxies. Al Busch, up for the first time, is working on identifying companions to S0 galaxies.

Both Al and Wendy stopped off at the VLA in Socorro, New Mexico to attend the summer school on radio astronomy, while Barry went on to Austin, Texas to talk with de Vaucouleurs' extragalactic group and renew research interests in star formation and galaxy evolution with an old friend from USC, John Scalo.

OLD & NEW TESTAMENTS

Students on the verge of writing final examinations are not usually in a jocose mood, especially when they are writing in cold and clammy Varsity Stadium in April. But the 130-odd students in Astronomy 200S, assembled at one end, and an almost equal number of students writing Religious Studies 324Y at the other all had a good laugh when the Presiding Officer solemnly announced that REL 324Y students were permitted to use their Bibles and AST 200S students could use The Observer's Handbook.

Library news

by Lynda Colbeck

From May 2-6, 1982, I attended the tenth annual Canadian Association for Information Science (CAIS) conference in Ottawa. The theme of the conference was "Information - the ultimate employer". Topics discussed were open systems interconnection, electronic mail, Telidon and the future impact of information technology on libraries.

The 73rd Special Libraries Association conference was held in Detroit, Michigan from June 6-10, 1982. As a member of the PAM (Physics-Astronomy-Mathematics) division, I attended several workshops with other North American observatory and astronomy department librarians. Observatories/departments represented were SAO, Yerkes Observatory, U.S. Naval Observatory, Univ. of Minnesota, DAO, Univ. of Texas at Austin, High Altitude Observatory, and NRAO.

The Bibliographic Star Index compiled by R. Cayrel et al. at Strasbourg is available on-line via the NASA Goddard Space Flight Center. The index is searchable by HD, BD, CPD or Flamsteed number.

A database created by the Dept. of Astronomy, Univ. of Texas at Austin entitled "Millimeter database" includes bibliographic data on interstellar molecules from 1968 to present. The database is constantly updated and is searchable by author, star, name, keyword and molecule.

If you are interested in more information of the above databases, please contact me.

RETICON UPDATE

Bill Weller reports:

The Chant Reticon system is now undergoing tests at the telescope. We are collecting data on the brightest stars, and various comparison sources to enable us to make a quantitative evaluation of performance. The cooling system has been completed recently and we can report that its performance seems to be as we expected. As yet we have no quantitative data on ultimate temperature or temperature stability.

Although the overall ease of use and ease of installation is satisfactory, there are several minor modifications to be made to render the system astronomer-proof. Software development for at-the-telescope quick look and for reduction procedures is progressing, with the able assistance of Ron Lyons. Plans are also underway for a link via telephone line to the DA's VAX, downtown.

Over the next several weeks, we hope to eradicate most of the bugs in the system. We can then turn the instrument over to the rest of the community for the acid test.

Wlr (4:30 a.m., June 17)

GASA GOSSIP

The annual meeting of GASA was held last month for the purpose of electing a new executive. Most of the action had already taken place behind the scenes in order to ensure that at least one person was willing to be nominated for each position. This is the president's most difficult task and despite my best efforts, I was still one candidate short on the morning of the meeting. However, following GASA tradition, I filled the hole by nominating Doug Welch who was away observing in Chile.

As a result, the ruling Junta was able to present its slate of candidates for the approval of the electorate. Things did not go according to plan as Louis, in a fit of democratic zeal, nominated himself for staff representative. This left us in the almost unprecedented position of having three candidates for two positions. A special election was called but as in most Junta controlled elections, the results had to be declared invalid when it was discovered that several ballots had disappeared and one ballot too many had been cast. Another GASA meeting is scheduled for June 30 at which time a secret ballot will be held under the strict supervision of a team of United Nations observers.

The remainder of the executive was elected by acclamation. Wendy Freedman moves from staff rep into the president's chair. Senor Richard Crowe remains secretary-treasurer for another year of skimming from the GASA slush fund. Neb Duric will spend another year picking up chicks at GSU meetings. Last but not least, Petrusia Bojetchko remains in the always difficult, and this year impossible, job of desk person.

In her first official act, President Freedman ruled that the DDO picnic would be held on July 7 and then wisely left town. So if you have any complaints, don't bother me. You don't have Geoff Clayton to kick around any more.

Ctn

WHO IS I? - A Postscript

The mails have continued to bring us responses to our contest. Just as in the expanding universe our horizons continue to expand with time, albeit more slowly since the speed of the mails is somewhat less than c. First we heard from Hy, in Baltimore then Re in Hawaii, and finally Ha in Australia ...

The Editor
David Dunlap Doings

Dear sir:

Who am I? This is one of the most profound and important philosophical questions of the present or any other time. Ever since the first glimmerings of intelligence appeared in the slimy surroundings of the primeval soup, Mankind's quest has been inexorably upwards - Man, the naked ape, driven by an insatiable curiosity, encouraged by tantalizing glimpses of a Universal Oneness whenever, even if only momentarily, the shroud of mystery parts and some fundamental physical or metaphysical truths can be understood, however imperfectly. And always, sparked by the flame of a hungry, spiritual yearning for ...

It has just been brought to my attention that your item of DDD 15 No. 3 p. 10 actually asks the question "Who is I?" Frankly, I haven't a clue.

Yours,
Dave Hanes
AAO

We await with some trepidation a response from the moon.

PRESENTATION TO RENE RACINE

Owen Gingerich recently wrote to Don Fernie saying that a number of Harlow Shapley's possessions were being disposed of, and that these included a Toronto doctoral hood that stemmed from the occasion of the DDO's opening in 1935 when Shapley received an honorary degree. Owen was asking Don whether we could recommend a suitable recipient for the hood.

The University's ceremonials people, when consulted, said that such a hood is entirely appropriate for wear by a modern Toronto Ph.D. So in the best university tradition a search committee was set up. Their unanimous choice was Rene Racine.

In the brief presentation ceremony at the start of the CASCA business meeting on Friday June 4 Helen Hogg presented Rene with the hood. Helen, of course, was a student of Harlow Shapley's so there was special significance in her role. She carried it off very nicely by invoking for the occasion an inscription which Shapley had written in her copy of his book "Star Clusters", and Rene responded graciously. The inscription is reproduced below.

MR

*To a leading workman
on clusters*

Harlow Shapley

DDO's *M. Loebneri*

The Observatory grounds are at their prettiest in the spring. Alas, the flowering crabapple tree which for so long graced the triangle to the west of the display case did not survive the winter - another victim perhaps of the road salt. But thanks to the efforts of Yvonne Fernie it has just recently been replaced by a *Loebneri Magnolia*.

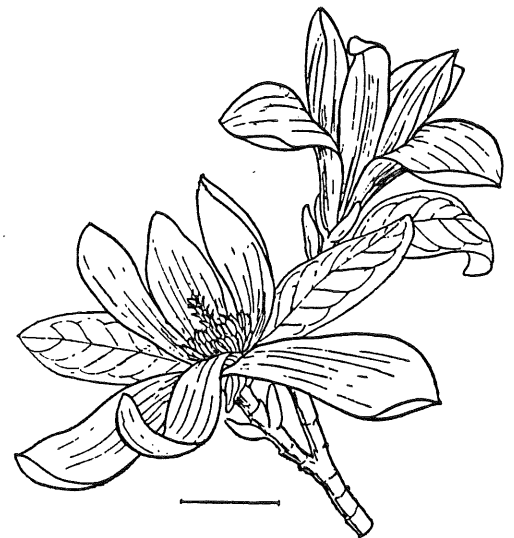
Though barely five feet tall, the specimen looks strong and healthy. To learn what could be expected of it we consulted the Royal Horticultural Society's Dictionary of Gardening.

M. Loebneri is a cross between *M. Kobus* and *M. Stellata*. Both are illustrated below. In its habit, *M. Loebneri* is similar to *M. Stellata* but with larger, more obovate leaves and larger flowers, with about 12 petals.



Magnolia stellata

M. stella'ta.^{*} Deciduous, much branched, compact shrub about 10 ft. h. l. obovate to narrow-elliptic, 2 to 4 in. long, dark green above, paler beneath. fl. white, later tinged rose, about 3 in. across, fragrant; sep. and pet. alike, 12 to 18, narrow-oblong, spreading at first, then reflexed. March, April, before l. Japan. 1877. (B.M. 6370.) Hardy; fls. apt to be damaged by frosts, but profusely borne, and opening successively, are rarely all destroyed. The best species for small gardens, and the better for a good mixture of peat with the soil when planted. var. *ro'sea* has fl. pink outside from the first.



Magnolia Kobus (p. 1231)

In pronouncing the name *Loebneri*, the emphasis is in the first syllable, we are told. *M. Loebneri* appears to be well adapted to our exposed locations such as at DDO. Let us hope the road salt can be kept under control.

PAPERS SUBMITTED

K.A. Innanen K.W. Kamper K.A. Papp S. van den Bergh	The Optical Warp of M31
P. Wizinowich R.F. Garrison	UBVRI Photometry in the Open Cluster NGC 3532
J.D. Fernie	Pulsational Mode Switching in HD 161796
P.G. Martin G.C. Clayton etc.	The Noise of BL Lac
A. Wehlau H.S. Hogg	Variable Stars in the Globular Cluster Messier 28 (NGC 6626)

TORONTO TARANTULAS MINUS I AND MINUS II

Dave Turner writes from Sudbury:

Dear Doings:

It was very nice to see a recent issue of the "Doings" (Vol. 15, No. 2, March 1, 1982) that was at least partially devoted to Las Campanas. I am probably not alone in feeling that the DDO's "other half" is long overdue in receiving some attention in the pages of DDD. However, I was somewhat disturbed by the report on Bob Garrison's encounter with a tarantula in Canada House.

No, I was not distressed by the revelation that mountain wildlife can obviously find their way into the sacred sanctuary of Canada House. Rather, I was astonished that Bob should think that this was the first such visitor to C.H. I vividly recall a night in February 1975 (recorded in all its glory in the pages of the Las Campanas Diary) when I had an unpleasant midnight encounter with a tarantula in the bathroom of C.H. A quick check of the diary the next day revealed to me that there has been at least one other such visitor previously — I believe Chris Smith mentions a "spider hunt" in the bathroom of C.H. during his period as resident. Possibly there have been others as well, but this could be checked by examining the many pages of the Las Campanas Diary. For the moment, however, it would seem to be necessary to rename "Toronto Tarantula I"!!!

The Editors have preferred to follow the precept of the magnitude scale, more or less, in naming TT's, thus leaving the sequence open-ended. (However, as in chronology, no provision is made for any TT Zero!). We eagerly look forward to hearing reports from others who have had The Experience, or those who may have it in the future.

REVISIONIST'S CORNER

Reader Ed Kennedy writes from Saskatoon:

Dear Doings,

Although introductory astronomy texts have eye-catching titles such as "New Horizons in Astronomy" or "New Frontiers in Astronomy", I always find a few new aspects in astronomy whenever I read a set of examination papers.

Since moving to Saskatoon in 1965, I had attributed the difficulty in viewing Polaris from there to arise from the change in latitude (Toronto 44° , Saskatoon 52°N) combined with the fact that my neck is not a universal joint.

However, I was in error in this assumption, as a student stated: "As North is to the North and East of Saskatoon, the pole star will not be directly overhead".

Another student, writing on the astronomy of early civilizations made reference to the sad ending of those two very well-known Chinese astronomers in this new approach: "Astronomy was taken very seriously by them. Two Chinese astronomers Hi and Ho were executed for slacking off."

P O T P O U R R I

Doug Welch and Chris McAlary (now at Steward) had a successful run on the 1.0-m telescope at Las Campanas May 16-25. Doug and Chris obtained multi-phase infrared photometry for several dozen Galactic Cepheids. Doug will use these data to construct infrared light curves of Cepheids for his M.Sc. thesis. On June 10, Doug left for Pasadena and then Mt. Wilson, where he will be spending about a month getting more Cepheid observations using the 0.6-m telescope.

In March, Karl Kamper went to the SPIE/AAS meeting in Tucson on "Astronomical Instrumentation" to hear the latest on perfect spectrographs (projected or anticipated) and then went on to Lick to use the 36-inch refractor to view one of the worst Spring storms in Mt. Hamilton history. Some new plates were obtained, however, plus many from the relatively dry and warm plate vault. KK was also one of the U. of T. attendees at the Troy AAS meeting (June 6-9) where Sproul, Allegheny and the U.S. Naval Observatories presented their latest results on the search for planets around Barnard's Star. The Latest News? Yes, no, and maybe, respectively.

Other local attendees at the AAS were Helen Hogg and Raymond Rusk, Chris Stagg, and Nancy Evans. Nancy delivered a paper on "A search for light-time effects in binary Cepheids: AW Persei".

Don Fernie was invited speaker at a two-day meeting June 10-11 of the International Amateur/Professional Photoelectric Photometrists at the Fairborn Observatory near Dayton, Ohio. He spoke on "Photometry among the Climatically Underprivileged".

Karen Finstad was in Toronto to receive her M.Sc. at the spring convocation. She is currently enrolled in a Ph.D. programme in cloud physics at the University of Alberta.

John Reid dropped in the other day to tell us that he is now working at the Ontario Science Centre, with responsibility for the planetarium. John has a degree in physics from the University of Guelph and took a number of graduate-level courses with us in 1979 and 1980.

Bob Garrison will be moving from his apartment near campus to a house at 46 Belmont, which he will be sharing with Susanna Jacob.

John Percy attended the RASC General Assembly in Saskatoon May 21-23, and gave a paper on "An International Photometric Campaign on Be Stars".

Maritta Ellis is working for Bob Garrison as a summer assistant updating the MK card catalogue. Maritta is a student in the Faculty of Nursing at U. of T., going into her fourth year.

Two staff members have been awarded grants to attend the IAU General Assembly in August: Barry Madore a "young astronomer" award from the IAU Executive Committee and Nancy Evans, an award from the Canadian National Committee of the IAU.

John Percy is to be Canadian Representative to the Nominating Committee of the IAU and will be designated as Canadian member to Commission 46, Teaching of Astronomy, replacing Dave DuPuy, in that position.

Bob McLaren attended the meeting of the CFHT Scientific Advisory Committee in Victoria on May 4 and 5. The other Canadian members of SAC are John Landstreet (chairman) Dave Hartwick, and Eduardo Hardy. Hardy and McLaren are beginning their 4-year terms. Hartwick and Landstreet are on the TAC.

Helen Hogg and Betty & Don MacRae attended the Centennial Meeting of the Royal Society of Canada in Ottawa May 31-June 3. The society was founded in 1882; a formal ceremony marking the centenary was held in the Senate Chamber of the Parliament Buildings on the first day of the meeting.

John Percy did a 30-minute interview program, on Mississauga Cable 10 TV, on astronomical research at Erindale College. The program was aired on May 25 & 26 and June 1 & 4.

Early June was a busy time at the Goddard IUE Station for DDO scientists with a program by G. Clayton (explained elsewhere) followed by Armando Arellano Ferro and Barry Madore.

ELIZABETH CHANT ROBERTSON 1899-1982

Elizabeth Hay Chant Robertson, one of Dr. and Mrs. Chant's two daughters, died at Toronto on May 23.

Elizabeth was born in Toronto and attended Harbord Street Collegiate Institute. She entered University College in the Faculty of Arts in 1917 and graduated with a B.A. in 1921. She then entered Medical School and received her M.D. in 1931. Not content with that, she entered the Graduate School in 1933 and obtained her Ph.D. in 1937.

In 1926 Elizabeth married Hartley Grant Robertson who is Professor Emeritus of Greek in the Department of Classics at Victoria University. They had three children, one of whom, Mary Elizabeth Robertson herself has an M.D. degree and practices at Women's College Hospital. Professor Grant Robertson, now in his 91st year, lives on Davenport Road.

Dr. Elizabeth Chant Robertson was a pioneer in Nutrition Education. Most of her life was spent in Toronto at the University of Toronto and the Hospital for Sick Children, although for a time during the 30's she lived and worked in Baltimore, Md., at Johns Hopkins University. Among her publications is a book entitled "Good food makes good sense".

As a daughter of Dr. Chant, Elizabeth could hardly escape astronomy. In fact she accompanied her father (and her near contemporary Dr. Young) to the Australian Eclipse of September 21, 1922 in Wallal, Australia, in the far north west corner of that continent. The voyage, of course, was a major undertaking in those days.

Dr. Robertson is survived by her husband, her three children, and four grandchildren.

It was around 1900 that Astronomy became a separate discipline in science at the University of Toronto, fostered by Dr. Chant. His daughter's death breaks one more link with those earliest days.

MR

THESIS ABSTRACT

"The Cepheid Distance Scale: A New Application For Infrared Photometry"

Richard John McGonegal

Broadband photometry has been obtained at J (1.25 μm), H (1.65 μm), and K (2.2 μm) for a sample of Cepheids in the Large Magellanic Cloud, Small Magellanic Cloud, and in galactic clusters/associations. We have measured arbitrary phase magnitudes for 43 LMC, 28 SMC, and 8 galactic Cepheids, enabling us to calibrate the J, H, and K Period-Luminosity (P-L) relations and obtain distances to the LMC and SMC based on J,H,K photometry. These distances are,

$$\begin{aligned} \text{LMC; } (m-M)_0 &= 18.50 - [0.67 * E(B-V)] + [(m-M)_{\text{Hyades}} - 3.03] \pm .06 \\ \text{SMC; } (m-M)_0 &= 18.95 - [0.67 * E(B-V)] + [(m-M)_{\text{Hyades}} - 3.03] \pm .06 \end{aligned}$$

We illustrate, by comparison of the optical and infrared P-L relations, that the infrared is markedly less affected by extinction, temperature, duplicity, and metallicity, the net result being that P-L relations based on arbitrary phase infrared magnitudes are competitive with those based on mean optical magnitudes.

A comparison of the V, H, and (B-V) data for the LMC and SMC confirms the existence of a second parameter, believed to be temperature, causing correlated changes in V, H, and (B-V) and giving rise to the Period-Luminosity-Colour (P-L-C) relation.

A comparison of the V and H data, after removing their log P and (B-V) dependences, reveals the presence of yet a third parameter. This parameter causes correlated changes, of approximately equal magnitude, in V and H. Differential reddening, combined with temperature, can qualitatively explain this effect but the slope of the relation appears anomalous.

**CANADIAN ASTRONOMICAL SOCIETY
SOCIÉTÉ CANADIENNE D'ASTRONOMIE**

APPLICATION FOR MEMBERSHIP

Article I of the By-Laws of the Canadian Astronomical Society reads in part:

2. Ordinary Members of the Society must be professionally engaged in research or teaching in astronomy or a related science. To be considered as "professionally engaged" a person must hold at least a master's degree awarded by a recognized university for work related to astronomy or astrophysics, or else have equivalent experience. Council shall have discretion to waive these requirements, by unanimous vote in individual cases, if in the opinion of Council they produce a manifest anomaly.
4. Persons enrolled for at least one academic year in a programme of graduate studies in astronomy or astrophysics at a recognized university, and continuing therein, may be elected as Student Members, regardless of whether they meet the criteria for full membership.
5. Election to membership shall be by Council, acting in accordance with the above criteria, on the nomination of any two ordinary members (for ordinary members) or any one ordinary member (for student members).
8. A student member, having completed his doctorate, shall be required to submit an application for ordinary membership by the annual meeting next after his graduation, or his membership shall lapse. In no case shall a student member continue for more than four years, unless by special consent of Council.

I declare that I satisfy the requirements for membership indicated in the By-Laws, and I hereby apply for ordinary/student membership in the Canadian Astronomical Society. I enclose \$30 for ordinary membership/ \$12 for student membership. (Please circle appropriate items)

Signature _____ Date _____
Applicant nominated by: _____

Name _____ Signature _____ Date _____
Name _____ Signature _____ Date _____
One nominator for student membership. Two nominators for ordinary membership.

Thinking of joining the ranks of the CAS Here -
with a 3/4-size copy of a recently issued form
setting forth the requirements and the information
needed when applying for membership; no doubt it will
suffice to start proceedings, at least, in Richard
Bochonko's office, where the full dues (not 3/4 dues)
are to be sent.

Eds.

(Please print)

Full Name _____

Institution _____

Address _____

Telephone _____

Degrees Received _____

area code _____

Institution _____

Specialization _____

Dates _____

postal code _____

Research and teaching experience
Date _____ Position _____ Institution _____

Number of research papers in refereed journals: _____
Please attach list of most recent publications.

Please mail the completed form and membership dues to the Secretary:

Dr. Richard Bochonko, Department of Mathematics and Astronomy,
University of Manitoba, Winnipeg, MB, R3T 2M8