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# CASSIOPEIA

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## THE QUEST FOR ELECTRONIC PUBLISHING CONTINUES.

The attempt to reduce costs and possibly increase accessibility to CASSIOPEIA proceeds apace! The last three issues have now been installed in a CASCA home page on the Radio Astronomy Network at the University of Calgary. The Electronic Lady can be reached via URL at:

*<http://bear.ras.ucalgary.ca/CASCA/index.html>*

The current idea for "distributing" CASSIOPEIA electronically is to continue adding issues to the CASCA home page as they become available. Members who so choose, can then receive an e-mail version of the contents as published on the inside cover of each issue. This will

**Pierre Bergeron (Université de Montréal) has been awarded one of the 1994 Henri Chretien International Research Grants by the AAS. More details in the next issue.**

allow them to see what is available in the current issue. They can then use the electronic approach to read the issue itself and of course to download any articles or information that may be of interest to them. In this way we can get information to members, while at the same time avoiding sending reams of text through the Internet and clogging up everyone's e-mail. Anyone who is interested in participating in an experiment along these lines should contact me at my e-mail address

(see back cover). Starting with the WS1994 issue, you will just receive the contents via e-mail. We can then review our experiences at the CASCA meeting in Penticton during June and make adjustments as necessary.

It seems to me, as Chairman of the Education Committee, that it would be useful for all to adopt the "home page approach" to disseminating information about research workers, where they are, what they are doing, and who past and present grad students are. If everyone could maintain a home page which included the above information, it would be very easy for the Board of Governors, or the Education Committee or any other Committee for that matter to survey home pages for any relevant information.

Many of us may balk at learning yet another "computer language" in order to set up the home page but we can get around that problem by asking the people at CADDC, or some other suitably experienced person, whether they would be prepared to provide templates in both official languages which could be downloaded by members. It would then be a relatively easy matter to fill in the blanks to set up the home page.

I intend to continue discussions along these lines with the BoG so if you feel you have anything to contribute please contact me, or your local member of the BoG, or Education Committee.

Electronically yours, Ed.



#### 185th AAS Meeting

8-12 January, 1995, Tucson, AZ  
 Abstract Deadline, Friday, 21 October, 1994  
*ftp to blackhole.aas.org*  
*URL to http://blackhole.aas.org/AAS-homepage.html*

#### CFHT Users' Meeting

May 15 & 16, 1995, Lyons or Toulouse  
 This will be preceded by a workshop in Paris

#### CASCA 1995

May 27-31, 1995, Penticton  
 The Phenomena and Physics of the Interstellar Medium  
*rsr@drao.nrc.ca* (Rob Roger)

#### The Science to be Done With Large Telescopes (MAY BE DELAYED)

June 1-3, 1995, UBC  
*usergahw@mtsg.ubc.ca* (Gordon Walker)

#### The Origins, Evolution and Destinies of Binaries in Clusters

19 - 23 June 1995, University of Calgary  
*milone@acs.ucalgary.ca* (Gene Milone)

### ***DUES ANNOUNCEMENT***

If you have not yet paid your dues, the October 1st deadline for the reduced rate has now passed. If you want to continue your membership then send a cheque in the appropriate amount to:-

Regular: \$55  
 Students & Retirees: \$25

Dr. Christine Clement  
 Department of Astronomy  
 University of Toronto  
 60 St. George St  
 Toronto, Ont  
 M5S 1A7



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## PROCEEDINGS OF MCMASTER SUMMER WORKSHOP

Copies of the proceedings of the workshop "**Observing techniques at Millimetre and Submillimetre Wavelengths**" are available for purchase from the McMaster University Bookstore. The thirteen lectures discuss continuum measurements, spectral line measurements, polarimetry, and interferometry at a level suitable for graduate students or others with little experience working at these wavelengths.

Copies can be ordered using an electronic markup form that is accessible from the McMaster home page (<http://www.physics.mcmaster.ca>). The price is \$17 plus \$4 postage plus GST. The spiral-bound soft-cover volume contains roughly 200 pages.

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**Tenure Track Faculty Position  
Department of Geophysics and Astronomy  
UNIVERSITY OF BRITISH COLUMBIA  
Vancouver, B.C.  
Canada V6T 1Z4**

Applications are invited for a tenure track assistant professor position beginning July 1, 1995. Appointment may be considered at a higher rank for a woman with exceptional qualifications.

This is to be a joint appointment between the Department of Geophysics and Astronomy and the Department of Physics. We are primarily interested in increasing our strength in theoretical astrophysics but outstanding candidates whose interests are primarily observational are also encouraged to apply. The appointee will be expected to teach undergraduate and graduate courses, to develop a strong research program, and to supervise graduate students. Salary will be commensurate with experience. Applicants must possess a PhD. This position is subject to final budgetary approval. UBC welcomes all qualified applicants especially women, aboriginal people, visible minorities and persons with disabilities. Applicants should submit a curriculum vita, a statement of research interests and arrange to have three letters of reference sent by November 15, 1994 to *Dr. R.M. Ellis, Head*, at the above address.

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**CANADIAN INSTITUTE FOR THEORETICAL ASTROPHYSICS/  
INSTITUT CANADIEN D'ASTROPHYSIQUE THEORIQUE**

**POSTDOCTORAL FELLOWSHIPS**

CITA is a national centre for theoretical astrophysics located at the University of Toronto. The Institute expects to offer several postdoctoral fellowships with a starting date of 1 September 1995. The appointments will be of two years duration. Funds will be available for travel and other research expenses. Fellows are expected to carry out original research in theoretical astrophysics under the general supervision of the permanent faculty or visitors to CITA, whose interest include: cosmology, interstellar matter, nuclear and relativistic astrophysics, solar physics, star and planet formation, stellar structure, and galactic and solar system dynamics.

**RESEARCH ASSOCIATE POSITIONS**

CITA is a national centre for theoretical astrophysics located at the University of Toronto. The Institute may offer one or more research associate positions with a starting date of 1 September 1995; applicants should have an excellent research record in astrophysics and postdoctoral experience. The appointments will be of three years duration, renewable for an additional two years. Funds will be available for travel and other research expenses. The primary duty is to carry out original research in theoretical astrophysics, but research associates are also expected to work with postdoctoral fellows and to assist with administration of the Institute.

All applicants for research associate positions are also considered automatically for postdoctoral fellowships.

In accordance with Canadian immigration regulations, this advertisement is directed to Canadian Citizens and permanent residents.

**In each instance applicants should send:**

- a curriculum vitae
- statement of research interests
- and arrange for three letters of recommendation to be sent to the Director of CITA

All applications and letters should be sent to:

Professor J.R. Bond, Acting Director  
Canadian Institute for Theoretical Astrophysics  
University of Toronto, 60 St. George Street  
Toronto, Ontario, CANADA, M5S 1A7

**DEADLINE FOR APPLICATIONS AND ALL LETTERS OF  
RECOMMENDATION IS 1 DECEMBER, 1994**

**Please do not send applications by FAX or electronic mail.**

## CITA NATIONAL FELLOWS

CITA is a national centre for theoretical astrophysics located at the University of Toronto. As part of its mandate to enhance research opportunities and to encourage professional interactions throughout Canada, the Institute provides partial support for postdoctoral fellows working in theoretical astrophysics or closely related fields at Canadian universities other than the University of Toronto, through its National Fellows program.

The responsibility for identifying and nominating potential CITA National Fellows who will work at a given university lies with the faculty at that university. Only faculty at Canadian universities may submit nominations. For each prospective fellow, the nomination portfolio should consist of:

- a curriculum vitae and bibliography;
- a statement of proposed research;
- a support letter from the faculty member submitting the nomination, stating how the applicant is expected to contribute to the local research program;
- 3 letters of recommendation for each candidate

There is no limit on the number of nominations per faculty member or per university; however, any faculty member submitting more than one nomination is asked to rank the nominees in order of preference, with reasons given for the ordering. The application will be examined by CITA Council and ranked along with, and using the same standards as, applications for postdoctoral research fellow positions to be held at CITA.

We expect to award up to two new National Fellowships for the 1995-96 academic year. **The deadline for nominations is 15 December, 1994** for fellowships to start in 1995-1996. If necessary, nominations may be sent in without a complete set of letters of recommendation; letters of recommendation not included in the nomination package will be accepted if they reach CITA no later than January 2. Nomination portfolios should be sent to:

Prof. J. R. Bond, Acting Director,  
Canadian Institute for Theoretical Astrophysics,  
University of Toronto  
60 St. George Street, Toronto, Ontario M5S 1A7

CITA will notify the nominator of each successful candidate that a CITA National Fellowship has been awarded and will guarantee funding of \$13,750 per year for up to two years towards the fellow's salary. It will then be up to the nominator to contact and recruit the applicant. All hiring will be done through the nominator's university. The remainder of the fellow's salary must be raised from research grants or the nominator's university. Note that the maximum stipend from NSERC funds (including the \$13,750 from CITA) cannot exceed the NSERC ceiling (currently \$27,500) although there is no restriction on the use of non-NSERC funds to supplement the stipend.

It is expected that the Fellow will spend at least 80% of his/her time resident at the nominator's home university unless alternative arrangements are approved in advance by both the nominator and the Director of CITA. Although there is no obligation for CITA National Fellows to spend part of their fellowship at CITA in Toronto, we encourage such visits and would normally provide support for up to two visits per year. Fellows are permitted to supplement their postdoctoral stipends by teaching up to one half-course per year, subject to prior approval by the Director of CITA.

Fellows are expected to acknowledge CITA in all publications written or researched while holding the Fellowship, either by listing CITA as an affiliation, or by acknowledging partial salary support from CITA, or by using the title "CITA National Fellow".

## NSERC ALLOCATION EXERCISE

NSERC is engaged in the exercise of adjusting the allocation of funds between its 30 or so Grant Selection Committees. The purpose of this exercise is to "provide more flexibility to fund disciplines according to changing needs". This adjustment will first affect the budgets of the Grant Selection Committees in the 1995-96 fiscal year, i.e. the grants that are applied for this fall. The reallocation is a zero-sum game: 5-10% of each GSC's budget will be held back to be placed in a common pool. The funds in the pool will then be distributed back to the GSCs on the basis of four criteria: overall quality of research, relative cost of research, training of highly qualified personnel, and discipline dynamics (rate of growth, emerging areas, and national interest). This exercise is to be repeated every three years.

As part of the exercise, each GSC is required to submit an Allocation Report that describes the quality of the research in its community and comments on the other criteria listed above. The writing of this report was

handled by Bill Harris (1992-93) and me (1993-94).

The report from the Space and Astronomy GSC is available by anonymous ftp from the address *ftp.cita.utoronto.ca*. Login as "anonymous", give your e-mail address as password, change directory to *cita/scott/allocation*. The postscript file of the report is *dis.ps*. If you prefer TeX then get the files *dis.tex* and *halfmacro.tex* (a macro file).

If you have any problem with this procedure, contact me at *tremaine@mail.ast.cam.ac.uk* (until December 31, 1994) or *tremaine@cita.utoronto.ca*. As a last resort, I can send you a paper copy by snail mail.

Finally, on behalf of the GSC I would like to thank the many members of CASCA who contributed comments, ideas, information, statistics, and better writing than my own.

Scott Tremaine

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## LA CONFÉRENCE PETRIE / THE PETRIE PRIZE LECTURE

La conférence Petrie est une présentation donnée par un(e) astrophysicien(ne) de renom durant l'assemblée annuelle de la Société Canadienne d'Astronomie. Une telle chercheuse ou un tel chercheur est invité(e) tous les deux ans (années impaires). Cette conférence a été instituée en la mémoire de Robert M. Petrie en reconnaissance des importantes contributions qu'il a faites au domaine de l'astrophysique.

Afin d'aider le conseil d'administration de la CASCA dans son choix du conférencier ou de la conférencière pour la réunion de 1995, l'aide de la communauté est sollicitée. Vos suggestions doivent être adressées au comité chargé de remettre les prix avant le 15 novembre 1994.

The Petrie Lecture is an invited discourse by an outstanding astrophysicist which is held at Annual Meetings of the Canadian Astronomical Society in alternate (currently odd-numbered) years. The Lecture is in memory of the significant contributions to astrophysical research by the late Robert M. Petrie.

To assist the CASCA Board of Directors in their choice for the 1995 Lecture, suggestions from the community are being solicited. Please address these to the Board through the Awards Committee.

The closing date for receipt of suggestions is November 15, 1994.

## THE PLASKETT MEDAL / LA MEDAILLE PLASKETT

The Royal Astronomical Society of Canada and the Canadian Astronomical Society have established an award entitled The Plaskett Medal in recognition of the pivotal role played by John Stanley Plaskett in the establishment of astrophysical research in Canada. The award, consisting of a gold medal, is to be made annually to the Ph.D. graduate from a Canadian university who is judged to have submitted the most outstanding doctoral thesis in astronomy or astrophysics in the preceding two calendar years.

At most two candidates should be nominated by the head of his/her department from among the graduates of that university. The department head should submit four copies of a letter of recommendation, not more than three pages in length, and four copies of the nominee's thesis to the Awards Committee\*, prior to 15 January 1995, for consideration for the 1995 award. If the thesis does not clearly indicate how much of its content is the original work and ideas of the author, the department head should address this point in the letter. No other material should be submitted.

Note that the phrase "in the two preceding calendar years" in the eligibility rules makes it possible to re-nominate a candidate for whom an unsuccessful nomination was made in the preceding year. Because none of the documentation of previous nominations is retained for the use of the current selection committee, all re-nominations should be submitted with full documentation.

La Société Royale d'Astronomie du Canada et la Société Canadienne d'astronomie ont institué un prix, nommé la médaille Plaskett, en reconnaissance du rôle important qu'a joué John Stanley Plaskett dans l'implantation de la recherche en astrophysique au Canada. Le prix, qui consiste en une médaille d'or, est offert chaque année à un(e) diplômé(e) Ph.D. d'une université canadienne qui, d'après l'opinion du jury, a soumis la meilleure thèse de doctorat en astrophysique durant les deux dernières années.

Au plus, deux candidat(e)s par département peuvent être proposé(e)s par le directeur du département. Le directeur doit transmettre quatre copies d'une lettre de recommandation, de trois pages au plus, et quatre copies de la thèse du (de la) candidat(e) choisi(e) au comité des prix\* et ce, avant le 15 janvier 1995 pour que le (ou la) candidat(e) soit considéré(e) pour le prix de 1995. Si la thèse n'indique pas clairement la contribution de l'auteur quant au travail et aux idées, le directeur doit adresser ce point dans sa lettre. On ne doit pas transmettre d'autre document.

S.V.P., veuillez noter que l'expression "les deux dernières années" spécifiée par les règlements d'éligibilité, permet de proposer pour une deuxième fois un(e) candidat(e) qui n'a pas été retenu(e) l'année précédente. Cependant il faut soumettre de nouveau les documents nécessaires à l'évaluation car les membres du jury changent d'une année à l'autre.

\* **D. Routledge, Chairperson**  
CASCA Awards Committee  
Electrical Engineering Department  
University of Alberta  
Edmonton, Alberta, T6G 2G7  
*routle@ee.ualberta.ca*

## GEMINI UPDATE

Gemini is a collaborative project between the USA (50%), UK (25%), Canada (15%), and Argentina, Brazil and Chile to construct an 8-m telescope on each of Mauna Kea (1998 first light) and Cerro Pachon (2000) together with a complement of instruments. The budget is strictly limited to US\$176M. The telescopes will be Cassegrain only, initially f/16 with a single undersized secondary appropriate for the infrared but with provision to add f/6 later. The highest priorities are to maintain the best image quality and low emissivity at each site. Fusion of the first meniscus primary blank by Corning is expected in October and assembly of the second one has begun. They will be polished by REOSC near Paris who are also polishing the ESO VLT mirrors. Coast Steel in BC will build the enclosures and the award of the telescopes contract will be announced soon.

The drawing (p26) shows the final telescope design. Because the primary is on the altitude axis the upper end is light weight and presents a low cross section to the wind. The large diameter azimuthal track also provides stability against wind shake. The mirror cover is shown partly open and the walkway on which the figure is standing moves with the telescope.

In May the Gemini Board approved the instrument program proposed by the Science Committee. The program, in the table, has to fit within a very restricted budget. The responsible country is given in brackets (C=Canada). Canada is already responsible for the Adaptive Optics unit on the Mauna Kea telescope.

Mauna Kea	Cerro Pachon
optical acquisition camera (US)	optical acquisition camera (US)
1-5 $\mu\text{m}$ imager (US)	multi-object spectrograph (UK,C)
1-5 $\mu\text{m}$ spectrograph (US)	high resolution optical spectrograph (UK)
multi-object spectrograph (UK,C)	IR instruments shared with NOAO
8-30 $\mu\text{m}$ imager (US)	shared fibre feed to CFHT (C)

## GEMINI MISE à JOUR

Le projet Gemini est une collaboration entre les E.U. (50%), le R.U. (25%), le Canada (15%), l'Argentine, le Brésil et le Chili pour construire deux télescopes de 8 m, un au Mauna Kea (première lumière 1998) et un au Cerro Pachon (2000), chacun muni d'instruments complémentaires. Le budget est strictement plafonné à 176 M\$ US. Les télescopes seront de type cassegrain seulement, initialement f/16 avec un miroir secondaire de dimension réduite pour l'infrarouge, et laissant la possibilité d'ajouter un foyer f/6, dans le futur. La priorité est donnée à l'optimisation de la qualité de l'image et à une réduction maximale de l'émissivité pour les 2 sites. La fusion par Corning du ménisque servant au miroir primaire est attendue pour le mois d'octobre et l'assemblage du second ménisque en vue de la fusion a commencé. Les ménisques seront polis par REOSC près de Paris. REOSC est en train de polir les miroirs du VLT de l'ESO. Coast Steel en Colombie-Britannique construira les dômes et parties extérieures. Le contrat pour la construction des télescopes eux-mêmes n'est pas encore alloué. La compagnie obtenant le contrat sera annoncée prochainement.

Les dessins (p26) montrent l'architecture finale du télescope. Le miroir primaire étant monté sur l'axe des altitudes, la partie supérieure est allégée et donne peu de prise au vent. Le système d'entraînement azimuthal avec son diamètre important accroît également la stabilité contre les coups de vent. Sur le dessin, le couvercle protégeant miroir est partiellement ouvert, et la passerelle sur laquelle on voit un personnage est attachée au télescope et bouge avec lui.

Au mois de mai dernier, Le conseil d'administration de Gemini a approuvé le programme des instruments proposé par le comité scientifique. Le programme se doit de respecter strictement un budget très restreint. Le pays responsable est donné entre crochets (C=Canada). Le Canada est déjà responsable de l'unité d'optique adaptative pour le télescope du Mauna Kea.



We have now entered a lively debate over the operations phase. If the telescopes perform as well as expected there will be a wide dynamic range in observing conditions from exquisite seeing and cool sky to mediocre seeing and high IR background. Telescope time will be very precious and scheduling will have to respond to changing conditions through the use of queues and priorities. Exposure times for certain programs become unrealistically long when conditions deteriorate beyond a certain point. The classical 2 night observing assignment will probably not happen on the Gemini telescopes except for targets of opportunity and epoch specific observations.

Up to date information on the Project is available through the Gemini Newsletter of which numbers 7 and 8 came out in January and June this year. If you are not receiving a copy and would like to, contact Andy Woodsworth ([woodsworth@dao.nrc.ca](mailto:woodsworth@dao.nrc.ca)). Alternatively, the Tucson Project Office offers a World Wide Web home page, with an extensive project description and up-to-date announcements plus copies of the Newsletters. Access it by using Mosaic specifying a URL of

<http://icarus.tuc.noao.edu/project/gemini.html>

At UBC we shall be holding a meeting 'Astronomy with Large Telescopes' 31 May to 3 June 1995 for which we expect considerable international participation. A preliminary announcement has already gone out and there will be a more detailed one by the end of the year.

Gordon Walker - [walker@astro.ubc.ca](mailto:walker@astro.ubc.ca)

à UBC, nous organisons une rencontre intitulé 'Astronomy with Large Telescopes' du 31 mai au 3 juin 1995 pour laquelle nous attendons une participation internationale considérable. Une annonce préliminaire a déjà été publiée et une autre davantage détaillée suivra vers la fin de l'année.

Gordon Walker - [walker@astro.ubc.ca](mailto:walker@astro.ubc.ca)

Mauna Kea	Cerro Pachon
caméra optique d'acquisition (US)	caméra optique d'acquisition (US)
1-5 imageur $\mu\text{m}$ (US)	spectrograph multi objets (UK,C)
1-5 spectrographe $\mu\text{m}$ (US)	spectrographe optique haute résolution (UK)
spectrographe multi objets (UK,C)	instruments IR partagés avec NOAO
8-30 imageur $\mu\text{m}$ (US)	partagé lien fibre optique vers TCFH (C)

Nous entrons dès maintenant dans le débat animé sur l'opération des télescopes. Si les télescopes fonctionnent aussi bien qu'espéré, il y aura une large fourchette de conditions d'observation allant de seeing optimal et ciel froid, à seeing médiocre et fond IR élevé. Le temps de télescope sera très précieux et l'emploi du temps devra prendre en compte les possibles changements dans les conditions d'observation avec un système de queues et priorités. Les durées d'exposition pour certains programmes atteignent des longueurs irréalistes quand les conditions se détériorent sous un certain niveau. L'allocation classique de 2 nuits d'observation devra probablement être repensée pour les télescopes Gemini à l'exclusion de cibles exceptionnelles et d'observations ayant une fenêtre d'accessibilité restreinte.

Une information mise à jour du projet est disponible à travers the Gemini Newsletter dont les numéros 7 et 8 sont sortis aux mois de janvier et juin de cette année. Si vous ne recevez pas cette publication et desirez la recevoir, veuillez contacter Andy Woodsworth ([woodsworth@dao.nrc.ca](mailto:woodsworth@dao.nrc.ca)). Les bureaux du projet à Tucson offrent également une page d'information (home page) sur World Wide Web avec une description détaillée du projet, les annonces les plus récentes et les copies des Newsletters. Vous pouvez avoir accès à ces données avec Mosaic en spécifiant l'adresse URL suivante:

<http://icarus.tuc.noao.edu/project/gemini.html>

## BOOK REVIEW

Looking Up: A History of the Royal Astronomical Society of Canada  
 by R. Peter Broughton,  
 pages xiv + 288; 22 cm x 29 cm.  
 Dundurn Press, Toronto and Oxford, 1994.  
 Price \$34.95.  
 Order from the RASC, 136 Dupont Street, Toronto, Ont., M5R 1V2.  
 Add \$5 for shipping and GST.

The motivation for writing this book, Peter Broughton explains, was the centenary of the Royal Astronomical Society of Canada in 1990. He continues that although a number of articles had been written on the subject over the years, "it was not until the year 1990 was almost upon us that a gnawing feeling began to emerge that many members ... had some interest in the development of the Society but did not have access to those older papers. So, in a moment of self-delusion, I offered to write a book about the RASC...." Many of us will be grateful that he did!

This book, more than most others, brings home that symbiosis unique to astronomy: the cooperation and mutual respect between amateur and professional. I am told that on a recent, well-known TV talk show discussing the impact of Comet Shoemaker-Levy 9 on Jupiter, David Levy was referred to by a professional astronomer as an amateur, bringing down on the speaker's head the wrath of the show's host, that so distinguished a contributor to the science should be called an amateur.

The wrathful gentleman could learn much from a reading of Broughton's book; for here, laid out in detail, is the story of a marvelous intermingling and interaction of people whose common thread was and is a deep interest in astronomy, whether their living be earned by it or not.

Anyone with an interest in how astronomy developed in Canada will find Broughton's book an important contribution. Its information content is remarkable, for the

author's research has been meticulous in his quest for the full story, and although that could easily have resulted in an indigestible clutter of detail, the writing is in fact clear and straightforward. There are statistics and graphs and a chapter by chapter recounting of the Society's activities, its officers, its finances, its centres, and virtually everything else connected with it. But for anyone who has been part of that story, or indeed the story of Canadian astronomy generally, the most appealing sections of the book will be the sidebars giving capsule biographies of the Society's presidents and many other (sometimes more consequential!) figures.

Together with the numerous photographs that pack the book, these provide a pleasant stroll down memory lane among people remembered or forgotten, whose common thread was to have been influential in Canadian astronomy.

The book is beautifully produced in a glossy, mini-coffee-table kind of format, and has been very well proofread. The only error of fact I noticed was a reference on page 54 to the primary mirror of the

never completed Queen Elizabeth II Telescope forming the basis of the CFHT.

If you count yourself a Canadian astronomer this book is part of your heritage; you will be pleased to have it on your bookshelf.

**If you count  
 yourself a  
 Canadian  
 astronomer  
 this book is  
 part of your  
 heritage.**

Don Fernie

## Saint Mary's University

### First Report of the New Department of Astronomy and Physics

The last report from Saint Mary's University appeared in the Winter Solstice issue of *Cassiopeia* for 1987. Needless to say, there have been quite a few changes since that report. The most significant occurred on April 1st, 1993 (appropriately enough) when the Department of Astronomy, with its three faculty, one research associate, and one technician, merged with the Department of Physics, with its five faculty, one technician, and secretary shared with Astronomy. The new Department of Astronomy and Physics came into being at that instant, following a year of uncertainty arising from a faculty opening in Physics that was never filled. The solution imposed by David Richardson, our new Dean of Science, was the merger of the two separate Departments with a renewed mandate to promote undergraduate education in physics and astrophysics, as well as graduate education in astronomy. There appears to be very strong support for the merger from within the University, and the results on our programs have been rather dramatic. This report attempts to summarize some of the events of the last eight years, with particular emphasis on the exciting events of the last year that have so emphatically altered the conditions here at Saint Mary's.

#### Faculty and Staff

There were only a few staff changes at Saint Mary's prior to 1993. Mario Pedreros was a research associate in the Department of Astronomy from 1986-90, and left for the University of Toronto when support funds disappeared. He is currently teaching high school students in North York. Our long-time Astronomy technician, Randall Brooks, left for a position at the National Museum of Science and Technology in Ottawa in the Spring of 1991, and was replaced by Laurie Reed, a graduate of our Astronomy M.Sc. program and the wife of Cameron Reed of the Physics Department. Cameron, after serving as chairperson of the Department of Physics for a short period, left with Laurie for Alma College in the summer of 1992. From all accounts, they are now happily settled in central Michigan, with Cameron teaching physics and astronomy at Alma, where he is also in charge of the planetarium, and Laurie working as a part-time physics lab technician and astronomy instructor at nearby Saginaw Valley State College. Our new Astronomy technician since 1992 has been David Lane, an active amateur astronomer who is presently serving as the President

of the Halifax Centre of the RASC. Tatsuhiro Hasegawa was a CITA National Fellow here during 1988-90, and returned at the end of 1992 from two years spent at Duke and Ohio State Universities to work as a research associate for George Mitchell. Since November 1989 the Department has also included Doug Forbes (Sir Wilfred Grenfell College) as an adjunct member.

Most of the staff changes at Saint Mary's occurred during the past year. The retirement of Franz Tomscha of the Physics Department in 1990 resulted in the hiring of Robert Corns on a limited-term appointment. However, this faculty position, which was preserved from extinction thanks to the efforts of Cameron Reed and the faculty union, was not formally filled until the summer of 1993, along with two more vacated by Cameron and Keith Fillmore (who resigned), with the hiring of Canadians David Guenther, Malcolm Butler, and David Clarke as Assistant Professors. The recent retirement of Dangety Murty has resulted in a further faculty position becoming available in our Department, and we are delighted to announce that it was filled by the appointment of Michael West, our newest faculty member. The "old gang" consists of Bill Lonc (from the Physics Department), George Mitchell, David Turner, and Gary Welch, with Richard Ives continuing as the Physics technician. The position of Department Secretary has changed hands many times in recent years; our current Secretary is Elfrie Waters.

George Mitchell was the chairperson of the Department of Astronomy from 1985-1989, and was succeeded by David Turner from 1989 to 1993 (save for his sabbatical year during 1991-92 when Gary Welch was acting chairperson). Dave also became the first chairperson of the combined Department of Astronomy and Physics on April 1, 1993. Since the Department currently consists of three faculty and one technician who have first names of "David" (Clarke, Guenther, Lane, and Turner), and since the Dean's first name is also David, we have jokingly advised prospective applicants of the same monicker that a name change might be appropriate. For the moment we are living with the fact that whenever someone calls out "David" at formal Department functions (that include the Dean), half of the heads in the room turn around in response!

The direction we are taking at Saint Mary's is somewhat experimental, but with the solid backing of the Dean. Faculty positions have been filled on the basis of several, different, agreed-upon criteria that include the demonstrated ability to teach well in various areas of our revised physics/astronomy curriculum, research expertise that complements - but not necessarily duplicates - existing expertise within the Department, and a dedication to the Department and Saint Mary's University. Our progress towards attaining these goals has gone smoothly so far, although the impact of the curriculum changes is only beginning to be felt. The process of University "rationalization" currently taking place in Nova Scotia affects us in a variety of indirect ways to which we have been forced to respond. Presently all of the impact on our curriculum and reputation has been positive, and we are looking forward to exciting years ahead. The close involvement of Dean Richardson in nearly all of our endeavours makes him an unofficial "ninth faculty member" of our Department.

### Activities

Most of our activities of the past year have been centred on the revamping of our undergraduate curriculum in physics and our undergraduate and graduate curricula in astronomy and astrophysics. Some headaches of previous years, namely an undergraduate physics credit course at the level of grade 12 physics and a 3-year major degree, were eliminated by the University in the past year, and both majors and honours students now require four years of instruction to graduate. The revamped curriculum includes new undergraduate lab courses as well as a solid selection of courses in physics, astronomy, and astrophysics for students in all programs. During the summer a new lab manual for first-year physics was generated by David Guenther with the help of other faculty members. Curriculum development is still proceeding in collaboration with members of some of our cognate departments, most notably Mathematics and Computing Science.

The Burke-Gaffney Observatory is undergoing major work in connection with the efforts of Dave Lane to upgrade the operation of the 0.4-m telescope. A lot of old paint was scraped off the telescope to facilitate the improvements, and it currently looks much the worse for these efforts. The addition of a CCD camera and automation, with associated computer terminals, gives the dome quite a different look from that of a few years ago. The developments in this area have only just begun. Dave

Lane has also produced a Windows planetarium program called "The Earth-Centered Universe," available through shareware, which has attracted the attention of a large following of users in Canada and the U.S. (see John Mosley's review in the September issue of *Sky & Telescope*).

Dave Lane was the major focus of media attention during the May 10th annular eclipse, which was visible under clear skies locally - much to our surprise! Members of the Department and members of the Halifax Centre of the RASC set up telescopes and other displays on the front lawn of the University's McNally Building that afternoon, and attracted over a thousand people to view the event. Over 700 pairs of mylar eclipse glasses were available for distribution to the waiting multitudes, and all had disappeared ten minutes prior to first contact! Dave Turner and Gary Welch were also heavily involved with media interviews during this period (including a CBC Newsworld spot during the eclipse itself by Dave Turner), and Dave's comments to a local newspaper reporter about the sad situation of students being shut in the schools during the event were quoted in the newspaper's "Quotes of the Week" section. The annular eclipse attracted many more people to Saint Mary's than had come for the partial eclipse in October of 1986.

Malcolm Butler has been responsible for including particulars about our Department and programs on the World-Wide Web, and the handling of requests for information and applications to the graduate program have been streamlined through his efforts. The designation of new undergraduate and graduate coordinators (Guenther and Butler, respectively) was necessitated by the merger and the resulting increase in the number of students under the nominal responsibility of the Department. Fortunately most of our "growing pains" in this area have been minimal.

Our only other remaining activity of note in recent years was the hosting of the Society's annual meeting in 1992. Despite a relatively low attendance, we were delighted by the positive comments on the meeting arrangements made by those in attendance. Laurie Reed and Gary Welch spent a great deal of time to ensure that the meeting ran smoothly, and were ably assisted by others on the LOC - Cameron Reed, George Mitchell, Cathy Read, Doug Forbes, our student assistants, and myself. Our steak and lobster banquet and Tattoo evening were clearly popular events, and will likely be repeated at the next meeting

here, which some of you have already asked us to host soon!

### Research

The complement of the new Department includes a relatively balanced mix of researchers with observational and theoretical interests. Observational research includes interstellar chemistry, star formation and gas outflows from young stellar objects (Mitchell), the study of open clusters & associations of various ages and the evolution of massive stars & pulsating variables (Turner, Forbes), the cluster distance scale and interstellar reddening in the galactic disk (Turner), galactic structure and kinematics (Forbes), the origin and structure of early-type galaxies (Welch), clusters of galaxies (West, Welch), and radio interferometric observations of extragalactic radio sources and their environs (Clarke). Theoretical research includes particle physics/astrophysics, low-energy tests of quantum chromodynamics, neutrino astrophysics and the solar neutrino problem (Butler), the modeling of solar and stellar pulsation modes (Guenther), magnetohydrodynamical modeling of the interstellar medium, the study of supernova remnants and extragalactic radio sources and the propagation of cosmic rays and their associated emissions (Clarke), and clusters of galaxies, large-scale structure of the universe and observational cosmology (West). Bill Lonc has interests in radio astronomy and ties to the Vatican Observatory, and in the past year was involved with the construction of a demonstration radio telescope for the science museum at the foot of Mount Graham in Arizona.

### Undergraduate Programs

Our formal program in Astrophysics was approved by the University Senate in 1989, and in the last few years has produced its first four graduates, with one from the honours program. Until 1993 the program was administered jointly by the separate Departments of Astronomy and Physics, but is now under the exclusive control of the new Department. The exciting changes in personnel and program curricula which have occurred in the last year have initiated fundamental changes to our visibility at the local and national levels. This is currently reflected in increased enrolments in our graduate program and in the second year of our undergraduate programs. We hope that our next report will be as encouraging.

### Graduate Program

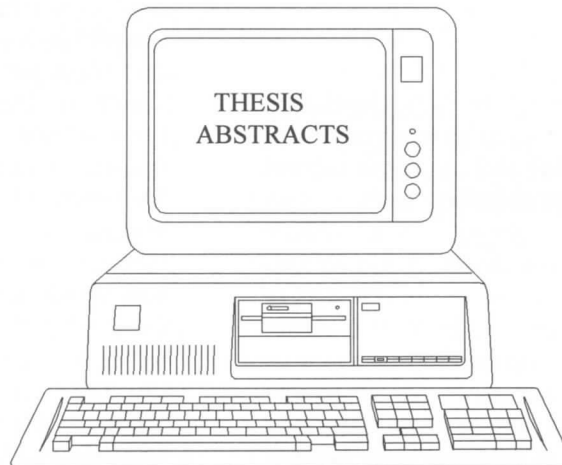
Up until this year, there have been no more

than 4 to 6 students in the M.Sc. program at one time. Successful students who completed all of the requirements for graduation since the last report in late 1987 include (with their undergraduate institution, year of completion, thesis title, and supervisor): John Takala (U. Toronto), 1988, "A UBV Study of the Field of NGC 7790," with Turner; Ken Belcourt (Eastern Connecticut State), 1989, "A High Resolution M Band Study of W3 IRS 5," with Mitchell, David Wing (U. British Columbia), 1990, "Surface Photometry of the Shell Galaxy NGC 2865," with Welch; Jason Schella (Saint Mary's), 1991, "A CO J = 2-1 Study of the Outflow Sources GL 490 and NGC 7538 IRS 9," with Mitchell; Siow Wang Lee (National U. Singapore), 1992, "A Multi-Transition CO Study of the GL 490 Outflow," with Mitchell; Jean Giannakopoulou (Athens), 1993, "The Star Forming Core of Mon R2," with Mitchell; Jeremy Beckett (Concordia), 1993, "Empirical Confirmation of the Mass Dependence for White Dwarf Luminosities," with Turner; Georgi Mandushev (Sofia U.), 1994, "A Photometric Investigation of the Fields of Two Short-Period Cepheids in Cygnus," with Turner; and Lifang Ma (Beijing Normal U.), 1994, "," with Mitchell. Abstracts for the most recent theses have been or are being forwarded to the editor of *Cassiopeia*.

The influx of new faculty has resulted in a recent expansion of our graduate program. Continuing students from last year include full-timers Yonghui Xie (Sichuan U.) and Ken Sills (Western Ontario), who are working under the direction of Clarke and Guenther, respectively, and part-timers Melvin Blake (Saint Mary's) and Wayne Barkhouse (Saint Mary's). New full-time students this year include Michael Casey (Dalhousie), Stefan Elieff (St. Francis Xavier), Todd Fuller (Waterloo), Gary Gidney (Acadia), and Beverly Werstjuk (Carleton). Michal Sersen (Comenius U.) from Slovakia has also been accepted into the program, but the start of his studies currently depends upon a family situation. Modifications to a few of the old lab rooms in physics were completed over the summer in order to provide working space for our new graduate students, additional teaching space within the Department, and room for the recent expansion of computing facilities. A significant change from "the old days" at Saint Mary's has been the provision of start-up funds to our new faculty members by the Dean of Science. This has had a significant impact, primarily in the area of computing facilities.

David Turner, Department of Astronomy and Physics  
Saint Mary's University (not St. Mary's)





## **A Photometric Investigation of the Fields of Two Short-Period Cepheids in Cygnus**

**Georgi I. Mandushev**

**M.Sc. Thesis, Saint Mary's University  
1994 August**

**Thesis Supervisor: David G. Turner**

Photoelectric, photographic and CCD photometry, as well as spectroscopic observations and proper motion data for stars in the fields of the short-period galactic Cepheids V1726 Cygni and SU Cygni are presented and analyzed. The existence of a sparsely populated cluster associated with V1726 Cyg has been confirmed, and a new, loose stellar group has been found in the vicinity of SU Cyg.

The newly obtained distance modulus for C2128+488 (Anon. Platais), the cluster associated with V1726 Cyg, is  $V_0 - M_v = 10.98 \pm 0.02$ , corresponding to a distance of  $1568 \pm 13$  pc. The spatial coincidence and the close match of the radial velocity, proper motion and age of V1726 Cyg with those of the cluster indicate a high probability of cluster membership for the Cepheid. The space reddening of V1726 Cyg, found from two neighbouring stars, is  $E(B-V) = 0.43 \pm 0.02$  and its luminosity as a cluster member is  $M_v = -3.42 \pm 0.07$ . This value is close to that predicted from the PL relation under the assumption that V1726 Cyg is an overtone pulsator, an assumption which is strongly supported by the Fourier parameters of the Cepheid's light curve. It implies, however, an unrealistically small value for the colour term in the PLC relation; a more acceptable value for

the colour term is obtained if V1726 Cyg is assumed to pulsate in the fundamental mode.

The newly found group of stars in the vicinity of SU Cyg has a distance modulus of  $V_0 - M_v = 10.08 \pm 0.02$  ( $d = 1040$  pc). It contains mostly early A to late F-type stars, with a few early B-type stars whose membership is more uncertain. The nature of this group is not entirely clear; it might be associated with the nearby association Vul OB4, which is at the same distance (Turner, unpublished), or represent a very sparse cluster, probably in its final stages of dissolution.

A reddening of  $E(B-V) = 0.16$  has been determined for SU Cyg from a nearby (20 arcseconds) star having an accurate MK spectral type. While the Cepheid is spatially coincident with the stellar group, its absolute magnitude implied from possible membership is brighter than that predicted from the PLC relation. This fact, together with the discrepancy between the observed colour of the cluster turnoff and the one expected for a Cepheid with the period of SU Cyg, indicates that the latter is merely projected by chance against the slightly more distant stellar group. The probable discovery of a new planetary nebula, located about 3 arcminutes south of SU Cyg, and a possible new cluster 17 arcminutes west of SU Cyg, are also reported.

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## **A Study of Molecular Gas Associated With the HH24 Optical Jets**

**Lifang Ma**

**M.Sc. Thesis, Saint Mary's University**

**1994 September**

**Thesis Supervisor: George F. Mitchell**

The HH24 complex has been mapped in 12CO J=3-2 emission at 14" resolution using the 15-m James Clerk Maxwell Telescope (JCMT) on Mauna Kea, Hawaii. The map in 12CO J=3-2 emission exhibits complicated morphology with at least two outflows emanating from the region of the field centre. A blue-shifted molecular lobe found in the northeastern part of the field aligns well with the optically-detected flow HH24G, while near the field centre the 12CO red-shifted flow is coincident with the shocked H<sub>2</sub> region and the optically-detected moving gas designated HH24A. The spatial coincidence of the molecular outflows with the optical outflows suggests that the two phenomena may be physically associated. Analysis of the data shows that the molecular outflow is asymmetric, with the blue-shifted flow having five times more mass and momentum than the red-shifted flow. The momentum flux of the blue-shifted outflow coincident with HH24G is found to be one order of magnitude larger than the momentum of the optical jet. The result implies that the optical jet is incapable of driving the molecular outflow. However, the conclusion is strongly affected by uncertainties in estimates of the momentum flux for both the optical jet and the molecular outflow.

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## **Infrared and Submillimeter Emission from Dust Surrounding Ultracompact H II Regions**

**Jeffrey T. Daines**

**M.Sc. Thesis, The University of Calgary.**

**1994 April**

**Thesis Supervisor: Sun Kwok**

Ultracompact HII regions are thought to be ionized regions around newly formed massive stars embedded in dense molecular clouds. The ionized region is seen at only at radio wavelengths as it is surrounded by a dust cloud which intercepts most of the other radiation and reradiates it at far infrared and submillimeter wavelengths. The massive stars powering the HII region are thought to have collapsed out of the cores of the surrounding molecular cloud. Models predict that a significant portion of the energy distribution of UC HII regions is emitted in submillimeter wavelengths. This thesis investigates the composition and density structure of the dust surrounding UC HII regions by examining their low resolution infrared spectra and far infrared and submillimeter photometry. Special emphasis is placed on distinctive features in the low resolution spectra believed to be due to polycyclic aromatic hydrocarbon molecules.

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## CANADIAN ASTRONOMY PUBLICATIONS

June 22 to September 16, 1994

If you have a preprint or other Canadian publication, we would like to include it in this list. Please send a copy (or a photocopy of the title page) to:

Canadian Astronomy Publications List  
Astronomy Library  
University of Toronto  
Room 1306  
60 St. George Street  
Toronto, Ontario  
M5S 1A7

### A. PREPRINTS OF RESEARCH PAPERS

The following is a list of preprints written by Canadian astronomers and received at the Astronomy library within the dates given above. The preprints are arranged in alphabetical order according to the surname of the first listed author. Originating institution and date of receipt at the library are given.

- Abraham, R.G.; van den Bergh, S. *A Gauss-Hermite expansion of the galactic globular cluster luminosity function*. DAO. 17-Aug-1994
- Allard, F.; et al. *The influence of H<sub>2</sub>O line blanketing on the spectra of cool dwarf stars*. UBC. 9-Sep-1994
- Bell, M.B.; Matthews, H.E. *Detection of C<sub>3</sub>N in the spiral arm gas clouds in the direction of Cas A*. JCMT/HIA. 23-Jun-1994
- Bolton, C.T. *Winds of magnetic B stars*. DDO/U of T. 26-Aug-1994
- Bond, J.R.; Myers, S.T. *Comparing the ambient Sunyaev-Zeldovich effect from clusters with primary CMB anisotropies*. CITA. 29-Jul-1994
- Bond, J.R. *Signal-to-noise eigenmode analysis of the two-year COBE maps*. CITA. 29-Jul-1994
- Bond, J.R. *Testing inflation with the cosmic background radiation*. CITA. 29-Jul-1994
- Briley, M.M.; et al. *Light element abundance inhomogeneities in globular clusters: probing star formation and evolution in the early Milky Way*. DAO. 17-Aug-1994
- Carlberg, R.G. *Velocity bias in MS1224+20*. DDO/U of T. 6-Sep-1994
- Chaboyer, B.; Demarque, P.; Pinsonneault, M.H. *Stellar models with microscopic diffusion and rotational mixing II: application to open clusters*. CITA. 1-Sep-1994
- Chaboyer, B.; Demarque, P.; Pinsonneault, M.H. *Stellar models with microscopic diffusion and rotational mixing I: application to the sun*. CITA. 1-Sep-1994
- Curry, C.; Pudritz, R.E.; Sutherland, P.G. *Global, axisymmetric instability in magnetized accretion disks*. McMaster U. 15-Aug-1994
- Davidge, T.J. *V and I photometry of bright giants in the central regions of NGC 147*. UBC. 9-Sep-1994
- Dewdney, P.E.; Lozinskaya, T.A. *Large-scale 21-cm HI observations of the Cyg OB1/OB3 supershell*. DRAO. 14-Sep-1994
- Durrell, P.R.; Harris, W.E.; Pritchett, C.J. *BR photometry of the halo of M31*. McMaster U, U Victoria. 9-Aug-1994
- Eales, S.A.; Rawlings, S. *The evolution of the rest-frame optical properties of radio galaxies between a redshift of 0 and a redshift of 4.3*. DDO/U of T. 29-Aug-1994
- Fernie, J.D.; Seager, S. *R Coronae Borealis in 1992 and 1993*. DDO/U of T. 5-Aug-1994
- Fernie, J.D. *AC Andromeda: the missing link between delta Scuti stars and classical cepheids?* DDO/U of T. 23-Aug-1994
- Frail, D.A.; et al. *Probing the interstellar medium with pulsars on AU scales*. NRAO. 6-Jul-1994

- Freedman, W.L.; et al. *Hubble Space Telescope first observations of the brightest stars in the Virgo galaxy M100 = NGC 4321*. Obs. Carnegie Inst. 23-Aug-1994
- Garnavich, P.M.; Ann, H.B. *Early spectra of supernova 1993J in M81*. DAO. 6-Jul-1994
- Goldreich, P.; Sridhar, S. *Toward a theory of interstellar turbulence. II. Strong Alfvénic turbulence*. CITA. 29-Jul-1994
- Gray, A.D. *The MOST galactic centre survey. IV. Supernova remnant distribution, small diameter supernova remnants, and supernova remnant-pulsar coincidences*. DRAO. 14-Sep-1994
- Gray, A.D. *The MOST galactic centre survey III. Images of new candidate supernova remnants*. DRAO. 14-Sep-1994
- Gray, A.D. *The MOST galactic centre survey II. New results on published supernova remnants and G2.4+1.4*. DRAO. 14-Sep-1994
- Gray, A.D. *The MOST galactic centre survey I. Survey images and results on Sgr A-E*. DRAO. 14-Sep-1994
- Hauschildt, P.H.; Allard, F.; et al. *The early spectral evolution of nova Cassiopeiae 1993*. UBC. 9-Sep-1994
- Irwin, J.A. *Writing a good observing proposal*. Queen's. 6-Jul-1994
- Kaiser, N. *Non-linear cluster lens reconstruction*. CITA. 9-Sep-1994
- Kaiser, N.; et al. *Mapping the dark matter in clusters*. CITA. 9-Sep-1994
- Kingsburgh, R.L.; Barlow, M.J. *Elemental abundances for a sample of southern galactic planetary nebulae*. U College London. 13-Sep-1994
- Kingsburgh, R.L.; Barlow, M.J.; Storey, P.J. *Properties of the WO Wolf-Rayet stars*. U College London. 13-Sep-1994
- Kingsburgh, R.L.; Barlow, M.J. *DR 1: a WO3 star in IC 1613 and its surrounding nebula, S3*. U College London. 13-Sep-1994
- Kronberg, P.P. *Mapping the Milky Way*. DDO/U of T. 25-Jul-1994
- Levin, J. *Kinetic inflation in stringy and other cosmologies*. CITA. 1-Sep-1994
- Levin, J. *Gravity-driven acceleration of the cosmic expansion*. CITA. 1-Sep-1994
- Lister, M.L.; Gower, A.C.; Hutchings, J.B. *High frequency VLA observations of low-redshift quasars: core structure, variability and orientation*. DAO. 6-Jul-1994
- Malaney, R.A. *Lithium-6 nucleosynthesis in the ISM*. CITA. 1-Sep-1994
- Milone, E.F.; et al. *Studies of large amplitude delta Scuti variables II: DY Herculis*. U Calgary. 22-Aug-1994
- Murakami, I.; Umemura, M. *Dynamical heating and metallic gas supply by elliptical galaxies in rich clusters*. CITA. 9-Sep-1994
- Nelson, R.W.; Tremaine, S. *The damping and excitation of galactic warps by dynamical friction*. CITA. 1-Sep-1994
- Nemec, J.M.; Nemec, A.F.L.; Lutz, T.E. *P-L-[Fe/H] relations, pulsation modes, absolute magnitudes and distances for population II variable stars*. U Washington. 28-Jun-1994
- Piskunov, N.; Wehlau, W.H. *The detectability of cool polar caps on late type stars*. UWO. 5-Aug-1994
- Rice, J.B.; Wehlau, W.H. *Doppler imaging of the Ap star 17 Comae Berenices*. UWO Brandon U. 5-Aug-1994
- Richardson, D.C. *A self-consistent numerical treatment of fractal aggregate dynamics*. CITA. 9-Sep-1994
- Roy, J.-R.; Kunth, D. *Dispersal and mixing of oxygen in the interstellar medium of gas-rich galaxies*. U Laval. 6-Jul-1994
- Schmidtke, P.C.; et al. *LMC stellar X-ray sources observed with ROSAT: I. X-ray data and search for optical counterparts*. DAO. 6-Jul-1994
- Smecker-Hane, T.A.; et al. *The stellar populations of the Carina dwarf spheroidal galaxy; I. A new color-magnitude diagram for the giant horizontal branches*. DAO. 6-Jul-1994
- Storzer, H.; Hauschildt, P.H.; Allard, F. *NLTE effects on the strength of the Lyman edge in quasar accretion disks*. UBC. 9-Sep-1994
- Thompson, C. *A model of gamma-ray bursts*. CITA. 5-Jul-1994
- Turner, D.G. *The distance scale for classical cepheid variables*. St. Mary's. 24-Aug-1994

- Turner, D.G.; Garrison, R.F.; Morris, S.C. *CASCA '92 Hyades cluster workshop*. St. Mary's. 24-Aug-1994
- Vallee, J.P.; MacLeod, J.M. *JCMT observations of the ionising stars in the HII region W40*. JCMT/HIA. 25-Jul-1994
- Vallee, J.P.; Bastien, P. *Extreme infrared (800  $\mu$ m) polarimetry at the JCMT of the W75N-IRS1 cloud*. JCMT/HIA. 24-Aug-1994
- van den Bergh, S. *The Hubble parameter - a status report at epoch 1994.5*. DAO. 17-Aug-1994
- van den Bergh, S. *Possible correlations between the radii and orbital characteristics of halo globular clusters*. DAO. 17-Aug-1994
- van den Bergh, S. *The Hubble parameter revisited*. DAO. 17-Aug-1994
- van den Bergh, S. *Radii, structure, and orbits of globular clusters*. DAO. 17-Aug-1994
- van den Bergh, S. *Better parallaxes and the cosmic distance scale*. DAO. 17-Aug-1994
- van den Bergh, S. *Extragalactic planetary nebulae*. DAO. 6-Jul-1994
- van den Bergh, S. *Globular clusters and the formation of the galactic halo*. DAO. 6-Jul-1994
- van den Bergh, S. *Astronomical catastrophes in earth history*. DAO. 6-Jul-1994
- van den Bergh, S. *Central concentration and luminosity of galactic globular clusters*. DAO. 6-Jul-1994

### CASCA SEEKING NEW OFFICERS

The 1994 CASCA Nominating Committee would like to draw the attention of the CASCA membership to the need to fill two vacant CASCA offices in the summer of 1995: the positions of Treasurer and Secretary. These offices are key positions in our Society and the Nominating Committee wishes to ensure that all candidates are considered. If you are interested in being considered for one of these offices, or if you know of possible suitable candidates for consideration, please contact the chair of the Nominating Committee, Lloyd Higgs.

It might be noted that CASCA is in the process of considering the establishment of a permanent office with part-time supporting staff, so that the duties of these two positions will likely entail less work than they have in the past. Nevertheless, these positions are extremely important for the vitality of our Society, and we urge that every CASCA member give serious consideration to volunteering his or her services for the three-year term of either of these positions. We have been very well served by the current incumbents in these offices, Christine Clement (Treasurer) and Austin Gulliver (Secretary), and are certain that equally dedicated volunteers exist within our membership.

According to our constitution (with some slight gender modification), the duties of these two officers (who are also Directors of the Society) are:

The Secretary shall attend all sessions of the Directors and all meetings of the members and act as clerk thereof and record all votes and minutes of all proceedings in the books to be kept for that purpose. The Secretary shall give or cause to be given notice of all meetings of members and the Directors and shall perform such other duties that may be prescribed by resolution of the Directors or the President under the supervision of the Directors. The Secretary shall be the custodian of the seal of the Corporation, which the Secretary shall deliver only when authorized by a resolution of the Directors to do so and to such person or persons as may be named in the resolution.

The Treasurer shall have the custody of the corporate funds and securities and shall keep full and accurate accounts of receipts and disbursements in books belonging to the Corporation and shall deposit all monies and other valuable effects in the name and to the credit of the Corporation and in such depositories as may be designated by resolution of the Directors from time to time. The Treasurer shall disburse the funds of the Corporation as may be ordered by resolution of the Directors, taking proper vouchers for such disbursements, and shall render to the President and Directors at their regular meetings, or whenever they may require it, an account of all transactions as Treasurer and of the financial position of the Corporation and shall present to the annual meeting a full and true account of the revenue, disbursements and finances of the Corporation. The Treasurer shall also perform such other duties as may from time to time be determined by resolution of the Directors.

1994/95 CASCA Nominating Committee    Lloyd Higgs, chair    Jim Hesser    Amelia Wehlau

**Minutes**  
of the twenty-fifth  
**Annual General Meeting**  
of the  
**Canadian Astronomical Society / Société Canadienne d'Astronomie**  
May 28, 1994  
University of Western Ontario  
London, Ontario

L. Higgs, President of the Society, called the meeting to order at 15:15 EDT with some 50 members present.

**1. Motion to adopt the minutes of 1993 AGM.**

**Motion 1.**

*Moved by D. Hanes, seconded by D. Bochonko, that:  
the Minutes of the 1993 Annual General Meeting be adopted.  
Carried.*

**2. Business Arising.**

There was no business arising from the 1993 Annual General Meeting.

**3. President's Report - L. Higgs.**

The President expressed his pleasure in having been able to serve the community during the past two years. He noted his appreciation for the voluntary efforts of many Society members and thanked Jean-René Roy for his contributions to the Board.

The President commented that the high point in astronomy in Canada for the preceding year was the Gemini agreement and the support expressed for our national facilities. However, there were several challenges facing Canadian astronomy. These included: ensuring that the instrumentation needed for Gemini is forthcoming, the launching of a new radio astronomy facility, the lack of support for software analysis, our increasing membership, the potential cost of a permanent Society office, the Society's financial position in times of low interest rates and the cost of publication of Cassiopeia.

The President also noted that Cascatrust was now entering a phase of standard operation. The FSU support program was also going well. He congratulated S. Tremaine on his appointment as a Fellow of the Royal Society of London. Finally he expressed his personal thanks to the LOC in London.

**4. Secretary's Report - A. Gulliver.**

The Secretary reported that the present membership of the Society included a total of 440 members, 342 Ordinary, 92 Student, 3 Honorary and 3 Corporate. Some 14 members had either resigned or had been expelled by the Board of Directors for non-payment of dues. Since the last Annual General Meeting, there had been 11 applications for membership. The membership changes included:

**New members admitted May 28, 1994**

Bietenholz, Michael	York University
Chaboyer, Brian	CITA
Gomez, Mercedes	Université de Montréal
Philip, Davis	Union College
Vanajakshi, Chandrasekharan	NASA Ames Research Center

**Transferring from Student to Ordinary**

Bridges, Terry	Royal Greenwich Obs.
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**Student members admitted May 28, 1994**

Barkhouse, Wayne	Saint Mary's University
Blake, Christopher	University of Western Ontario
Blake, Ronald	Saint Mary's University
King, Katherine	University of Toronto
Neagu, Elena	University of Waterloo

The following members resigned from the Society:

Binette, Luc	CITA
Goldsmith, Chris	York University
Medd, Wilf	Victoria, BC
Mendes de Oliveira, Claudia	Institut d'Astrophysique
Noreau, Louis	HIA
Tatum, Jeremy	University of Victoria

The following members were expelled from the Society for non-payment of dues:

Aube, Martin	Université de Laval
Beech, Martin	University of Western Ontario
Boudreault, Robert	Université de Laval
Groisman, Gaston	University of Calgary
Sherwood, William	Max Planck Institute
Sparkes, Douglas	University of Waterloo
Vennes, Stephane	University of California
Wang, Jianguo	Université de Laval

**5. Treasurer's report - C. Clement.**

The Treasurer reported that interest income was down while expenses were increasing. Income from dues were at about the same level as last year. Some 70 people had not yet paid their dues. The Treasurer noted that those who had still not paid by October 1 would be expelled. A graph of excess revenue over expenses was shown. This indicated that expenses were now exceeding revenue.

**Motion 2.**

***Moved by C Clement, seconded by S. Rucinski, that:  
the Treasurer's Report for the Society be accepted.  
Carried.***



## 6. Presentation of Board motion regarding fees - L. Higgs.

The President put forward the case for a fee increase to cover the shortfall described by the Treasurer. He noted that the Society was still building up the endowment funds, that additional expenses of several thousand dollars were foreseen for the coming year, that 5 years had elapsed since the last fee increase and that one third of the members were behind in their dues.

The Treasurer presented the proposed new fee structure. Full members would increase from \$35 to \$45, if payment is received before October 1, or \$55 after that date. Student members would increase from \$14 to \$20, or \$25 in case of late payment. Corporate rates would remain unchanged.

### **Motion 3.**

***Moved by C. Clement, seconded by A. Underhill, that:  
the proposed fee structure be implemented.***

***Carried.***

## 7. Committee reports.

### **Awards committee - W. Wehlau.**

Peter Martin was announced as the winner of the Beals Award. The Plaskett Medal winner was Grant Hill. W. Wehlau announced that he will retire as chair and thanked those members of the community who had assisted in the evaluation of theses submitted for the Plaskett Medal award. The President thanked W. Wehlau for his efforts and noted that the new chairman will be D. Routledge.

### **Education committee - R. Bochonko.**

Members were reminded of the activities of the Journals Program, the Job Registry and the Universe in the Classroom Newsletter. The committee wished to encourage the Educational Session held at each meeting. It also wants to maintain a database of graduate students and their eventual destinations. J. Penfold will be the new chair of the committee. The President thanked R. Bochonko for his efforts.

### **Heritage committee.**

No report was presented.

### **Optical and infrared astronomy committee - D. Welch.**

New committee members E. Hardy and S. Morris will replace retiring members G. Joncas, J. Landstreet and P. Kronberg. N. Duric will be the cross-appointment with the radio astronomy committee.

It was noted that Canada had played an influential role in the choice of instrumentation for the Gemini telescopes. The committee discussed a funding program capable of responding on a short timescale for the reduction of HST data. They also discussed the proposed D'AOCam for the WIYN telescope.

**Radio astronomy committee - R. Taylor.**

The committee believed that the major issue facing radio astronomy is its vision for the future. In particular, what should be the instrumental priority for the next generation of radio astronomy facilities? The program for the first workshop in August was presented. The great international interest and the potential for international collaboration were emphasized.

**Space astronomy committee (JSSA) - D. Leahy.**

New committee members S. Lilly and N. St-Louis will replace retiring members T. Bolton and F. Wesemael. The main new development had been the approval of ODIN by the CSA. Concern had been expressed about non-support for data analysis. NSERC and CSA have been trying to get together on this.

**Cassiopeia editor - J. Penfold.**

The circulation of Cassiopeia via e-mail was mentioned as well as experiments with World Wide Web access with the assistance of D. Crabtree.

**8. Cascatrust Report - C. Clement.**

D. Fernie will be replacing D. MacRae as trustee. Cascatrust will be taking over the charitable functions of the Society and would be paying for the Hogg Lecture and the Plaskett Medal. Cascatrust had raised more than \$1000 in the past year. D. Fernie thanked the contributors and noted that an anonymous donor would provide matching funds up to \$3000 for any funds donated for the Hogg Lecture.

**9. Report on the status of HIA - D. Morton.**

D. Morton reported on the status of HIA, noting that major changes had had to be undertaken because of budget constraints. These constraints had resulted in a reduced NRC and HIA budget. Despite these constraints NRC had undertaken to maintain its responsibility for government astronomical facilities, particularly those serving Canadian university scientists.

As part of these changes the laboratory spectroscopy group will be transferred to another institute allowing their consultation activities to continue. The solar-terrestrial physics group will phase out its activities over the next 3 years. Some 28 scientists and technicians will be affected. All of NRC's astronomical activities will be consolidated in BC with administrative activity shifting there over the next 3 years. The JCMT group will move to Victoria or Penticton. Views will be solicited on which location would be preferred.

D. Morton stated that Gemini was not directly responsible for these changes. A general reorganization had been planned for some years.

In regard to specific facilities, NRC will try to continue to operate the telescopes at DAO as long as university astronomers continue to use them. CFHT must determine in which ways it can do better than other telescopes. The agreement to operate JCMT is in place until 2009. The DRAO synthesis telescope is now beginning its 7-element-phase of operation. But there is a need to examine where we are going, a question that will be addressed in the upcoming workshop. A redistribution of optical versus radio astronomy funding is anticipated. This could be based upon the ratio of university scientists in each field.

For the long term outlook, two optical facilities are foreseen. These would of course include Gemini, and perhaps CFHT. One radio astronomy facility could be an enhanced DRAO, an enhanced JCMT or some international collaboration. NRC will provide these facilities so Canadian university scientists can do science. It will not operate as an independent research organization although it will continue to support HIA scientists for their excellence.

The importance of astronomy has been reaffirmed by NRC but HIA must continue to justify its efforts. HIA needs the help of CASCA in setting priorities, recognizing that we must give up something to get something new. This was important in obtaining Gemini approval, as was the commitment not to overrun the budget. Most of all, if HIA is important to members, they must say so to their Deans and Presidents and to NSERC. Otherwise HIA will disappear.

#### **10 Report on the status of Gemini - D. Morton.**

The international agreements establishing Gemini had been signed. It is a cost-limited project totaling \$176 million without any budget overrun being allowed. The project is on schedule and on budget. The instrumentation plan has been accepted. Seeing tests underway on Cerro Pachon have been very encouraging. CTIO staff are very enthusiastic as are the South American astronomers. A meeting to discuss science with large telescopes will be held at UBC next year from May 31 to June 3. Those interested should contact G. Walker.

#### **11. Report from SAC (CFHT) - H. Richer.**

The Canadian members of the Scientific Advisory Committee are M. De Robertis, D. Hanes, G. Joncas and H. Richer (chair). The SAC had met in Quebec City following the Adaptive Optics meeting, the proceedings of which will be available from CFHT (contact R. Arsenault). The SAC discussed detectors and instrumentation for the future including MEGACAM, an array of 64, 2K x 2K CCD's. The major concern of SAC is to define the niche for CFHT in the era of 8-m telescopes. A summary of the SAC proceedings will appear in Cassiopeia.

#### **12. Report from CTAC (CFHT) - D. Hanes.**

The Canadian Time Allocation Committee for the CFHT consists of M. De Robertis (chair), R. Doyon, D. Hanes, B. Oke, R. Pudritz and J. Rice. D. Hanes presented the time assignment and instrument request statistics. The oversubscription ratio was down to 1.8:1. Only 35 proposals were received instead of the 55 expected. CTAC encourages stellar astronomers to apply for time on the GECKO instrument. The policy of having a 4 night minimum run for any instrument was stressed.

#### **13. Report from CTAG (JCMT) - G. Moriarty-Schieven.**

The Canadian Time Allocation Group for the JCMT reported an oversubscription rate of 2.5 to 3.0:1. The numbers of applications have been constant over the last 2 years. Seventy-five per cent of the proposals with graduate students as PI's have received time. The policy of separate TAC's for each country will be permanent. Flexible scheduling had been implemented for a 1 week trial and, because of its success, will be tried again in November or January. Backup proposals in case of poor weather were encouraged.

#### **14. FSU travel grant program - L. Higgs.**

The committee consisted of P. Dewdney, L. Higgs (chair), D. MacRae, R. Taylor and W. Wehlau. Some \$1850 had been donated by about 30 members. The committee had decided to award small travel grants for up to \$500 for research in the FSU or abroad. A legal agreement had been signed with the EAAS which is responsible for submitting award recommendations to the committee for approval. This is expected to be a time-limited, two-year program with a goal of \$5000 or more.

#### **15. Motions from floor.**

There were no motions from the floor.

#### **16. Nominations to 1994 nominating committee.**

The Board presented the names of two nominees, J. Hesser and A. Wehlau, for the 1994 Nominating Committee. The outgoing President will chair the committee. Members wishing to nominate other candidates should forward such nominations in writing to the Secretary.

#### **17. Future CASCA Meetings.**

R. Roger invited members to attend the 1995 meeting which will be held at the Lakeside Resort in Penticton from May 28 to May 31. The theme will be "Phenomena and Physics of the Interstellar Medium".

The 1996 meeting will held at Queen's University.

The 1997 meeting will held at the University of Alberta.

The 1998 meeting will held at Université de Laval.

#### **18. Report of appointments to CITA council.**

The Board appointed D. Henriksen for a 4-year term as CASCA representative on CITA council and P. Bastien for a 2-year term as the CASCA appointee.

#### **19. Appointment of the auditor.**

##### **Motion 4.**

***Moved by D. Hanes, seconded by T. Landecker, that:  
the firm of Tinkham & Associates be re-appointed as auditors.  
Carried.***

#### **20. Results of election - A. Gulliver.**

The Secretary reported that J. Landstreet and M. De Robertis had been acclaimed as First Vice-President and Second Vice-President, respectively.

**19. Other Business.**

W. Wehlau reported that the SAO in the FSU was in desperate need of a 386 or 486 PC to record data from their CCD. H Richer reported that there would be a job centre for applicants and interviewers at the next CASCA meeting. W. Harris expressed thanks to L Higgs on behalf of the Society for his service as President of the Society.

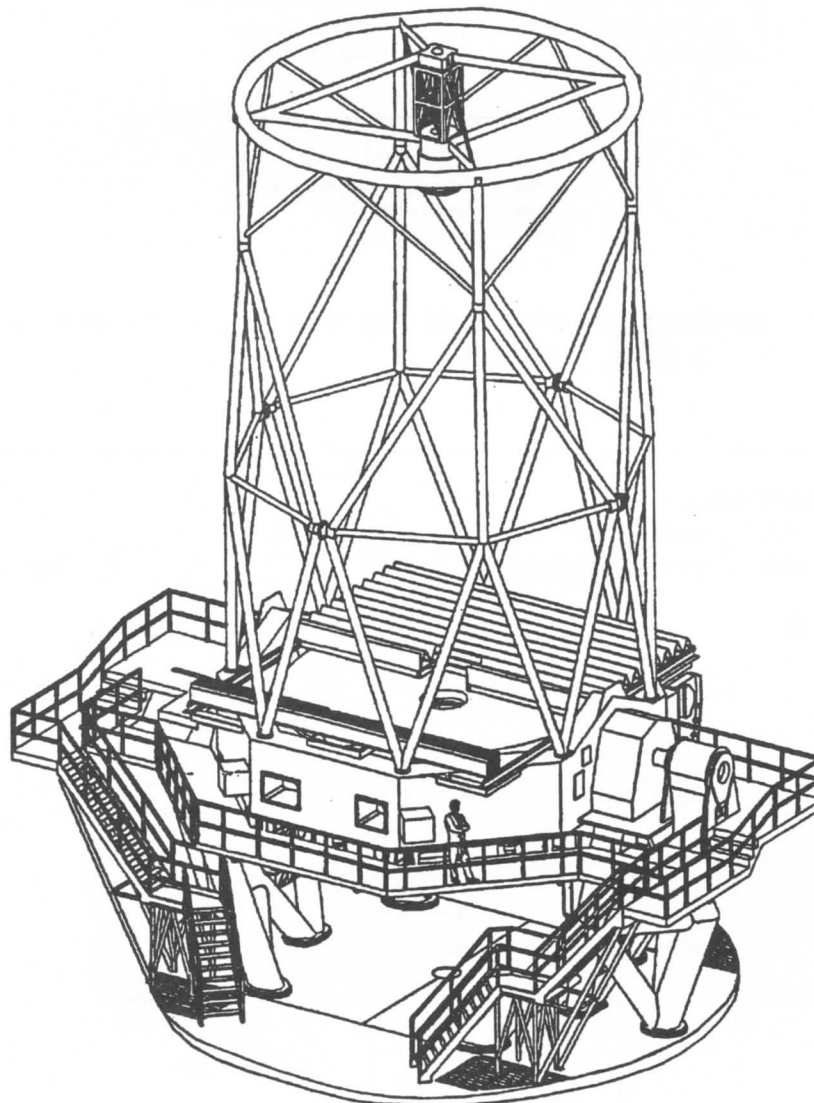
**20. Adjournment.****Motion 5.**

*Moved by D. A. Hanes, seconded by J. Rice, that:  
the meeting be adjourned.*

*Carried.*

Lloyd A. Higgs, *President*

Austin F. Gulliver, *Secretary*



## CASCA BOARD OF DIRECTORS

President	W. Harris, McMaster University	<a href="mailto:harris@physun.physics.mcmaster.ca">harris@physun.physics.mcmaster.ca</a>
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Second Vice-President	M. De Robertis, York U.	<a href="mailto:mmdr@sol.yorku.ca">mmdr@sol.yorku.ca</a>
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1995 Nominating		

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**E-MAIL: DEC 16                      OTHER: DEC 9**

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