

# Cassiopeia

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CASSIOPEIA

Canadian Astronomical Society/  
Société Canadienne d'Astronomie



# Cassiopeia

No. 40 Autumnal Equinox 1983

## CANADIAN ASTRONOMICAL SOCIETY SOCIÉTÉ CANADIENNE D'ASTRONOMIE

Editor: Colin Scarfe, University of Victoria

### Editorial

At the vagaries of an editor's life! Of the last six issues of Cassiopeia, three have been the largest issues ever, and three, this one included, have been well below average size. It would be nice to be able to even out the sizes of issues, but the only way I can see to do this is deliberately to hold some items over from an issue that seems too large until the next issue. But this hardly seems appropriate for a newsletter, which is supposed to be up to date.

I suppose for small issues I could revert to the old unreduced format, especially since I have had a few unfavourable comments on the reduction in print size. But since all these reductions save the Society money, I plan to continue them regardless of the number of pages in each issue. Double spacing defeats this worthy aim, moreover, although it may make things a little more readable. So may I remind contributors that all material for Cassiopeia should be single-spaced unless there is some compelling reason why it cannot be.

One feature of early Cassiopeia issues was news notes from universities and other institutions where members work. This has very nearly died out, alas. I should like to revive it, and encourage members to send me news of activities at their institutions for publication in Cassiopeia, perhaps about once a year.

May I also request those who have attended symposia and colloquia in recent months to take the time to write short reports about these meetings, as several have kindly done in the past.

Colin Scarfe

DEADLINE for the Winter Solstice issue will be DECEMBER 16



National Research Council  
Canada

Conseil national de recherches  
Canada

Ottawa, Canada  
K1A 0R6

File Reference

29 July 1983

Colin Scarfe, Editor  
Cassiopeia  
Department of Physics  
University of Victoria  
Victoria, B.C.  
V8W 2Y2

Dear Colin:

In issue No. 39 of Cassiopeia there was a technical error in Chris Pritchett's otherwise accurate report of the Stariab meeting held in Victoria on June 29. It is not true that a Stariab Memorandum of Understanding has been signed by Canada, Australia, and the United States. What has happened is that Letters of Intent have been exchanged. Letters of Intent generally lay out what we would do should anyone be disposed to give us the money to do it. A Memorandum of Understanding is an official agreement signed by all parties to the agreement.

Despite the confusion between the titles of these two types of documents, Chris is quite right in his interpretation of the situation. Canada has not yet committed funds to Phase B, and such a commitment would not represent a further commitment to proceed to Phase C. No doubt these picayune distinctions seem trivial to most of your readers, but unfortunately they are the kind of bureaucratic niceties that some of us have to worry about.

Yours sincerely,

Bryan Andrew  
Stariab Program Management  
Committee

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Commission de la Fonction publique du Canada  
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Date limite: le 28 octobre 1983.

This information is available in English by contacting the person mentioned above.

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Conseil national de recherches  
Canada

Institut Herzberg  
d'astrophysique

Ottawa, Canada  
K1A 0R6

File Reference

File Reference

C.A.S.C.A. ANNUAL MEETING  
HERZBERG INSTITUTE OF ASTROPHYSICS  
OTTAWA, ONTARIO  
FIRST WEEK OF JUNE 1984

ASSEMBLEE ANNUELLE C.A.S.C.A.  
INSTITUT HERZBERG D'ASTROPHYSIQUE  
OTTAWA, ONTARIO  
1re SEMAINE DE JUIN 1984

## SURVEY

## QUESTIONNAIRE

## 1. DATE:

- This XVth CASCA Annual Meeting will take place between  
- the Toronto Colloquium on "Cepheids: Observations and theory"  
(Tuesday 29 May to Friday 1 June), and  
- the Baltimore semi-annual meeting of the American Astronomical  
Society (Sunday 10 to Wednesday 13 June). Our choices for the  
CASCA Annual Meeting in Ottawa are then:  
(a) - late Sunday 2 to late Wednesday 6 June 1984, or  
(b) - late Tuesday 5 to late Friday 8 June 1984. Please choose  
between (a) and (b) and let us know your preference by  
1. November 1983.

## 1. DATE:

- Cette XVe assemblée annuelle de CASCA aura lieu entre  
- le colloque à Toronto sur "Les Céphéides: Observations et  
Théories" (mardi 29 mai au vendredi 1 juin), et  
- l'assemblée semi-annuelle à Baltimore de l'American Astronomical  
Society (dimanche 10 au mercredi 13 juin). Nos choix pour  
l'assemblée annuelle à Ottawa de CASCA sont donc:  
(a) - du dimanche 2 juin (au soir) au mercredi 6 juin (au soir), ou  
(b) - du mardi 5 juin (au soir) au vendredi 8 juin (au soir). S.V.P.  
choisir entre (a) et (b) et nous dire votre préférence avant le  
1er novembre 1983.

## 2. SPECIALIZED MEETINGS:

If you want us to consider allocation of space and time slots  
for specialized meetings, other than for the CPHT, the CLBA, CITA,  
Starlab, ARO, and the History of Astronomy, please let us know by  
1 November 1983.

## 2. RENCONTRES SPECIALISEES:

Si vous voulez que nous planifions l'emploi d'espace et de temps  
pour des rencontres spécialisées, autres que pour le TCFH, le RIC,  
Starlab, CITA, OAR, et l'Histoire de l'Astronomie, s.v.p. nous le  
faire savoir avant le 1er novembre 1983.

## 3. OTHER IDEAS:

Any ideas which you would like us to investigate, such as names  
of invited speakers, tours, etc., please make your suggestions to  
us by 1 November 1983.

## 3. AUTRES IDEES:

Nous nous ferons un plaisir d'étudier toute idée que vous nous  
soumettrez, comme pour le choix des conférenciers invités, des  
tours à partir d'Ottawa, etc., S.V.P., faites nous vos suggestions  
avant le 1er novembre 1983.

The Local Organizing Committee for the 1984 CASCA Annual Meeting  
(Jacques Vallée, President; Andy Woodsworth, Vice-President; Dave Fort,  
Secretary; Lorne Avery, Treasurer) can be contacted

- by phone (613) 593-6060

- by mail: Local Organizing Committee for CASCA 1984  
c/o Dr. Jacques P. Vallée  
Herzberg Institute of Astrophysics,  
National Research Council of Canada,  
Ottawa, Ont. K1A 0R6, Canada.

Le Comité local d'organisation de l'Assemblée annuelle CASCA 1984  
(Jacques Vallée, président; Andy Woodsworth, vice-président; Dave Fort,  
secrétaire; Lorne Avery, trésorier) peut être contacté

- par téléphone (613) 593-6060

- par courrier: Comité local d'organisation CASCA 1984,  
a/s Dr. Jacques P. Vallée  
Institut Herzberg d'astrophysique,  
Conseil national de recherches du Canada,  
Ottawa, Ont. K1A 0R6, Canada

- in person: room 2069,  
100 Sussex Drive, Ottawa

- en personne: salle 2069,  
100 promenade Sussex, Ottawa

- by  
Telex 053-3715  
Télex 053-3715

- par  
Telex 053-3715  
Télex 053-3715

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Invitation for Observing Proposals

Synthesis Radio Telescope  
 Dominion Radio Astrophysical Observatory  
 Penticton, B.C.

The Synthesis Radio Telescope is operated by the Herzberg Institute of Astrophysics, National Research Council of Canada, as a national facility, and observing proposals from interested astronomers are welcomed. The staff at DRAO carry out the observations and produce the primary set of radio maps: observers are then encouraged to visit the observatory for further processing of the data and for consultation on its interpretation.

The Synthesis Telescope currently operates at 1.4 GHz (21 cm) in the continuum, and/or with a spectrometer suitable for studies of HI. A survey produces radio maps of a field 2'1 with a resolution 1.0 x 1.0 cosec  $\delta$  arcminutes. Observing procedures and reduction software make the instrument particularly suitable for the study of extended structure, in the angular-size range 5 to 100 arcminutes. Problems arising from man-made interference are minimal: DRAO is one of the world's most radio-quiet sites.

A 408 MHz (73 cm) continuum channel which can be used simultaneously with the 1.4 GHz system will soon be in operation, and will provide a field of view of 7'4 with a synthesised beamwidth of 3.5 x 3.5 cosec  $\delta$  arcminutes.

The telescope consists of four 9-m paraboloids in an east-west line, two fixed 600 m apart and two moveable on a track 300 m long. A

complete survey entails 12 hours of observation, plus calibrations, each day for 35 days. For many continuum studies a grating survey is suitable, which reduces the observing time. The preferred mode of operation is to conduct a full survey during the night-time hours when solar effects are minimised, and to allocate daytime to grating surveys, maintenance and development.

The 1.4 GHz continuum receiver has an effective bandwidth of 15 MHz which straddles, but does not include, the 21 cm line. A complete survey with post-reduction grating to 20% provides a noise level of 1.1 mJy/beam (one-sigma), corresponding to  $0.23 \sin \delta \text{ K}$  in brightness temperature. The dynamic range which can be achieved with the available CLEAN software should be known at the end of the present survey (a search for a faint radio halo around Cas A).

The spectrometer has 128 channels, and the channel widths that are available range from 0.33 to 10.6 km/s, in steps of a factor of two. Channel separation is  $\sim 5/8$  the channel width. A typical survey produces 128 maps ranging across the hydrogen line, as well as the continuum map. The brightness-temperature noise level in a map corresponding to one spectral channel, for a full survey and post-observation grating to 20%, is  $12.8 \sin \delta / \sqrt{w} \text{ K}$ , where  $w$  is the channel width in km/s. A full range of software for adding maps, subtracting the continuum component, transposing the data set to RA vs. velocity or DEC vs. velocity maps, etc., etc., is available.

Observing proposals should be submitted to:

SST Observing Proposals  
 Dominion Radio Astrophysical Observatory  
 P.O. Box 248,  
 Penticton, B.C. V2A 6K3

Further information may be obtained by contacting members of the  
 observatory staff:

Telephone 604-497-5321, or  
 Telex 048-88127 (DRAO PEN), or  
 at the above address.

Chris Purton

Some relevant references:

- Cassiopeia, No. 33, p. 20, 1981  
 Roger, Costain, Lacey, Landecker and Bowers; Proc. IEEE 61, 1270, 1973  
 Dewdney and Roger; Ap. J. 255, 564, 1982  
 Landecker, Pineault, Routledge and Vanelidik; Ap. J. 261, L41, 1982  
 Landecker, Roger and Dewdney; AJ 87, 1379, 1982

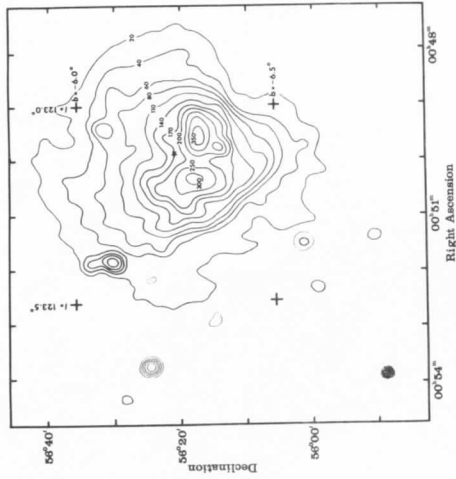


Fig. 1. Continuum Emission at  $\lambda$  21-cm from NGC 281. Contours are in mJy beam area. Half-power beam is indicated by shaded area in lower left. Position of the exciting star HD 5005 is shown with a  $\times$ . Coordinates are for epoch 1950.0



Fig. 2. Alternate contours from Fig. 1 (40, 80, 140, 200, 300 mJy) superimposed on the same field from the red print of the Palomar Sky Atlas. Note obscuration in southwest

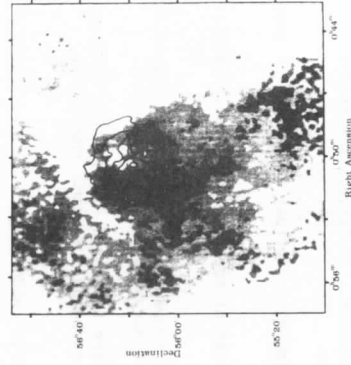


Fig. 4. A field 128' on the side with alternate contours from Fig. 1 (40, 80, 140, 200, 300 mJy) superimposed on HI emission integrated over the range in  $v_{LSR}$  of 21 to 40  $\text{km s}^{-1}$ . Stepped intensity levels are at intervals of  $3 \times 10^{20} \text{ cm}^{-2}$  in equivalent column density. Coordinates are for epoch 1950.0

Radio maps of HI region  
 NGC 281 (S184) from  
 Roger and Pedlar, A. & A. 94,  
 238, 1981, illustrating the  
 wide field of the instrument.

CANADIAN ASTRONOMY PREPRINT LIST

July 4, 1983 to September 9, 1983

The following file contains a list of preprints written by Canadian astronomers. All preprints were received at the Astronomy Library, University of Toronto, within the dates as stated above.

The file is arranged in alphabetical order according to the surname of the first listed author of each preprint. Originating institution and date of receipt at the library are listed.

If you have distributed a preprint and would like it to be included in this list, please send it to:

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

XX

Arellano Ferro, A. Physical parameters and pulsational mode of short-period small-amplitude cepheids. U of T. 83.08.26.

Bely, Pierre Y., Derrick A. Salmon, Peter L. Wizinowich and Alain Tournaire. Bending the CFHT cassegrain secondary for optical figure improvement. (CFHT) 83.08.24.

Bertola, F., C. Casini, D. Bettoni, G. Galletta, L. Noreau, and P.P. Kronberg. MGC 3448 revisited: a combined optical radio, and UV investigation. U Padua/U of T. 83.08.25.

Borra, Ermanno F. A cosmological test, its application to quasars and estimates of q<sub>0</sub>. Laval. 83.07.28.

Borra, Ermanno F. and Gilles Corriveau. A search for faint highly polarized objects. Laval. 83.07.28.

Carlberg, R.G. and J.A. Sellwood. Transient spiral waves and disk dynamics. Inst. of Astronomy Cambridge/U of Toronto. 83.07.04.

Duric, Neb. On the origin of cosmic rays in the spiral galaxy MGC 3310. DDO/U of T. 83.08.22.

Evans, Nancy Remage. X Cygni: Duplicity, period stability, and atmospheric velocity structure. DDO/U of T. 83.07.19.

Hardy, Eduardo and Daniel Durand. The population structure of the wing of the Small Magellanic Cloud. Laval. 83.08.08.

Hardy, Eduardo et al. The population structure of the Large Magellanic Cloud bar. Laval. 83.08.08.

Harris, Hugh C., E.W. Olszewski, G. Wallerstein. AU Pegasi, the binary cepheid outside the instability strip. DAO. 83.08.11.

Hutchings, J.B., D. Crampton and Bruce Campbell. Optical imaging of 76 quasars and host galaxies. DAO. 83.07.07.

Kwok, Sun and R.C. Bignell. Radio structure of the proto-planetary nebula GL 618. Herzberg. 83.07.28.

Lane, M.C. and John B. Lester. Effective temperatures and surface gravities of metallic-line A stars. DA/Dunlap Observatory, U of T. 83.08.02.

McAlary, Christopher W., Barry F. Madore and Lindsey E. Davis. The distance to IC 1613 from infrared photometry of cepheids. Steward Observatory. 83.07.21.

Mozel, Philip. A telescope's first century. RASC Toronto Centre. 83.07.21.

Taylor, A.R. and P.C. Gregory. Radio patrol of the northern Milky Way: A catalogue of sources, part 1. UBC. 83.07.18.

Vallee, J.P. Spectral observations and physical modeling of Sharpless 121. HIA. 83.08.08.

Walter, G.L., J.J. Perry and P.P. Kronberg. The rotation measure distribution of QSOs and of intervening clouds: magnetic fields and H/sub/e. DDO/U of T. 83.08.22.

## Comings and Going at the University of Victoria

Since the last time I wrote on this subject (*Cassiopeia* 35, 8, 1982) Jan Smolinski has returned to his post at the N. Copernicus Astronomical Centre, Torun, after almost a full year here. Ken Freeman, of Mt. Stromlo, spent almost all of February in the astronomy group as a Lansdowne Visiting Fellow and gave several stimulating talks on his varied research interests.

Recently Tad Pryor from the University of Michigan has joined the group as a PDF, and Claudio Sollazzo, on leave from Catania Observatory in Italy, has started a stay of several months as a visiting scientist.

During the past six months Chris Morbey, Doug Forbes and Michael De Robertis have completed all the requirements for Ph.D. degrees. Chris, a long-time member of the D.A.O. staff, wrote a thesis entitled "Brightest Members of Rich and Poor Clusters of Galaxies". Doug's thesis was on "The Distribution of Spiral Structure Tracers in the Region of the Galaxy Between Longitudes 30° and 70°" and Michael's was "On the Nature and Origin of the Broad-Line Region in QSO's and Seyfert I Galaxies". Doug and Michael have now departed to take up postdoctoral fellowships at Laurentian University and Lick Observatory respectively.

New graduate students this year include M.Sc. candidates Carl Grillmair from Calgary, Elisabeth Jylanne from Waterloo and Lewis Knee from Memorial.

Colin Scarfe

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