
CASSIOPEIA

CANADIAN ASTRONOMICAL SOCIETY SOCIÉTÉ CANADIENNE D'ASTRONOMIE

No. 68 - Autumnal Equinox 1990

ISSN 0715-4747

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DEADLINES FOR THE WINTER SOLSTICE ISSUE ARE:

E-MAIL:	DECEMBER 3
OTHER:	NOVEMBER 26

FROM THE EDITOR

As the new editor of *Cassiopeia* – the first in more than thirteen years – it is a pleasure for me to extend greetings to all our readers. I hope our association will be fruitful and useful to the Canadian astronomical community.

Clearly, the first item of business is to thank the outgoing editor, Colin Scarfe, for his many years of labour in editing and producing this newsletter. You will notice that this is issue no. 68 of *Cassiopeia*; Colin began as editor way back at no. 14, which means that he was editor for longer than all others put together! Our grateful thanks, Colin. I have little doubt your record will remain intact beyond the current editor!

I should like to introduce *Cassiopeia's* assistant editor, Brian Beattie. Brian is, *inter alia*, a research assistant at DDO and national librarian for the RASC, and among his inestimable qualities is a sound knowledge of \TeX , something I lack myself. Brian, therefore, will be responsible principally for the formatting and other production aspects of the newsletter. However, if you need to reach the editorial office (ahem!) and receive no response from me on e-mail, please send your message to beattie@centaur.astro.utoronto.ca on Internet. I am grateful to the director of the DDO, Ernie Seaquist, for donating some of Brian's time to *Cassiopeia*.

The cost of producing and mailing *Cassiopeia* has, like everything else, been rising steadily. To save space we are experimenting by dropping the front cover that has served so well for so long; it seemed unnecessary to take up an entire page with the depiction of a constellation. We are experimenting further by altering the format to a two-column portrait one, which can be also be folded for mailing without need for buying (and licking) nearly five hundred envelopes each issue. This, however, has increased the cost of production by nearly \$300, and the Board of Directors has authorised this amount for a trial issue only. Whether this will continue must depend on the response of the readership. Please, therefore, let me know your reaction to our changes. Do you agree to our dropping the cover? Do you prefer the two-column portrait format? Do you have other suggestions? Send your response, preferably with some degree of emphasis, to my Internet address: fernie@centaur.astro.utoronto.ca.

Meanwhile, Brian and I look forward to receiving your letters and other contributions to *Cassiopeia*.

Don Fernie

CASCA JOB REGISTRY

CASCA members are reminded that they may receive notices of advertised positions in astronomy on an ongoing basis by request to: CASCA Job Registry, DRAO, P.O. Box 248, Penticton, B.C., V2A 6K3, or E-mail: RSR@drao.nrc.ca

Notices are primarily for positions in Canadian institutions and do not in general duplicate the positions in the job registries of the AAS or AIP. However, notices that the Registry receives directly from non-Canadian sources

are distributed.

Members are asked to inform the Job Registry of any positions in astronomy they know to be available. When possible, please advise at least 8 weeks in advance of the application deadline.

R.S. ROGER
CASCA Job Registry

BACK ISSUES OF CASSIOPEIA

Although I am no longer Editor of *Cassiopeia*, I have a fair stack of extra copies of most of the issues I have edited, in a quiet and dusty corner of my office. I have agreed with the new Editor, Don Fernie, to keep them here, rather than send them to him. They are of course available on request (and actually I'd rather like to get rid of them!) to any member who wishes to fill gaps in his or her collection – those of you who have collected them!

The number I have available varies from issue to issue, from over thirty to none at all. I want to assure the

various Treasurers who have trusted me to spend the Society's funds wisely that the large remaining numbers of some issues do not represent a waste of money, but were a result of the University of Victoria's print shop supplying more copies than I requested... for which they made no charge!! Of course I always asked for a few more than required, just to have a few on hand to satisfy requests for back issues, of which there have been a modest number.

The table below gives the number remaining of each of the issues I have edited.

Issue No.	Date	Copies	Issue No.	Date	Copies	Issue No.	Date	Copies
14	VE77	none	36	AE82	8	52	AE86	10
15	SS77	none	37	WS82	7	53	WS86	9
16	AE77	4	38	VE83	3	54	VE87	1
17	WS77	4	39	SS83	5	55	SS87	10
18	VE78	11	40	AE83	none	56	AE87	21
24	AE79	14	41	WS83	6	57	WS87	15
25	WS79	12	42	VE84	24	58	VE88	none
26	VE80	none	43	SS84	11	59	SS88	7
27	SS80	7	44	AE84	none	60	AE88	20
28	AE80	6	45	WS84	13	61	WS88	15
29	WS80	3	46	VE85	1	62	VE89	8
30	VE81	13	47	SS85	9	63	SS89	5
31	SS81	7	48	AE85	12	64	AE89	17
32	AE81	7	49	WS85	9	65	WS89	31
33	WS81	9	50	VE86	9	66	VE90	2
34	VE82	13	51	SS86	31	67	SS90	9
35	SS82	1						

I also have 27 copies of the cumulative index of issues 31 to 50, but none of the index for issues 1 to 30, save for a master from which more copies could be made.

Issues 19 to 23 were edited by Doug Hube, during my sabbatical Down Under, and I don't know whether he retained any copies. Issues 1 to 13 were edited by Jack Heard and David Dupuy, and I suspect no spare copies remain. Please contact me if you would like copies of any that I have available.

Just for the sake of interest (and to let Don Fernie know what he has let himself in for!) I thought I'd follow my article in the last issue on the growth of the Society by adding here some information on the growth of *Cassiopeia*, in terms of the number of pages. Of course recent issues have had more words per page than did earlier ones (neglecting of course the two-onto-one reduction that has been a feature since Issue No. 37), so the growth in words has been somewhat greater. Since there are obvious seasonal variations (Summer Solstice issues tend to be large, since they usually follow Annual General Meetings), I content myself with tabulating the annual total number of pages.

Year	Pages	Comments	Year	Pages	Comments
1973	45	Two issues	1982	150	
1974	54		1983	94	
1975	66	Three issues	1984	135	
1976	54		1985	138	
1977	83		1986	147	
1978	52		1987	171	
1979	74		1988	163	
1980	68		1989	84	
1981	93		1990	44	Two issues to date

As is clear there has been considerable growth overall, but it has been quite uneven, and there has been a substantial decline in the last year and a half, which is too marked to be due wholly to the use of T_EX. Just for interest's sake there have been three issues with fewer than ten numbered pages, and two with more than seventy. Those members who have kept their back issues will be able to discover which ones those were!

COLIN SCARFE

HUBBLE SPACE TELESCOPE

As you are all aware, the HST primary mirror is incorrectly figured, and the resulting spherical aberration severely compromises the science that can be done. Nevertheless, HST still has a very significant capability, and there are plans to achieve the full science goals for the telescope over the next few years. The following is a

summary of the situation and the present plans for observing. Some of what I report here is not yet established policy and some will be outdated by the time you read it. Nevertheless, I hope that it is sufficiently informative and encouraging to keep Canadian scientists interested in the HST.

First, it is possible to correct the spherical aberration by transfer optics in the instruments. Since second-generation instruments are already under way, they are being designed to do this. Other actions, such as masking the primary central area, inserting correcting optics in front of existing instruments, or returning present instruments to the ground for 'correction' are being considered, but are unlikely to occur. The WFPC II clone will be ready for launch perhaps by early 1993, but the replacement spectrograph (STIS) and new Infrared instrument will not be installed until 1996. Until then, we will most probably have to make do with the telescope and instruments as they are. Since there is some information ($\sim 15\%$ of the light) within 0.1 arcsec, deconvolution techniques can be used for some high resolution observations (essentially high signal data on point sources).

In order to define the deconvolution algorithms and to make the new correcting surfaces accurately, the telescope image is being characterised by a series of images taken at many wavelengths and secondary mirror positions. This will be followed by the adoption of a 'best focus' position for the present instruments, taking into account the different criteria for spectroscopic throughput and high-frequency image components for deconvolution. The instruments will then be calibrated using this focus, for use over the next 2 - 3 years.

A graphic illustration of the imaging capability is seen in the WFC image of the 30 Dor cluster in the LMC. The cluster centre is resolved into many faint stars, with higher resolution and fainter limits than ground-based speckle results, even without deconvolution. The data that cannot be recovered will be the faint limit photometry (losing maybe 2 magnitudes), and faint objects of unknown morphology, especially in the presence of bright objects (*e.g.* QSO fuzz). The possibilities of deconvolution are being developed and investigated, and will improve and become better defined over the next year or so.

For spectroscopy, the main loss is in throughput. The GHRS small aperture (0.25 arcsec) will admit only $\sim 20\%$ of the light. The large aperture will catch some 50% of the light, but degrade resolution in a way that depends on the

nature of the object observed. FOS and HSP apertures have larger ranges, but suffer comparable losses. High spatial resolution spectroscopy is, of course, severely impacted. Thus, observers will need to consider signal levels, time constraints, and spectroscopic resolution in their programs. The FOC has good UV response, which may still be of considerable interest in spite of the poor image quality.

In order to understand the present capabilities better, a series of early science observations is planned for this fall, defined by the instrument teams to test a range of observations from easy to difficult. These data will become public in one month, and the performance results should be available immediately. A series of (largely uncalibrated) WFPC and FOC images are being obtained as a grab-bag of first science results. Thus, it will be possible to assess the changes needed to presently approved programs, and to design new proposals, by the end of this year.

It is proposed that all presently 'guaranteed' observers (both GTOs and Cycle 1 GOs) inform the Institute whether their science is still feasible as proposed; feasible with increased observing time (to be justified); deferred to WFPC II; or not feasible. Proposals will probably not be carried until STIS flies in 1996: they will need to be re-proposed in due course. Deferred observations will not be 'protected' against being done with existing instrument performance. The first year's observing will be redefined on the basis of these considerations, with a submission deadline presently in mid-November. A call for Cycle 2 proposals will likely be made in the first months of 1991, depending on the results of all the above considerations. Cycle 2 will begin about one year after Cycle 1 (about the spring of 1992).

The HST Users Committee has been much involved in the above ideas and policies, and will continue to speak for the community to both NASA and STScI. As a member of the committee, I solicit your views and concerns in order that we may better perform our function, and make the telescope as effective as possible for us all.

JOHN HUTCHINGS

Note added September 6

As a result of the 30 Dor picture, HST has taken a series of images with the WFPC and FOC called Early Release Observations. These are being analysed by the instrument teams and anyone with HST approved observing that relates to the observations. There will be a special issue of Ap.J. letters devoted to these, and a similar special issue on early spectroscopic observations to be done

in Sept/Oct. The ERO images will become public within a month, and so will be the first archival data. They will be a valuable source of information to those proposing for cycle 2 or revising cycle 1 observing. In particular, they show what can and cannot be accomplished with deconvolution. Many of the 'results' summarized below were seen only after some sort of deconvolution, and we have

verified that by doing some at the DAO.

The ERO observations include the following. The list is not complete and at the moment I don't have information on all of them. NASA have had a press release on the SN1987a and NGC7457 results.

FOC data -

PKS0521-36 (radio galaxy at $z=0.05$) jet detected)
AP Lib (BL Lac object at $z=0.05$) fuzz seen
R136 (30 Dor nucleus) underexposed
R Aqr (symbiotic) [O II] tail seen
SN1987a [O III] ring seen
Ton 256 (low z QSO) no fuzz seen
M14 (glob cluster) good deep exposure
NGC1068 (sefert) complex structure in nucleus

I Zw 1 (QSO) faint spiral arms seen
2237+0305 (gravitational lens) resolved

WFPC data -

NGC1850 (LMC cluster) crowded field
NGC7457 (S0 galaxy) bright central cusp
NGC925 (nearby galaxy) underexposed
R136 (30 Dor) lots of OB stars
Saturn
Titan: interesting structure
Orion nebula: sharp edges
Pluto/Charon
NGC 188 (LMC Cluster)
Eta Carina (OB stars)

JOHN HUTCHINGS

CANADIAN ASTRONOMY DATA CENTRE

HST Status

As everyone is aware, the HST images are flawed by substantial spherical aberration. The point spread function has a central core of about 0.08 arcseconds, but only 20% of the energy falls within this core. The remaining energy falls within a broad halo of more than 1 arcsecond extent. Unfortunately, the point spread function changes across the field. It is hoped that much of the aberration can be compensated for by deconvolution techniques, and the initial results are said to look quite promising. However, a workshop will be held in late August at STScI to discuss the success of these techniques. Based in part on the outcome of this workshop, the feasibility and merit of all approved observing proposals will be re-assessed during the Fall.

In the longer term, the aberration can be corrected in second generation instruments, the first of which (WF/PC II) is to be installed in 1993. It is thus expected that all of the planned scientific work will eventually be done, although there is likely to be an initial concentration on spectroscopic work not requiring the highest angular resolution. (It should be borne in mind that HST's UV capability makes it a very powerful instrument, even with the degraded images).

Those interested in obtaining up-to-the-minute HST reports can obtain them via anonymous ftp from stsci.edu. New reports are currently issued every few days.

HST Data at CADC

We currently do not expect to receive more than a few sample images before the end of the Science Verification period, which will be a few months from now. At that time, we will receive the SV data and can distribute it to users. The HST catalog, however, is not proprietary and

we will be updating our copy of the catalog frequently, so it will be possible for Canadian users to determine what has been observed by HST within a few days after the observation.

The calibration data is also non-proprietary, and we will be receiving this data very soon. The STSDAS software available within IRAF contains routines to recalibrate all HST data. Users who wish to do this can obtain the latest calibration data from us.

The data rate from the spectrographs is considerably less than that from the cameras. However, *a concentration on spectroscopic work would imply very little reduction in the workload to build the HST archive at CADC*, since little of the work consists of physical handling of the data. Most of our workload consists in developing the software necessary for remote users to access the HST archives and retrieve selected parts of the data. In fact, the CADC workload could actually increase if we become involved in significant amounts of image deconvolution.

CADC Services

Because of problems with our infamous Britton-Lee database machine, we have been moving our services to a Sun SPARCstation. Additionally, the popular SIMBAD service, to which we provide free access, has been changed to a new machine in Strasbourg, and the new system is still not quite stable. The result of these changes has been a complete interruption of CADC services over the summer. We expect to have the STARCAT services, including access to the HST catalog, available in the early Fall. SIMBAD, which provides bibliography, positions and identifications (aliases) for stars, will also be available very soon.

Movement of these services from our microVAX to the SPARCstation will mean that we will have to set up new

accounts, with new passwords. We will be contacting all our registered users directly about these changes.

Documentation

Because all our services are changing, all our documentation is now out of date. We are now writing new documentation, which will be available in printed form or over the network as a postscript file.

Staffing Issues and Priorities

We are happy to welcome Dennis Crabtree back to the CADC. Dennis provided friendly assistance to many CADC users in the past, and we are glad that he has decided to rejoin us.

We are in the process of staffing one empty position for a computer specialist. With this position, we remain somewhat below the *minimum* staffing levels recommended by the Associate Committee on Astronomy last year. As most of you are aware, NRC has undergone a major reorganization during the summer, with over 200 people having left. HIA is committed to finding the additional resources, but the time scale is uncertain. This means that we may have to scale down our planned levels of end user support if we are to get the HST archive (currently our highest priority) implemented on schedule.

The external advisory committee for the CADC is now JSSA (the Joint Subcommittee on Space Astronomy), and JSSA will be asked to provide guidance on priorities for the CADC. At its September 14/15 meeting, we will specifically ask them to reconsider the relative priorities for the next six months of building the HST archive vs. acquiring experience in initial data quality, its scientific potential, and its analysis, in order to help Canadians prepare Round II Guest Observer proposals. Readers with opinions on this matter are urged to communicate them to us ASAP.

IUE's Uniform Low Dispersion Archive

CADC is the designated Canadian host site for the

ULDA archive. Due to staffing shortages we had to discontinue this service, but we expect to re-institute it soon. The ULDA should be extremely useful for planning HST GHRs observations (and later for Lyman proposal planning), as well as for general research and student training. It gives easy access to low resolution UV spectra of many objects.

Network Access

One of the major activities of Andy Woodsworth over the last two years has been as project manager of a new national network, now called CA*net. CA*net links the regional networks of Canada (like BCnet, Onet, RISQ) to each other and to the NSFnet in the US, at speeds of 56 kbps. The implications for the CADC are that our users can now connect to us at much higher speeds and lower costs than was the case with the Datapac service. Our network address is `cadc.dao.nrc.ca`, and mail to all DAO staff including CADC staff is sent to `user@dao.nrc.ca`.

All provincial regional networks will be connected to CA*net this fall, and almost all universities will be connected to their regional networks. Workstation owners who are not connected to their campus networks will need to arrange this if they wish connectivity to their Canadian and US peers.

Electronic news service

The CADC is now establishing an electronic mail exploder named "astronews" for the discussion of various topics of interest to Canadian astronomers. We see this as a vehicle for discussion topics of interest to the community in a public forum. If you would like to participate in "astronews" send a message to "astronews-request@dao.nrc.ca"

ANDY WOODSWORTH
woodsworth@dao.nrc.ca

THE NASA/IPAC EXTRAGALACTIC DATABASE

The August 1990 release of the NASA/IPAC Extragalactic Database (NED) is available now for world-wide access by the astronomical community. NED is an ongoing and funded project which is populating a computer-based central archive with a broad range of published extragalactic data, organized for fast and flexible retrieval via electronic networks.

The current version of NED provides positions, names, and basic data for over 75,000 extragalactic objects. NED also provides related bibliographic references, and notes from catalogs and other publications. It also allows for

browsing the abstracts of recent articles of extragalactic interest from the major journals (*Astr. Ap.*, *A.J.*, *Ap. J.*, *M.N.R.A.S.*, *P.A.S.P.*, their *Letters* and *Supplements*), and upon request forwards to the user files containing the data retrieved during a session. Future releases will provide data from the current literature and from catalogs, as well as tools for searching the abstract database by its content.

NED is an object-oriented database, meaning that all information is organized around astronomical objects such as galaxies, groups of galaxies, quasars, and ra-

dio sources, rather than stored in catalogs. It is built around an Object Directory obtained from detailed cross-identifications among about thirty major extragalactic catalogues; additional catalogs being folded in continually. Except for this aspect of the architecture, the user does not need to understand the internal structure of NED to make efficient use of it. Objects can be selected by name (a high-level name interpreter is built into the interface), or by vicinity, either to a named object or to a position on the sky.

Access to the NED database service can be made over INTERNET or SPAN, provided you have a VT100 terminal, or a software emulation it. (i) On INTERNET, a connection to IPAC may be set up with the command: *telnet ipac.caltech.edu*. (ii) From a node on SPAN, use the command: *set host IPAC* (the absolute address for IPAC is 5.857). Once you are connected to IPAC (which in this case is a SUN workstation) and prompted for a

login, simply respond with *NED*; no password is needed. From this point on, the system is self-documenting, especially through the "HELP" utilities and the "control-H" key. First-time users may find it useful to read the "TUTORIAL" in the first screen presented by the interface.

You may invoke the "COMMENTS" option in the NED interface to leave messages or suggestions at almost any time in your session. In case of problems that require special attention, please feel free to contact any one of the following: George Helou, Barry F. Madore, Marion Schmitz, or (as of January 1991) Harold Corwin at (818) 584-2903.

This work is being carried out by the Jet Propulsion Laboratory, California Institute of Technology, under contract with the National Aeronautics and Space Administration (Astrophysics Division, Science Operations Branch).

BARRY MADORE

SMALL GRANT REPORT

Summary of the Results of Two Observing Runs at the Dominion Astrophysical Observatory in June and July/August 1989 Supported by the Small Grant Program of the Canadian Astronomical Society

Run #1 June 1-7, 1989

During this run I collected CCD photometry of the following objects:

- SS Ursae Minoris. This dwarf nova was supposed to have a short orbital period of about 2 hours. However, the collected data revealed that the star is in fact a normal U Geminorum-type dwarf nova and its orbital period is longer than 5 hours, probably about 6.8 hours. The results of the photometry were published: SS Ursae Minoris: A Normal U Gem Type Dwarf Nova, *Inf. Bull. Var. Stars*, #3425.
- RW Ursae Minoris. I collected two four-hour photometric runs. The data show small modulation with the period about 2 hours, but because of limited coverage the results are not conclusive.
- PG 1550+131. I collected BVR photometry of this extra-interesting pre-cataclysmic variable. The data show a strong heating effect with an amplitude of $0^m.7$ in R. Very deep (about 5 mag in V) eclipses allowed me to derive precise elements of the system. These data, together with additional data collected at other observatories, allowed me to derive the system parameters and draw conclusions about the evolutionary status of this system. The paper is in advanced stage of preparation.

Run #2 July 25 - August 5, 1989

In spite of bad weather (only about 50% clear nights), I carried out the following observations:

- Spectroscopy of V603 Aql. Thirty spectra of this old nova were obtained with the 1.88m telescope. The data were then used to derive the radial velocity curve. Together with the spectra collected by collaborators at La Palma Observatory, the DAO spectra will be used to derive precise parameters of this system.
- CCD photometry of V404 Cyg. The CCD photometry of the X-ray nova V404 Cyg which erupted in May 1989 was carried out during three nights. Based on these data I discovered the periodic light variations with a period of 3 hours (or double this value, 6 hours). The data with observations collected during the last several months allowed me to draw conclusions about this unique system. The paper summarizing the results has been submitted for publication in P.A.S.P.
- CCD photometry of TT Boo. I carried out two four-hour runs of the dwarf nova TT Boo in the final stages of the so-called superoutburst. I discovered periodic light variations called superhumps with the period 114 minutes. This discovery places TT Boo in a small ultra-short-period group of the dwarf-novae called SU Uma-type. The paper with the results will be submitted for publication soon.

ANDRZEJ UDALSKI

CANADIAN ASTRONOMY PUBLICATIONS

June 23 to September 7 1990

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

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.

- Bagnuolo, W.G. Jr., Kamper, K.W., *Passive interspectroscopy*. David Dunlap Observatory, University of Toronto, 29-Jun-1990.
- Bastien, P., Menard, F., *Parameters of disks around young stellar objects from polarization observations*. Université de Montréal, 10-Aug-1990.
- Binette, L., Raga, A., *Models for stratified photoionized clouds in AGN. I. General properties of the emission line spectrum*. Canadian Institute for Theoretical Astrophysics, 28-Jun-1990.
- Borra, E.F., *The case for a lunar liquid mirror telescope*. Université Laval, 17-Jul-1990.
- Bryan, G.L., Volk, K., Kwok, S., *On the formation of carbon stars*. University of Calgary, 25-Jun-1990.
- Carlberg, R.G., *Mergers as an omega estimator*. David Dunlap Observatory, University of Toronto, 24-Aug-1990.
- Carlberg, R.G., Pudritz, R.E., *Magnetic support and fragmentation of molecular clouds*. David Dunlap Observatory, University of Toronto/McMaster University, 1-Aug-1990.
- Carlstrom, J.E., P.P. Kronberg, *HII regions in M82: high resolution millimeter continuum observations*. David Dunlap Observatory, University of Toronto, 20-Jul-1990.
- Close, L.M., Richer, H.B., Crabtree, D.R., *A complete sample of wide binaries in the solar neighborhood*. University of British Columbia, 27-Aug-1990.
- Davidge, T.J., De Robertis, M.M., Yee, H.K.C., *Long-slit spectroscopy of near-ultraviolet NH absorption in the nuclei of M31 and M32*. Canada-France-Hawaii Telescope, 1-Aug-1990.
- Fernie, J.D., *V441 Herculis and V814 Herculis in 1989*. David Dunlap Observatory, University of Toronto, 4-Jul-1990.
- Fernie, J.D., *R Coronae Borealis in 1989*. David Dunlap Observatory, University of Toronto, 27-Jun-1990.
- Fich, M., Silkey, M., *Abundances in H II regions at the edge of the galaxy*. Canadian Institute for Theoretical Astrophysics, 15-Aug-1990.
- Freedman, W.L., Madore, B.F., *Metallicity effects on the cepheid distance scale*. IPAC, 28-Aug-1990.
- Gray, D.F., *High-resolution spectroscopy: why, how, and what for*. University of Western Ontario, 26-Jun-1990.
- Green, D.A., *On the nature of G25.5+0.2: the IRAS low-resolution spectrum of IRAS 18344-0632*. Dominion Radio Astrophysical Observatory, 11-Jul-1990.
- Harris, W.E., Allwright, J.W.B., Pritchett, C.J., van den Bergh, S., *The luminosity distribution of globular clusters in three giant Virgo ellipticals*. Dominion Astrophysical Observatory, 26-Jun-1990.

- Hogg, H.S., *Joseph Algernon Pearce 1893-1988*. David Dunlap Observatory, University of Toronto, 27-Jun-1990 .
- Kroeker, T.L., Carlberg, R.G., *Galaxy masses from the timing argument*. David Dunlap Observatory, University of Toronto, 13-Aug-1990.
- Kwok, S., Hrivnak, B.J., Geballe, T.R., *Unusual infrared line profiles in the post-aGB star HD 56126*. University of Calgary, 25-Jun-1990.
- Lester, J.B., *Another systematic effect in the determination of stellar abundances*. David Dunlap Observatory, University of Toronto, 3-Jul-1990.
- Matthews, J.M., Bohlender, D.A., *The helium-strong star HD 96446: a rapid rotator and possible pulsator*. University of British Columbia/University of Western Ontario, 13-Jul-1990.
- Matthews, J.M., Harmanec, P., G.A.H. Walker, Yang, S., Wehlau, W.H., *Spectroscopic variations of the Be star LQ And: binarity and rotation*. University of British Columbia, 27-Aug-1990.
- Morikawa, M., *Universe with oscillating expansion rate*. University of British Columbia, 13-Jul-1990.
- Mould, J.R., Jensen, J.B., Da Costa, G.S., Kristian, J., Nemec, J., *Two more Magellanic Cloud cm diagrams*. Palomar, 27-Aug-1990.
- Nemec, J., Mateo, M., *SX Phoenixis stars*. University of British Columbia, 27-Aug-1990.
- Raga, A.C., *The optical emission line spectrum of Herbig-Haro objects and its interpretation*. Canadian Institute for Theoretical Astrophysics, 28-Jun-1990.
- Richer, H.B., Fahlman, G.G., *Main sequence mass functions in globular clusters*. University of British Columbia, 13-Jul-1990.
- Roy, J.-R., Boulesteix, J., Joncas, G., Grundseth, B., *Superbubble blowout in the giant HII region NGC 2363?*. Université Laval, 30-Jul-1990.
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NOMINATION FOR IAU MEMBERSHIP/INVITED PARTICIPANT

Through this notice, nominations are solicited of Canadian astronomers for membership in the IAU, or for invited participant status at the forthcoming IAU General Assembly in Buenos Aires, Argentina. If you (or anyone of whom you are aware) are interested in IAU membership or invited participant status, and are qualified, please arrange to have the following nomination form filled out and returned to me. The normal qualifications for membership are: (1) Canadian citizenship or Landed Immigrant status, (2) current employment in Canada, (3) a Ph.D. received prior to July 23, 1988, or demonstrable equivalent research experience, and (4) active involvement in astronomy. An application for membership should be submitted by a current Canadian IAU member. Persons nominated by the Associate Committee on Astronomy, currently serving as the IAU National Committee, will be automatically invited to attend the 21st General Assembly.

Names are also solicited of persons to be invited to attend the 1991 General Assembly because they can make a valuable contribution to it (*e.g.*, invited papers or reports or discussions on particular subjects at commission meetings, colloquia, or symposia). Invited Participants are normally representatives of other international or national organizations, "young" astronomers (poten-

tial members of the IAU), or distinguished scientists who are active in other fields having direct impact on astronomy. An IAU member should nominate a prospective invitee, describe the expected contribution, and provide any supporting documents (*e.g.*, a letter of invitation from a Commission President).

The IAU also wishes to know of any members who wish to resign from the Union for any reason (*e.g.*, age, change of sphere of activity, *etc.*) If, by any chance, you fall into this category, please notify me. Resignation is entirely voluntary, though, in view of the costs involved in sustaining a membership, it is encouraged in those instances where IAU membership is no longer desired.

Finally, IAU members who wish to join a specific commission should write to the Chairman of that commission to apply for membership.

All nominations must be received no later than Tuesday, January 15, 1991 in order to meet the deadlines set by the General Secretary of the IAU.

Dr. A.F.J. Moffat
Département de Physique
C.P. 6128, Succ. A
Montréal, PQ H3C 3J7

NOMINATION FORM FOR
IAU MEMBERSHIP/INVITED PARTICIPANT

Nomination for (please indicate): Membership Invited Participant

Name: _____

Address: _____

Place and Date of Birth: _____

Citizenship Status in Canada: _____

Education (list degrees, institutions, field, and year): _____

Main Fields of Research: _____

Titles and References of not more than 3 Scientific Publications: _____

Suggested for membership in Commission Number: _____

(Not relevant for invited participants.)

Proposed by (please print): _____

Signature: _____ Date: _____

Please return to Dr. A.F.J. Moffat, Département de Physique, C.P. 6128, Succ. A, Montréal, PQ H3C 3J7.

All nominations must be received by 15 January 1991

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