

Cassiopeia

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CASSIOPEIA

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Société Canadienne d'Astronomie



Cassiopeia

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CANADIAN ASTRONOMICAL SOCIETY SOCIÉTÉ CANADIENNE D'ASTRONOMIE

Editor: Colin Scarfe, University of Victoria
Editorial

This issue reports progress, or lack of it, on three major Canadian astronomical projects, CITA, STARLAB and CLBA. The good news is that CITA has been provided with startup money for the coming year, with a moral commitment to another two years' funding, as described by Peter Martin. We wish the CITA Council every success in getting the fledgling Institute into full flight.

The bad news is the government's regrettable decision not to proceed with STARLAB, as discussed by Gordon Walker and Jim Hesser, and thereby to throw away many man-years of effort by Canadian astronomers. Why the government should seek to trim its appalling deficit by cutting a project so clearly stimulating to Canadian industry is beyond my understanding.

CLBA remains in limbo, but the option outlined by Ernie Seaquist has many merits, notably the opportunity to pool our talents with the best that other countries have to offer, and to play a vital role in what may well be the most important development in radio astronomy for many decades. It may also be more successful in gaining government support, due to its reduced cost in comparison with earlier proposals. Please note that Ernie is soliciting members' comments on the new options, as soon as possible.

I have been asked to draw the attention of members seeking or offering employment to the existence of the CAS employment registry, operated by Carman Costain. Those who wish to be on his mailing list should contact him at DRMO, Box 248, Penticton, B.C., V2A 6K3.

I look forward to seeing many members at the annual meeting in Ottawa.

Colin Scarfe

Deadline for the Summer Solstice issue will be June 15.

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16 Mars 1984

March 16, 1984

CASCA ANNUAL GENERAL MEETING

Ottawa, June 5-8, 1984

REUNION GENERALE ANNUELLE DE CASCA

à Ottawa, du 5 au 8 juin 1984

By now, all members should have received their registration package. We would like to encourage you to complete the forms and return them as soon as possible. This help our planning and saves you some money.

If you did not receive the package, or have any other questions, please contact a member of the local organizing committee. (Jacques Vallée, Andy Woodsworth, Dave Fort or Lorne Avery) at (613) 593-6060 before May 27 or (613) 993-6060 on/after May 27.

See you in June!

Vous devriez avoir reçu maintenant les formulaires d'inscription. Nous vous encourageons à les remplir et à nous les poster aussitôt que possible. Ceci nous aidera dans nos arrangements et vous sauvera des dollars.

Si vous n'avez pas encore reçu les formulaires d'inscription, ou si vous avez des questions, n'hésitez pas à contacter l'un ou l'autre des membres du Comité Local d'Organisation (Jacques Vallée, Andy Woodsworth, Dave Fort ou Lorne Avery) au téléphone (613) 593-6060 avant le 27 mai ou (613) 993-6060 le/après le 27 mai.

Au plaisir de se revoir en Juin!

SECRETARY'S REPORT

The CASCA Board of Directors met in Ottawa on December 12, 1983, and by teleconference on March 6, 1984, as well as conducting business by mail as necessary. In each instance, the main topics of business have been the three major projects now being advanced by the astronomical community in Canada, namely the CLBA, Starlab and CITA. For each of these projects there have been dramatic developments for better or for worse in recent weeks, and I will not attempt to document the current status of each project in this report, as these topics are dealt with in some detail elsewhere in this issue. Suffice it to say here that the cumulative efforts of many people have gratifyingly led to the realization of the Canadian Institute for Theoretical Astrophysics (CITA). One stepping stone to this realization was the formation of the advisory Committee for Theoretical Astrophysics, whose membership currently includes 35 CASCA members. An election amongst the committee members was conducted between January 26 and February 23 by Michael Marlborough, from which results the Board acted in accordance with Motion #3 passed at the 1983 Annual General Meeting to appoint five members of the governing CITA Council. David Hartwick, Richard Henriksen, Werner Israel, Peter Martin and Serge Pineault will form the first CITA Council, along with the yet-to-be-chosen CITA Director, and the Associate Dean of the School of Graduate Studies of the University of Toronto, each of whom will sit as ex-officio members of the Council. CITA has become the first permanent research organization in the country in which CASCA plays a direct role in the operation of the institution.

The development of CITA has attracted a number of new members to the Society, and we are pleased to welcome the following new members who have joined since the 1983 AGM:

Ordinary Members:	Murray Alexander	University of Guelph
	Paul Barker	University of Western Ontario
	Edward Glass	University of Windsor
	John Griffith	Lakehead University
	Werner Israel	University of Alberta
	Denis Leahy	University of Calgary
	John Moffat	University of Toronto
	Claudio Sollazzo	University of Victoria
	Peter Sutherland	McMaster University
Student Members:	Nebojsa Duric	University of Toronto
	Steven Pearce	University of British Columbia
	Robert Scharein	University of British Columbia

In other business, the Board adopted the new logo and legal seal of the Society, which is essentially that suggested at the 1983 AGM.

CASCA has also moved to establish an annual public lectureship. This lecture could be held in conjunction with our annual meetings, and would be aimed to appeal to a wide general audience. The purpose of the lectureship would be to convey some of the exciting developments and frontiers that exist within our science today.

The Board has approved several grants and donations as follows:

- a donation of \$250 in support of the Canada-Wide Science Fair '84, to be held May 13 to 20, 1984 at St. Mary's University, Halifax.
- a donation of \$100 to the Bappu Memorial Award, an international award instituted by the Astronomical Society of India. Members may contribute individually to this award if they wish, as mentioned in the last issue of Cassiopeia.
- a grant of \$250 to Chris Millward (UBC) towards travel to attend IAU Symposium #111, Calibration of Fundamental Stellar Quantities, being held in Como, Italy.

The Society is examining ways to foster collaboration between Canadian and French astronomers who use the observing facilities of the CFHT. One initiative which has been proposed is to hold a joint meeting for the presentation of observational results derived from the CFHT. The first such meeting could be held in this country in 1985, followed by other meetings if this experiment proved to be a success. Membership reaction to this proposal is welcomed.

Members are reminded that the Society maintains a membership in two related organizations, the Association for the Advancement of Science in Canada (AASC), and the Committee of Parliamentarians, Scientists and Engineers (COPSE). The Executive Director of AASC is Dr. Jeffrey Crelinstein, who holds an MSc. in astronomy from the University of Toronto, and is thus sensitive to the scientific aspects of astronomy. AASC is directed towards strengthening the scientific community and increasing public awareness of science; one of its current activities is a series of regional conferences. AASC publishes a bi-monthly newsletter called ACCESS, available from the CASCA secretary or from AASC, #805 - 151 Slater Street, Ottawa, K1P 5H3, phone 613-232-0240. COPSE is designed to expedite direct contact between scientists, engineers and parliamentarians; this is achieved by monthly luncheon meetings in Ottawa which are intended to be a mini-forum for science policy. CASCA members who are in a position to support the activities of AASC and COPSE are urged to do so.

CASCA, along with other scientific societies such as the CAP, recently played an active role in the revision of the Ontario Professional Engineers Act. The draft bill of the revised act contained clauses which could have severely compromised the ability of scientists to function in their profession, as broad general powers were to be designated to engineers to oversee certain types of work. Fortunately, our point of view, namely that narrow specific definitions be applied to the fields for which professional engineers' services are required by law, was well received, and the bill was reworded accordingly.

The CASCA membership directory, which was originally slated for the fall of 1983, will make its appearance in the next few weeks. I apologize for this delay, which is entirely of my own making. However the new directory will be considerably more complete than its predecessors, and the intention is to re-issue it annually in the future, rather than every few years as in the past, so that members will always have current addresses and phone numbers available. May I add to this the plea that you drop me a note whenever your address or phone number changes, or should you wish to convert from student to ordinary membership?

Another piece of CASCA mail which will be appearing in your mailbox in the coming month will be the list of nominations and call for further nominations to the Board of Directors. It's not too early to be giving this matter some thought, particularly if you have strong feelings about what the Society should or shouldn't be doing in our future directions!

Chris Aikman
CASCA Secretary

ANNOUNCEMENT OF THE FIRST CASCA SMALL GRANTS COMPETITION

1. Eligibility Rules.

CASCA Small Grants are intended to cover the costs of Canadian astronomical research by applicants who do not have access to, and/or who are ineligible to apply for, continuing sources of research funding from other agencies. CASCA Small Grants are not intended for use by astronomers whose work could be funded by NSERC operating grants, or by budgetary allotments from the institution with which they are associated.

Applicants should hold a Ph.D. degree, or should be Ph.D. students who have completed the course requirements for their degree. Applicants should be working at least half-time in the field of astronomy and astrophysics. Applicants need not be Canadian citizens or members of CASCA, but the use of the grant should in some way advance Canadian astronomy. Normally this would imply either residence in Canada, or employment by a Canadian institution, or collaboration with a Canadian astronomer (provided that the purpose of the grant is to further this collaboration).

2. How to Apply.

For the first competition, applications should be sent to:

Dr. C. Pritchett
Physics Department
University of Victoria
P.O. Box 1700
Victoria, BC V8W 2Y2

Applications should reach the above address by May 10, 1984. For subsequent competitions, applications will be received twice a year; the deadlines for receipt of applications will be April 30 and October 31. Application rules and deadlines will be published in Cassiopeia. Decisions on grants will be announced after the December and June meetings of the CASCA Board of Directors.

There will be no prescribed application form. Applications for the CASCA Small Grants programme should contain the following information:

Title - brief and descriptive
Abstract - a short, nontechnical summary of the research programme that is to be funded, and the purpose(s) for which CASCA funds will be used. (This will be published in Cassiopeia if the grant is approved.)

Justification - not to exceed 2 typed single-spaced pages. This part of the application should describe both the overall aim and the detailed execution of the project. The general importance of the project to astronomy should be stressed.

Budget - Detailed accounting of how CASCA funds will be used. Statement of Financial Need - description of availability of other sources of funding, and the efforts that have been made to procure such funds. (Applications are particularly encouraged for projects where partial support by CASCA may catalyze other sources of funding.)

Curriculum Vita - a summary of education and employment history, recent publications, grants, scholarships, and other information that would be of interest to the selection committee.

Conclusion - a statement to the effect that the grant, if awarded by CASCA, will be used only for the requested purpose, and that an accounting will be furnished to CASCA within 2 months of the use of the funds, or within 6 months of their receipt. This statement should be followed by the applicant's signature and the date.

Finally, graduate students should submit a letter of support from their supervisor. This letter should include a statement explaining why the supervisor cannot fund the student's project and a statement that the student's course work is indeed completed.

3. Grant Selection.

Evaluation of grant applications and administration of grants will be the domain of a committee of CASCA. The Small Grants Committee will have three members appointed by CASCA, with the Treasurer of CASCA an ex officio member. The term for members of the committee will be 3 years. At least one member of the committee should be a member of the CASCA Board of Directors (for liaison purposes). In appointing committee members, CASCA Board of Directors should strive to achieve as reasonable as possible a balance among various disciplines in astronomy.

At the close of the application period (April 30 and October 31), committee members will circulate and evaluate applications. When necessary, the committee will seek external advice on applications. The criteria for judging applications will be scientific merit and financial need (in that order). After the committee has reached a consensus on the relative merits of the applications, they shall submit a recommendation for funding to the CASCA Board of Directors, who shall consider the request at the immediately-following semiannual Board of Directors meeting. The availability of funds for the programme will vary from year to year, and is subject to the discretion of the Board of Directors. There is no implied commitment by CASCA to continue to fund the Small Grants Programme in perpetuity. Unsuccessful applications will not be reconsidered unless they are resubmitted.

4. Administration.

Allowable expenses for Small Grants are: travel (to astronomical institutions or conferences), conference fees, minor equipment, page charges, computing costs, and other reasonable expenses that are associated with astronomical research. CASCA Small Grants may not, however, be used to pay salaries or university tuition fees. If there is any doubt about the use of Grant funds, the grantee should obtain the approval of the Chairman of the Small Grants Committee before the expenditure takes place.

A full accounting (with all receipts) should be sent to the CASCA committee within 2 months of completion of the project for which the funds were intended, or within 6 months of receipt of the funds (which ever comes first). All unused funds are to be returned to CASCA.

At the conclusion of the grant, grantees should write a brief report of their activities for publication in *Cassiopeia*.

A NEW OPTION FOR THE CLBA

It has been 18 months since the Planning Committee completed its study of the Canadian Long-Baseline Array for NRC and NSERC. Meanwhile new initiatives are underway in the U.S. and Europe that need to be taken into account. By adapting now to these developments Canadians could enhance the scientific productivity of the CLBA, while at the same time substantially reducing its cost - a vital consideration in the present climate of fiscal restraint. Dr. Larkin Kerwin, president of NRC, has indicated that the funding climate for the nine-element array is sufficiently poor that we should once again consider international collaboration as a possibility, especially if it enhances the scientific capability. South of the border, funds for the VLRA are in the U.S. President's budget for 1985 and, subject to approval by Congress this summer, construction will soon begin. In Europe and in the U.S., there exists a proposal to ESA and NASA called QUIASAT involving collaboration in placing a 15 meter antenna in orbit about the earth for VLBI with antennas on the ground. The CLBA Planning Committee has considered this matter, and has decided to proceed with the study of one other approach. The study of this new option has been approved by the CASCA Board of Directors.

Outline of the New Option

The option is based on the fact that by adapting to, and cooperating with, new initiatives elsewhere, we can build a more cost-effective array to meet or exceed the original scientific goals. The option consists of an array of four 32m diameter antennas operating at frequencies up to 22 GHz, which would be used as follows:

- (a) It would be linked with the ten 25m antennas of the U.S. VLRA to double the number of baselines (and hence the information gathering capacity) of that array, and to increase its sensitivity by 65%.
- (b) It would operate with the European VLBI Network (EVN) of 7 antennas to form an array as effective as the U.S. VLRA, especially at northern declinations. This capability derives from the compatible baseline coverage and the large antennas in both the Canadian and European arrays.
- (c) It would be used (together with the EVN and/or the VLRA) eventually as an earth-based array with the orbiting antenna outlined in the joint European/U.S. QUIASAT proposal to achieve substantially higher resolution and higher dynamic range than that of the nine-element CLBA. The QUIASAT project, if funded, would place the 15m antenna with an apogee altitude of 15,000 km and a perigee altitude of 4,000 km. The corresponding resolution would exceed that of the original CLBA by a factor of three.
- (d) It would provide a stand-alone array for geophysical and astrometric measurements. In addition, the baselines involving the European antennas provide the means to study tectonic plate motion.

Such an adaptation of the present CLBA design would require a headquarters capable of processing data from all stations which might be used with Canadian antennas (including eventually the orbiting station). Receiver frequencies would have to be compatible with those of the VLRA. The headquarters is considered by the Planning Committee to be crucial to this option, and its correlator and image processing centre would be as well equipped as the one in the U.S. The headquarters would serve in this option as a research centre for Canadian radio astronomy.

The large antenna size of the CLBA (32m) is essential to improve the sensitivity of the longer baselines of the VLRA, to work with the rapidly moving and smaller (15m) orbiting QUIASAT antenna, and to operate in conjunction with small mobile antennas for geophysics and geodesy.

The QUIASAT project is designed as a prototype for more ambitious orbiting antennas for LBI astronomy planned for the next decade. Linking the CLBA and QUIASAT would be an opportunity for Canadian scientists to participate from the beginning in a new, exciting extension of the long-baseline technique.

Preliminary discussions with the director of NRAO, (the agency that will construct and operate the VLBA) and with the working groups of QUIASAT have indicated enthusiastic support for these international collaborations. These contacts need to be made more firm and discussions will proceed toward understanding what form these collaborations could take.

The scientific merit of the proposed option is underscored by two preliminary configuration studies involving the Canadian array - one with the VLBA, and one with QUASAT together with the EVN. With Canadian antennas assumed to be located at Penticon, Yellowknife, A.R.O., and Newfoundland the VLBA uv plane track density is doubled at baselines beyond 4,000 km, and furthermore several sizeable holes in the VLBA stand-alone coverage at 2,000 km projected baselines are filled. With QUASAT, the baselines provided by adding the Canadian array tend to fill-in a large hole between the EVN baselines and baselines involving the QUASAT antenna. More exhaustive studies of this kind are being carried out now, including the collaboration of the CLBA and EVN without the QUASAT antenna.

An attractive aspect of the proposed option is that the capital cost would be a bit more than half of the original CLBA. The antenna sites are furthermore common to both this option and to one of the nine-element arrays proposed in the original design.

By giving NRC two options, we may give the Government greater flexibility at this time of fiscal restraint without compromising the scientific goals. The time window for actual construction of the new option would be a little wider, since it is not in clear competition with other arrays. However, there is pressure to present the option to

NRC before the high priority status presently accorded the CLBA is lost, which may be very soon. Also, the lobbying efforts throughout the country are likely to wane from now on.

A proposal outlining the new option will be presented to CASCA for approval in a matter of a few weeks. At that time the Planning Committee will recommend that this option be communicated to NRC and NSERC for consideration along with the nine-element option. Meanwhile, I would very much like to hear the reaction from CASCA members to this new idea. It will help the CLBA Planning Committee to draft a proposal which is consistent with the wishes of the community. Your comments will be circulated to the committee.

F.R. Seaquist, Chairman
 CLBA Planning Committee
 1984 March 16

Canadian Institute for Theoretical Astrophysics Funded

In January President MacNabb of NSERC brought the welcome news that NSERC Council had awarded CITA a special infrastructure grant for \$150,000 through 1 April 1985. And "although the award is formally for one year only, NSERC recognizes that the Institute requires a certain continuity of funding and considers funding of this magnitude a moral commitment for three years, at which time a major review of the Institute would be carried out." This award is on the basis of potential, and so it will be a challenge to develop this potential in the next few years.

Although it is hoped that all members of CASCA will take an interest in seeing CITA flourish, direct responsibility for CITA rests with its Council. Nominees to this Council were selected during February by the CASCA Committee on Theoretical Astronomy. Then the Board of CASCA determined the final composition of Council which is as follows:

- F.D.A. Hartwick, University of Victoria
- R.N. Henriksen, Queen's University
- W. Israel, University of Alberta
- P.G. Martin, University of Toronto
- S. Pineault, Université Laval.

These individuals will serve terms of different lengths, so that over the years there is both fresh input and continuity. Rounding out the membership of Council are the Director and a representative of the Dean of the School of Graduate Studies at the University of Toronto.

This Council will be meeting on 31 March to begin the long process of bringing CITA into existence. One of the major challenges, pointed out by President MacNabb, will be the "appointment of a director of international stature". Around this revolves the strategy of filling other scientific positions. Also high on the agenda will be ways and means of maintaining CITA's role as a national institute. May 1 has been set as the day that CITA officially begins. At that time the transfer of P.G. Martin to CITA becomes effective, and R.N. Henriksen will take up his one-year visiting professorship.

CITA will sponsor an open meeting at the CASCA meeting in Ottawa. Perhaps by that time there will be some new developments to report. In the meantime, one way for individuals to stay abreast of the issues before Council, and to contribute to the development of CITA, is obviously to keep in close contact with the Council members.

P.G. Martin

CANADA WITHDRAWS FROM STARLAB

On 1984 March 19 Dr. Ian McDiarmid, Director of the NRC Canada Center for Space Science informed the other two partners in the Starlab project that although the Canadian Government had approved funding for a number of space related activities these did not include funds for phase B2 studies of Starlab in Canada. With regret he said that our further participation in Starlab was impossible. He offered to assist in simplifying the transition to any new arrangements NASA and Australia might try to implement. He suggested that they appoint a new Project Scientist and Project Manager to replace me and Dr. Roy van Koughnett of CCSS.

So ends the dream of Canadian participation in a major astronomical observatory in space. Some \$2.5M was sought for Canadian feasibility studies in 1984-5. Included in the \$20.3M Space Plan announced by the Science Minister, the Honorable, Donald Johnston on 1984 March 19 was \$2.4M for a study of the feasibility of Canadian participation in the proposed, NASA Space Station. We tried to anticipate such a decision with the following telex which was sent on 1984 February 23.

"We, the undersigned, are Canadian Scientists involved in the scientific planning and definition of Starlab - a tripartite proposal from Canada, Australia, and the NASA - to put an observatory in earth orbit for ultra-violet observations of faint stars and galaxies, early in the 1990's. The possibility that Canada will become involved with the USA to develop a space station offers a unique opportunity for the realization of Starlab".

"The justification for the station lies in its direct support for applications and pure science experiments. Starlab is one of the major scientific experiments which has been proposed for earth orbit in the 1990's".

"Starlab will make fundamental observations about the structure of the universe which will have a significant impact on our understanding of basic physical processes. We are convinced that not only would the quality of Canadian science benefit from Starlab but there would be an important expansion of Canadian space industry capabilities".

"At this time funding is being sought for a Canadian feasibility study. We would like to urge that these funds be made available and that Starlab be recognized as one of the important scientific experiments which could be supported by the space station".

Gordon Walker, Project Scientist, UBC
 John Glaspey, Facility Scientist, U Montreal
 James Hesser, Herzberg Institute, NRC, Victoria
 David Crampton, Herzberg Institute, NRC, Victoria
 Gregory Fahlman, UBC
 Stefan Mochmacki, U Toronto
 Thomas Bolton, U Toronto
 Gary Welch, St. Mary's U, Halifax
 William Harris McMaster U

To date, I have only received an acknowledgement. A very strong lobby on behalf of Starlab was maintained by Lloyd Secord of DSMA Acton, but to no avail. The glamour of, and pressure for, a manned space station seems to have prevailed. The Government priorities in the Space Plan stress technology, and short term economical advantage rather than science.

It should be said that Canada's potential contribution to Starlab was already estimated to exceed \$100M. In Australia estimates for the building of the full Scientific Instrument Package indicated that it would be too expensive and cost has been reduced by omitting the spectrograph. Further, the platform to be provided by NASA has not been defined.

While there is no doubt that our proposal suffered because it was not the top priority for Canadian astronomy, the manner in which it has been cancelled suggests that it would be unwise to embark on a similar project in future without some clarification of government space science policy. The joint sub-committee on Space Astronomy established under Jim Hesser (see elsewhere in this issue) would be a good place to take stock of our position.

We have learnt a great deal in the four years of involvement with Starlab and its evolution. Many people gave extensively of their time, particularly John Glaspey the Telescope Scientist, the other Canadian members of the Joint Scientific Working Group, Jim Hesser, Dave Crampton, Stefan Mochmacki and Greg Fahlman, as well as the others who signed the telex above. Harvey Richardson and Charles Harmer (RGO) provided very important ideas, designs, and assessments of the imager and spectrograph optics. We received excellent support from the NRC CCSS, particularly Ian McDiarmid, Roy van Koughnett, and Tom Darlington.

To our colleagues in Australia and USA we send our best wishes in their efforts to complete this exciting project. It's all we have left to offer.

Gordon Walker
 1984 March 20

Bright Fireball Not Recorded by MORP Cameras

by J. E. Kennedy
University of Saskatchewan
Saskatoon, Sask.

I have just received a reprint of an excellent scientific paper by Halliday, Griffin and Blackwell entitled "Meteorite Orbits from Observations by Camera Networks". The authors have presented a tabulation of data for 50 MORP Fireballs which are believed to have produced surviving meteorites of at least fifty grams for the largest fragment. To date only the Innisfree meteorite has been recovered from the large number of bright events recorded by this Camera Network in western Canada. However, the reliable orbits obtained from these records have added greatly to the present knowledge of meteorites, supplanting to a considerable extent the unreliable orbits determined from piecing together the multitude of visual observations usually reported on any bright fireball.

Astronomy received more benefit than the other physical sciences from the introduction of photography to science in the middle of the 19th century. The convenience of studying a permanent record of an astronomical observation brought a new dimension to an old science. In many respects, photography did not discourage visual observation and, while the reliability of the picture of what actually happened was vastly improved, the report of the visual sighting continued to occupy, and still does, an important place in scientific records. Many accounts of fireballs have appeared in newspapers; a representative sample follows:

REMARKABLE PHENOMENON

"The attention of numerous persons in the vicinity of Fort Garry was on Monday night arrested by a singular appearance in the Heavens. They describe it as a bright body of fire, spheroidal in form, two feet in diameter, and having a luminous tail from ten to fifteen feet in length, moving towards the north, "as fast as a trotting horse," and at an altitude of about 300 feet from the earth. It was visible for several minutes, and when it disappeared, the *aurora borealis* shone forth in the northern sky in the greatest splendour and magnificence (please refer to Note 1). This was no doubt one of numerous small bodies, moving through the celestial spaces, composed of iron, a peculiar mineral known as olivine, nickel, and other ingredients. When they

SPACE ASTRONOMY SUBCOMMITTEE FORMED

Over the past few months discussions have occurred among a number of people concerning how Canadian astronomers can play an effective role in promoting the development of space astronomy in this country. From these discussions a subcommittee has been formed that will report to the CAS, the Associate Committees on Astronomy and on Space Research, and to the Canada Centre for Space Science. It is anticipated that the group will focus on the dual tasks of exploring a variety of avenues for encouraging the development of a viable space astronomy programme in Canada, and advising NRC on specific proposals and policies. Lamentably, considerable thought will be invested initially in understanding the long-range implications of the adverse decision concerning Canadian participation in Starlab.

The Subcommittee welcomes suggestions and comments from the entire community at any time. A report will be presented to ACA and CAS at their June meetings, and an open session will be held at CAS to exchange views on the ideas we have by that time.

Members of the Subcommittee are:

T.A. Clark (Calgary: 403-284-5392) G.G. Fahlman (UBC: 604-228-4891)
J.W. Glaspey (Montreal: 514-343-6682) J.E. Hesser (DAO: 604-388-3974)
J.B. Hutchings (DAO: 604-388-3909) B.F. Madore (DDO: 416-884-9562)
J.C. McConnell (York: 416-667-6410) M. Shara (STSci: 301-338-4743)

Ex-officio members of the Subcommittee are:

V. Gaizauskas, President, CAS (HIA: 613-593-7395)
I.B. McDiarmid, Director, CCSS (HIA: 613-992-7884)
G. Michaud, Chairman, ACA (Montreal: 514-343-6672)
R.W. Nicholls, Chairman, ACSR (York: 416-667-3833)

Any of these people may be contacted for information about our activities or lack thereof.

A strong response from the community to this Subcommittee could be one of the most effective ways to "pick up the pieces" after the Starlab decision. I urge CAS members to drop me a note in April, 1984 with their thoughts on any aspect of future Canadian participation in space astronomy and/or upon the role(s) they would like to see our Subcommittee emphasize.

James E. Hesser, Chairman

descend so low as to meet the earth's atmosphere they rush onwards with such prodigious velocity (probably travelling fifty or sixty times swifter than a cannon-ball), that the compression of the air before them produces intense light and heat, rendering their paths clearly visible. Sometimes, as in this case, they go by without coming in contact with the earth — they then disappear and are no more seen; but they frequently strike the earth, and are then known as meteoric stones. There are numerous instances of these "stones", as they are improperly called — being almost entirely composed of metal — falling to the earth, and they are not unusually found far away from the spot in which they were supposed to descend, being known by their peculiar composition. A similar body was seen three or four years ago travelling from Lake Manitoba towards Fort Garry."

* * * * *

The fireball was judged to be moving "as fast as a trotting horse", a rather unusual reference standard in today's world (whether the speed be measured in either permissible system, that is, miles per second or kilometers per second). In the atmosphere, these meteoric stones "rush onwards" with such prodigious velocity (probably travelling fifty or sixty times swifter than a cannon-ball)". By this time, the reader may well be tempted to reach for the Observer's Handbook and search therein for a more reliable value of the speed of the average fireball. Good luck in your search!

Well anyway, these small details of speed, or velocity, of the fireball should readily be derived from the photographic record on the MORP cameras operating in that vicinity. Unfortunately this "Remarkable Phenomenon" was not recorded on film; the above account appeared in the issue of the Nor'Wester published in Upper Fort Garry (now Winnipeg, Manitoba) on August 28th, 1860. The meteorite was probably not recovered.

Note 1. My colleagues in the Institute of Space and Atmospheric Studies have pondered the mechanisms which trigger brilliant displays of the "aurora borealis". Interest has been expressed in the discovery of 1860 that a bright fireball travelling north at the appropriate speed and altitude could be a fundamental process in releasing the magnificent aurora. Such a possibility has not received serious consideration. The "aurora australis", which is observed simultaneously, would require on this mechanism a similar fireball travelling south at the appropriate speed and altitude. The meteorite camera network in the western United States, which has been phased out, might be transferred to the southern hemisphere to monitor these "twinning" events, and possibly renamed SHMORP.

Note 2. REMARKABLE PHENOMENON has been reproduced from the microfilm copy of the Nor'Wester held in the Legislative Library of the Province of Manitoba.

CANADIAN ASTRONOMY PREPRINTS

SEPTEMBER 12, 1983 to FEBRUARY 29, 1984

The following file contains a list of preprints written by Canadian astronomers. All preprints were received at the Astronomy Library 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

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PREPRINTS;

Anderson, Edwin R. Balmer continuum emission in Seyfert 1 galaxies. UWO. 83.10.24.

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