

# THE <sup>DAVID</sup> DUNLAP DOINGS

Vol. 16, No. 1      January 21, 1983



*Photos: Karl Kamper*

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

To *Bob McLaren* who has been appointed as Staff Scientist at CFHT for the next 18 months or so. Bob will be pleased to know that he won an award at the recent Christmas countdown for "being awarded a post for which he had written letters of recommendation on behalf of three of his former graduate students"!

To *Rick McGonegal* who has a continuing position at CFHT as Software Technician. Rick and family left for Hawaii on 16 January.

To *Ed Zukowski* who has completed the requirements for the M.Sc. (with Phil Kronberg).

To *Edwin and Mary Anderson* for twins born Nov. 30; first born was Jennifer Erin (3.10 kg), then Timothy Roy (2.94 kg).

To *Martine and Richard Normandin* (Martine's Ph.D. in astronomy was in 1980) on the birth of a daughter, Claude, on November 20.

To *DAO astronomers* for brainstorming a second black hole. (We note that a recent windstorm has given their dome a black hole too). While their discovery is getting deserved publicity (see MacLean's magazine, the Globe and Mail, etc.), we are struck by a fear that there may be a certain loss of credibility for the whole black hole theory, in as much as only Canadian astronomers seem to be able to find them!

COVER STORY

We present, as usual, a finding chart for the annual group photograph, as reproduced in the upper half of the cover. In the lower half Karl Kamper has caught Stefan's Quintet (all seven of them) in a rendition of "Hotel Las Campanas" at the formal Christmas Countdown ceremonies following the group photo. For more, see Gasa Gossip in this issue.



- |                            |                       |                     |
|----------------------------|-----------------------|---------------------|
| 1. Stuart Button           | 17. Christine Clement | 34. Ernie Seagquist |
| 2. Russ Taylor             | 18. Timothy Mochnacki | 35. Dave Blyth      |
| 3. Ed Anderson             | 19. Wendy Freedman    | 36. Rick Crowe      |
| 4. Alex Fullerton          | 20. Neb Duric         | 37. Mike Bietenholz |
| 5. Gerry Grieve            | 21. Doug Welch        | 38. Peter Martin    |
| 6. Geoff Clayton           | 22. Stefan Mochnacki  | 39. Phil Kronberg   |
| 7. Tom Box                 | 23. Meritta Ellis     | 40. Nancy Evans     |
| 8. Joan Tryggve            | 24. Rosemary Diamond  | 41. Shenton Chew    |
| 9. Doug Welch              | 25. Rick McGonegal    | 42. Dave Earlam     |
| 10. Chris Stagg            | 26. Louis Noreau      | 43. Susie Earlam    |
| 11. Petrusia Kowalsky      | 27. Bill Weller       | 44. Kwang-Tae Kim   |
| 12. Armando Arellano-Ferro | 28. Mario Pedreros    | 45. Frank McDonald  |
| 13. Tom Bolton             | 29. John Percy        | 46. Ray Carlberg    |
| 14. Ed Zukowski            | 30. Esther McCleary   | 47. Ann Rusk        |
| 15. Raymond Rusk           | 31. Helen Hogg        | 48. Barry Madore    |
| 16. Lynda Colbeck          | 32. Jim Thomson       | 49. Ron Lyons       |
|                            | 33. Chris Corbally    | 50. Maurice Clement |

CARRY ON, DON

As we go to press, Dean Robin Armstrong is sending the following letter to all members of the Department of Astronomy:



Office  
of the  
Dean

MEMORANDUM

TO: Members of the Department of Astronomy  
FROM: Robin L. Armstrong, Dean  
DATE: January 12, 1983

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I am recommending to the Provost the reappointment of Prof. J.D. Fernie as Chairman of the Department of Astronomy for a 5 year term beginning July 1, 1983.

This recommendation requires the approval of the President and the Governing Council. I would expect this approval at an early date.

This is welcome news. On the one hand the Department, like all divisions of the university, is beset by intolerably severe financial problems. On the other we find ourselves looking towards the realization of unparalleled opportunities in several fields of observational astronomy and, simultaneously, to the exciting prospect of an institute of theoretical astronomy starting up in close proximity. It is certain that these multiple challenges will require a great deal of dedicated effort on the part of each and every person in the Department. As we go to meet them it will unquestionably be beneficial for us to be able to continue to rely on the skill and knowledge in the administrative arena that Don has accumulated in the last 4½ arduous years

Don has announced that he will set up a new council of senior members of the Department to help make coherent plans across the three campuses and the Observatory.

MR

## First Observing Run of 1983

by Barry Madore

The Infrared Group from Toronto wasted no time in kicking off its observing for 1983. Doug Welch and Barry Madore had the infrared system pumped down and ready to go on the Dupont 2.5 m on Las Campanas as soon as the New Year's cheer was passed around and the night assistant returned to the mountain. Seven nights were scheduled, six were successfully observed on; it hasn't been a bad year! This time down the LMC Cepheids were being reobserved to get light curves to correct back to mean light. En route a variety of supergiants were also measured at the J, H and K bandpasses for Gerry Grieve and Geoff Clayton. At the end of the night several galactic calibrating Cepheids were monitored and three clusters which are used in establishing the composite zero-age main sequence were observed. We are now intent on producing a distance scale recalibration in the infrared from the Hyades on out and we appear to be off to a good start.

## CITA

*Over the past several months Canadian theoretical astrophysicists have been pondering the difficult choice of host university for the proposed Canadian Institute for Theoretical Astrophysics. In early January we were pleased to learn that the University of Toronto had been designated as host, and that there would be strong community support for this project in the pending grants competition. An updated "infrastructure" application (17 pages) has been in the hands of NSERC since 18 January and has been sent to many theorists across the country for signatures of support. Theorists and observers alike, in astronomy and its allied disciplines, eagerly await the results of this competition and the start-up of CITA during mid-1983.*

## RECENT SHOP ACTIVITIES

A review by Tom Bolton

Frank Hawker and crew successfully realuminized the 1.9 m primary mirror in October and performed some repairs on the mirror cell at the same time.

A continuing problem with the camera of the TV guider on the 1.9 m telescope resulted in one of the camera tubes being sent to RCA for repairs in the Fall. Meanwhile, the second camera tube, which was in poor health, failed completely. Fortunately (?) for the observers the weather has been unusually warm and/or cloudy. RCA has now shipped the repaired tube to us, and it will be installed as soon as it is received. There are a few other shortcomings in the 1.9 m telescope (i.e. console displays, drive irregularities, and exposure meter instability and non-linearity), which we are working around while long-term solutions are designed and built.

The Chant reticon was installed on the 1.9 m telescope for new tests on January 19. These tests have attracted large crowds to the dome, and the early results are encouraging. The clock problems that showed up in last summer's tests have been eliminated, and the sensitivity of the system is improved.

A number of projects that are intended to improve the operation of the 1.9 m telescope and spectrograph when the new detectors are installed are now under construction or in the planning stages. Karl Kamper and Dave Blyth have designed a new exposure meter with a cooled PMT, and Dave has completed 70-80% of the mechanical work. It will initially be installed with the old electronics, but Weller and Chew have designed new electronics, which will be built as soon as the Chant reticon is completed. When the system is complete, it should have much better response and stability than the present one. Bill Weller and Dave Earlam have completed the design for a new grating mount which will have greater mechanical stability than the present one, will allow gratings to be interchanged rapidly, and will allow the grating to be rotated quickly and positioned accurately under either manual or computer control. Weller and Archie Ridder have designed a simple mechanical preload system for the polar axis of the 1.9 m telescope. This should alleviate many of the drive and balance problems we have been experiencing.

Bill Weller, Tony Esteveens, and Shenton Chew identified and corrected some major problems with the Campbell reticon on the Richmond Hill 0.61 m telescope last fall. The system is now usable, but there are lingering problems which make it awkward to operate and which reduce the quality of stronger exposures. We have not yet decided how to deal with these.

Dave Blyth has completed the mechanical work on Fernie's twin photometer system. One of the photometers was successfully tested last fall, and the second will be tested in February. Tony Esteveens and Frank Hawker are working on the electronics to connect the two photometers to the computer. We expect the complete system to be ready for testing by mid-March.

Meanwhile many other tasks have been attended to. Bill Weller and Shenton Chew have completed the exposure meter on Bob Garrison's prime focus spectrograph, and Archie Ridder has modified it to take an image tube eyepiece. Dave Earlam completed vacuum baking plate boxes for Las Campanas and built additional bookshelves and mail boxes for the DA office. Weller, Hawker, Chew, and others have completed the installation of the high speed data communications link between DDO and DA, and the links to the VAX and UTCS are now complete. Work on the sine corrector for the drive of the Las Campanas 0.61 m telescope has been halted while we re-evaluate the design; new information suggests that we face some unanticipated mechanical problems.

Finally, Tony Esteveens and Bill Weller have been studying the feasibility of rearranging activities at the north end of the second floor at DDO to provide more space for the electronics shop and provide some physical separation between office, lab and shop uses. Their conceptual plan has been approved by the shop committee, and they are now working on details and a cost estimate.

- CONTEST - CONTEST - CONTEST - CONTEST -

For a long time, I have thought that it would be nice to have a good logo which could be used to make up distinctive T-shirts and sweatshirts for the inhabitants of the David Dunlap Observatory. It was obvious at this past summer's IAU General Assembly that several other observatories had had the same idea and had acted on it. I suspect that there are many readers of the DDD that would like to have a DDO T-shirt, and it might be possible to turn a buck for the Observatory by licensing the logo to Richmond Hill merchants and selling T-shirts during Saturday night tours. (I hasten to add that these are only possibilities, and I haven't looked into the legality, feasibility, or desirability of such activity.)

To stimulate a little action on this, The Doings will sponsor a design competition for logos for a) Department of Astronomy, David Dunlap Observatory, and b) David Dunlap Observatory. The rules for the competition are as follows:

1. Entries should be drawn in black and white on 8½" x 11" paper and submitted to me in duplicate with an indication of the category in which they are to be considered,
2. Deadline for submission of entries is Friday, 8 April, 1983.
3. Entries in category a) Department of Astronomy, David Dunlap Observatory should attempt to represent the diversity of research, teaching and public education activities within the Department as well as the geographical spread of these activities (a nearly impossible task, I admit).
4. Entries in category b) should emphasize the Observatory, its activities, and the location in Richmond Hill.
5. The contest is open to anyone who has managed to read this far, but all entrants must be willing to give the Department/Observatory commercial rights to their design.
6. All entries will be placed on display at DA and DDO as soon as practical after the deadline for entries, and the winners will be chosen by secret ballot. All faculty, non-academic staff and graduate students will be eligible to vote on their choices. The precise mechanism for this vote will be announced at the time the entries go on display.
7. The winners in each category will receive a 12-pack of the domestic beer of their choice or equivalent value in any other beverage (e.g. Coke) they may choose. In addition, if there are enough entries to justify it, there will be a third prize awarded for humour.

Tom Bolton  
Contest Editor

## IMPRESSIONS OF ASTRONOMY IN CZECHOSLOVAKIA

by John Percy

I spent November 21 to December 13 in Czechoslovakia, as a participant in the official scientific exchange program between the NRC and the Czechoslovak Academy of Sciences. Most of my time was spent at the Ondrejov Observatory, the headquarters of the Astronomical Institute of the Academy, and the largest center of astronomical activity in the country. The total staff numbers almost 200, in several departments including stellar astronomy. The main instrument of the latter department is a 2 m reflector by Zeiss Jena. This instrument is presently out of commission for two years, for complete upgrading of the electrical system. The department also has two similar 0.65 m reflectors for photoelectric photometry, one located at Ondrejov, the other located in an idyllic setting on the island of Hvar, off the coast of Yugoslavia.

In visiting Ondrejov, I was following a well-worn path. Several astronomers from the Herzberg Institute (notably Bruce McIntosh and Peter Millman) have made repeated visits there. Jack Heard visited in 1974, and began a collaborative project with the Be star group at Ondrejov, and in 1975, Dr. Petr Harmanec returned the visit, spending some time at DDO and with the Heards on his way to the IAU Be star symposium at Bass River. Petr was my primary host at Ondrejov, and his hospitality and generosity were very much appreciated (especially since I was aware that the month before my arrival had included Petr's wedding and honeymoon as well as a two-week observing trip!)

The main purpose of my visit was to work with Petr and his Czechoslovak and Yugoslav colleagues on an ongoing photoelectric study of bright Be stars. We successfully merged my observations from Kitt Peak, those of Paul Ford and Rob Spalding from the 0.4 m on campus, with those obtained with the 0.65-m at Hvar. We discussed the southern extension of the study, to be established by Christopher Stagg at Las Campanas in the spring. We also arranged for a short, intensive study of 5 Be stars showing rapid variation, involving co-ordinated observations from Arizona, Toronto, Ondrejov, Hvar and possibly Peking! These will also contribute to Christopher Stagg's thesis material on the variability of Be stars.

A variety of other activities added to the interest of my visit. I gave seminars at Ondrejov (on "Variability of Early-Type Stars") and at the historic Charles University in Prague (on "Recent Studies of Cepheid Variables at U of T"): I had fruitful discussions with Dr. Josip Kleczec, my Czech counterpart on the IAU Commission on the Teaching of Astronomy: he is presently revising and updating Minnaert's well-known book on practical work in elementary astronomy. This will provide a much-needed source of lab exercises for science students in introductory astronomy and astrophysics courses (like AST 120Y and AST 225H). I paid visits to the Public Observatory and Planetarium in Prague, and was highly impressed by the quality, quantity and variety of programs which they offer. Astronomy has a much more secure place in the educational system in Czechoslovakia, in part because of the efforts of the nearly fifty public observatories and planetariums in the country.

My impressions of astronomy in Czechoslovakia were very positive. Much good work is being done there, in spite of the lack of travel opportunities, hard currency and up-to-the-minute technology. My hosts, especially Petr Harmanec and Pavel Koubsky, spared no effort in keeping me comfortable, happy, and well-filled with famous Czech food and beer. And Prague, the Golden City, cries out for a second visit, and a third ... Fortunately, the Be star project is a long-term one!



WHILE ON THE BEACH ...

While in Jamaica last month, I visited the Physics Department of the University of the West Indies (U.W.I.), and ended up giving a seminar on Algol on Monday December 20. I surprised myself by lecturing for an hour on the topic (without my notes), and my audience of Astronomy-minded physicists seemed equally pleased.

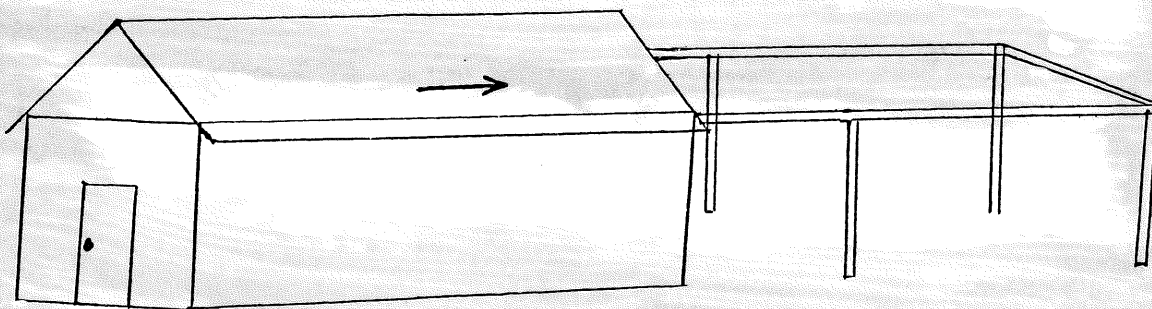
The University has a 20 inch telescope in Stony Hill, St. Andrew (Jamaica), and I was informed that the mirror had been sent to the U.S.A. to be re-aluminized for the first time in several years. A few days later, I heard that the mirror was on the wharf at Kingston Harbour ready to be picked up.

Modern, state-of-the-art, instrumentation has also been ordered for the telescope. After the instruments have been calibrated the first priority for research is to study binary star systems.

The telescope is not housed in the usual kind of "dome", but in a rectangular building with a V-shaped roof (like a house), which slides off onto a metal frame behind the building. See illustration.

The U.W.I. also has a radio telescope which has been used to study Jupiter.

While on the beach I saw the spectacular night sky that led me to the study of Astronomy. Against the dark background of the Caribbean Sea the stars seemed only a stretch away, and the beauty of the sky overwhelmed me. No skies have ever seemed more beautiful.



Mercedes Richards

## The People's C.V.

Bob Garrison with Rudy Schild, Center for Astrophysics (Harvard), and Al Hiltner, University of Michigan, has announced the discovery of the brightest known nova-like star. At  $V=9.5$ , it can be studied easily by astronomers with small telescopes. Such accessibility will allow more detailed studies as well as more continuity than has been possible up to now. It's truly a cataclysmic variable (C.V.) for the masses, Bob quips.

The new star SS 1024=CPD-48°1577=CD-48°3636=KN 155, has all the characteristics of a cataclysmic variable with a large amount of mass exchange between the red dwarf star and its white dwarf companion. The spectrum has rotationally broadened ( $2000 \text{ km s}^{-1}$ ) hydrogen absorption lines with emission cores. The colors resemble UX UMa (i.e. black body) and the magnitude varies by about 0.4 magnitudes on a timescale of years. The most interesting characteristic is the "flickering" by 0.1 mag on a timescale of minutes!

Bob also points out that SS 1024 (it had to be a binary - Eds.) was discovered and its nature revealed by means of small telescopes which operate at cost levels which are less than 1% of a large telescope's.

## GASA GOSSIP

by Geoff Clayton

*Christmas is a nice time of year at DA. About the middle of December the traditional signs of the season begin to appear; Pam and Maria decorating the office, the look of quiet desperation in the eyes of the Masters students, and the piles of unmarked undergraduate exams on everyone's desks. The main event of the season is, of course, Christmas Countdown. Everyone gathers in the library at DDO to wolf cake and cookies, drink punch (spiked), and read the droppings (the editors can be identified by their haggard looks). General relief is felt if Karl decrees that it is too inclement to take the group photo outside and we jam into the front hall instead. Then the Countdown begins in earnest with the singing of Stefan's Quintet accompanied by the Senor at the keyboard, the poetry of Bill Weller, McLaren the Magnificent (who bears a strange resemblance to Doug Welch) and the Sirgay Awards. The scene shifts to the former GASA presidential palace for the Christmas party. The organizers of the potluck dinner outdid themselves and everyone brings enough food for 3 people. Dinner is followed by dancing as the worried host looks on wondering whether the stereo or the floor will give out first.*

*After all this excitement, life at DA quiets down quickly as more and more people disappear for the holidays. The week between Christmas and New Years is the quietest of the year. The University is closed all week and the Physical Plant tries to keep everyone away with dire warnings that the temperature will be reduced to uncomfortable levels. Only the real diehards (those stuck in Toronto) make it in to take advantage of the quiet atmosphere and find our offices are, if anything, warmer than usual. Before we know it, the New Year is here and everything is back to normal; Pam and Maria taking down the decorations, the Masters students looking desperate, the piles of unmarked exams on everyone's desks and Barry leaving for his second observing run of 1983.*

A Very Important Person from Santiago

by Barry Madore

The taxi had to stop across the road from the airport. Police were cheerfully routing traffic away from the main gate as La Serena awaited the arrival of some dignitary from Santiago. I inconspicuously slipped through the crowd and checked in. My plane had arrived but there would be a slight delay until the Aero Norte plane, which had followed it up from Santiago, had landed and delivered its unknown but obviously very important charge.

I was in no hurry, having optioned for an early morning flight to Santiago to connect later that night with my flight to Canada. My dazed state of post-observing semi-consciousness was broken by what sounded like a very loud telephone, a jammed door bell or was it just an obnoxious child's toy? One or two officials (singled out by their flapping plastic-coated colour photographs pinned to their lapels) started shuffling around apparently looking for the switch to turn off this irritating din. But it was not a sound that was meant to be ignored. Soon the pace became more frantic. Wide-eyed police and officials headed for the exit gate. The bell was lost in a more human din. Cries and questions; foreign words but obvious tones.

I was drawn to the runway like all those around me. And there it was, a growing column of black smoke. Aviation fuel and what little remained of the Aero Norte flight from Santiago.

No one survived the crash. Over forty people were aboard, including an American geologist, the husband of a distraught woman weeping beside me, and a very important person from Santiago.

*Wendy's Watch*

*In early November I headed out to the west coast and crammed in a busy schedule of giving three talks in three days, at UBC, Seattle and DAO. Everyone was extremely friendly and I enjoyed my time there very much. However, contrary to everything I have ever been told about the weather in the west being mild but wet, it was brilliantly sunny for 4 consecutive days and bloody freezing! While the radio disc jockeys insisted on telling me that Toronto was enjoying highs of 14°C, Vancouver's temperatures plunged and stayed below the freezing mark as if to spite me for bringing only a light raincoat.*

*I just thought I'd report that Dennis has settled in at UBC, bought himself a microwave oven and a red convertible sports car (plus sports cap) and can be seen "driving" (if you'll recall how Crabtree drives) round the environs of Vancouver, hood down independent of the weather. Just a word of warning. If you happen to be in B.C., and Dennis decides he wants to show off his car for you, you may want to be prepared for the situation. I barely had time to thaw out and recover from a severe case of frostbite before having to give a lecture at DAO!*

GERRY LONGWORTH BEREAVED

With sadness and sympathy we record the death, shortly before Christmas, of Gerry's wife Kay, after a brief illness.

In Memorium

Elinor R. Foden, senior academic secretary at Erindale College, passed away on December 27, 1982. For many years, she had served as secretary to the astronomy group (among many others) at Erindale College. Her professional skills were outstanding, and her cheerfulness and her understanding made Erindale a better place to do astronomy. We shall miss her very much.

John Percy

P O T P O U R R I

The Department was well represented at the AAS winter meetings in Boston, with Bob Garrison, John Percy, Ernie Seaquist, Geoff Clayton and Ron Lyons in attendance. A separate report by Ron Lyons appears elsewhere in this issue.

*Kwang-Tae Kim* received his M.Sc. degree at the fall convocation. His thesis was entitled "A Search for Intracluster Magnetic Fields in Galaxy Clusters from the Abell Catalogue". He is continuing his Ph.D. research with Phil Kronberg.

*Bob Garrison* was featured prominently in the "Nature of Things" on CBC television on 19 January. Bob was pictured with the DA 16-inch extolling the glories of the CFHT. It was good promotion; smoothly done.

From October 28 to 31 *John Percy* attended the annual meeting of the American Association of Variable Star Observers. He was elected to the council of the Association, and also chaired a workshop on photoelectric photometry of variable stars. From Nov. 3 to 5, he was Harlow Shapley Visiting Lecturer at Jamestown Community College, Jamestown, N.Y., where he gave a public lecture on "The Cosmic Perspective", and other lectures to local teachers, amateur astronomers, and various classes at the College. From Nov. 10 to 14 he was in Saskatoon, giving a presentation on "Astronomy in Your Classroom" at an international science teachers' conference, and instructing the local branch of the Royal Astronomical Society of Canada in photoelectric photometry techniques and projects.

*Don Fernie* was an invited speaker on January 17 in the University College Symposium on Romanticism and Revolution: 1776 to 1848. Title of the talk was The Serendipitous Age: Astronomy in Transition.

*Wojciech Krzeminski* is now the person in charge of operations in Chile for the Carnegie Institution of Washington, replacing Manfred Wagner. Wojciech spent 6-8 months in Canada a year and a bit ago, working with Bob Garrison here and John Landstreet at Western.

This autumn, *Phil Kronberg* was appointed member of the Physical Sciences Curriculum Committee at Scarborough College, the Honorary Degree Committee, and was reappointed as Faculty Timetable Coordinator for the Physical Sciences Division. He was at Laval University for the regular meeting of the "Conseil de Direction" of the Mount Megantic Observatory

*Chris Corbally* was at Yale from 1-2 November consulting with Pierre Demarque and other in that department. Chris gave a colloquium there on "Southern Visual Binaries as Traces of Stellar Evolution".

*John Lester* is to be the new Graduate Secretary of our Graduate Department for next year, taking over from Bob Garrison.

*Stefan Mochnacki* had a very successful run at Kitt Peak 3-9 January, with six nights out of six being clear. He is conducting a spectrophotometric survey of contact binary systems, using the Intensified Reticon Scanner (IRS) on the No. 1 0.9 m telescope.

*Colin Norman* of Leiden and Cambridge Universities was a visitor in DA for 3 weeks in January. We were the first audience to a talk prepared for the Space Telescope Institute on the Dynamics and Fueling of galaxies with active nuclei. Colin is well known for his enthusiasm for collaborative projects, so that investigations of the dynamics of the Virgo Supercluster, dynamics of "adiabatic galaxies", and spiral wave enhanced gas viscosity were launched. We will look forward to the results and to a return visit.

A welcome visitor from January 25 to 31 is *Bob McLaren*, back from his sabbatical/leave-of-absence at the CFHT to check up on his graduate students. Incidentally, Bob says yes, the electronographic group at CFHT has confirmed the re-appearance of Halley's Comet, as earlier reported by the Cal. Tech. astronomers.

We hear that Rick Salmon (now at the CFHT but mostly famous for his early spell as Resident Astronomer at the U. of T. 0.61 m telescope in Chile) has recently been promoted to the post of Optical Engineer.

A.R. (Russ) Taylor, an NSERC Post-doctoral Fellow, has been with us since November. Russ obtained his Ph.D. with Phil Gregory at U.B.C. and is working here with Ernie Seaquist.

The AAS Working Group for Astronomical Software and its  
Special Interest Group on Microcomputer Use in Astronomy

A report by Ron Lyons

Don Wells of NRAO convened the inaugural meeting of the AAS Working Group for Astronomical Software (WGAS) held during the AAS winter meeting in Boston. (This group is the North American equivalent of the European Working Group for the Coordination of Astronomical Software (WGCAS) chaired by Philippe Crane of ESO). One of the first activities of the working group was to create a spin-off - the Special Interest Group on Microcomputer Use in Astronomy (SIGMUA). This group, headed by Daniel Caton of Appalachian State University, held its first meeting the following day. A number of topics of general interest were discussed at these two meetings.

The idea of a software distribution center received enthusiastic support. (Some funding bodies have expressed a desire to see less duplication in the development of computer software.) The Astronomical Data Center at Goddard was proposed as the site of the center. The problems involved with software copyright provoked considerable discussion. Unfortunately, neither Canadian nor American law handles software in a satisfactory manner. The legal problems are currently being discussed among members of the computer community at large since new legislation is urgently required. If the center actually distributes programs, it is likely that there will be legal matters which would involve the AAS directly. The legal issues could be side-stepped if the center only catalogues and distributes program abstracts. In this case, interested people would have to contact program authors directly. Authors would then be responsible for obtaining any permission necessary in order to release programs. Either way, the center should offer a "bulletin board" type of service so that authors, users and potential users could keep up-to-date on the status, successes and failures of various pieces of software. A committee was set up to investigate the proposal and its implications more fully.

There was some additional discussion about coding practices, especially with respect to adequate program documentation, and software portability. Portability is a problem particularly pertinent to microcomputer users. Everyone agreed on the need for an international graphics standard. (It appears that the European standard, GKS, may eventually be adopted.)

The working group adopted the FITS tape format as its standard for information exchange on magnetic tape. This format, described in the article "Flexible Image Transport System", *Astron. and Astrophys. Supp.* 44, 363-370, June 1981, was originally developed to handle image data. A committee was appointed to consider modifications and extensions to this format. Among other things, the committee will establish standards for the transfer of text and table data, evaluate the need for additional keywords, and determine an efficient blocksize for high density (ie. 6250 bpi) tapes.

While FITS is fine for large systems, a number of microcomputer users were, understandably, reluctant to purchase expensive tape drives for their very inexpensive microcomputers. Because of the variety among microcomputers, the question of a common medium of exchange was unresolved. Until the industry adopts some standards, the best way to exchange programs and data appears to be via modems. The possibility of using a translation service was mentioned.

At present, the proceedings of the working group will be published in the "Astronomical Image Processing Circular" published by Commission 9 of the IAU and edited by Rudolf Albrecht at the Space Telescope Science Institute. The proceedings of the European group will also appear here. At present, the proceedings of the microcomputer group will appear in their own newsletter. Among other subjects, it will contain hardware and software reviews as well as programs suitable for use in the classroom. The size of the mailing list will determine how this newsletter is financed.

The next meeting of the WGAS will be held at the AAS summer meeting in Minneapolis. The group decided to meet at AAS summer meetings so as not to conflict with the meetings of the WGP. In general, the SIGMUA members wanted to meet at the summer AAS meeting also, but, because a number of computer hardware vendors have been invited to the winter meeting in Las Vegas, it was decided to hold the next meeting of the group at that time.

Membership in both WGAS and SIGMUA is open to anyone interested. To become a member of WGAS write:

Donald C. Wells  
National Radio Astronomy Observatory  
Edgemont Road  
Charlottesville, Virginia 22901

To join SIGMUA write: Daniel B. Caton  
Dept. of Physics and Astronomy  
Appalachian State University  
Boone, North Carolina 28608

### *New Diablo*

*The Department has acquired a new letter-quality printer which has been installed in the new terminal room (1408). It was "broken-in" by Mn as he prepared the CITA grant application. Now it is time for some "real science"; several theses are pending in the next few weeks.*

COLLOQUIA\*

- November 17 P. Bojetchko and L. Noreau, University of Toronto  
G2000 Current Literature Seminar
- November 18<sup>+</sup> P. Bell, Carnegie Institution of Washington,  
"Planetary Interiors"
- November 24 A. Wolfe, University of Pittsburgh,  
"Disks and Halos of High Redshift Galaxies"
- December 1 J. Crelinsten, University of Toronto  
"A Centennial Look at Sir A.S. Eddington"
- December 2 P. Dawson, Trent University,  
(Thurs.) "The Luminosity Function of Population II Field Stars"
- December 9 P. Goode, University of Arizona,  
(Thurs.) "Solar Oblateness Tests"
- December 15 R. Gauthier, University of Toronto  
"Cepheid Spectra" (Ph.D. Thesis)
- January 5 J. Wrobel, University of Toronto  
"Radio Activity in Bright Elliptical Galaxies"  
(Ph.D. Thesis)
- January 12 C.A. Norman, Institute of Astronomy, Cambridge  
"Galaxy Evolution: Redshift One to Zero"
- January 13<sup>+</sup> Prof. W.G. Unruh, University of British Columbia,  
(Thurs.) "Black Holes, Archimedes and the Second Law of  
Thermodynamics"
- January 14 F.H. Busse, U.C.L.A.,  
(Fri.) "Convection in Spherical Shells"
- January 14 P. Seitzer, Cerro Tololo Inter-American Observatory,  
(Fri.) "Faint Image Photometry with CCD Detectors"
- January 19 M. Richards and E. Zukowski, University of Toronto,  
G2000 Current Literature Seminar
- January 26 D. Latham, Center for Astrophysics,  
"Echelle Spectroscopy of Stars and QSOs"
- February 9 J.N. Fry, University of Chicago,  
"Grand Unification and Cosmology"

\*Unless otherwise noted, colloquia are held on Wednesdays at 4:00 P.M. in Room MP 137 with TEA at 3:30 in the Reference Room, MP 1404.

<sup>+</sup>With Physics Department.



PAPERS SUBMITTED

- J.B. Lester                      The Atmosphere of Sirius A
- S. van den Bergh                Optical Studies of Cassiopeia A. VI. Observations During  
K. Kamper                        the Period 1976-1980
- R. McGonegal                    The Near-Infrared Cepheid Distance Scale. I. The Galactic  
C. McAlary                        Calibration  
R.A. McLaren  
B.F. Madore
- P. FitzGerald                    A Simple and Accurate On-Line Data Acquisition Program  
I. Shelton
- H.S. Hogg                        Two Centenaries: The R.S.C. and The Last Transit of Venus,  
1882
- P. Biermann                      Detection of Hot Gas in the Normal Elliptical Galaxy NGC 5846  
P.P. Kronberg                    with the Einstein Satellite
- B.F. Madore                      Galaxies and the Universe
- P. Biermann                      X-Ray Detection of Hot Intergalactic Gas in Small Groups  
P.P. Kronberg                    of Galaxies
- N. Duric                         The Radio Continuum Morphology of NGC 4631 at 2.7 and 8.1  
P.C. Crane                        GHz  
E.R. Seaquist
- M.J. Duncan                      Monte Carlo Simulations of the Dynamical Evolution of  
S.L. Shapiro                      Galactic Nuclei Containing Massive, Central Black Holes
- M.J. Duncan                      Simulations of Galaxy Mergers, Cannibalism and Dynamical  
R.T. Farouki                      Friction  
S.L. Shapiro
- J.A. Sellwood                    Spiral Instabilities Provoked by Accretion and Star  
R.G. Carlberg                    Formation

Employment Opportunity

RESIDENT ASTRONOMER

Location: University of Toronto Observatory on Cerro Las Campanas in the Atacama Desert of North-Central Chile.

Start: 1 June, 1983, at the David Dunlap Observatory for experience in observational techniques, electronics, and photography. Residence in Chile to begin after July 1, 1983.

Duration: Through August 1984, renewable for subsequent years if work is satisfactory.

Qualifications:

Preference will be given to applicants with experience in observational astronomy. Experience in electronic and mechanical trouble shooting and repair will be an essential consideration. Facility with Spanish will be taken into account, but is not at all important. Maturity and ability to get along with people are especially important at a remote site.

Description: The Resident Astronomer is responsible for maintenance and repair of the U of T 24 inch telescope and associated facility. In addition he will be required to help new observers to use the telescope. There will be times when he will be required to carry out the observations of an astronomer not present. Some time will be available for his own observing programme.

Salary: Approximately \$15,000, depending on the experience and background of the applicant. Room and board on the mountain are free, but expenses are not paid during time off.

Application: Send with two references to:

Dr. Robert F. Garrison  
David Dunlap Observatory  
Box 360  
Richmond Hill, Ontario  
Canada L4C 4Y6  
(416) 884-9562

Deadline: 21 March 1983.

An interview will be required sometime before 28 March for those on the short list and the announcement will be made shortly thereafter.