

THE ^{DAVID} DUNLAP DOINGS

Vol. 20, No. 1 February 1, 1987.



*Christmas Countdown Photograph by Karl Kamper
see finding chart page 3*

EDITORIAL

A belated Happy New Year to everyone. Let's hope that this year will see an easing of the funding crises for the Universities and for NSERC. May the various governments "see the light".

In this issue, we are adding a new series of articles on the people who help to keep DDO functioning. What better person to start with than Esther Oostdyk, who is in the front office and with whom everyone has first contact, whether by telephone or in person.

Deadline for the next issue is the Vernal Equinox + 2 days (23 March). The electronic mail system is working well.

rG and Rg

Chris McAlary Appreciation

These last few months have been different at Steward Observatory. Chris McAlary's presence and enthusiasm for astronomy have been much missed. We miss, too, his determined, but unobtrusive fight against the cancer. People at Steward have honoured Chris's memory by donations to the American Cancer Society. Also, his personal library is being used as the seed for a memorial collection of research literature at the 61-inch telescope on Mt. Lemmon. If anyone would like to contribute to that collection (money, books, journal subscriptions), then please contact George Rieke at Steward Observatory.

Chris Corbally

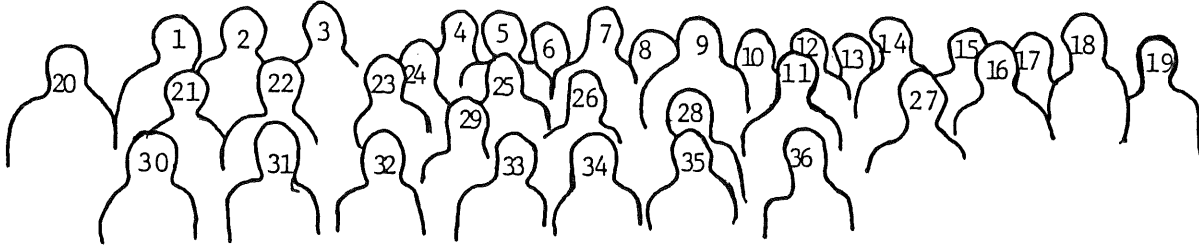
THE DAVID DUNLAP DOINGS Vol. 20, No. 1 Feb. 1, 1987 ISSN 0713-5904
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FINDING CHART



- | | | |
|---------------------|---------------------|------------------------|
| 1. Slavek Rucinski | 13. Yin Zhan | 25. Brian Stekelenburg |
| 2. Archie Ridder | 14. Wlodek Kunowski | 26. Don Fernie |
| 3. Rob Straker | 15. Jim Picha | 27. Mike Fieldus |
| 4. Peter Leonard | 16. Peter Ip | 28. Duncan Martin |
| 5. Jim Thomson | 17. Patricio Ortiz | 29. Marlene Cummins |
| 6. Bob Hill | 18. John Harper | 30. Nancy Evans |
| 7. Barry Madore | 19. Frank Hawker | 31. Laura Carriere |
| 8. Dieter Bruckner | 20. Dave Earlam | 32. Judith Irwin |
| 9. Maurice Clement | 21. Shen Chew | 33. Rosemary Diamond |
| 10. Alex Fullerton | 22. Lee Oattes | 34. Anne Chreptak |
| 11. John Percy | 23. John Dubinski | 35. Maria Wong |
| 12. Marshall McCall | 24. M.J. Thomson | 36. Joan Tryggve |

CONGRATULATIONS

(The social event that got away from Zena Cherry) To *Anne Pettem* and *Alex Fullerton*, who were married on December 20 in Toronto. Tom Bolton and Doug Gies were present to legitimize the proceedings. Anne is Administrative Assistant at the publishing company Lester and Orpen Dennys. They intend to live happily ever after (of course!).

To *Wendy Freedman* (Ph.D. 1984) who came within a hair's breadth of winning the prestigious Trumpler award from the Astronomical Society of the Pacific. The award committee reported great difficulty in choosing among the top two or three recent Ph.D. theses. Wendy's outstanding thesis, "The Young Stellar Content of Nearby Galaxies", was one of them.

To *Rob* and *Jayne Managan* on the birth of their daughter Julie Elizabeth born at 9:41pm on Sunday January 11. She weighed in at 5 lb 8.5 oz (or 2.510 kg for metric fans) and was 19.25 in (48.9 cm) long. They both came home on Tuesday and are doing well.

To *Michael Seufert* who completed his M.Sc. degree in January. Mike is back in Montreal to study and work in the field of bio-medical engineering.

COMINGS AND GOINGS

Frank McDonald, the DDO caretaker, went to hospital on January 22 for minor surgery and is recovering well.

Don MacRae was in hospital briefly in November, and is back in the department, looking well.

Bob Garrison spent two weeks over the Christmas holidays observing with the University of Toronto's 60-cm telescope on Las Campanas in Chile. Our little telescope was the only one working on Christmas Eve and Christmas Night, when the skies were clear and the seeing superb. He spent New Year's Eve flying back to Toronto, passing midnight three times in different time zones (and managed to remain sober, as apparently did the pilot). New Year's Day, after a few hours in Toronto (to change clothes!), he flew on to Pasadena for the AAS meetings. So much for the Christmas "holidays" for Bob.

Martin Duncan, Bob Garrison, and Barry Madore attended the meeting of the American Astronomical Society held in Pasadena, 4-8 January. Several graduate students attended as well, including Ed Zukowski, Raymond Rusk, Judith Irwin, and Brian Glendenning. Former students Geoff Clayton, Chris Corbally, Neb Duric, and Wendy Freedman were also there; it was good to see them again. (My apologies if I have forgotten anyone: ed.)

On 23 January, Bob Garrison gave the after-dinner talk for the Annual Banquet of the London chapter of the RASC. The subject was "Fifteen years of a Mountain Observatory."

POTPOURRI

The tentacles of the Christmas Countdown coordinator extended halfway around the world this year! Bob Garrison managed to be present (voice only!), thanks to Frank Hawker, who hooked up speakers in the auditorium so that Bob could send his greetings along with some images of Christmas in Chile.

Shectograph status: The image-tube train was potted in January; tests in the darkroom were very successful. During the last week in January, the train was integrated with the reticon and tests were carried out in the dome on 2 February. All is well so far; it responds to light! Next it will be tested on the spectrograph.

Wendy Freedman, who received her Ph.D. in Astronomy from U of T in 1984, has recently been offered a full staff position at the Mount Wilson and Las Campanas Observatories which is operated by the Carnegie Institution of Washington. Carnegie operates the Dupont 2.5m and the Swope 1m and has reciprocal agreements with Caltech for use of the Palomar 5m. Presently Carnegie is embarking on a project to put an 8m reflector on Las Campanas in partnership with Johns Hopkins University and the University of Arizona. Wendy's appointment, which will begin July 1, 1987, marks the first time that a woman has been a member of the full research staff since its inception. Next to Chris Corbally receiving instant tenure FOREVER, Wendy's appointment to a permanent position is one of the fastest on record for our students.

GASA is throwing a Vernal Equinox party at the Mochnacki residence. You know the date, watch for the time!

DDO PROFILES

Esther Oostdyk began her career with the DDO in October 1978 under a government program entitled 'Job Experience and Training Program'. She came to us a quiet, shy girl in her late teens, highly recommended but with no experience or training in actual office procedures. She did, however, have the qualities necessary to be a good secretary: loyalty, a willingness to learn, a quick mind, and lots of enthusiasm, as well as being a good typist.

Esther has become an expert in word-processing on the VAX, converting most of our reports and forms, including the Doings, to T_EXformat, thus giving a new look to one and all. She has become adept in handling the thousands of calls from the general public, especially from those few who insist it is their right to come whenever they feel like it because, after all, doesn't their tax money go towards the upkeep of the Observatory? She makes reservations for around 6000 visitors each year. She painstakingly tries to keep one step ahead of 215 Huron St. (Comptroller's Office) in keeping the accounting records in order before they (215) manage to create some new stumbling block or the computer dies for the umpteenth time. (Sound familiar?) She will gladly issue you keys to the Observatory, if you really need them and if you hand over \$10 against their safe return.

Over the years Esther has proved an invaluable assistant not only to me but to the rest of the staff of the Observatory. Together, we manage to solve most of the problems and keep everything operating smoothly and efficiently. (According to Don Fernie, she is especially valued because of her excellence on the volleyball court!).

Joan Tryggve

GASA GOSSIP

by Mike Fieldus

Volleyball.

The sport of kings.

And millionaires.

And, in some perverted fashion, Astronomers.

Every afternoon, with blood in their eyes and determination in their hearts, the astronomers of DDO take to the parking lot for a half hour of some of the most vicious volleyball (and blatant rule breaking) I have ever seen. But this phenomenon is not restricted to the parking lot at the observatory. This year, as in the past, the graduate students have joined a volleyball league downtown on campus. We play with a real volleyball, and a real net, in a nearly real gym, and we play very badly.



JHEN

Fortunately, the league we play in is “for people of dubious skill level”, and thus we can boast a modest 6 win 3 loss record (5 and 0 when Ed doesn’t show up). The games are very high spirited and the players enthusiastic, which most often makes up for our inability to get the ball over the net. Our team cheer “HIT ED IN THE HEAD” can be heard all during the game, and often for hours afterwards from the local pub. One thing is certain about our volleyball, however. We are ready to take on the team from DDO anytime they want.

And now, as promised, all the latest gossip from around the department. Last issue, as I recall, I was going to reveal (in lurid detail) all the new romantic activities of our graduate students. Within minutes of that issue hitting the newstand, I was confronted by Laura Carriere, who, in no uncertain terms, told me what would happen if I even mentioned her and Bob Hill. So that topic (as exciting as it was) is out.

I was also going to tell you all about Lee and Esther, but the policy of this column is not to mention Lee, ever. (That is the only sure way of bugging him). So that is out as well.

I certainly can’t tell you about my own affairs, as I am far too much of a gentleman to discuss that sort of thing. So it appears that most of the obvious gossip is off limits this week. But, of course, nobody reads this column to get the obvious gossip. I do have one or two juicy tit bits* to entertain you with (remember, you read it here first). (*I think he means tidbits, but I don’t want to be accused of censoring a student composition,:Ed.)

Through my network of sources, I have discovered that one of our female graduate students has been seen, outside the department, in the company of Dieter! No, really! They have been seen together on more than one occasion (three times, actually). I very much doubt anything will come of it, however.

Well, that’s about all for this week. Nothing very interesting, really. I was going to tell you that Rob Straker was volunteered for the job as new paper recycler, and how people have finally stopped complaining about K.T. as coffee drudge (they have also stopped drinking K.T.’s coffee), but all that will have to wait for next issue, if they let me write another column.

LAS CAMPANAS NEWS

by Bob Garrison

The underfunding of the past three years is beginning to hurt the operation badly. We haven’t been able to carry out some much-needed, long-term maintenance. The Dynapar readout system on the console has begun to deteriorate after 16 years of continuous use with no problems whatsoever; recently, however, a problem with ageing capacitors put the telescope out of commission for several days - the longest total downtime in its history. It would be good if we could replace the entire drive system and console, but that is much more expensive than we can manage at present; as an interim measure, we have ordered a new readout system from Sigma (UBC has a similar system and recommended the hardware). We can only keep our fingers crossed that something more serious doesn’t happen.

People ask “Why don’t you automate this, that, or the other thing?” The answer, of course, is that we would like to, but it costs money and time for parts and people. We don’t have much of either these days and NSERC doesn’t seem to be able to help, since its equipment budget is at rock bottom; they even recently threatened to cut out all small infrastructure grants. (We sincerely hope that idea has been put to rest!) In spite of the upbeat conclusions of last December’s New Zealand conference on small telescopes, the little ones don’t seem to be getting much support these days, even though they are clearly a very efficient and economical way to gather useful information.

The UTISO photometer system is a prime candidate for renewal and automation; it is certainly not “state-of-the-art”, but until recently was a fairly good workhorse. However, it has been giving us trouble for some time now. The new CCD will not satisfy all of the photometrist’s needs, so we must continue to provide a good, basic photometer for high-speed observations of single stars. As an interim measure, we have just shipped down a complete duplicate system which Don Fernie had kept for use at DDO. For the long term, Rucinski has offered to design and build a new photometer, incorporating some automation (consistent with the need to keep it simple, reliable, and inexpensive). Anyone (U. of T. or elsewhere) who wishes to be involved in this process can contact me or Rucinski. (Bill Herbst, please note.)

CCD status: Why is it that the world always falls apart when we decide to take decisive action? In September, we invested in a Photometrics CCD system, so that we could be up and running asap. However, nothing ever goes so smoothly as all that. We’ve been waiting for several months for a Tektronix chip; they are apparently not ready to ship chips, and it isn’t clear if they ever will be able to match their specs. RCA has stopped making chips, so Thompson is the only company producing anything worth using. We have decided to stop waiting and to go for a Thompson CCD, with 576 x 384 pixels, each 23 x 23 microns (which corresponds to 0.52 arcsec at UTISO), with about 10 electrons per pixel. Photometrics will coat the Thompson chip for good UV response and will refit the instrument with a Tektronix chip for free when (if) they become available. There doesn’t seem to be any reasonable alternative.

The classification spectrograph is producing lots of good spectra of interesting stars, though it is still operating in the photographic mode. We estimate that over 30,000 spectra have been taken by various observers since 1971, though many are multiple and duplicate exposures. Again, it would be nice to have a digital system, but a reliable one costs more money and people than we can afford in the present political climate. If anyone is interested in donating the requisite time and money...

In spite of all these problems and in spite of the increase in cirrus clouds due to the return of the infamous El Niño, one can get a lot of great data in a very short time at such a marvelous site. I lost only three hours out of the two-week Christmas run, though I was glad to be doing spectroscopy because I could work through the very thin cirrus clouds that were evident on about half the nights. The seeing averaged about 1.2 arcsec during my run, and was less than half that for one entire night. The seeing that night was unmeasurable with a small telescope, since the aberrations dominate at 0.5 arcsec. The seeing was less than one arcsec all night Christmas Eve. Ah, the joys of a good site! Now, if we only had enough money to keep the telescope in good operating condition...

ON TOP OF OLD MOUNT WILSON

by Raymond Rusk

The January 1987 meeting of the American Astronomical Society in Pasadena, California will be memorable for my wife Ann and myself, not only because it was the first AAS meeting to which she accompanied me and her first trip to the southern U.S., but also as our first experience in “mountain climbing”. While I have, many years ago, spent some time hiking through the hills of Vancouver Island, we are both more familiar with walking on the prairies. And we haven’t done much of that either in recent years.

The decision to hike up Mount Wilson was mostly accidental. We arrived in Pasadena a day early so we looked in the L.A. Times for things to do, and places to go. Mount Wilson was listed as an attraction in the Pasadena area. Moreover, the author recommended that the best way to see it was to climb the old Mount Wilson Toll Road. From our motel room near Lake Ave on Colorado Blvd we could clearly see the many radio station antennae on top of Mount Wilson, and the solar observatories, so we thought that we might try the mountain hike if weather permitted, on the one day we had to kill in L.A. after the conference.

Fortunately, both Ann and I had arrived in Pasadena with good walking shoes. From previous trips to use the CalTech VLBI Correlator, I knew that the L.A. transit system was more illusion than reality. After walking around Pasadena for several days during the conference, and seeing how cold it was on Mount Palomar, I had lost some enthusiasm for climbing Mount Wilson. However, Ann’s enthusiasm for the climb had mounted, even though she had several foot blisters already from walking around town.

On the morning of the climb we set out at 7:42 a.m. on foot along Colorado Blvd, then north on Allen Ave until we reached the head of the Mount Wilson Toll Road near the Eaton Canyon Conservation Center, a distance of about 4.25 miles from our motel (which we were to learn later after examining our street map more carefully). We were accompanied by Josef Kallrath from Astron. Inst. Univ. Bonn, who asked to join us on the climb when he overheard us discussing it during our tour of Mount Palomar. We had also encouraged other members of D.A. who were attending the Pasadena meeting to participate in the climb but each found various reasons to decline our invitation.

We finally began the climb up the old toll road at 9:28 a.m. Hale, before and during the construction of the 100”, had supervised the construction and subsequent broadening of a dirt road up the side of Mount Wilson facing Pasadena in the early 1900’s. Users of the road in those early days had to pay 25 cents, hence the name Mount Wilson Toll Road. Apparently, it was popular even then as a hiking trail.

The trailhead in the foothills above Pasadena is at 1330 feet elevation. The first and last major stop on the way to the top is Henninger Flats, a Forestry and Conservation area, at 2632 feet elevation. The view as we climbed above the city was impressive. We stopped to take numerous photographs (and catch our breath). Above Henninger Flats, the view of the surrounding countryside became even more spectacular. The dirt road was strewn with small rocks from land slides. At one point it was blocked by a fallen tree which we had to climb

through. In many places the edge of the 7 foot road is a precipice. We met only four mountain bikers on the six and a half mile climb from Henninger Flats to the top.

The total climb is 1330 feet to 5710 feet over a distance of 9 miles. We couldn't see the 60" or 100" telescopes until we were actually at the top, but we spent most of the climb expecting to see them around the next corner. I was really dragging by the time that we were actually near the top. On the whole, Ann seemed slightly better off. At 2:53 p.m. we stumbled onto the peak in a state of near exhaustion. We had hoped that we would reach the top by 1 p.m. and would be well on our way down by 3 p.m. because as we started up the trail we saw a sign stating that the gate on the 9 foot high fence across the trail entrance, a fence topped with barbed wire, would be closed one hour after sunset.

It was around 4:30 p.m. by the time we had recovered enough to look around the mountain and to start back down. We debated for awhile about the wisdom of descending the mountain on foot since it seemed likely that the gate would be locked by the time we reached the bottom, and moreover, we would have to complete the majority of the descent in the dark. However, there was a gibbous moon overhead and I had my "astronomer's" flashlight so we felt that we could safely descend in the dark.

In fact, going down wasn't difficult. In most places the dirt road stood out in the moonlight. We were able to get below the snow line before it got really dark, so the chief dangers were tripping over a stone or twisting an ankle in the numerous shallow washouts. In the dark, the sound of pebbles sliding down the mountainside became much more ominous. However, our only long term discomfort suffered from the trip down was blackened toe nails from our toes rubbing up against the fronts of our shoes.

We enjoyed a spectacular sunset as we walked down Mount Wilson. After the sun set, the city lights spread out below us were very beautiful, and the mountain and trail had a romantic feel in the moonlight. At moments like that I cannot help feeling how truly unfortunate it may be for future generations that the world's nuclear powers hold so much of the really nice countryside.

When we finally returned to the gate we discovered that it was indeed locked but fortunately we were able to crawl under a portion that had been ripped up by vandals. We walked back to our motel, arriving there with very sore bodies and bruised feet at 9:30 p.m. to begin packing and then catch a couple hours of sleep before getting up at 4 a.m. to catch a bus to the airport and our morning flight to Toronto. Our total trip was 26.5 miles, and we were VERY tired.

IUE SOFTWARE

by Nancy Evans

Since IDL is available within the Department, the IUE reduction software developed by the IUE project Regional Data Analysis Facilities at Goddard and at the University of Colorado can be directly installed on the VAX. Well, nearly directly. As a number of you may realize from the questions I have pestered you with about reading tapes in various formats, it has taken longer than I anticipated. However, now, with a generous amount for help from Ron Lyons about the fine points of IDL and the system here, we now have an updated version of the IUE software available. At least I hope it will be fully running by the time I get this note finished. Several people in the

Department have already used the 1981 version, but the current version has additional software, as well as improvements in the basic reduction packages themselves.

The first problem in implementing the package was its size. The original version supplied by Goddard contained 20,000 blocks. Anyone want to contribute 10,000 blocks? I have pruned the original version by removing the software generated at Colorado. It primarily performs the same processing of high and low dispersion images as the Goddard software, but within a menu format that allows identical repeated reductions. If anyone wants to investigate the additional CU programs such as the curve of growth program or the line profile calculation, we have them on tape. I have kept copies of the documentation for all the programs I deleted. Obviously, programs tailored to Goddard peripherals such as the COMTAL and the CALCOMP were not useful. All this reduced the RDAF package to 5000 blocks.

RDAF software is kept in 3 libraries, general software, IUE specific software, and experimental software. The general software includes a lot of Bevington fitting procedures written in IDL. We have made no distinction between general routines and IUE routines: all are located in [IUELIB] in Ron's account. The experimental routines have already been tested so they do run, but are labeled as experimental by Goddard until they have been used for at least a year to see what clever flaws the users can find. They are in my account in the directory [EVANS.EXP]. IMAGEN plots can, of course, be created by [IDL]UTPLOT.

Another new addition to [IDL] is the continuum and blanketed fluxes from Kurucz models, accessed by KURUCZ.PRO. These may be deleted later on, depending on the amount of use they get from me and anyone else, so let me know if you find them useful.

The IUE software has the normal range of spectral analysis tools. It allows the extraction of fluxes, including resolution perpendicular to the dispersion, and special extraction techniques for weak sources. It contains recent calibrations, programs for dereddening, normalizing the continuum, measurement of line strengths, radial velocities, and binned fluxes for high and low dispersion spectra. Some of the most important updates in the current version are correction for the sensitivity degradation for the LWR camera, correction for temperature sensitivity for all cameras, and a cross correlation program.

It is my intention to maintain an up-to-date version of the RDAF IUE software. In fact, we are something of an experiment for Goddard— the first installation of the new VAX version of the software, although they have already received a number of other requests. So pass along any problems or suggestions, either to me or to Goddard directly. In addition to the **IUE Newsletter** which the library gets, I have a number of other useful documents, such as the project processing manual.

With the software, it is very easy to make use of the 40,000 images in the IUE archives. They can be requested from the RDAF or from the National Space Sciences Data Center at Goddard. Amaze your friends and supervisor with data at 130 nm. Enjoy the challenge of UV extinction.

LIBRARY NEWS

by Marlene Cummins

Our shelving has finally arrived and Room 1309 is being taken over by the library. We are moving in gradually, recataloguing the observatory publications as we go. Soon, access to Room 1309 will be through the library only.

Even though I haven't received much of the software and hardware I need, the library's microcomputer is being put to good use. Literature searches are from a little to a lot cheaper and I encourage you to request one if you haven't done so recently.

We have ordered the White Oak Extension for Chile but you still have time to make a donation to the Chris McAlary fund if you wish. Cheques should be made payable to the University of Toronto and sent to me, Marlene Cummins, in the library.

PAPERS SUBMITTED

Rucinski, S.M. An attempt to use narrow-band H alpha photometry to estimate levels of stellar activity. 86.11.28.

Soifer, B.T., D.B. Sanders, B.F. Madore, G. Neugebauer, C.J. Persson, S.E. Persson, W.L. Rice. The luminosity function of the brightest galaxies in the IRAS survey. (Palomar Obs.) 86.12.16.

UNIVERSITY OF TORONTO
DAVID DUNLAP OBSERVATORY & DEPARTMENT OF ASTRONOMY

LECTURE SERIES

Feb. 11	Colloquium	Ermanno Borra Laval University	Liquid Mirror Telescopes Hardware and Software
Feb. 18	Colloquium	Joan Centrella Drexel University	Numerical Astrophysics: Re- vealing the Universe Using Supercomputers
Feb. 25	Colloquium	Bernard Bopp University of Toledo	Present and Future Observa- tions of Chromospherically Active Stars
Mar. 4	Colloquium	Tom Bolton University of Toronto	Light Pollution at the David Dunlap Observatory

PLEASE POST

Employment Opportunity

RESIDENT ASTRONOMER

- Location:* University of Toronto Observatory on Cerro Las Campanas in the Atacama Desert of North-central Chile.
- Start:* Between 1 May and 1 June, 1987, at the David Dunlap Observatory, for orientation and experience in observational techniques, electronics, and photography. Residence in Chile to begin about 1 July, 1987.
- Duration:* Through August 1988, 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. Experience with optics and computers will be very useful. Facility with Spanish will be taken into account, but is not important. Maturity and ability to get along with people are especially important at such a remote site. Married applicants will not be considered, because of living-space problems.
- Description:* The Resident Astronomer is responsible for maintenance and repair of the University of Toronto 60-cm telescope and associated facility. In addition, the Resident will be required to help new observers to use the telescope. There will be times when the Resident will be required to carry out a program for an astronomer who is not present. Some time will be available for a personal observing program.
- Salary:* From \$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 the mountain. Travel is paid for two round trips per year to Toronto.
- Application:* Send with two references to:
Dr. Robert F. Garrison
David Dunlap Observatory
Box 360 Richmond Hill, Ontario
Canada L4C 4Y6 Telephone: (416) 884-9562
- Deadline:* 15 March 1987. (An interview will be required sometime before 30 March for those on the short list and the announcement will be made shortly thereafter.)