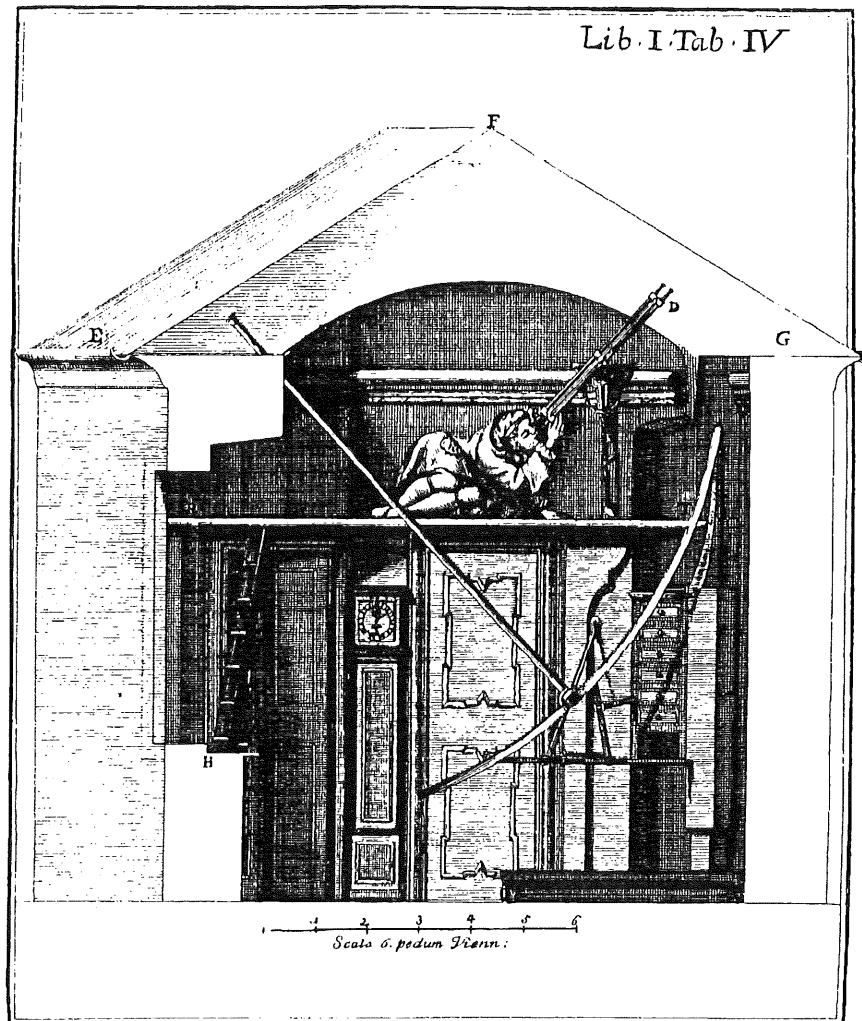


# THE <sup>DAVID</sup> DUNLAP DOINGS

Volume 24, No. 2      March 28, 1991



Vienna Observatory, 1745

**FROM THE EDITOR**

Our cover picture this month (which is by a rather obscure chap, Giovanni Jacopo de Marioni) has been chosen by Brian Beattie to illustrate two things. The first is that there has after all been a certain improvement over the last two-and-a-half centuries in the comforts of observing. The second is to illustrate the workings of DDO's spanking new Hewlett-Packard ScanJet Plus scanner, very kindly provided to the Observatory as a gift by Helen Hogg. Not only will it allow us to scan photographs and line drawings for reproduction in the *Doings* and *Cassiopeia*, but with the appropriate software it will enable researchers to scan published tables of numbers for use as data elsewhere without re-typing the numbers by hand. We are most grateful to Helen.

We don't usually quote excerpts of colloquia in the *Doings*, but those of us who attended Doug Welch's talk on the Gemini project were entertained by his report that the Americans are buying the glass for the 8 m telescopes in Japan, while the Japanese are buying the glass for their 8 m in the States, leading one Japanese participant to remark that he supposed the glass is always cleaner on the other side.

In the same vein, I was at the Dell Computer Corporation in Richmond Hill the other day and was amused to see an advertisement of their's on the wall. It featured a picture of the Hubble Space Telescope floating above the earth; beneath the picture were the words Don't you wish every manufacturer offered next-day on-site service?

Don Fernie

## COMINGS AND GOINGS

The department welcomes a new secretary at DA, Antonina 'Nella' Campisi, who comes to us from the University's Ophthalmology department. Nella started March 25, and in the spirit of first-things-first was immediately assigned the e-mail address of nella@vela.

Garrison visited W.W. Morgan at Yerkes Observatory (University of Chicago) in March for consultation on a joint paper, "Anchor Points of the MK System." Morgan, at 85, is in good physical and mental health and it was, as always, a delight to interact with him. I only wish that some of our students could meet him. Though he hasn't been as active in "political astronomy" as some of the "famous" astronomers, he remains one of the most important figures in 20th century astronomy. He devised the MK System, the UBV system, discovered the spiral structure of the Milky Way, devised the Yerkes system of galaxy classification, discovered peculiar A stars, and much more during a remarkable career, spent entirely at Yerkes.

Dale Frail was at the Department briefly (one week) in early March to work on a paper with Michael Bietenholz.

Peter Ip was in Trieste from 11 February to 1 March to give a talk at the International School for Advanced Study (SISSA in Italian). He also had various stimulating discussions there.

## CONGRATULATIONS

Dear Don:

I am pleased to announce the birth of Michael Douglas Leonard at 3:17 a.m. P.S.T. on Saturday, February 23. He weighed 11 lbs 7 oz at birth, and is 22 inches long. The baby and mother are doing fine.

Best wishes,  
Peter Leonard

## REVISIONIST'S CORNER

Dave Turner reports one of his first-year students' statement of Kepler's First Law: The orbits of the planets are ellipses with one focus missing. Dave goes on to note the new national beer of Iraq: Scud Light. But it doesn't quite hit the spot.

## REFLECTIONS ON THE VATICAN SUMMER SCHOOL, JUNE-JULY 1990

Bob Garrison

Tired of teaching within the constraints of the traditional system of grades, tests, required assignments, and other pressures? About this time of year (especially in the midst of a TA strike), professors and students alike fantasize wildly about alternative, utopian teaching environments. Lend me your ear; I know where one exists in reality, and I'll share some of the secrets with you.

Try teaching at a summer school where there is no evaluation, where assignments are given only for their pedagogic value, and where the students are eager to learn all they can from you. It will renew your faith in REAL education (i.e. where the emphasis is on learning for its own sake, and on creating the ideal, trusting environment for encouraging it). Of course, it helps if the course is held in Italy at Castel Gandolfo, the summer palace of the Pope, located 30 miles south of Rome on beautiful Lake Albano, but believe it or not, that is not the most important part. Creating the right social environment for learning is the key factor for both teachers and students.

It may have seemed crazy to some of you that I started my sabbatical year by teaching every day for five weeks, in summer no less! However, sabbaticals are supposed to be about renewal, right? Because most of us spend a considerable amount of our time teaching, renewal in that part of our lives can help to generate good feelings in other areas. The Vatican Summer School for Astrophysics really inspired me, and stimulated feelings about good teaching and the basic purpose of education. The experience was the highlight of my 23 years of teaching.

For five weeks last June and July, I taught a graduate-level course entitled "Stellar Spectroscopy: Probing the Personalities of Stars" to a class of 25 graduate astronomy students, mostly from Third World countries like Nigeria, Sri Lanka, and Peru. They were bright, well-prepared, and eager to take advantage of the opportunity to learn as much as they could.

John Stocke from the University of Colorado taught a second course "Observational Studies of Galaxies and Cosmology." Jacqueline van Gorkom, a radio astronomer from Columbia University, visited for two weeks and gave some of the lectures in John's course. I sat in on John's course and thoroughly enjoyed watching a masterful, charismatic lecturer at work. I think I learned at least as much as the students did.

Did the students study less because of the lack of pressures? Certainly NOT, quite the contrary. I've never seen students study so eagerly and so effectively. They virtually lived in the library when they weren't in lectures. A couple of students stayed up very late many nights photographing the sky (on their own initiative; neither of us faculty members suggested it) and always appeared in the front row of my class at 0930, alert and ready to go, because they "didn't want to miss anything." How many North American students are that keen? (A few, I admit, but not many.)

Of course, there was a selection effect. Chris Corbally, John Stocke, and I chose the best 25 from a list of 125 applicants, most of whom were first class in their universities. Our first criterion was quality and the second was suitability; we restricted ourselves to first-year (+/- a year or so) graduate students and tried to choose ones who would benefit most from the school. The criteria and restrictions only eliminated about half of the applicants, so we had to resort to non-academic criteria. No more than two students from any one country were invited, and females (a minority of the applications, as usual) were favoured. All those who were invited accepted, and 100% showed up, including one from mainland China. The final list included 25 students representing 22 different countries, mostly Third World; 11 of the 25 were female. The countries with two students were the US, New Zealand, and Poland. Other countries (one student from each) included China, Sri Lanka, India, Turkey, Greece, Nigeria, Finland, Austria, Italy, Spain, Venezuela, Brazil, Argentina, Chile, Peru, Mexico, Canada, Korea, and Japan.

Room and board were free for all students at Bucci's, a small hotel overlooking Lake Albano, which is well-known by visitors to the Vatican Observatory. The Vatican paid 3/4 of the air fare for the students from Third World countries, but those from the better-off countries had to pay their own way. Funding was flexible enough to meet special needs, so nobody suffered unduly.

Lectures were not the only format for learning. In the afternoon, there was a colloquium, given either by a visiting astronomer or by one of the students talking about research at his/her home institution. The discussions were lively and students encouraged each other generously, much more so than in our G2000 sessions. At my desk later in the day, there was always a student or two asking questions, not just about the course content, but about observatories or research philosophy and technique, as well as other areas of astronomy. In other words it was a very refreshing environment for both teachers and students. We were all learning, and the distinction between teacher and student was often blurry.

The informal atmosphere was encouraged daily with a catered lunch (and local wine, of course) on the terrace of the Papal Palace. Evening meals were often shared with students and the Jesuit astronomers; we would retire to a local restaurant or venture off to a new eating experience in one of the surrounding hill towns. Sometimes we continued to talk astronomy, but more often we talked about other aspects of our lives, and learned that there are many other interesting parts to our personalities.

On weekends, we travelled together to Rome, Florence (where we visited the Arcetri Observatory and Galileo's "prison"), Pompei, beaches and monasteries. In short, we were living together as well as studying together, something which is missing in most universities.

There are many other positive effects from teaching in a summer school, besides the personal renewal. While most of the students were already in graduate programs, four of the group applied to study here at the University of Toronto as a direct result of the contacts I made there. We will probably get a few more next year, as well as applications for post-doctoral studies in the future. We have accepted three of the four, one of whom (Piotr Zembrowski) has won a Connaught Fellowship and is definitely coming. Another of the three we accepted, an outstanding student from Peru (aptly named "Milagros," meaning "Miracles"), is going to the University of Arizona, where she has been offered the Vatican Fellowship. One of our current graduate students, Omar Lopez from Mexico, is a graduate of the 1988 version of the Vatican Summer School.

Unfortunately, we don't have enough money to support more foreign students, so we can't offer competitive aid to more than one or two. I say "unfortunately" because I believe that these students are exceptional. They will return to their native lands, where they will be the movers and shakers in spreading the excitement about astronomy around the world. By not being able to support more than a few foreign students, we miss out on the opportunity to be part of that revolution.

We here at the University of Toronto often worry about what we can do to get the best students. One of the ways that we can get more applications from enthusiastic, first-class students is to participate in activities like summer schools and student conferences, both here in Canada and abroad. The more contact we have with prospective students and the more they have with us, the more likely they are to apply here and the more likely we are to pick winners, as opposed to those who look good on paper, but turn out to be dull and uninteresting. Personal contact helps, both to increase the number of good applicants and to improve our level of discrimination.

The challenge for me now is how to incorporate the best features of the environment of the Vatican Summer School into our programs at the University of Toronto. It will not be an easy task, given the general alienating structure of a large university and its reward/punishment evaluation systems, but the positive effects of a more trusting learning environment are great for both students and faculty. The experience at the Vatican last summer showed me that it really does work better.

### GASA Gossip

Mike Fieldus

Last month I reported to you that Tom Bolton and I had spent Christmas together observing at McDonald Observatory in Texas, but I neglected to tell you of the more significant events of that trip. We left very early in the morning (7:30!) on December 20th, and Tom and I had arranged to meet at the airport. For once in my life I was early, and I was relaxing (sleeping) in the departure lounge when Tom came in, muttering choice words about American customs agents and vacationing skiers, both of which the airport had far more than either of us cared to see at this hour. After a brief greeting, he too settled down to relax (sleep). After a couple of minutes, a very tall, thin gentleman with something between 4 and 40 offspring in tow stood right in front of Tom and said "Excuse me, aren't you Tom Bolton?". Tom jumped up and shook the man's hand, and then introduced him to me as David Dunlap. Well, this was far too much excitement for me at this time of the day, and I was only able to mutter a few incoherent nonsequiturs in return. Still we had an enjoyable several minutes conversation where I discovered David Dunlap is a very well read man, who knew more about the large telescope projects in the world at the moment that I did.

Our return trip was not nearly as exciting as the trip down, mostly because it was later in the day and everything was a little less surreal. A small freezing rain storm in Dallas caused all flights in and out of the airport to be delayed several hours. Unfortunately, our flight into Dallas was delayed an hour longer than our flight out of Dallas, and we ended up running across the terminal to make our connection. As we arrived, the ticket agent was waiting for us and rushed us down the gangway, which started to retract as we proceeded along it! After shouts of “wait, wait”, the gang way stopped retracting, and we rushed up to the now closed door of the plane. After a few frantic bangs on the door with our fists, it was opened by a surprised stewardess who exclaimed “Wow, you guys just made it”. Needless to say our luggage didn’t make the trip.

An attempt at some social activity was made a week or two ago by several students, organized by Dave Schwartz. They were to meet about 7:00 at the GSU for a quick drink before heading off to Clinton’s, a near by club, to see a band (ominously named the Bourbon Tabernacle Choir). I was forced to give this event a miss, since I was on the last night of an observing run at DDO. The gods smiled on me, however, and the heavens opened, dumping a fairly large amount of snow on everything except the telescope (as we never got near opening the dome). I found myself back downtown about 11:30, and figured I might just catch up with the crowd. 20 minutes later, I arrived at Clinton’s, but an exhaustive search did not reveal any of the people I came to meet. Eventually I gave up, and went on home. I decided to drop by the GSU on my way (as I live across the street), and much to my surprise I found the astronomy crowd, still at their table, looking very much the worse for wear. It seems one pint had led to another, and about an hour before I arrived they had given up any hope of going anywhere but home, and were fast losing that hope. Somebody still had their wits about them, however, since it was quickly announced as I arrived that it was my turn to buy a round.

Overheard at the pub one night, in reference to Paul Hendry’s masters thesis: “Research based on photometry at DDO? I hope he already has tenure”. Another for the “Quotes from Oattes” file. And finally, to Paul: NOBODY remembers how many bytes the text portion of their master’s thesis was.

## LETTERS

To the Editor:

I am mildly perturbed at the January 31 issue of the Doings. My wife now wonders who it was who accompanied her back home to Singapore, as it is obvious that I was enjoying myself at the Christmas Countdown at the time. Your identification of me as Number 48 in the cover photo made my life a bit uncomfortable. Couldn’t you have lied and said it was someone else?

Peter Ip

Dear Stefan,

Hi Ho. Sounds like your going "great guns" up there. Glad to see things moving along.

With regard to the CCD's, you might be interested in a project that Lindsey Davis and Doug Tody are working on, involving rapid CCD photometry. Only that/those portion(s) of the chip where the objects of interest are, are read out and reduced on the fly, with the default output being the photometric counts. There is an option to save the image data. They have had two engineering runs and things are looking pretty nice.

We are going home (Sault Ste. Marie) in April to attend my brother's wedding. We're taking 4 weeks off driving to the Sault, and then over to Ottawa to visit Mary's parents, and then probably head for Tucson via Southern Ontario. I just might get a chance to pay you a visit somewhere around the second week of May ... if I do, I'll be sure to bring my volleyball stuff!

– Ed (Anderson)

Don,

The Doings for December, 1988, contained an interesting article by Peter Leonard on the efficiency of the Canadian postal system, pointing out the delivery delays expected for letters mailed just before the weekend. I had a recent experience which seems to run counter to this documented evidence.

Just after New Year's I had occasion to be in Toronto for a few days, and found time on the Friday morning to drop by the DA Library to pay an outstanding bill for photocopying and also to hand deliver a preprint. The following Tuesday morning I opened my mail at Saint Mary's and found that it contained a mailout of the DA Library Bulletins, which included a listing of my recently-delivered preprint! It seems to me that this contradicts Peter's conclusion that mail sent on the final two weekdays takes at least four days to be delivered (and it wasn't a Full Moon either!). Either that, or the Canadian Postal system can be very efficient on occasion. Perhaps the proliferation of electronic mail has made their job easier.

Dave Turner  
Saint Mary's

Dear Don,

I mentioned in my BITNET six months ago (12 months??) that I would send along a few more details on our new photon catcher, and it's taken me this long to get around to it. So finally, during spring break, I'll get off a couple of lines to you.

I'll bet it's a luxury not to be head of the department still – ye gads, ten years! Our department head rotates every five years, and two years ago it was more or less my turn: I was the only one in the six-man department who had not been department head. I managed to forestall it for a five-year term, but three years from now....



Our 20-inch is a Melsheimer. They have made a number of 16-inch jobs, with accurate pointing and slewing, controlled by an Apple II. That didn't quite seem up to date to me, but it was far better than I could have cobbled together. One problem: it would carry only a 20-pound payload at the Cassegrain focus. In any case, I was afraid it was the telescope I would have enough money for. The 20-inch cost 4.5 times as much, and it was a job trying to sell the dean on these extra four inches!

We finally got enough money to buy the DFM 20-inch, which is now MacIntosh-based (they wanted the 68000 CPU), but running on their own operating system (keeps amateurs out of it). This one has a 150-pound payload, 5"/hour tracking, and slewing to 30" rms (in practice, even better than that). Furthermore, it's programmable for coordinates for an entire night's observations (at least, up to 40 stars at a time, then read in the next bunch). Then it will slew so that the star appears in the 30" photometer aperture! For teaching, it's almost too easy: to see M13, enter "13" and hit return! The object is always centered in the field. Now if Melsheimer could just get rid of the full moon....

We moved the old 16-foot dome out of town a few miles, and built a warm room on the ground floor. The telescope is controlled equally well from the dome or the warm room, via keyboard or handpaddle. The dome position is handled by the computer.

We also bought a Photometrics 14-bit CCD. This uses a PM-512 (Ford Aerospace) 512x512 chip, with a readout noise of 9 electrons. I decided that I would likely hit the sky before hitting dark current, so I chose the Peltier cooler instead of LN<sub>2</sub>. It's liquid cooled and gets down to -50°C. A Compaq '386 is interfaced to the Photometrics via IEEE-488 for control and temporary storage of images, and the Compaq is interfaced to a 9-track tape drive. I then carry the tapes into the astronomy lab where I have a microVAX II with a 9-track drive and DAOPHOT running.

Well, so much for details..... stop in sometime! We are about 180 miles SE of Washington... a real pleasant drive down the Shenandoah valley. Three years ago we built a house out in the country and we would certainly be delighted to see you, in case you're anywhere close.

Liese and I hope to make to the ASP meeting in Wyoming. Any chance of seeing you there? Now back to picking out stars to observe with the 20-inch....

Best wishes,  
David (Dupuy)



## FROM THE DOINGS OF TWENTY-TWO YEARS AGO:

Countdown on April 16 took the form of a Town Meeting. Among topics discussed were admissions policy (should we admit fewer students?), the general examination (what is its real purpose?), and computing (chances are small that the department would be allowed to buy a small computer for itself.)

## FROM THE DOINGS OF TEN YEARS AGO:

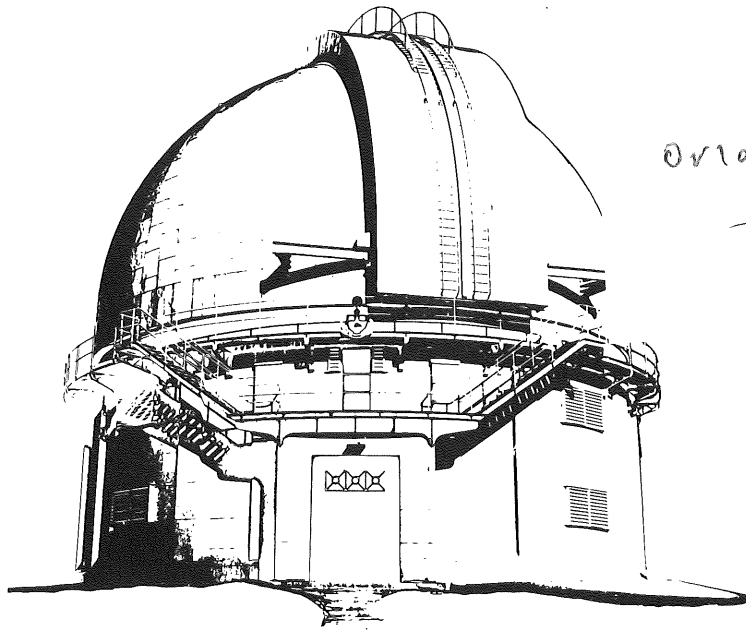
We learnt recently of the death of Edna Fuller, the first and at the time only member of our support staff. She was a fully trained librarian who supervised our library and was our only secretary. By 1936 she was earning \$1100 a year for her six days a week of work.

PAPERS SUBMITTED
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PREPRINTS BY FACULTY AND STUDENTS RECEIVED  
IN THE ASTRONOMY LIBRARY

January 25 to March 25, 1991

- Couchman, H.M.P.; Carlberg, R.G., *Large-scale structure in a low bias universe* David Dunlap Observatory, University of Toronto, 91-0227 11-Mar-1991.
- Ellingson, E.; Yee, H.K.C.; Green, R.F., *Quasars and AGN in rich environments, I. Fields surrounding optically faint quasars* Dominion Astrophysical Observatory, 91-0136 12-Feb-1991.
- Fernie, J.D., *The variability of HR 8062* David Dunlap Observatory, University of Toronto, 91-0226 11-Mar-1991.
- Kim, S.-H.; Raga, A.C., *The collimation of a time-dependent stellar wind* David Dunlap Observatory, University of Toronto, Canadian Institute for Theoretical Astrophysics, 91-0162 18-Feb-1991.
- Percy, J.R.; Fleming, D.E.B., *A photometric survey of suspected small-amplitude red variables* David Dunlap Observatory, University of Toronto, 91-0102 31-Jan-1991.
- Yee, H.K.C., *A faint-galaxy photometry and image analysis system* David Dunlap Observatory, University of Toronto, 91-0150 15-Feb-1991.

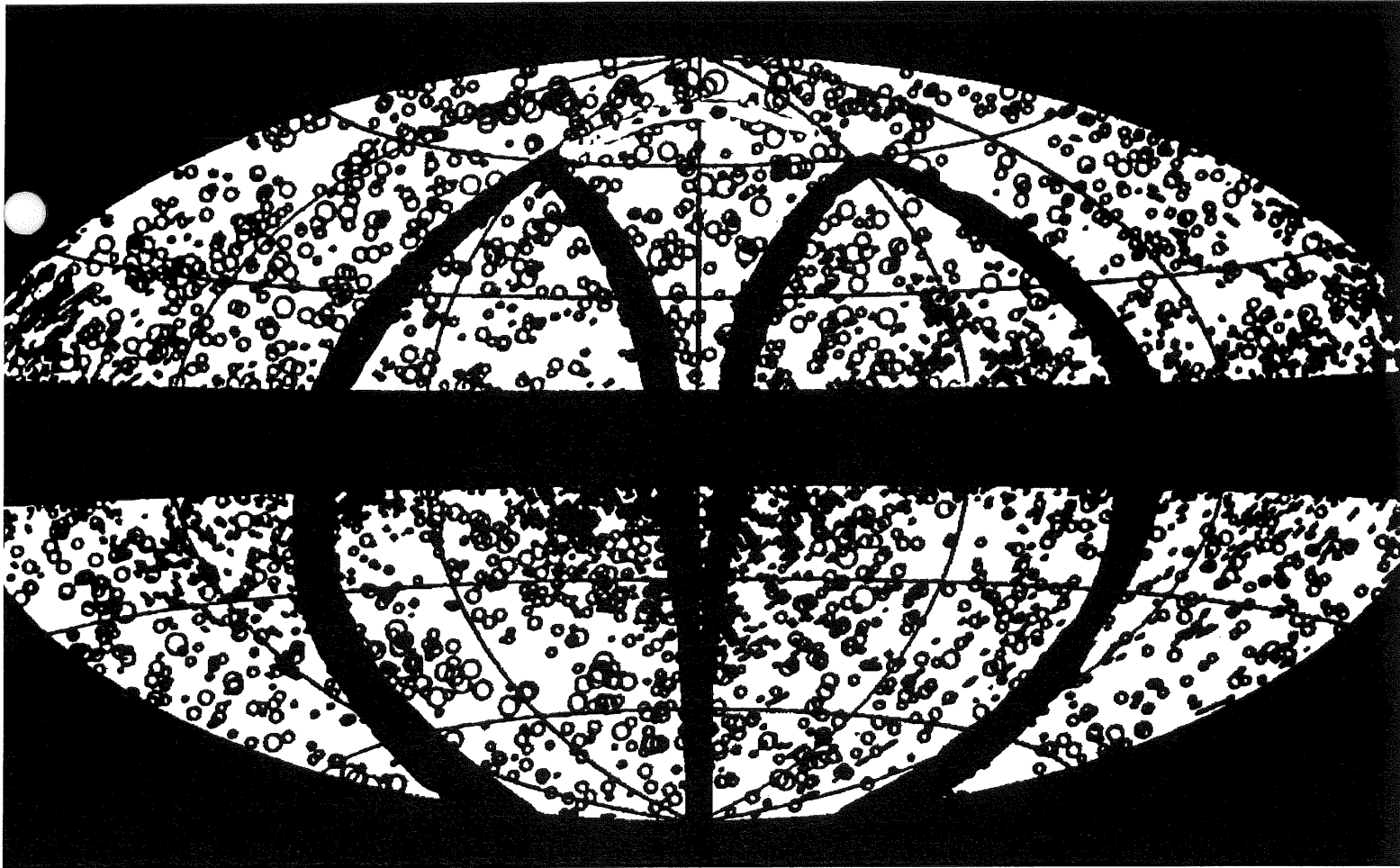


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# THE DAVID DUNLAP DOINGS

Vol. 24, No. 3

May 31, 1991



OVER 78 BILLION (OB)SERVED  
(From Don MacRae)

## COMINGS AND GOINGS

Bob Garrison attended the Sanduleak Memorial Colloquium "Objective Prism and Other Surveys" held at Wesleyan University in Middletown Connecticut, 8-11 May 1991. He gave a paper entitled "The Spectral Evolution of Sanduleak -69°202 and the Value of Surveys." He reports that the meeting was well attended by Nick's former colleagues and friends. It was a fitting memorial to a hard-working, creative individual, whose contributions have had a great impact on understanding the structure of our Milky Way Galaxy and the Magellanic Clouds.

John Percy presided over the 1991 spring meeting of the AAVSO in Charlestown, RI, May 9-11, and presented a paper (with Jorge Ralli) on "The Use of Visual Observations in the Study of Small-Amplitude Red Variables." John also visited St Louis University, March 19-20, as Harlow Shapley Visiting Lecturer, and attended the 12th IAPPP/Fairborn symposium in Las Vegas, NV, March 1-2, where he presented a paper on "Scientific Results from the AAVSO Photoelectric Photometry Program."

Marlene Cummins was in Washington D.C. January 22-25 for meetings of the Special Libraries Association as part of her duties as Chair of the Physics-Astronomy-Math Division.

### SUMMER STUDENTS

The following are students working as assistants to faculty this summer:

Steven Ferance  
 Paul Finney  
 Derek Lewsey  
 Li Sen  
 Charles Shepherd  
 Eric Tittley  
 Ian Walker

## CONGRATULATIONS

To Mike (Jewison) and Diane Bewick on the birth of Amelia Ruthann Bewick Jewison on April 23, 1991 at 11:38pm weighing 8 lbs, 12 ounces.

To Ray Carlberg on his promotion to full professor, and to Howard Yee on his being awarded tenure and promotion to associate professor.

To Helen Hogg on her very successful operation for eye cataracts. Helen writes "The operation is a MIRACLE! On the way back from the Doctor's office I could see the landscape, leaves on trees, distant houses, etc, as I have not seen them for some years."

Also to Helen on the publication by Copp Clark Pitman of "Helen Sawyer Hogg: A Lifetime of Stargazing" by Michael Webb. Senior members of the DDO staff were on hand April 4 at the publisher's party for the book's introduction. It is part of a Canadian science reading series chronicling the lives and works of Canadian and International scientists, and designed to stimulate the minds of inquisitive youth.

## REVISIONIST'S CORNER

The final exams have produced the usual crop of howlers:

Evidence in favour of the Big Bang Theory is the distinction of the dinosaurs.

\* \* \*

Friedmann believed in the Raisin Bran analogy for the universe.

\* \* \*

Olbers' Paradox states that if the Milky Way is an infinite solar system....

\* \* \*

The tropical year is longer than the eclipse year because days are longer in the tropics.

\* \* \*

Every observatory is round and has spiral staircases. That is why astronomers go everywhere in single file with their elbows tucked in, which is quite comfortable except in bed sometimes.

\* \* \*

And then there was the Chief Presiding Officer at one final exam who greeted the arriving examiners with "You guys here for Astrology 120?"

## THE WAY WE WERE....

This issue of the Doings introduces a new iniquitous corner: The Way We Were. As past students will remember to their regret, near the start of each academic year the department used to post a sheet of current graduate student portraits so that faces could be attached to names. (This procedure, very fortunately, never extended to faculty.) Happily, several of these mug sheets from about twenty years ago have fallen into your editor's hands, and we are proposing to reproduce from time to time a shot of "the way we were." First off is Charles Dyer as he appeared on the 1970 mug sheet, looking a trifle different from the present professor and associate chairman of the Physical Sciences Division of Scarborough College.



## LETTERS

Dear Don,

To aid DDD's reputation for fearlessly bringing the latest news I should like to announce that as of today, 20 May, the construction of telescopes (VATT and SMT) on Mt. Graham has begun after the winter break. Yes, the snow has just melted enough to begin (and I had thought that the Toronto winters were long, eh!) and Judge Marquez has for the moment lifted an injunction against construction - a happy coincidence of events.

With hopes for clear skies and happy red squirrels -

Your Arizona correspondent,  
Chris Corbally

Dear Don:

I have been offered and have accepted a two-year postdoc appointment at Los Alamos National Laboratory to begin some time in the Fall. I will be venturing into the world of massively parallel computing with the aid of the teraflop Connection Machine they will be receiving shortly at Los Alamos.

Best wishes,  
Peter Leonard

p.s. In case you don't know, I'm finishing up a two-year NSERC postdoctoral fellowship at UBC.

Hi Dr Fernie,

I hope all is well with you. This is Cathy Westbury (M.Sc. 1986) writing, with a bit of news for the DDO Doings. I defended my PhD thesis, on turbulent cooling flows in galaxies and clusters, in November at Queen's Univ. I've been living in Newport News, Virginia, for the last year and a half, while my husband works for the Continuous Electron Beam Accelerator Facility. We're moving to Long Island at the end of April (new email address to follow soon).

That's it for now!

Thanks,  
Cathy Westbury  
bitnet: Boucher@cebafvax

### LIBRARY NEWS

The library was pleased to receive a gift from J.E. Kennedy of Saskatoon recently. The Catalogue of 7385 Stars ... by W. Richardson 1835 is a valuable addition to our collection.

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- Bietenholz, M.F.; Kronberg, P.P.; Hogg, D.E.; Wilson, A.S., *The expansion of the Crab Nebula* U Maryland/University of Toronto, 91-0342 9-Apr-1991.
- Ellingson, E.; Green, R.F.; Yee, H.K.C., *Clusters of galaxies associated with quasars, II. Galaxy cluster dynamics* Dominion Astrophysical Observatory, 91-0413 7-May-1991.
- Fernie, J.D., *R CrB and delta CrB in 1990* David Dunlap Observatory, University of Toronto, 91-0473 22-May-1991.
- Nadeau, D.; Yee, H.K.C.; et al., *Infrared and visible photometry of the gravitational lens system 2237+030* Obs. Mont Megantic, 91-0418 8-May-1991 .
- Rawlings, S.; Eales, S.; Lacy, M., *Near-IR spectrophotometry of eight 3CR radiogalaxies: the first detections of [OIII]500.7 and [SIII]953.2 emission lines in galaxies with z<sub>j</sub>1* Cambridge U/University of Toronto, 91-0435 14-May-1991.
- Seaquist, E.R.; Odegard, N., *A synchrotron halo around M82* David Dunlap Observatory, University of Toronto, 91-0325 4-Apr-1991.
- Seaquist, E.R., *A lower limit on the distance to the young planetary nebula Vy 2-2 by expansion parallax* David Dunlap Observatory, University of Toronto, 91-0327 4-Apr-1991.

Seaquist, E.R., *Summary lecture: workshop on the interpretation of modern synthesis observations of spiral galaxies* David Dunlap Observatory, University of Toronto, 91-0326 4-Apr-1991.

Shore, Steven N.; Bolton, C.T.; et al., *First results from the GHRIS: low-velocity narrow absorption components in the ultraviolet resonance lines of the O7.5 III star xi Persei* GSFC/ David Dunlap Observatory, University of Toronto, 91-0379 17-Apr-1991.