

THE ^{DAVID} DUNLAP DOINGS

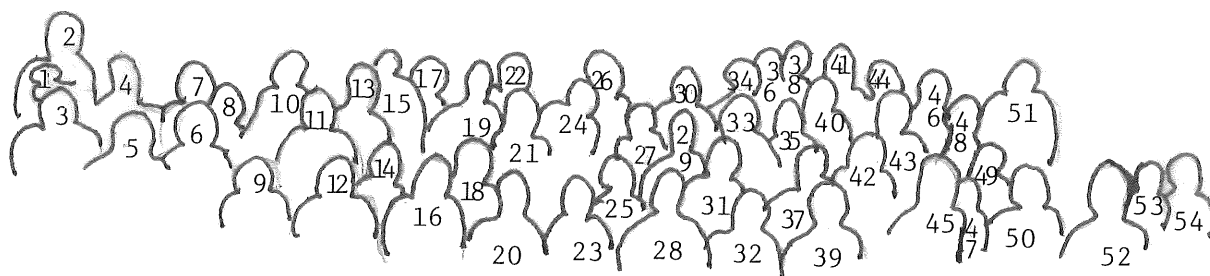
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Photo by Karl Kamper

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CONGRATULATIONS

To Louis Noreau and Guillème Pérodeau who were married on December 28th in an 18th century church (rather new for Quebec). Some of the bride's relatives from France were in attendance. Louis described himself as completely calm during the ceremony (hard to believe, but that's what he told me).

To Lee Oattes on successfully defending his Ph.D. thesis on January 28th. Lee is now working at the University of Toronto Computing Services for the Communications and Technical Services Division.

To Deby and Rick Crowe on the birth of their daughter Ginger Catherine just hours before the end of 1987 (in Hilo). She weighed 8 lbs, 13 oz, and was 20.5 inches long. Mother and daughter are fine, and in fact, came home from Hilo Hospital on New Year's Day at 11 a.m. Rick was present for the delivery and is still on cloud nine.

Stop the presses: Congratulations to Doug Welch, who has just accepted a URF at McMaster University.

COMINGS AND GOINGS

Dale Frail was busy "commuting" back and forth between Arecibo, Puerto Rico and Socorro, New Mexico. Oh, the life of the jet-set astronomer!

Bob Hill observed with the 24" in Chile from Oct.6-Oct.29, using the CCD.

Brian Glendenning had a run on the KPNO #1 0.9m telescope Jan 11-14. He was looking at NGC 2146 (peculiar starburst galaxy) in UBVR_I and narrowband ($H\alpha$, $H\beta$, and [SII]).

Estelle Campbell, who has been working in the department as a research assistant to Marshall McCall and John Percy, has left to take a position at the Stellar Data Centre in Strasbourg, France.

Doug Gies, Richard Gray and Chris Stagg were all in the department for brief times over the holiday, visiting from their respective institutions (U. Texas, U. Copenhagen and U. Manchester, respectively).

In December, Phil Kronberg briefly renewed acquaintance with the English ways of life on the occasion of the JCMT board meeting at the Rutherford Appleton Laboratory. He also spent a few days at the Institute of Astronomy in Cambridge, and visited the JCMT instrumentation group in the Cavendish Laboratory.

Phil Kronberg gave an invited talk on "The Future of VLBI" at an "Anniversary Symposium" on Dec. 22nd '87 organized by the Herzberg Institute of Astrophysics. The one-day symposium was an occasion to celebrate Grote Reber's 80th birthday, and his role as one of the key founders of radio astronomy. It was also the 20th anniversary of the world's first successful trans-continental VLBI experiment by a consortium of scientists from the U of T., NRC, Queen's University and the Dominion Radio Astrophysical Observatory, in which Allen Yen and Herb Gush (then at U of T) played a key and pioneering role. Don MacRae also attended. Allen Yen, one of the key speakers, was unfortunately prevented by illness from attending.

People from the department that attended the AAS meeting in Austin: Tom Bolton, Bob Garrison, Alex Fullerton, Mike Fieldus, Peter Leonard, former graduates Richard Gray, Doug Gies, Mercedes Richards, Tom Barnes, former URF Martin Duncan, and Kim Venn (former undergraduate, now at UofT/Austin).

On 13 November, Bob Garrison attended the annual banquet of the Ottawa Centre of the RASC, and gave an after-dinner speech on the topic of the Supernova. On 9-10 December, as Shapley Visiting Lecturer (sponsored by the AAS) at the State University of New York at Fredonia, he gave a public lecture on Supernova Shelton, in addition to two classes on Galactic Structure. On 28 January, Bob gave a talk to the Later Life Learning class at Innis College.

POTPOURRI

The Royal Astronomical Society of Canada will have a joint meeting with the Royal Canadian Institute on Sunday, March 13 at 3:00 p.m. in the Medical Sciences Auditorium, with Richard Bond speaking on "The Dark Matter of the Big Bang", and a regular meeting on Friday, February 26 at 8:15 p.m. (McLaughlin Planetarium), with Bill Clarke speaking on "The Herschels: Father, Sister and Son". The RASC meetings are open to the public, though they are not widely advertised. Dick and Bill are the latest of UofT astronomers to speak to the RASC (actually Bill is usually on time). Marshall McCall and Chris Rogers delivered lectures in November on "Supernovae" and "The Birth of Stars", respectively. The RASC is much indebted to members of the department willing to speak.

Phil Kronberg served as a member of the President's committee to examine the role of the U of T Innovations Foundation. The Committee was chaired by Prof. Barry French, and completed its report last autumn. Phil has joined a new "Research Structures" committee of the Research Board. He has also been appointed as Vice-Chairman of a newly established NRC Review Committee for the NRC Division of Physics.

Nancy Evans has just received a grant from the AAS Small Research Grant Proposal. This is to cover the expenses (observing trips, page charges, trip to present results) for the IUE project she is proposing (with Don Fernie) on the supergiant plus Cepheid (?) eclipsing system BM Cas. Stefan Mochnacki is also obtaining schectograph data of the system.

From Our Far-Flung Graduates

Hello there. Four busy months have gone by since we moved to Charlottesville and we are enjoying the town and the beautiful mountains nearby. Life in the Department of Astronomy at University of Virginia is hectic because there are four colloquia/seminars every week. My BITNET address is MTR8R@VIRGINIA if you ever need to send me a message.

Chandra has grown up to be a beautiful baby. She is taller than 90babies in her age group, and consequently, she is heavier than 75

Mercedes Richards

Supernova Relatives

by John Dubinski

Supernova 1987A, discovered by Ian Shelton back in late February '87, went down in history as the first supernova in the galactic neighbourhood in 4 centuries. At the time of the discovery, I was as stupified as the next person through the realization of the rarity and profound significance of the event, though not nearly as much as Ian who I believe is only now emerging from a state of supernova catatonia. Strangely, a bizarre personal discovery relating directly to the SN 1987A's discovery was to occur almost a year later, in fact over the Xmas holidays. As a direct consequence of the supernova, an event which ocured in another galaxy when man was a grunting ape (man was so primitive at this time that the word for supernova was "ugh"), I, John Dubinski, have discovered a long lost cousin. I have discovered an entire branch of my genealogical heritage through the death throes of massive blue giant star. I have discovered a person who carries common strands of DNA and chromosomes because a star decided to say bye-bye (sorry for the dramatics). Who is this elusive distant relation? Ian Shelton! Yes! A Xmas card received from a first cousin twiced removed who lives in Winnipeg (the home of Ian) revealed the secret that would baffle any sane person. According to this letter, Ian Shelton's maternal grandmother, an immigrant from the Ukraine (i.e. the old country - spoken with a slavic accent, ask Slavek or Dimitar for the correct pronunciation), is a distant relative of my great grandmother Anna Dubinski (nee Cholodnuk). This means Ian and I are closely related in the sense that the LMC is close to the Milky Way (cough cough). Nonetheless, we are blood relatives even though we are nth cousins where $n > 5!$

I think its fair to say that I can take partial credit for the discovery myself (lots of throat clearing followed by 5 coughs). When Ian's grandmother arrived in Canada in the '20's sometime (I think) my great-great uncle Dan (Anna's brother) supported her initially. It was common at the time as it is today to support relatives immigrating to Canada from the old country. (That's one bonus point for my family). I also learned that great great uncle Dan and his wife arranged the marriage of Ian's maternal grandparents. From their loins came Ian two generations later (another bonus point). In fact, my cousin twice removed in Winnipeg was actually a childhood friend of Ian's mother (half a bonus point). Our common ancestors (something like my great-great-great-great grandparents) were probably peasants, eking out a miserable existence farming the feudal lands of Western Ukraine 150 years ago. Seven generations later their descendants would meet again because a star in a distant galaxy decided to explode 150 *thousand* years ago.

What's the probability of all this (uh - oh)? First there are about a billion people in the western world who are possibly (probably) related to me. Of these billion, I estimate that about 10,000 are related to me at least as closely as fifth cousin (Ian's approximate relation to me) so there is a 1 and 100,000 chance that a random person is this closely related. Only professional or amateur astronomers would discover or recognize a supernova and I estimate that in the western world there only about 100,000 of these creatures or 1 in 10,000. Only one of the 100,000 will discover the supernova and there is only a 1 in 2 probability that a supernova will happen in my life. Ian had to discover the supernova for me to learn of our relationship and the probability of this is just the product of the above chances which gives about 1 in $10^{14}!$ That's like winning Loto 649 two times in a row. Maybe you should buy a ticket.

(Next issue: How I am a direct descendant of Johannes Kepler and Genghis Khan)

Brief Supernova Update

by Bob Garrison

The light from the supernova is being monitored frequently by John Filhaber, our Resident Observer at Las Campanas. On most clear nights, UBVRI measurements are carried out, and spectra (120 Å/mm) are taken periodically. Once every week or so, an attempt is made to discover pulses from the neutron star remnant, using the Kristian-Pennypacker-Middleditch "pulsator", the only system in the Southern Hemisphere capable of detecting microsecond pulses. No luck so far, but John will keep trying.

The brightness on 30 January was $V=6.79$, so it is continuing to decrease at a rate of less than one percent per day. The blue-violet spectrum shows more emission than previously, but has not changed dramatically.

The most exciting news in the past few months has been the discovery by satellites of x-ray and gamma-ray radiation from the supernova. Emission lines of Cobalt 56 have been discovered, nicely confirming theoretical expectations.

COMPUTER IMPROVEMENTS

by Stefan Mochnacki

We recently have made significant improvements to the computing environment at both the Observatory and the Department. While the radio and relativity groups last year acquired Sun 3 computers, the rest of the Department remains committed to using the facilities of the Physics/Astronomy "VAX" Consortium and the University's central systems. However, the following has happened in the past couple of months:

* A number of faculty members have jointly purchased a Sun 3/110 colour workstation for optical image processing. Initially this machine is being used as a diskless node, with the "VAX" Consortium's Sun 4 acting as the server via Ethernet. The 3/110 has 16 Megabytes of memory installed, and we intend to attach a large disk drive to it in a few months. It resides beside the old IIS system in Room 1405. The Kitt Peak IRAF data processing environment is being installed for this machine.

* A new Gandalf Switch-MUX has been installed to link DDO and DA. This system has 16 channels on each of two units, one at DDO and the other at DA. We no longer have to make several trips a day to the switchboard to change patchcords over. In the future we may add more SMUX units at DA to allow more efficient contention for serial computer ports.

* We have purchased three Atari 1040ST microcomputers thanks to a special grant. These are mainly for student use for emulating VT100 and Tektronix terminals. We are presently using the ST640 terminal emulator software developed at TRIUMF in Vancouver, but would be very interested in SLIP & TCP/IP software allowing multiple-window sessions on Suns using the Ataris.

KEEPING UP WITH THE LITERATURE

by Don Fernie

Ages ago I occasionally used to haul a ruler out of my desk drawer and measure how many inches on my bookshelf the *Astrophysical Journal* had grown that year. It was all beautifully exponential, but I lost interest after the shelving gave way. I see, though, that 1988 is off to a flying start with 3.3 kilograms of *ApJ* (or 1300+ pages) for January alone, not even counting the *Supplement*.

Still, it seems we have it easy compared to our medical colleagues. The October 1987 issue of the *Hewlett-Packard Journal* reports that over 600,000 articles are published in the biomedical literature each year, which implies that "If physicians were to attempt to keep up with the literature by reading two articles per day, in one year they would be more than 820 years behind. If they were to read everything of biomedical relevance, they would need to read 1640 articles each day."

No wonder my doctor sticks with his trusty "take two aspirins and call me in the morning".

These statistics, incidentally, are in the introduction of an interesting article describing a whole new approach to medical education being tried out at Harvard, in which the book-learning aspects are done with electronic information technology, using software written in a medical language called MUMPS. A welcome innovation for first-year medical students, it seems, whose vocabulary has to double in that first year alone. Perhaps, though, it will now have to triple as the students acquire both medical and computer jargon.

THE UNDERGRADUATE INTENSIFIED CCD

by Stefan Mochnacki

We have just finished upgrading our Fairchild CCD 4000 camera to an I-CCD. It now sports a VARO "3rd Generation" proximity-focussed microchannel plate intensifier and thermo-electric cooling. A PC clone with a Matrox PIP-512 frame grabber is used for data acquisition. Frames of 256 x 240 pixels are obtained with integration times of typically a few seconds, a large number being co-added to produce a deep exposure.

It is mounted at the 24-inch telescope's Nasmyth focus and AST 425 student Dave Kreindler is eagerly awaiting a clear night to test it. It will soon be used on the 8-inch refractor at DA.

GASA GOSSIP

by Mike Fieldus

It has been quite a long time since the last issue, and I expected to have much to tell you about the carrying on of the department in general, and the graduate students in particular. I am not sure why I expected a normally dull and lifeless group of people to be suddenly exciting, or at best interesting, just because of a large time interval, but I always have been somewhat of an optimist. As I don't want to disappoint anyone, however, I will try and tell one or two stories that may prove to be acceptable.

Over the Christmas holidays I gained quite a bit of respect for tenured faculty in this department. On College Street, there are two Chinese restaurants side by side (only two you ask?), one of which we graduate students eat at quite often. One day, just before Christmas, a group of us, feeling very daring and pretentious, decided to eat at the other restaurant, which I had been informed was one of the traditional eating places of our faculty. As restaurant go, it was reasonably unimpressive, but as the day wore on I discovered why most of our professors have such foul dispositions during the afternoon. My lunch time adventure into the real world was followed by two days on the toilet. Anyone who endures that sort of an experience on a regular basis certainly has my respect, although it is a bewildered respect.

Laura says to tell you that at least one of the women in the department is pregnant.

I received a letter from Dave Woods, one of the undergraduate class of '86, who is now at UBC. He didn't have too much to say, except that he thought I should do a column on what his class is doing now. To quote him exactly, "The class of '86 demands equal time". Well Dave, I promise if you ever do anything interesting, I'll write about it.

If anyone didn't guess that I was talking about Dan as the mystery student in my last column, I'll give you one more clue. Whoever it was (Dan) would have been able to play on our volleyball team, but we didn't want to play short handed. This week's mystery student is a real mystery. This person spends almost no time at the department (most of the new students have yet to see him), but maintains one of the most imposing presence of any of us. This situation is only tolerable because we haven't had to endure a G2000 from him in 2 years. (That point rules out Alex, who has to give a G2000 talk this term despite trying to finish off his thesis and get a job. And who said all grad students were equal in the eyes of the rule making committee?)

To anyone at Brian Glendenning's last poker night, the mystery disease has not yet been identified, but the infection rate is holding steady at about 93%. To those who weren't at Brian's poker party, perhaps I should explain myself. About once a month, Brian has most of us over to his apartment to play some poker, drink some beer, and generally pretend we are normal people (I remind you this is only once a month). This last time things went as well as could be expected, with Brian taking everybody's loonies as usual, except the next morning just about everybody who was there was very ill with some sort of stomach flu. Poor Bob Hill was so sick he couldn't even make it into the department on Monday to do his presentation for the Galaxies course, although he was the only one feeling sick that day (coincidence?). Even Judith was sick the next morning, and she wasn't even at the party. Food poisoning was quickly ruled out, as one of us who has already been shown not to possess a cast iron stomach (me) ate quite a bit of every type of food there (so I hadn't had dinner, okay?), and wasn't feeling the least bit poorly the next day. I guess the experience just shows what a close knit department we are (sure).

On a completely different note, I am pleased to announce that KT is going to get married. Over the Christmas holidays he travelled back to Korea for the first time in seven years, (seven year itch?) only to discover that his younger brothers are very displeased with the fact that they cannot marry until the eldest son has taken a bride. After much family discussion, the decision was made and the date set, and all KT has to do now is find a willing participant. Of course everyone in the department wishes KT and whomever he chooses/convince to marry him the best of luck.

I would like to say hello to Jan, Jim Picha's girlfriend. Jim and Jan have been going out together for, at our best guess, at least three months now, but nobody in the department has every met her. Other than one or two mysterious phone calls, and Jim's general reluctance to do anything fun anymore, we have no proof that Jan actually exists. Of course, we have all heard of people cracking under the pressure before, and a pretend friend is an eccentricity that hardly merits mention in this department.

Finally, our Bulgarian connection in the department, Dimitre, has finally joined the modern age. Last week he took the plunge and bought one of the computers that Raymond, the second hand computer dealer, was offering. "The Steamer, mark II", as it has been named (after his bike, The Steamer, mark I) is to computing at U of T what the pony express was to mail delivery (old, outdated, but possibly more efficient). I didn't realize that wood burning computers still existed, but with his innate Bulgarian mentality that says second hand is too new, Dim has added to our computer arsenal a machine that could put stellar atmosphere calculations back onto hand calculators. By choice.

INAOE, TONANTZINTLA, MEXICO

by Bob Garrison

There is now in Mexico a copy of the DDO/Las Campanas classification spectrograph. It will be located on the 80-cm (32-inch) telescope at the Mexican National Observatory in the San Pedro Martir Mountains of Baja California. The observatory is nearly the same latitude north of the equator as Las Campanas is south. The site is dark and clear, though not quite as good as Chile. That gives us dark-sky coverage of both hemispheres down to 11th magnitude (120 A/mm). There are more than a million stars within that range, which should provide research materials for many years to come.

Dave Blyth finished the spectrograph in August and Brian Beattie tested it at DDO during September and October. We sent it to Mexico City at the beginning of November. The 1-meter telescope of the Mexico City group (UNAM Instituto de Astronomia) is in Tonantzintla (near Puebla, about 2 hours southeast of Mexico City). Since Armando Arellano-Ferro is spending this year in Tonantzintla, at INAOE (Instituto Nacioanal de Astrofisica, Optica, and Electronica), we moved it there temporarily to give potential users some experience with it before shipping it to Baja in March.

I went down to Tonantzintla for the last two weeks of November to install the spectrograph and to give a mini-course in spectral classification to 17 students (and a few faculty) from Mexico City and Tonantzintla. It was a very busy time! The mini-course consisted of 6 three-hour lectures, starting Friday, going through the weekend, and continuing through Wednesday. In addition, we were trying to install the spectrograph and test it during the evenings. That didn't leave much time for sightseeing, but Armando managed to show me most of the important churches in the area.

The teaching experience was a good one. The students were bright and eager to learn about stellar spectra (even the cosmology students, who seem to realize that galaxies are made up of stars!). I doubt that I have met a more enthusiastic group of students, many of whom drove 2 hours from Mexico City to attend the lectures. They bode well for the future of astronomy in Mexico.

I had several discussions with faculty at the University and at INAOE. They are interested in establishing more contact with Canadian astronomers. If anybody here is interested in spending time in Mexico at either the University of Mexico (Mexico City) or INAOE (Tonantzintla), I'm sure that they would be very happy to arrange a visiting professorship, even for a week or two. Contact Armando or me to initiate something.

Mexico does not have a PhD program and would like to send some of their best students to Toronto. I pointed out that the barriers to having Mexican students in Toronto were the airfare and the differential tuition. They seemed to be willing to set up government grants to pay both the airfare and the differential fee if we could provide support for Mexican students at the same level as for Canadians. It is worth considering because their best students are good enough to do well. If you have any opinion about this (pro or con), let me know.

PAPERS SUBMITTED

PREPRINTS BY FACULTY AND STUDENTS RECEIVED IN THE ASTRONOMY LIBRARY

Corbally, Christopher J. and Robert F. Garrison. A search for early-G dwarf stars towards the north galactic pole. 87.11.13.

Corbally, Christopher J. and Robert F. Garrison. A search for early-G dwarf stars towards the south galactic pole. 87.11.13.

Evans, Nancy Ramage. A search for the spectroscopic companion of Polaris. 88.1.29.

Garcia, M.R., E.R. Seaquist et al. Simultaneous X-ray and radio observations of GX13+1. (CfA). 88.1.4.

Garrison, R.F. IAU 1988 Commission 45 reports. Stellar classification stellaire. 87.11.18.

Gray, R.O. The spectral classification of the lambda Bootis stars. 87.10.30.

Kronberg, P.P. The starburst galaxy M82. 87.10.26.

Pudritz, Ralph E. and R.G. Carlberg. N-body simulations of a magnetized gas cloud. (McMaster preprint) 87.12.14.

Richards, M.T., S.W. Mochnacki and C.T. Bolton. Non-simultaneous multicolor light curve analysis of Algol (beta Persei). 87.12.21.

Rucinski, S.M. and E.R. Seaquist. VLA observations of the contact binary VW Cep. 87.10.23.

Rucinski, S.M. Rotational properties of composite polytrope models. 87.11.27.

Rucinski, S.M. UBVRI observations of the chromospherically active star HD 155555 (V824 Ara) in 1986 and 1987. 88.1.26.

Rucinski, S.M. TW Hya: a T Tauri star far from any dark cloud UBVRI observations in 1986 and 1987. 88.1.26.

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, 1988, at the David Dunlap Observatory, for orientation and experience in observational techniques, electronics, and photography. Residence in Chile to begin about 1 July, 1988.
- Duration:** Through August 1989, 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 are not encouraged to apply, 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 (one at Christmas).
- 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
or 978-4833
- Deadline:** 14 March 1988. (An interview will be required for those on the short list and the announcement will be made shortly thereafter - in early April.)