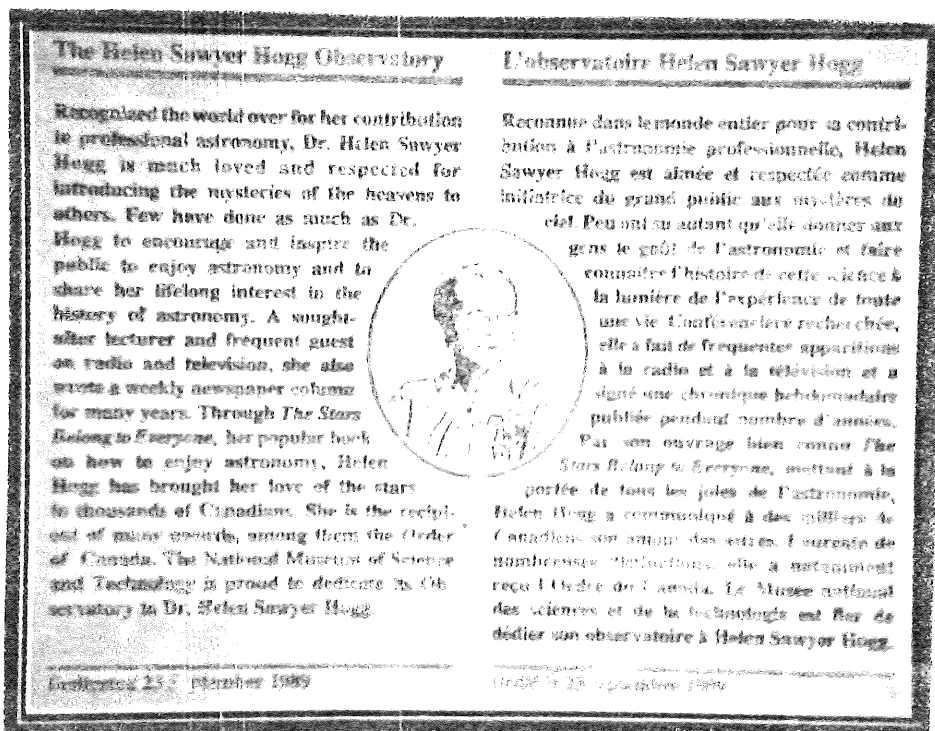


# THE <sup>DAVID</sup> DUNLAP DOINGS

Vol. 22, No. 5 September 29, 1989



A charcoal rubbing of the plaque at the newly dedicated Helen Sawyer Hogg Observatory. See the report from Tom Bolton.

## EDITORIAL

The front page of the David Dunlap Doings for April 25, 1978 carried an editorial written by me titled New Editors. I quote from it:

“I am happy to be able to report that it took hardly a wave of the editorial baseball bat to find not merely one, but two, new editors for the DDD. After next month Don MacRae will become Chief Editor and Bob McLaren Assistant Editor.... True, there was some slight grumbling about was this to be the fate of all ex-Directors, but the answer to that is a firm No! – not if they have already served time as DDD editor!”

Alas and alack. The chickens have come home to roost. Chalk one up for the third ex-Director in a row to be chained to the editorial desk – previous service notwithstanding. So here we are again. To be honest, I rather enjoyed being editor all those years ago; may it be so again! Times, of course, have changed. Then it was all done on paper. Now the multiple contributions (both of them) to the Doings tend to arrive by electronic mail, and where once one took the old blood-encrusted baseball bat office to office to solicit further contributions, one now merely threatens an electronic virus in the computer should there be failure to comply. Furthermore, the first issues of the Doings were typewritten and reproduced with spirit Ditto machines, the print practically fading before your eyes as you read, but now, after Brian Beattie has worked his T<sub>E</sub>X wonders on the editor’s word-processor output, it all comes rolling off the laser printer.

The first issue of the Doings appeared on January 31, 1968, and I’m happy to say I have a complete set of the Doings going back to that time. Why I kept them all I really don’t know. Perhaps a sense of history, because one thing I know now I didn’t know when I was last editor is that there is very little by way of the written history of our department. More so than ever now that so much of our intercourse (the wider sense, please) is conducted electronically and vanishes with the tap of a finger. Certainly the record of the Doings is unique, detailing the passage of time in a way to be found nowhere else, and I intend reinstating the Ten Years Ago and Twenty Years Ago columns to remind us all (but particularly our past participants) of who was around doing what when.

Jack Heard, the first editor of the Doings, took great pride in producing each issue on time. They came out monthly and were not merely dated the last Tuesday of each month but were actually to be found in one’s mailbox on that day, Tuesdays being then the staff meeting/Countdown (= colloquium)/etc day that Wednesdays are now. Since then pressures on an editor’s time have mounted, and Jack’s promptitude has not been continued. I would, however, like to try for a return. A monthly issue of the Doings is probably no longer feasible or necessary, so the plan is to have bimonthly issues starting at the end of September and skipping July, and I will make every effort to see they appear as scheduled. Finally, I see I have inherited a mailing list of some 126 outside readers. That’s several times the internal readership and largely comprises past students and staff. The Doings is a good way to keep in touch; won’t you occasionally let us know where you are and what you’re doing?

Don Fernie

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DEDICATION OF THE HELEN SAWYER HOGG OBSERVATORY  
Tom Bolton

The Helen Sawyer Hogg Observatory on the grounds of the National Museum of Science and Technology in Ottawa was formally dedicated Saturday evening, September 23. Approximately 200 guests attended the ceremonies and braved cold, blustery winds in the wake of tropical depression Hugo to watch Dr. Hogg unveil the brass plaque which is affixed to a large boulder just outside the observatory, which houses the 15-inch refractor from the old Dominion Observatory.

As guests entered the Museum for the formal ceremonies, they were greeted by a 4x4 wall of TV's showing a continuous video about Dr. Hogg and the Observatory to be named in her honor. The video was arranged so that at times there were 16 identical images and other times a single image was spread over all 16 TV's. The effect is quite striking, the more so because the video includes some outstanding images of Helen in various settings.

Mary Grey, the Museum's Senior Curator for Physical Sciences and immediate Past President of the Royal Astronomical Society of Canada, was Master (Mistress?) of Ceremonies for the dedication. Dr. Genevieve St. Marie, the Museum Director, opened the ceremonies with a short review of Dr. Hogg's professional accomplishments and contributions to astronomy and public education. She touched on some of the special difficulties Dr. Hogg had had to overcome as a woman astronomer.

The next speaker was University of Toronto Vice-Provost Dr. A. H. Melcher, who brought greetings from President George Connell, who was unable to be present because he was about to leave on a fund-raising trip to the Orient. Dr. Melcher spoke of the pride that the University has in having someone like Dr. Hogg associated with it and described her as not only a role model for women astronomers but also "a role model for other role models".

I was fortunate to represent the Observatory on this happy occasion, since Ernie could not attend because he was scheduled to observe at Kitt Peak. I spoke about Dr. Hogg's energy, intellectual curiosity and openness to new ideas. Her zest for life is a good example for us all. My fondest memory of Dr. Hogg is the happiness she shared with her late husband, Dr. F. E. L. Priestly. The final speaker was Mr. Doug George of the Ottawa Centre of the RASC who reviewed Dr. Hogg's contributions to the RASC and public education, noting especially the annual Hogg lecture and her long term as the astronomy columnist for the Toronto Star.

Following the speeches, the museum presented Dr. Hogg's family with a first edition copy of her book *The Stars Belong to Everyone*. Her great grand-daughter, Allison MacDonald, accepted the book on behalf of the family along with a bouquet of flowers to present to her great grandmother. The Museum then presented Dr. Hogg with a framed rubbing of the brass plaque mounted outside the Observatory.

Following the speeches and presentations, everyone donned their coats and trooped outside to the Observatory for the unveiling of the plaque, which was appropriately covered with a star map. The Museum had hoped to open the Observatory for viewing after the ceremonies, but since the skies were mostly cloudy and a strong wind was blowing, we were all happy to return to the Museum as quickly as possible.

The formal ceremonies were followed by an informal reception. During the reception, the Museum showed several short films in their auditorium. These covered subjects ranging from the history of Canadian astronomy in the early Twentieth Century to the news conference following the Voyager Neptune encounter which were truly fitting for the dedication of the Helen Sawyer Hogg Observatory.

Many of Dr. Hogg's family were present for the dedication. Many present and former staff members of the Herzberg Institute of Astrophysics attended, and representatives were present from the Ottawa, Montreal, Toronto, and Saskatoon centres of the RASC. My wife, Susan, was the official representative of the Toronto Centre council, and Dieter Brueckner and Judith Irwin (recent U. of T. Ph.D.) were also in attendance. I'm sure that all who were present would agree that the Museum is to be congratulated not only on their decision to name the Observatory after Dr. Hogg but also in organizing the dedication ceremony with just the right level of formality to allow us to pay our respects to Dr. Hogg and enough informality so that everyone could have a good time.

## LETTERS

Dear Phil:

I GOT THE JOB: an assistant professor at the Chung-Nam National University Department of Astronomy and Space Science. I am the first prof in the department and will work there from 21st August 1989. I really appreciate your nice help. Please pass this news to Ernie and please let him know that kt thanks for his help as well. I will keep in touch and will write soon.

Regards,

kt [Kim].

Dear Don:

Congratulations on your return to the position of Editor, David Dunlap Doings. I have an item you may want to include in the next issue. On May 15, 1989 at 3:53 pm Art and I became the proud parents of a baby boy. William Alan Campbell (Alan) weighed in at 6 lbs 12 oz. Alan is a very happy baby and has been sleeping through the night since he was 10 weeks old. I'm back at work, where we are trying to have everything ready for the suspected March 1990 launch of Space Telescope. Please give my best to Yvonne and all the people at DDO and DA.

Sincerely,

Dorothy Fraquelli.

## CONDOLENCES

To Ernie Seaquist on the passing of his mother in early August.

To Chris Corbally, who reports from Arizona that he was in a severe car accident near Flagstaff in August, suffering a broken tibia, wrist, finger, nose, and two ribs. Fortunately, he is now recovering well.

## CONGRATULATIONS

The last issue of the Doings unfortunately failed to report that Peter Leonard had won the 1989 CASCA/RASC Plaskett Medal for the most outstanding astronomy doctoral thesis submitted in a Canadian university. Our apologies and congratulations to Peter, who is now a post-doc at UBC. Peter himself reports an error in the name of his new daughter which he submitted to DDD as Ashley instead of Andrea. Clearly there is a bright future as an absent-minded professor here....

## POTPOURRI

*Slavek Rucinski writes: "I have been granted time on one of the Voyager spacecrafts (Voy1) to do an extreme-uv study of the strongly interacting binary SV Cen. I got 6.85 days of the S/C time. The data will be collected sometime in the Spring when big antennae of the NASA Deep Space Network will be available. The cost of using these antennae is actually so high that the stellar work with the Voyagers (or, for that matter, any work) is in jeopardy. I am trying to get time at ESO to do spectroscopic support observations; photometric observations will be attempted from UTSO."*

*Barry and Wendy report that the Space Telescope project on the Distance Scale that they submitted as part of a team effort has been accepted for a three-year funding period. The total funding requested is slightly over \$2,000,000 US and the project itself has been scheduled for 350 hours of unocculted telescope time with the Wide-Field/Planetary Camera plus the equivalent time in the parallel Faint-Object Camera mode.*

## FROM THE DOINGS OF TWENTY YEARS AGO:

The following new graduate students have enrolled in the Department of Astronomy: Peter Chen, Charles Dyer, Gretchen Hagen, David Hanes, Bill Harris, Bob Lake, Barry Madore, Catherine Riordon, and Jacques Vallée.

## FROM THE DOINGS OF TEN YEARS AGO:

First light for the CFHT! The goal our CFHT colleagues set for themselves was to produce the first photograph in time for the Montreal IAU General Assembly. It was late in the night of 6/7 August that the first image was visually observed through the telescope.... The previous 24-hours had been occupied with feverish activities of adjustment, resetting, rebalancing, etc, necessary when the dummy mirror was replaced by the real one. And, even though it was 4.30 am, the historic occasion was celebrated appropriately at the base-camp before everyone went to bed.

## COMINGS AND GOINGS

Steve Eales of the Space Telescope Science Institute has accepted an Assistant Professorship on the Erindale Campus, replacing John Percy for five years. (John has become an Associate Dean and Vice-Principal at Erindale College.) Steve received his PhD from Cambridge in 1985, and was a PDF at the University of Hawaii before going to STScI. He works on galaxies and on observational cosmology, especially at mm and sub-mm wavelengths. He will arrive about January 1.

Lynda (Colbeck) and Bill Weller were back from Chile and stopped by DDO on June 7.

Bill and Vicki (Watt) Sherwood, with daughter Kim and son Rori, were visiting from Germany during the summer, and dropped in for a pleasant evening at DDO on July 8.

Dave and Pat Turner also came by for a visit on August 21.

It is with much regret that we report the resignation of Bob McLaren from our faculty, effective June 30, 1990. When Bob completes his term as Director of the CFHT he will be taking up a position with the University of Hawaii, where we wish him every success. An additional regret is that the U of T Administration has refused us a replacement.

Bob Garrison gave a Sigma Xi lecture on 21 September to the Exxon Research Club in New Jersey. (after establishing that these guys weren't the ones responsible for the oil spill; nevertheless, Bob reports that he did make the point that life on Earth wasn't guaranteed and that the alternative venues were not all that exciting).

Slavek Rucinski attended two conferences over the summer:

1. Low Mass Star Formation and Pre-Main Sequence Objects. Munich 11-13 July 1989, at ESO. Slavek presented a poster paper: "LRS-IRAS spectra of T Tauri stars in the Taurus-Auriga cloud".
2. Sixth Cambridge Workshop on Cool Stars, Stellar Systems and the Sun. Seattle, 11-14 Sept. At this meeting Slavek gave the poster paper "An interesting upper limit to the radio emission of Altair".

In addition, Slavek attended the CASCA meeting and gave 3 poster papers there.

Howard Yee reports on his travels:

1. Attended the ASP annual meeting at Berkeley June 21-23, where he presented an invited review on "The Evolution of Galaxies and Galaxy Clusters Associated with Quasars" for the Hubble Centennial Symposium on the Evolution of the Universe of Galaxies.
2. Visited University of Colorado, Boulder, CO, Aug. 21-28 to work with collaborator John Stocke and his student; and climbed a few peaks in the Colorado Rockies whenever time could be found.
3. Visited Université de Montréal, Sept. 5-7, to work with collaborator Daniel Nadeau on IR images of the gravitational lens 2237+030.
4. Attended the Toulouse Workshop on Gravitational Lenses, Toulouse, France, Sept. 13-15; presented a paper, along with collaborators from Université de Montréal and University of Rochester, on IR imaging and micro-lensing in the lens system 2237+030.

Sandra Scott, a recent graduate of York University, has been hired as the new Telescope Operator at DDO, replacing Andrew Yee who left to take a position at Science North in Sudbury. Sandra has done quite a bit of observing with the telescopes at York, primarily photometry, and was very active with their public programs and with the York campus light pollution problems. During the summers she has worked for Ontario Hydro (we'll have to forgive her for that) using PC's doing database maintenance and graph and report generation.

### NEW GRADUATE STUDENTS

It is pleasure to welcome five new graduate students to the Department at the start of the new academic year. They are:

Paul Hendry from our own Astronomy Specialist Program,  
 Sang Hee Kim from Yonsei University in Korea,  
 Omar Lopez-Cruz from the Instituto Politecnico Nacional, Mexico,  
 Francine Marleau from the University of Ottawa,  
 Dong Ping Tang from Beijing via the Université de Montréal.

We hope your stay with us will be pleasurable as well as profitable.

### GASA Gossip

Mike Fieldus

Ah, September at last. Finally, after a long, hot, damp summer the fall is upon us, and with it the traditions and changes that truly mark the beginning of the new year. The air is crisp (as opposed to the "clean and crisp" used to describe this season by the country dwellers), temperatures and humidity levels have briefly become bearable, before the reverse extreme of dry, frigid air sets in, and the seeing at DDO has begun the long decline to the sub-arc minute values that characterize the winter months. The university is alive again, groaning under the sudden influx of thousands of new students, keen to drink from the cup of knowledge (but a little confused as to where to find it...the Brunswick House seems to be the popular choice). The Astronomy Department, naturally enough, is not exempt from this spring-like rebirth and we have five new graduate students wandering our halls, chosen specially to replace those who promised to be finished and moving on by the end of the summer. Needless to say, nobody has moved on, but at the last GASA meeting the "official" end of the summer was set to December 21st in an attempt to help the poor few trying to met that deadline.

I suppose at this point a review of the summer would be appropriate. It was hot, but not nearly as hot as last year, and long, but not as long as most would have wished. Roughly 3600 pints of beer were consumed, 12000 darts thrown (almost 10000 of which hit the board), 7 baseball games were won (only two by default!), three research papers were written, two department members married off, and countless cpu hours spent playing Hack (this has to be considered one of the most productive summers on record by the grad students in this department, especially from a research point of view). The new policy of fiscal irresponsibility outlined by the current GASA administration was put into effect, much to the surprise of most of the GASA members who actually believed the president when he claimed GASA would pay for anyone who wanted to

go with him to the new Star Trek movie, and last, and least, the summer was made complete by the staff of DDO defeating the students in a game that loosely resembled volleyball during the summer picnic. So, as those of you who have spent summers in Toronto before are now realizing, it was typically uneventful and relaxing. I would love to tell you more about it, but there are three undergrads at my door wondering if the stuff Louis (Noreau) was nattering about in French last class is on the exam, and I have to prepare a G2000 talk, and ....

#### GASA REPRESENTATIVES 1989/90

President:	Mike Fieldus
Treasurer:	Ian Short
GSU Rep. :	Barry Sloan
Desk Person:	Teresa Kroeker
Staff meeting Reps.:	Gang Li and Bob Hill
Sun angles Chief:	Dimitar Sasselov
Union Steward:	TBA

#### NEW RADIO TELESCOPES FOR DDO

Don Fernie

On July 17/18, while chasing a star into the evening twilight with the 19/24-inch twin photometer system, I was stunned to see the count-rate begin rising from the expected few thousand a second up decade by decade until the equipment slowly saturated at around twenty million a second. Early hopes of having discovered the latest supernova were dashed when nothing startling appeared in the sky and when shutting off the high voltage and closing the darkslide left the equipment still madly counting away at full tilt. But close the dome shutters and all subsided. Evidently some monstrous external source of rf noise was upon us. Narrowing the dome shutters and rotating the dome showed the signal to be highly directional, and by seeing how narrow the slit could be made before the signal disappeared it was possible to estimate the frequency to be in the 1 GHz range. (Ernie, with this new manifestation of radio astronomy upon him, was an eager participant.) Plotting the signal direction on a map showed it to point directly down a major runway at Pearson Airport, and we were soon convinced that some new radar or beacon system was zapping us. We began monitoring the Pearson control tower with a shortwave radio to hear when that runway was brought into use, and were mystified when the signal, which mysteriously appeared and disappeared at odd times, failed to correlate with runway usage. After a month of this sort of thing (during which the Federal Department of Communications reluctantly provided help by loaning us some old equipment) we found the answer by accident. Just down the hill from us stand the infamous Tridel condominium towers, and the roof of the one on Observatory Lane, although hidden from DDO by trees, is bristling with cellular telephone antennas, one pointing straight at us. The irregularity of the signal was due to the system still being in the set-up stage. The Cantel people were very pleasant when we called and volunteered to turn off that antenna's transmission late at night for us, but in the end the solution lay in a careful electrical shielding and grounding of everything in the photometer system. Thanks to the efforts of Shen and Frank the interference has been killed completely, and probably the experience was a blessing in disguise, since otherwise we might have missed low-level noise that would have degraded results without



being obvious. Ernie, though, who hadn't realized optical astronomy could be this much fun, still asks with a hopeful gleam in his eye if we're *quite* sure everything's OK.

## THE UTSO CCD CAPER

Bob Garrison

Whew! The UTSO CCD is back in Chile with a new chip and is working very well. A Photometrics PM512 from Ford Aerospace has replaced the original Thompson chip. The old chip was cosmetically quite clean and we were pleased with its performance, but there were some flaws on one side. The new chip is nearly flawless and has less readout noise than any other chip available, which is why we decided to go for it.

However, it wasn't all as easy as it sounds. There is an old saying: "If it ain't broke, don't fix it." Now I understand the reason behind that bit of wisdom.

We shipped the dewar and the electronics back to Tucson on 11 May. It arrived 4 days later. Photometrics was supposed to install the new chip, test it and send it back in time for Madore's run on 26 June. I assumed that they had a tested, class A chip with our name on it. (That was a big MISTAKE).

Photometrics received a shipment of new chips the day the UTSO dewar arrived. It should have taken less than a week to pick out a class A chip and install it. Right? Wrong. All the chips were bad, horrible. It seems that it isn't only photography that is a black art; the manufacture of CCDs requires sorcerers in black hats. Someone had made a slight change in the manufacturing process, but not one that should have made a difference.

A shipment of new Thompson chips arrived soon after that; they too were all bad. (Obviously a conspiracy.) Photometrics sent engineers to the manufacturers to explore the problem.

In the meantime, the clock was ticking. The next scheduled use of the CCD in Chile was service observing for Barry Madore starting 26 June. That date passed; still no CCD. Barry lost his run. Karl Kamper lost his run. Tim Davidge (CFHT) decided not to risk a trip to Chile for a run the first few weeks of August and cancelled. The Resident, Jorge, rearranged all the programs and did whatever service observing didn't involve the CCD, but was running out of programs.

We sent Patricio Ortiz down in early July to install and test the CCD. He waited and waited; his thumbs still show the signs of long-term twiddling. His plane ticket home was for 9 August and was firm. Suspense. Would the CCD make it?

Finally, we had a great chip; it was installed and tested in Tucson and sent to Chile, arriving the 2nd of August. Antonio Urrutia, our lawyer in Santiago, cleared the shipment in record time. Carnegie also did a marvelous job in getting the CCD to the mountain from La Serena.

But, what? It wouldn't work, no matter what was done to it. Patricio and the CTIO electronicers determined that the problem was in the clock board. Tucson sent by courier a new clock board, which looked quite different, but the same problem occurred. It looked as though the chip worked, but we couldn't get anything out of it. Finally, Patricio had to go home and the decision was made to send the whole thing back to Tucson.

The problem? A simple software glitch, in the clock of course. The original Thompson chip had a delay built in to the firmware. The PM512 needed a delay in the software. Disgusting!!! But, that was the problem. Meanwhile Andrew Udalski was doing single star photometry, waiting for the return of the CCD, which arrived in time for the last two nights of his run. When it arrived on the mountain, Andrew and Jorge made the fix, rebooted the programs and the CCD worked right off the bat.

It will be awhile before I agree to fix something that ain't broke again. On the other hand, time heals and now that everything is working well, I'm sure that all the problems of the summer will fade and everybody will be happy with the new chip, which is much cleaner and quieter than the old one. Was it worth it? Time will tell.

## COMPUTER DEVELOPMENTS AT DDO AND DA

S.W.Mochnacki

In the past six months major improvements have been made in the computing infrastructure of both the Observatory and the Department, and by the end of the year we will have completed the change from a VAX consortium with Physics to our own UNIX-based network.

### (a) DDO

As mentioned in a previous issue, two Sun 386i workstations are now installed at the DDO, linked to a thin-wire Ethernet joining the main building and the big dome. Five personal computers are hooked up, and soon there will be three more. Among these are the now-operational AST 286 which controls the PDS microdensitometer, and another AST 286 which acts as the data acquisition computer in the big dome. We run either Sun PC-NFS or the NCSA Telnet software to link the PCs to the 386i computers called "centaur" (Mki) and "cygnus" (Sq). The total formatted disk capacity on the Suns at DDO is about 1.2 Gigabytes, with another 300 MB or so on the Observatory's dedicated PCs.

On the Suns, a standard suite of software is presently being installed, including IRAF, T<sub>E</sub>X and SuperMongo. Garrison and Beattie are well into setting up the spectral classification database, for which the PC-oriented 386i environment is well suited. Full Internet mail services were implemented over the summer.

The 386i "centaur" acts as a SLIP router to DA, so that the DDO Ethernet is linked to the downtown Ethernet and thence to the world-wide Internet, albeit at a slow speed. The 386i's are accessible from terminals or other computers downtown or at home.

### (b) DA

The departmental Computer Committee, consisting of Bill Clarke (Chair), Charles Dyer, Bob Hill, Phil Kronberg and Stefan Mochnacki, has been meeting for over a year and as a result the Department has acquired a Sun 3/160 to act as its central general-purpose computer, terminal server and Ethernet router. We are awaiting some wiring before the system comes on-line in the next few weeks. A laser printer will be followed in the next few months by a 9-track tape drive and perhaps additional memory. A major feature of this system in a few months will be the IDL software, which currently resides on an old VAX. It will also handle the overflow AIPS and IRAF usage from "radio" and "lynx".

## THE ROYAL CANADIAN INSTITUTE YOUTH SCIENCE ACADEMY

John Percy

The Royal Canadian Institute (RCI) Youth Science Academy is a new organization for students - primarily in the senior grades of high school - with a special interest in science. I take the credit for conceiving the academy, but not for bringing it into the world. That was done by Jack McFadyen, past president of the RCI and a teacher in the Toronto Board of Education. Last April, he arranged an organizational meeting, attended by about a hundred students. Ten short presentations were given by scientists from various university departments; I was one of them. The students elected a council and an executive, which have been busy writing a constitution and by-laws, and organizing a series of interesting events for this autumn. The first of their "Saturday Seminars" takes place on September 23, with three speakers including myself. The first field trip is to the DDO on October 14.

I mention my involvement in these events, not to be immodest but to remind you of the intense interest which students have in our subject. It is this interest which swells our undergraduate enrolment, and contributes in many ways to our well-being. Many of you contribute substantially to the school liaison activities of the department. It is worthwhile, and much appreciated.

### YUKON HO!

#### THE ADVENTURES OF MIKE AND DIM IN THE GREAT WHITE NORTH

##### Chapter One: The First Day

Mike Fieldus

"Ontario sure is big" came the comment from the passenger seat of our \$500 car lovingly christened The Steamer. The giant smoke stack of Sudbury was just visible in the distance, and the first stage of our 11,000 kilometer journey was drawing to an end. I declined to comment on Dimitar's remark, I was sure I would have to opportunity to do so several times in the next few days, but rather concentrated on the scientific mecca that was drawing us to this mining metropolis of the Ontario north: Science North, where we were hoping to witness the long awaited Voyager flyby of Neptune. Being on the road as long as we had been (going on 5 hours now), we were quite starved for news of the real world, and were very much hoping the staff of Science North could fill this void. Our first hurdle was actually getting into the building, for which a \$6.00 admission was charged. A quick conference determined that we were not that starved for information, and an alternate plan must be attempted. I carefully explained to the reception lady that we were visiting scientists from Toronto, but the wind blown hair and the "Surf Naked" tee shirt suggested to her that this was not the case. As it turned out, though, she didn't much care what we did, and a promise that we would not go anywhere but the Astronomy exhibit (sure) gained us free entry. We found the astronomy section almost right away, in the usual manner one gets to astronomy departments (take the elevator all the way to the top and then walk up two more flights). A huge television monitor displayed a recent NASA image of Neptune, and an elaborate computer graphics package enabled the staff scientists to capture and print up copies of any of the televised images they chose to. Quite surprisingly, the entire section was covered in pictures, but not of Neptune, or Titan, but rather images of their newest staff scientist, Andrew Yee, who had traveled to JPL for the encounter and had appeared on the broadcasts asking

questions. We had a few questions of our own for the staff, but before they could find anyone able to answer them, a terrific commotion arose as the latest NASA press conference announced its beginning on the TV screen. "Excuse me, excuse me" one staff member said to us, "I have to get this down". He began to laboriously copy down longhand all the new details of the moons that had been discovered, and I suddenly realized we were watching exactly what the Science North brochure had promised us in the lines "Watch as the Science North scientists monitor the latest developments from Neptune". This poor fellow had a notebook full of monitoring of the flyby, and while he struggled to keep up with the latest discoveries, the computer system began to chug out more pictures of Andrew, who had just appeared on the screen. Since it now appeared that the answers to our questions regarding the stability of the solar system would go unanswered, we decided that perhaps it was time to move on. The wander lust once again grabbed Dim and me, and we quietly and quickly made our exit from both the building and the city, continuing on our trek to the goldfields of the Yukon.

### MANKIND SAFE (FOR NOW)

Mike Jewison

I can't tell you what a relief it is to pass this little tidbit of information on to you. I received a phone call last week from someone who was told he had to remain anonymous. A paraphrase of the decidedly one-sided conversation is as follows:

'A rapidly moving starlike object, brighter than Venus, has been visible in the triangle bordered by Castor, Pollux, and Betelgeuse for the past three nights. It will only be present one more night. I was told to inform you that the ship is no threat to mankind.'

There were some additional ramblings about astral projection, but I paid them little heed. After checking that Mike Fieldus hadn't put anyone up to making the phone call, I decided to investigate for myself. Sure enough, the next morning, high in the eastern sky, I was able to spot the ship (which I brazenly call the S.S. Jupiter). The only problem is that it hasn't yet disappeared. Could this mean we're not out of the woods yet? Stay tuned...

### UPCOMING COLLOQUIA

- Oct 11 Steve Kent (CfA) "Structure and Dynamics of Barred Galaxies"
- Oct 18 Greg Bothun (U. Mich) "tba"
- Oct 25 Chris Sterken (Free University of Brussels) "tba"
- Nov 1 Richard Mushotsky (GSFC) "Large Scale Structure in X-rays"
- Nov 8 Tod Lauer (Princeton) "Galactic Cannibalism"
- Nov 15 possibly Tony Tyson (Bell Labs) "tba" (date may change)
- Nov 22 Simon Lilly (UH-IFA) "tba"
- Nov 29 Nick Kaiser (CITA) "Biased Galaxy Formation"

## REVISIONIST'S CORNER

The following reference appears on page 242 of *Astronomy and Astrophysics*, vol. 215, 1989:

Welch, D.L., Laren, R.A., Mc, Madore, B.F., Alary, C.W. Mc.:  
1987, *Astrophys. J.* **321**, 162

## WHMIS

Brian Beattie

Over the last 54 years of its operation, DDO has accumulated an impressive stockpile of chemicals. Most of them are quite mundane, with everyday uses in photographic or janitorial work. Others, however, may cause severe damage to the central nervous system, *or worse*.

In order, I suppose, to keep the throb and hum of astronomical research at DDO running smoothly, our Ontario Legislature passed laws requiring all chemicals to be properly stored and labelled, with data sheets on hand for emergencies. The principal piece of legislation is Bill 79, the amended Occupational Health and Safety Act, which incorporates Ontario Reg. 644-88, *viz.* WHMIS (Workplace Hazardous Materials Information System). The regulation attempts to codify common sense when it comes to handling and storing chemicals. To comply with the letter of this Act entails substantial expense and time; common sense from the government has never come cheaply. WHMIS has spawned a veritable mini-industry of consultants and suppliers, all willing to help improve the industrial safety of the workplace, for a profit.

The proper care of these chemicals *is* a worthy objective. Frank Hawker has worked diligently taking an inventory of our chemicals and compiling a master list. A friendly "Occupational Hygienist" from the Office of Environmental Health and Safety at Simcoe Hall conducted a meeting at the Observatory to review some of the requirements. For the most part the labelling requirements could be accomplished without difficulty, though it is still not clear if we must placard our DDO van as a carrier of hazardous material. A "Baby in Back" sign just won't do, apparently. Aside from the labelling, a perhaps even larger task was to obtain the required data sheet for every chemical. But this onerous task could be simplified through the use of, yes, *computer technology!*

In late August a CD-ROM player was brought to the Observatory by our Occupational Hygienist, along with a glistening CD containing over 80MB of all the data sheets any heart could desire. All we had to do was to plug it into a computer! The first attempt to install the hardware was not successful. Neither were the second or third attempts. Seems the CD-ROM player did not want to co-exist with some other boards that were in the computer. Read the documentation, you say? I have plenty of experience with all kinds of hardware documentation, and while I can usually decipher the cryptic use of English that characterizes much of this brand of writing, I'm afraid the CD-ROM player's documentation was not of any help. So I moved the player to another computer. No success. To a third computer. No success. Back to the first computer, but with offending boards removed. Success at last.

We could access the CD. The software to obtain the chemical data sheet was very simple. It was accompanied by document No. 3926m describing its use – with the warning on the front page: THIS MANUAL WILL BE REPLACED IN FEBRUARY 1990. Time was obviously of the essence. Everything of importance in the documentation was printed in a stern 40-point typeface. But this rough-love approach was successful in teaching its use in a short time. Now the work could begin.

The first data sheet we looked at was for All Detergent™. Here are some extracts from the four pages of information from the “sheet”:

IN CASE OF SKIN CONTACT: IMMEDIATELY WASH SKIN WITH LOTS OF SOAP AND WATER. REMOVE CONTAMINATED CLOTHING AND SHOES; WASH BEFORE REUSE. GET MEDICAL ATTENTION IF IRRITATION PERSISTS AFTER WASHING.

EYE PROTECTION: SAFETY GLASSES WITH SIDE SHIELDS.

PROTECTIVE CLOTHING: LONG-SLEEVED SHIRT, TROUSERS, SAFETY SHOES, AND GLOVES.

OTHER PROTECTIVE MEASURES: AN EYEWASH AND SAFETY SHOWER SHOULD BE NEARBY AND READY FOR USE.

HAZARDOUS DECOMPOSITION PRODUCTS: MAY LIBERATE CARBON MONOXIDE AND CARBON DIOXIDE.

ACTION TO TAKE FOR SPILLS OR LEAKS: WEAR PROTECTIVE EQUIPMENT INCLUDING RUBBER BOOTS, RUBBER GLOVES, RUBBER APRON, AND A FULL FACEPIECE OR A HALF MASK AIR-PURIFYING CARTRIDGE RESPIRATOR WITH PARTICULATE FILTERS. WEAR CHEMICAL GOGGLES IF A HALF MASK IS WORN. FOR SMALL SPILLS, SWEEP UP AND DISPOSE OF IN DOT-APPROVED WASTE CONTAINERS. KEEP OUT OF SEWERS, STORM DRAINS, SURFACE WATERS, AND SOIL. COMPLY WITH ALL APPLICABLE GOVERNMENTAL REGULATIONS ON SPILL REPORTING, AND HANDLING AND DISPOSING OF WASTE.

Clearly laundry detergent is not as innocuous as we thought. Remember, proper garb and procedures for next wash day! But we now had to proceed with the work of obtaining the data sheets for the Observatory's chemical stockpile. Such advice overkill might actually be appreciated with some of the more dangerous chemicals.

It fell to Florence's capable hands to actually retrieve the data sheets and store them on a floppy disk. Florence was able to get data sheets for most of the chemicals on Frank's list. We have now over 200 pages of these data sheets which will no doubt be stored away with as much care as is shown to the chemicals themselves. The CD-ROM player will soon be returned to Office of Environmental Health and Safety, having fulfilled its purpose.

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