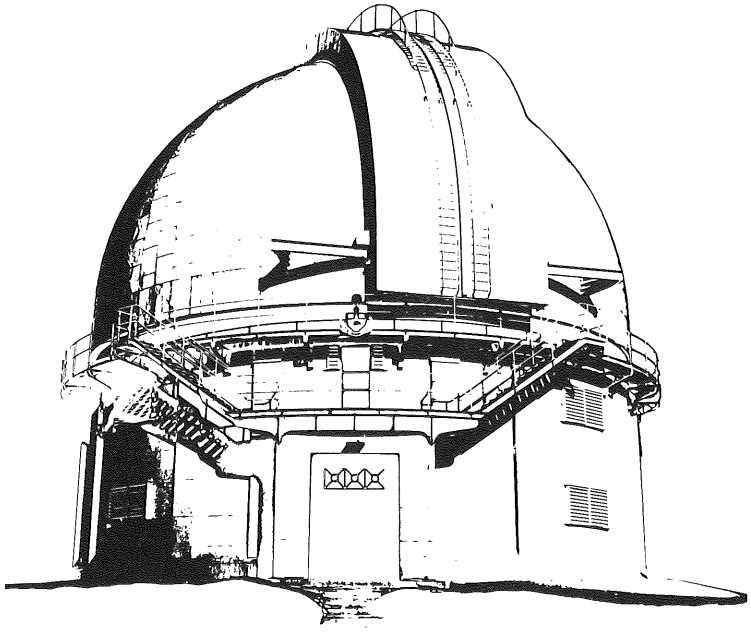


THE DAVID DUNLAP DOINGS

Vol. 26, No. 1

Jan. 31, 1993

CHRISTMAS COUNTDOWN 1992

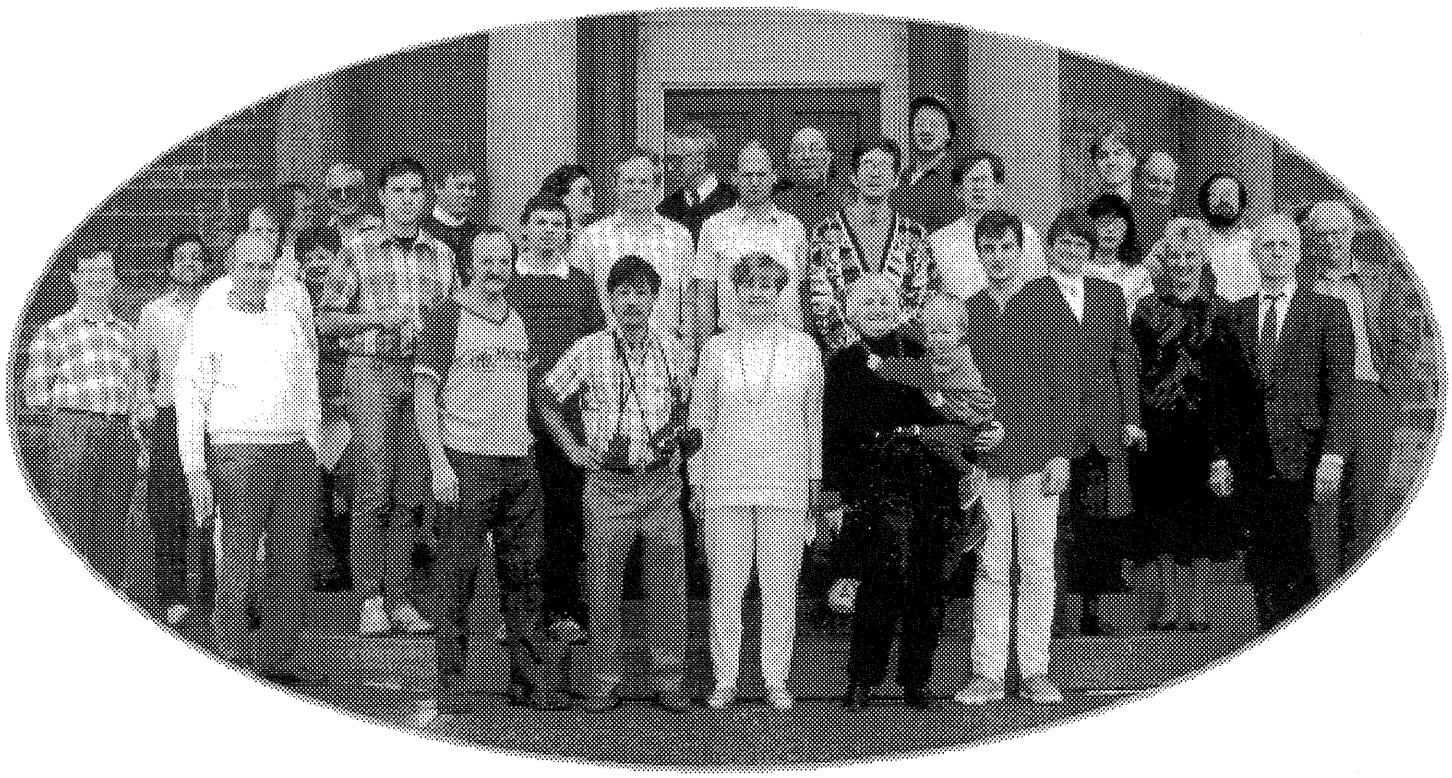


photo: Sandra Scott
image processing: Ian Shelton

It is with very deep regret that we must announce that Helen Hogg died this morning. She was 87 and had been in failing health for some time. We go to press today and an appreciation of Helen will appear in a future issue; meanwhile we offer our condolences to her family.

Don Fernie

January 28, 1993

FROM THE EDITOR

This year, 1993, marks the twenty-fifth anniversary of the David Dunlap Doings. The first issue appeared on January 31, 1968, and opened with remarks by its founding editor, Jack Heard:

> With this issue of the Dunlap Doings we begin what is hoped to be a continuing monthly news letter of what is going on in the Department of Astronomy. When the Department was small we all knew what was going on, both at the professional and personal levels, but we have grown now to number about fifty. With everyone's cooperation this letter series could help us keep in touch and, what is perhaps more important, will serve in years to come as a record of who was here when and what he/she was doing.

The vol. 1, no. 1 issue reported that Frank Hawker had recently completed the control console CCTV coordinate displays for the 74-inch, that faulty transistors in the 24-inch drive were causing trouble, and that Prof. Yen's long-baseline radio astronomy experiment was continuing. Faculty and students who had papers in press included S. v.d.Bergh, S.P.S. Anand, G.G.Fahlman, J.D. Fernie, A.F.J. Moffat, R. Racine, T.G. Barnes, R.C. Roeder, and R. Verreault. Tom Clarke had just accepted an appointment to the staff of the McLaughlin Planetarium. Bob McClure was due to get going on his thesis using "our new seven-colour photometric system" at Kitt Peak. And there was good news for graduate students who held POGs [Province of Ontario Grants, now become OGSs]: the Province had upped the summer pay to $750 per summer. Social news included the award of Canadian Centennial Medals to Dr Hogg, Miss Northcott, and Dr Heard, that Anson Moorhouse was recovering from injuries received in a car accident, that Chris Aikman had a new Volkswagen Beetle, and that while his wife and young daughters visited South Africa Dr Fernie would "continue to cope bravely with the northern winter."

Jack was right in that first editorial: the Doings did and continues to keep us in touch with one another, and it has indeed become almost the only archival record we have of details in the Department's history. Long may it so continue.

Don Fernie

OUR COVER

The Christmas Countdown for 1992 was held at the Observatory on December 15th, postponed four days due to a severe winter storm. A good time was had by the contingent of faculty, staff, students and friends that arrived at DDO to share some Christmas cheer. More photographs appear on page six. The editors thank our roving photographers, Sandra Scott and Shen Chew.

POTPOURRI

Two students are working with John Percy through the U. of T. Mentorship Program. Shormila Roy Choudhury is analyzing multi-longitude photometric observations of two rapid-variable Be stars, and Najam Khaja is analyzing the geometric and intrinsic photometric variations of HR 7551, a binary containing a B-type supergiant.

CONGRATULATIONS

To Jonathan (Gang) Li and his wife Mao on the birth of Karen Maxine Li, born on January 13th and weighing 7 lb 7oz.

CONDOLENCES

Jean M. Lehmann

Jean Malcolm (Millar) Lehmann died on Sunday, January 10, 1993. Many of the present staff of the Observatory, and many readers of The Doings, will remember Jean as our first professional librarian and the one who brought the DDO library into the Space Age.

Jean was born in Nanaimo and grew up in Edmonton. She graduated from the University of Alberta in 1925 and a year later earned the degree of Bachelor of Library Science at the University of Washington in Seattle. After four years of employment in the U. of Alberta Library Jean married and moved with her husband John Lehmann to Toronto. Jack was Professor of Botany here until his death in 1961.

"In the spring of 1962", Jean wrote a while back, "I got a call from Jack Heard, the Director, asking if I would take a part-time job as librarian of the Observatory. This was totally unexpected, but I accepted. I was grateful for the opportunity of having an interesting job and stimulating contact with students and staff". Jean served for almost ten years if you include a short return engagement during 1972. Admittedly she would have found the collection in a sad state of disarray - in her own words: "there was chaos to straighten out". The holdings, mostly periodicals, had come from the RASC, having been acquired as a result of their exchange of publications program. They were not bound, not properly catalogued, not even then owned by the University. What work had been done on them, mostly accessioning, had been done by the secretary-cum-typists who had come and gone at DDO over the preceding 25 years.

Jean went on to say: "I think my greatest achievement, probably known only to myself, was establishing closer relationships with the main U. of T. Library. I worked out a system to have the old and valuable material bound at monthly intervals, besides the yearly binding of current issues. The main library agreed to have our books catalogued and later agreed to pay for our periodical subscriptions".

True; but her lasting achievement was straightening out the old chaos while we were in the midst of widespread new changes. Consider how the flood of publications, not to mention students, was rising over those years. "Sometimes", she wrote, "I spent whole evenings puzzling over the new Russian publications, and wishing I had started to take Russian at the beginning of my second career". And when a departmental book collection was needed downtown Jean had that to look after too.

Perhaps the next-following Director did not soon enough recognize the scale of effort that the job required. But all of us at DDO did appreciate Jean's professional skill and dedication and her always bright and cheerful presence.

We extend our sympathy to Jean's daughter, Kay Martyn, herself a librarian in the Thomas Fisher Rare Book Library, and to the other members of her close-knit family.

Donald MacRae

COMINGS AND GOINGS

Patricio Ortiz, who has been working as a postdoctoral associate with Phil Kronberg for the last few months will be leaving at the end of this month for Chile. What's particularly nice is that Patricio was just awarded a Faculty position in Astronomy at the University of Chile.

Bob Hill (PhD 1991) has recently arrived in Pasadena to take up his new post-doc position at Carnegie. He will be working with Wendy Freedman, primarily on aspects of the Cepheid distance scale.

John Percy gave a talk on "Variable Stars and the AAVSO" at the Hamilton Centre of the RASC on January 7, and on "The Lives and Deaths of the Stars" at Riverdale C.I. on January 15.

FORTHCOMING MEETINGS OF THE RASC TORONTO CENTRE

Meetings of the Royal Astronomical Society of Canada, Toronto Centre, are held in the Lecture Theatre of the McLaughlin Planetarium. They are of two kinds - Regular Meetings, which feature a lecture, aimed at a general level, by a professional astronomer, and Members' Nights, which are more informal meetings at which any members of the Centre have a chance to share their astronomy activities with others. Both types of meetings are open to visitors.

January 29, 7:30 pm — Members' Night

February 12, 8:15 pm — Regular Meeting

Speaker: Dr. Janet A. Mattei
Directorr, American Association of
Variable Star Observers
Cambridge, Massachusetts

Topic: The AAVSO and Space Astronomy

Dr. Mattei will describe some exciting new projects and activities of the AAVSO - many of them related to recent space astronomy missions such as HIPPARCOS, ROSAT, EUVE and HST

February 26, 7:30 pm — Members' Night

March 12, 8:15 pm — Regular Meeting

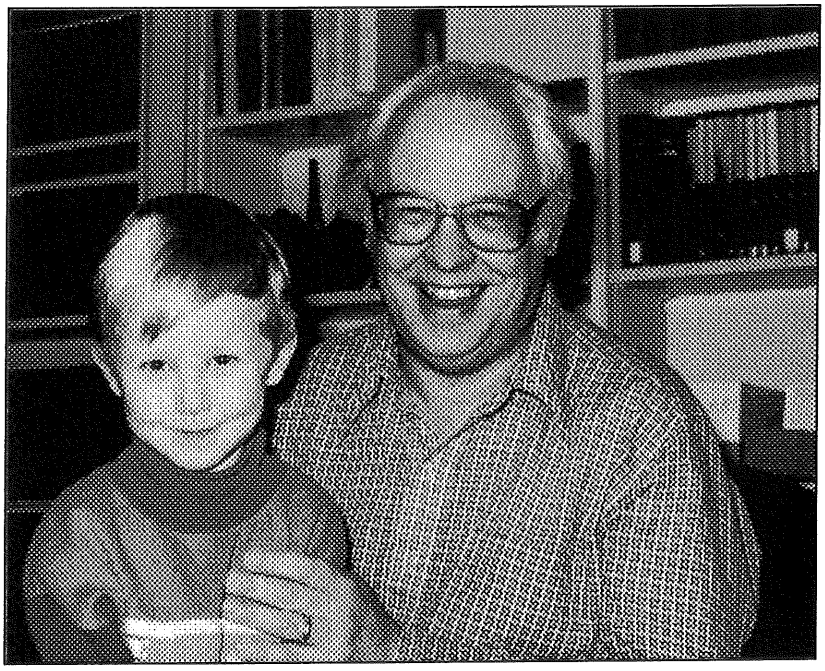
Speaker: Professor Ernest R. Seaquist
Chair, Department of Astronomy
Director, David Dunlap Observatory
University of Toronto

Topic: Millimetre and Sub-Millimetre Astronomy -
The Last Electromagnetic Frontier

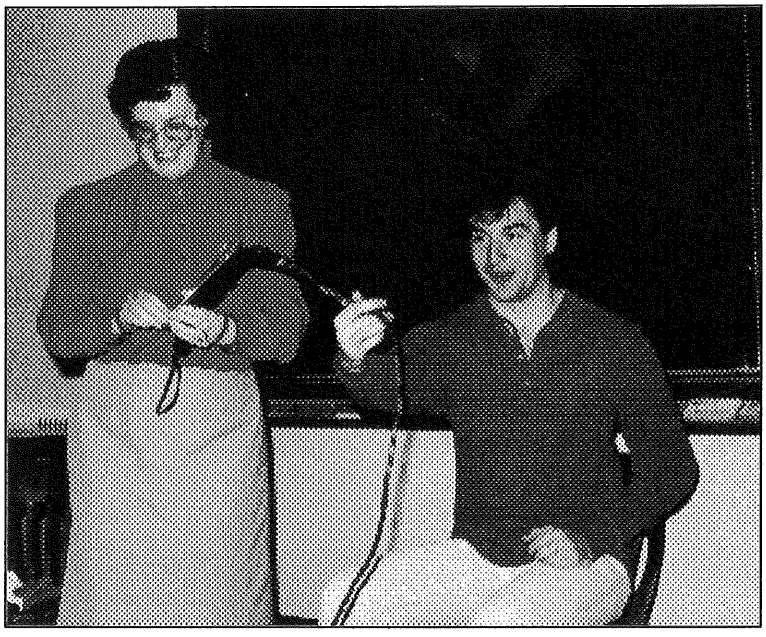
We welcome the Honorary President of the Toronto Centre, who will describe an exciting new area of astronomy which is likely to contribute to our understanding of many classes of astronomical objects, from planets to distant galaxies.

John Percy

SCENES FROM THE CHRISTMAS COUNTDOWN
1992



Ernie Seaquist with his grandson Adam



Florence Unwin with "Santa" James Brown

NEWS FROM ERINDALE

After celebrating its 25th anniversary, and opening its new Kaneff Centre for Management and Social Sciences, Erindale has settled back to the reality of declining budgets. This has not dampened all hopes for the future. The next major project on campus is a student centre. The Crossroads Building, constructed many years ago as a "temporary" building, and now freed up from academic use by the Kaneff Centre, will become the beginning of the student centre. Other "temporary" buildings in the area, such as the Blind Duck Pub, will eventually become part of a student complex, once we can find a few million dollars. And now that the recession is over .....

Curriculum renewal is settling in, and a new Theatre and Drama Program (joint with Sheridan College of Applied Arts and Technology) is well underway. The Studio Theatre (in one of the original "temporary" buildings) is now being renovated for use by the new program, as well as by student and community drama groups. There are some interesting and innovative new applications of computer technology. Almost a thousand introductory psychology students use a Macintosh-based lab every two weeks for experiments, simulations and other forms of computer-assisted learning. A 350-student introductory geology course uses computer-based writing tutorials, access to literature searches, e-mail with the instructor, and soon an electronic textbook.

If you want to see all this and more, you are cordially invited to SCIENCE EXPO '93, Sunday February 21 (11-4 pm) at Erindale. For more information, please ask me.

John Percy

'High Latitude Astronomers' Expedition to East Greenland 1992

Members: Sverre Aarseth (Norway), Edgar Knobloch, David Smith (UK),
Lanny Murdoch, Chris Pritchet, Scott Tremaine, Howard Yee (Canada).

Our charter plane picked us up at Keflavik airport on 24 July. Apart from one paying passenger, there were six Danes from the Sirius Patrol who got a free flight, allowing the Twin Otter to go empty from Akureyri. After about 2.5 hours we landed at Mestersvig (72 deg N), where poor visibility only permitted a glimpse of the surrounding mountains. We were given the use of a small hut for changing and storage. The various documents and security equipment which had taken me such a big effort to obtain were inspected and found acceptable (firearms licences, radio licence, expedition permit, hunting rifle, personal locator beacon). By 6 p.m. we had finished supper and set off on the trail with extremely heavy loads, leaving spare clothes and some duplicated communal equipment behind. The first obstacle soon presented itself in the form of a river crossing. Fortunately everyone had brought training shoes for this purpose but even so one had to be careful, balancing a heavy sack in murky water. The subsequent progress was rather slow and after a few hours more we set up camp in damp conditions.

Next day we followed the road as far as the mine, then contoured round the valley and reached Gefion Pass which was still covered in soft snow. After some debate on the best way we continued downwards, past some wet bogs and reached a prominent shoulder with spectacular views across to the Bersaekerbrae Glacier. Here we put up our three tents and pondered the next move.

Day 3 started with a steep descent to a place where the stream could be negotiated; followed by a muddy scramble up the other side. This pattern of crossing ravines, which could not be spotted at some distance, was repeated several times. [In retrospect, we would have made faster progress by going all the way down to the Skel River.] After a long discussion, we decided to establish a basecamp at Skelbrae Glacier which could be reached without crossing the fearsome Skel River. The apparent scarcity of camping sites forced an early halt, with our prospective base camp still a long way off, but the heavy burden did not invite a further long and uncertain trek.

The final day of approach placed new obstacles in our path. Now we had to pass through a veritable boulder field, and it was a great relief to reach the snout of the Skelbrae Glacier. Putting foot on solid ice was very welcome and the easy slope of the glacier made for good progress. Base camp was established on a flat part (c. 600 m), near the bottom of the Kishmul Glacier. An exploratory hike up the Kishmul revealed soft snow with considerable amounts of water further up.

The first night without any rain or mosquitos was very enjoyable. As the initial objective the Edinbrae Glacier was chosen. We decided to attempt the icefall leading up to the apparent col. This involved some interesting and moderate ice scrambling, taking care to avoid huge crevasses. Edgar's skillful route finding was eventually defeated by a sheer drop and we had to retreat all the way down; however, useful climbing experience was gained.

On day 6 we made an earlier start, heading for the col by way of a snow gully which had been inspected the previous day. This time there were no problems in getting up. However, further progress now became extremely problematic. Scott, who was in the lead, fell into several hidden crevasses in spite of constant probing with a ski pole. It soon became clear that our chances of further advance were hopeless and the visibility was also poor; hence another retreat was enforced. The rest of the day was spent sleeping while it rained; then some welcome evening sunshine enabled damp clothes to be dried out.

Another early rise was made with the idea of attempting the rocky ridge starting from the Edinbrae col. However, the weather was poor again, and we therefore decided to break camp and move up the Kishmul Glacier in the hope of improved conditions. A flat area at about 900 m was selected as the new base camp. Although there was no running water near by, we were able to satisfy our needs from a small hole which maintained its level. [In fact, no ice was melted on stoves during the entire trip so we carried too much fuel.] After lunch Edgar, Scott and I explored the route further up the glacier, when I located a dozen snow-covered crevasses which were then marked with wands. From this central position we had a spectacular view, with snow-capped peaks all around.

Finally on day 8 the weather improved and the whole party went up the glacier. In spite of the embarrassment of my crampon falling off (which was fixed thanks to David's pliers), I was allowed to lead the first rope; the second rope invariably consisted of the Baffin gang (Lanny, Chris, Howard and David). After gaining some height we spotted a promising snow couloir which led up to a ridge with apparent connection to the summit. The gully was very narrow in places but the snow enabled fast progress, punctuated by short stops for placing protection. After quite a scramble I reached a small summit (c. 1500 m) at the junction of the ridge, with just enough space for everyone to squeeze together. We enjoyed the stupendous view in perfect visibility. Much to our surprise, there was an abrupt drop in the ridge at this spot and we decided reluctantly to

forgo an attempt on the slightly higher summit towers. Still, we felt we had achieved something at last.

After an early turn-in we got up at midnight in order to benefit from firmer surfaces. Even so, the boots occasionally sank into deep holes which slowed progress but such obstacles are more bearable without loads. We followed the previous day's tracks for a while, then it became a question of finding a route through a basin containing various obstacles. Edgar wisely avoided going up an avalanche cone which seemed to offer the shortest route from our angle but this turned out to be a deception. Crossing over to the other side, a good trail brought us up in full view of our objective (Pt. 1603, or maybe Richmond Peak ?). After some debate the first rope decided to intercept the ridge some distance beyond the col, whereas the three others (Lanny, Chris and Howard) headed for the col itself. [Note added by Howard: Actually the second rope decided to scramble up to the col in order to find a flat place for Chris to rest after he hurt his back.] Scott now took over the arduous task of breaking trail. Soon the snow conditions became quite difficult, making every step an effort. On the way up a steep snow gully we came across some flowers clinging to a rocky ledge. Here Scott disappeared round a corner and fought his way up the steepening ridge. Luckily we intersected the ridge just beyond a small tower which barred progress for the others. Further up Edgar took over the lead. It now became quite rocky which permitted slings to be placed. On reaching an exposed but flatter part we joined up again so that Edgar could set off with a new supply of slings. This proved sufficient and following some scrambling, the summit (c. 1700 m) was reached seven hours after leaving camp. The tiny summit allowed the three of us to crowd together. Several avalanches rumbled down towards our approach route on the opposite side while the others made their return, having seen us gain the summit. We enjoyed a brief view of Swiss Peak in glorious sunshine but my proposal of a lunch break was outvoted. Two hours later we were safely down and reached camp after a 12 hour trip.

Having explored this area a bit, we now faced the problem of staying on or trying something new in the few remaining days. In order to investigate the possibility of crossing over to the Bersaekerbrae Glacier, a scouting party of four (Edgar, David, Howard and Scott) set off for Glamus Col (c. 1400 m). Meanwhile Chris rested his strained back (caused by a slip at the col), whereas my swollen ankles (due to load carrying) enjoyed the first day of inactivity. The scouting party reached Glamus Col but unfavourable snow conditions made it too risky to attempt a crossing with full loads. Instead it was decided to gain the Bersaekerbrae from the Skeldal.

We broke camp on day 11 and retreated down the Kishmul Glacier. On reaching the snout of the Skelbrae Glacier, Lanny found a strong ice bridge which saved us from having to wade across the fearsome river. Now we walked along the flat river valley on sandy ground, spotting tracks from a previous party. The first Arctic plover appeared and we enjoyed a good lunch break at a place rich in flowers. Eventually we reached a trail leading up the moraine of the Bersaekerbrae. This trail was followed a few km; then we branched on to the glacier itself where a good campsite was found (c. 600 m).

After the strenuous previous day we made an exploratory walk further up the Bersaekerbrae. The main objective was to look for a food barrel which had been dropped by helicopter and could not be reached by the Scottish expedition because of soft snow. In spite of our effort, the barrel remained elusive. Higher up the snow conditions deteriorated and we decided to turn back at a point near the junction with the Dunnotar Glacier.

Our main objective now was Harlech (c. 1900 m), first climbed by (now) Lord Hunt's party in the 1960's. From camp we crossed the 2 km wide Bersaekerbrae and found our way between huge boulders to reach the ridge of Harlech. Route finding presented no problem; the scree ridge made for very efficient gain of height. Being the first to reach a shoulder at about 1500 m, I claim the lead for the technical part. After a quick instruction in the use of snow anchors we rope up and start the slow ascent. The first part is mainly on snow; we keep just below the side of the ridge which is corniced. Occasional protruding stones make suitable belay points and a deadman (snow anchor) is also used. In spite of bright sun the snow is still fairly firm but care is needed because of the big drop down the steep snow field. Quite incredibly, I am only wearing a fleece jacket on top of the thermal vest. At one place we cross over to the other side, after some careful steps along the ridge itself. Now it becomes more rocky and the crampons have to take the strain. Finally we see the rock spire and on arriving at its base I take a quick look round the side to ascertain that the subsequent ridge does not continue to rise. This is a great moment! Soon the others arrive, with David leading the second rope. It remains to scramble up a five metre spire; there is a tiny flat top which holds Edgar, Scott and me, then the four others get their chance to gain the highest point. The summit was reached at 11 a.m., some eight hours after leaving camp. We now enjoy some splendid panoramic views, especially towards Dansketinde and Norsketinde, as well as the peaks at the end of the Bersaekerbrae. All too soon it is time to return; I lead all the way back to the unroping point without any problems in spite of the softer snow. From here we choose a snow gully which makes for a rapid sliding descent, with Lanny winning the race for home. The return across the glacier brings new obstacles; by now the streams have increased considerably and a careful search is needed in order to find possible points for jumping across. David takes his time getting back, and after a hot drink in camp I return to escort him safely home.

Around 4 the next morning we hear some noises outside. There is a young fox rummaging in our empty dinner bags; however, there is practically no food left. Scott manages to get some pictures before the fox is scared off and runs up the glacier where it faces a bleak future. [This is a year with hardly any lemmings.] We break camp and retrace the track down to the Skel river, where we collect extra food and fuel hidden underneath a large pile of stones. Here we split into two groups in order to scout a possible river crossing which would save the long detour up to ice bridge just below the snout. Both parties report success and the river is crossed at two points; at our place it is divided into three channels and the water reaches up to the knees. Lanny goes ahead to look for camp sites while Chris retrieves the rifle which was hidden on a hill. There is only one likely place to camp opposite the Bersaekerbrae moraine but this turns out to be quite good, with clean water a short walk away.

The last long day in the wilderness provides a dramatic experience. It is just possible to sneak along by the river's edge, at the bottom of a boulder field. Then there is a completely flat stretch consisting of partly frozen clay. Here the party strings out, with me and Howard at the rear. The surface is rather sticky but it is no worse than walking on soft snow. Suddenly near the end we are in big trouble. The presence of a tiny trickle of water has changed the consistency of the clay. Our boots begin to sink in deeply after each step and with my heavy load I get completely stuck, falling over. Fortunately I have the presence of mind to fall on to the rifle which provides some support inside its special cover. Assisted by Howard, who has also got stuck in spite of his small weight, I get up and drag my pack on to firm ground, then return to get him out. We are very dirty but relieved to have extricated ourselves from a potentially dangerous situation.

Soon we reach the tundra and can begin to admire a variety of flowers which divert attention from the pains of load carrying. Further on we walk on a huge ice sheet covering a shallow lake. At our lunch spot we find a 20 year old food dump left by mining prospectors; the honey tastes perfectly fine. Now we change course towards Mestersvig, rather than following the river out to sea. Crossing the last hill, we finally see the airstrip ahead. After some debate, David, Chris and Lanny set off for Mestersvig, whereas the others enjoy a last night in beautiful surroundings. A herd of musk ox are grazing near by and the cry of the snowy owl is heard during the night.

Next morning (day 16) we reach Mestersvig early. There is time to visit the control tower and learn more about this fascinating and remote part which may one day become much more accessible. The plane arrives on schedule and soon we are on our way. This time visibility is good and we have a good view of icebergs on one side and glaciated mountains on the other. Our privileged visit to the Arctic has been a great experience in spite of some poor weather and difficult snow conditions.

Sverre Aarseth

PAPERS SUBMITTED

PREPRINTS BY FACULTY AND STUDENTS

November 24 1992 to January 25 1993

Garrison, R.F.; Kamper, K.W.; Beattie, B.; Ridder, A.; Shelton, I., *A CCD spectrograph for the University of Toronto Southern Observatory (UTSO) in Chile* David Dunlap Observatory, University of Toronto, 92-1912 8-Dec-1992.

Giovannini, G.; Kim, K.-T.; Kronberg, P.P.; et al, *The halo radio source Coma-C and the origin of halo sources* David Dunlap Observatory, University of Toronto, 92-1886 4-Dec-1992.

Kronberg, P.P.; Lesch, H.; Ortiz, P.; Bietenholz, M.F., *The Crab nebula's cosmic-ray accelerator revealed* David Dunlap Observatory, University of Toronto, 92-1927 14-Dec-1992.

Lilly, S.J., *A deep I-band selected galaxy sample: implications for galaxy evolution* David Dunlap Observatory, University of Toronto, 92-1791 25-Nov-1992.

Reuter, H.-P.; Klein, U.; Lesch, H.; Wielebinski, R.; Kronberg, P.P., *The magnetic field in the halo of M82. Polarized radio emission at lambda lambda 6.2 and 3.6 cm* David Dunlap Observatory, University of Toronto, 92-1909 8-Dec-1992.

Rouleau, F.; Martin, P.G., *A new method to calculate the extinction properties of irregularly shaped particles* Canadian Institute for Theoretical Astrophysics, 92-1885 4-Dec-1992.

Sasselov, D.; Lester, J.B., *The He I lambda 10830 line in classical cepheids. I. Mechanism of formation* David Dunlap Observatory, University of Toronto, 92-1811 26-Nov-1992.

Sasselov, D.D.; Lester, J.B., *The He I lambda 10830 line in classical cepheids. II. Cepheid chromospheres* David Dunlap Observatory, University of Toronto, 92-1812 26-Nov-1992.

Seaquist, E.R.; Krogulec, M.; Taylor, A.R., *A highly sensitive radio survey of symbiotic stars at 3.6 cm* David Dunlap Observatory, University of Toronto, 93-0049 11-Jan-1993.

Shore, S.N.; Bolton, C.T.; et al, *Goddard High Resolution Spectrograph observations of narrow discrete stellar wind absorption features in the ultraviolet spectrum of the O7.5 III star Xi Persei* GSFC, 92-1884 4-Dec-1992.