

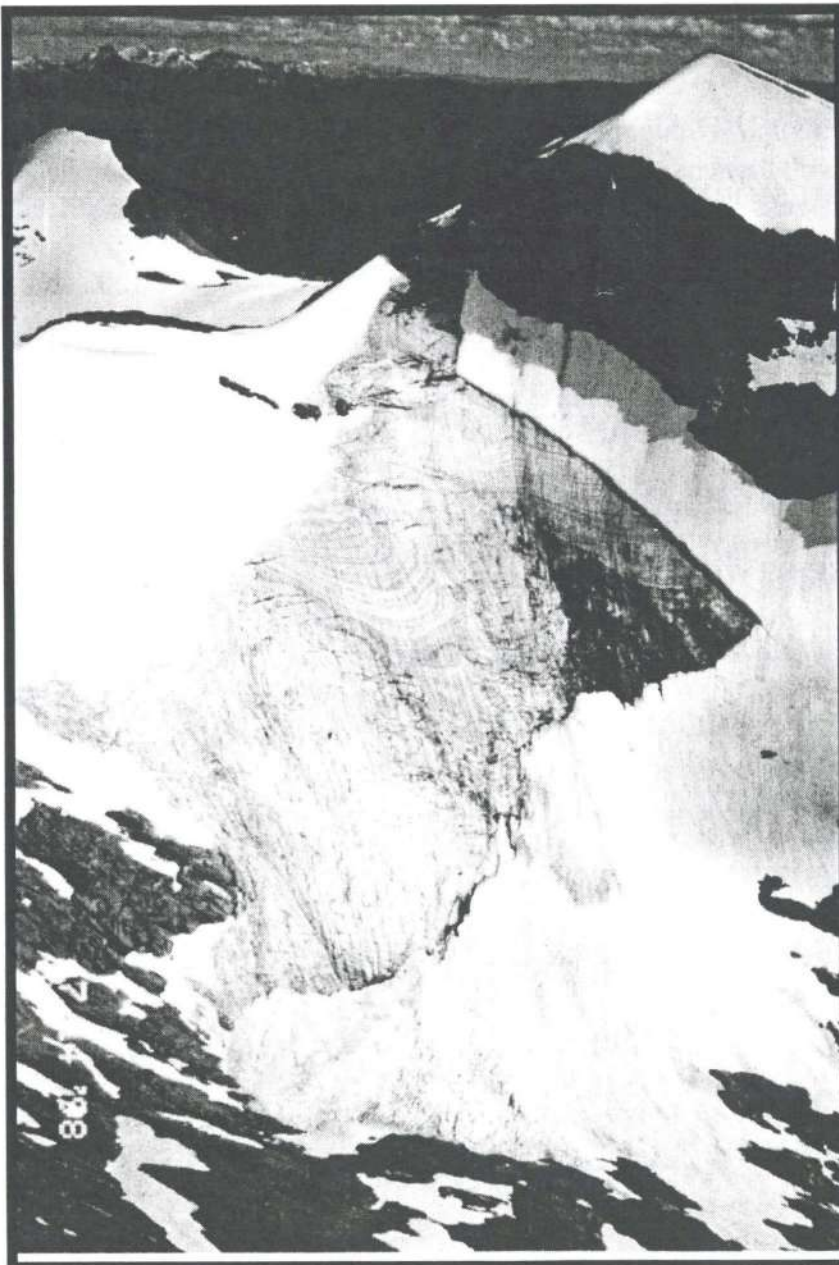


AVALANCHE NEWS

SPRING 1999

VOLUME 57

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AVALANCHE NEWS

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Andy Aufschnaiter**





MESSAGE FROM THE PRESIDENT

Mid way through the last Canadian avalanche season in the nineteen hundreds one can not help but look back and compare. Compare the early challenges of transportation, frontier settlement and life in the West...to today's challenges. What has changed and what has stayed the same?

For example during these past 2 years we were reminded that our vast and varied country, that is Canada, continues to offer us challenges which are more traditional in nature. This included: avalanche involvement's which affected an aboriginal hunter on Baffin Island, a biologist studying trees on the Great Canadian Shield and an Inuit settlement in the North East of our Country.

In stark contrast to the past we find ourselves today saddled with the booming outdoor recreation movement. This movement has provided a relatively new and enormous challenge to the avalanche industry and many occupiers. One of informing, educating and preparing record numbers of 'self sufficient' travelers for winter recreation in attractive and avalanche prone alpine environments. From skiers and ice climbers to snowmobilers and snowboarders, our customer base has grown and exploded in numbers, needs and complexity.

Not long ago (in terms of the century) a major industry was spawned in the West. The winter resort, snow cat and Heli ski industry. This industry re-shaped the economy and life style in the West and added the next challenge to the avalanche industry. This challenge demanded growth in our avalanche field. Active and widespread involvement of the avalanche Professional was essential in creating a sustainable and viable commercial climate for many of these operations. Now well established, the operations of today still rely heavily on the skill and expertise of the avalanche worker.

Infrastructure was really the birth of our avalanche industry in Canada. First protection of rail lines, and then the highways, hydro lines, settlement and more... Places like the famous Rogers Pass, the birthplace of organized Canadian avalanche programs, still 'take on' a constant and

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critical winter challenge each and every day.

Primary Industry has also spanned our century in providing a constant avalanche challenge. First mining and exploration and now forestry and even fisheries are reliant on avalanche industry service and expertise in best managing their resource.

So as we pass into the next Century we must leave behind our beginnings and take up our new challenges. We must try to reach all of our many customers, while not over extending ourselves. We must find new partners and allies to assist us in meeting our mandate. We must embrace the new age of communication and technology while never forgetting that nothing beats the value of human life.

Thanks to the founders of our industry and the professionals of today for a century of commitment to the snow avalanche industry in Canada.

Niko Weis



President, Canadian Avalanche Association

Annual General Meeting

The Annual General Meeting this year will be held again at the **Ramada Inn** in Penticton, on **May 5,6 & 7**. This year the chef is planning to put on some special lunch features to please everyone, be sure to book your room early, as it is such a great location it will fill up quickly. **Call, 1-800-2-RAMADA**

The President of the Columbia Brewery has been invited to attend this year. There will be some social activities planned, that are sponsored by the brewery.

I have heard rumors that there will be sailboats available to our members at no cost. Just in case you get tired of climbing, hiking, kayaking, mountain biking, golfing and any other outdoor activities you enjoy.

Canada's leading Top Gun pilot will be there to discuss decision making under pressure and group dynamics.

Come to learn about the new Canadian Avalanche Foundation.

FROM THE EDITOR'S DESK

As my first winter at the Canadian Avalanche Centre begins to wind down, I can now honestly say that this is the best job I have ever had. Everyday brings something new and challenging. It is a pleasure to work with the students from the CAATS program as well as all of our members.

I am looking forward to meeting some of you at our annual general meeting this year. The meeting will be in Penticton at the Ramada Inn, on May 5,6, & 7th.

Congratulations to Richard Rotteveel, the CAA Business Manager and Pat Hutchinson, CAA communication specialist, for all their hard work on pulling together the Canadian Avalanche Foundation. The first annual Avalanche Awareness Day was a huge success and we are looking forward to it becoming an annual event.

The deadline for the summer issue of the Avalanche News is June 15th, 1999. If you have anything you would like published in the newsletter, please let me know. I am always looking for articles and photos.

Have a safe and happy spring.



Heather Buerge
Editor, Avalanche News

A celebration of the lives of Al Evenchick and Al Munro will be held in Terrace on the weekend of May 15th and 16th, 1999. Friends and colleagues attending are requested to bring photos and stories to share.

Further details will be e-mailed to CAA members at a later date.

In Memory of Al Evenchick

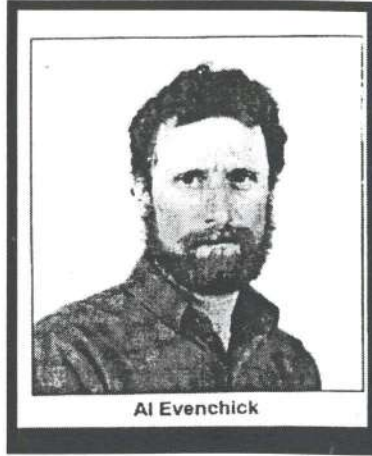
By Randy Stevens

Al Evenchick died in an avalanche on January 7, 1999 while working as an Avalanche Technician for B.C. Highways in Ningunsaw Pass. The Snowbank Creek area in Ningunsaw pass is big time wild northern terrain, the kind of place Al would love.

There will be many fond memories of Al by those who knew him. His nervous energy and youthful exuberance, the building of the Sand Creek Hotel, the log house in Fernie, his devoted days on the Fernie Pro Patrol and life at the Riverside. Al will be remembered for his dedication to his job and the community of Terrace, his many river trips and days in the backcountry.

I remember one day while paddling on Toby Creek, near the end of the run, I fell in a big hole and immediately broke my paddle. This resulted in a bit of a swim and a quick rescue by my fellow paddlers. Al hadn't been able to paddle that day due to a ski injury from the previous winter, but had come on the trip to run shuttles and enjoy the social side of the sport. As we rounded the bend to the take out, there was Al soaking wet with half of my broken paddle in hand. Not knowing it was broken Al had seen the blade bobbing in the waves and swam out and grabbed it thinking someone had lost a paddle. That was Al, always willing to put his own comfort aside to help out a friend.

Al was a skilled kayaker, canoeist, skier, cyclist, mountaineer, and carpenter. He was a loving and dedicated father for his two children, David and Kaela and his soul mate and partner Tanis. Al will truly be missed by all that knew him and leaves those of us in the avalanche community with a heads up to be careful as we pursue our passion as he did.



A trust account for the family has been opened. Those wanting to make donations can send monies to the following:

On behalf of Al Evenchick
Royal Bank of Canada
4640 Lakelse Avenue
Terrace, BC
V8G 1R2

To the account in the name of Tanis Pursell

In Memory of Al Munro

By Peter Amann



Al Munro was killed in an avalanche on January 7th, 1999 while working for BC Highways as an Avalanche Technician, at Ningunsaw Pass.

I have known Al for many years, through living and working in Jasper. I know both he and his wife Lucy thought of Jasper as their home. Al worked at Marmot Basin for many years as a ski patrolter, Control Team leader, Avalanche technician and Patrol Director. Al is one of our boys. We had a lot of fun over the years. Ski touring, climbing, throwing bombs and occasionally at Marmot,

skiing good powder!

Al loved the mountains and loved the lure of the snow. It was a lot of fun to be in the mountains with Al. Al was a true skier in all ways. Intensely though joyfully he'd be doing what it took to keep his work and play together, and spend time with his family.

We are certainly all going to miss him out here. Just last May at the CAA annual meeting, I was invited to dine with both Al's at their campsite. It was great to sit down and reminisce about all the years that have gone by, and how all of us were still working and playing in the snow. We were, and still are all kept by the lure of the high mountains and the big land of avalanches.

Al will always be in that place. Al leaves behind three girls, Cassidy, Miranda, Kavell, and his wife Lucy. They are going to miss him the most!

For all you guys out there that knew Al, think of him next time you are floating on a beautiful slope, mountains everywhere...he'd say "Oh Yea"

A trust account for the family has been opened. Those wanting to make donations can send monies to the following:

On behalf of Al Munro
Royal Bank of Canada
4640 Lakelse Avenue
Terrace, BC
V8G 1R2

To the account in name of Lucy Munro

The Als Remembered

By The Snow Avalanche Programs

They were affectionately known as "the Als" or "Al times two" or even "Al squared." No matter what you called them they were friends to most who knew them and colleagues to us all. They were the North West Regional Avalanche Program for the Ministry of Transportation and Highways. They were husbands, brothers, sons and fathers. They were active in the community of Terrace where they helped to organize many kayaking, skiing, climbing and hiking adventures. The Als were founding members of the Mount Remo Backcountry Society.

Al Evenchick and Al Munro lost their lives in an avalanche while working for the Ministry in Ningunsaw Pass (300 km north of Terrace) on January 7, 1999. They had been in the area for the previous two days conducting snow stability tests and to perform helicopter bombing on selected paths.

Al Evenchick will be remembered by his friends and colleagues for his dedication to his family and to his avalanche career. Al had a very bright and inquisitive nature; as well he had been known in his Fernie days as "the strongest

man in the world". Al was a superb cross-country and alpine skier. He was a driving force behind the development of the Onion Lake Cross Country Ski Club and in particular the childrens' activities within the club. Al was an equally talented white water kayaker. Tony says that he likely would not have been seen again if Al had not rescued him from a major swirl on the Skeena river one spring when the river was running near flood levels.

Al was always generous with his time. On business visits to Terrace, he would ensure that the headquarters staff were brought home to meet the family and have dinner. More time would be available depending upon the length of stay – kayaking, a bicycle ride, recipes, a nighttime ski at Onion Lake, lunch or dinner at Dom Diego's'

Al Munro was an upbeat, positive and quick witted character. Al was very easy to get close to and was always ready for adventure. Al was known as the Pied Piper of his block in Terrace because of his bicycle tours of the neighborhood gathering children in a duck row behind him. He began his work with the Ministry in the Snow Avalanche Programs Headquarters in Victoria as a co-op student developing com-

puter software for weather and avalanche data storage and retrieval. It was clear from the beginning that Al was a keener, not only in his work, but in his extra curricular activities as well. He regularly joined Gord and Mike for noon hour runs. He too was a superb skier – also involved in the Onion Lake Ski Club - as well as an accomplished climber and cyclist.

The loss of the two Al's is a devastating blow to the Ministry Snow Avalanche Programs. In the twenty-five years since the Ministry program started this is by far the most serious incident we have experienced. There are plans underway for the family of Ministry Snow Avalanche Technicians and support staff to celebrate the lives of these two fine young men at a tribute near the accident site this spring, and to attend a celebration of their lives by all colleagues, friends and family in Terrace.

Al Evenchick is survived by his wife, Tanis, and two children, 2 year old Kaela and 4 year old David. He was a 10 year veteran Avalanche Technician in the North West Region.

Al Munro is survived by his wife, Lucy, and three daughters, 2 year old Kavell, 5 year

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old Miranda and 8 year old Cassidy. He had worked on the North West Regional Avalanche Program for the past four winters.

We mourn the loss of these two fine men, their lives cut tragically short with so much left to offer to all of those whose lives they touched. Their lives were full of giving and the loss of their contributions to community, friends and families leaves our world a poorer place.

Progress on the Canadian Avalanche Foundation

By Richard Rotteveel

The process of forming the Canadian Avalanche Foundation is in the completion stages as you read this newsletter. We are all very excited about the nomination of Chris Stethem as the first president of the new foundation. With Chris on hand to accept the start-up cheque from Tim Vauthier, the President of Columbia Breweries, the Foundation was jump started by \$5000.00.

Wayne Bertrand and his staff

put on a first class show at Big White Ski Resort. We have put plans in place to offer a 5-day per week public avalanche bulletin starting as early as next year. The final draft of the Foundation documents have gone to the accountant and will be passed on to the Federal government for approval of our official tax number which will be completed within the next 90 days. Once the number has been established and approved, we will be able to accept donations and funding from corporations and individuals. These funds will go towards research and public safety initiatives.

We all have to thank the tireless work of Peter Perren in Canada for a job well done in expediting this process. The first Board of Directors will be Chris Stethem, Jack Bennetto, Gordon Ritchie, Hans Gmoser, Peter Schaerer, and Peter Fuhrmann. This board will be the cornerstone for the ongoing development of the policies of this new Foundation. We have invited Pierre E. Trudeau to be our Honorary Patron for the Foundation and are optimistic that he will accept.

Our corporate sponsors will all be happy to hear the news of official charity status which will help them decide on the level of sponsorship their company would like to participate in. They now will be able to get of-

ficial charitable deduction receipts as well as the fine recognition and benefits that the CAA public safety program has to offer. The members of the new board and myself will be in attendance at the Annual General Meeting of the Canadian Avalanche Association, to give information and exchange ideas with the membership at large. We all would welcome any input from the members as well as the general population with ideas and suggestions.

Burton Snowboards

By Richard Rotteveel

We would like to welcome our newest Stellar sponsor, **BURTON Snowboards**. They have generously supported the initiative of a Snowboarding in Avalanche Terrain book that is being co-authored by Bruce Jamieson and Jenny Macdonald, a Burton pro backcountry rider.

This book will be available for the RAC providers and the general public in October of 1999. We have been getting support from the various sponsors for the creation of this timely book. Our hope is that the new book will reach the thousands of

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snowboarders that venture out into the backcountry every year.

Judging by the success of the current Snowmobile book, this one should reach our best seller list. With the help of the Burton's Marketing department, we will expand into the U.S. market with this book.

We have not chosen a title for the new book, so we would like to invite all you boarders out there to give us your suggestions. We are hopeful that this new book, in conjunction with the Snowsmart initiative, will reach out and help the youth of Canada make better risk decisions.

Avalanche Awareness Day Report

By Richard Rotteveel

The Canadian Avalanche Association was very pleased to announce the declaration of Avalanche Awareness Day to be held on January 17, 1999. The focus of this day was to promote public awareness of the various safety programs that the CAA professionals are involved in.

Our goals for this day were to:

1. Promote the efforts of avalanche Professionals

in the field in making your areas safe.

- By having Avalanche Professionals demonstrate various control or rescue techniques
- Canadian Avalanche Rescue Dog Association demonstrations for the public

2. Promote public safety when in Avalanche Terrain.

- Some areas delivered their message about closed or off limit areas
- Ministry of Transportation and Highways gave out Danger Cards and Awareness Pamphlets at the Coquihalla Toll booth

3. Promote educational programs offered by Recreational Avalanche Course providers.

- Some areas offered a venue for an Avalanche Awareness Seminar to include a speaker and a video, usually Beating the Odds

4. Promote the use and understanding of essential safety equipment being a transceiver, shovel and probe.

- Mock rescues for the public

- Transceiver rodeos were organized by the volunteer Canadian Ski Patrol System groups
- Local Search and Rescue groups participated
- Special demonstrations by local suppliers and Recreational Avalanche Course providers

5. Raise funds for the public service products of the CAA such as the Public Avalanche Bulletin and the Danger Scale Cards.

- Raffles were held to raise money which were very successful
- We received \$ 5000.00 from Columbia Brewing Company
- Some volunteer monies were collected at various locations
- We received and impacted an estimated 780,000 people with the total print, radio, television and live coverage.

The reports that have come in to the center in regards to Avalanche Awareness Day have all said the same thing. It

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is estimated that Avalanche Awareness Day has reached 780,000 Canadians with the message of what the professional members and the CAA Public Safety program are doing to reduce serious avalanche incidents in the backcountry.

It was a wonderful success! The professionals of the CAA are to be congratulated for the time and effort that they put into this project. We were able to showcase the work that the professionals do in each sector of our industry with pride, professionalism and expertise. There was participation throughout Western Canada with some media attention south of the border and from Japan. The main event at Big White Resort was successful not only in terms of the public exposure but also in securing long term corporate partnerships for the Public Avalanche Safety Program.

The Canadian Avalanche Foundation received a jumpstart from Columbia Brewery and it's President Tim Vauthier. A cheque for \$ 5000.00 was presented to Chris Stetthem on behalf of the Canadian Avalanche Foundation. The crew from BC Highways had expected a nice easy ski day but the public basically mobbed Nic Seaton and Jack Bennetto for the entire day

with questions and information exchange around the big gun set up at Big White.

I have heard from many people that the staff at the Coquihalla toll booths were very successful and busy handing out over 6000 pamphlets and danger cards to the traveling public. The Ministry of Transportation and Highways were instrumental in making this day so successful and we would like to thank the entire staff from Victoria to the tollbooths for their tireless effort during this difficult time.

The Ski Resort industry embraced this project from the start and came through with flying colours. The Retail sector was also very responsive to the idea.

The following is a list of the participating locations for the 1st Annual Avalanche Awareness Day:

- BANFF -SUNSHINE
- CALGARY -MOUNTAIN EQUIPMENT CO-OP
- FERNIE -FERNIE ALPINE RESORT
- JASPER -MARMOT BASIN

- PARKS CANADA
- KAMLOOPS -SUNPEAKS
- KANANASKIS -FORTRESS MOUNTAIN
- KELOWNA -BIG WHITE
- LAKE LOUISE -SKIING LOUISE -LAKE LOUISE ALPINE CENTRE
- NELSON -WHITEWATER
- PENTICTON -APEX
- ROSSLAND -RED MOUNTAIN -ROSSLAND SEARCH & RESCUE
- TERRACE -SHAMES MOUNTAIN
- VANCOUVER -MOUNTAIN EQUIPMENT CO-OP -MOUNT SEYMOUR -BC PARKS
- VERNON -FARWEST -SILVERSTAR -VERNON SEARCH AND RESCUE

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-VALHALLA
OUTFITTERS
WHISTLER
-WHISTLER/
BLACKCOMB

We are already in the planning stages for the 2nd Annual Avalanche Awareness Day next year. The Year 2000 event will be held for 3 days in total. The plan is that Friday will be a press day and the Saturday and Sunday would be reserved for the events and displays. We would hope to have the weekend in around the same time of year. We will try to coordinate the event as to make the Canadian Avalanche Rescue Dog Association members available for demos because these folks do a fantastic job.

If your area wants some tips on holding different events contact Johann Slam at Apex. His program was a huge success and he and his team should be congratulated. The same can be said for Wayne Bertrand and his team of professionals at Big White. The Rossland and Vernon SAR groups were instrumental in the success in their regions as well.

Special thanks to BC Parks Professionals who made a major impact in the North Shore

Mountain area. It was great to witness all sectors of our professionals working so hard for the public safety program. This report would not be complete without acknowledging the hard work of our communication coordinator Pat Hutchinson for she worked tirelessly to facilitate the success of this program.

If anyone has ideas or suggestions for next year's event or would just like to be involved, please do not hesitate to contact Richard at richard@avalanche.ca or call the CAC at 250-837-2435.

Red Mountains Avalanche Awareness Day

By Dan Derochie

The days' set up consisted of a large inflatable tent in the middle of the base area with a small slope right outside prepared as a mock avalanche slope. The tent contained tables displaying recommended equipment, clothing and food supplies for day trips into the backcountry as well as info brochures and print outs regarding avalanche awareness info, explaining hazard rat-

ings, CARDA, statistics on all reported incidents and fatalities over the last two years. On a separate table was a video setup showing various info videos throughout the day - Beating The Odds, A Question Of Balance.

The format of the day was left fairly open to accommodate whatever questions or requirements were brought up by the public. In the end we ran through beacon searches, small party rescue procedures and large rescue group roles, i.e. probe line, shovel crew, etc....

Overall the day was a huge success as three to four hundred visitors passed through the tent and tried their hand at searching. The questions covered a broad range but the majority were focused on where to get training and can we buy rescue gear today - beacons, probes & shovels.

The biggest realization is that we could easily run one awareness day per month if not every weekend and have a strong turnout from a wide cross section of the public, youths, adults, parents and experienced backcountry users.

In conclusion, it was an excellent way to access public directly and a great day with large kudos to the Rossland

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Search and Rescue volunteers (a group associated with PEP), who organized and ran the day, were responsible for the days' success.

Fuse News

Mike Boissonneault
Chair, Explosives Committee

As you are all aware, there are now two brands of fuses available for Canadian avalanche control programs. One fuse is supplied by CIL - Evan in affiliation with Austin Powder. They make the STAR fuse assembly. The other fuse assembly is made by Tec Harsime based out of Chile.

To date there has been a report of a STAR fuse assembly that did not burn completely to the detonator at Mt. Washington. There have also been a number of other reports of confirmed or suspected misfires. These have been reported to CIL-Evan president, Everett Clausen. Mr. Clausen has expressed his concern over these fuse failures. He reported that in fuse tests prior to this winter that 5,500 fuses were tests, with 100% success under a variety of conditions. Based on the information he has received recently, he now plans to test the STAR fuse with tight bends at -40° C. As soon as we receive the results of this test I will report them in the

next newsletter and info-ex. To date, there have been no reports of failures or problems with the Tec Harsime fuse assembly.

STAR fuse assemblies can be obtained from any Austin Powder distributors. They can now also be obtained from Ace Explosives (call Steve at 250-377-0108).

Tec Harsime fuse assemblies can be obtained from Titan distributors (604) 940-3324, or from Explosives Limited in Calgary (403) 255-7776.

Avalauncher Boosters Update

Mike Boissonneault
Chair, Explosives Committee

Trojen avalauncher boosters appear to be on the endangered list of explosive products as this may be the final year they are made. The price has increased significantly for this year. The most recent quote (this week) has them listed at \$47 for the booster alone. Once the tail fin and detonator are included, the price approaches \$70 for a complete round. This is more than triple what they cost a few years ago. I have received news from HydroCut Technologies that they expect approval in the very near future from the Canadian

Explosives Research Laboratory for the avalauncher booster that they have made. The Hydro Cut booster uses Comp "B" rather than pentolite as the explosive filler. Comp "B" is a high strength surplus military explosive commonly used in artillery projectiles. Comp "B" is about 1.3 times more powerful than pentolite, so should serve as a good substitute. To find out more information or to order boosters (once they are approved), call Titan Explosives at 604-940-3324.

Explosive Committee Report

A meeting was held between Explosive Committee members (including Niko Weis), WCB and Federal Explosive Branch representatives on December 17, 1998. The purpose of the meeting was to discuss methods of improving training, certification and apprenticeship programs for those who use explosives for avalanche control.

This initiative is driven largely by feedback from the recent Continuing Professional Development questionnaire where explosives ava-

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lanche control training was the second most requested item. It is also recognized that uniformity amongst programs in their training and explosives use procedures only serves to present our members as professional blasters and avalanche technicians. I believe this starts with a document to define base line procedures for each type of explosive avalanche control procedure, endorsed by the CAA professional membership.

We currently have a document which defines how to make a weather observation, record an avalanche or perform snow stability tests, but do not have a document which defines procedures on how we deploy explosives for avalanche control. The Explosive Committee proposes to draft a document to define procedures for helicopter bombing, hand charges, cornice control and avalauncher use. This document should still allow flexibility for individual programs to include what may be unique procedures, as long as base line safety considerations (defined in the document) are included and all provincial and federal regulations pertaining to explosives use are observed. It may also assist some programs with their submission of explosive use procedures to WCB to gain approval as per

regulation 21.85.

Once a document defining explosive avalanche control procedures has been prepared, training courses referring to these procedures can begin. I believe our association would benefit through training courses offered by recognized experts in the field of using explosives for avalanche control. Such training courses could be administered by the CAA. Testing and certification would still be the responsibility of WCB. In our meeting of December 17 there was discussion that the "new" blasting ticket should be Inter-provincial, so that the holder could move between British Columbia, Alberta and the Territories and always have a valid avalanche control blasting ticket.

There was also discussion that WCB may eventually be prepared to allow explosives avalanche control instructors to test and certify candidates. Legal and liability issues regarding this issue were discussed and WCB assured us that they would still be accountable for legal issues. They would not "pass the buck" regarding explosives avalanche control certification, but rather endorse certain qualified individuals to provide this service on their behalf. A clear understanding between our two agencies with

written agreements regarding this issue will be necessary.

The issue of apprenticeship was also discussed. The number of missions and the ability to perform them safely and proficiently will likely determine how long the apprenticeship for each individual lasts.

Another item discussed at the December 17 meeting was to invite representatives from WCB, the Federal Explosives Branch and Explosives manufacturers to our spring meeting. They will be invited to make presentations and the membership will have the opportunity to ask questions. Also at the meeting Paul Orr of WCB suggested that the CAA should consider membership in the International Society of Explosives Engineers and that a presentation at one of these meetings would raise the professional profile of our association. Both President Niko and members of the Explosives Committee agree and will apply for membership to this Society.

I'm sure we all recognize the seriousness of handling explosives in our business. Certainly, we are all aware of the impacts of explosives related incidents, whether they may occur in or outside of our country. As an industry we

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must take every step to provide the best possible explosives training, certification and apprenticeship programs for our professional membership. This will ensure our own personal safety as well as allow us to provide winter traveling and recreational safety to the public we serve.

The Explosive Committee will continue to work on this initiative throughout the remainder of the winter. If you have any comments please contact me or either of the committee members.

Mike Boissonneault
Chair, Explosives Committee
phone: (250) 478-1076
fax: (250) 478-7635
e-mail <boiss@direct.ca>

Bernie Protsch,
(604) 932-3210

Colani Bezzola,
(403) 762-7100

Committee Members

Summary of the Avalanche Beacon Test "LVS-98"

Swiss Federal Institute for Snow and Avalanche Research
10 December 1998

Introduction

After 1990 and 1994, the Swiss Federal Institute for Snow and Avalanche Research (SLF) in Davos organized another international comparison test for avalanche beacons. The test "LVS-98" was carried out under the auspices of the International Commission for Alpine Rescue (ICAR). Financial support was provided by the Swiss Council for Accident Prevention (cap). Various alpine clubs and organizations (from Germany, France, Italy, Austria and Switzerland) participated. The tests were necessary to obtain a clear picture of the quality of the new types of beacons, all of which have mostly digital type optical search aids.

The Purpose

The purpose was to clarify the state of the art applied, to enable users to assess the quality of the equipment available on the market, and to show the manufacturers the strengths and weaknesses of their products.

Equipment tested

The tests covered five of each avalanche beacons from six manufacturers. Three of those units were newly developed and equipped with optical search aids and mostly digital technology: Arva 9000 (France), Ortovox M1 (Germany) and Tracker DTS (USA). The Ortovox M1 units came only from a pre-production series. The other three units were of the conventional type and were also used as reference units to the comparison tests conducted in 1994: Barryvox VS 2000 (Switzerland), Fitre Snow Bip II (Italy) and Pieps 457 Opti 4 (Austria).

Test Program

The field tests were carried out on 17 days in September and October 1998. Well over 1000 range tests and over 400 locating tests were performed on Les Diablerets (Glacier de Tsanfleuron, Switzerland), on the Stilfserjoch (Italy), in Allevard (France) and on the Stubai glacier (Austria). It was possible to run the tests on snow at three out of the four locations. It was

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essential to ensure uniformity of the test conditions as far as possible and, with this in mind, detailed test instructions were produced and a three-man SLF test team was assigned to attend the tests. Immediately after the tests, those involved in the tests were asked to complete a detailed questionnaire dealing with such matters as operating safety, operation, locating system, carrying system and operating instructions. The equipment was finally measured electronically at an approved test laboratory and the main properties of the units checked to ensure compliance with European Telecommunication Standards (ETS 300 718).

Field Test Results

Effective range

The results of the field tests showed that the average ranges of the new type units (20-30 m) are in some cases much shorter than those of the proven reference equipment that have ranges between 30 and 45 m. This gives relatively small search strip widths from 18 to 21 m. The search strip width is statistically defined so that a person buried in an avalanche would be missed by the search no more than twice out of 100.

Search Times

In the case of the locating tests, only the time needed for the secondary search, that is from the first signal up to the precise location, was measured. The transmitters were buried 1 m deep. Of all the three new type units, Tracker DTS came out best in search times, followed by Ortovox M1. On the average, these two units produced shorter search times (in the case of approx. 30 tests each) than with the two reference units Barryvox VS 2000 and Pieps 457 Opti 4. These results would even be a little better if the reference equipment used was handled by people who were less well familiar with it.

Locating Accuracy

In the tests on locating accuracy the transmitter units were again buried 1 m deep. The proven equipment turned out to be better as regards locating accuracy but the differences are rather small. The mean values (median) are between 34 cm from the best unit (Barryvox VS 2000) and 70 cm from the worst unit (Arva 9000). The scatter varies between units and is partly quite large. The proportion of cases where the locating error was smaller than 80 cm, was in the case of Arva 9000 57%, in the case of Tracker DTS 67% and in the case of Ortovox M1 71%. Generally speaking, units with analog acoustics came out somewhat better. Arva 9000 has a very wide scatter, reflected as well in the tests on range and search time, clearly indicative of some problems with delayed display of the receiving signal.

Locating Tests with two Transmitters

Searching for multiple burials produced some critical results. The two transmitters were buried 5 m from each other, one 0.5 m deep and the other 1 m deep. Arva 9000 failed to identify the presence of the second transmitter in as many as 15 cases out of a total of 17. Five searchers were unable to locate the second transmitter even when its presence was indicated.

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Tracker DTS, 11 out of 23 testers did in fact identify two victims buried near to each other but the location of the second transmitter could not be identified again in 5 cases in spite of its presence having been indicated. The Ortovox M1 came out best of the three newly developed units: 13 out of 15 testers identified the presence of two transmitters; and the second transmitter could not be located, in spite of its presence being indicated, in only one case. All the testers taking part were very experienced. Even if it is assumed that when members of the own party are searched for, the number of buried victims is known in many cases, this result is still very disappointing. Only some results were available for the proven equipment. Using a Pieps 457 Opti 4 the second transmitter in 3 out of 8 cases could not be located but was found when its presence was indicated. No problems occurred in the remaining only 5 tests with Barryvox VS 2000 and Fitre Snow Bip II.

Further Observations

The equipment was repeatedly wrongly manipulated throughout the 400 locating tests. In 3% of the tests, testers tried to start searching with a unit in a state of operation with which it would have been impossible to find a buried victim. This percentage is quite high if we consider that these testers were in fact trained people and that these were staged search exercises. It is possible to figure out easily what the situation would be in the case of a real avalanche accident when searchers work under considerable stress. The display showing the searcher the operation mode is insufficiently clear on some of the beacons tested.

The automatic switch-over to „transmit“ on Tracker DTS and Barryvox VS 2000 is still controversial and was not liked by most of the testers.

Tests carried out during one day with 12 to 14 year old schoolgirls and boys have not been conclusive. The number of tests was too small. The three new units and the Pieps 457 Opti 4 have been tested. The search times did not reveal really clear differences between units. The scatter is very large. However, Tracker DTS showed the smallest locating error. For these tests the transmitters were only buried 30-50 cm deep.

Rescue Time

Close interrelation of search strip width, locating time and overall rescue time can be calculated from two concrete examples of an avalanche deposit, a small one 30 m wide and 40 m long, and a medium sized 50 m wide and 80 m long. In fact, greater range means a short primary search but a longer secondary search, and vice versa. In the case of a short range unit, the search is very quick with such a unit on a small avalanche deposit but it takes quite a bit more time on a large avalanche. A beacon with a relatively long range compared with a short range unit takes only slightly more time on a small avalanche but such a unit works much faster on a real large avalanche.

Summary of the Field Test Results

The following table gives a summary of the test results.

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Table 1 Summary of the field test results. The average search time (secondary search) is the time from the first signal up to precise location and represents only one part of the total rescue time. The times are not representative of a search on an avalanche deposit. The search in a serious case lasts much longer. The mean location error (median value) refers to a burial depth of 1 m.

Receiver	mean range	search strip width	mean search time	mean location error
Arva 9000	28 m	18 m	3:14 min	70 cm
Ortovox M1	30 m	21 m	2:22 min	48 cm
Tracker DTS	20 m	20 m	2:04 min	50 cm
Barryvox VS 2000	45 m	50 m	3:09 min	34 cm
Pieps Opti 4	31 m	29 m	2.54 min	54 cm

Results of Laboratory Measurements

The 457 kHz frequency is maintained within the standard tolerance in the case of all units. The accuracy of the transmitter frequency of the two reference units Barryvox VS 2000 (+2 Hz) and Pieps 457 Opti 4 (± 0 Hz) is excellent. Greater deviations, no doubt having a negative effect on compatibility, but still remaining within the standard tolerance of ± 100 Hz, were found in Tracker DTS (+60 Hz) and Ortovox M1 (-49 Hz). In the case of Ortovox M1, the transmitting frequency of three out of the five tested units (from pre-series production) even dropped slightly below the tolerance limit at low temperatures.

In the case of all the tested beacon equipment, the strength of the transmitting field is close to the maximum permissible standard value. This results in an encouragingly long transmitting range for all the units. This reach is reduced only marginally at low temperatures (-20° C). On the other hand, the effect of the battery condition is slightly greater than that of the temperature. Figures equivalent to a 10% reduction in range were found by measurement. Battery life in the „transmit“ operating mode was around 300 hours in most units, varying from 180 hours (Tracker DTS) up to 700 hours (Barryvox VS 2000).

Testing receiver sensitivity the greatest differences were found not only between the units from various manufacturers but also within the same make. While the results of laboratory measurements carried out on Arva 9000 and Barryvox VS 2000 were clearly satisfactory, receiver sensitivity figures found by the test laboratory for Pieps 457 Opti 4 and Ortovox M1 compared with the ETS standard were inadequate by a narrow margin. Receiver sensitivity values in the case of Tracker DTS, measured by an accredited electronics laboratory, were found to be far too low.

Evaluation of the Questionnaires

After the practical tests, the units were assessed (subjectively) by all testers on the basis of a questionnaire containing 40 questions. These questions are arranged in the following 5 main groups: operating safety, operation, locating system, carrying system, operating instruc-

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tions and miscellaneous. Evaluation of the new type units is based on the answers from 52 questionnaires each. Far fewer questionnaires are available for the reference units; there are 11 for Barryvox VS 2000, 15 for Fitre Snow Bip II and 21 for Pieps 457 Opti 4. The 5-grade scale ranges from very bad (grade 1) up to very good (grade 5). Ortovox M1 comes out as the best among the three new type units. Its grades for the three essential features (operating safety, operation and locating system) are practically as good as those for the reference unit Pieps 457 Opti 4. Good grades for the locating system of Ortovox M1 are due to the assessment given to the proven acoustic part; on the other hand, the optical search aid is described in many comments as unsatisfactory. Tracker DTS, its handling in particular having been given lower grades, is second best from among the new type equipment. The Arva 9000 with its locating system having also been given an unsatisfactory average mark, is clearly the worst. From a total of 50 questions, Barryvox VS 2000 is described as unsatisfactory on only two points; Pieps 457 Opti 4 and the new Ortovox M1 have 3 unsatisfactory points, Fitre Snow Bip II 6 points and Tracker DTS 8 and Arva 9000 22 points with an unsatisfactory average grade. So the well-proven reference equipment is not free from imperfections as well. For example, the testers' opinion of Barryvox VS 2000 was negative as regards its size, weight and price, and the automatic switch-over.

Conclusions

The overall picture (field tests, laboratory tests, questionnaires) reveals Ortovox M1 as the best of the three newly developed units tested, followed by Tracker DTS, and with Arva 9000, with generally the worst grades, trailing at the end.

In spite of the fact that advanced features have been introduced to user controls in all three units (optical search aids based on a digital system) and, in the case of Ortovox M1 and Tracker DTS, the search time has also been improved, all three units still have some imperfections. They affect particularly the search for multiple burials (Arva 9000, to some extent Tracker DTS), the locating system (Arva 9000, to some extent Ortovox M1: optical section) and the handling (all three). In addition, for all three new beacons the search strip width is small.

Accordingly IKAR's recommendation is very clear and based on the principle that vital safety equipment should not have any serious imperfections.

There is no doubt that the newly developed equipment is heading in the right direction. The new optical displays offer advantages but are frequently too extensive and in the case of Ortovox M1 even rather confusing. Features of promising solutions have been found in the locating system (Tracker DTS: two receiving antennas, best direction indicator) or in the combination of analog and digital technology (Ortovox M1). In simple situations (small avalanche, only one buried victim, shallow depth etc.), untrained persons should achieve rather better results with Tracker DTS or Ortovox M1 than with the proven equipment. The disappearance of sensitivity regulators in some cases should also be regarded as welcome. Therefore, it is to be hoped that the manufacturers will not be discouraged by the test results and that they will eliminate the imperfections soon. The true dynamism displayed by the development of the beacon equipment will no doubt lead to substantial improvements for the benefit of the user. It appears to be quite

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possible that further development will bring us in the near future a big step closer to the target which is easy-to-control, efficient and reliable avalanche rescue search equipment.

Avalanches: new avalanche beacons still have imperfections International comparison test

Each year, hundreds of avalanches are triggered by winter recreationists - but avalanches spell danger to life. The race with the white death is nowadays almost unthinkable without electronic search devices. The results of an extensive international comparison test, organized by the Swiss Federal Institute for Snow and Avalanche Research in Davos (SLF) have shown that the latest generation of avalanche beacons still has some imperfections.

Electronic search devices play an important role in the rescue of avalanche victims. The search for victims can start immediately after the avalanche release only when the victims and the searchers carry what are called avalanche beacons. Every minute counts because two out of three of those buried by avalanches are found dead after approximately 20 minutes. Most of the equipment employed until now uses acoustic signals and users must regularly practice their skill in using them. Various manufacturers have now brought a new type of equipment onto the market, intended to guide the searchers to those buried with the aid of optical displays showing the direction and the distance to them. The purpose of the newly developed equipment is to simplify the searching procedure and win the race with white death.

However, a large-scale international comparison test, organized by the Swiss Federal Institute for Snow and Avalanche Research in Davos (SLF) has now shown that the new equipment is not free from teething troubles. Although it is true that the new optical beacons offer some advantages, two out of the three units tested having in fact partly reduced the search time in small avalanches, but all of them do in fact have some imperfections as well. These affect, above all, the search in the case of multiple burials, the locating system and the handling.

Considering these test results, the International Commission for Alpine Rescue (ICAR) recommends continuing to use the proven equipment as before. Vital rescue equipment should not have any serious imperfections.

Winter recreationists wishing to buy new equipment in spite of ICAR's recommendations should read the test report in any case (see the box).

The comparison test "LVS-98" was carried out under the auspices of ICAR; financial support was provided by the Swiss Council for Accident Prevention (cap). Various alpine associations and organizations from Switzerland (Swiss Alpine Club, Army Avalanche Service), Germany

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(German Alpine Club), France (ANENA), Italy (AINEVA) and Austria (Austrian Alpine Club) also participated. It was organized by the Swiss Federal Institute for Snow and Avalanche Research, an institute of the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL).

Georges Krüsi, Swiss Federal Institute for Snow and Avalanche Research, Davos, Tel. No. +41 81 417 0167, E-mail: kruesi@slf.ch.

More information can be found on the Internet:

<http://www.slf.ch/slf/info/lvs-e.html>

The Test

Three units of a proven conventional type of beacon were tested: Barryvox VS 2000 (Switzerland), Fitre snow bip II (Italy) and Pieps 457 Opti 4 (Austria), and three new units: Arva 9000 (France), Ortovox M1 (Germany) and Tracker DTS (USA). A total of well over 1000 reach tests and more than 400 locating tests were carried out in Switzerland, France, Italy and Austria. Immediately after the tests, testers completed assessment questionnaires for all tested beacons. In addition, a certified electronic laboratory examined the beacons for conformity with the standards.

All newly developed avalanche beacons clearly show some imperfections. However, looking at it as a whole (field tests, laboratory tests, questionnaires), the Ortovox M1 came out best of the three new units, followed by Tracker DTS, Arva 9000, with much lower marks, is well behind.

A summary of the SLF Test Report will be found on the Internet under <http://www.slf.ch/slf/info/lvs-e.html>

Introduction of the "Daily Public Bulletin"

By Richard Rotteveel

The Canadian Avalanche Association is always looking for ways to improve its' Public Safety Bulletin message to the public and at the same time find ways to fund these initiatives.

We are proposing to update the production of the Bulletin from 2 days per week to possibly 5 to 7 days. (Monday to Sunday)

The Bulletin is broken down into 4 regions:

- Coast
- North Columbia
- South Columbia
- Rockies

We would offer select clients the opportunity to sponsor 1 region for 1 day per week for the entire season at a cost of \$700. The response to this initiative has been good so to get the premium days please sign-up early. **First Come – First Serve!!** Once a sponsor has chosen a day and region, they also retain right of first refusal on that day and region the following season.

You have the option of sponsoring only one or all four regions if you wish. Our Bulletin is featured on our

web page and now receives upwards of 150,000 hits per season. We also auto-email, fax, and reach in excess of 10,000 customers per week on our 1-800 number. The bulletin will be featured on the WIC radio network in the future.

The season will start from mid November and continue until April. We will be promoting through various media the start-up of the Daily Bulletin updates. We will ensure that YOUR COMPANY will receive considerable exposure to the Backcountry Recreationalist.

It is our hope that your company will join us in our efforts to bring this information to the public and further demonstrate your genuine commitment and concern for public safety in a very positive way.

Support for avalanche safety

Article taken from the Creston Valley Advance

The games still continue for Creston's Columbia Brewery after Godzilla unceremoniously spit out a snowboarder during Kokanee's Nagano Olympics commercial.

The brewery has made its second contribution in two years to help the Canadian Ava-

lanche Association's public safety foundation get off the ground.

Its first donation of \$10,000 was presented in January 1997 to honour Ross Rebegliati's gold-metal win in snowboarding at the Nagano Winter Games.

The cheque was given in memory of Rebegliati's friend, Jeff (Lumpy) Leidel, who died along with five other skiers in an avalanche.

This year, the brewery presented another \$5,000 to the CAA at its first avalanche awareness day Jan.17.

"Over the years, the Columbia Brewery has shown its support for recreational activities in B. C. through Kokanee sponsorship of winter sports such as snowboarding," said brewery manager Nancy More, an avid backcountry recreationalist herself.

"And with all of these partnerships our objective is to help promote safety as one of the keys to having fun."

"That's why our association with the CAA makes so much sense."

The CAA educates outdoor recreation enthusiasts on safety, preparedness and the

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dangers of the back-country.

"We're delighted that community partners such as the Columbia Brewery are backing our efforts," said Richard Rotteveel of the CAA.

"They're helping us educate back-country recreation enthusiasts in an ongoing effort to reduce the average annual number of avalanche related deaths in B.C. and Canada."

The Revelstoke-based Canadian Avalanche Centre offers daily reports on back-country conditions through the internet at www.avalanche.ca or by phoning 1-800-667-1105.

IMPORTANT NOTICE!

FUSE NEWS UPDATE

There have been several duds within the past few weeks with the Tec Harsime safety fuse assembly. This fuse is manufactured in Chile and is supplied by Titan Explosives and by Explosives Limited. Initial investigations by Titan Explosives officials suggest that cold temperatures may be a contributing factor related to the duds (the temperature at

the time of the duds was -6°C). Titan has also speculated that the static shunt may be responsible for the duds but have not been able to confirm this through any tests. Titan has notified the parent company in Chile about the duds and they are looking into probably causes as well.

In response to the high frequency of duds over a short period of time Titan has imposed a requirement to double fuse this product. Once again, this applies to the Chilean made, Tec Harsime safety fuse assembly only. The STAR fuse assembly supplied by CIL-Evan/Austin Powder can still be single fused.

George Hafke of the Federal Explosives Branch has recommended that the Tec Harsime fuse assemblies be kept in the foil bag it comes shipped in or some other kind of sealed container to avoid exposure to humidity. George has suggested that Tec Harsime fuse assemblies only be removed from a sealed container immediately prior to use. As with any fuse assembly, George has also suggested that sharp bends be avoided.

As soon as there is more information to report about the status of the Tec Harsime safety fuse assembly it will be included in the News Letter and Info-ex bulletins. As

usual, if you encounter any duds or unusual situations when using safety fuse assemblies please contact any member of the CAA Explosives Committee or the Canadian Avalanche Centre.

Mike Boissonneault
Chair, Explosives Committee

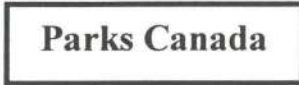
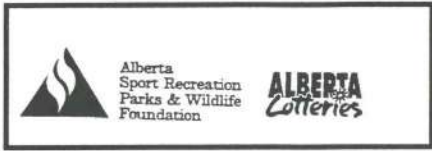
Bernie Protsch
Colani Bezzola
Explosive Committee
Members

Special Thank you

The CAA would like to thank Inge Anhorn for the donation of her late husband Paul Anhorn's historic avalanche book collection.

The books have been put into the members library.

See you at the
AGM;
May 5, 6 & 7



AVALANCHE NEWS

The deadline for the summer issue is June 15, 1999
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