

Education reduces the risks

Avalanche research

For several years, NRC's Division of Building Research has been studying the characteristics of snow avalanches, a dangerous phenomenon responsible for extensive loss of life and property damage in western Canada. Through education, the toll from avalanches can be reduced.

Mount Temple, Lake Louise, Alberta, 11 July, 1955: seven mountain climbers killed, two injured;

Marmot Basin, Jasper, Alberta, 11 March, 1956: one skier killed;

Grand Duc Mine, Steward, B.C., 18 February, 1965: 26 workmen killed, 20 injured;

Rogers Pass, B.C., 8 January 1966: two members of a road crew killed;

Terrace, B.C., 22 January 1974: seven occupants of a building killed and the building destroyed;

Cap-Santé, Québec, 14 January 1976: one tobogganer killed.

(From a Division of Building Research technical report by Peter A. Schaerer and Chris Stethem.)

Between 1970 and 1979, snow avalanches in Canada resulted in an annual toll of seven deaths (on average) and about \$400,000 damage to buildings, power lines, bridges and vehicles. The winter of 1978-1979 witnessed unusually destructive avalanches, causing 14 deaths and estimated property damage of about \$1.8 million dollars.

Until the 1960's, victims of avalanches in Canada were normally found in buildings, travelling on roads or working in the mining, construction and logging industries. Today, however, skiers and mountain-climbers form the majority of avalanche victims; in fact, all fourteen deaths in 1978-1979 were in this category. The shift has been partly caused by an increase in skiing and mountain-climbing, and partly due to better protection on highways and in industry, where accidents and property loss have been reduced by building roads, power lines and settlements in safer areas and restricting traffic during hazardous times.

This reduction is no surprise to NRC avalanche specialist Peter A. Schaerer working out of the Division of Building Research's Regional Station in Vancouver, British Columbia. Schaerer and his colleagues from the Division's Geotechnical Section have played a major role in the development of avalanche safety on roads



and in industry by providing the technical information necessary for recognizing avalanche hazards; they also participate in instructional courses for engineers, planners and other personnel involved with living and working in avalanche-prone areas. Having investigated the characteristics of avalanches and avalanche defence

All photos: Division of Building Research

For several years, DBR specialists have recorded data on avalanches at a test site in Rogers Pass, where some 20 to 30 avalanches are experienced each year; these observations allow scientists to test theories on avalanches.

Photographies: Division des recherches en bâtiment

Depuis plusieurs années, des chercheurs de la DRB accumulent des observations sur les avalanches affectant un site expérimental du col Rogers. Il s'y produit de 20 à 30 avalanches par année, ce qui permet aux scientifiques de la DRB d'obtenir de nombreuses données techniques sur le phénomène et de vérifier les théories actuelles.

methods for more than two decades, the NRC research team is well suited to these tasks. "Our work", says Mr. Schaerer, "has two main facets: we study the dynamics of snow avalanches to obtain the information needed when engineering works like roads, buildings and structures are planned in