

Notes on the Kunama Avalanche

By G. R. T. WARD

THE avalanche that destroyed Kunama

Hutte came down the entire length of the north face of Mt. Clarke about 7.20 a.m. on the morning of Thursday, July 12, 1956. This avalanche originated at the summit of Mt. Clarke and swept to the floor of the basin in a track some 50 yards wide at its maximum. Mt. Clarke forms the southern segment of the Kunama Basin. The altitude of Mt. Clarke is approximately 6,900 feet. The northern slope comprises some rocky crags near the summit and a fairly even moderate gradient to the floor of the valley. The centre of the segment comprising the Kunama Basin is Mt. Northcote, 6,991 feet, which has very steep easterly slopes into the Basin. To the north is Mt. Lee with a steep summit section trailing into moderate slopes. The floor of the Basin is at an approximate altitude of 6,200 feet. In the month of July the prevailing wind is from the west. Most of the precipitation in snow comes from westerly directions. Thus the east facing slope of Mt. Northcote is subject to extremely heavy deposition of snow; Also the south facing slopes of Mount Lee. The north facing slopes of Mt. Clarke generally carry the least amount of snow.

The synoptic situation in the 24 hours preceding the avalanche was as follows:

On the morning of the 11th July, a closed curve depression was centrally situated over New South Wales. As this depression moved towards the coast two centres developed on 12th July. One of these was off the south coast. The last named centre has a reading of below 1002 millibars or 29.59 inches. The following high pressure system was particularly vigorous with a central reading exceeding 1031 millibars or 30.45 inches. The pressure gradient became extremely marked. This resulted in a very cold south easterly air stream over the area.

The effect of this weather system can be noted in the tabulation of readings hereunder. The readings concerned were taken by the Snowy Mountains Hydro Electricity Authority at the Spencers Creek Station (six miles down mountain). These readings are about the same as could have been expected in the Kunama Basin except that temperatures would be some degrees below those tabulated and the wind velocity higher. The readings of the previous six days are also shown.

1956	Temperatures for past 24 hours		Temperature at 7.30 a.m.	Weather and Wind at 7.30 a.m.	Snow and Rainfall during previous 24 hours
	Min.	Max.			
July 5, Thurs.	19	33	24	9/10 Cloudy no wind	No rain or snow
July 6, Frid.	24	34	28	7/10 Cloudy N.W. 5 m.p.h.	No rain or snow
July 7, Sat.	No readings taken				Snow and rain over week-end 615 lbs. of snow and rain incog. 9in. snow
July 8, Sun.	No readings taken				
July 9, Mon.	23	39	29	½ Cloudy S.W. 2 m.p.h.	No rain or snow
July 10, Tues.	10	26	12	Little Cloud no wind	
July 11, Wed.	16	28	27	¾ Clouded, South 10 m.p.h.	
July 12, Thurs.	24	28	28	¾ Clouded, S.E. 15 m.p.h.	No rain 18in. snow



The Northcote Ski Tow Hut burns—a kerosene heater started it.

Photo. Leon Smith.

The weather tabulation shows that the previous week-end had on record 615 points precipitation. Most of this was rain, with nine inches of snow.

Temperatures were moderate. On Monday, the 9th, the weather fined up with a little more snow. On Tuesday, the 10th, the temperature dropped much below normal. On the 11th the weather continued very cold and cloudy with the wind coming from the south. On July, the 12th, the readings show continued low temperatures, the wind around to the south-east caused by the distribution of barometric pressure already referred to which combined to produce a sudden fall of very dry snow. Eighteen inches of snow resulted which fell on a hard icy surface produced from the cold conditions following the rain and milder weather of the previous week-end. Thus there existed a potentially dangerous situation, but under Australian Mountain conditions there was no cause for concern. The snow was loosely packed. It seemingly comprised semi-powder snow

that had not been sealed by rime or wind crusts. Furthermore it had come from a direction diametrically opposed to normal in July, thus made the area a lee slope.

How, then, did the slope avalanche? To answer this question we must consider the summit of Mt. Clarke. Here the wind, blowing with much higher velocity, steadily built up a huge pure powder snow cornice. The critical hour arrived on the morning of the 12th. The wind and snowstorm during the night had built the cornice to the point of collapse with wind blown powder. The moment of disaster came about 7.20 a.m. A powder snow avalanche and cornice avalanche originated. This became channelled between two rocky outcrops, which concentrated its effect. In turn this triggered off a larger slab avalanche comprising the unstable snow slope below. Snow to a depth of two or three feet was set in motion. Much of it had sufficient internal cohesion to come down in big blocks. The situation can be

likened to a stone shattering a sheet of non-splintering safety glass. A major avalanche was generated (speed of movement not known) and it impacted full on the back wall of Kunama some six hundred feet below. The back of the building was crushed inwards, and the momentum of the avalanche moved the building forward half its length whereupon the gallery and roof toppled over into the snout of the avalanche as its force became spent. The site of Kunama is on a round knoll (at the foot of the slope) on which the building was literally perched. This natural protection was of no avail due to deep snow in the area around the knoll. Kunama itself was free of snow above main floor level owing to the windscour around the building.

Structurally the building comprised a granite basement, a main floor in stud frame and weatherboard construction,

plus a gallery under a steeply pitched roof. For additional strength the stud frame construction was tied to the masonry by wire ropes at each corner from the top plates to chains embedded in the masonry, with cross bracing by wire ropes on two sides. The impact of the avalanche was so great that in one observable instance the eye hook linking the wire rope to the chain was straightened out.

There appeared to be a safety factor inasmuch as the building did move with the avalanche, which slowed the tempo of its collapse, and seemingly saved ten inhabitants from injury that could have resulted in being buried in snow and debris. In the abstract, collapsing timber may be a lesser evil than falling masonry as in earthquake areas. Kunama Hut is a total wreck caused by unforeseeable effects of a freakish snowstorm in an area where no danger was anticipated.