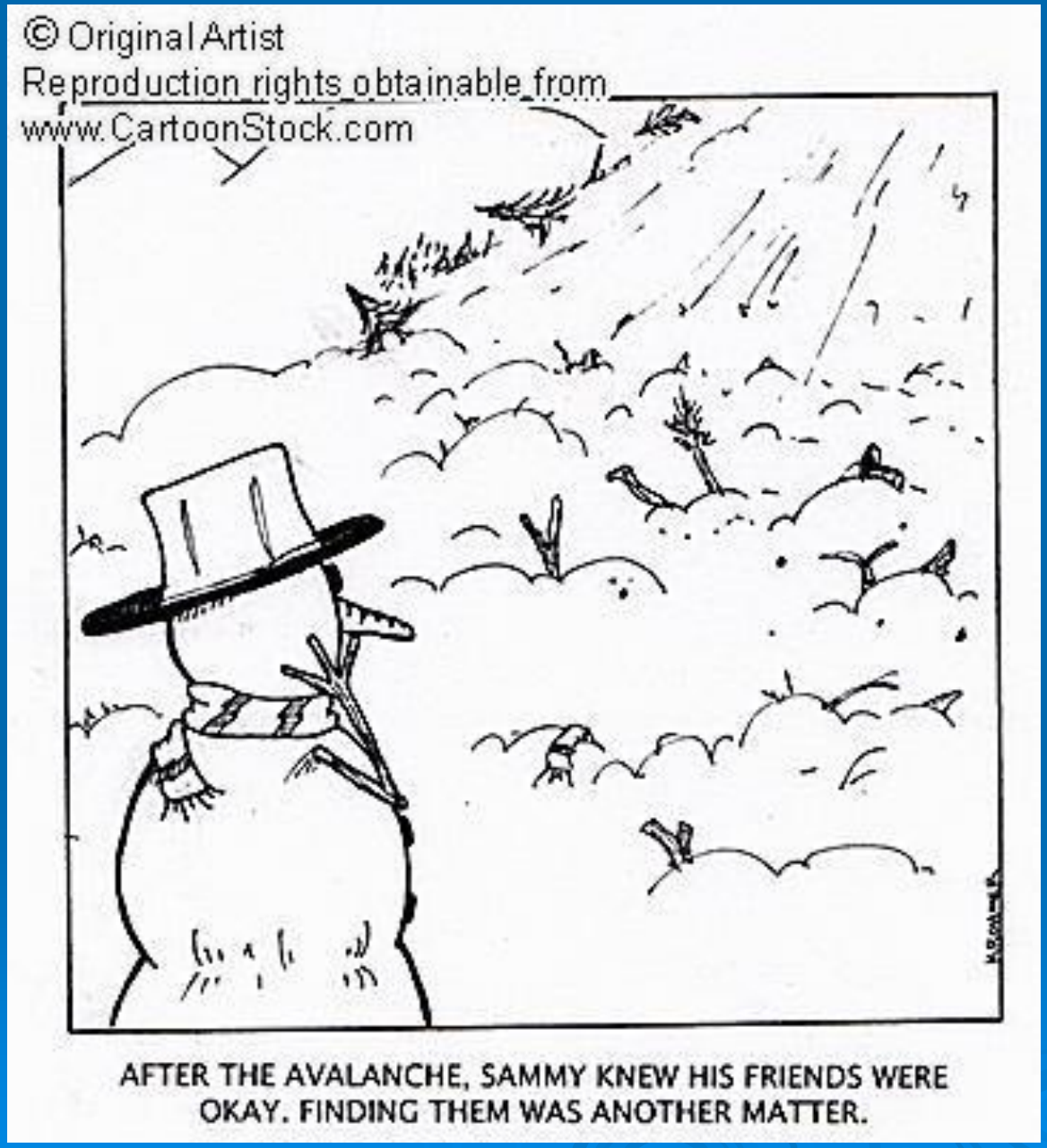
Avalanches – Causes, Effects and Prevention



The Danger of Avalanches!

Clips of avalanches

- http://www.youtube.com/watch?v=B0RWLxOFGLY
- http://www.youtube.com/watch?v=O21wRQSpBug&feature=related
- http://www.youtube.com/watch?v=JwtxNYt6r5U

Destruction caused by avalanches

- http://www.youtube.com/watch?v=0IoWnbDmiYQ&feature=related
- (after an avalanche in Chamonix)
- http://www.youtube.com/watch?v=BKqK1Opp28Q
- (after the Afghan avalanche)
- http://www.youtube.com/watch?v=poikbMgKiPM

What is an avalanche?

- a slide of large masses of snow, ice or mud down a mountain

What causes an avalanche?

- Snow avalanches are usually caused by a combination of:
- Snow depth
- Temperature increases
- Steepness of slope
- Trigger factors- loud noise, additional weight eg skiers, climbers, boarders.

Activity

- What can trigger a snow avalanche?
- Mention at least 3 different factors

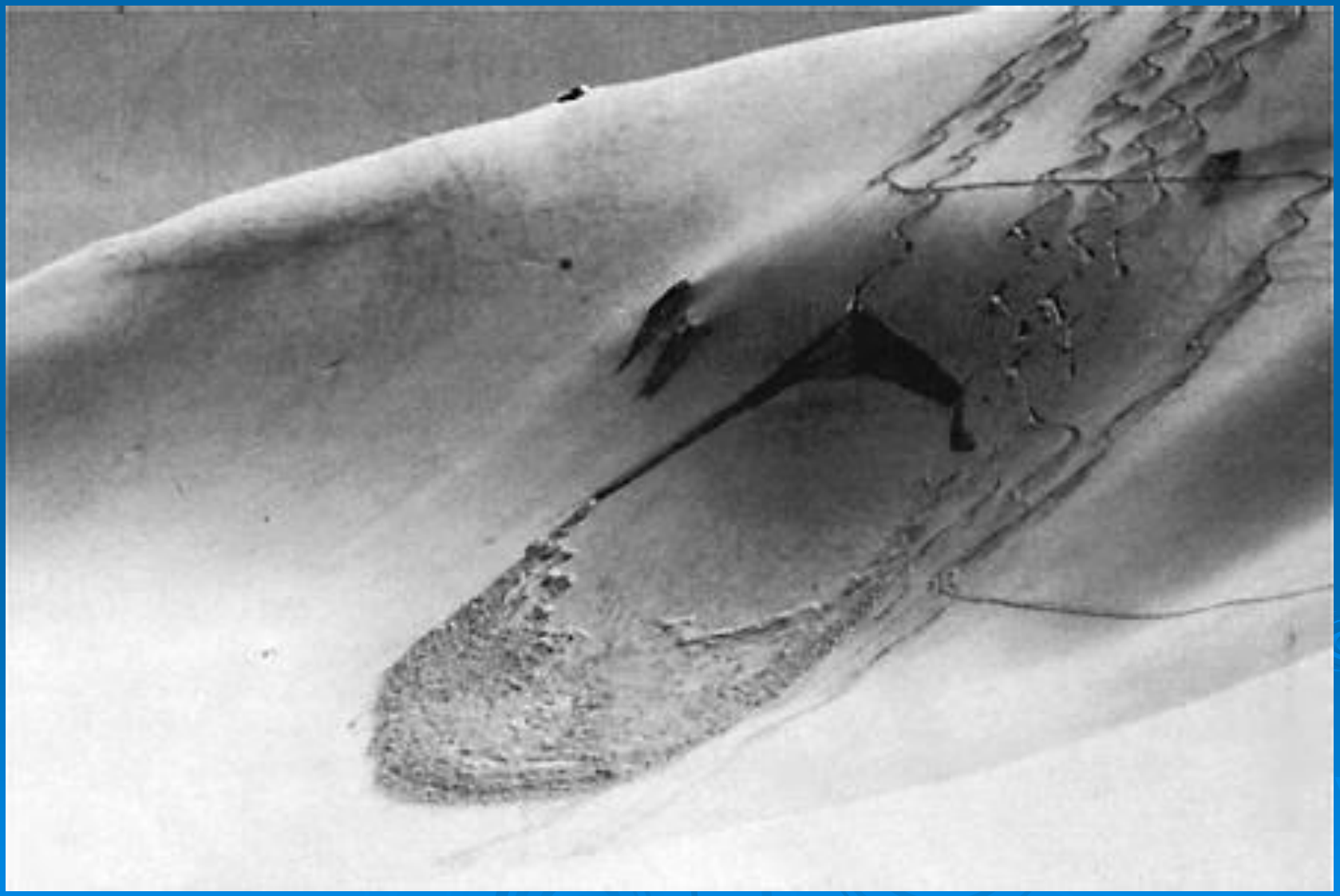
Types of snow avalanches

- Powder Avalanches: Loose snow avalanches begin from a single point and expand as they descend. The slide path looks like an upside down V.
- Slab Avalanches: Slab avalanches are the greatest threat to skiers. A slab is a thick layer of snow that has not stuck well to the layer below. It is under stress and a number of triggers can cause it to break. The trigger may be a storm, a change in temperature or the weight of a person.

Activity

- Explain the difference between Slab and Powder Avalanches in your own words.

Slab Avalanche



Powder Avalanche

Damage Caused by Avalanches

- Death & Injury Individual skiers or larger communities eg. An earthquake in Peru in 1970 measuring 7.8 sent approx. 50 million m3 of snow and ice to the bottom of the valley. The snow came to rest 10 miles from its starting zone and killed around 18,000 people.
- Damage to buildings and property

- Closure of roads, train tracks and disruption to local economies

Activity

- Describe the damage and destruction that snow avalanches can cause.

A bulldozer clearing a road after an avalanche

Prevention of Avalanches

- Deliberate triggers eg small explosive devises cause minor, controlled avalanches
- Snow barriers stabilise snow on the mountain
- Planting trees protects villages & roads below
- Forecasting avalanche danger informs mountain users of the risk

Activity:

- What can be done to limit death and destruction caused by snow avalanches?

Avalanche Barriers

Guns are used to trigger artificial avalanches

Avalanche Warning & Prediction

- Through studying the snow conditions and temperature changes, scientists can predict the avalanche risk to mountain users. Different countries use different systems.

French Avalanche Warning Flags

- **Low risk flag**
- A plain yellow flag means that the risk of avalanche is low (levels 1-2).
- **High risk flag**
- A black and yellow chequered flag means that the risk of avalanche is high (levels 3-4).
- **Very high risk flag**
- A plain black flag means that the risk of avalanche is very high (level 5).