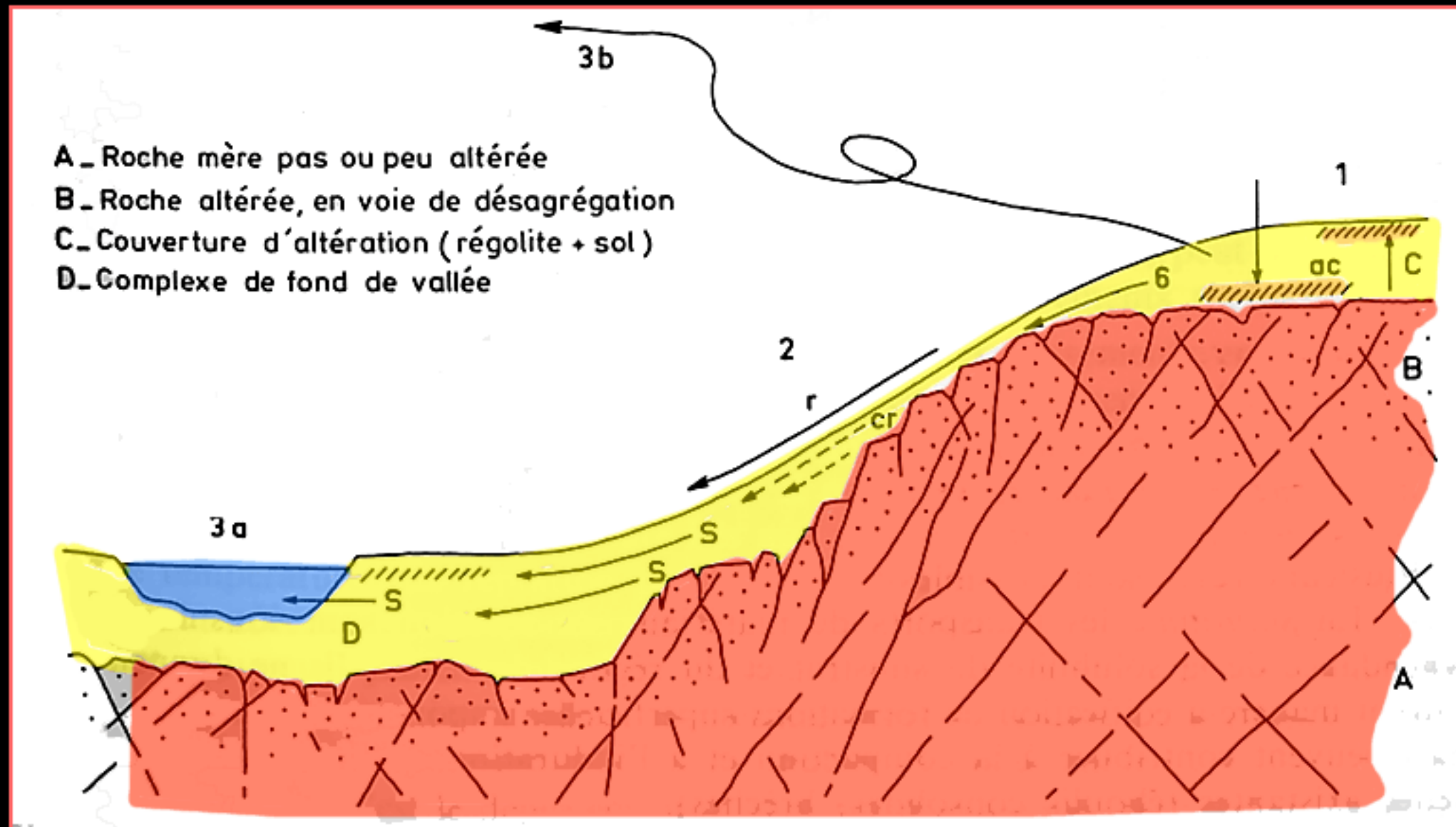


Les formations de versant



1. Processus d'ablation



Sommaire



- ◆ le ruissellement
- ◆ l'écoulement sous-cutané
- ◆ la reptation
- ◆ la solifluxion
- ◆ les glissements en masse
- ◆ les coulées boueuses
- ◆ les avalanches
- ◆ les glissements-effondrements
- ◆ les chutes de pierres
- ◆ les éboulements et écroulements massifs
- ◆ les avalanches de débris

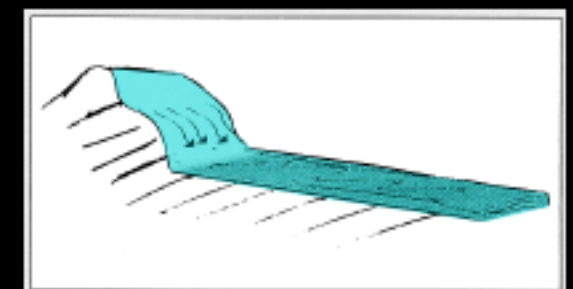
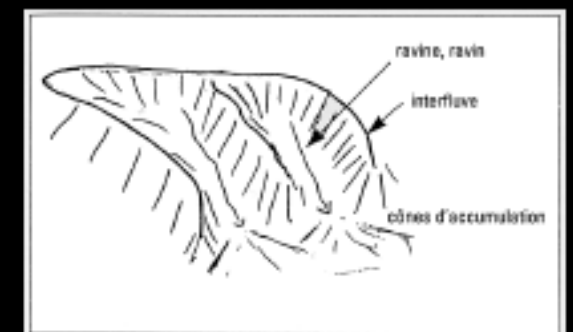
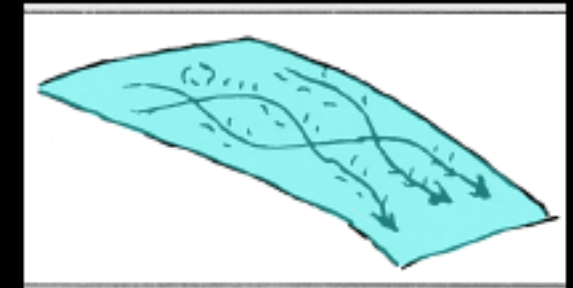


1.1 Le ruissellement



Trois types de ruissellement

- ◆ sous forme diffuse
- ◆ sous forme concentrée et organisée
- ◆ sous forme pelliculaire



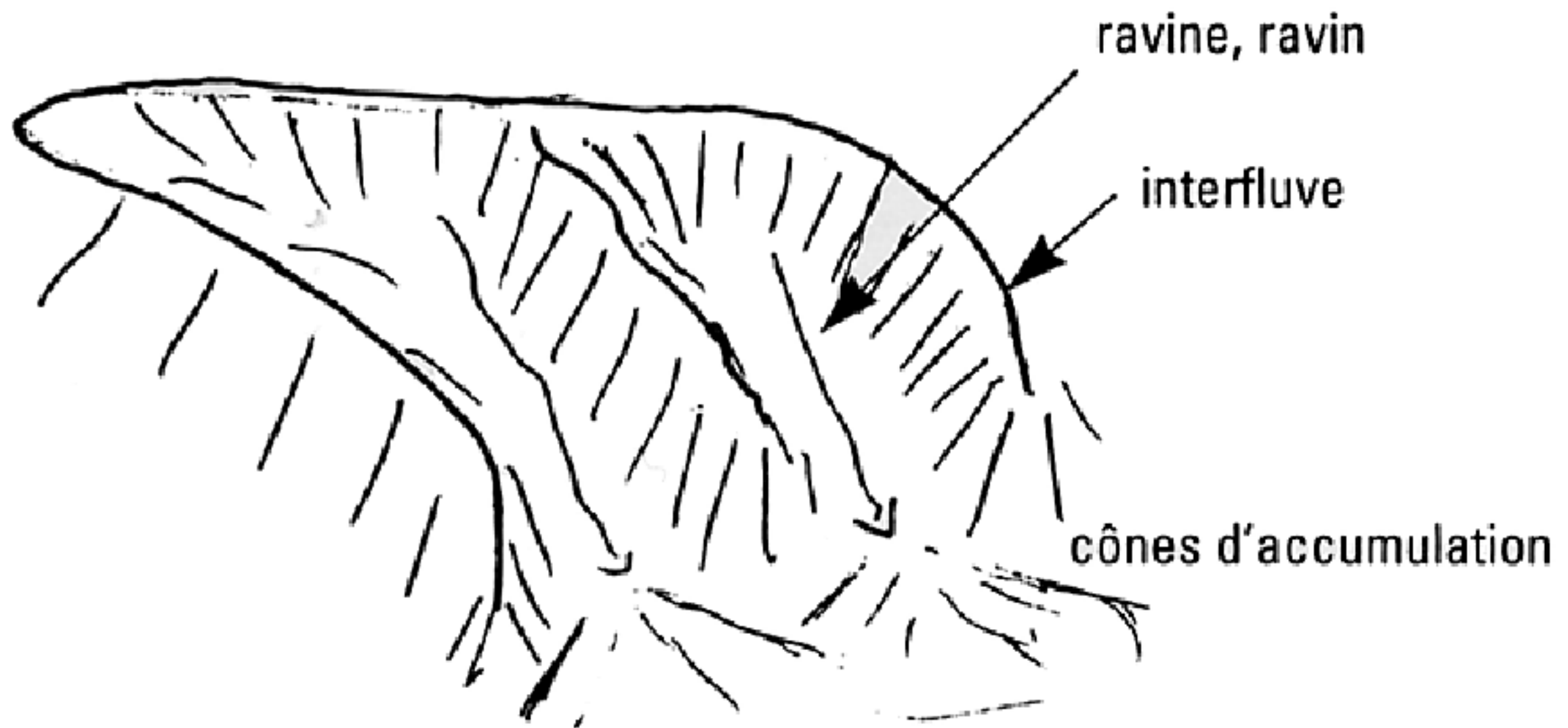
a- sous forme diffuse



b- sous forme concentrée et organisée



Badlands



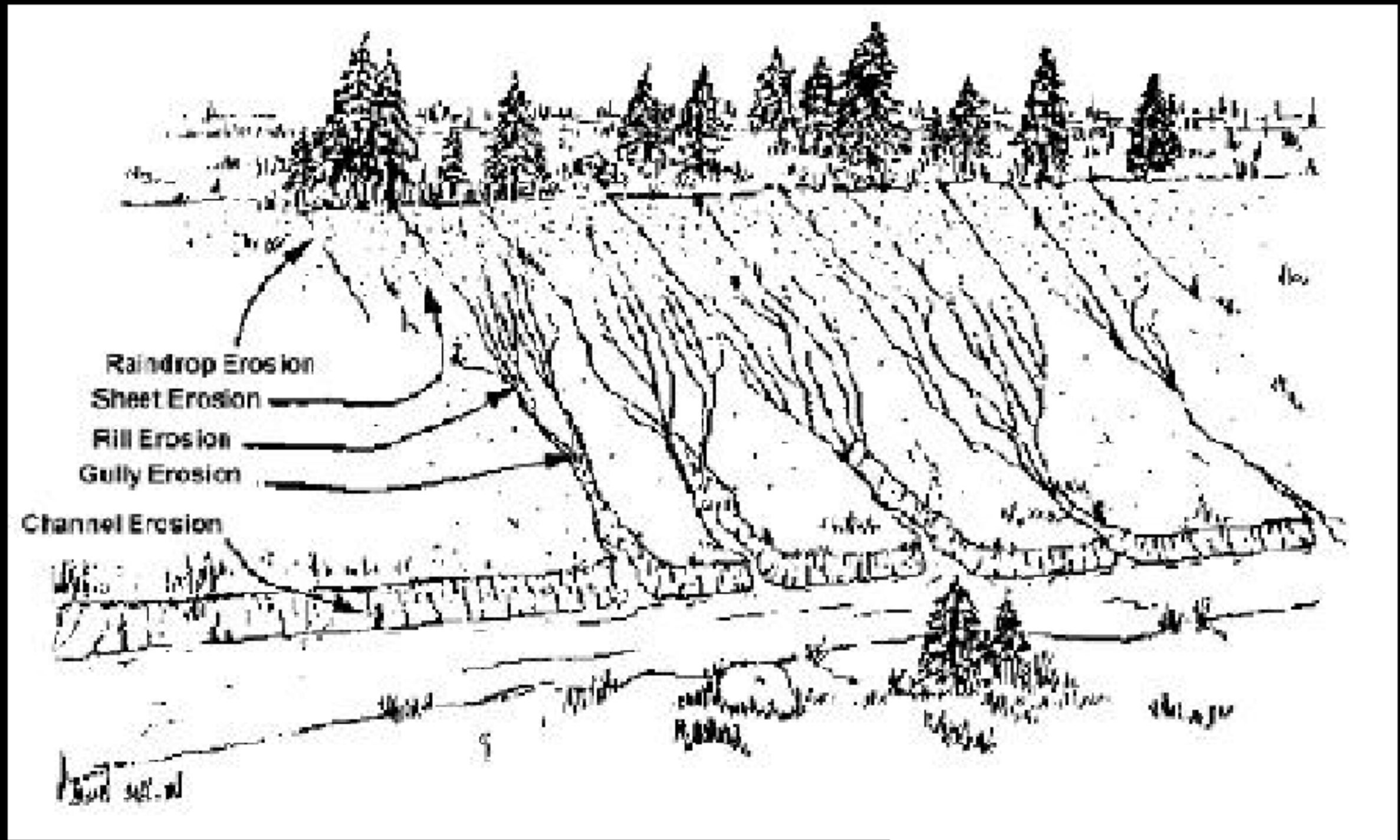
Badlands



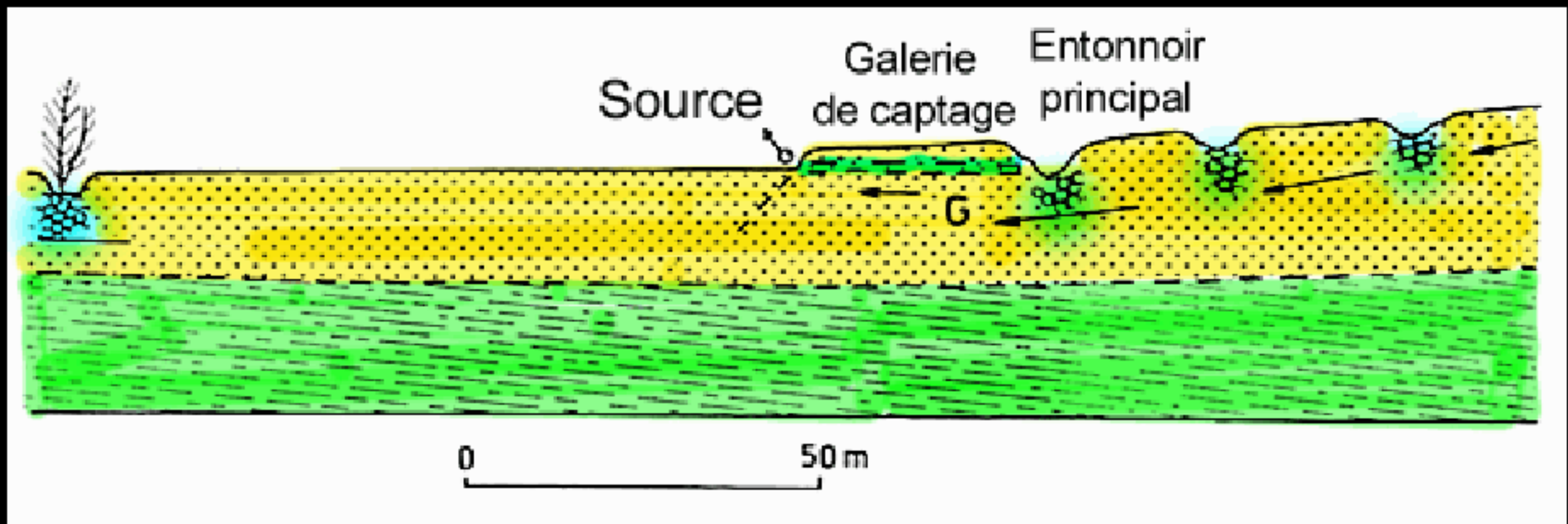


: 1. Processus d'ablation: 1.1 Le ruissellement: b- sous forme concentrée et organisée: Riou Bourdou - Barcelonnette:

c- Combinaison des trois types de ruissellement

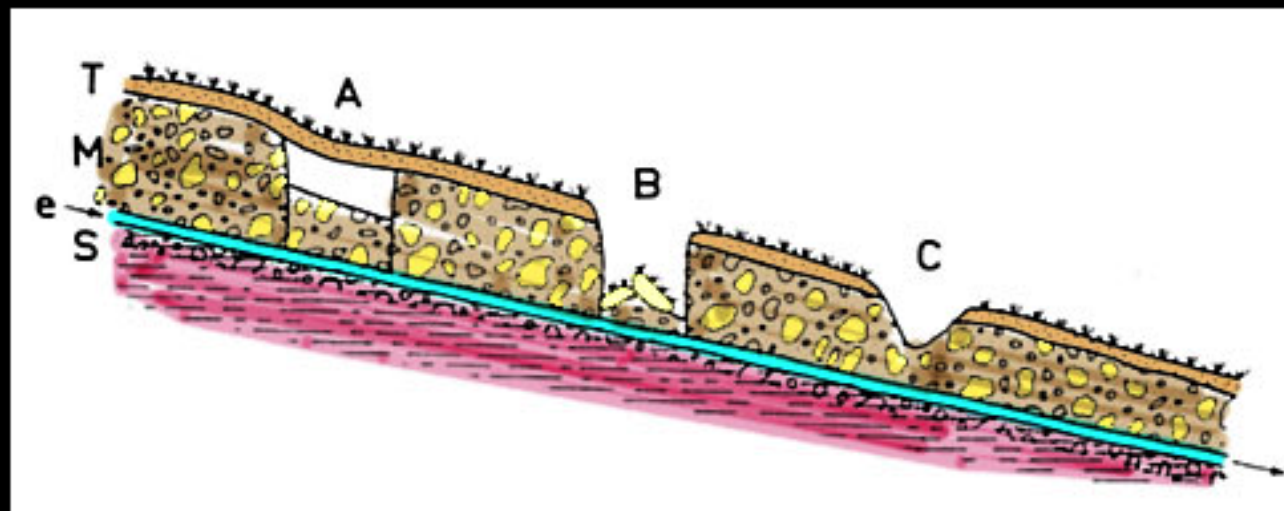


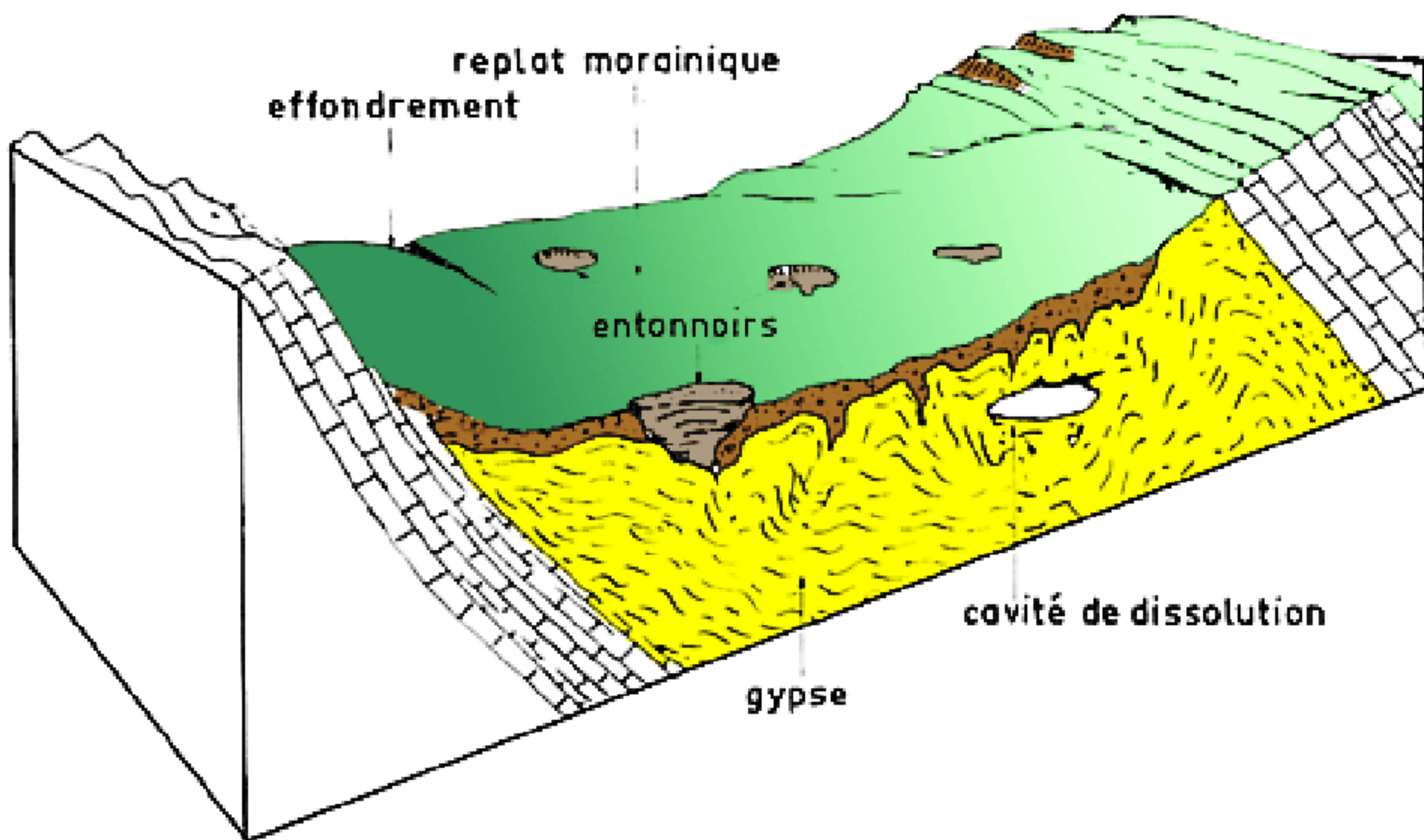
1.2 L'écoulement sous-cutané



Trous d'eaux dans les prairies humides

Entonnoirs d'ablation





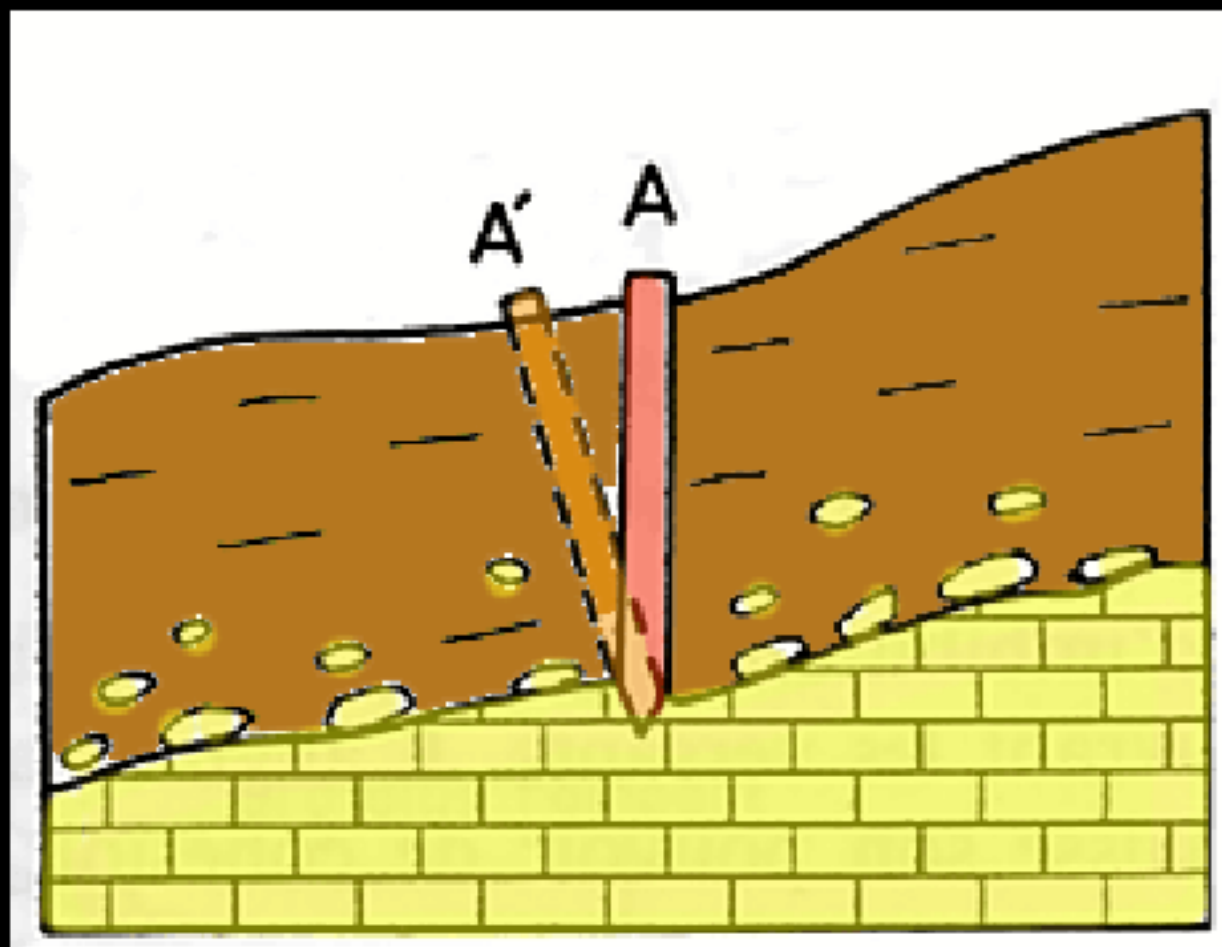
Bétoire en région crayeuse



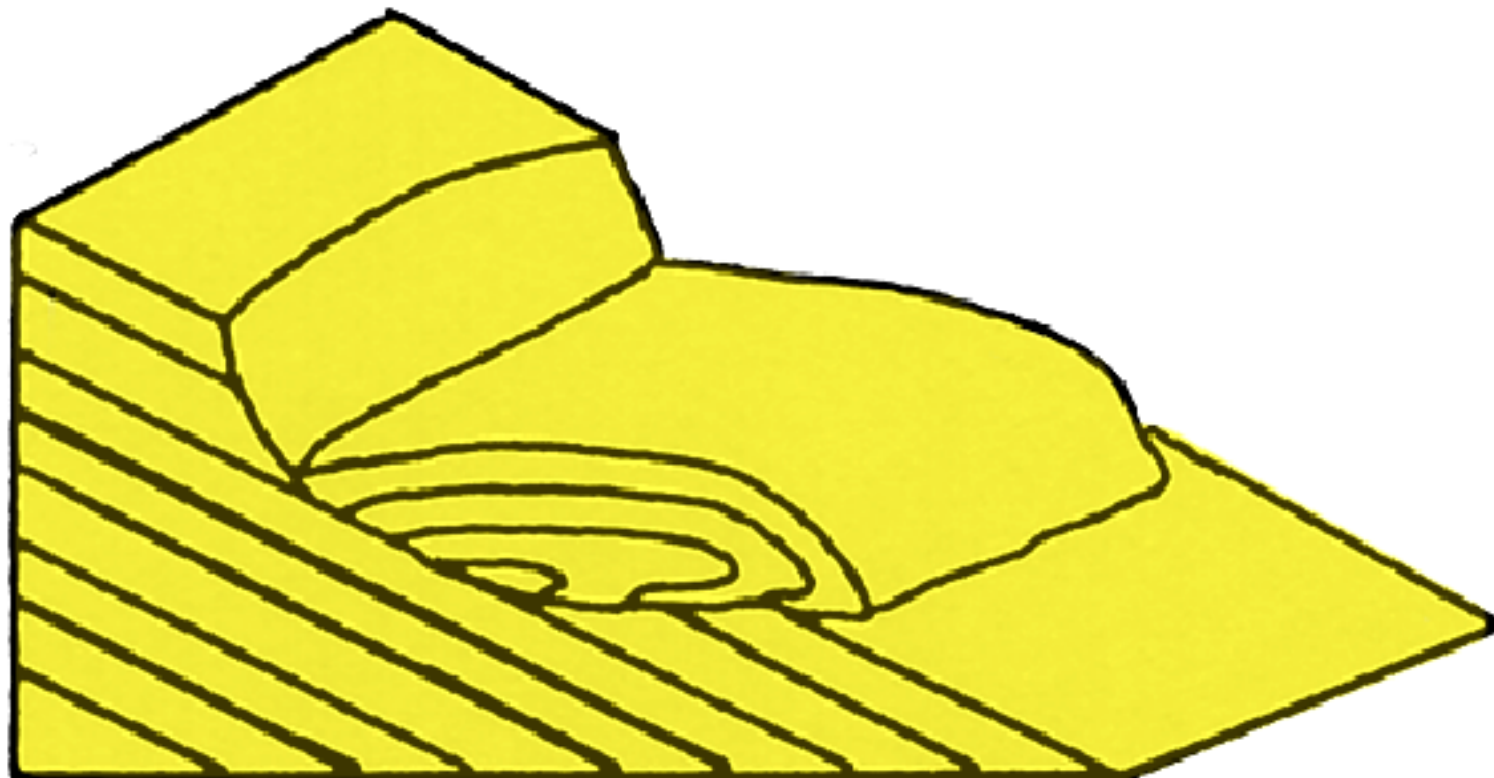


1.3 La reptation



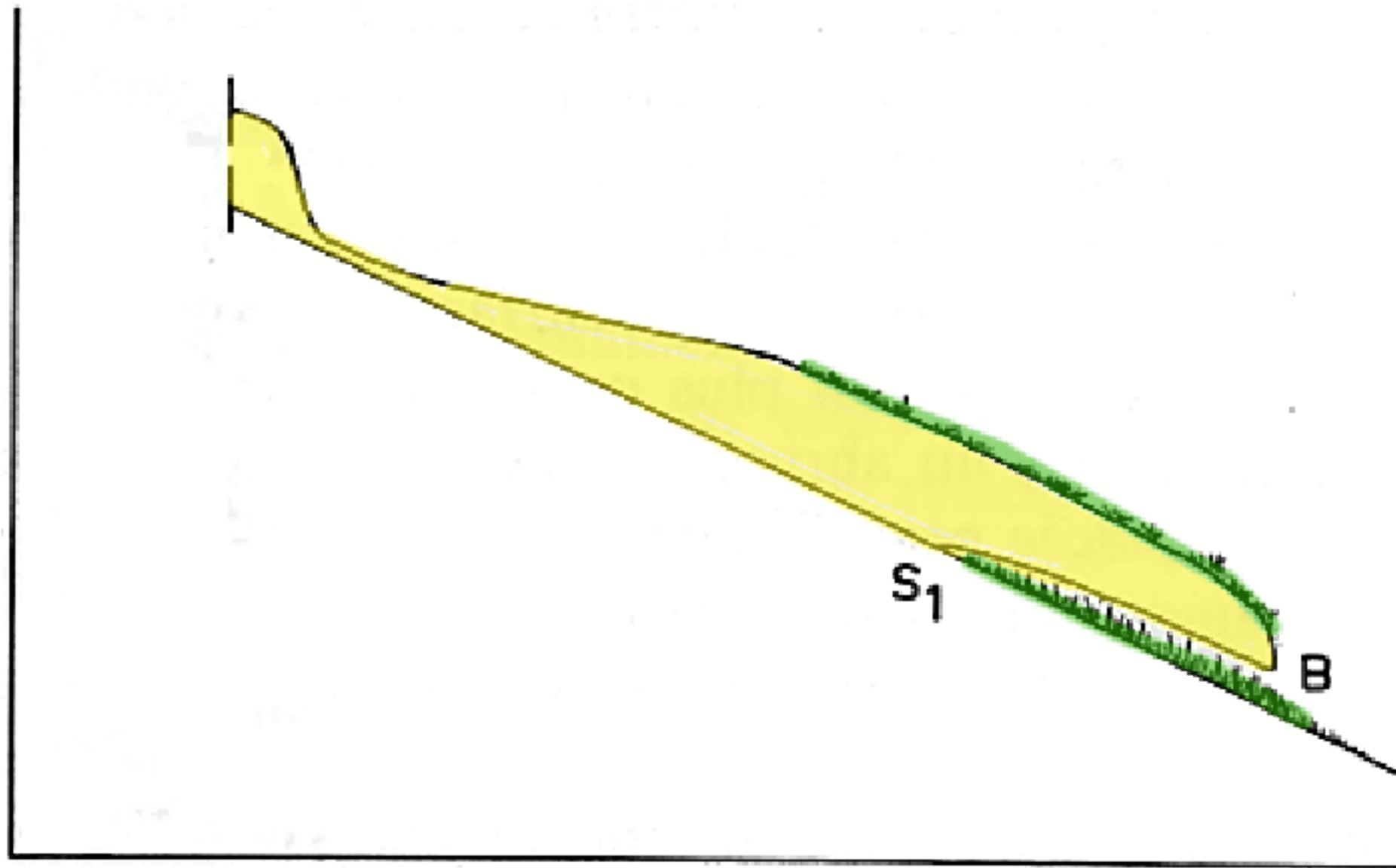


1.4 La solifluxion



Loupe de solifluxion

a



b







Wanderblock



Bloc laboureur

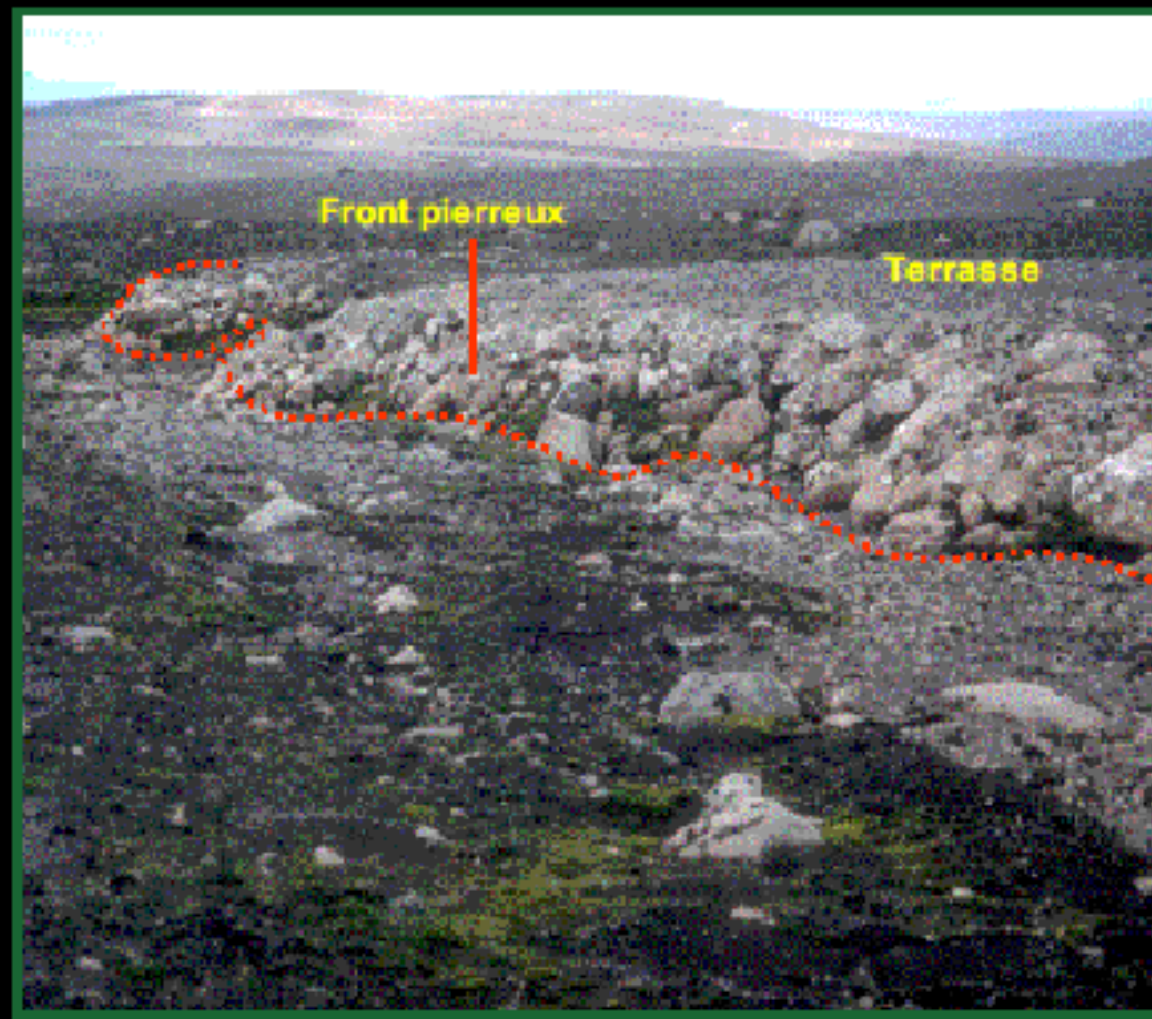
Gélifluxion



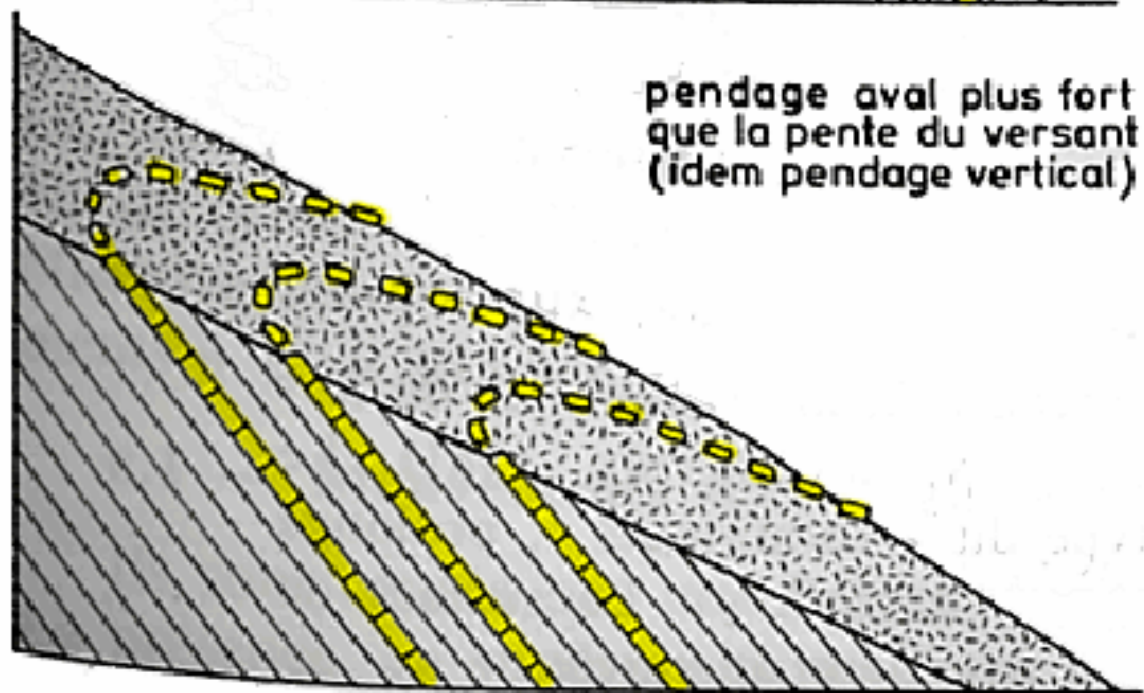
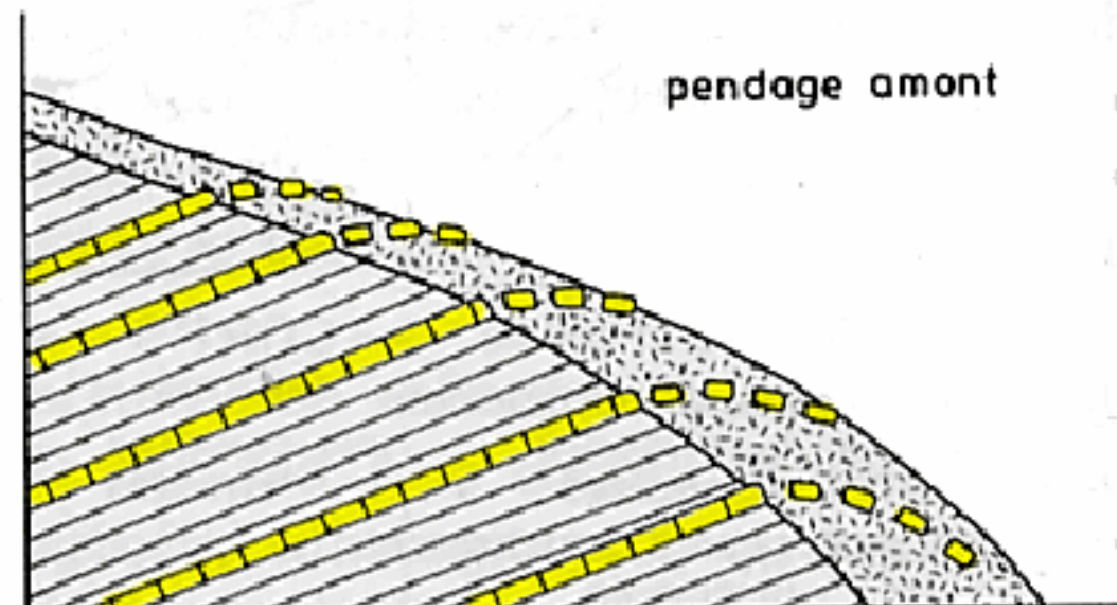
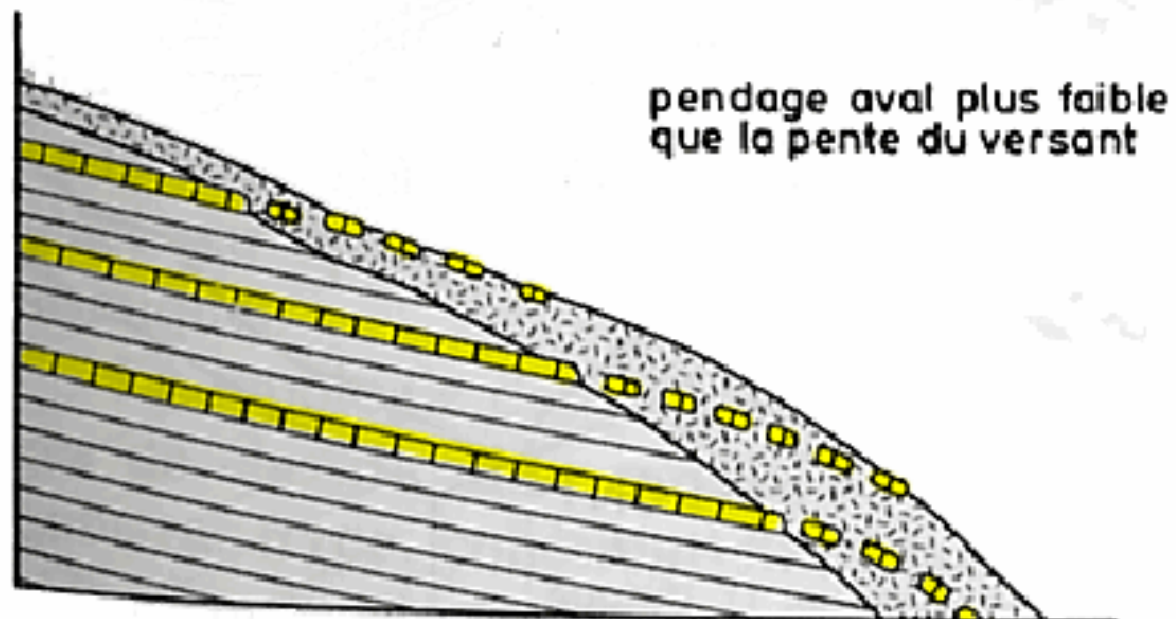
Gélifluxion



Gélifluxion



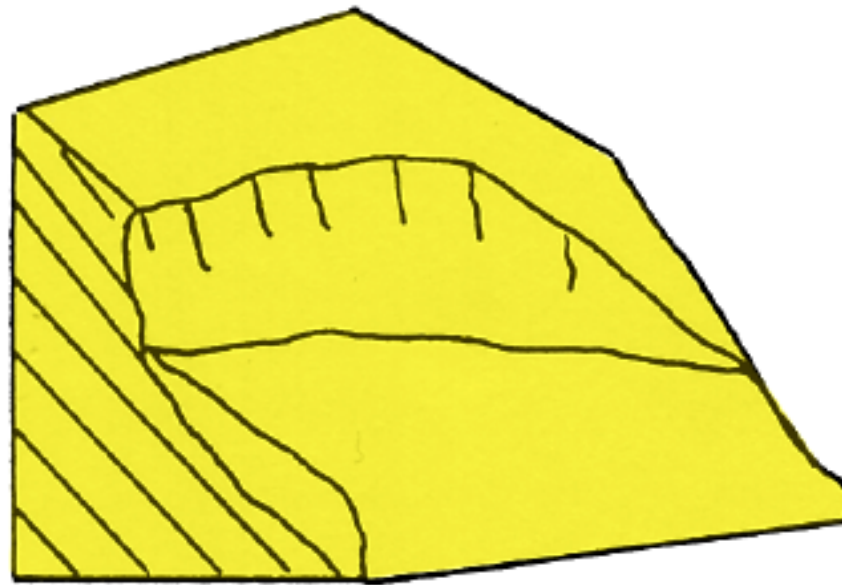
Fauchage



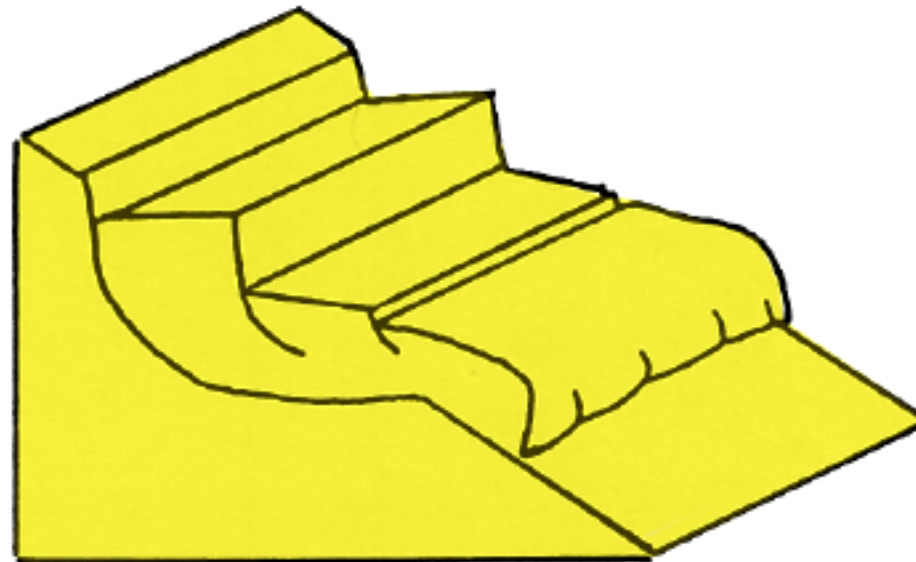


: 1. Processus d'ablation: 1.4 La solifluxion: Fauchage: :

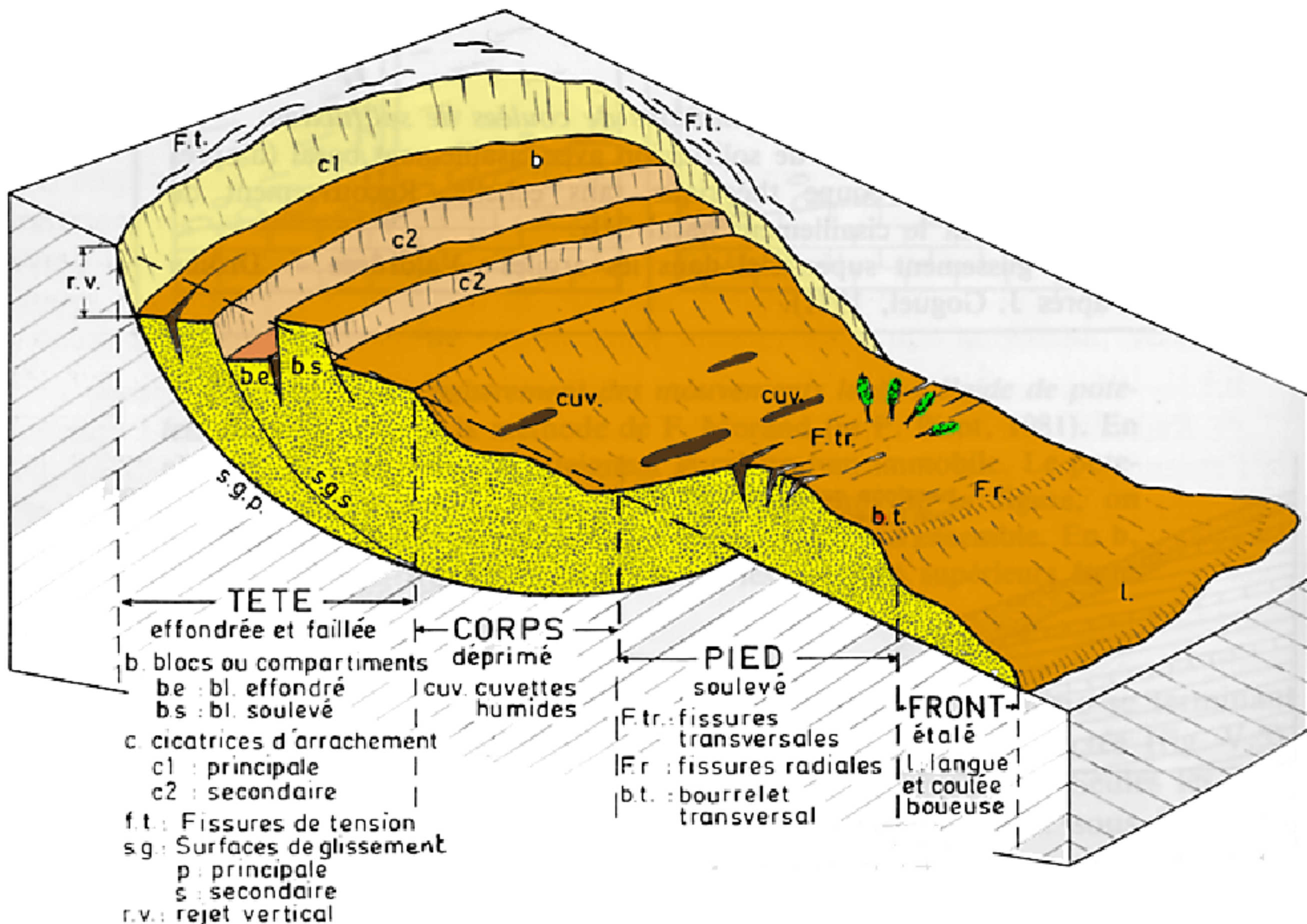
1.5 Les glissements en masse



Glissement laminaire



Glissement rotationnel









1936



1978

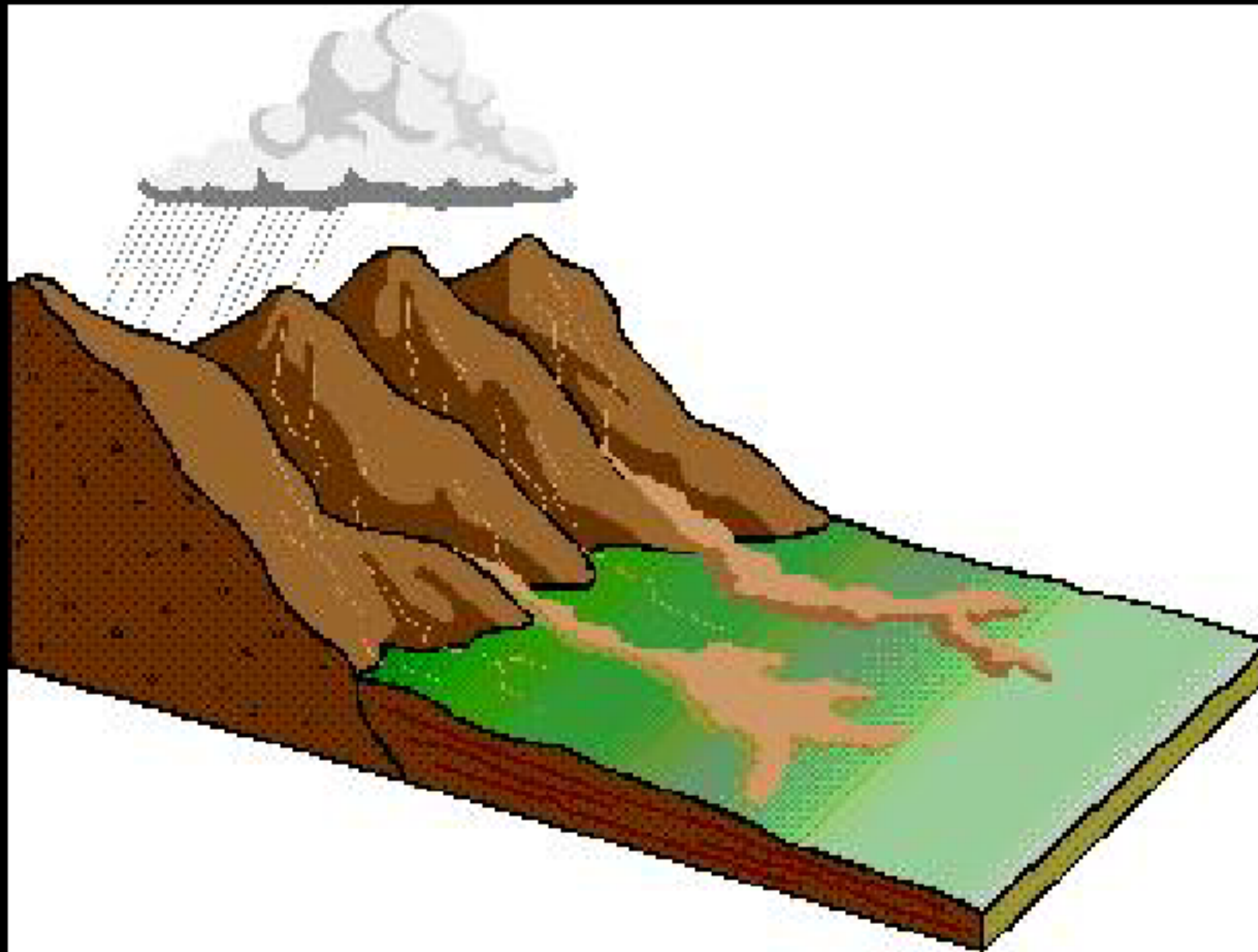


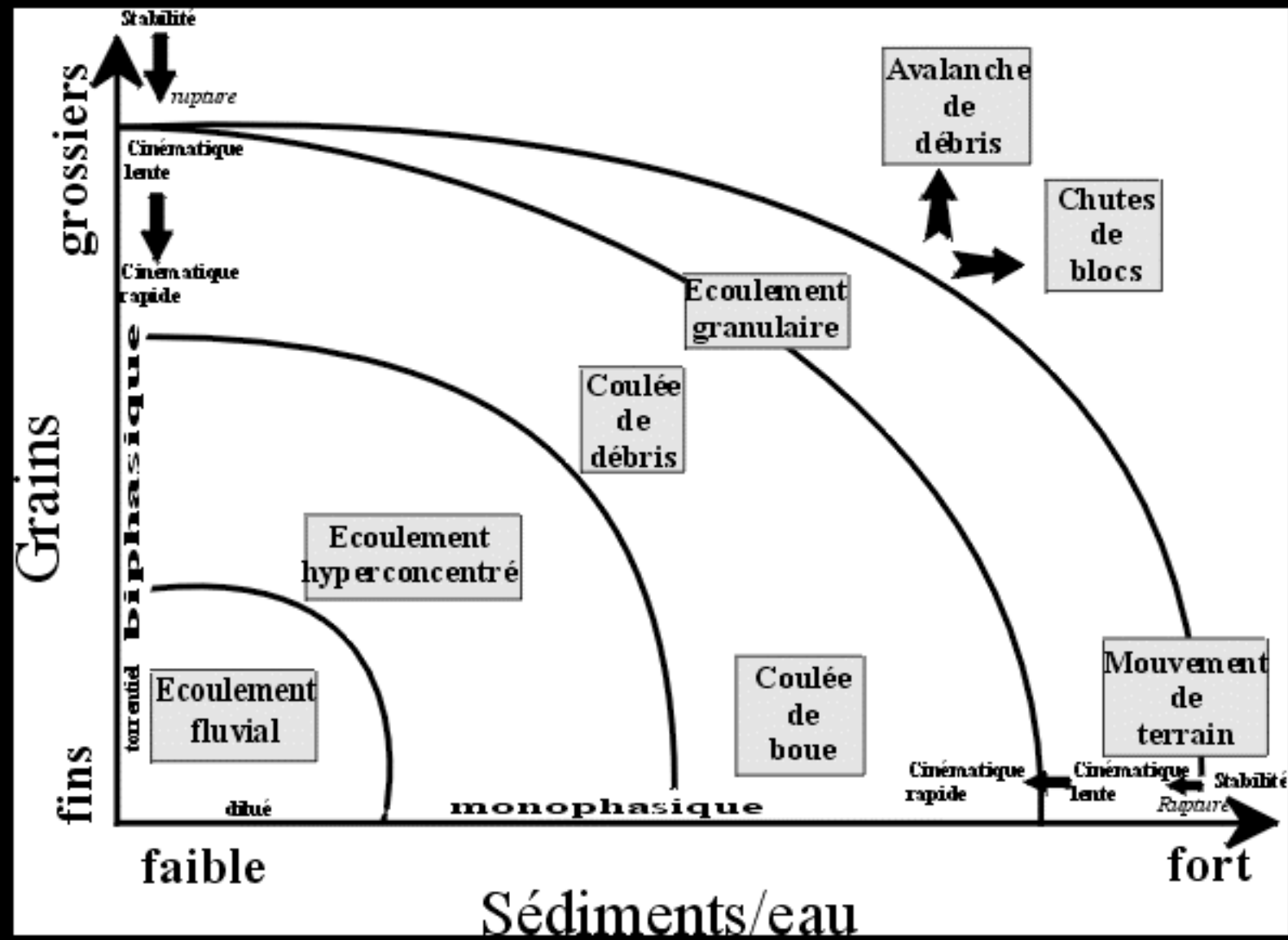
1986



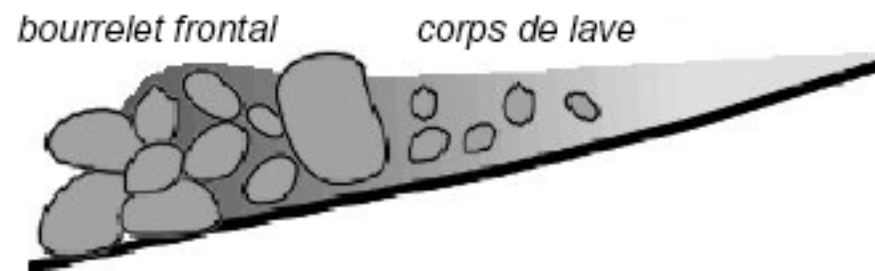
1998

1.6 Les coulées boueuses



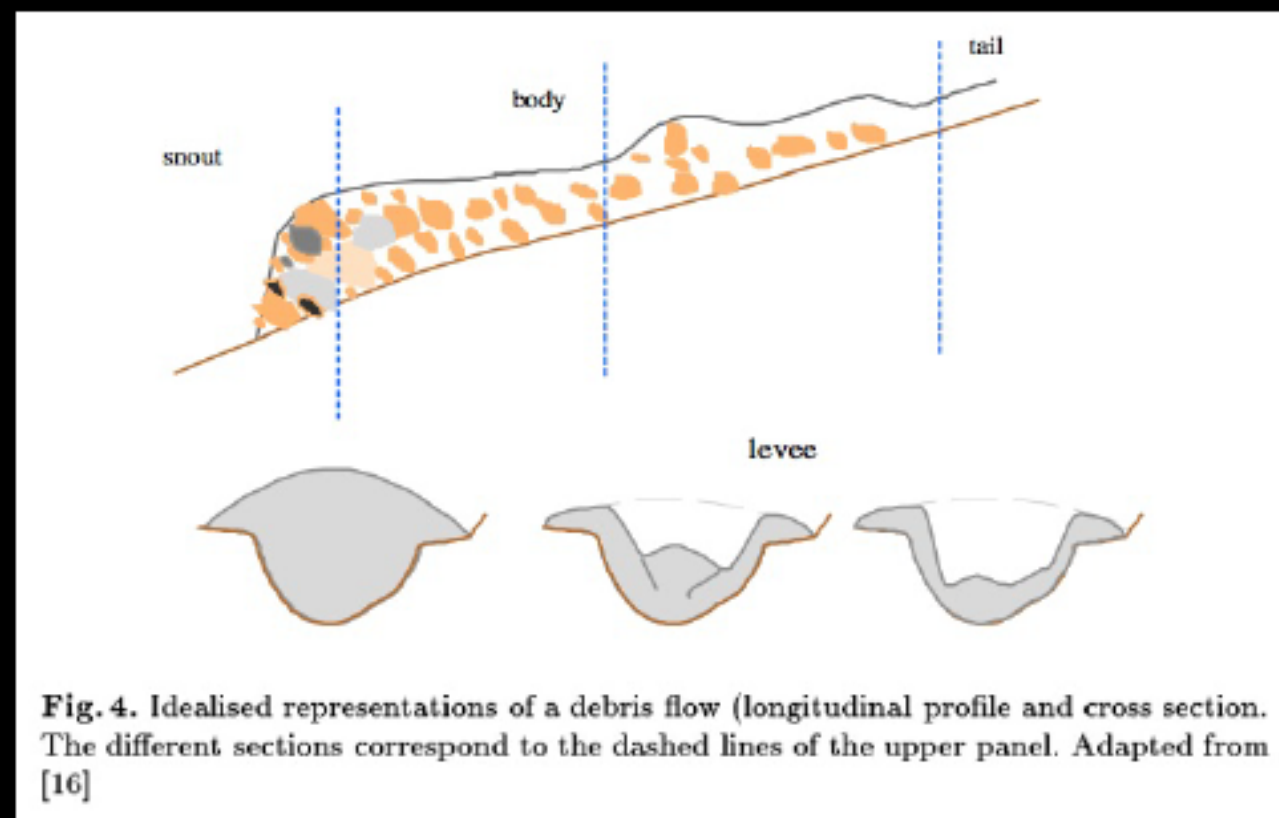
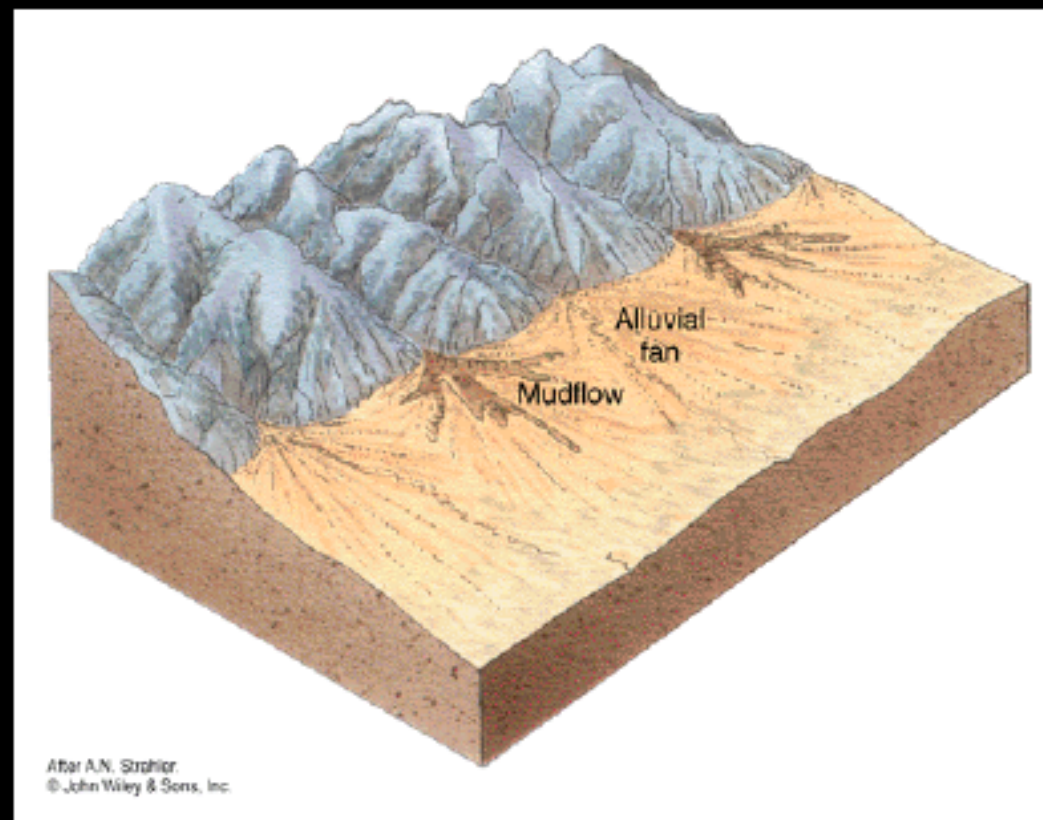


Laves torrentielles



Bourg-Saint-Maurice 1996 - doc.V.Koulinski







Zone d'alimentation des coulées boueuses



Niche d'arrachement de laves torrentielles

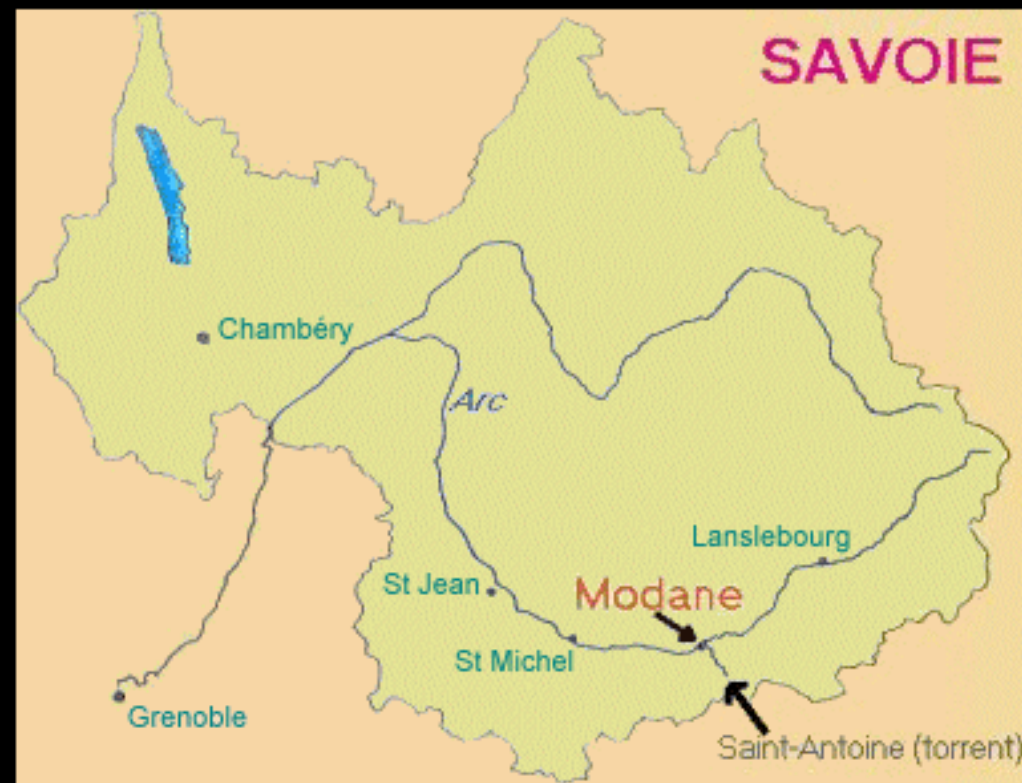


dans des calcaires dolomitiques



Colorado

Modane (1987)





La route nationale inondée



le cône de déjection du torrent
Saint-Antoine



le chenal du torrent
Saint-Antoine

1.7 Les avalanches

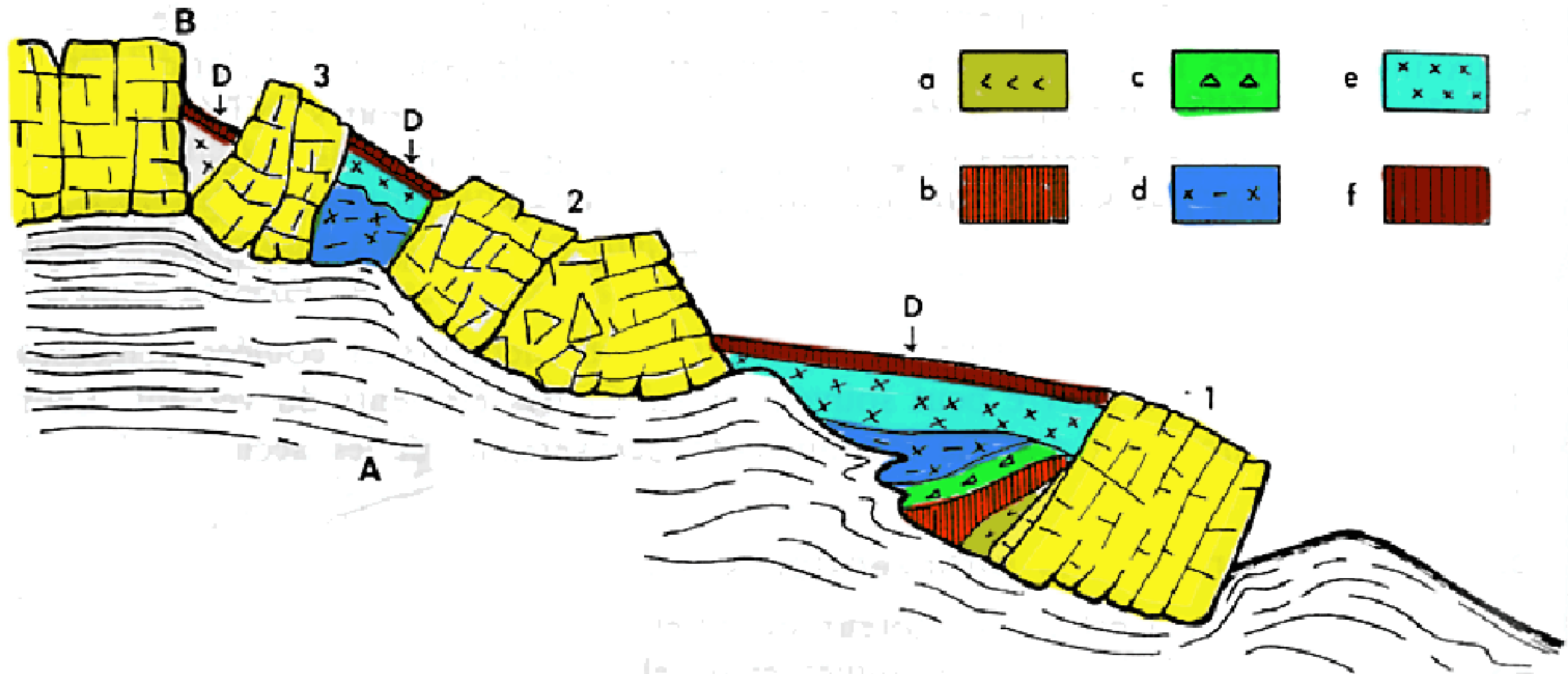


Niches de
déracinement d'arbres
consécutives à une
avalanche

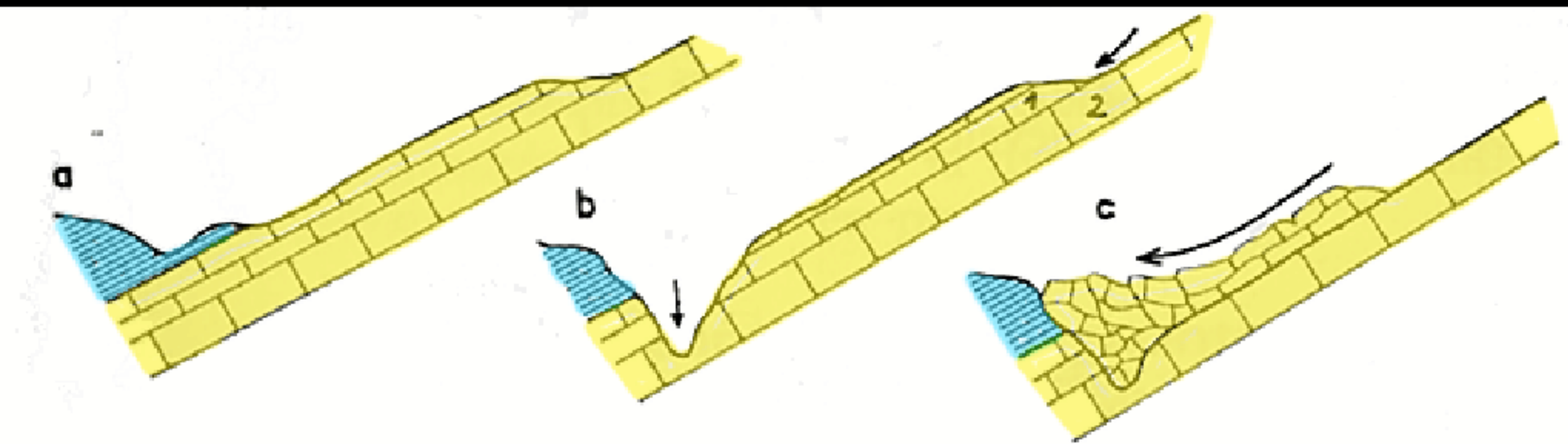
Dépôts rocheux d'avalanches

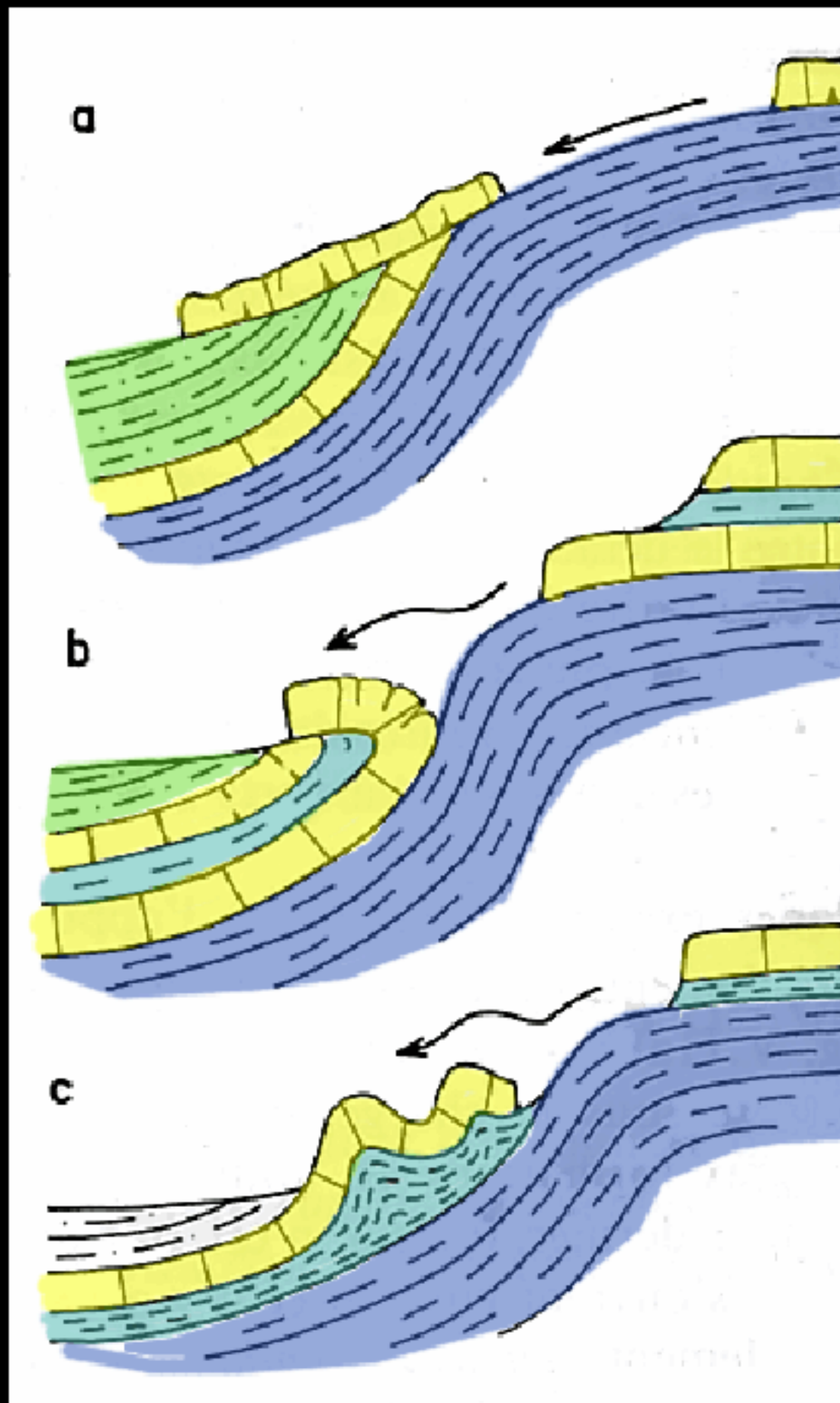


1.8 Les glissements-effondrements



Glissements





Décoiffements

Renversements

Plissotements

1.9 Les chutes de pierre



1.10 Eboulements et écroulements massifs





: 1. Processus d'ablation: 1.10 Eboulements et écroulements massifs: Clichés:



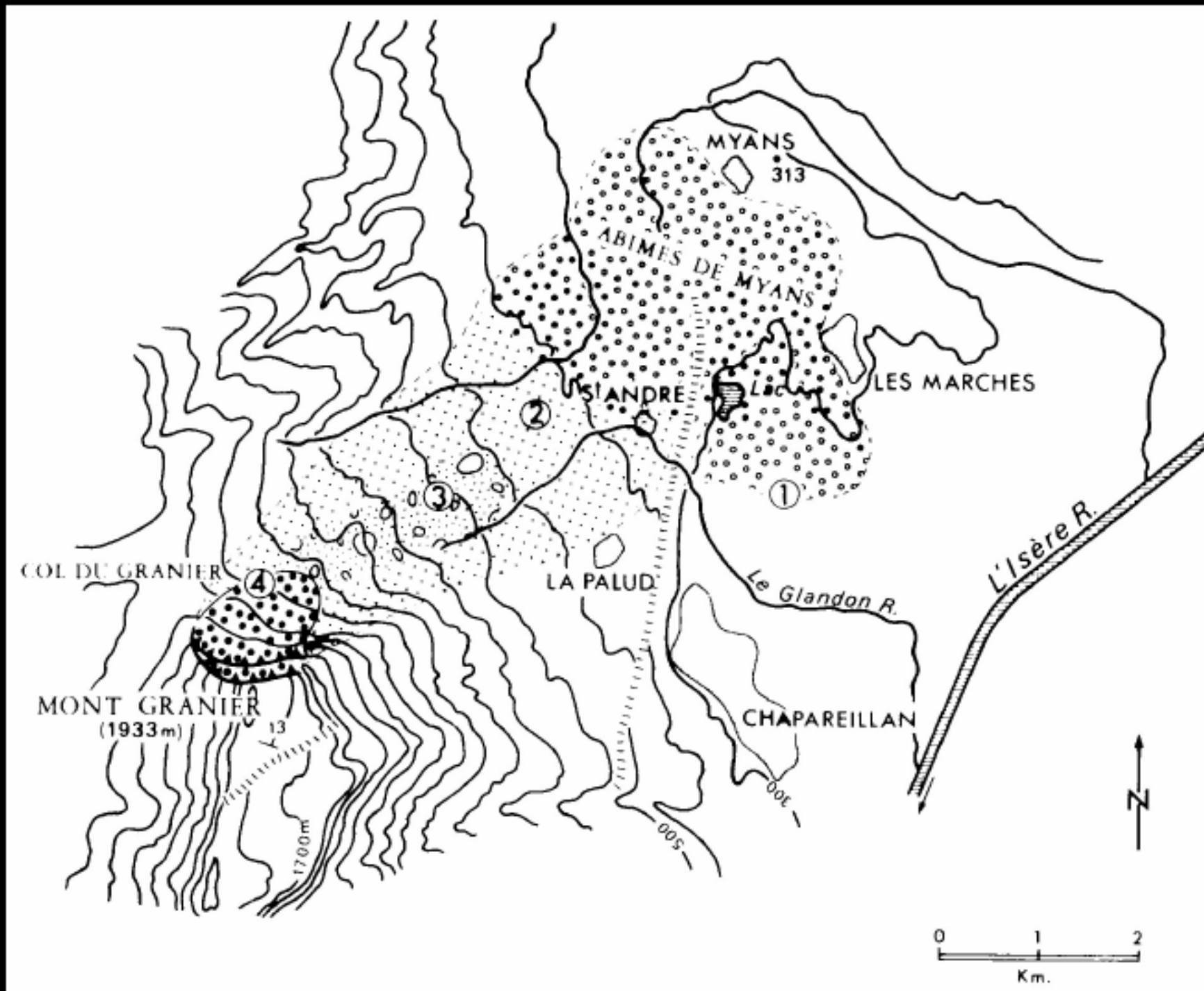
200 000 m³, Canada, 1999

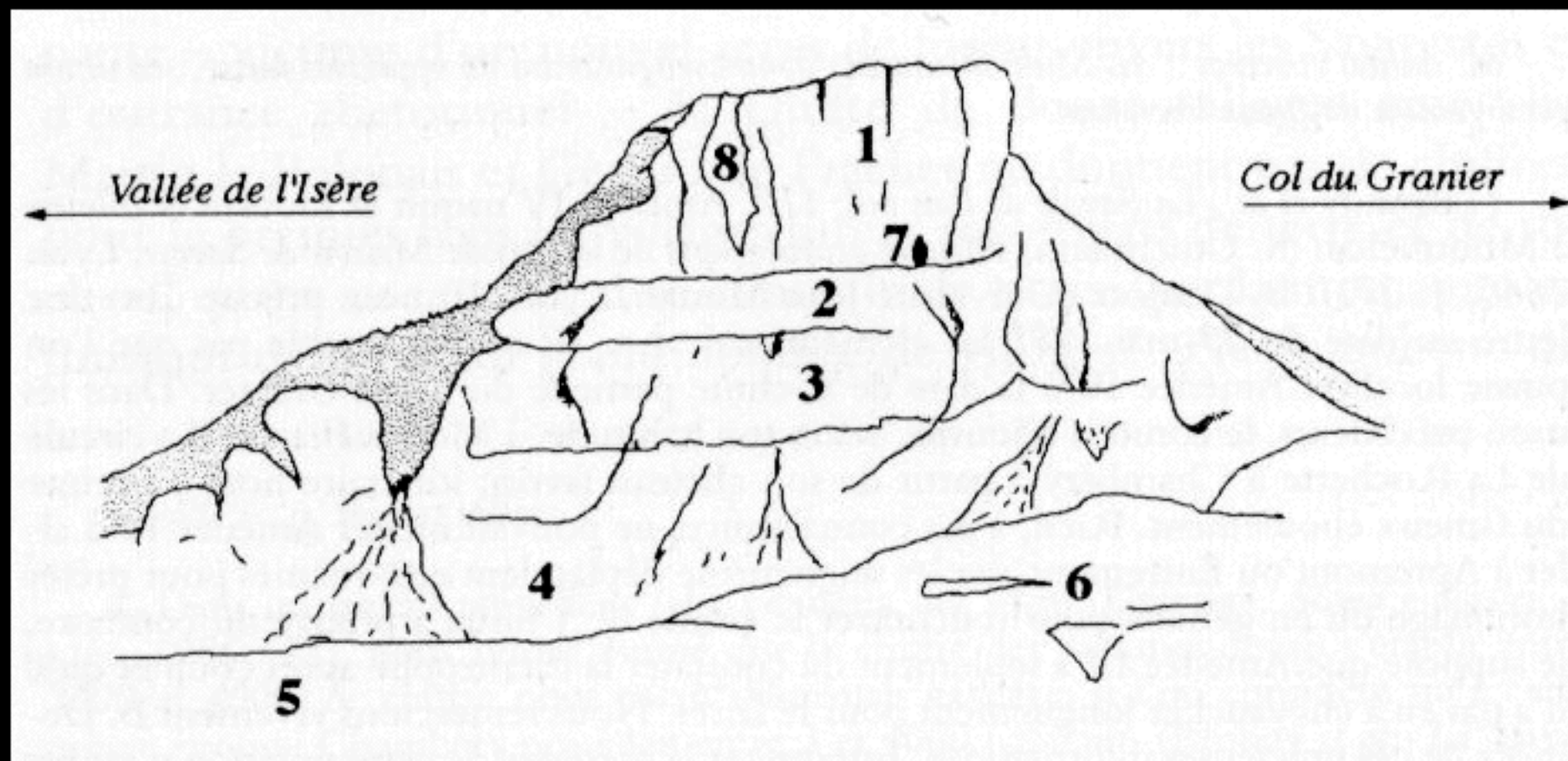


33 millions de m³, Canada,
1903, 70 victimes



Le Mont Granier





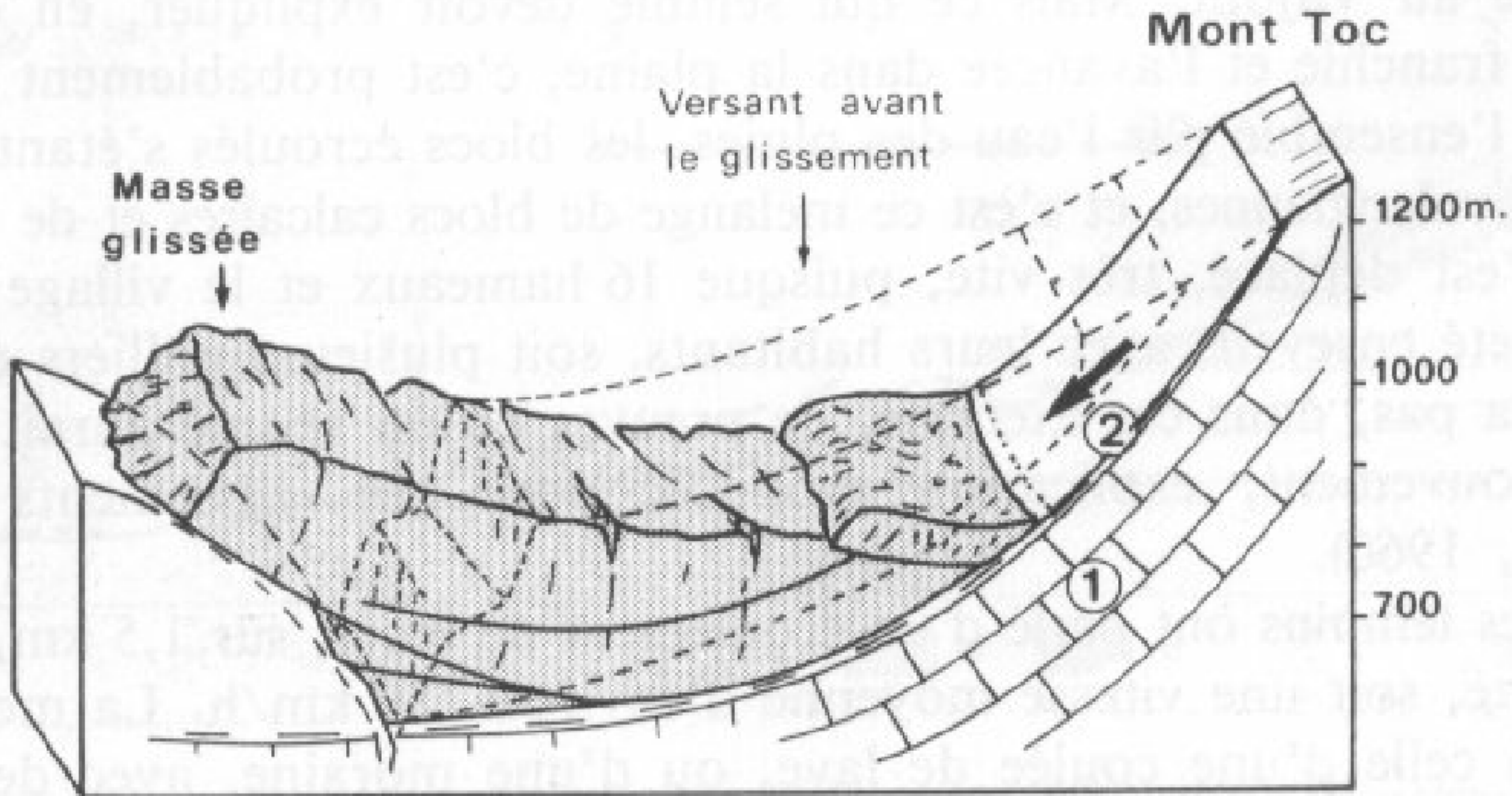
1: Urgonien. 2: Hauterivien. 3: Valanginien supérieur calcaire. 4: Valanginien inférieur marneux. 5: Zone forestière installée sur les éboulis de 1248. 6: Arrachement récent dans le Valanginien marneux. 7: Grotte de résurgence karstique. 8: Tracé de l'écrroulement du sommet de la falaise de 1953.

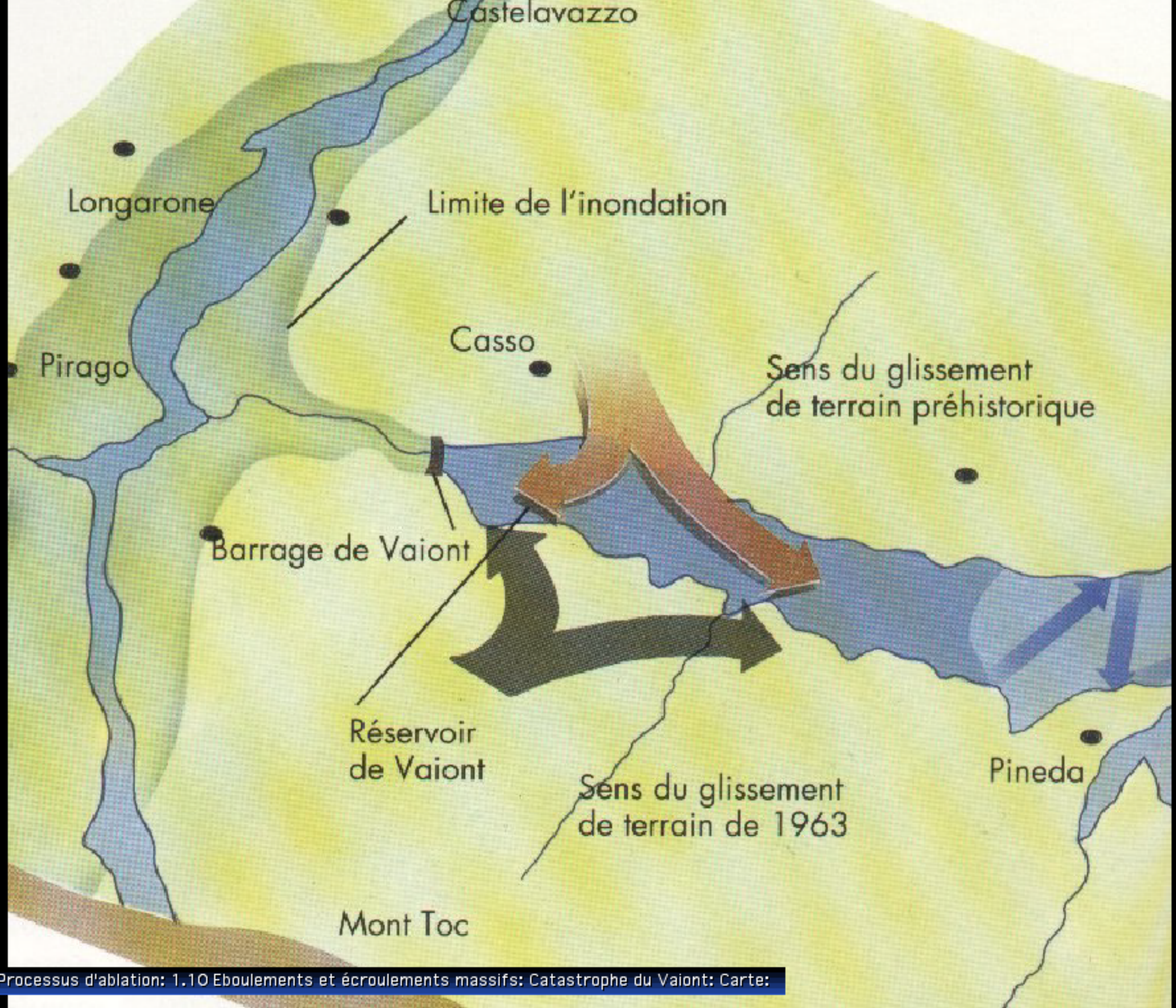


Les abimes de Myans

: 1. Processus d'ablation: 1.10 Eboulements et écroulements massifs: Mont Granier: :

La catastrophe du Vaiont







vu de l'amont vers l'aval

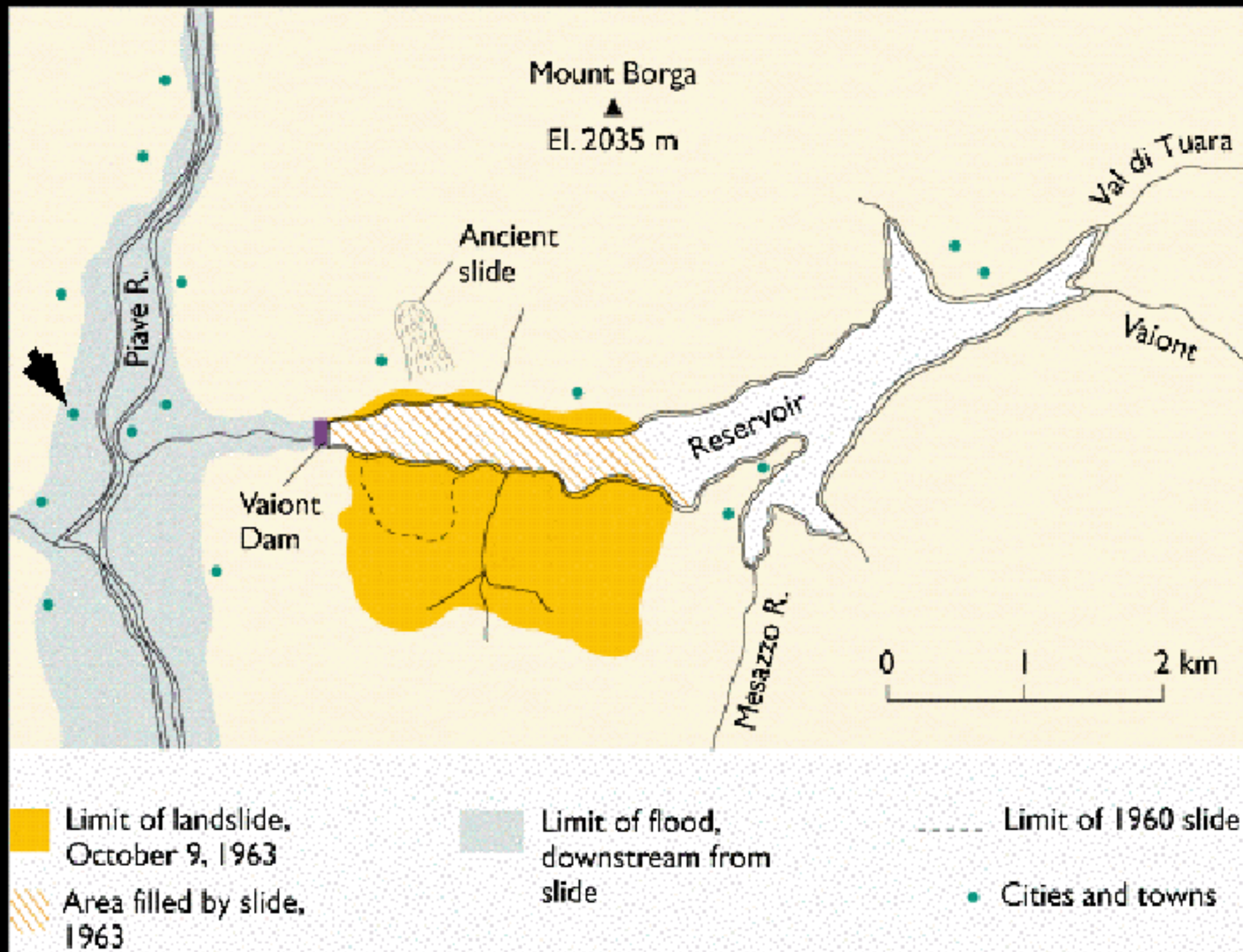
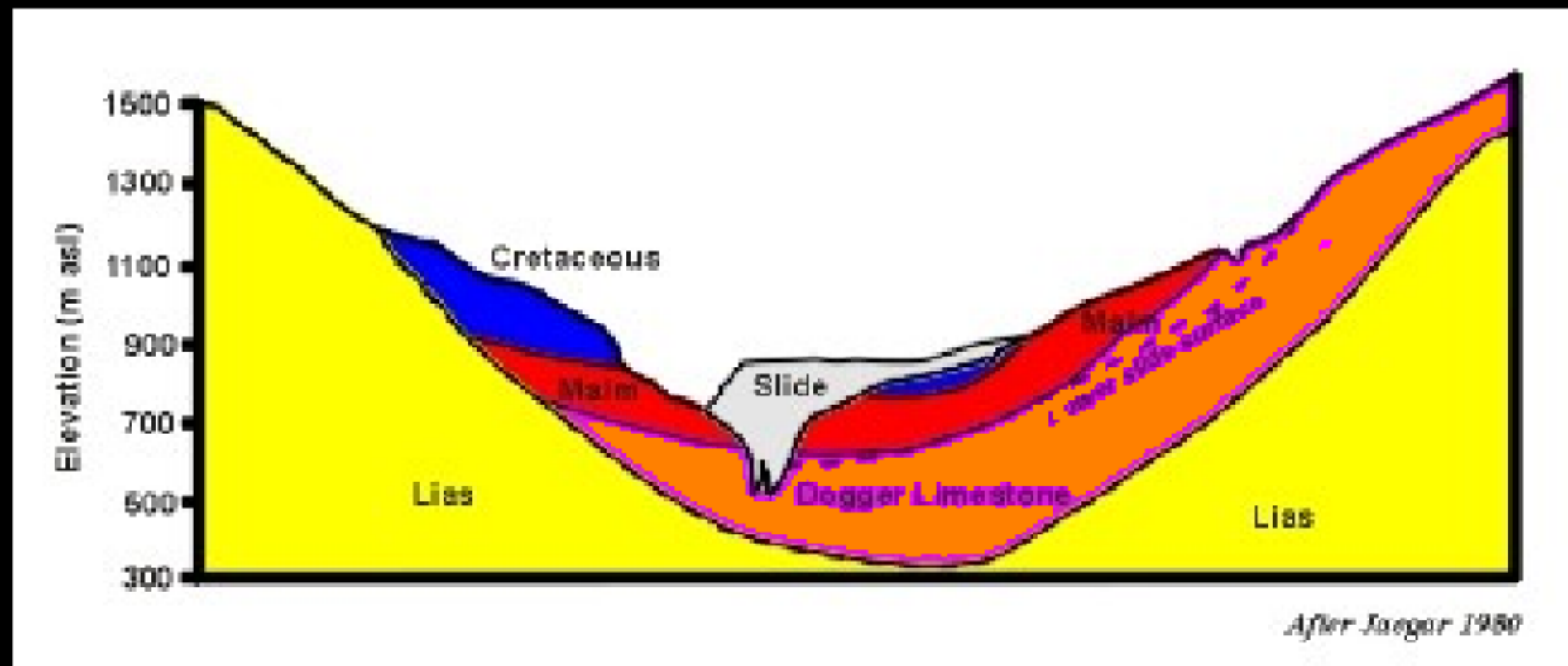
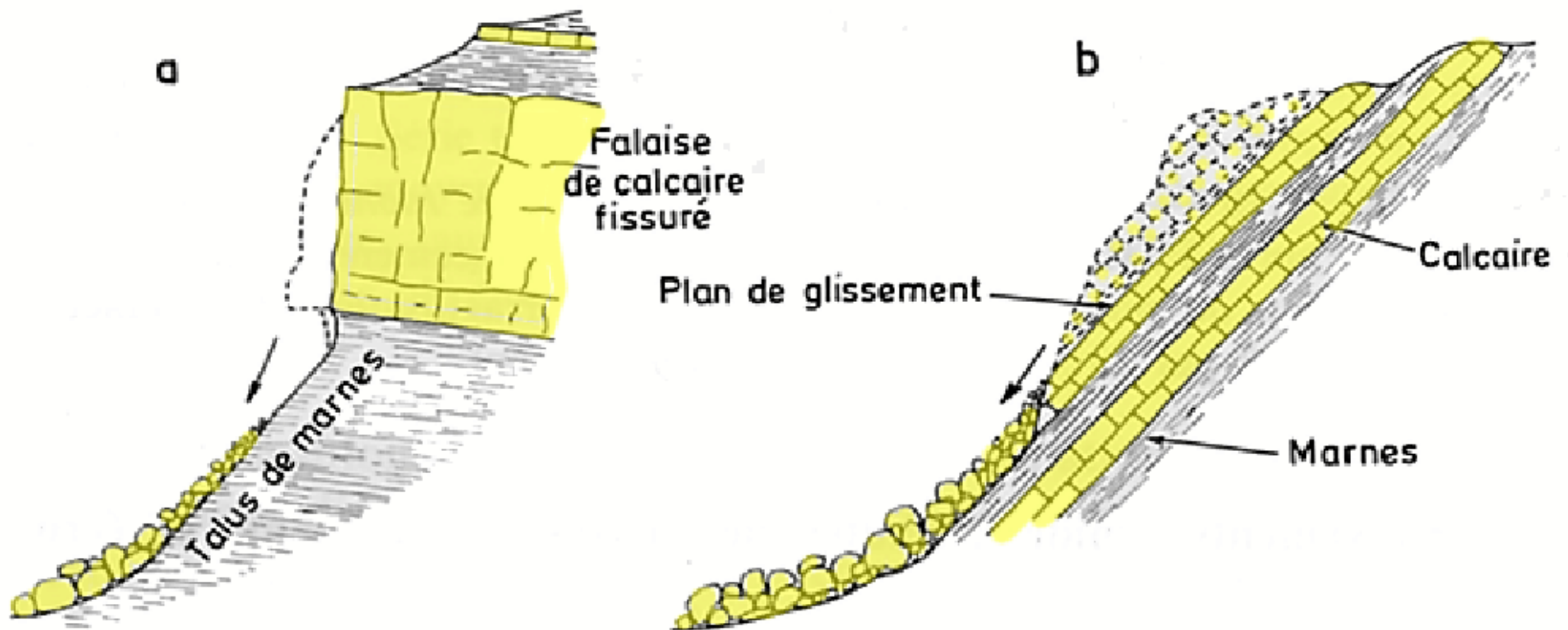


Fig. 215a. La vallée du Vajont, Italie. Cliché pris en mars 1960 pendant la construction du barrage, avant le glissement du versant rive gauche. (cl. Museo Tridentino di Scienze naturali).



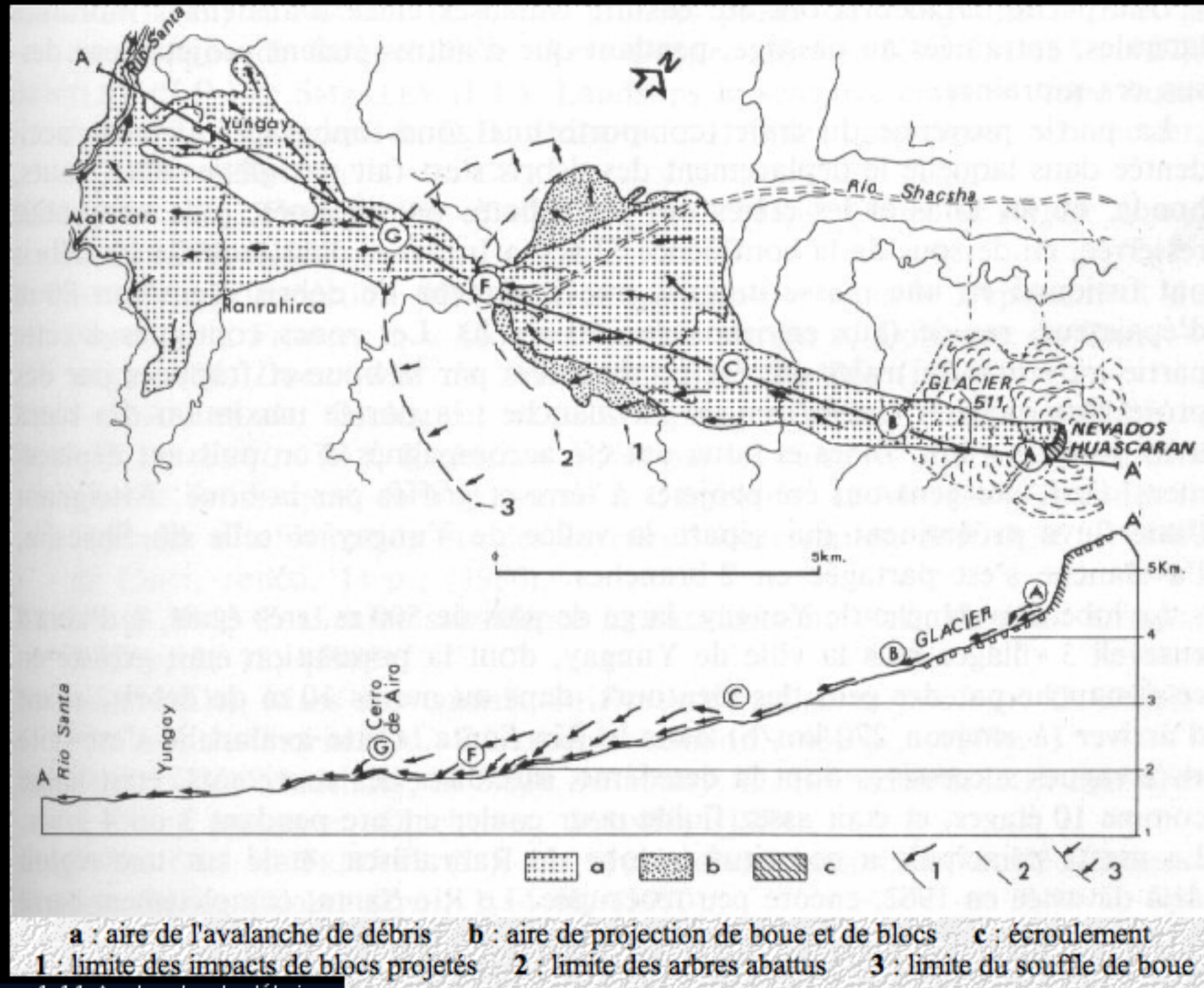


Causes:



1.11 Avalanche de débris

Exemple de la catastrophe de Yungay (Pérou, 1970)





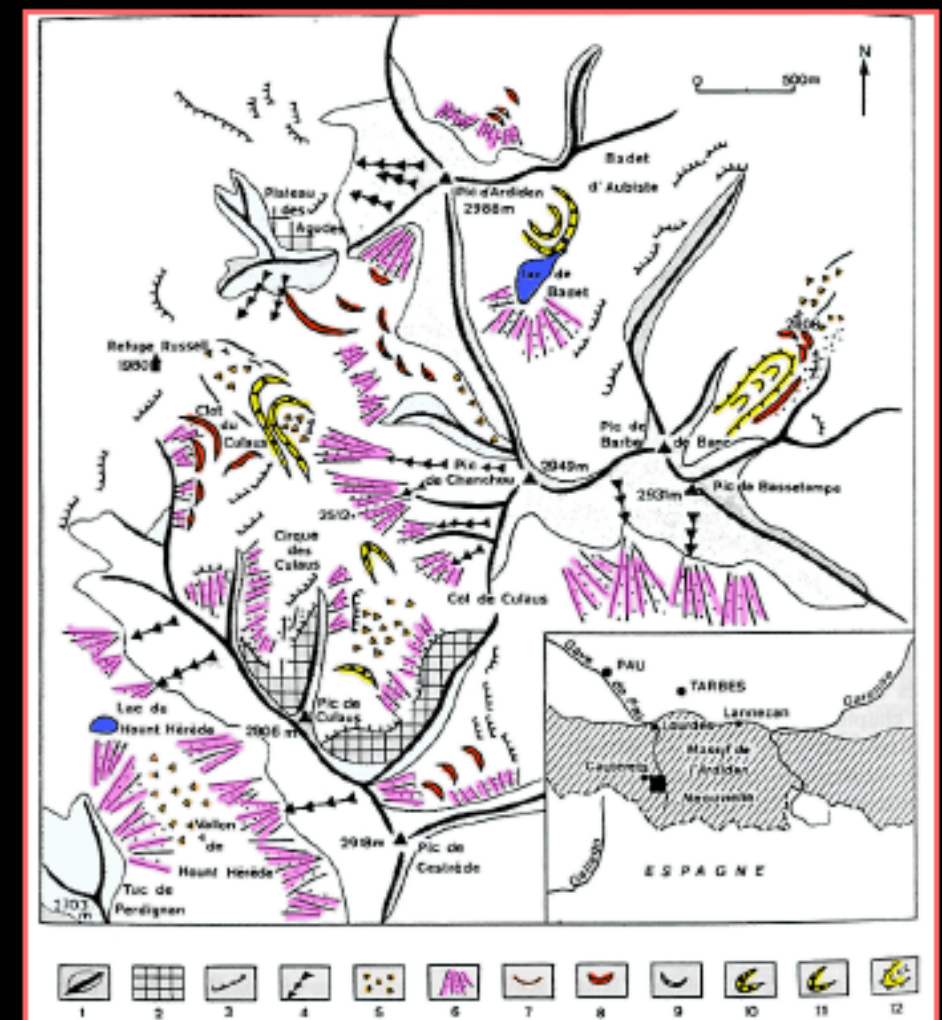
2. Les dépôts de versant

- ◆ De haute montagne
- ◆ De moyenne montagne
- ◆ De plaine

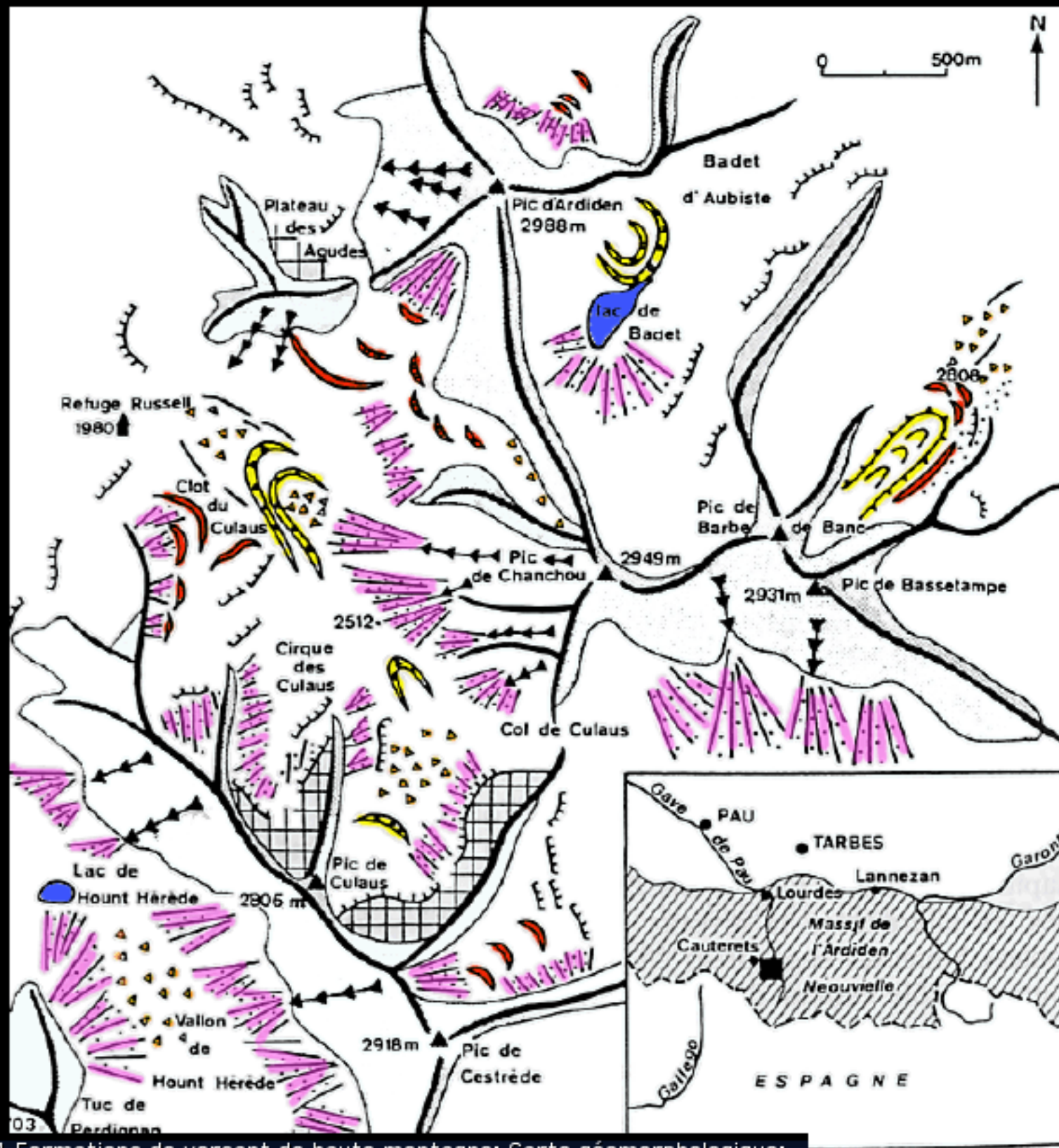


2.1 Formations de versant de haute montagne

- ◆ Les éboulis
- ◆ Les moraines de névé
- ◆ Les glaciers rocheux



Carte géomorphologique



4.11 Les éboulis



Epandage d'éboulis



Alimentation



Champs de blocs - mer de rochers



Tracé de laves torrentielles sur cônes d'éboulis



Tablier d'éboulis



Classement des blocs



Eboulis fluants



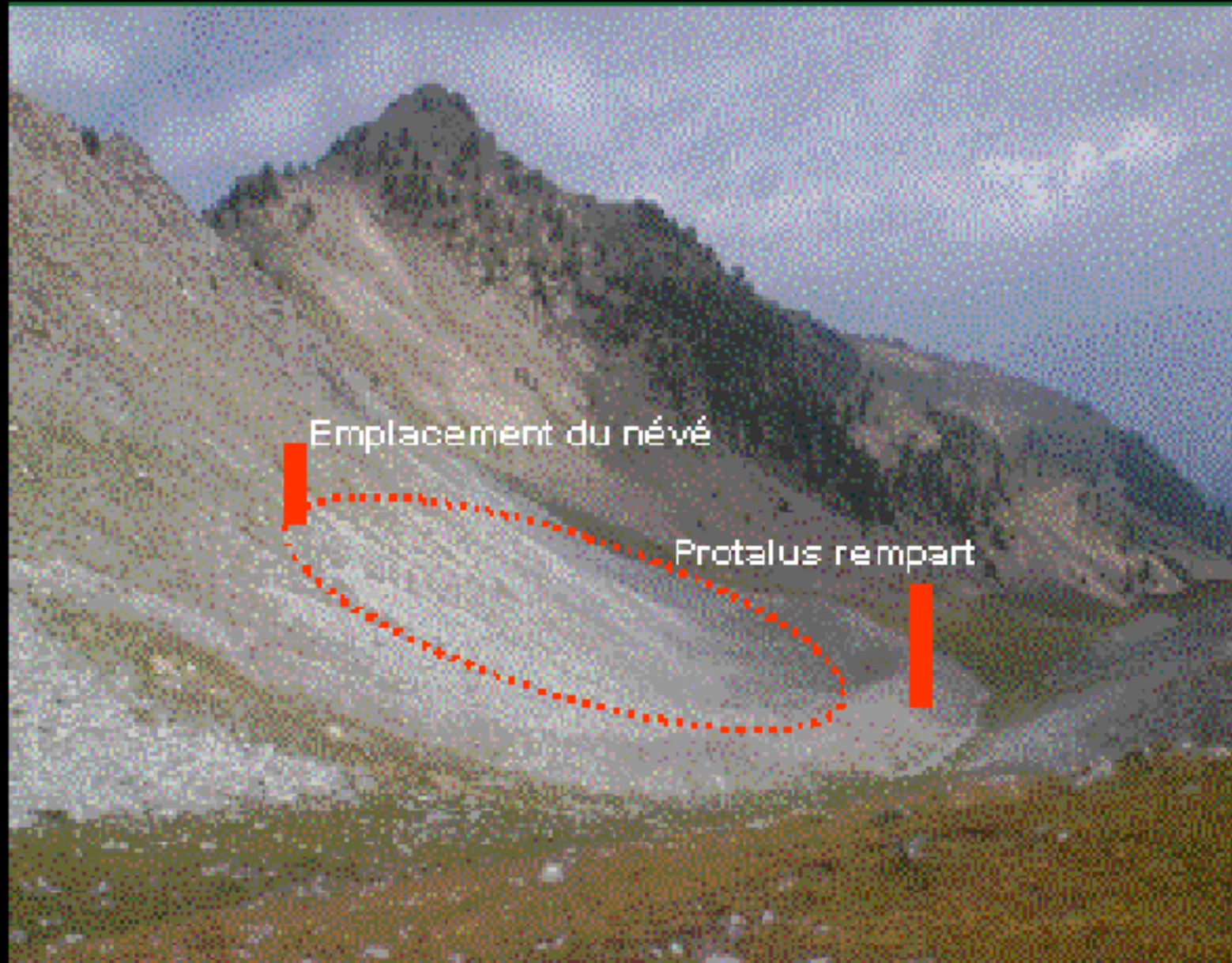
4.12 Les moraines de névé



Moraines de névé

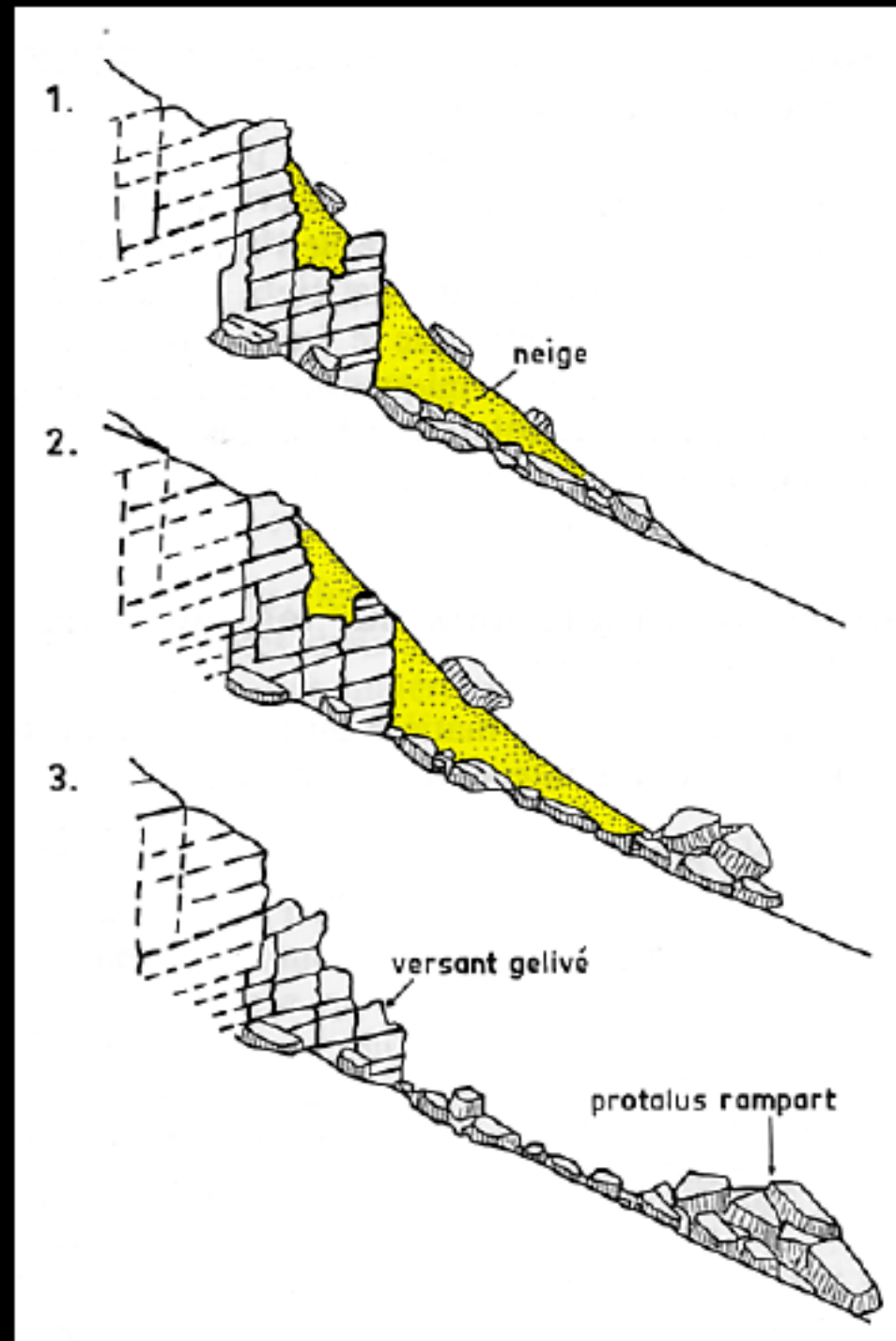


Protalus rempart



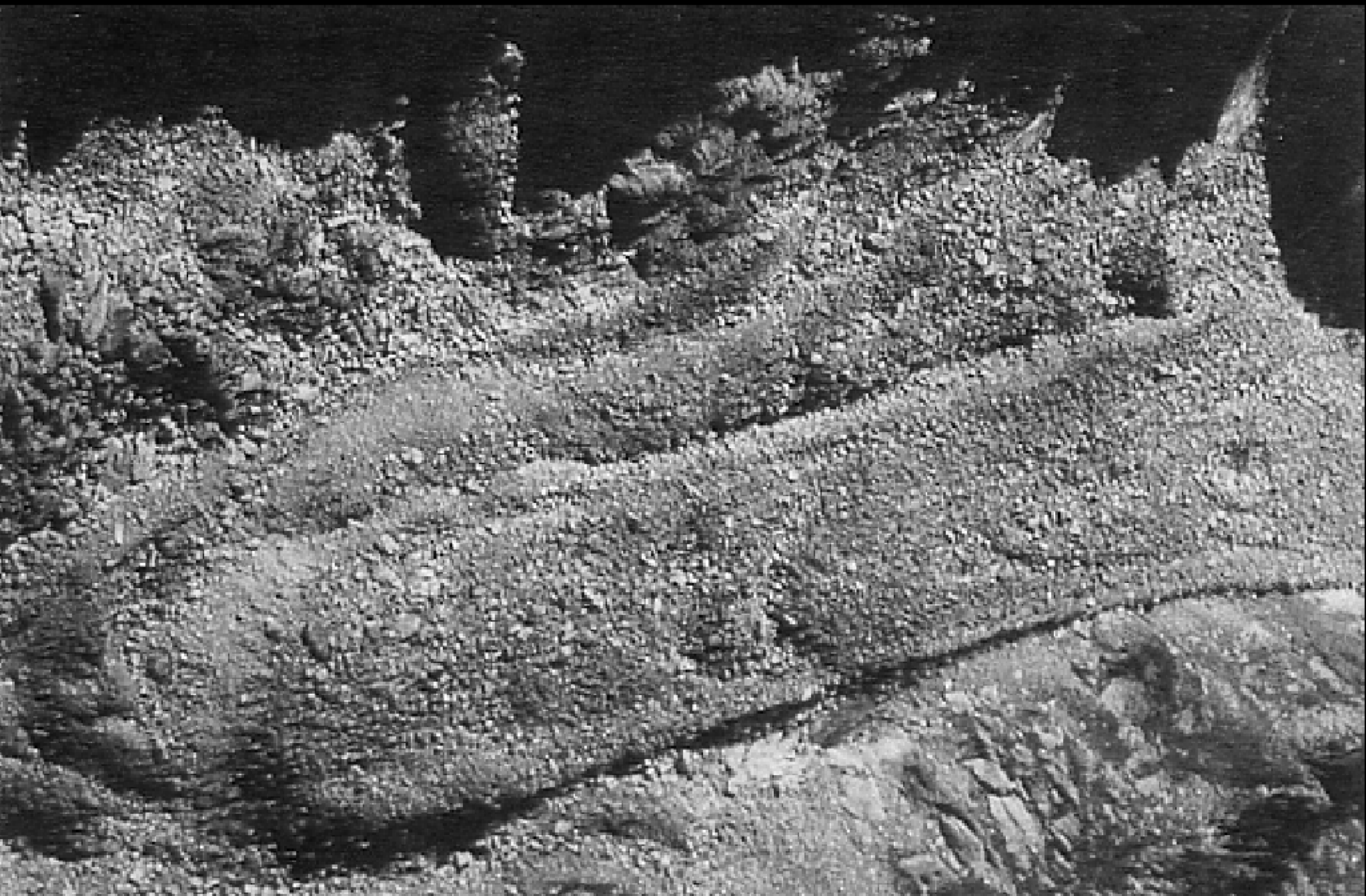


Formation



4.13 Les glaciers rocheux





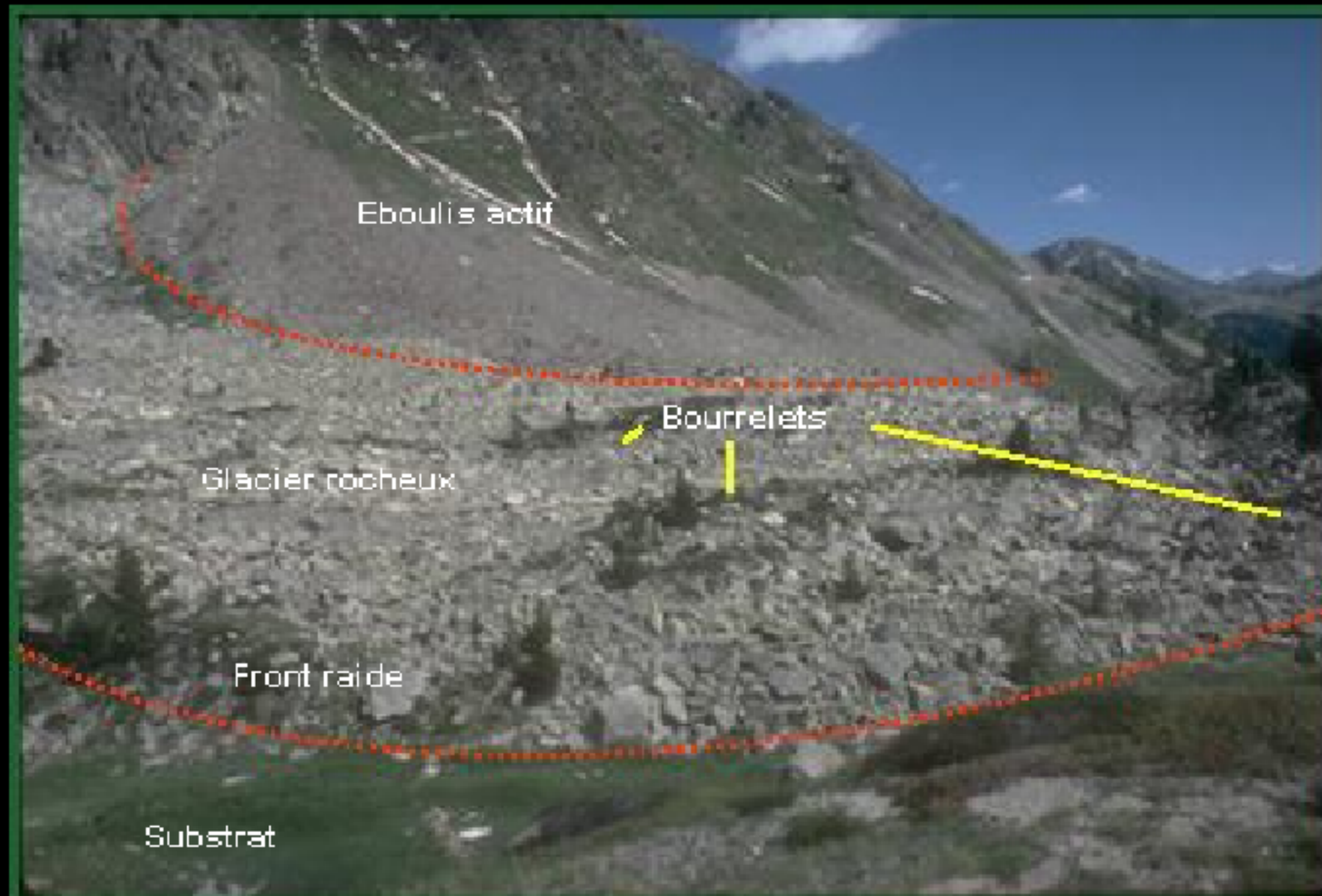
Glacier rocheux

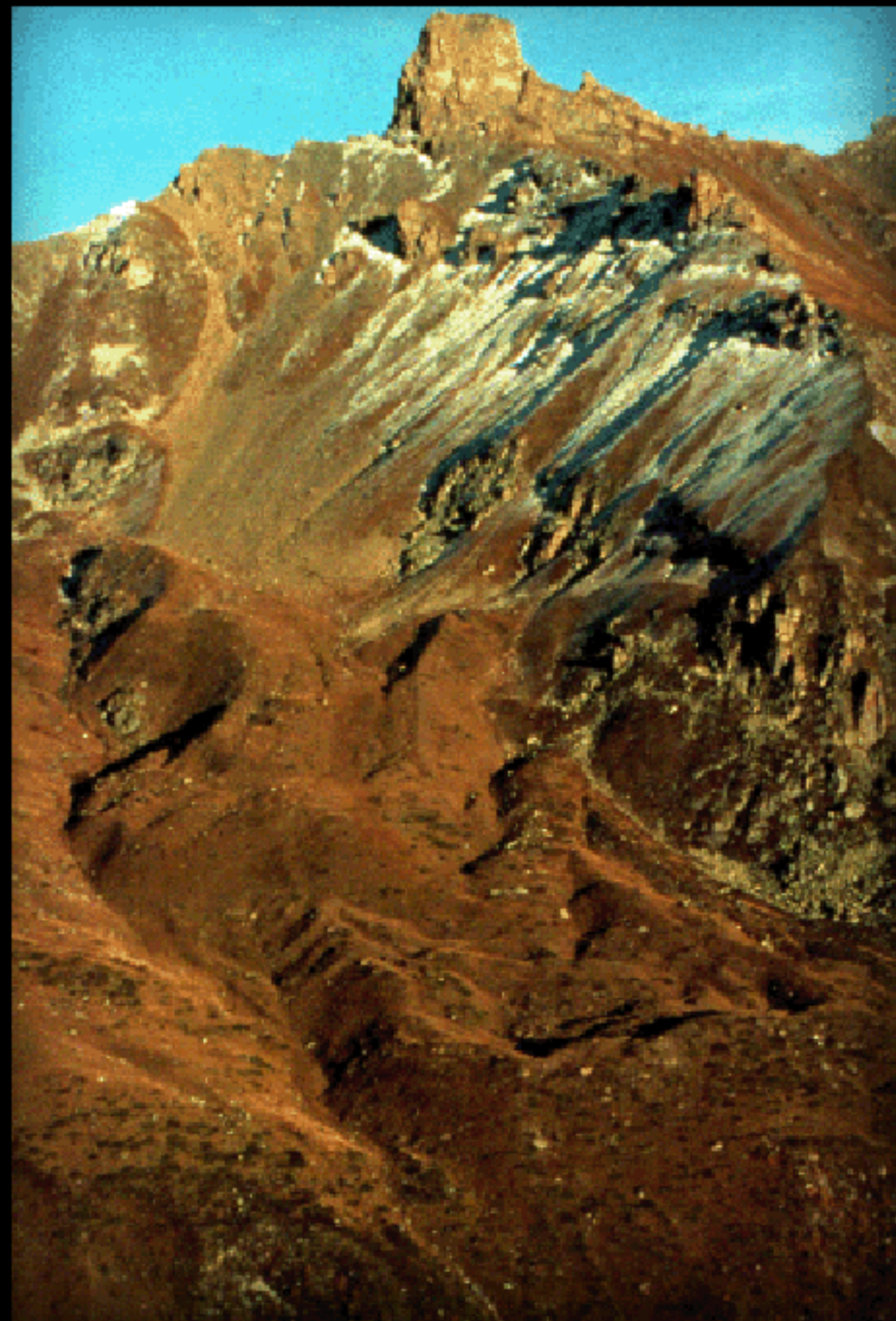


Front de glacier rocheux



Glacier rocheux



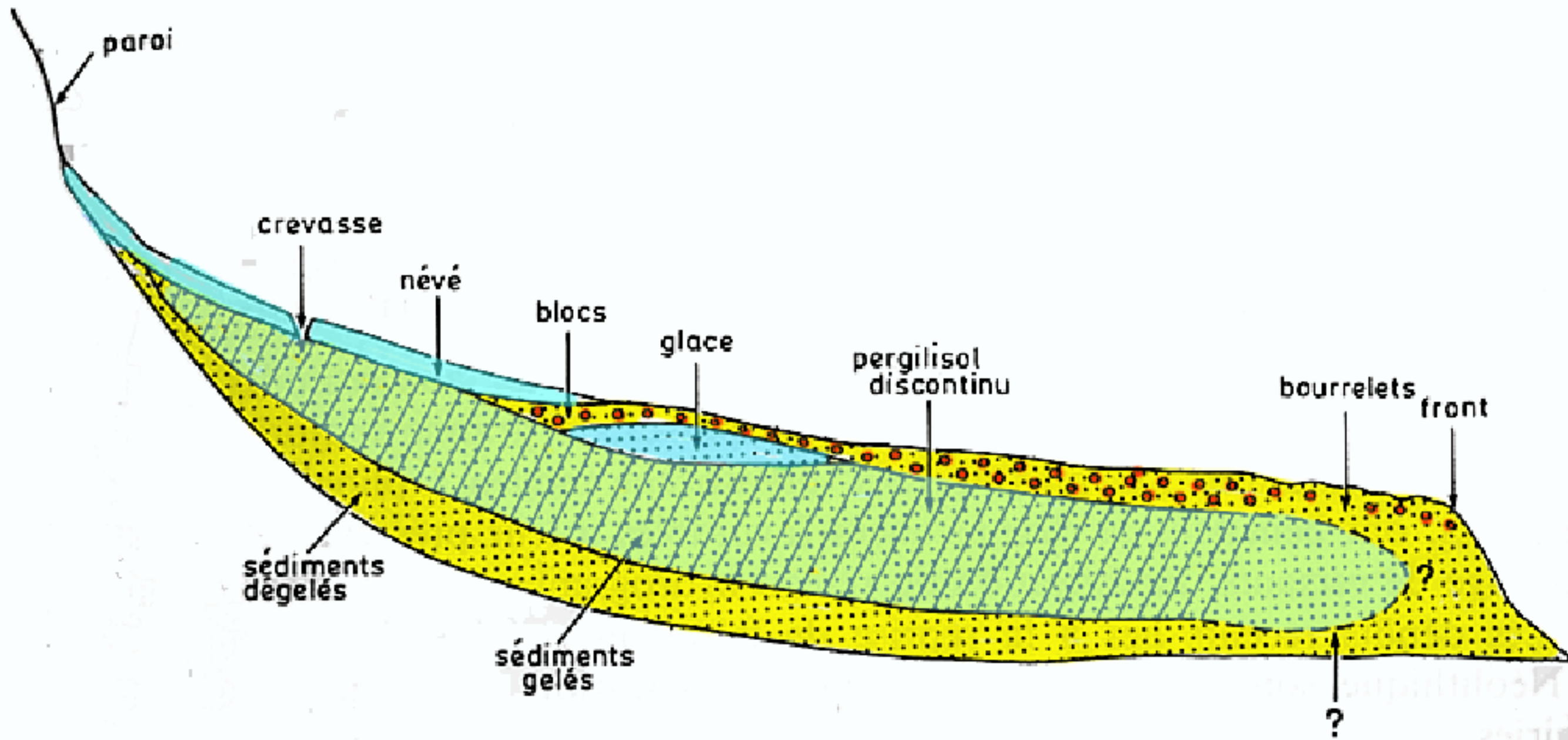


: 2. Les dépôts de versant: 2.1 Formations de versant de haute montagne: 4.13 Les glaciers rocheux: :

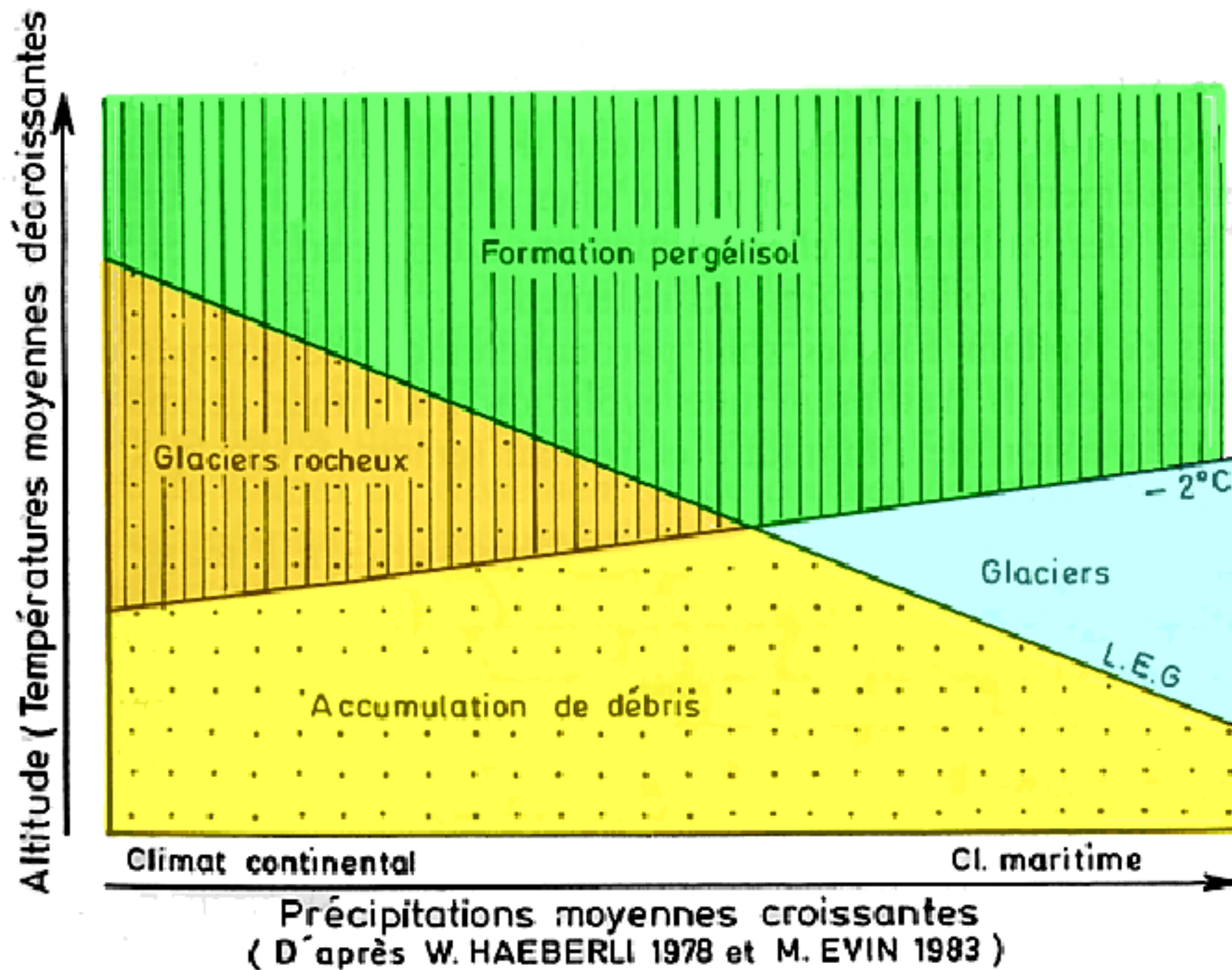
Glacier rocheux colonisé par la végétation



Structure interne



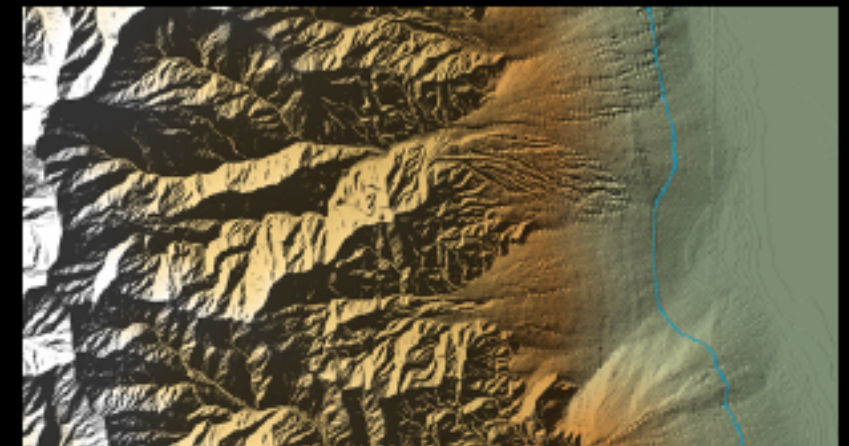
Conditions de formation



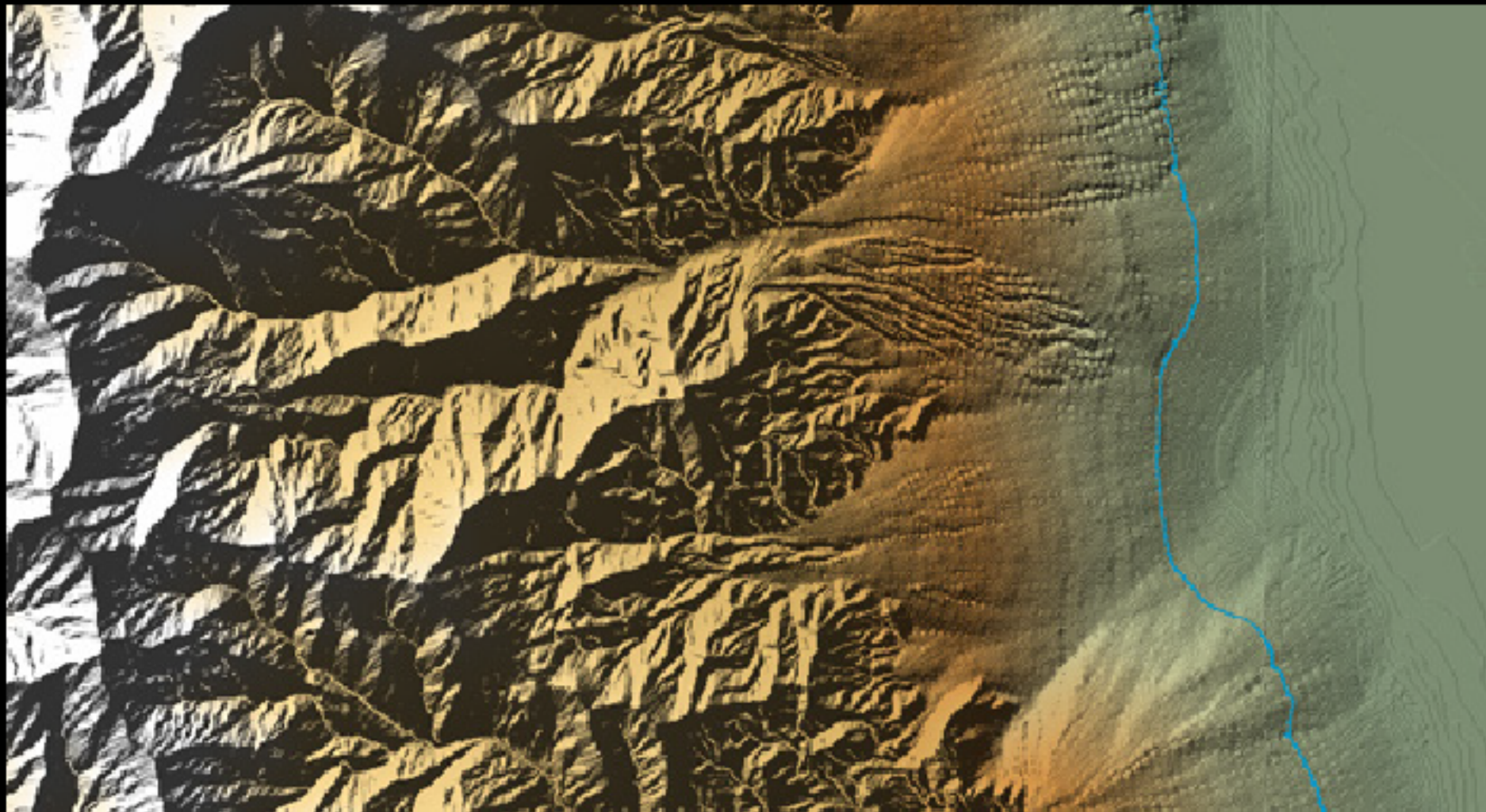
2.2 Formations de versant en moyenne montagne

- ◆ Les cônes de déjection
- ◆ Les vallées sèches
- ◆ Les versants argileux
- ◆ Les versants à corniche

Les talus d'éboulis
les grèzes litées



4.21 Les cônes de déjection







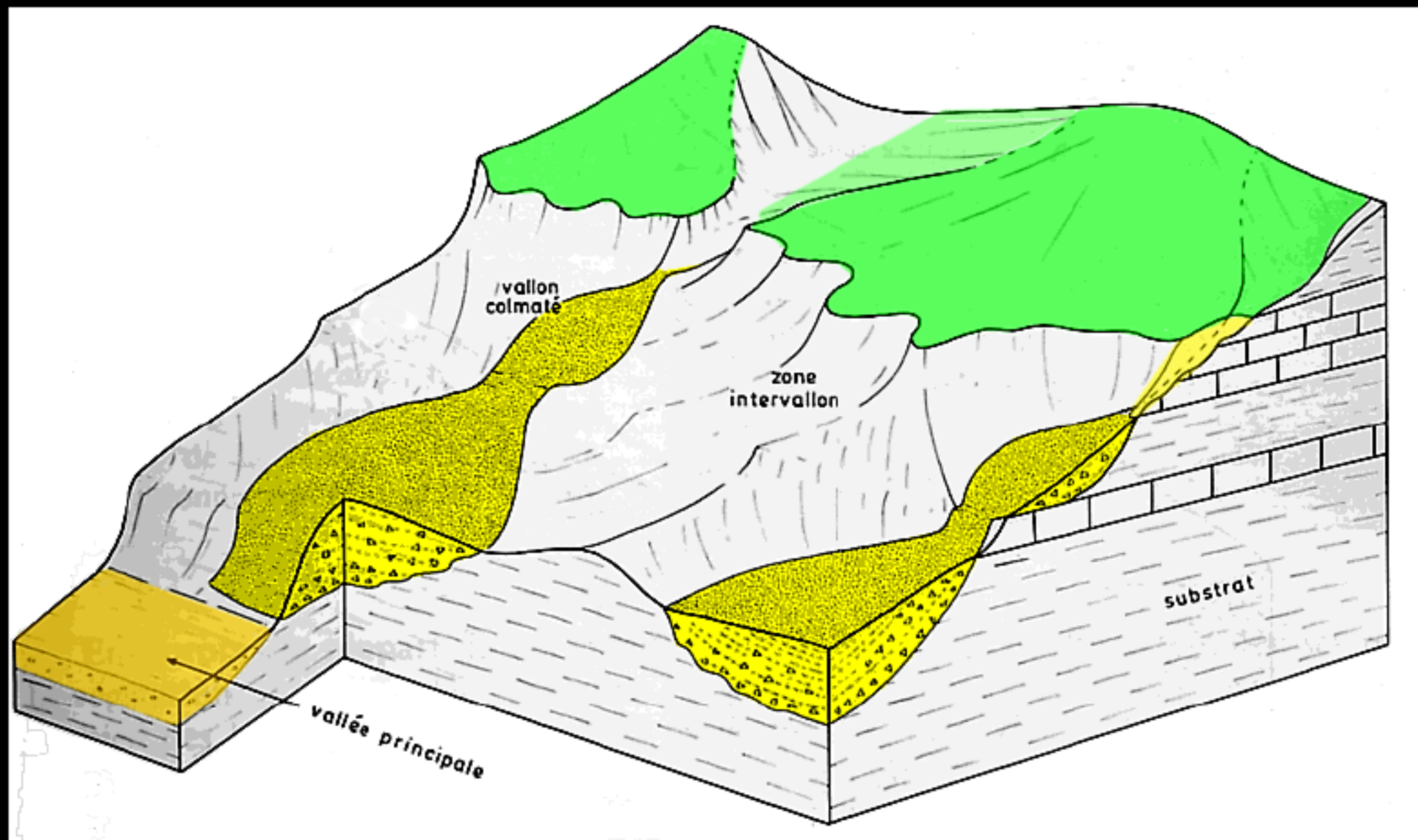
Dépôts de coulée de boue



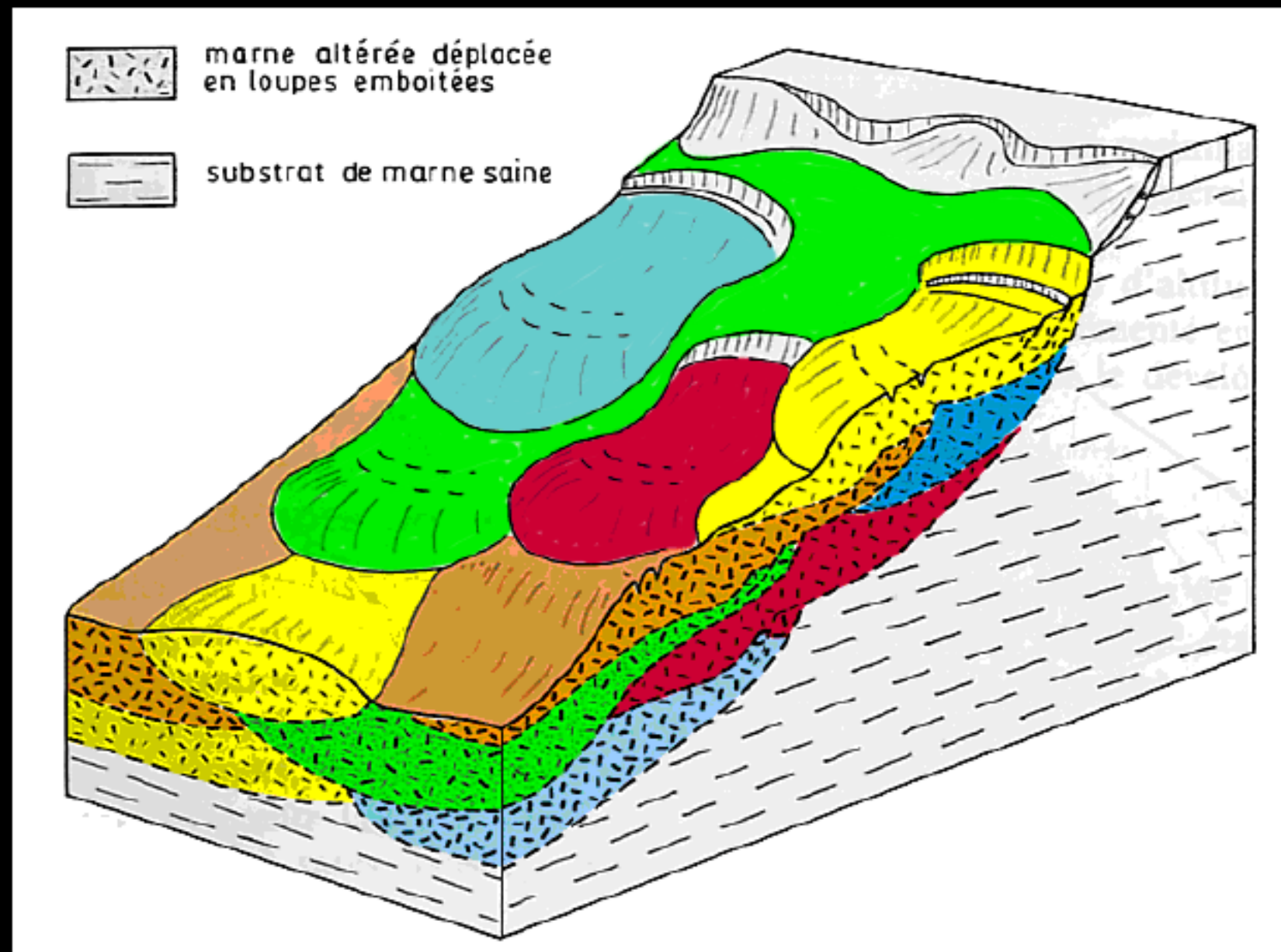
4.22 Les vallées sèches



Normandie



4.23 Les versants argileux

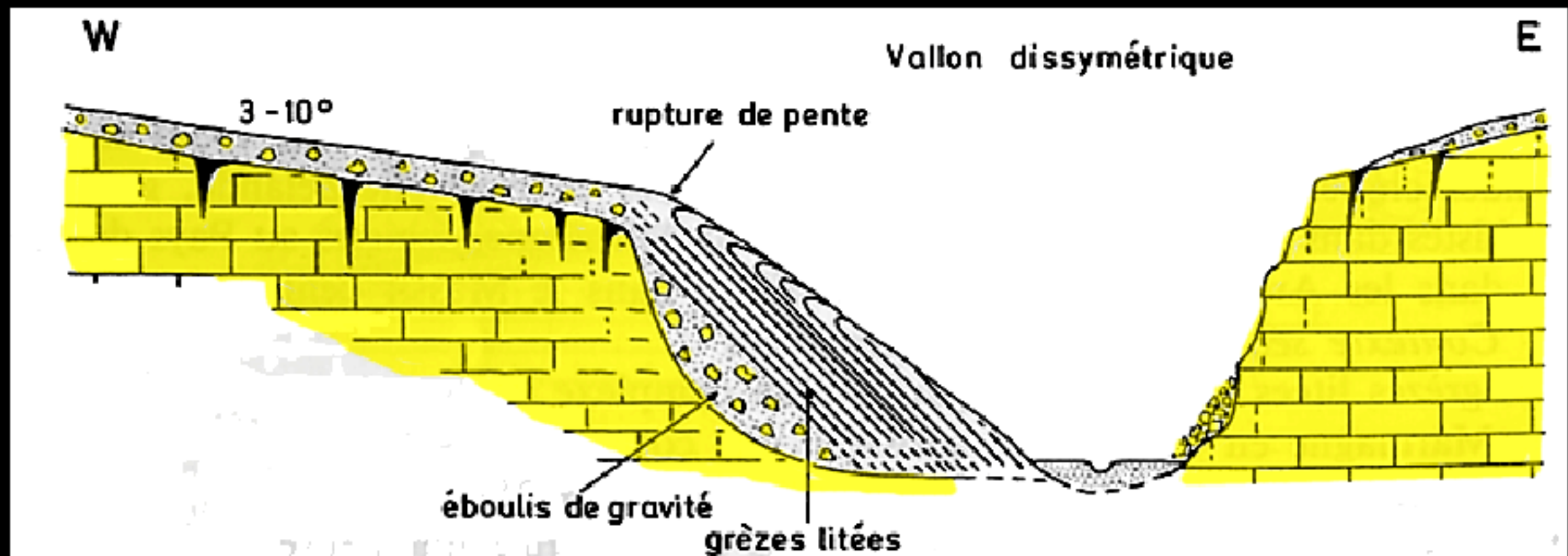
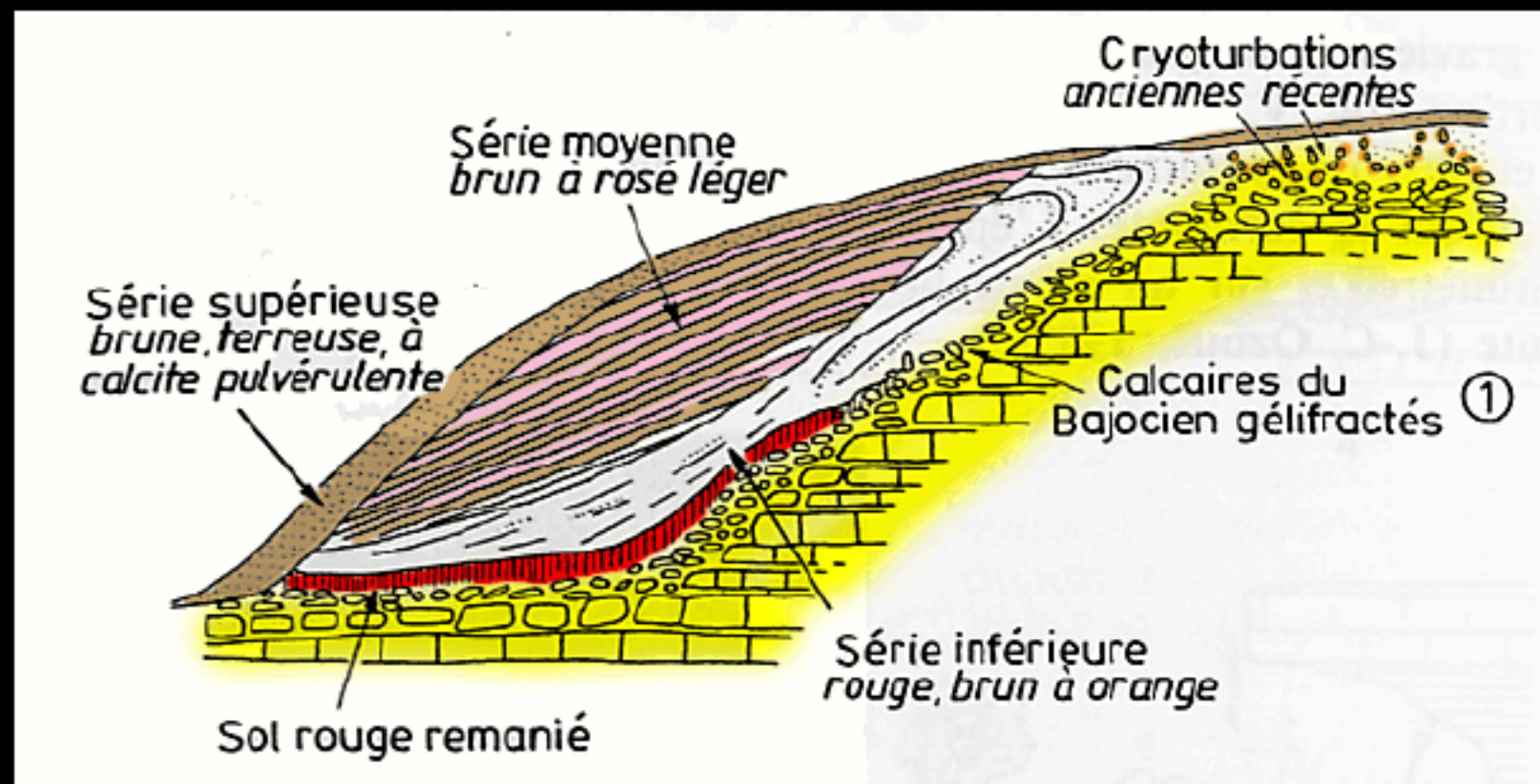


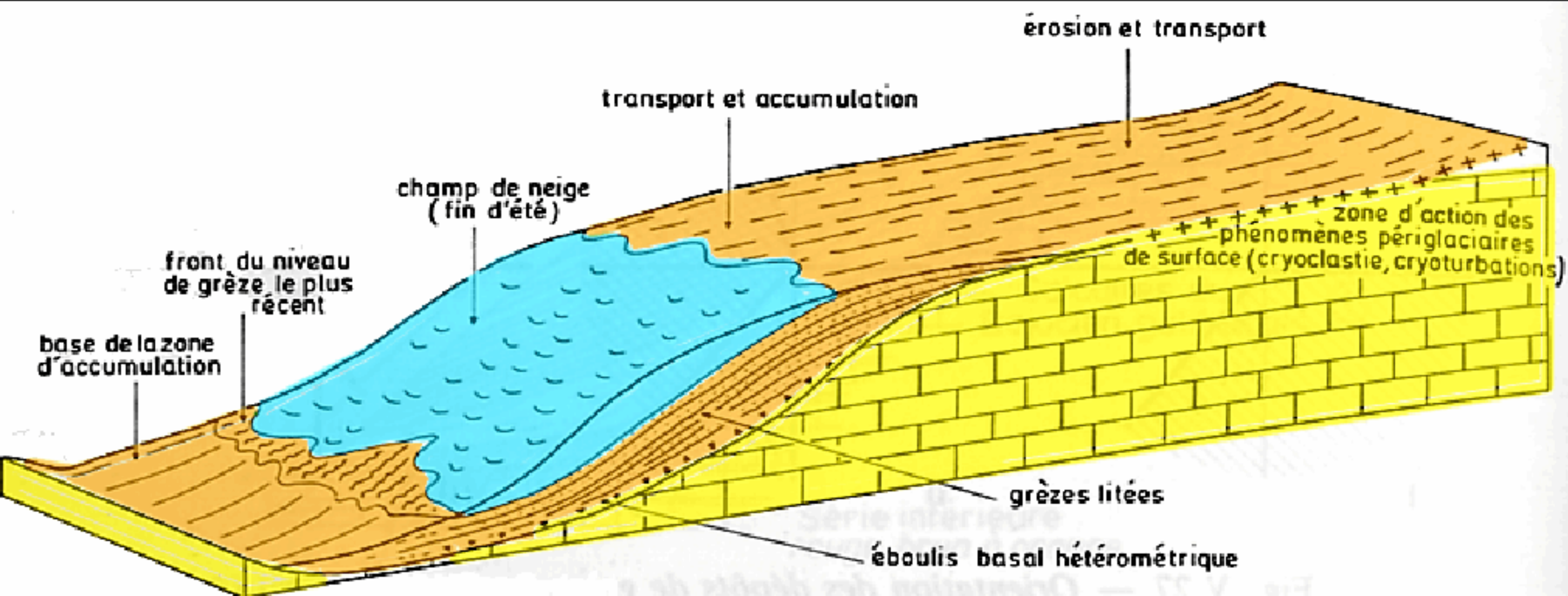
4.24 Les versants à corniche



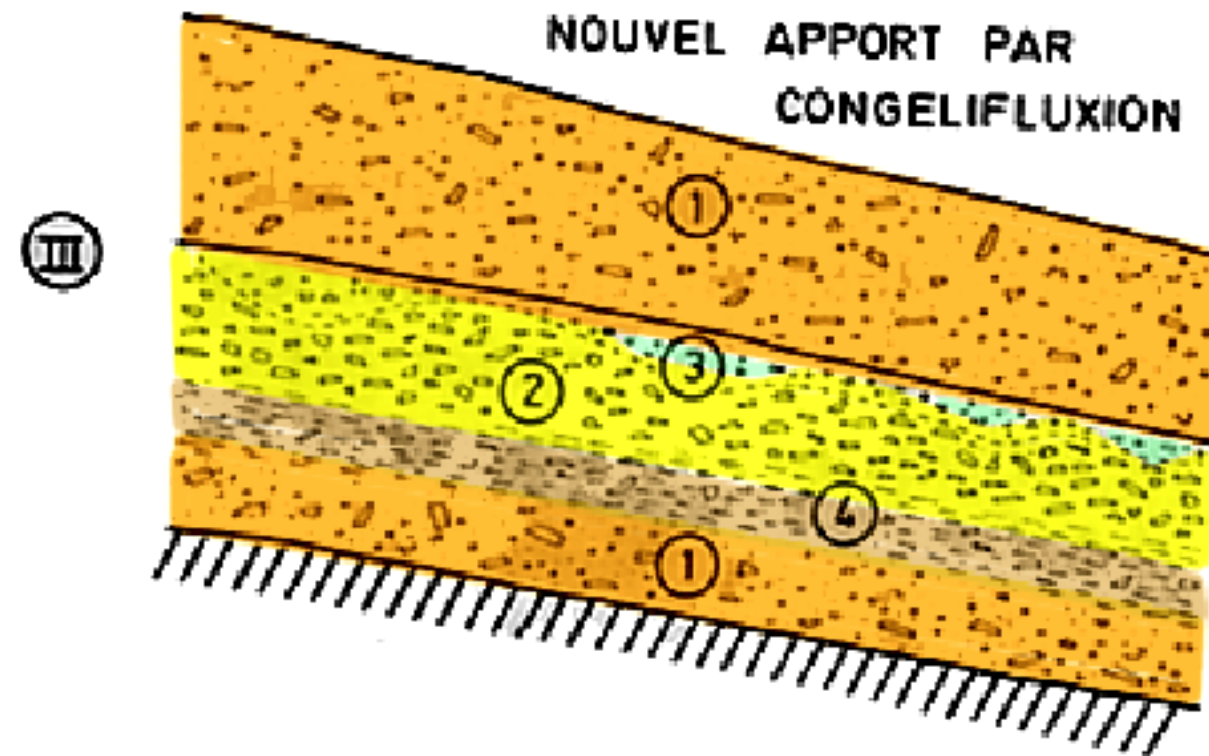
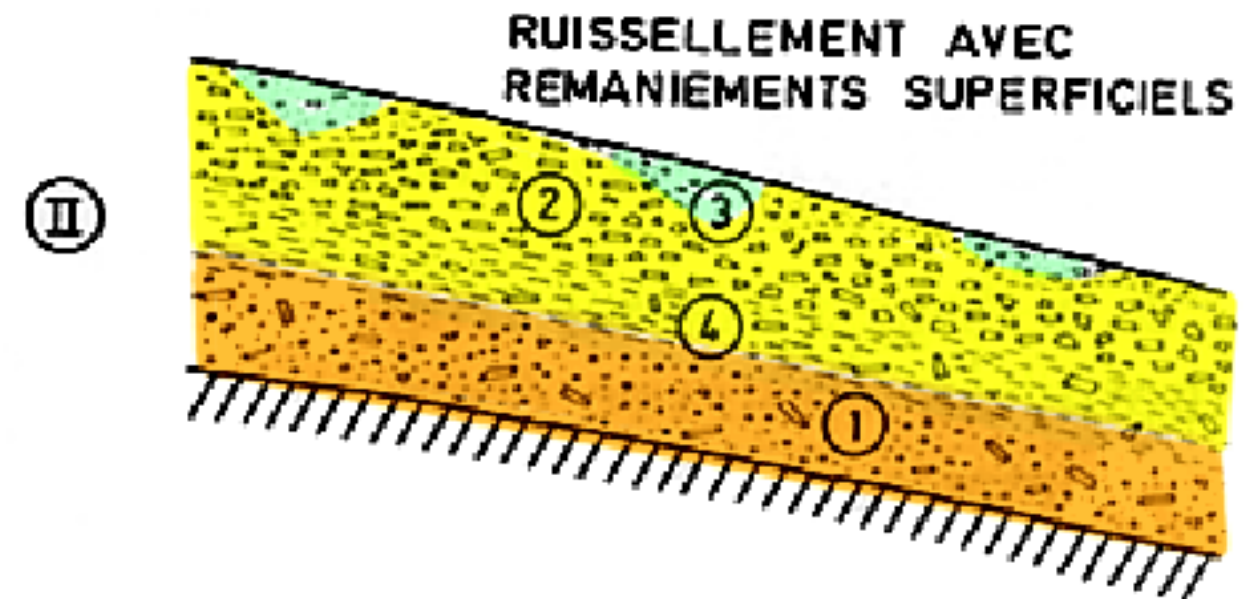
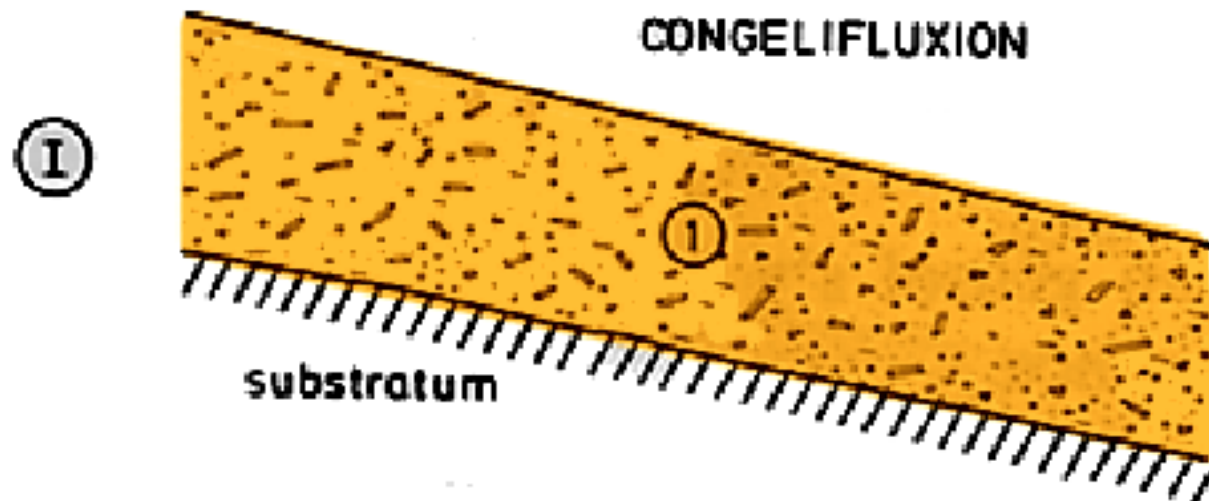
Les grèzes litées





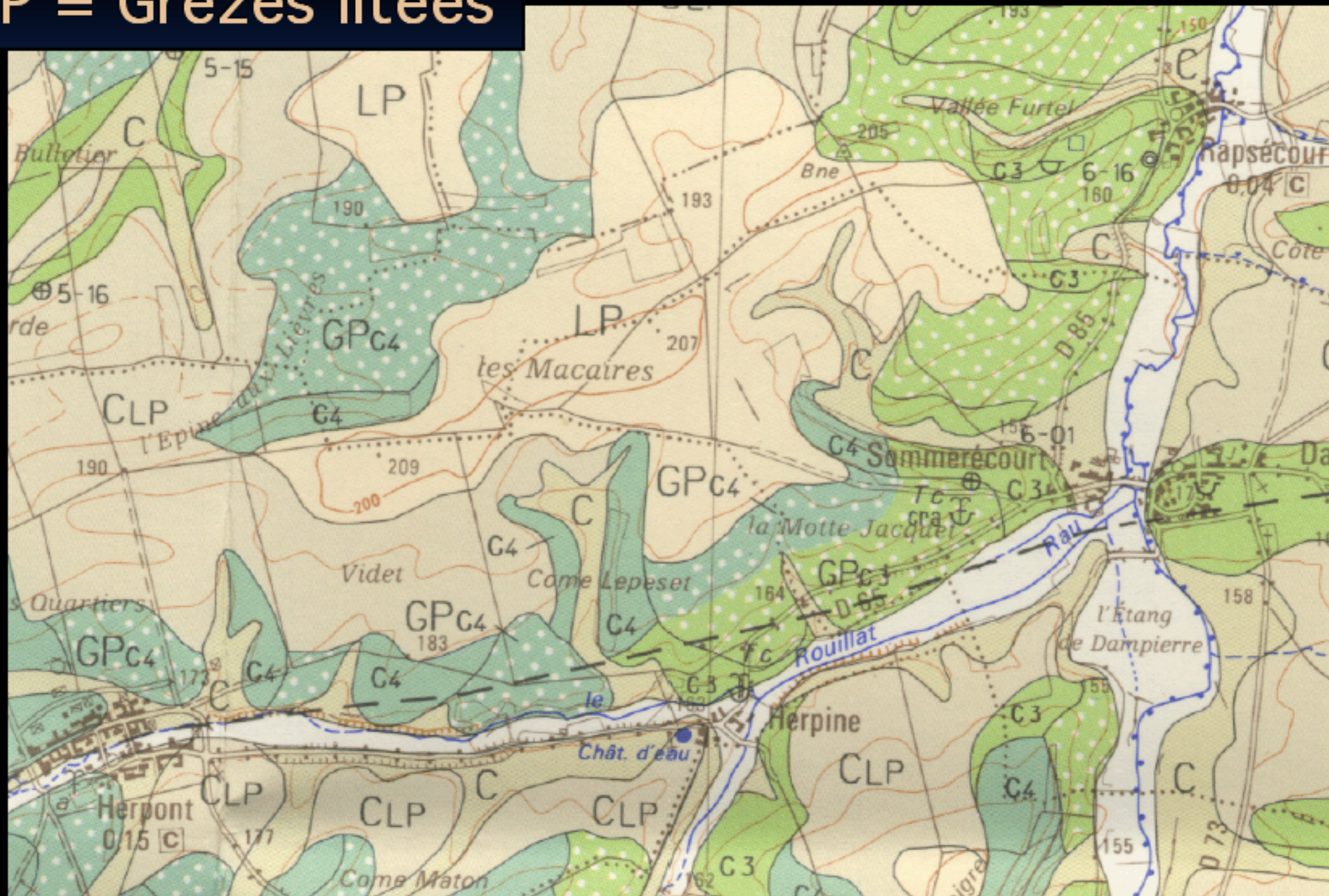


Formation des grèzes litées

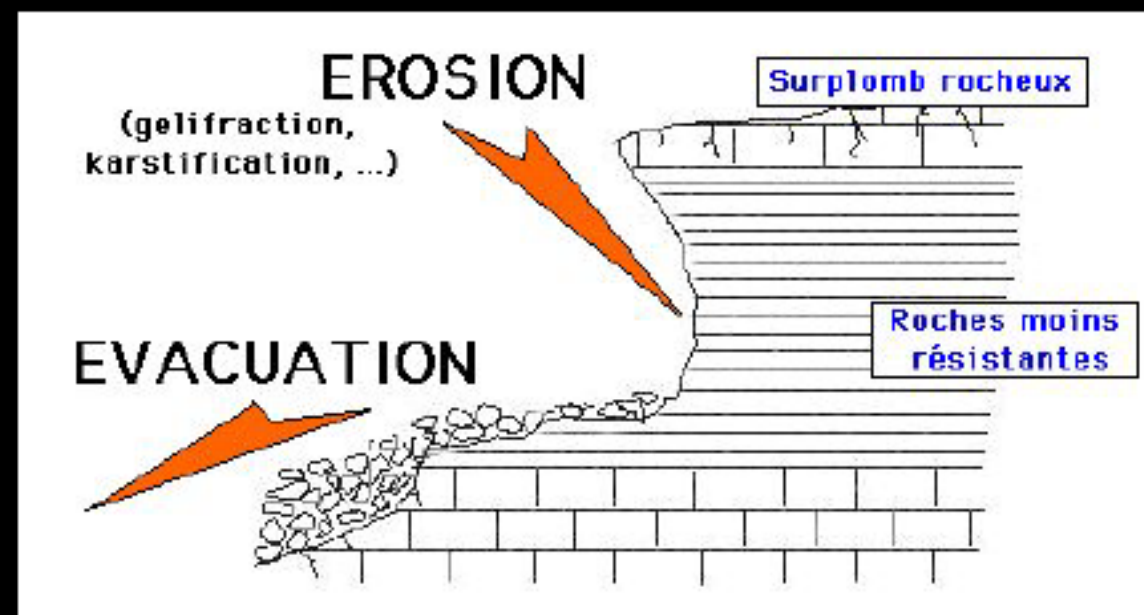


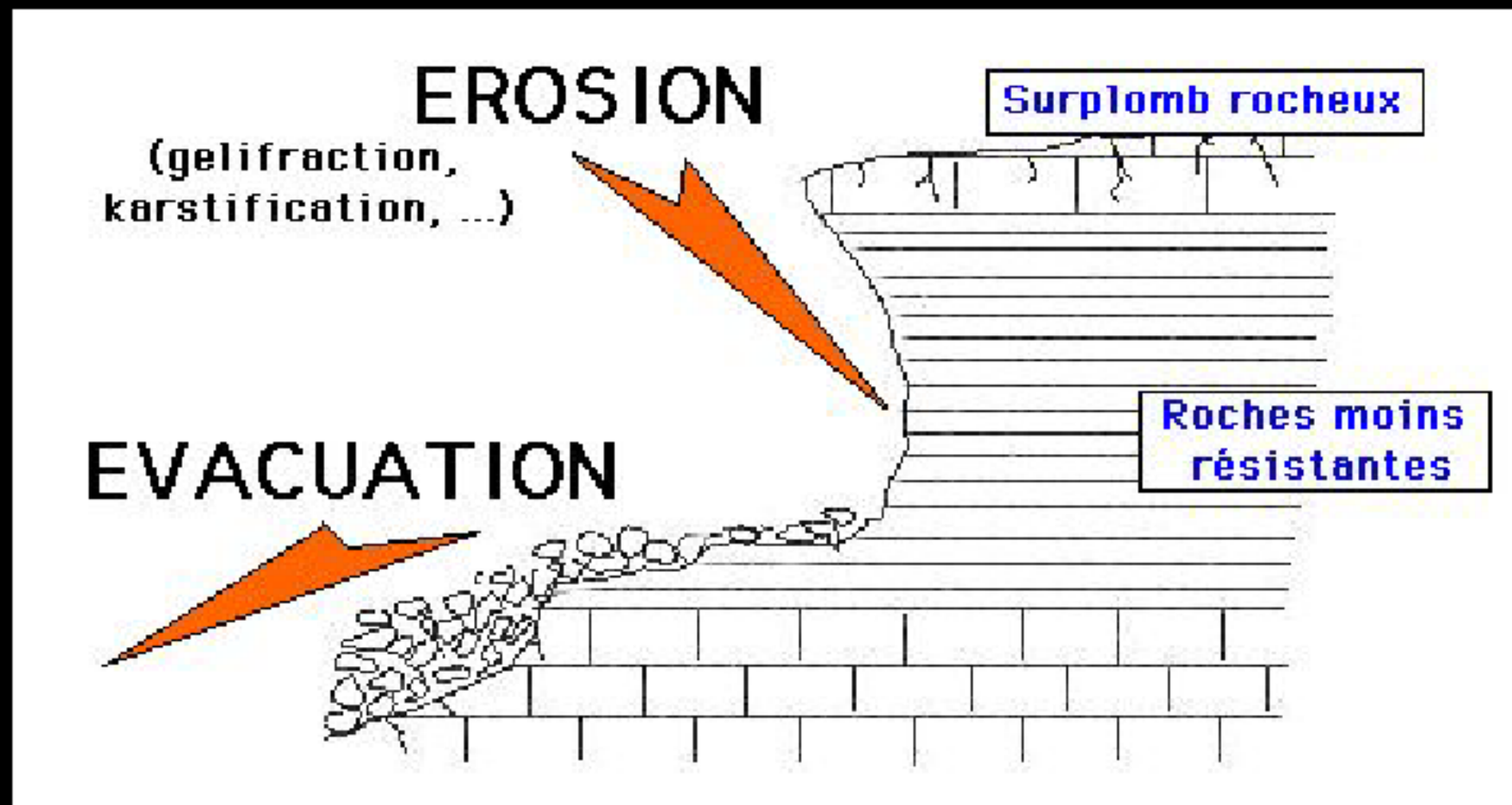
- ① Lit gras
- ② Lit maigre
- ③ Irrégularités (chenaux) de la partie supérieure du lit maigre
- ④ Enrichissement en argile de la partie supérieure du lit gras

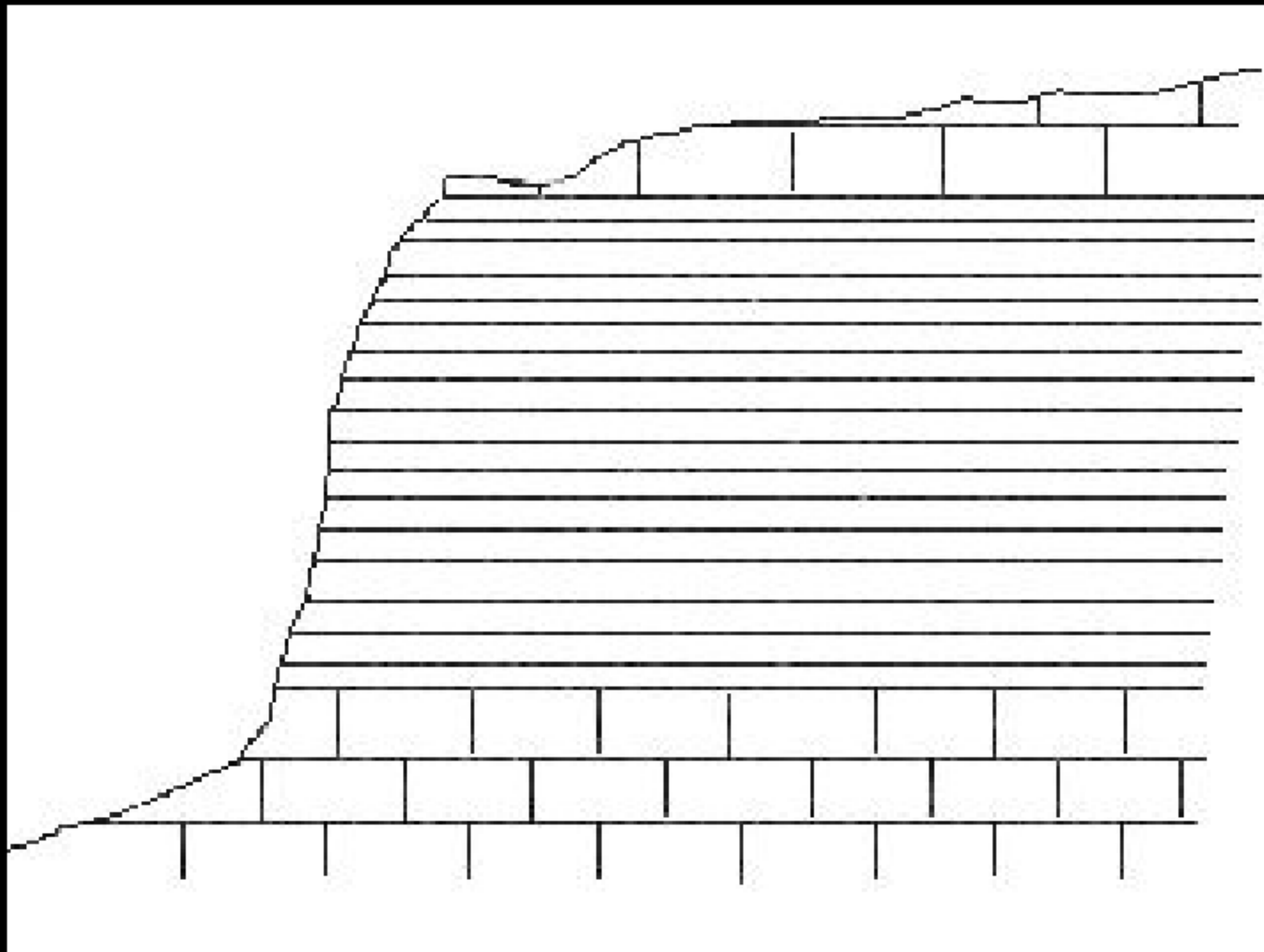
GP = Grèzes litées

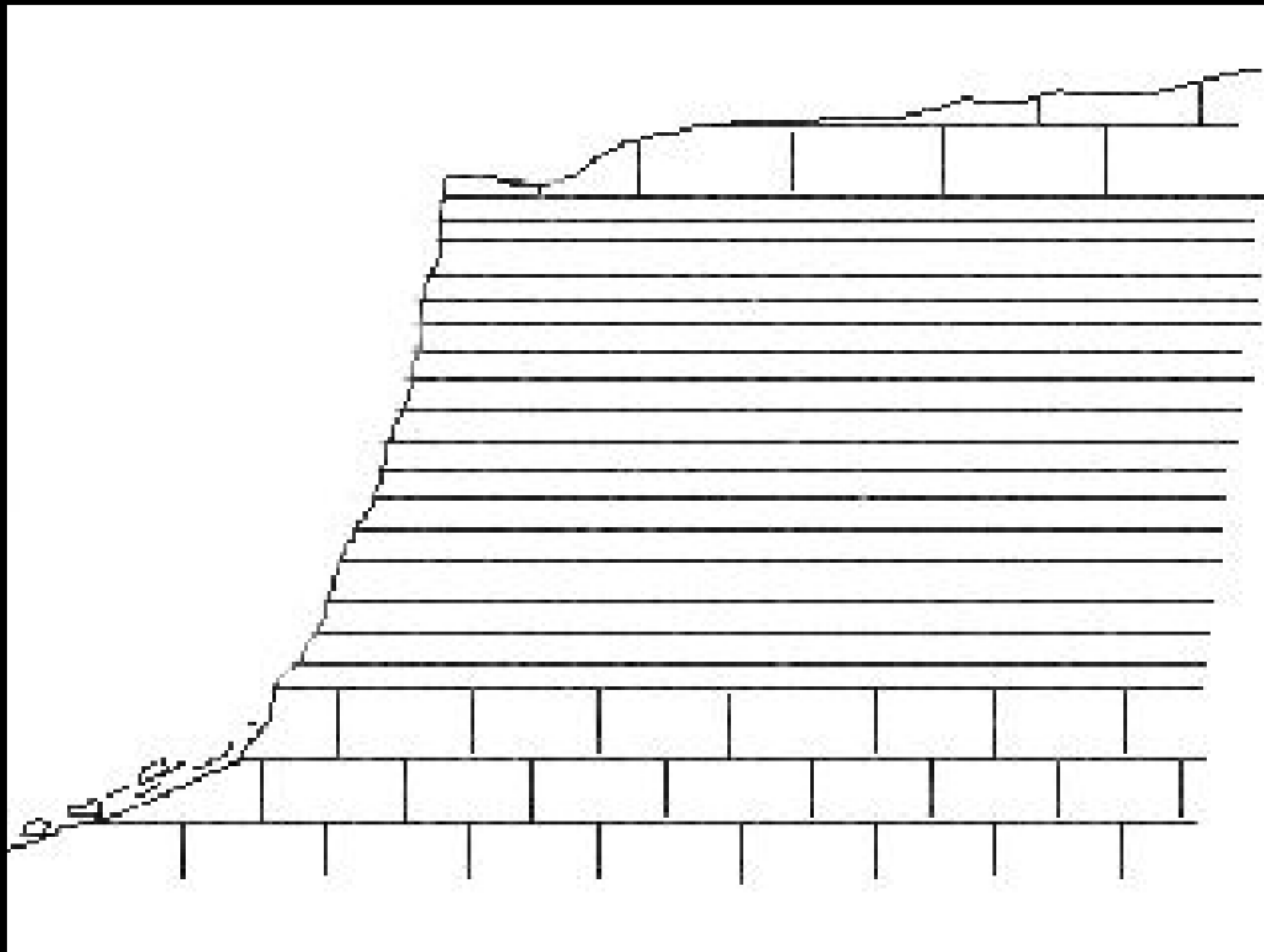


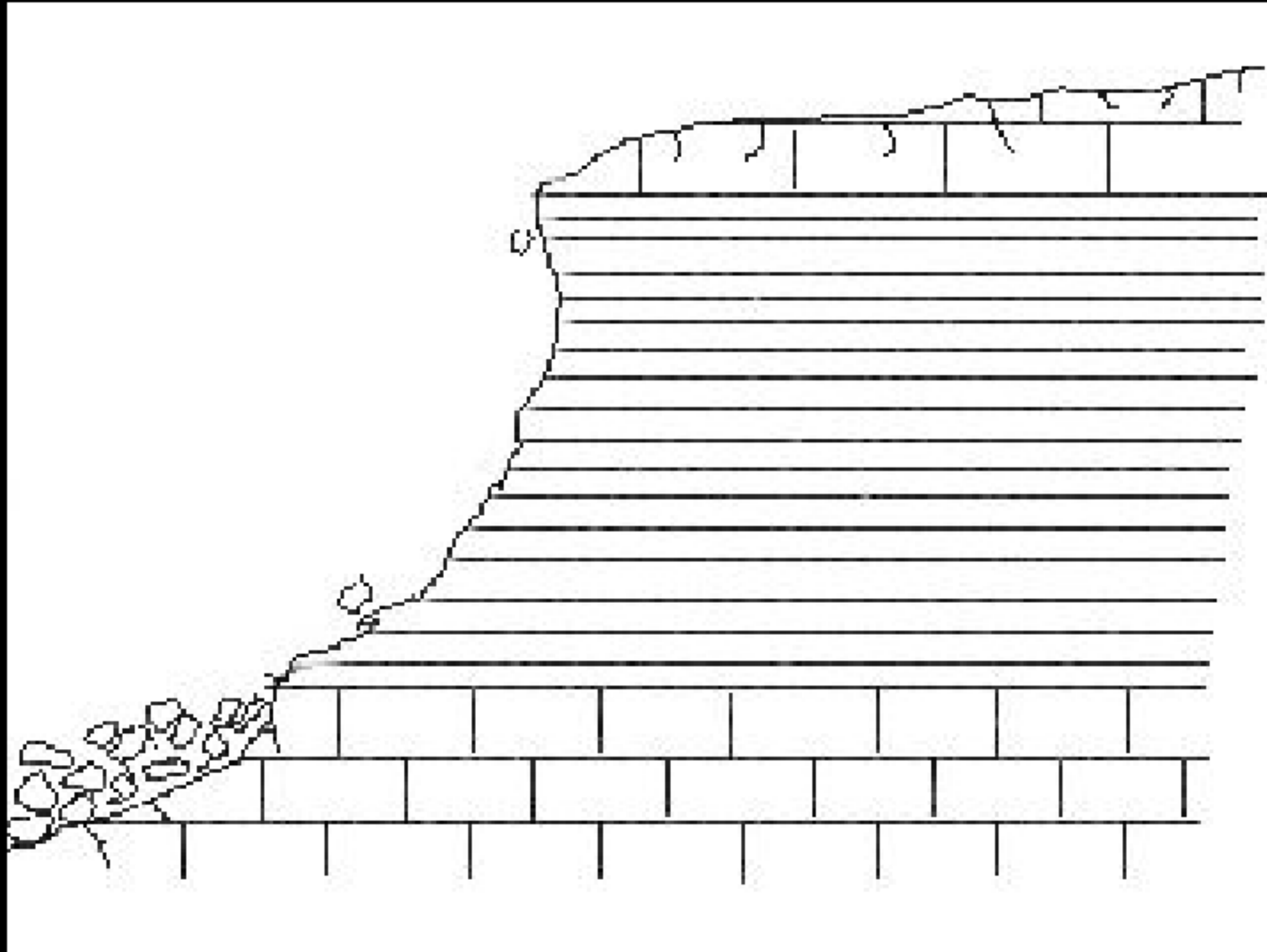
Les abris sous roche

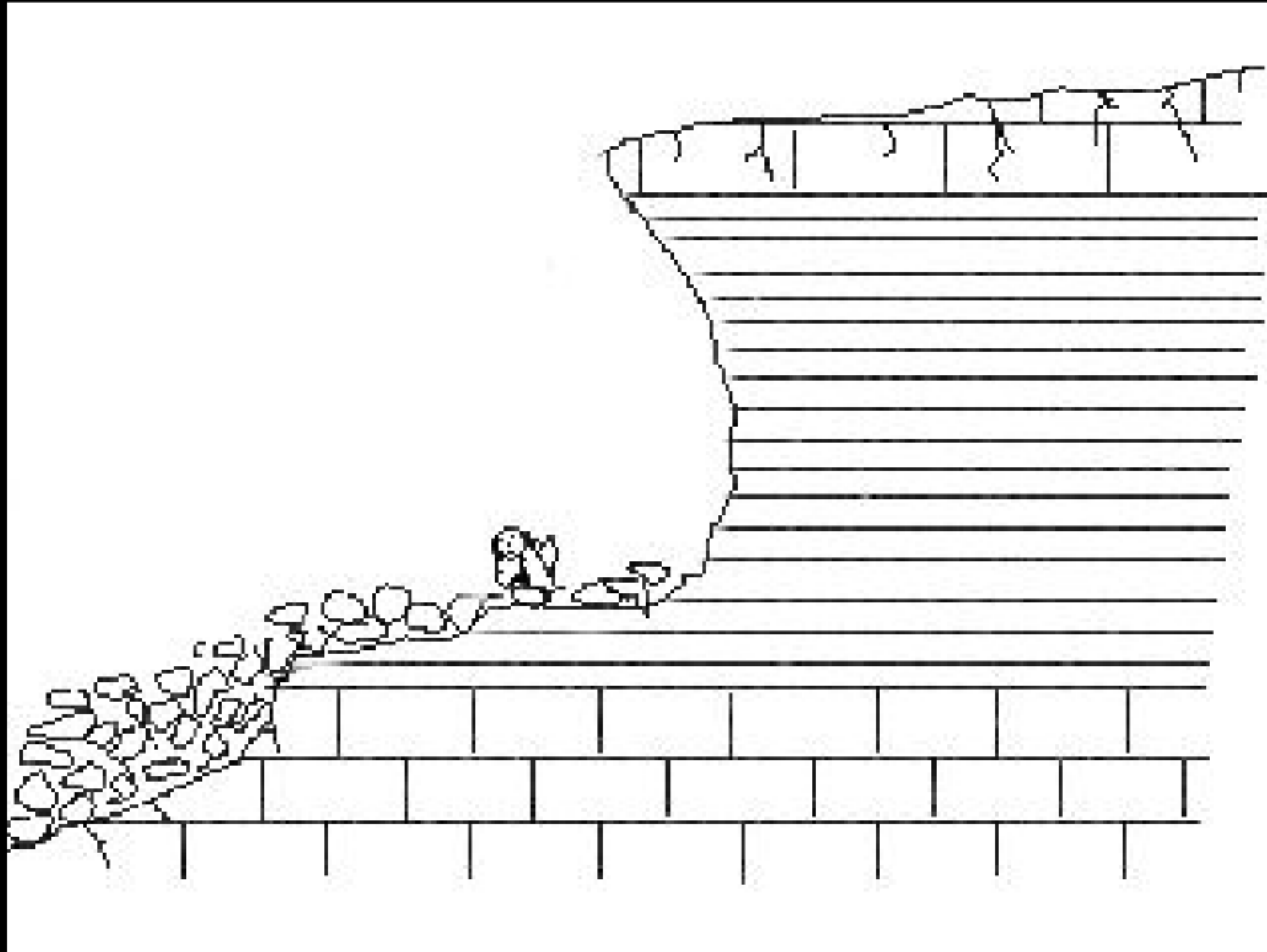


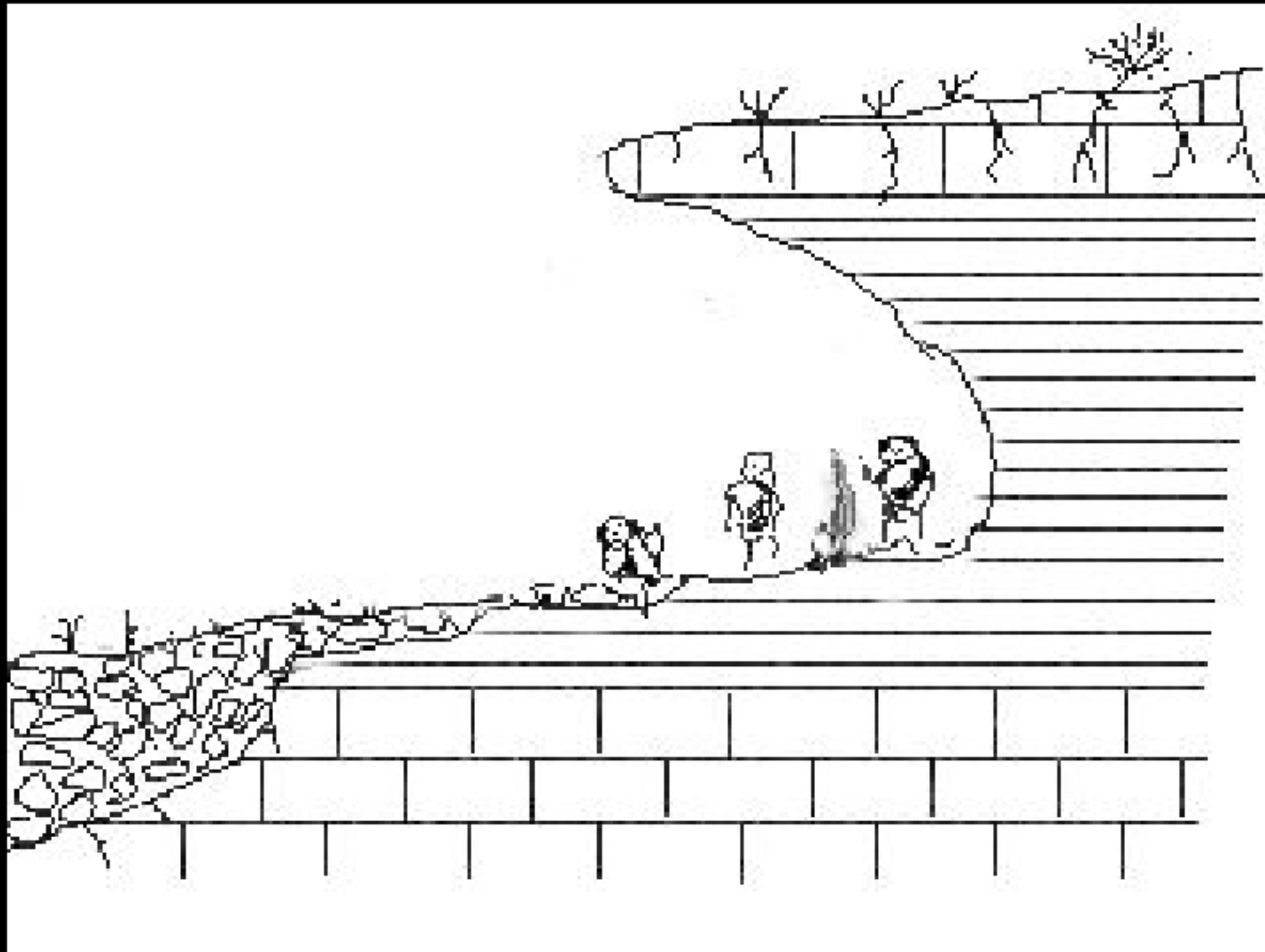


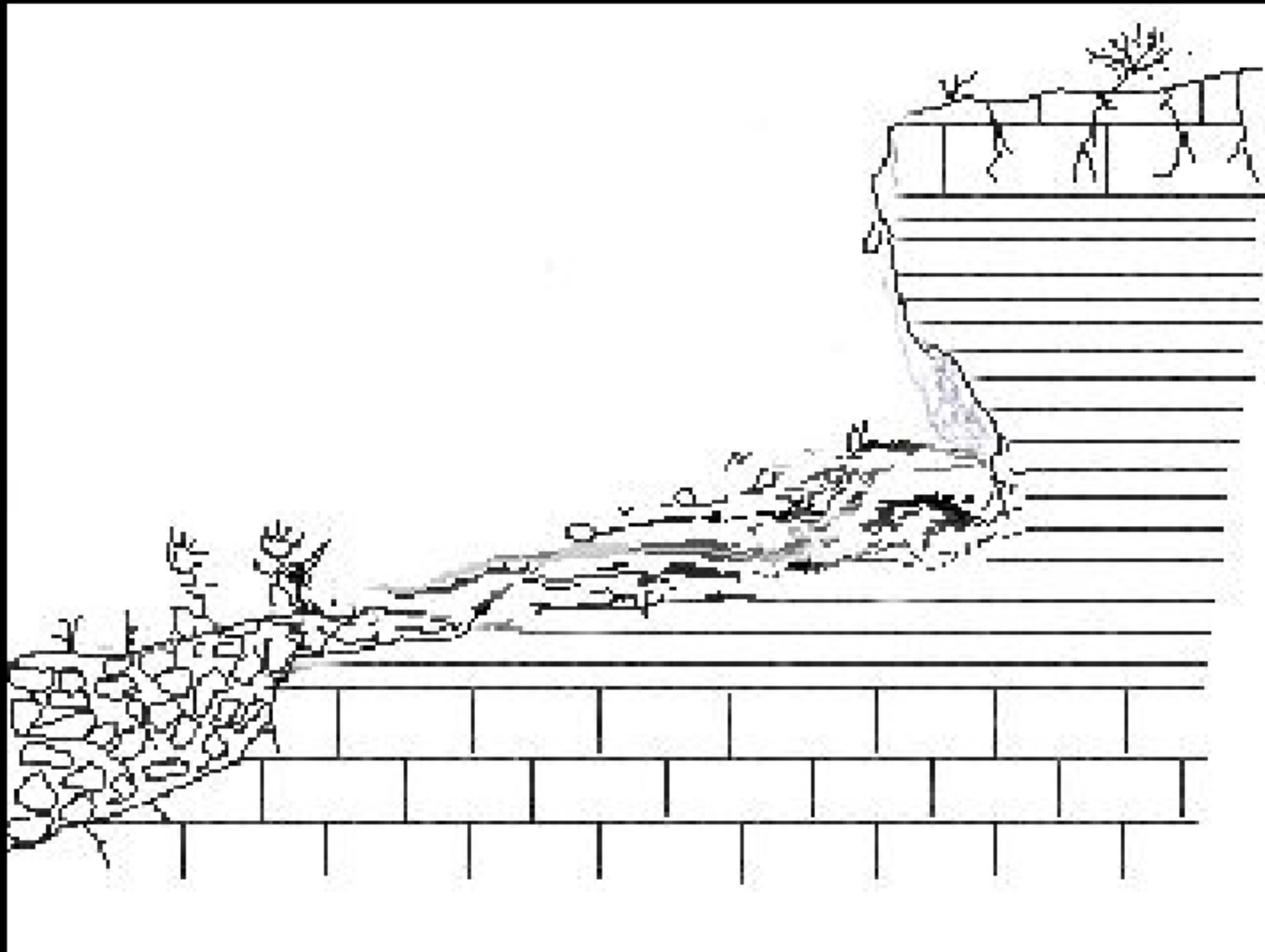


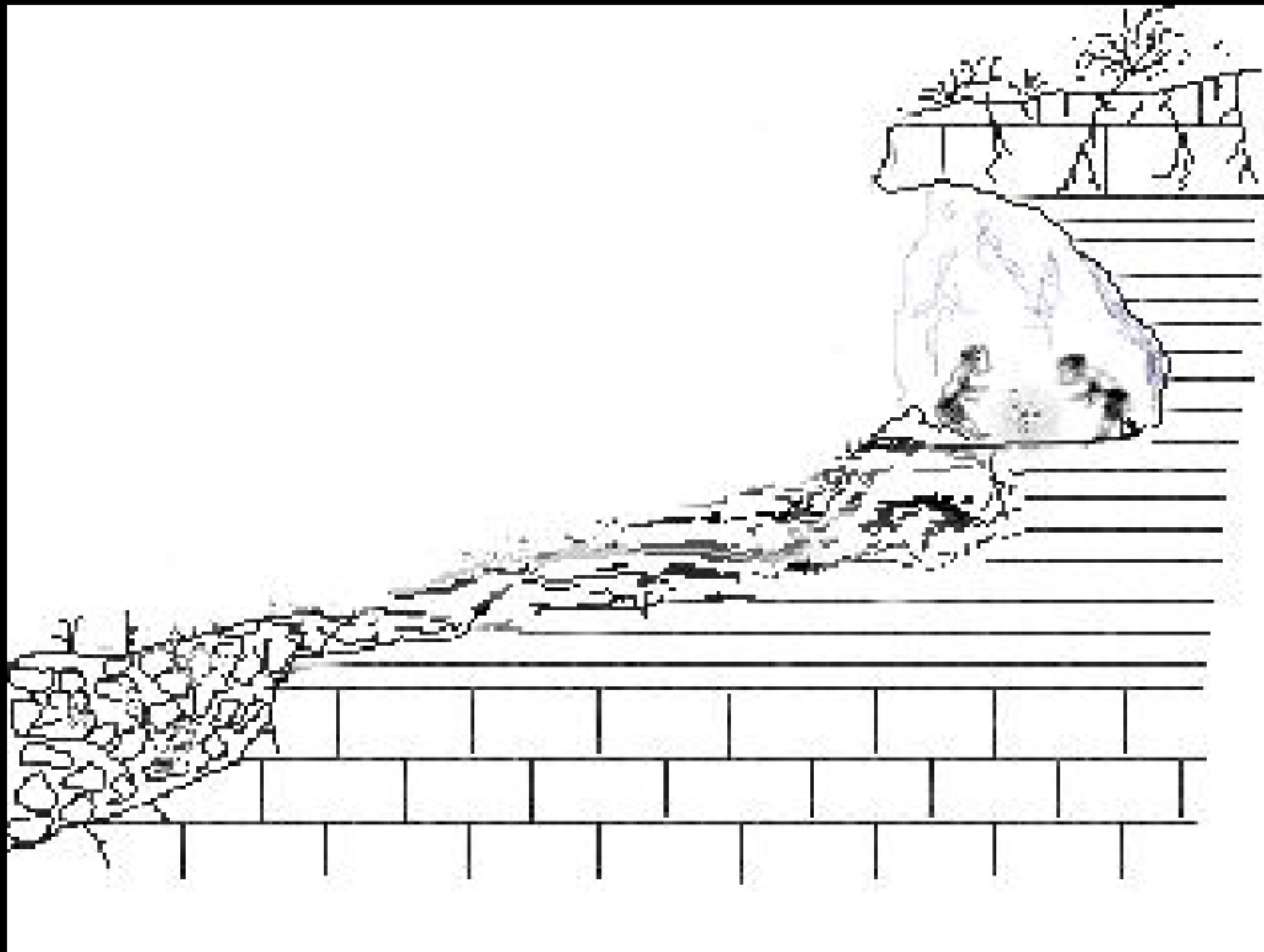


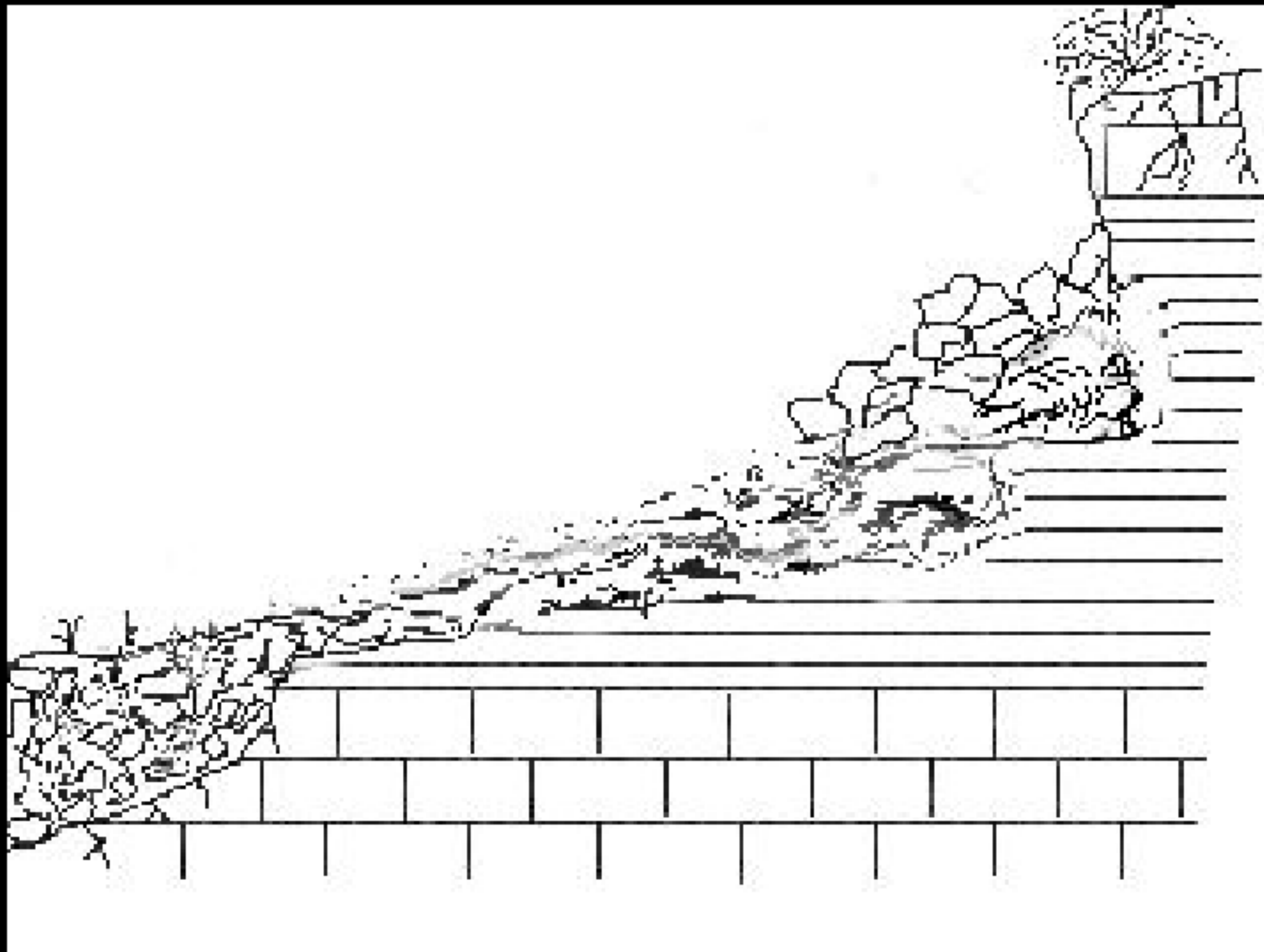


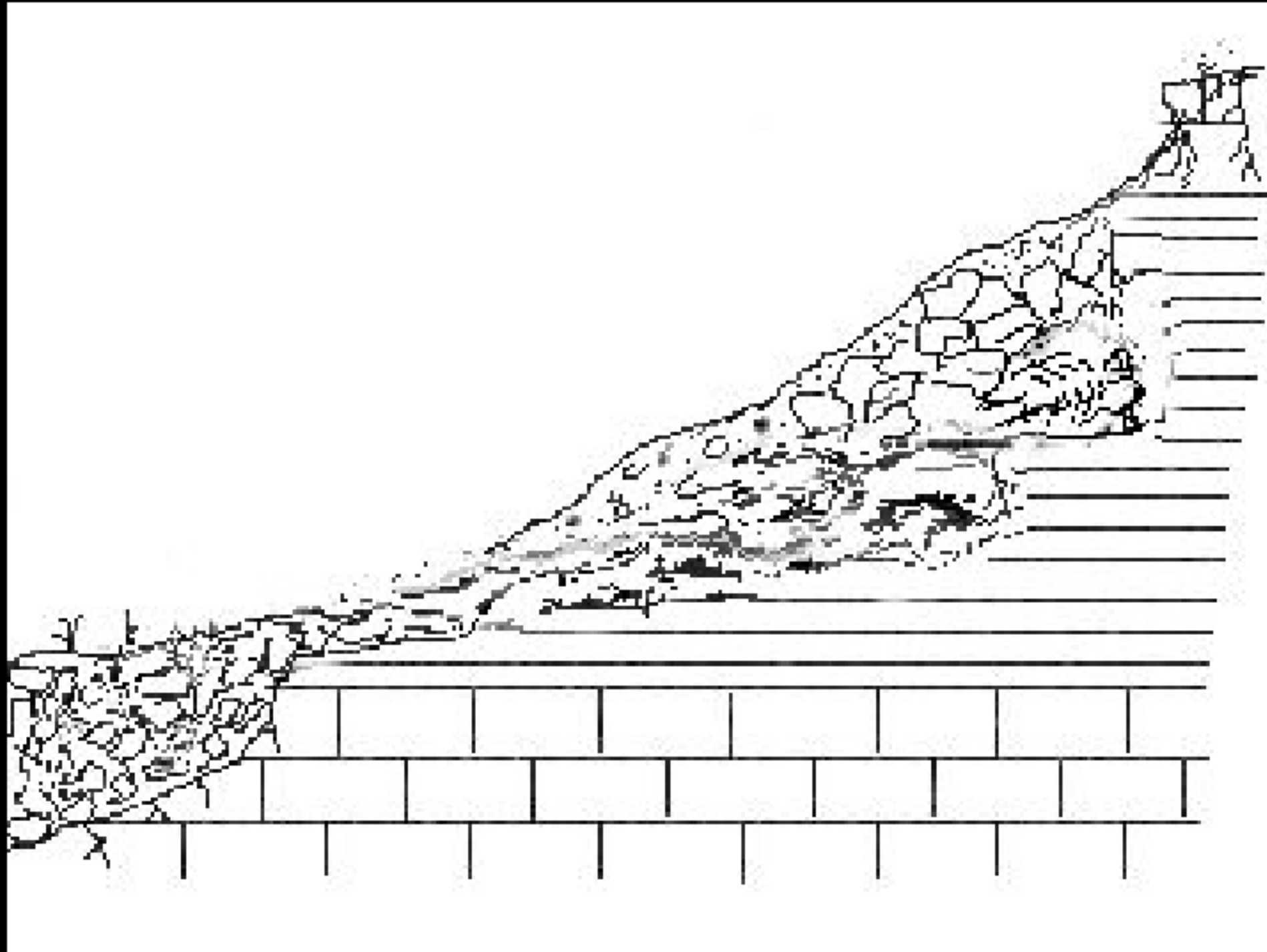


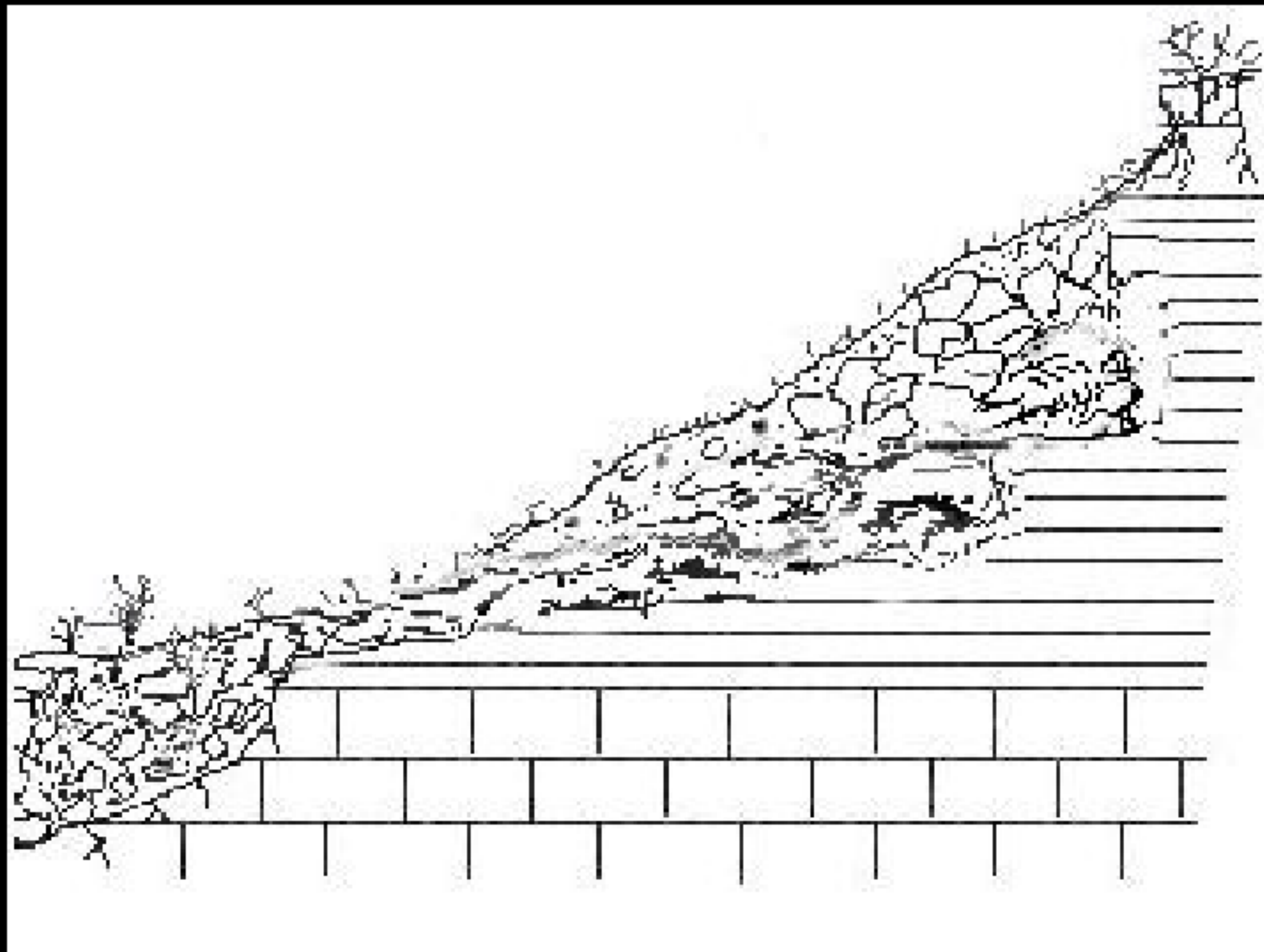














L'abri sous roche de la Grande Rivoire se situe au-dessus de Sassenage contre une falaise, à 580 m d'altitude.

Les femmes préparent le souper dans des grands bols en céramique et écrasent des végétaux sur une meule en pierre à l'aide d'un gros galet de granite.

Maquette et photo : LYTHOS

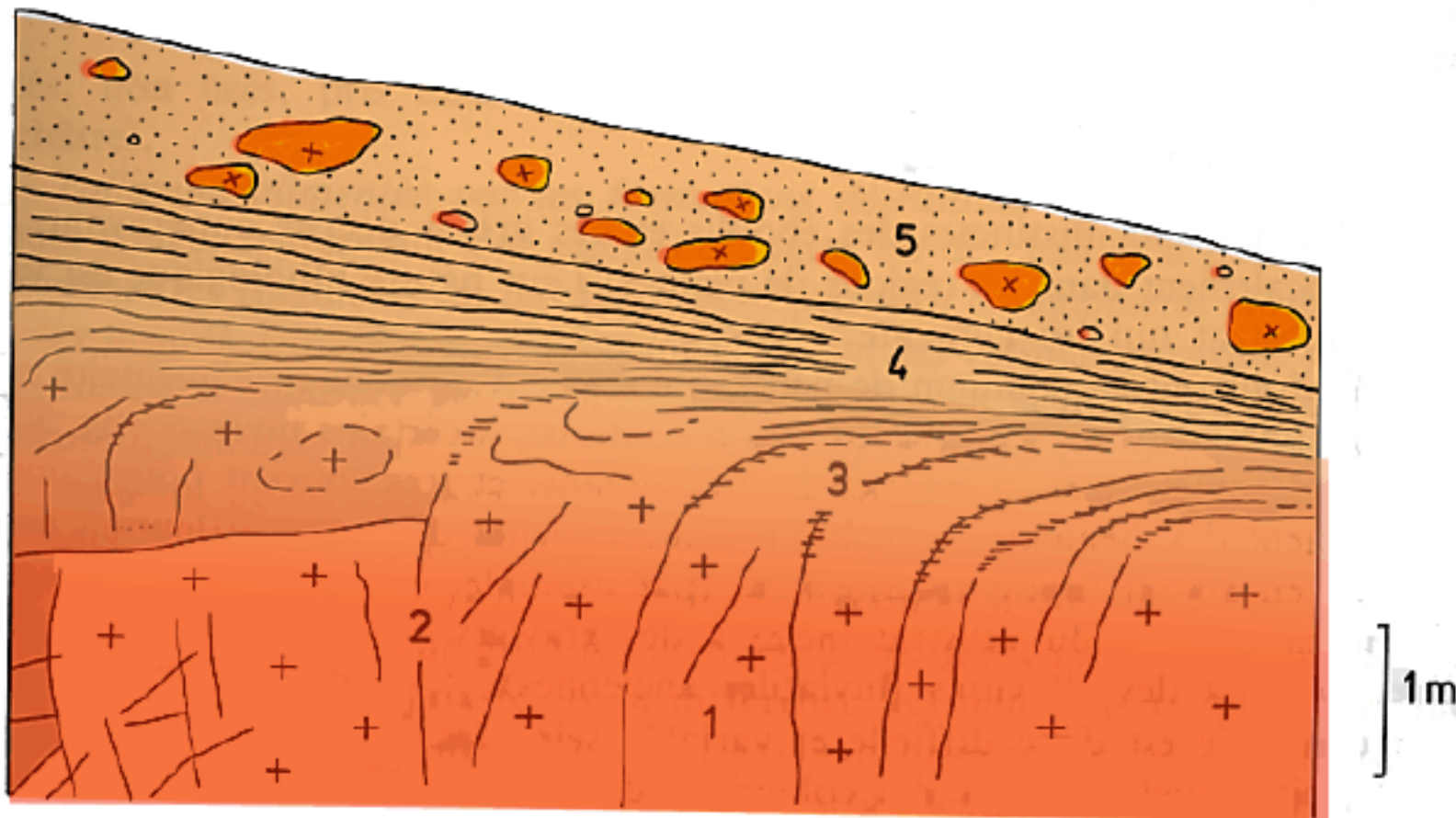


Vercors



Les Eyzies (Dordogne)

4.25 Les versants granitiques



- 1 - Arène en place
- 2 - Diaclase bordée d'arène ocre plus argileuse
- 3 - Microcisaillements
- 4 - Arène litée
- 5 - Arène limoneuse à blocs

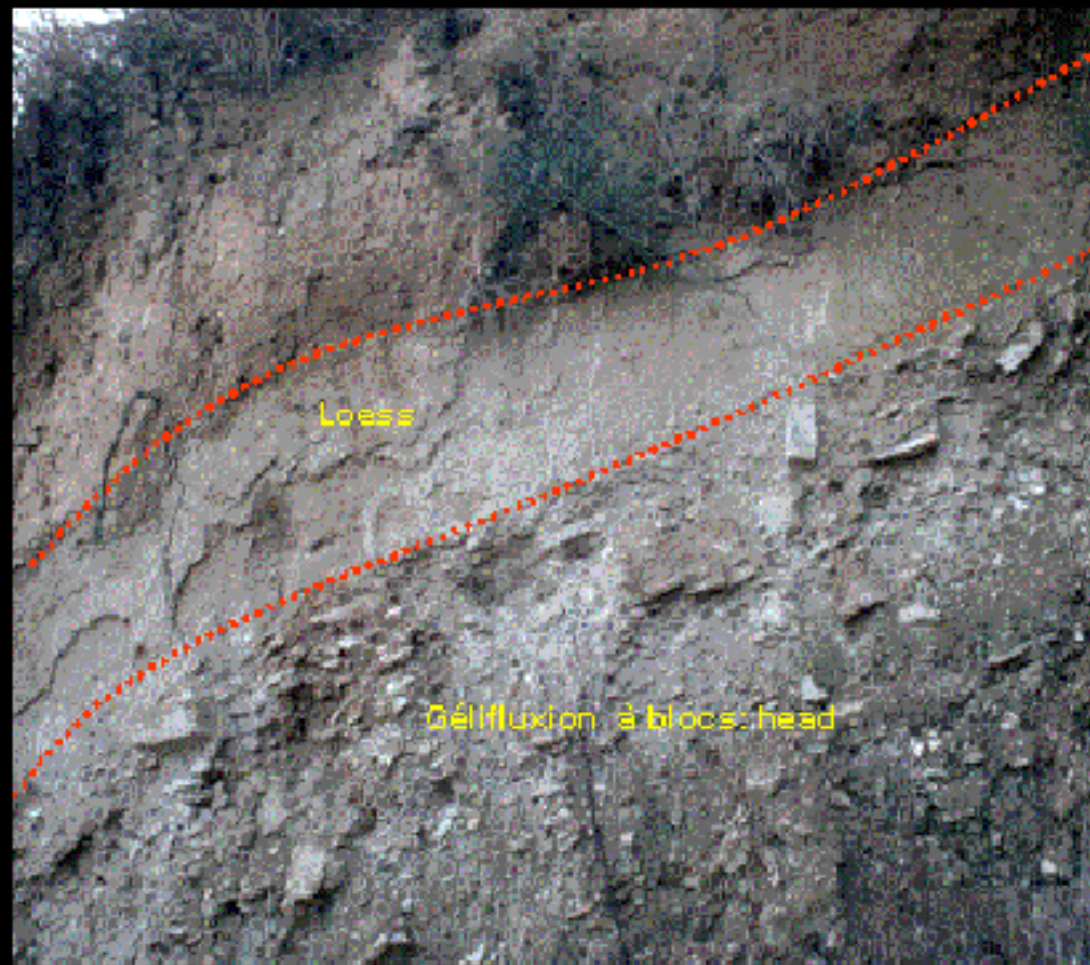
Arènes litées

2.3 Formations de versant en plaine



Colluvions

Dépôts de versants



Colluvions

