

Physical Geology
Field Trip Notes and Problems

Name _____

Period _____

- Stop 1 – The eastern shore of North Lake
- Sandstone outcrop on North Point
 - Differential weathering of Ss and Sh
 - Characteristics of Ss and Sh
 - Evidence of glaciation (and see 1a below)
 - Fault



Problems:

Why doesn't the water seep through the rock platform the lake sits on?

How can the fault be identified on the map (see map on next page)?

Stop 1a: Glaciation at North Lake.

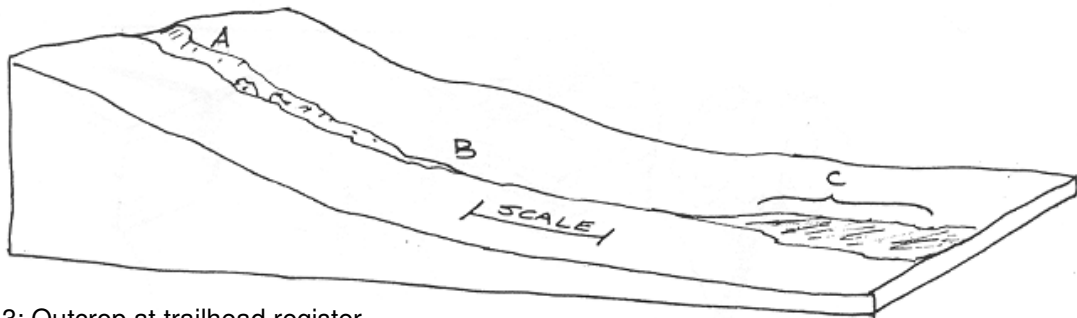
Problems:

How can we reconstruct the flow patterns of Pleistocene ice here?

What WAS the ice flow pattern, and how do we know?

Stop 2: Gentle slope at Blue Trail head.

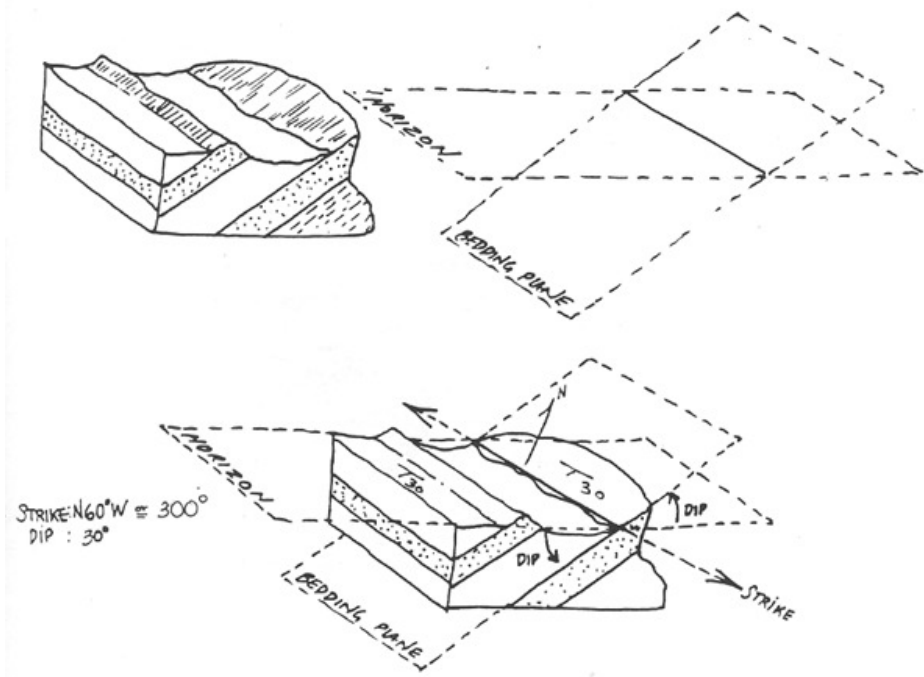
Problem: Examine, describe, and explain the distribution of sediments along the gentle slope that the trail follows

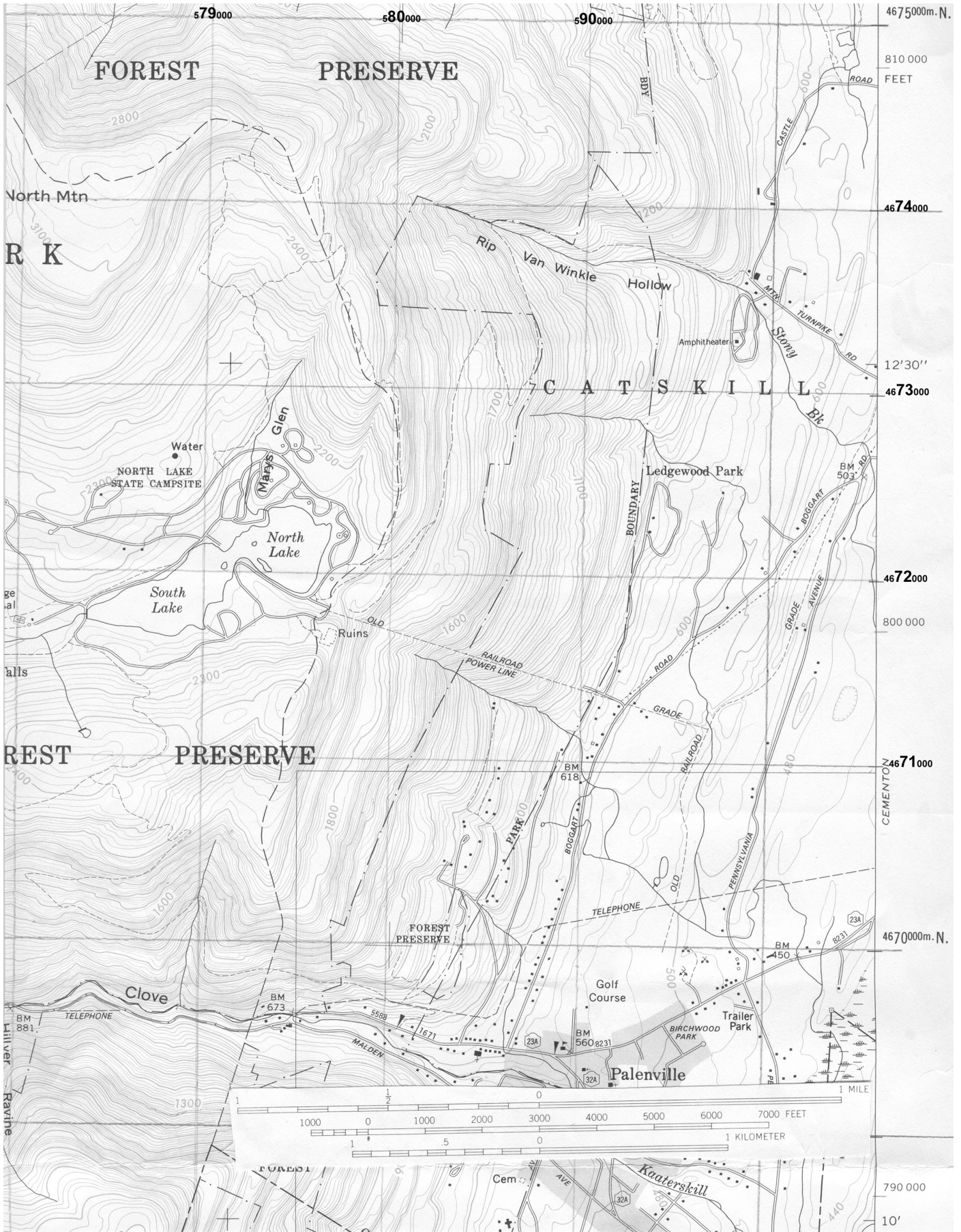


Stop 3: Outcrop at trailhead register

- Measuring and interpreting dip and strike

Problem: Describe in detail a 'geologic event or process' that could produce the observed dip and strike of the rocks here.

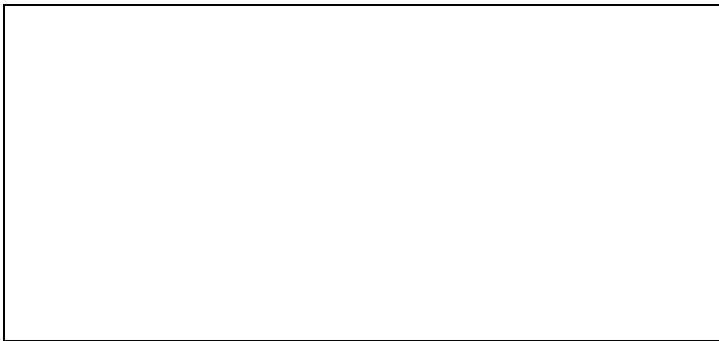




Stop 4: Small outcrop along the trail

- Process and implications of crossbedding

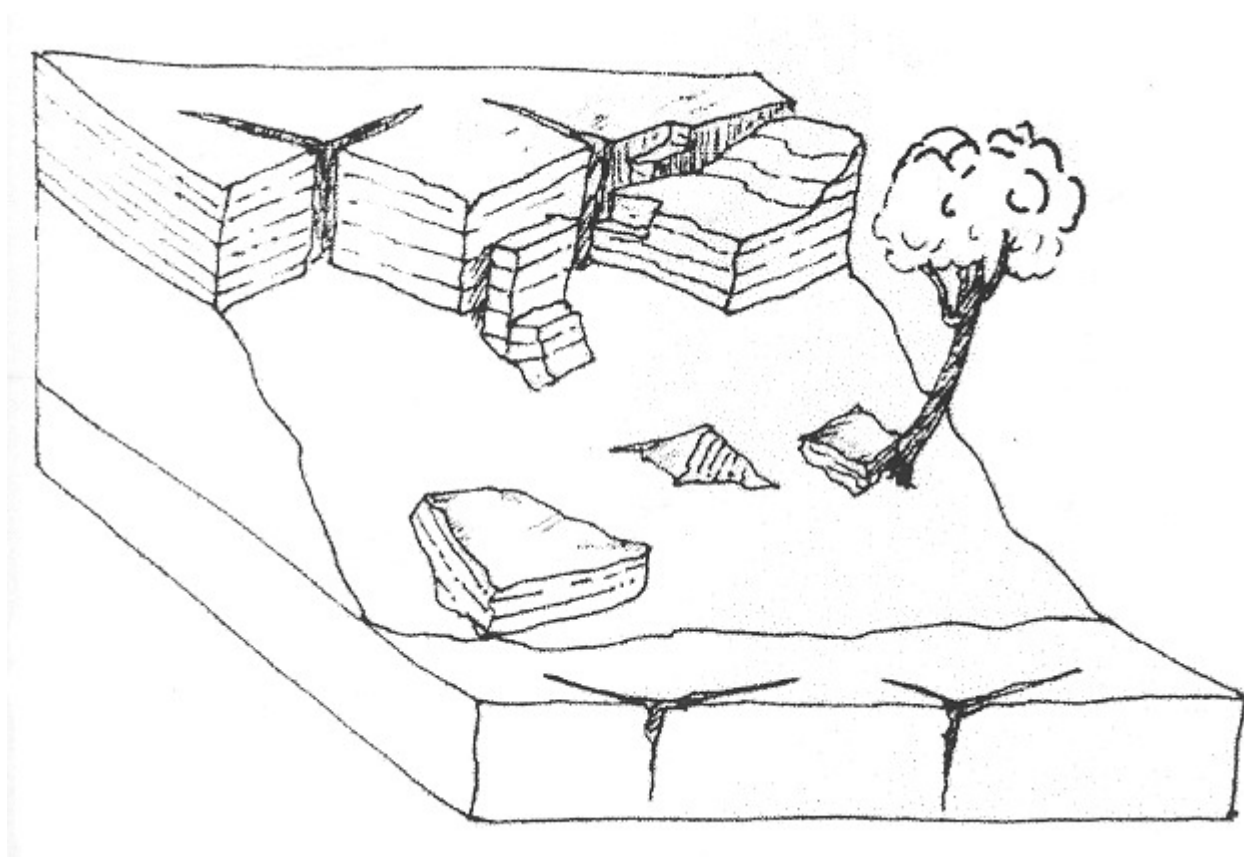
Problem: Find and describe/diagram several more instances of crossbedding, both small and large scale, along the trail today.

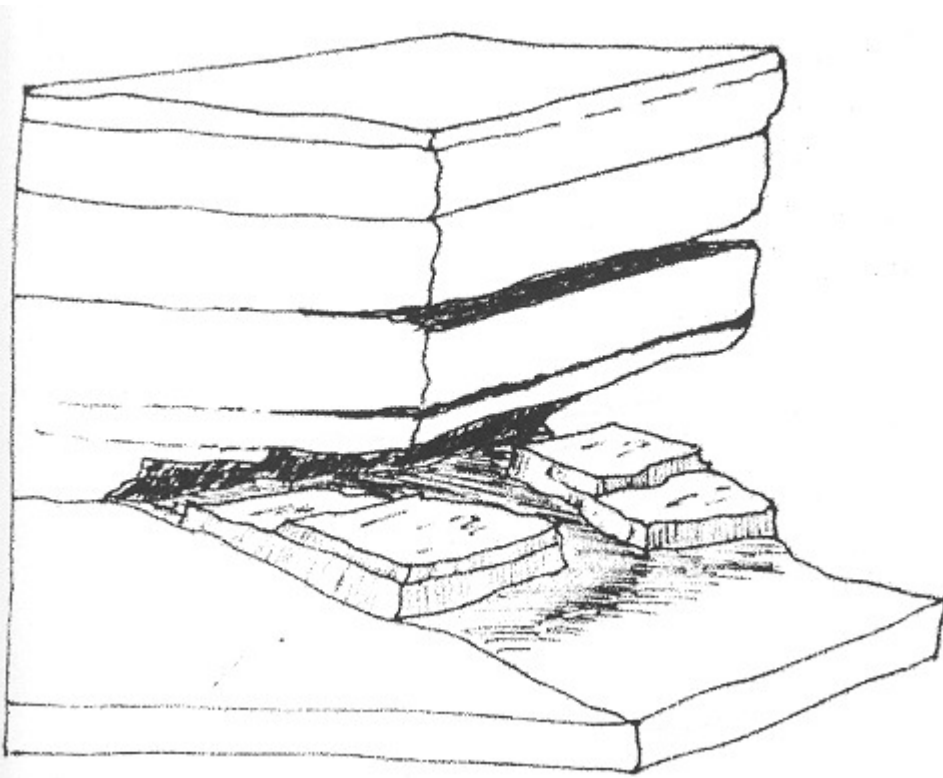


Stop 5; Slope topped by a cliff

- Differential weathering of Ss and Sh
- Evidence of slope and cliff processes, and how rock characteristics control them
- 'Contacts' between rock units
- Lichens

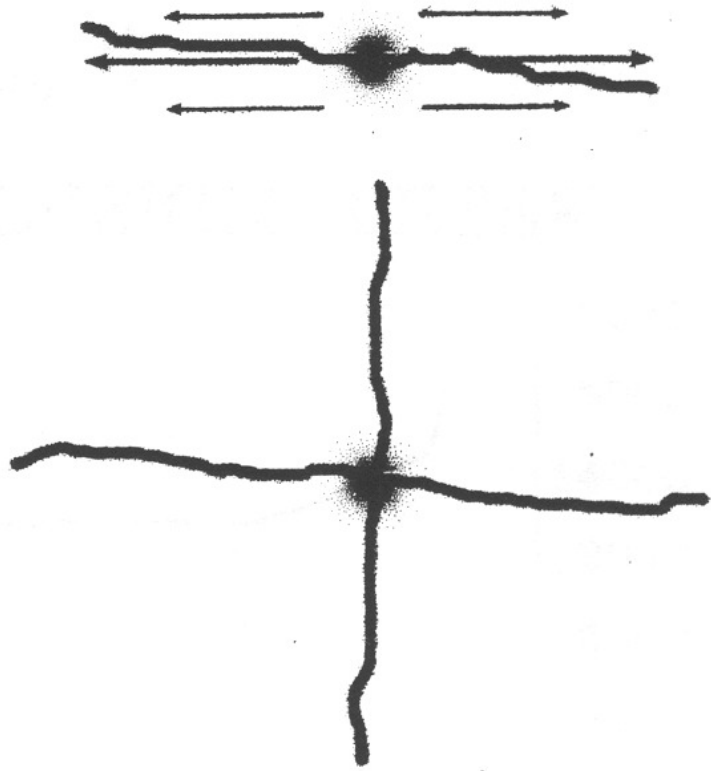
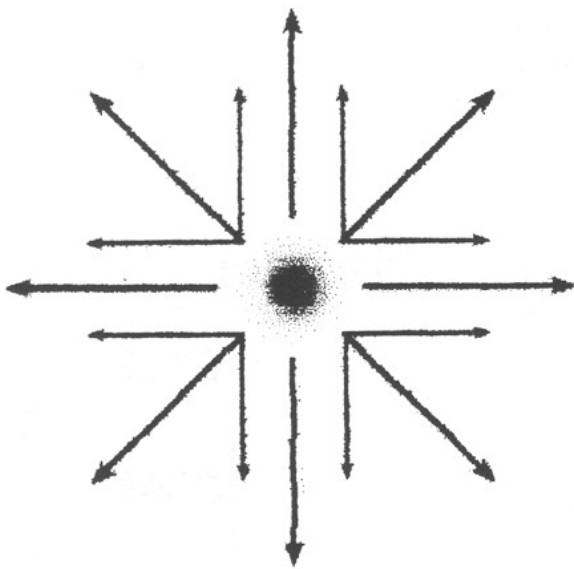
Problem: What processes cause "creep"?





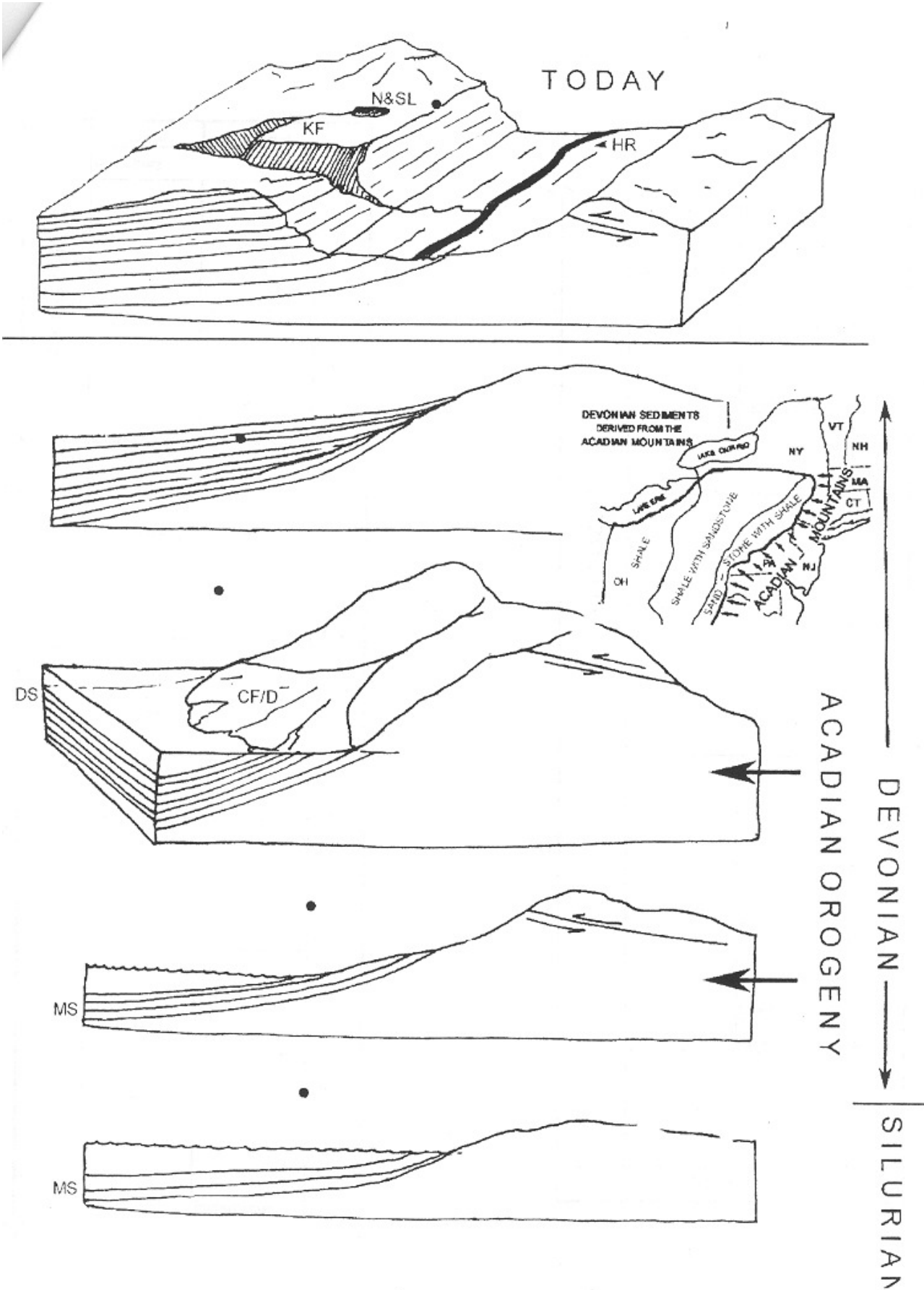
Stop 7 Sandstone platform
➤ Jointing process

Problem: What is the 3rd plane that these rocks fracture on, and why do they fracture there?

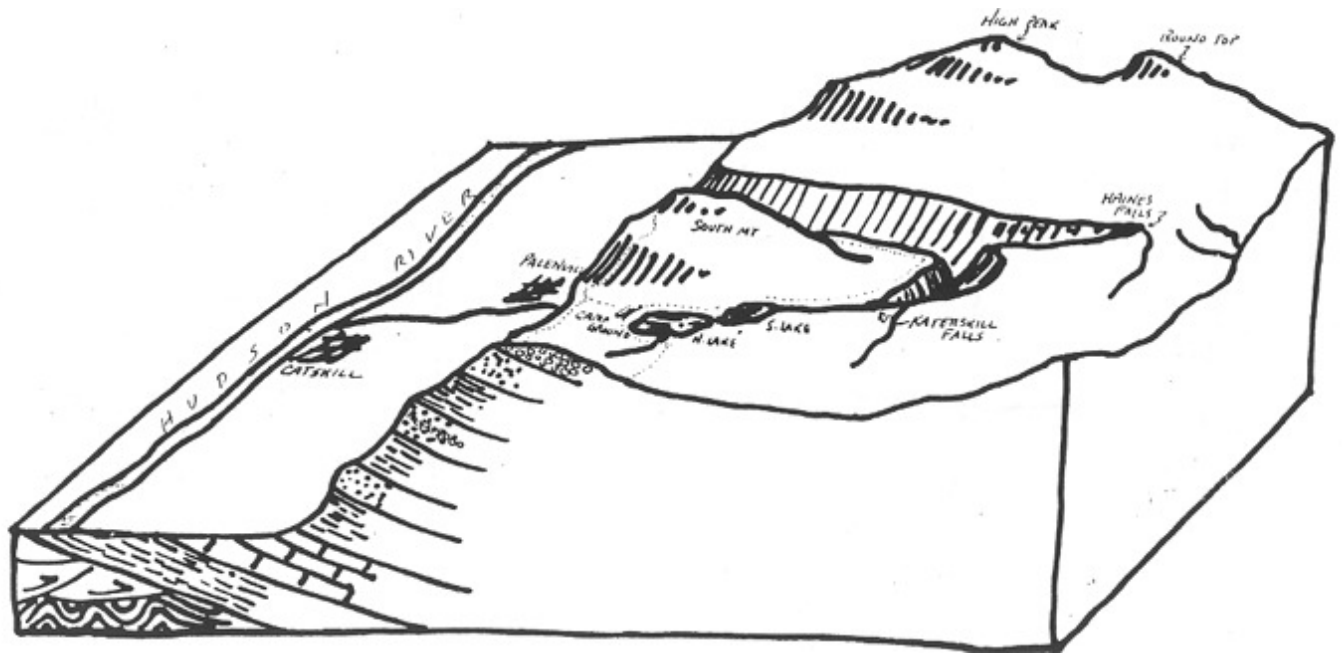


Stop 8 Artists' Rock

- Geologic time
- Control of geology over land use patterns



Stop 8 (continued)



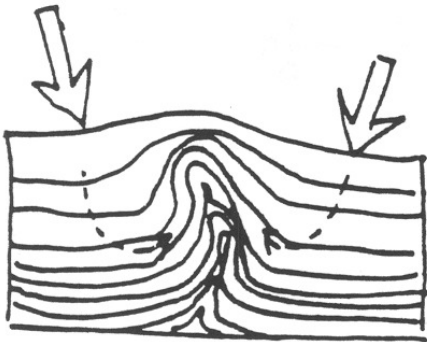
Problem: How can the banded land use pattern be explained?

Stop 9 Sandstone cap at top of shale slope

- Fossil ripple marks

Problem: What information might fossil ripple marks reveal about the environment at the time of the deposition of these layers?

Stop 10 Problem: YOU find the stop, and then try to interpret what you're seeing

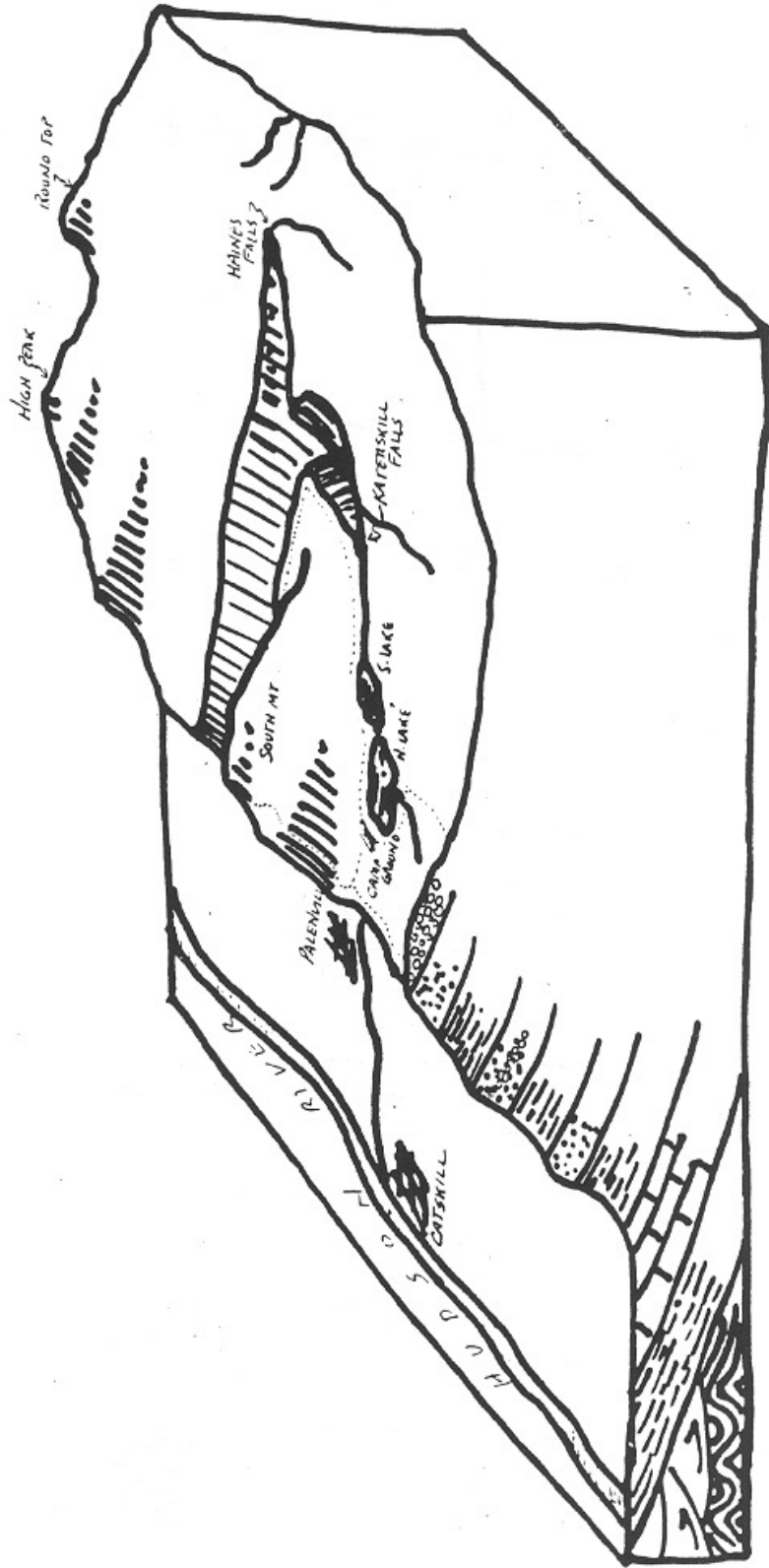
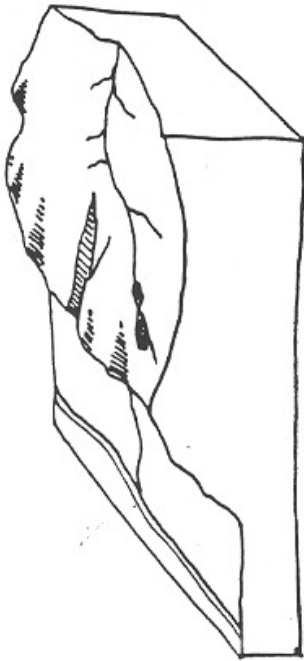
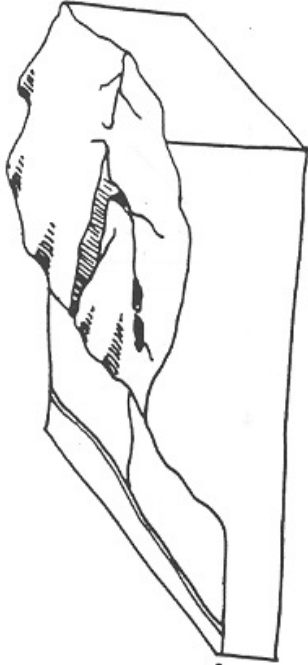


Stop 11 "Rock City" and "Sunset Rock"

- Conglomerate
- Jointing
- Group photo!

Problem: What set of conditions result in the continuing opening of the joints in these rocks?

Stop 11 (continued)



Stop 12 The Fault (See map on page 2)

Problem: Determine when we cross the same fault that forms the eastern shore of North Lake:

Stop 13: Newman's Ledge

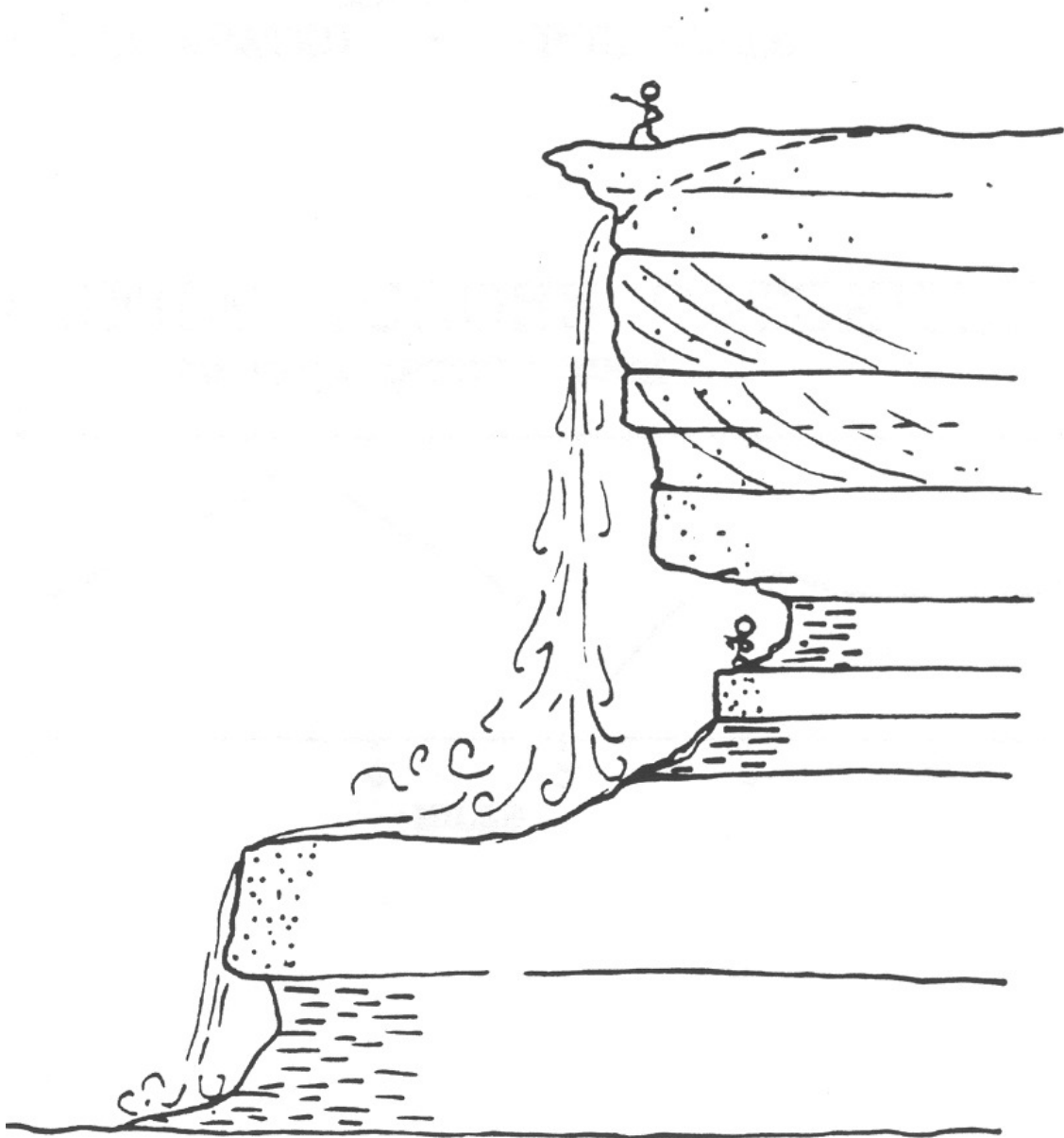
Problem: What geologic structure is responsible for the cliff here? (see your map!)

Stop 14 Bad Man's Cave

Problem: Do a detailed reconnaissance of the area, and describe in detail what you see, and the processes that led to the appearance of the slope and cave.

Stop 15 Kaaterskill Falls

Problem: What is the "geologic fate" of the Falls?



Stop 16 Schoharie Cave

Problem: Make a map of the cave passage we travel through, and come up with an explanation for any patterns that you observe.

ERA		PERIOD	EPOCH	THICKNESS (FT.)	LITHOLOGY	FORMATION	GROUP		
P A L E O Z O I C	U. DEV.	SENECAN	350-1000		various shales and sandstones	GENESEE			
			MIDDLE DEVONIAN				ERIAN	100-800	
	65-72	UPPER MID LOWER		Marcellus sh.	ONONDAGA				
	12-15			Moorehouse ls.					
	27-30			Nedrow ls.					
				Edgecliff ls.					
	LOWER DEVONIAN	ULSTERIAN	0-8		Schoharie grit (Rickard Hill ls. & sh. mem.)	ULSTER			
			40-60		Carlisle Center sh.				
			55-60		Esopus sh.				
		HELDERBERGIAN	2-6		Oriskany ss.	HELDERBERG			
			13-15		Port Ewen sh. & ls.				
			8-10		Alsen ls.				
			10-30		Becraft ls.				
			50-80		New Scotland ls.				
43-55			Kalkberg ls.						
20-60			Coeymans fm. (Ravena ls. mem.)						
35-55	Manlius fm. (Thacher ls. mem.)								
U. SIL.	CAYUGAN	2-40		Rondout fm. (Chrysler dol.)					
		0-10		Cobleskill dol., ls.					
I. MOHAWKIAN 2. CINCINNATIAN	U. ORD.	1.	0-55		Brayman dol.				
			0-410		Indian Ladder sh.				
			1800-2000		Schenectady ss., graywacke & sh.				

ENK 6-8-73

Stop 16: Generalized stratigraphic column in the Helderberg Plateau, Schoharie and Albany Counties, NY, from Kastning (1975); compiled from Fisher (1960, 1962), Goldring (1935), Grabau (1906), Johnson (1958), Oliver (1956), Rickard (1962, 1975), and Ruedemann (1930).