GRAEME COLLEGE
G12 Geography

River Capture

Some basics first; definitions:

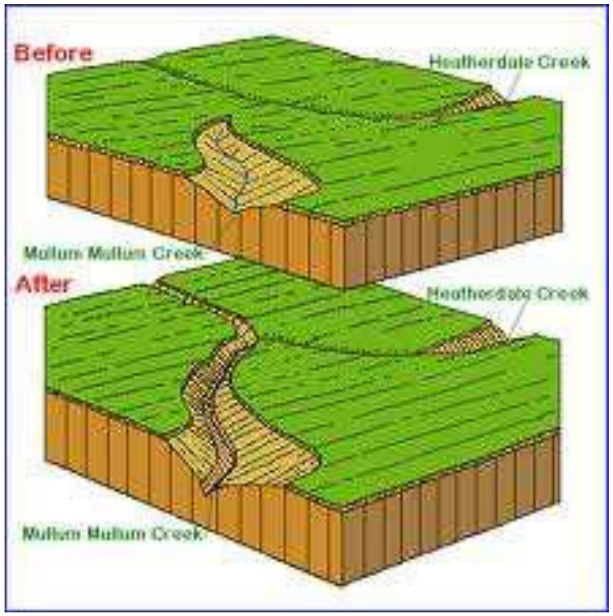
Weathering – break down of rock
Erosion – transportation of that weathered material
Deposition – when the river loses energy, it drops the material it has been carrying

Knickpoint - a sharp change in channel slope, such as a waterfall or lake.

AND – NB: HEADWARD EROSION…
is **erosion** at the origin of a stream channel, which causes the origin to move back away from the direction of the stream flow, and so causes the stream channel to lengthen. ... The stream erodes away at the rock and soil at its headwaters in the opposite direction that it flows.

River Capture

This can be defined by “headward erosion” as the river erodes caused back from it’s source until it reaches another river and “captures” it.



When one river captures/robs another river of its headwaters.

It occurs when:

One river has a steeper gradient than the other river.

One river has a less resistant underlying rock than the other river.

One river has a greater volume of water than the other river

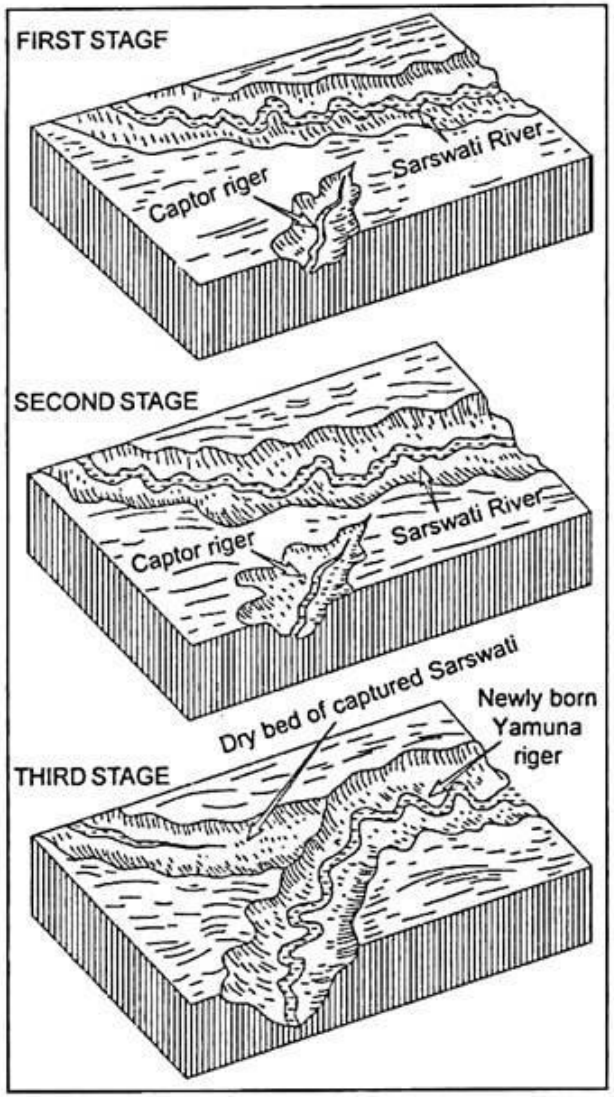


Fig. 17.17 : Stages of the capture of the Saraswati river through the process of headward erosion.

1. Captured stream - The part of the river that is diverted by the captor stream

2. Captor stream (pirate) - This is the energetic stream that cuts back and intercepts the other river

3. Misfit Stream/ beheaded - The river that has lost its headwaters as a result of capture

4. Elbow of capture - This is the point of capture where the change of flow direction occurs.

5. Windgap - This the area between the elbow of capture and the misfit stream where the water stops flowing and river gravels are deposited.

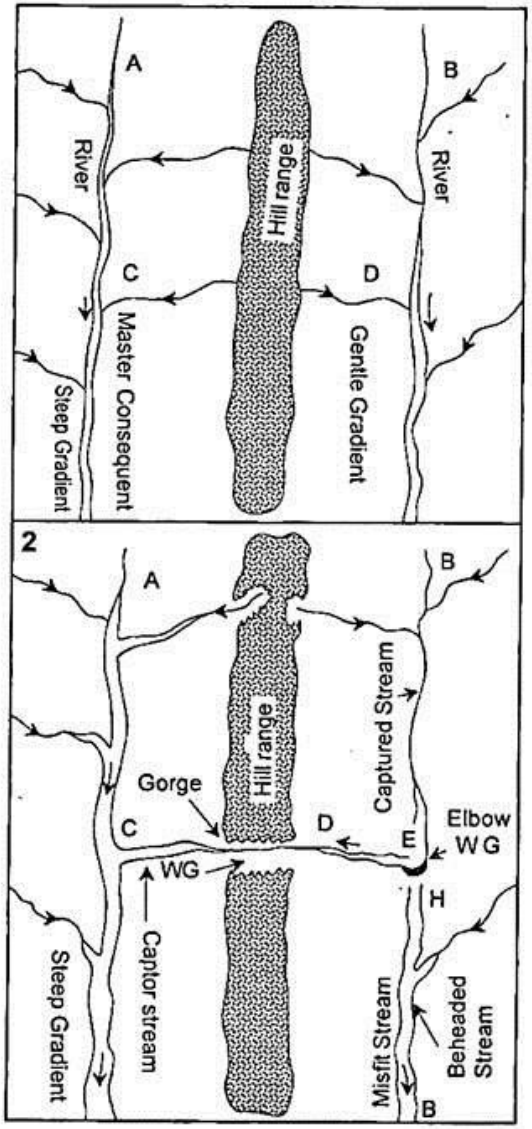
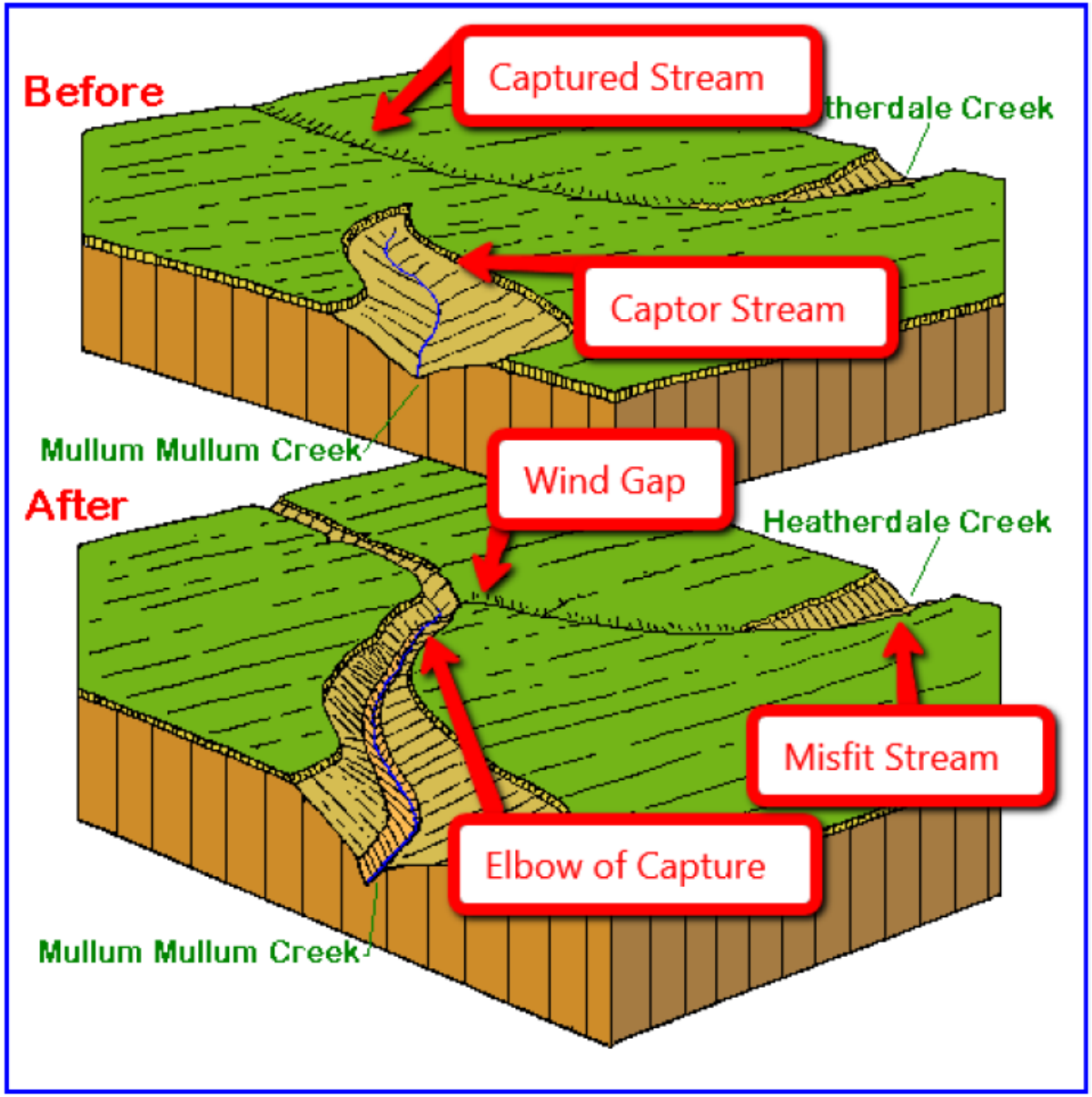


Fig. 17.18 : Illustration of river capture through headward erosion. WG = water Gap, wg = wind gap.


Before
Captured Stream
therdale Creek
Captor Stream
Mullum Mullum Creek
After
Wind Gap
Heatherdale Creek
Misfit Stream
Elbow of Capture
Mullum Mullum Creek

Match the following terms with the explanations. Write down the correct term:

Captured stream, Windgap, Elbow of capture, Captor stream, Misfit stream

2.1 The part of the river that is diverted by the captor stream

2.2 This is the energetic stream that cuts back and intercepts the other river

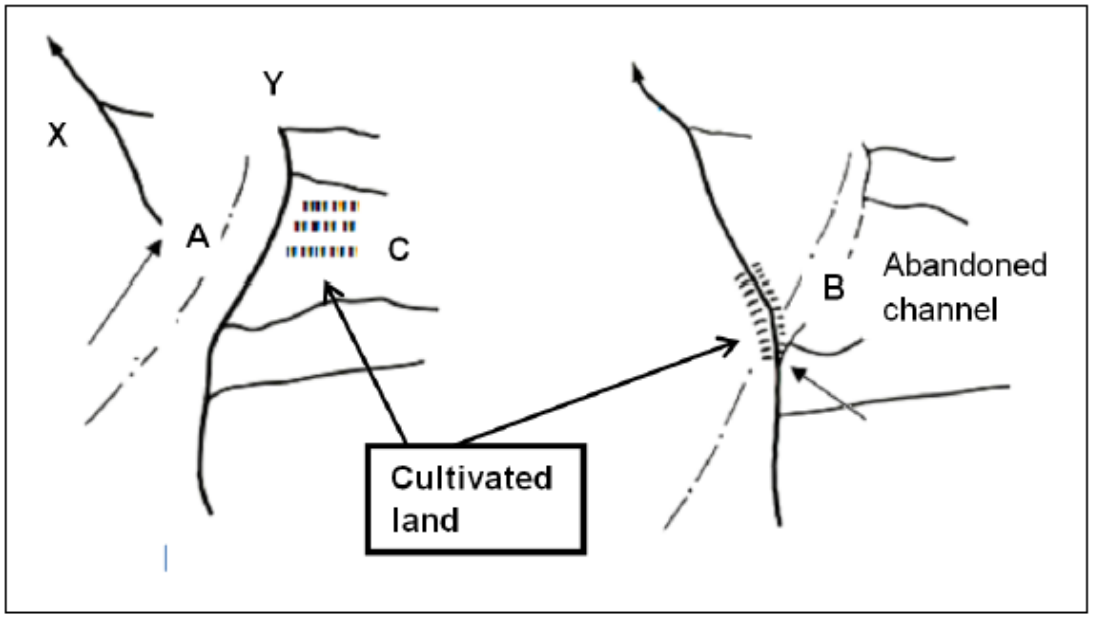
2.3 The river that has lost its headwaters as a result of capture

2.4 This is the point of capture where the change of flow direction occurs.

2.5 This the area between the elbow of capture and the misfit stream where the water stops flowing and river gravels are deposited.

Question 6

Refer to the process of river capture in FIGURE 6.

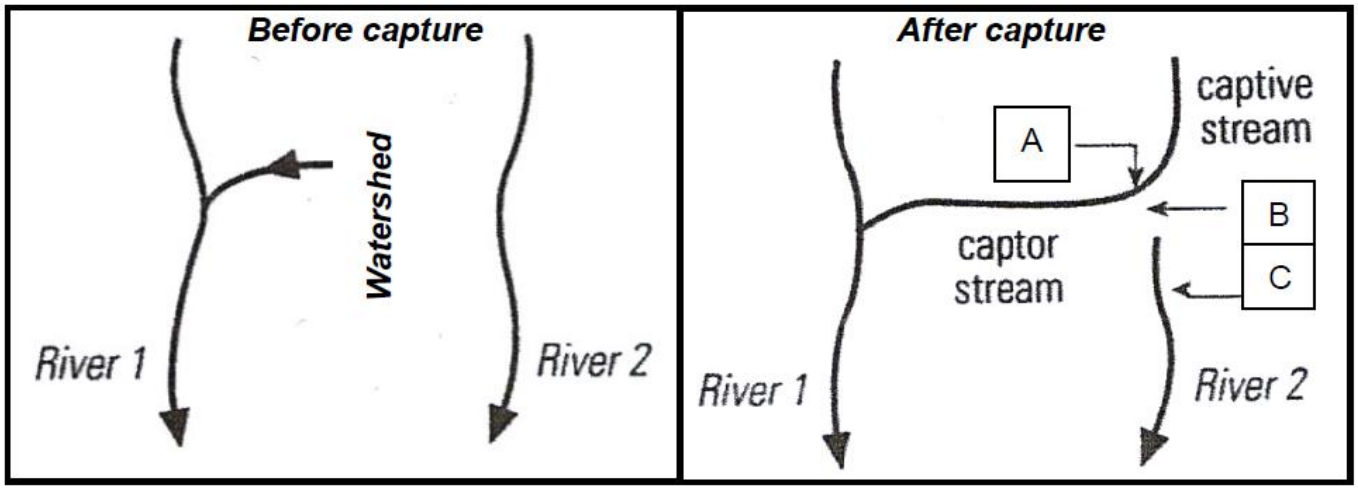


6.1	Name the type of erosion taking place at A.	(1x1) (1)
6.2	Explain the term captor stream/pirate stream.	(1x1) (1)
6.3	Which one, river X or river Y, is the captor stream?	(1x1) (1)
6.4	Give TWO possible reasons why river X has a higher erosive power.	(2x2) (4)
6.5	What happened to the river at B?	(1x1) (1)
6.6	Write a paragraph analysing the physical and economic impact of river capture on the captured stream and its surrounding area.	(4x2) (8)

TOTAL 16

Question 4

Study the diagram and answer the questions that follow



4.1. Explain the concept river capture

4.2 What is the name given to the erosion process which causes/starts river capture?

4.3 State THREE factors that cause river capture.

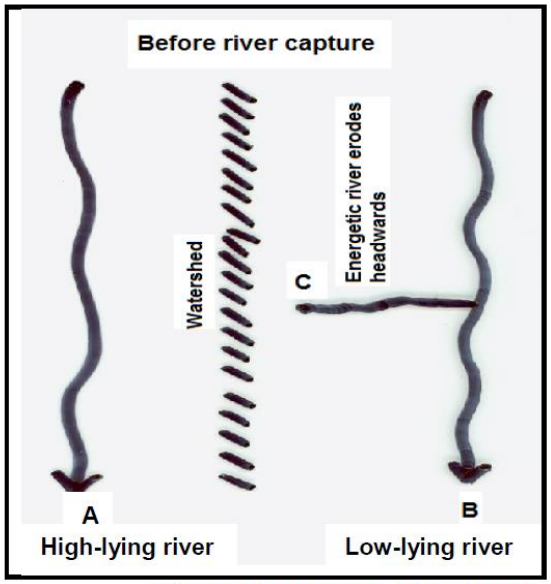
4.4 Name landforms **A**, **B** and **C** associated with river capture.

4.5 Which river will experience rejuvenation after river capture?

4.6 Write a single paragraph (approximately 10 lines) in which you compare the flow characteristics of River 1 to that of River 2. Provide reasons to support your answer.

1.5 FIGURE 1.5 is a sketch based on river capture.

1.5.1	What is a *watershed*?	(1 x 1)	(1)
1.5.2	Why is the watershed not a permanent feature?	(1 x 2)	(2)
1.5.3	What does it mean when a stream erodes *headwards*?	(1 x 2)	(2)
1.5.4	Give TWO reasons why tributary **C** is energetic.	(2 x 2)	(4)
1.5.5	Draw a plan view sketch (as seen from above) to show the landscape after river capture has taken place. Label at least TWO features of river capture.	(2 x 2)	(4)
1.5.6	Which of the streams will become rejuvenated after river capture has taken place?	(1 x 2)	(2)



[Source: Examiner's own sketch]