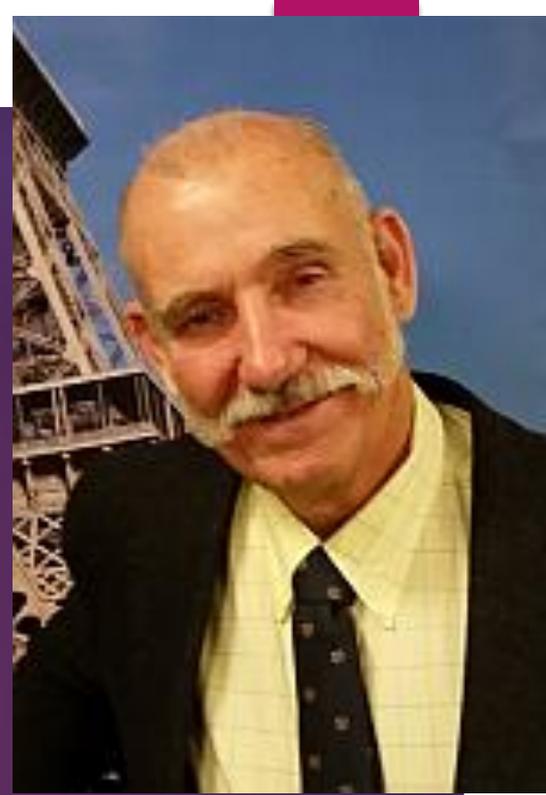


Physical Geology Lab 03: Volcanoes and Plutons Part 1

DR. GREGG WILKERSON AND MICHAEL OLDERSHAW

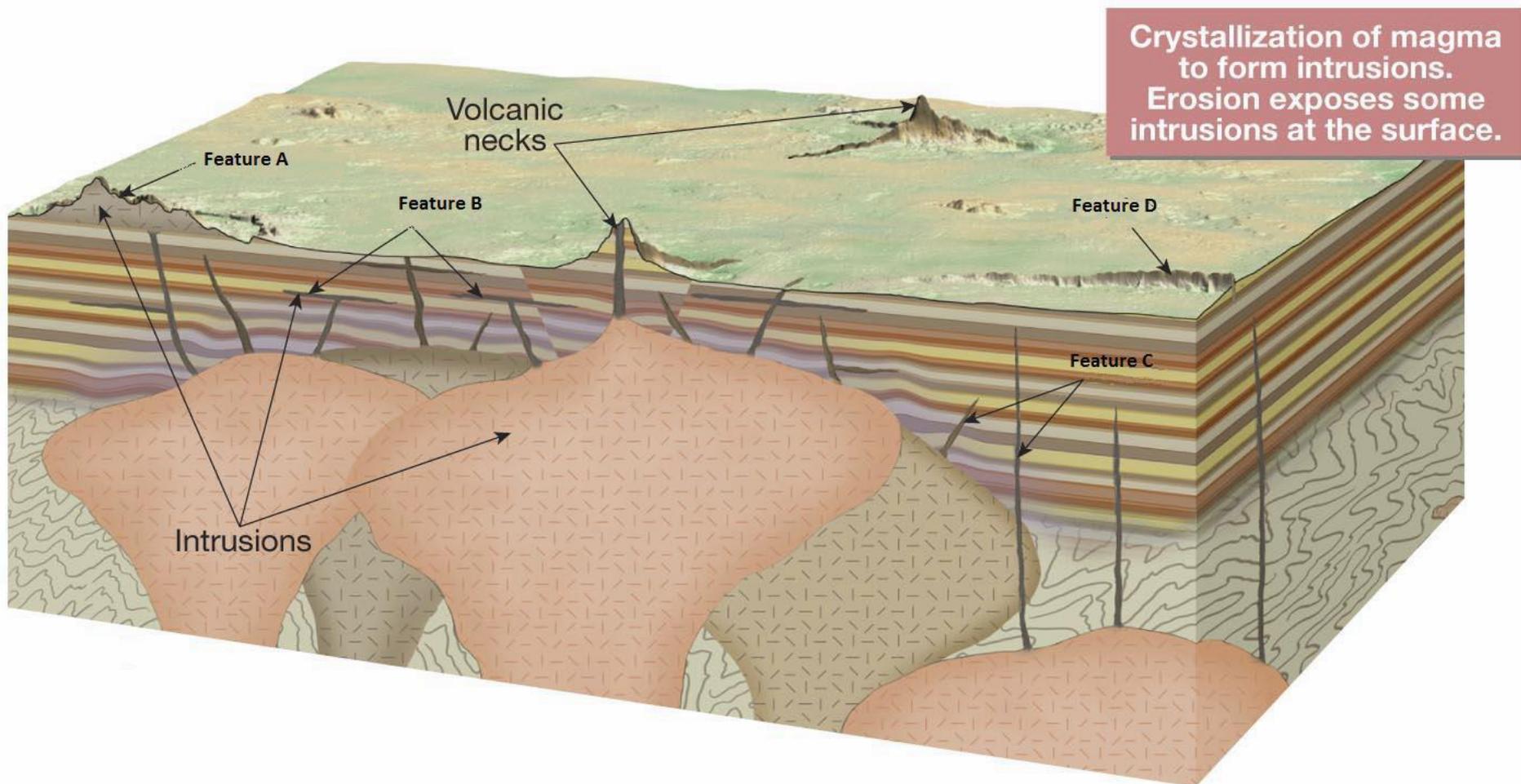


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- ▶ **Lecture: Igneous Rocks**
- ▶ **Lab: Volcanoes and Plutons**
- ▶ **Igneous Rock Properties**
- ▶ **Igneous Rock Classification Table**

- ▶ **SOLUTIONS ARE IN RED**

Take a look at the figure below and answer the following:



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- ▶ 1. What pluton is represented at Feature A?

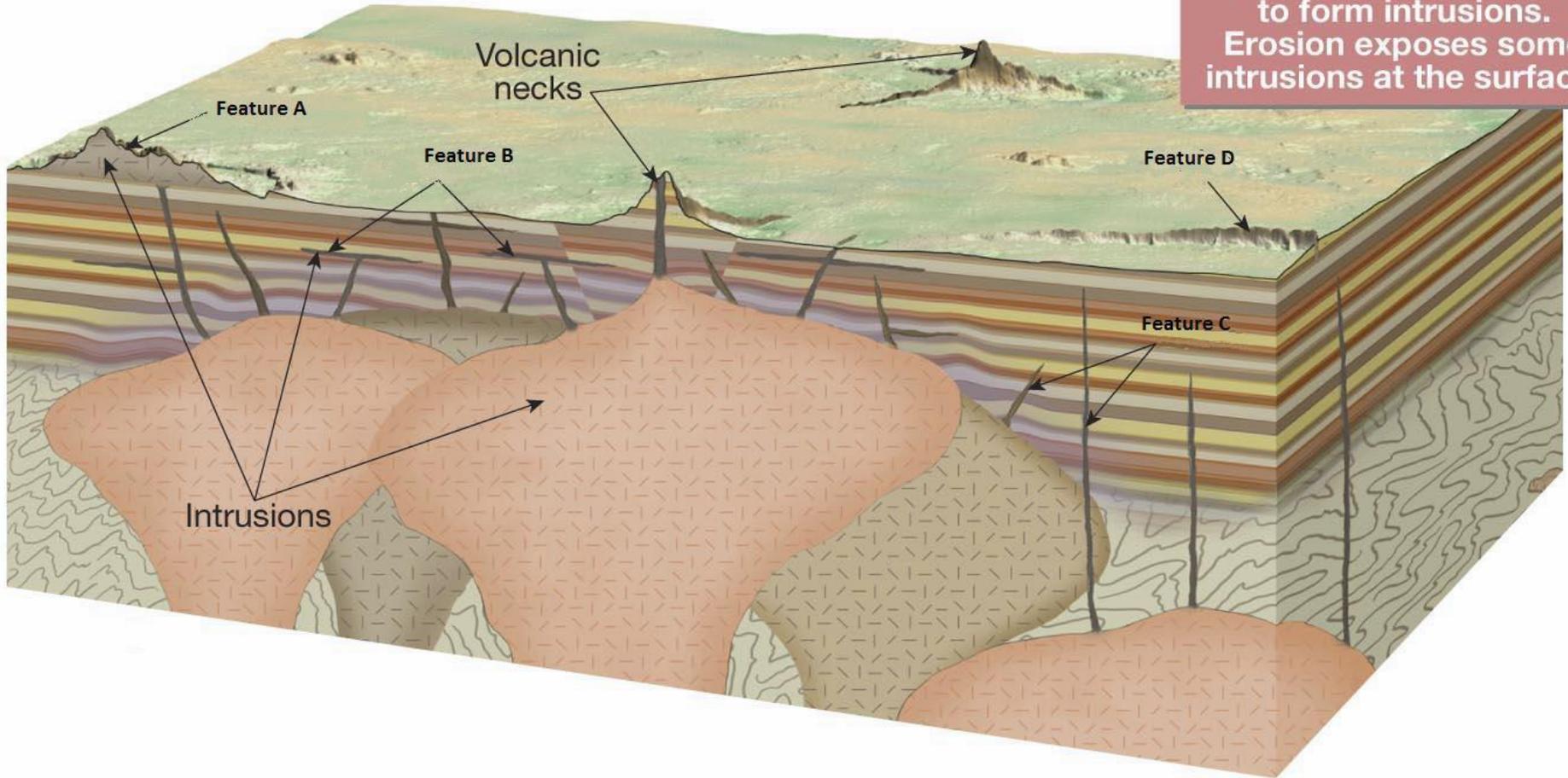
- ▶ 2. What plutons can you see at Feature B?

- ▶ 3. What are the plutons labeled Feature C?

- ▶ 4. What is Feature D? _____
- ▶ 5. What would Feature D result in? _____
- ▶ 6. Consider that these features are all produced from magma which is very hot. How would you be able to tell the difference between an ancient buried lava flow, and an ancient buried sill?

▶ _____
- ▶ 7. In the figure are several intrusions. What would you call a group of these formed into a single body that covered 46 sq. km?

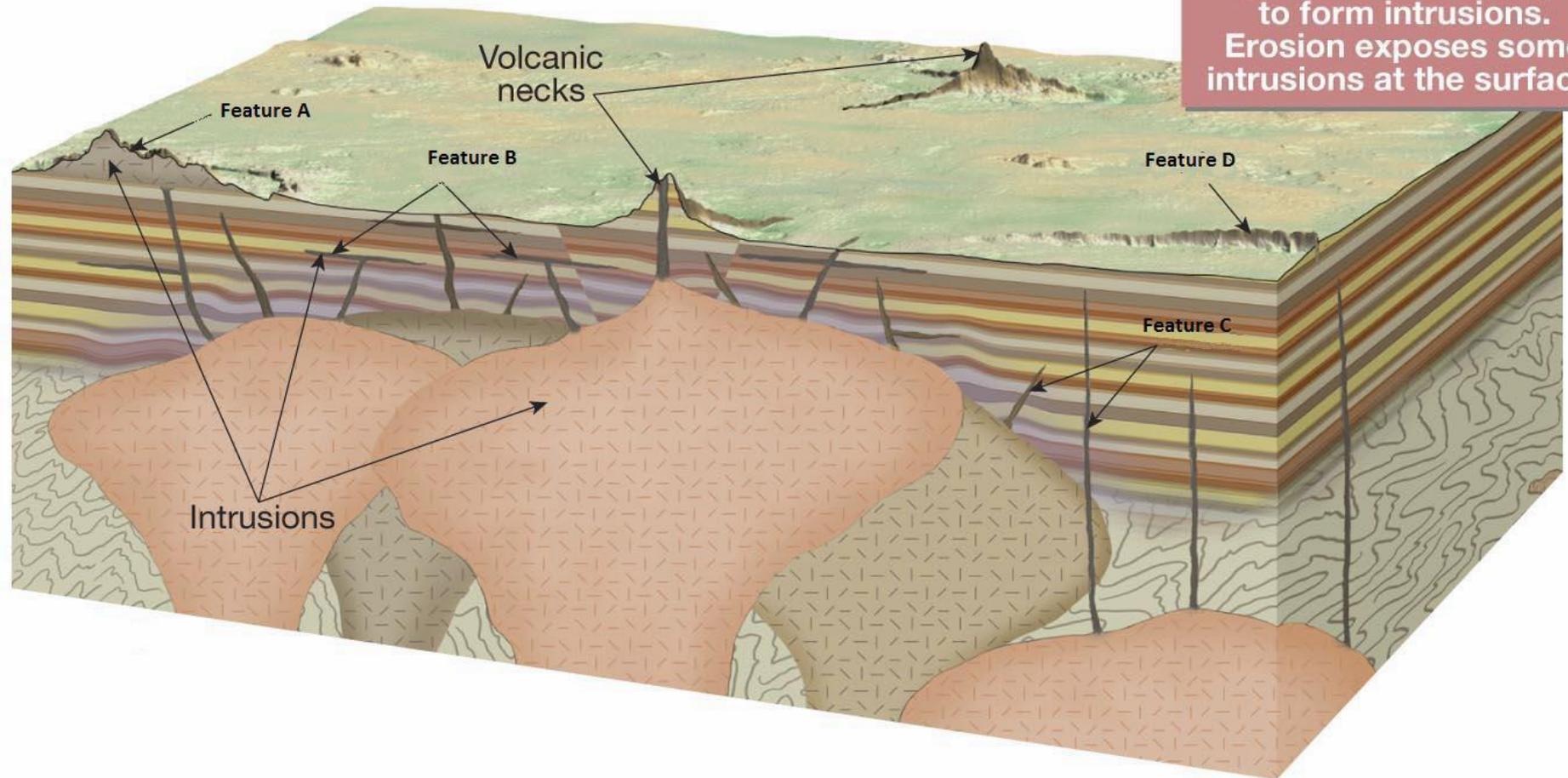
Crystallization of magma to form intrusions.
Erosion exposes some intrusions at the surface.



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► **Q1. What pluton is represented at Feature A?**

Crystallization of magma to form intrusions.
Erosion exposes some intrusions at the surface.

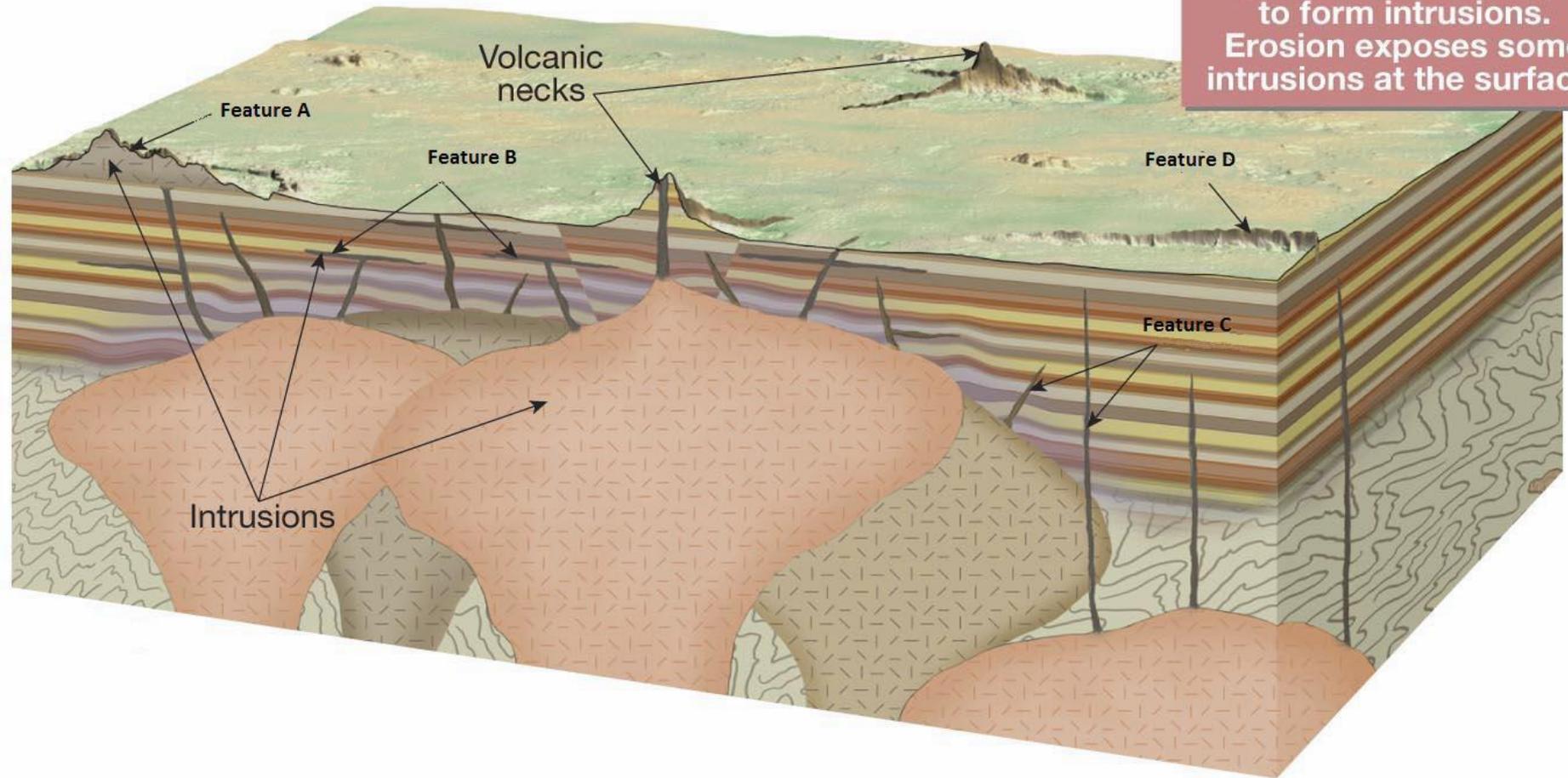


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► Q1. What pluton is represented at Feature A?

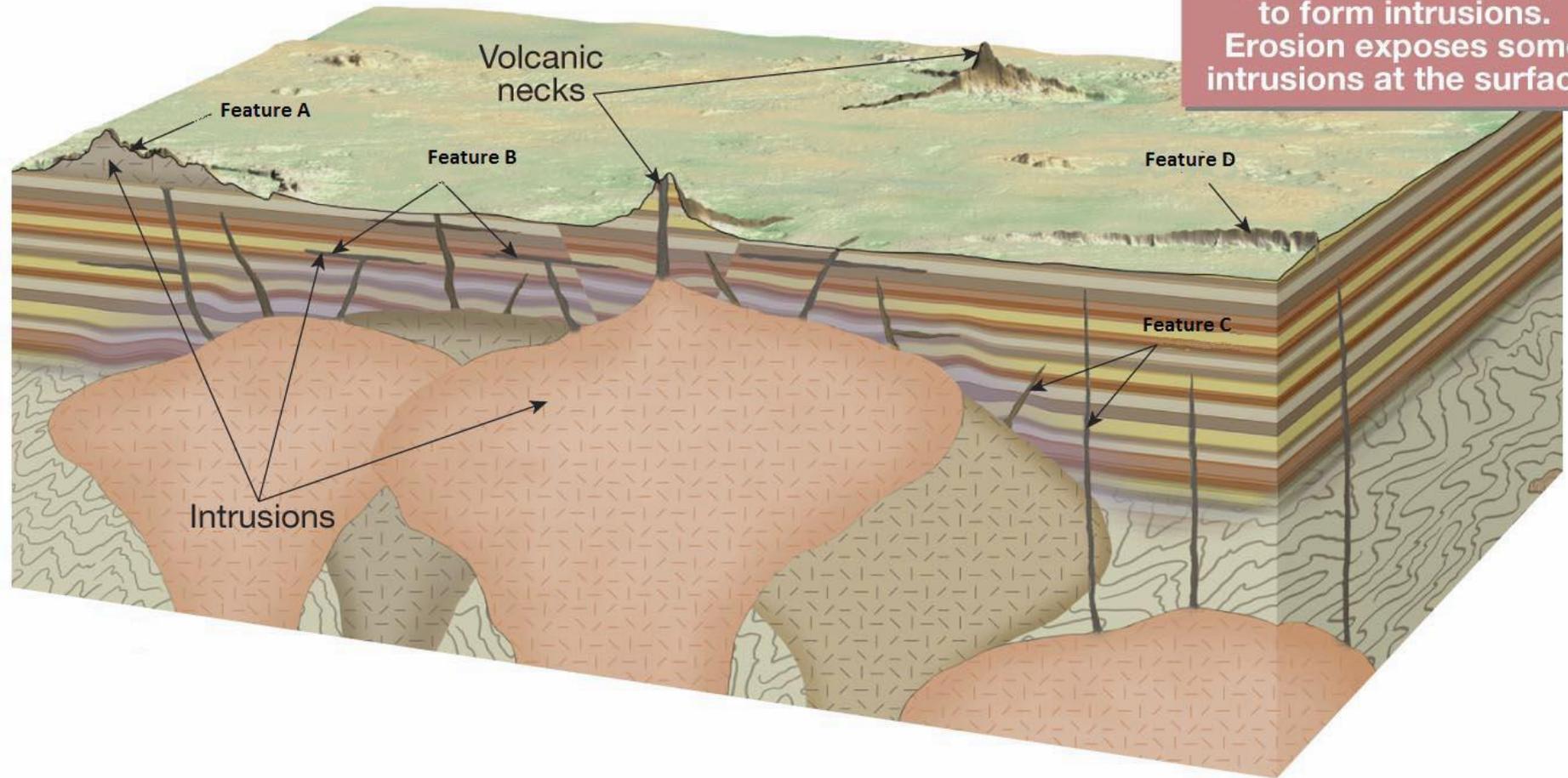
► Answer: Laccolith

Crystallization of magma
to form intrusions.
Erosion exposes some
intrusions at the surface.



► Q2. What plutons can you see at Feature B?

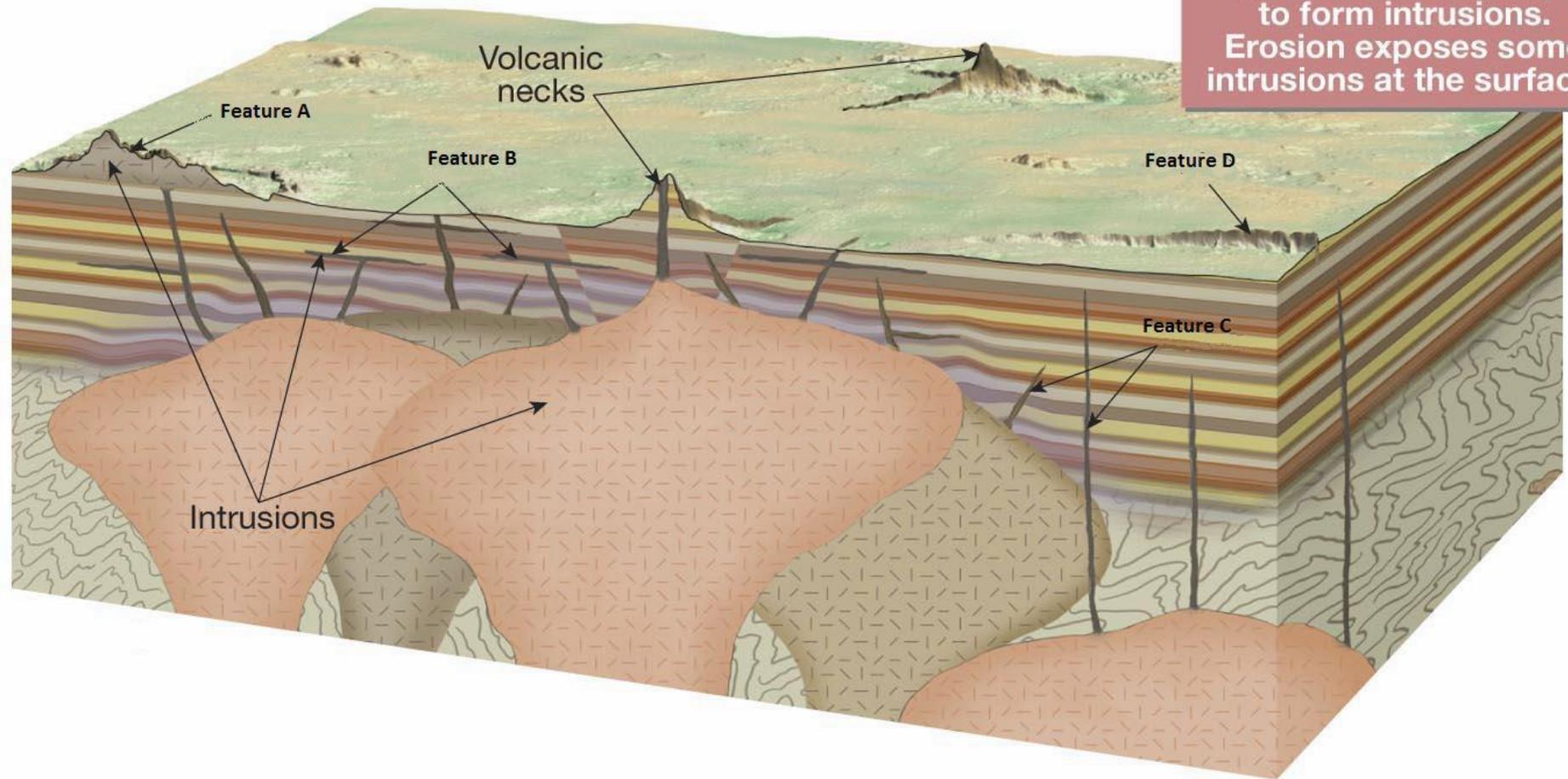
Crystallization of magma
to form intrusions.
Erosion exposes some
intrusions at the surface.



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- ▶ Q2. What plutons can you see at Feature B?
- ▶ **Answer: Sills**

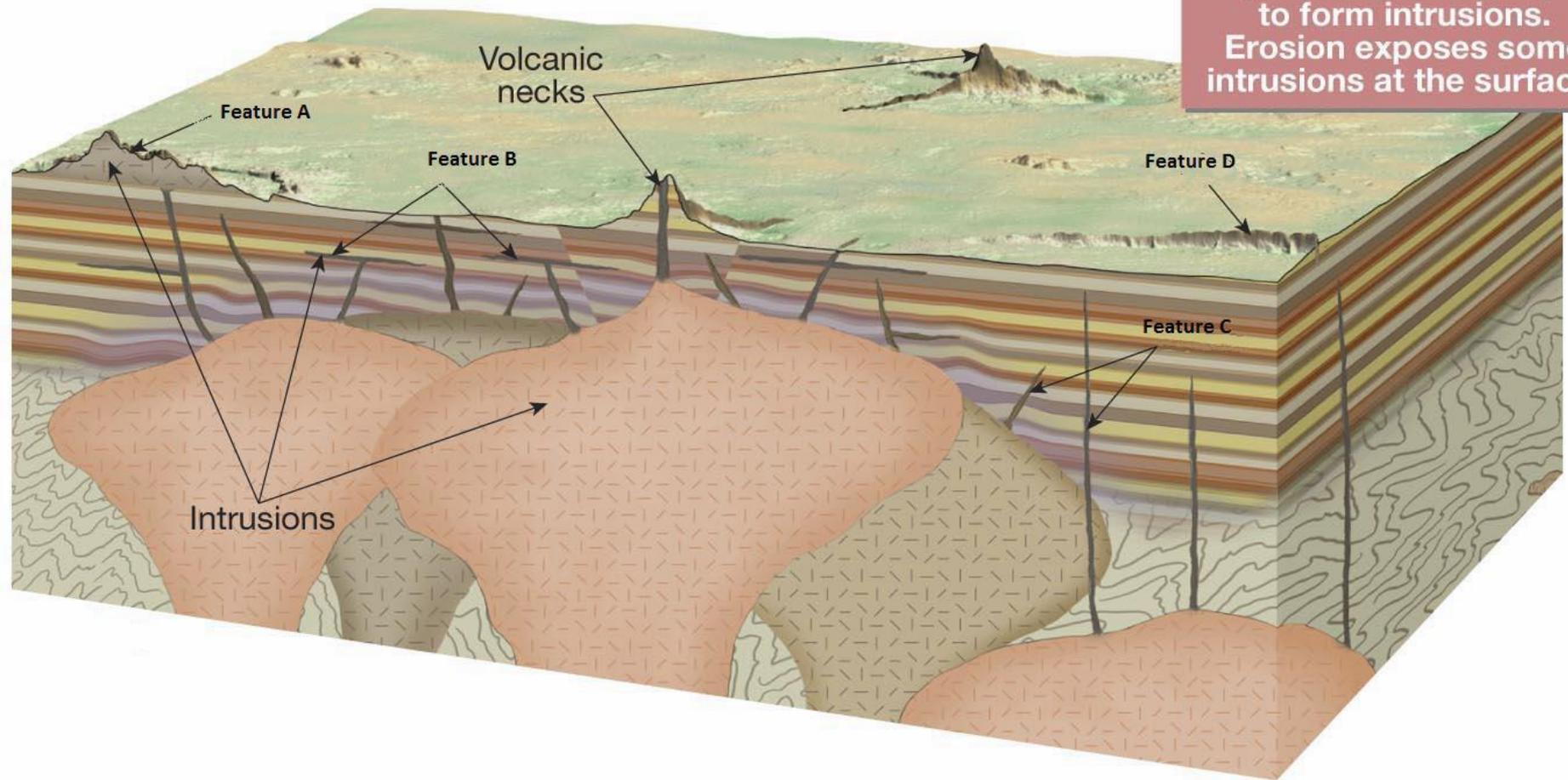
Crystallization of magma to form intrusions.
Erosion exposes some intrusions at the surface.



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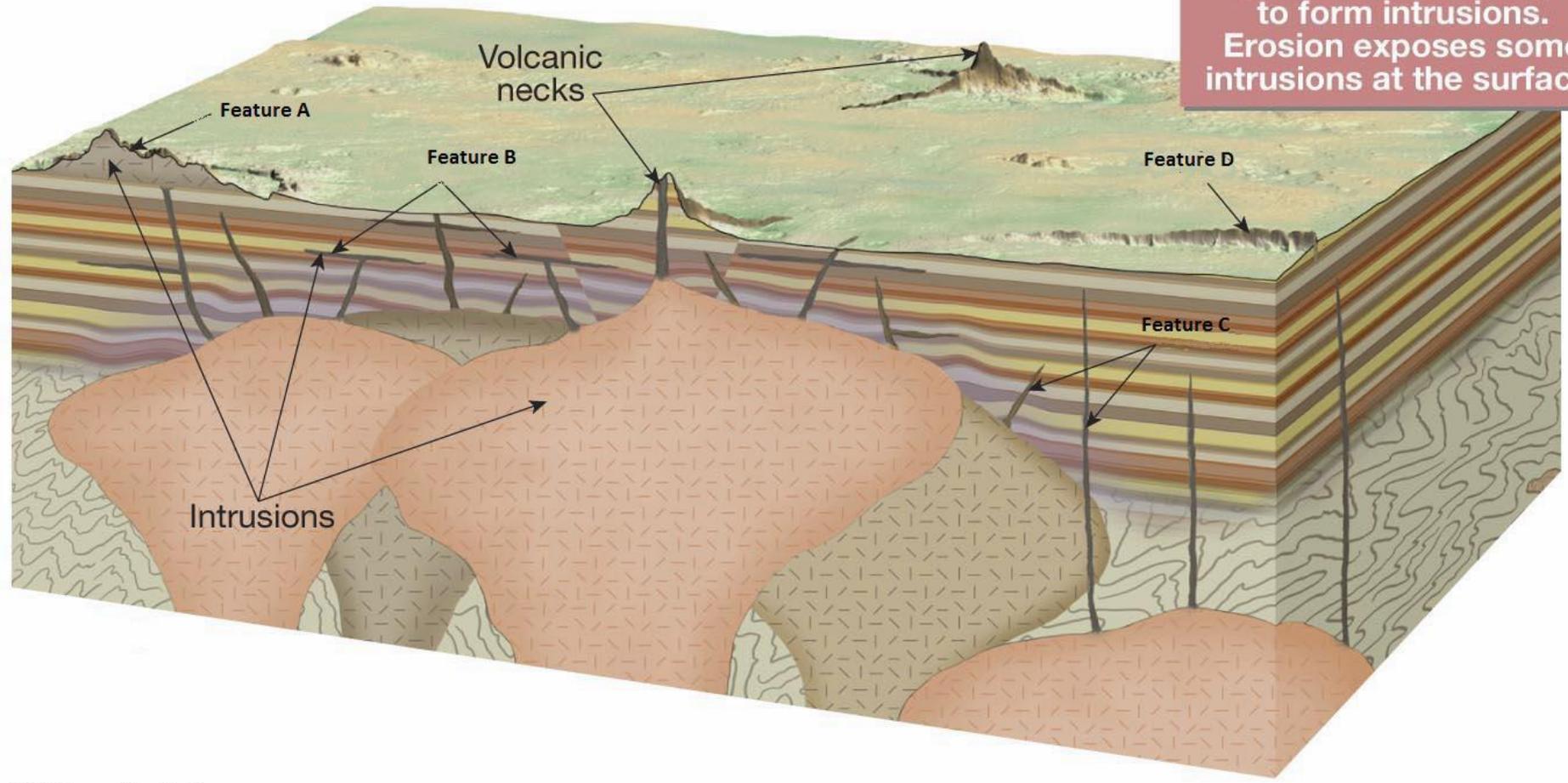
► Q3. What are the plutons labeled Feature C?

Crystallization of magma to form intrusions. Erosion exposes some intrusions at the surface.



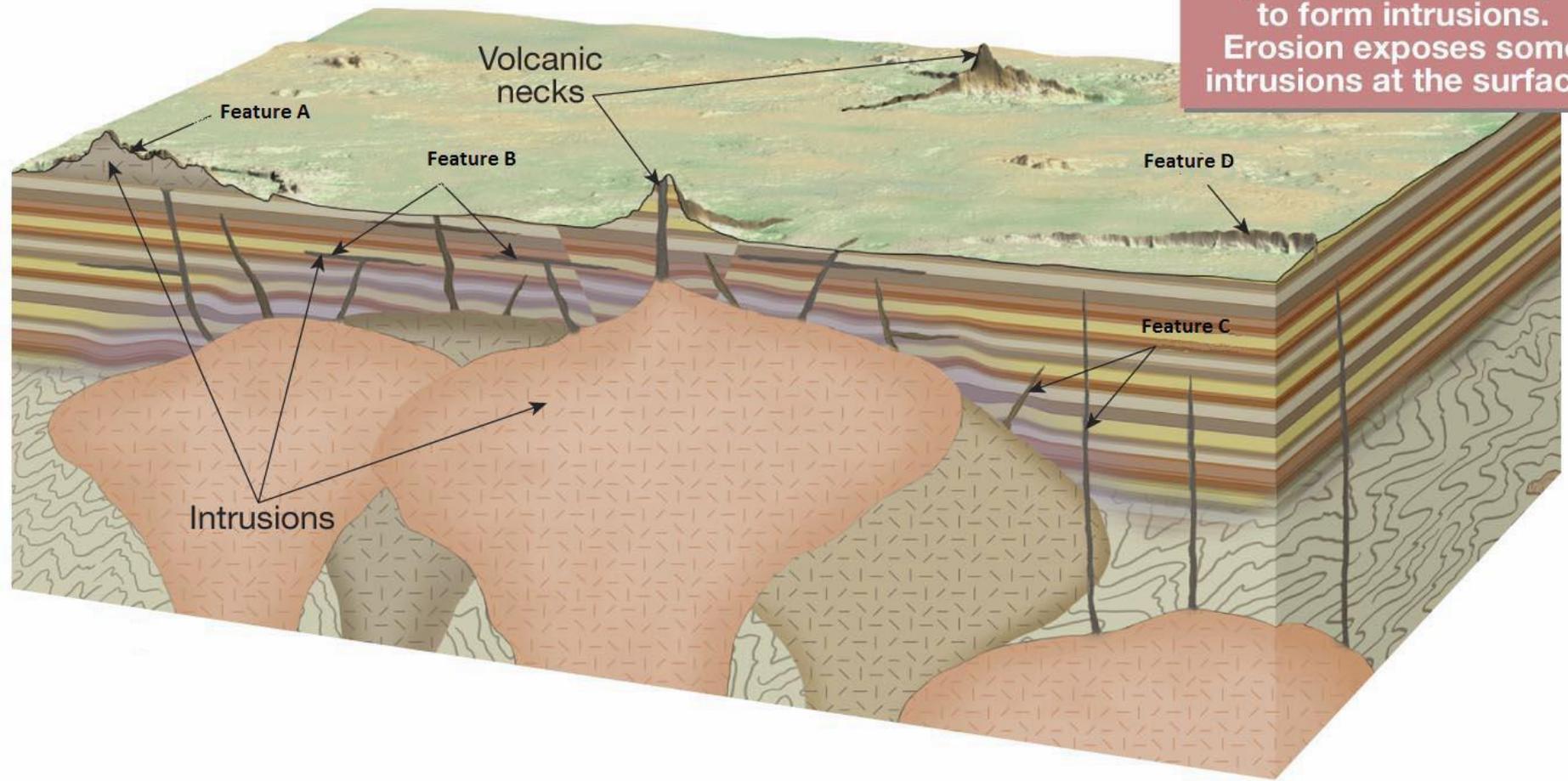
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- ▶ **Q3. What are the plutons labeled Feature C?**
 - ▶ **Answer: Dikes**

Crystallization of magma to form intrusions. Erosion exposes some intrusions at the surface.



► Q4. What is Feature D?

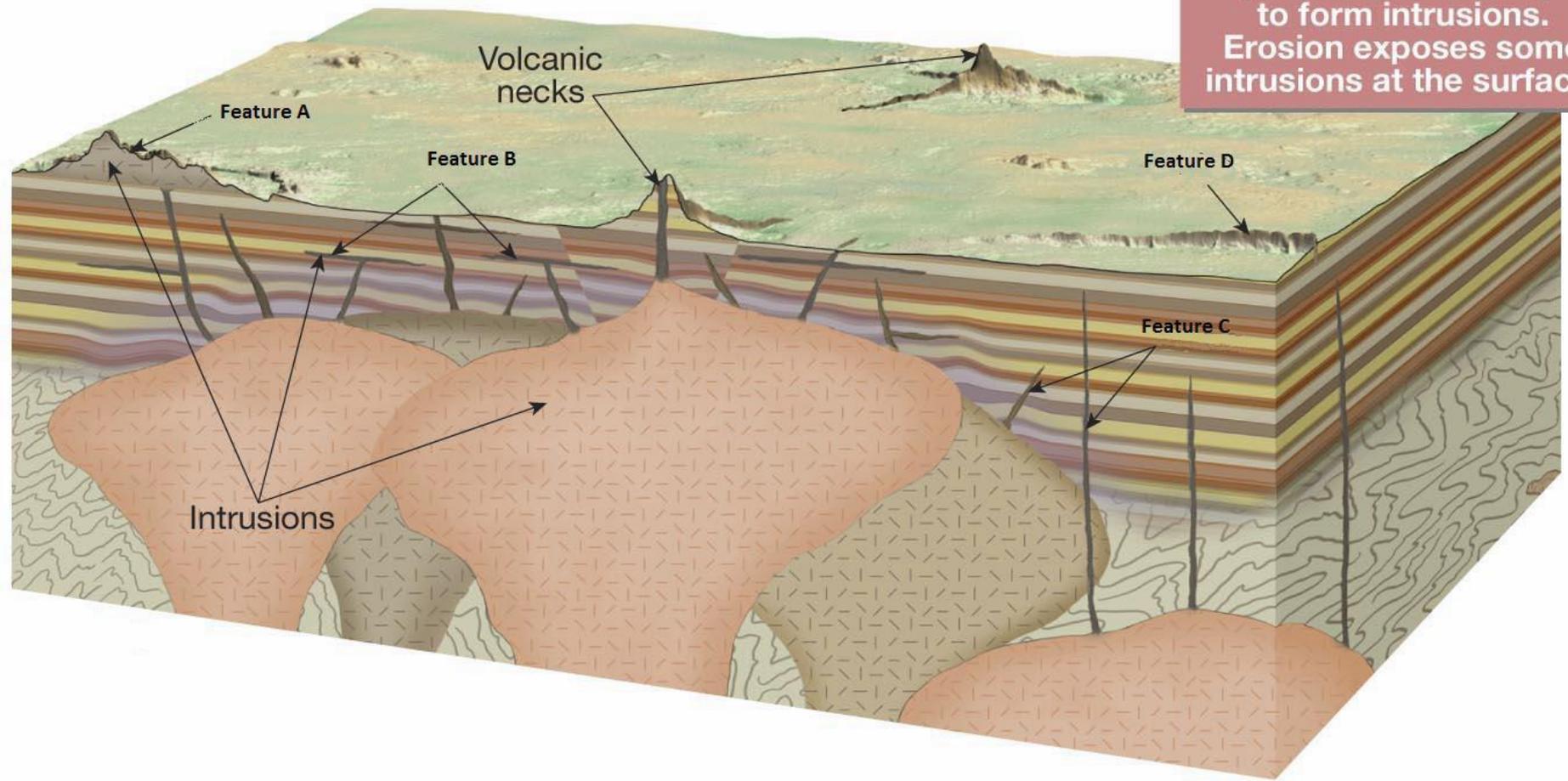
Crystallization of magma to form intrusions. Erosion exposes some intrusions at the surface.



► Q4. What is Feature D?

► Answer: Dikes

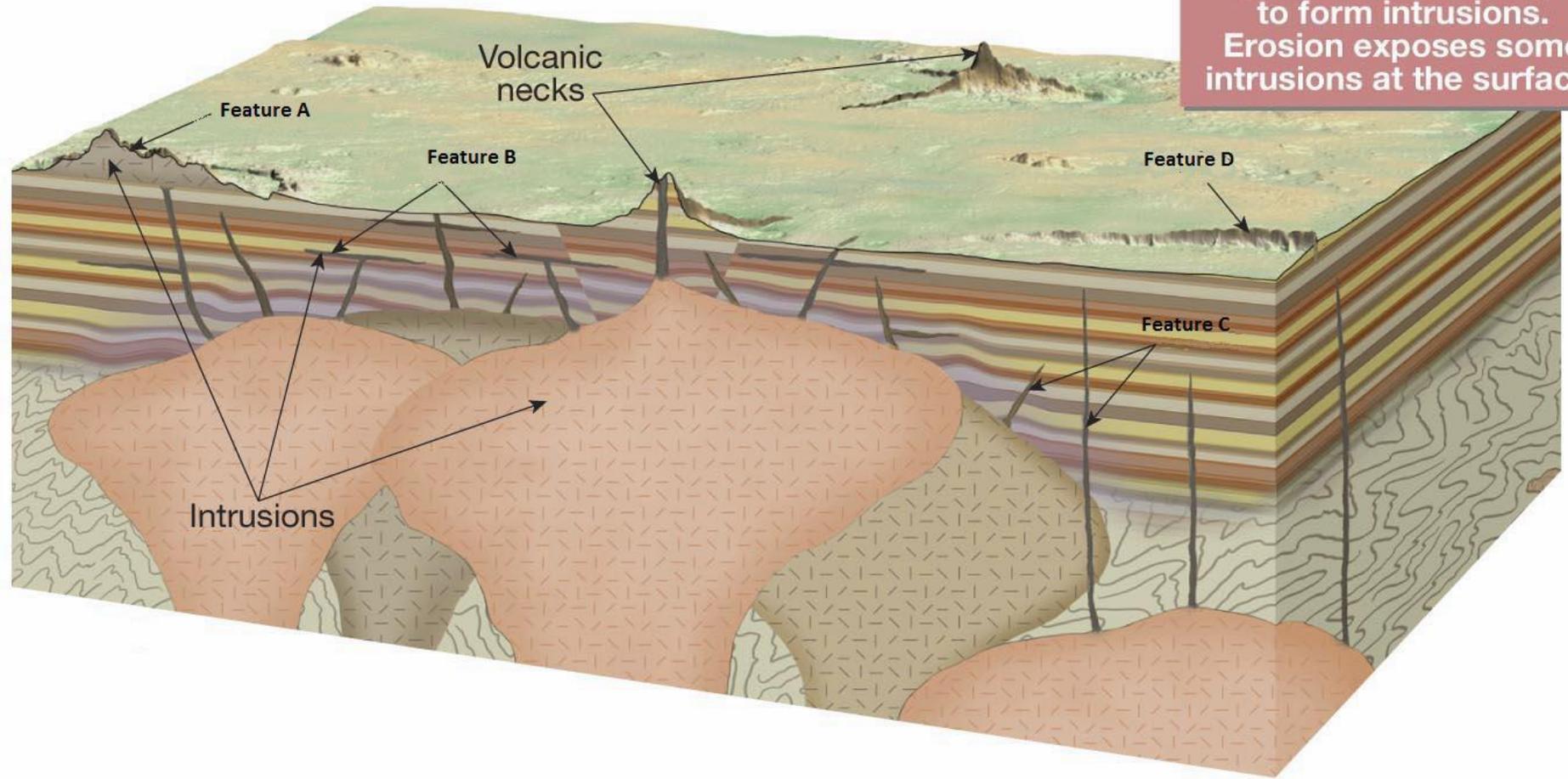
Crystallization of magma to form intrusions. Erosion exposes some intrusions at the surface.



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► Q5. What would Feature D result in?

Crystallization of magma to form intrusions. Erosion exposes some intrusions at the surface.



- ▶ Q5. What would Feature D result in?
- ▶ Answer: A ridge of igneous rock

6. Consider that these features are all produced from magma which is very hot. How would you be able to tell the difference between an ancient buried lava flow, and an ancient buried sill?

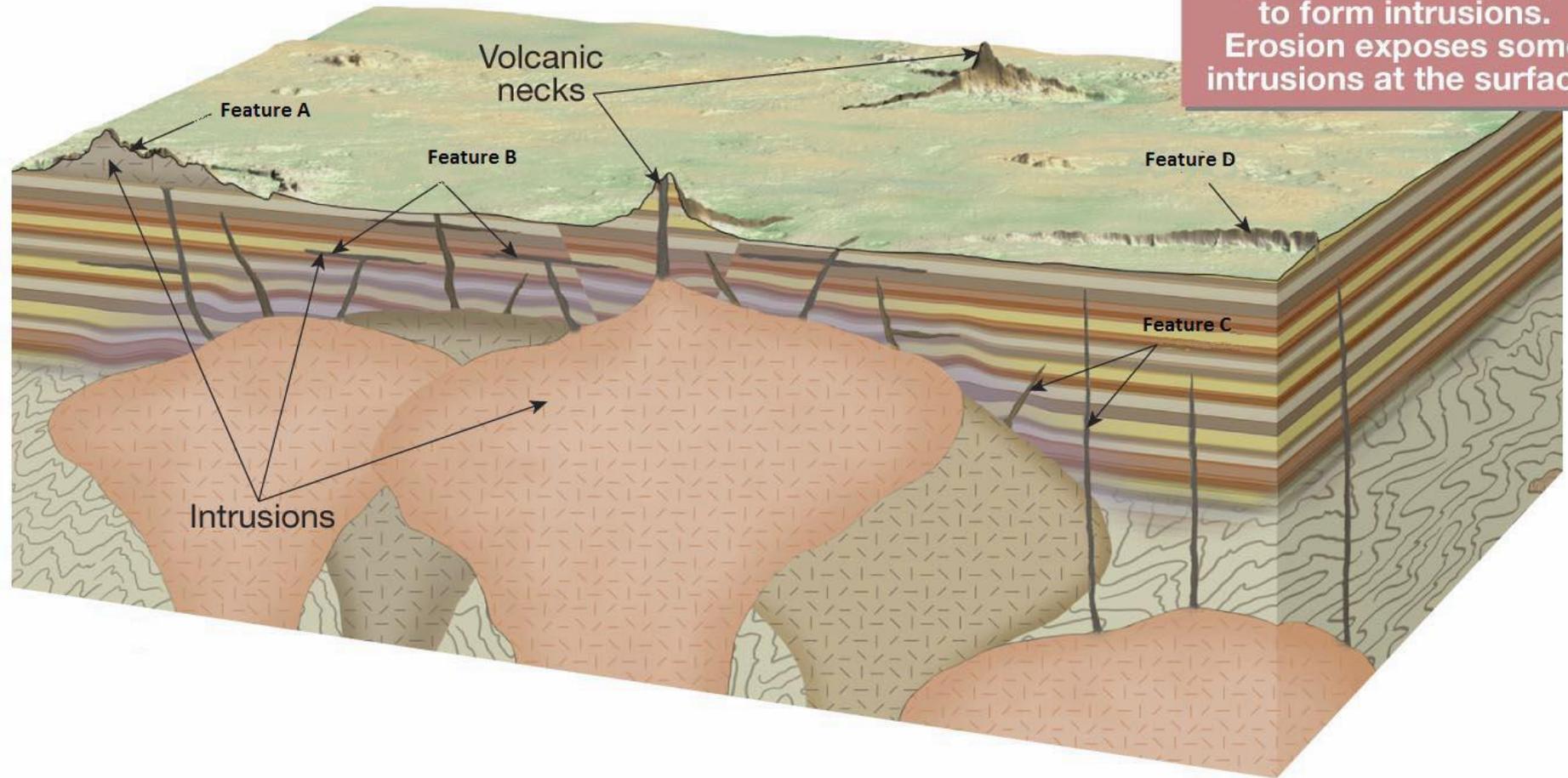


Q6. Consider that these features are all produced from magma which is very hot. How would you be able to tell the difference between an ancient buried lava flow, and an ancient buried sill?



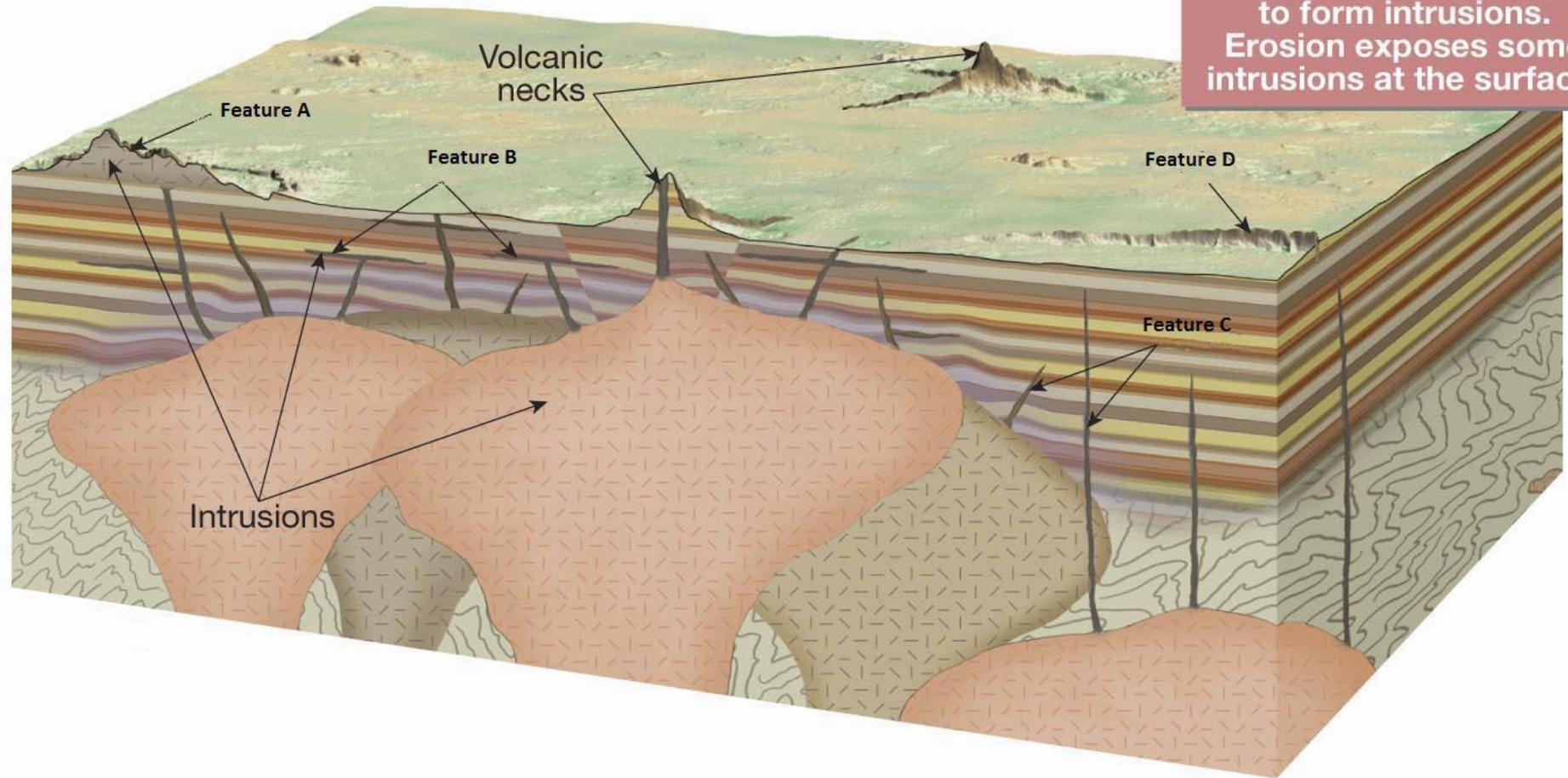
A. The sill exhibits contact metamorphism between the sill and rock the sill intruded.

Crystallization of magma
to form intrusions.
Erosion exposes some
intrusions at the surface.



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- ▶ **Q7. In the figure are several intrusions. What would you call a group of these formed into a single body that covered 46 sq. km?**

Crystallization of magma
to form intrusions.
Erosion exposes some
intrusions at the surface.



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- ▶ **Q7. In the figure are several intrusions. What would you call a group of these formed into a single body that covered 46 sq. km?**
 - ▶ **Answer: Batholith**

Relative Size of Volcanoes

- ▶ In the space below, make a simple sketch of two volcanoes. Using a scale of 1 cm = 10 km, draw Mt. Shasta (4.3 km tall and 40 km wide) and Mauna Loa (9.2 km tall and 119 km wide). Make a mark near the peak of Mauna Loa at 8.8 km for Mt. Everest.

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