

SUPPLEMENTAL MATERIALS

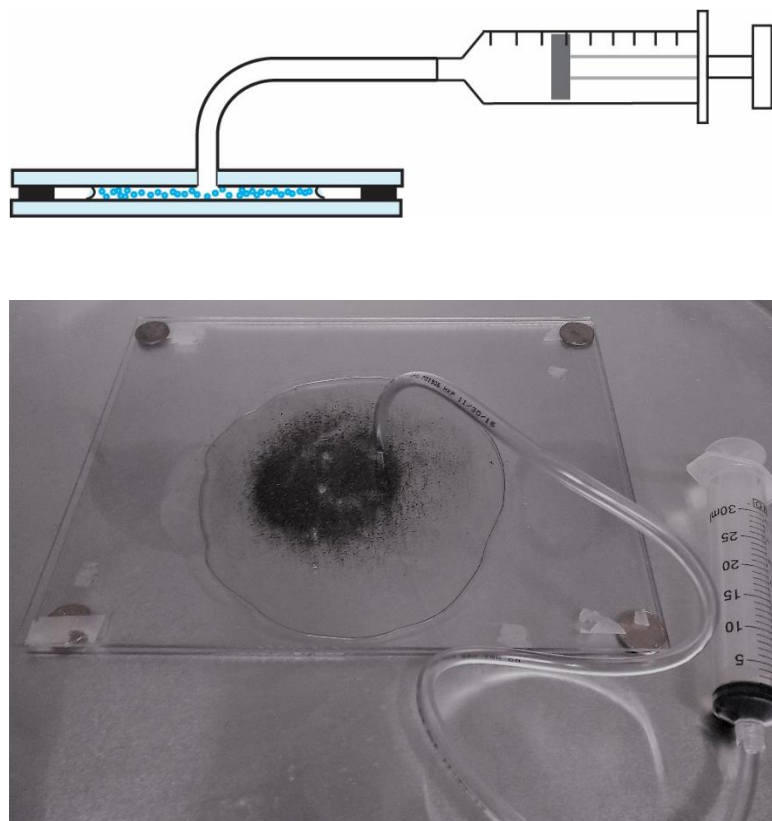



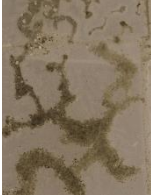
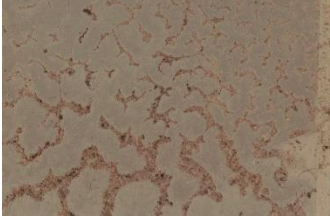




Figure S1. The Hele-Shaw cell.

Traditional Hele-Shaw cell experiments were conducted using Lake Magadi basin sediments. The experimental set up is comprised of two clear, rigid plastic plates, separated by a small gap. The plates measure 20 cm x 25 cm with a thickness of 2 mm. United States one cent coins are used in each corner as spacers between plates to create a gap. The viscous liquid used is a 50% glycerol 50% water by volume solution. Added to the glycerol solution were fine sand-sized grains collected from the Lake Magadi drill cores, sieved to 63–100 micron diameters. The solution was then injected into the gap between two parallel, horizontal acrylic plates and slowly withdrawn, 0.05 ml/sec, through a 3 mm hole in the upper plate via syringe and plastic tubing to simulate drying. Fluid was withdrawn at regular intervals over several hours to produce labyrinth pattern formation and then the fluid dried at ambient indoor air conditions for one day. Image

above is at time zero prior to fluid withdrawal and pattern formation. Photographs were taken at five-minute intervals over periods of several hours. Invasion of air along the gap between plastic sheets slowly pushed grains into delicate labyrinth patterns. Sketch illustrates side view of experimental set up.

Table S1. Modified Hele-Shaw Experiment Parameters

Experiment Number	Fluid	Fluid Temperature	Sediment	Pattern Produced	Image
1	Water	20°C	Modern dehydrated siliceous gel and Pleistocene magadiite	Labyrinth	
2	Brine	20°C	Modern dehydrated siliceous gel	Labyrinth	
3	Brine	20°C	Pleistocene magadiite	Bubble stick	
4	Water	20°C	Pleistocene magadiite	Labyrinth	
5	Water	40°C	Modern dehydrated siliceous gel	Labyrinth	
6	Water	40°C	Pleistocene magadiite	Labyrinth	
7	Water	20°C	Modern dehydrated siliceous gel	Labyrinth	

Modified Hele-Shaw experiments were conducted using sediments from the Lake Magadi basin.

The modified Hele-Shaw cell consisted of a standard microscope slide; sediments were added to

the center of the slide along with one to two drops of fluid and a standard cover slip was placed on top. The slides were then exposed to normal laboratory room temperature and humidity for 48 hours, allowing desiccation to occur. Photographs were taken at regular intervals and looped into videos to show pattern formation. Slides were then analyzed using a petrographic microscope to compare to petrographic thin sections of labyrinth patterns discovered in chert.