



# NATURE

Micro to Macro

Created by  
Marilyn Garza

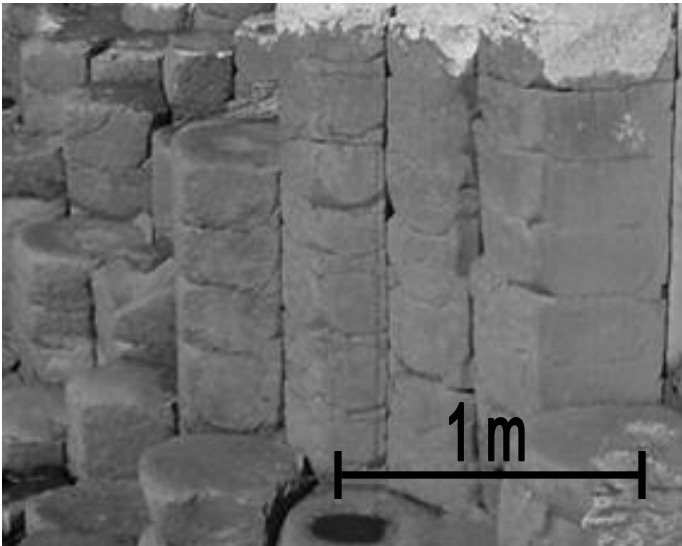


NNIN Document: NNIN-1270

Rev: 08/2012

Observe and form  
a hypothesis as to  
what the objects in  
the image are.

## IDENTIFY THE OBJECTS





## GIANTS CAUSEWAY, IRELAND

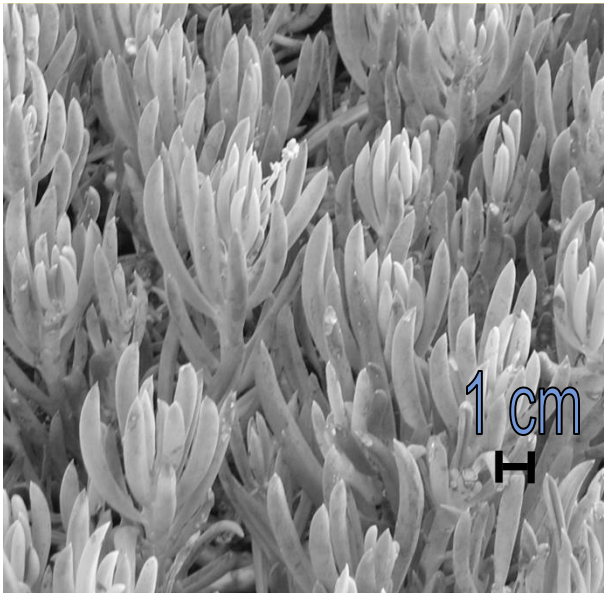
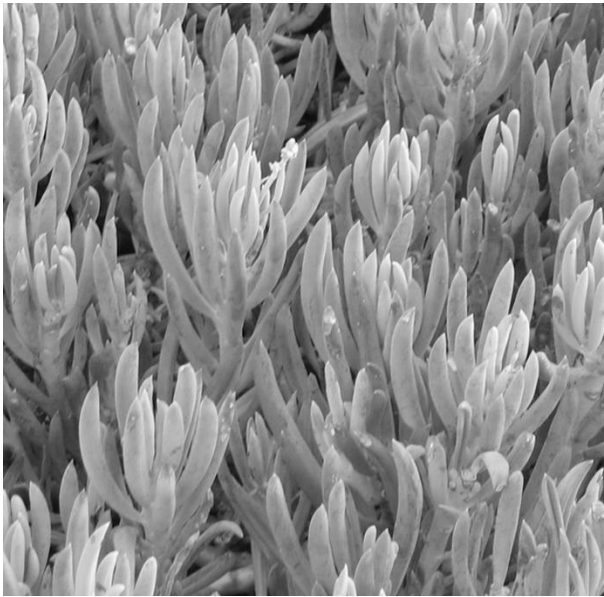
These columns of basalt were created from a volcanic eruption. There are 40,000 columns all with regularly shaped sides. Most are hexagonal, but some have 4, 5, 7 or 8 sides. The tallest columns reach up to 12 meters or 39 feet.

Image by **dfyoung**

<http://www.fotopedia.com/items/flickr-8842984>

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## BLUE FINGER

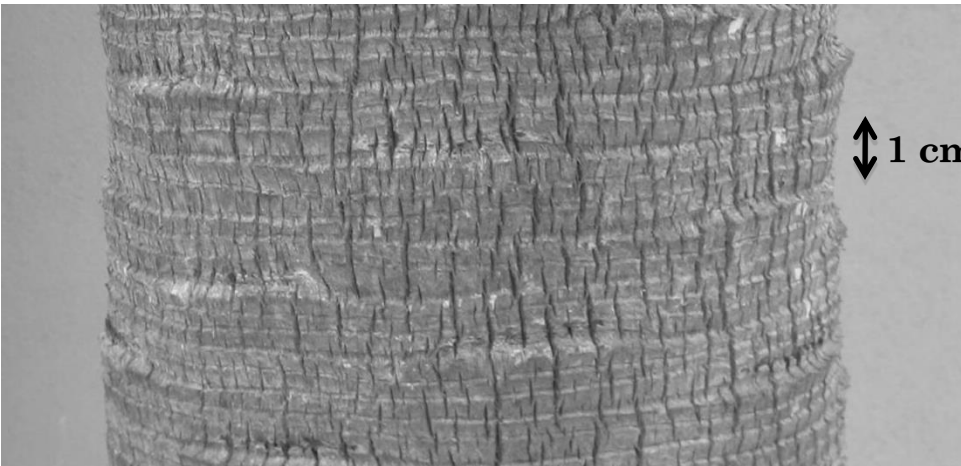
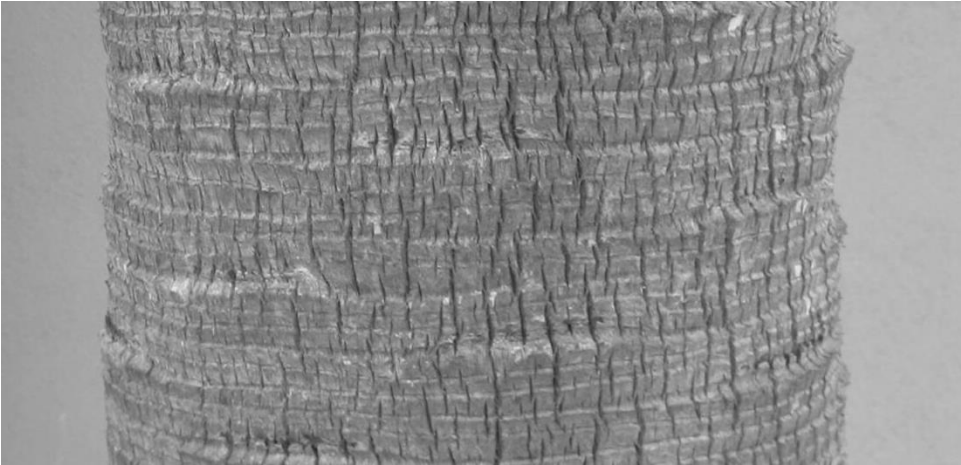
This succulent perennial will grow to about 46 cm tall and 60 cm wide. It has curved, bluish gray leaves that are about 9 cm long and very slender.

Photo taken by Marilyn Garza, a teacher at Santa Barbara Jr. High while doing her NNIN RET program at UCSB.



Using observations, form a hypothesis as to what the objects in the image are.

## IDENTIFY THE OBJECTS







## CALIFORNIA FAN PALM TREE

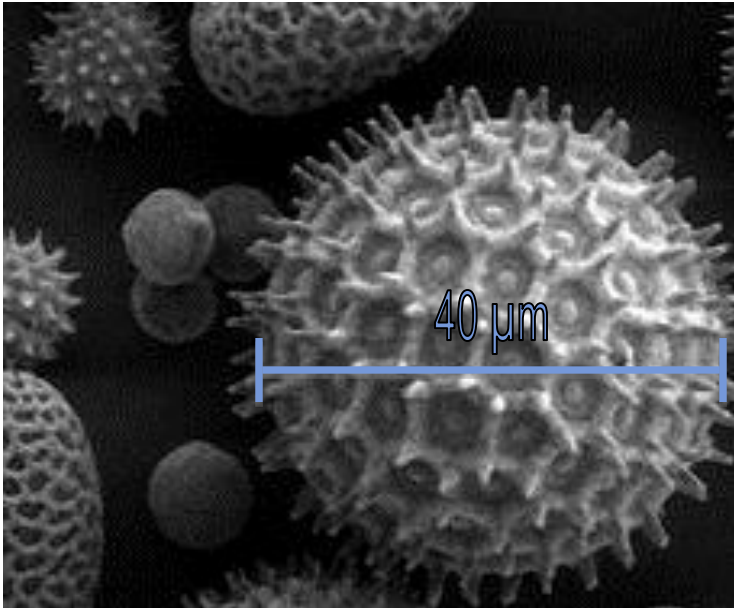
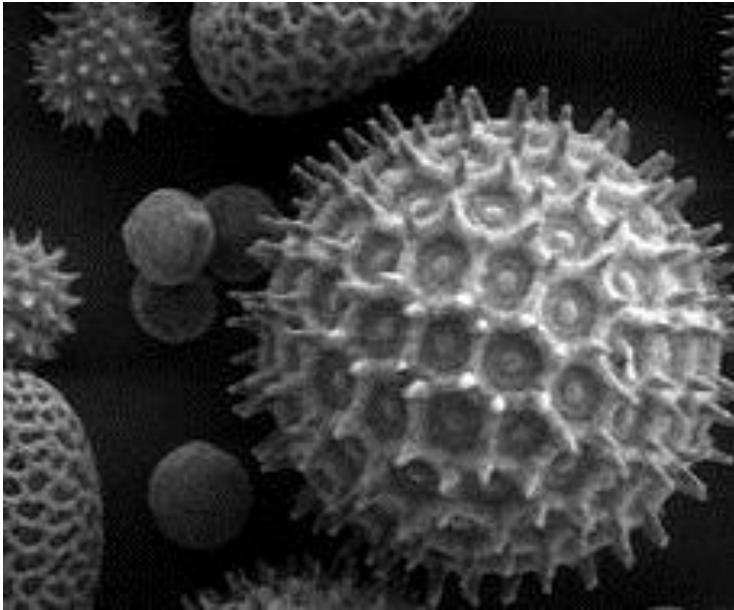
This is a species of common palm tree found in the Western United States. This palm tree is on the UCSB campus.

Photo credit: Image taken by Marilyn Garza, a teacher at Santa Barbara Jr. High while doing her NNIN RET program at UCSB.

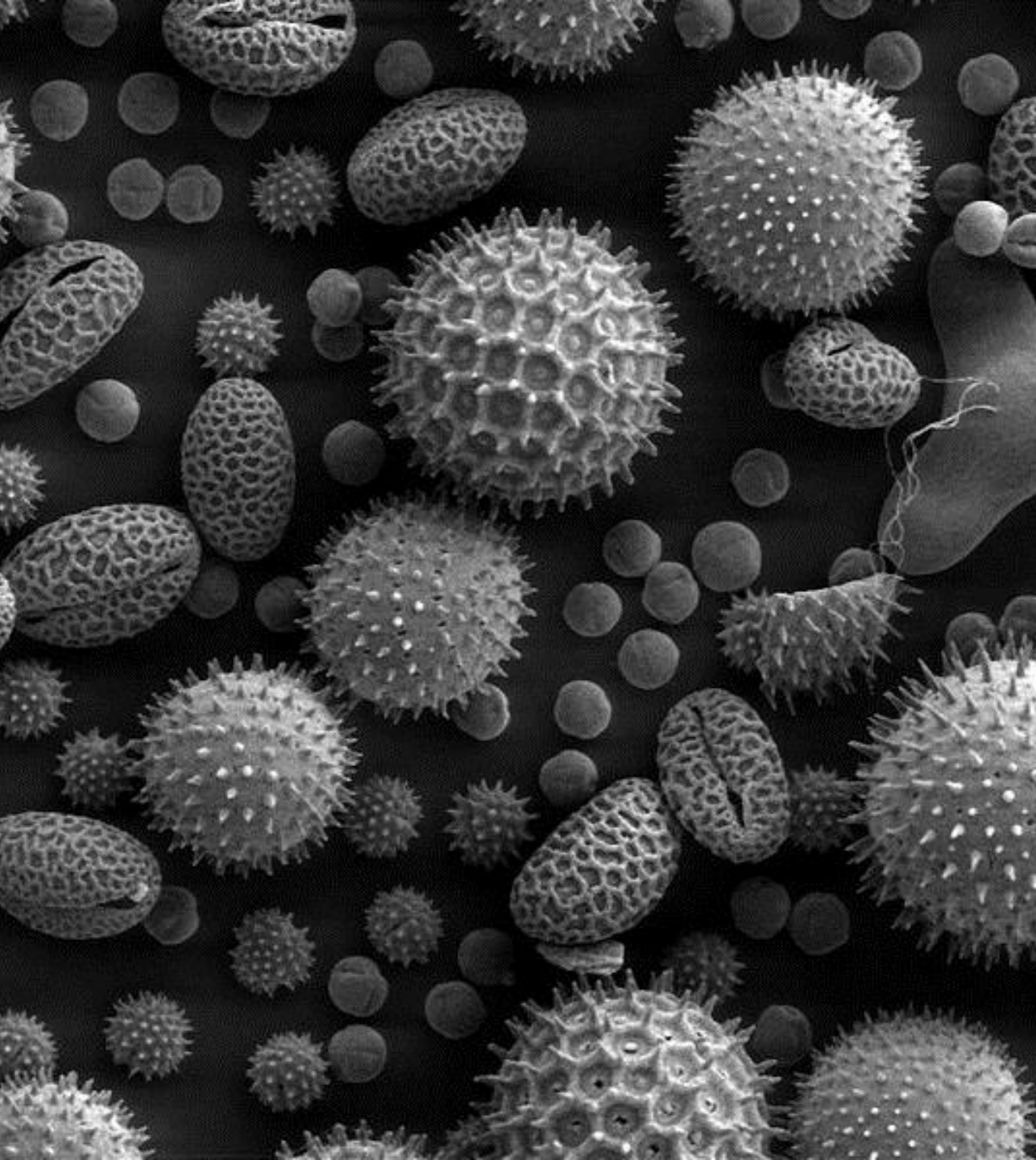


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## POLLEN GRAINS

This scanning electron microscope image shows pollen particles from a variety of common plants: sunflower, morning glory, hollyhock, lily, primrose, and castor bean.

The smallest pollen grains are about 6–8  $\mu\text{m}$  in diameter.

SEM image taken by Dartmouth Electron Microscope Facility

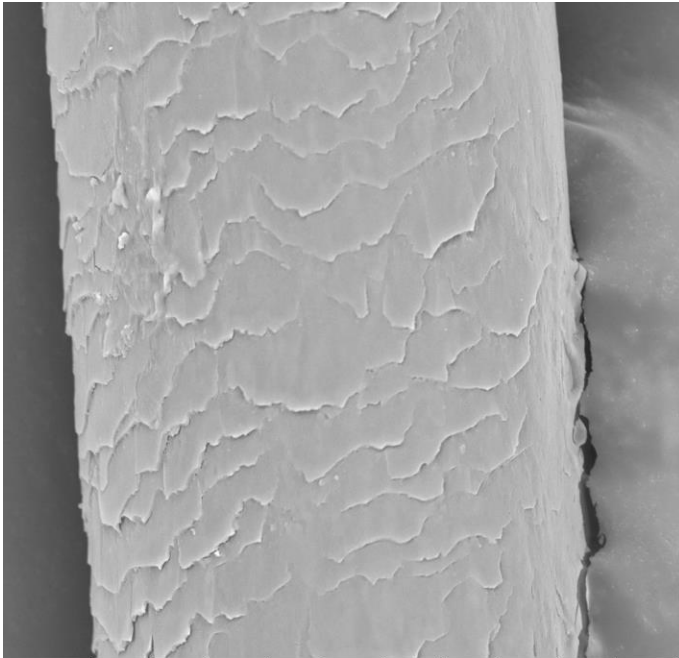
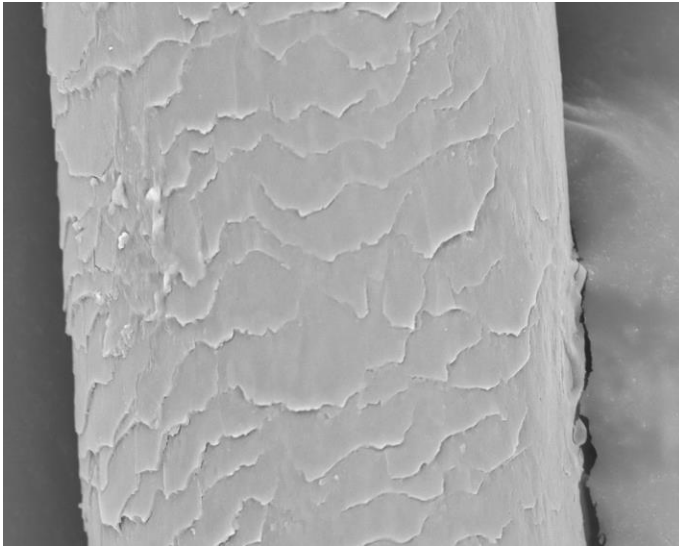
[http://www.nisene.t.org/viz\\_lab/image-collection](http://www.nisene.t.org/viz_lab/image-collection);

Credit: Dartmouth Electron Microscope Facility



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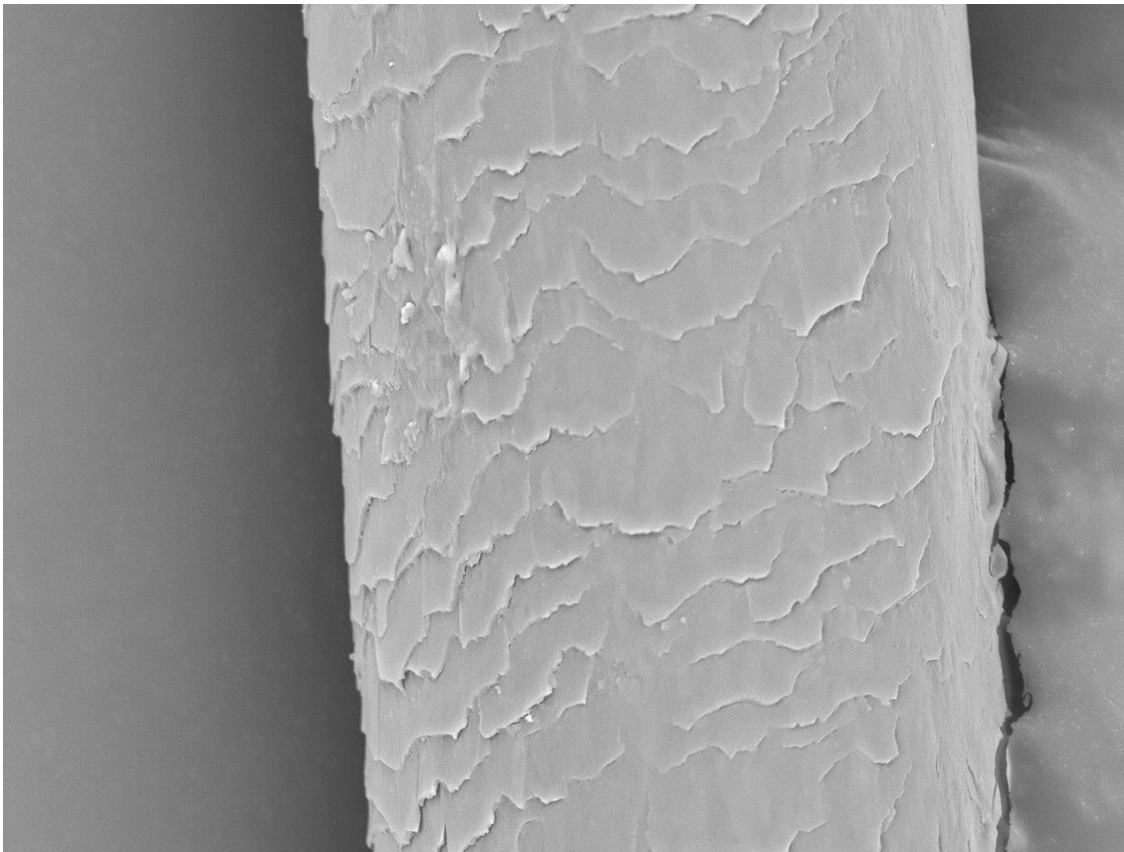
2011/08/05 13:54 N D3.8 x1.0k 100 um



# HUMAN HAIR

Strand of human hair.

Scanning electron microscope image taken by Marilyn Garza, a teacher at Santa Barbara Jr. High while doing her NNIN RET program at UCSB.



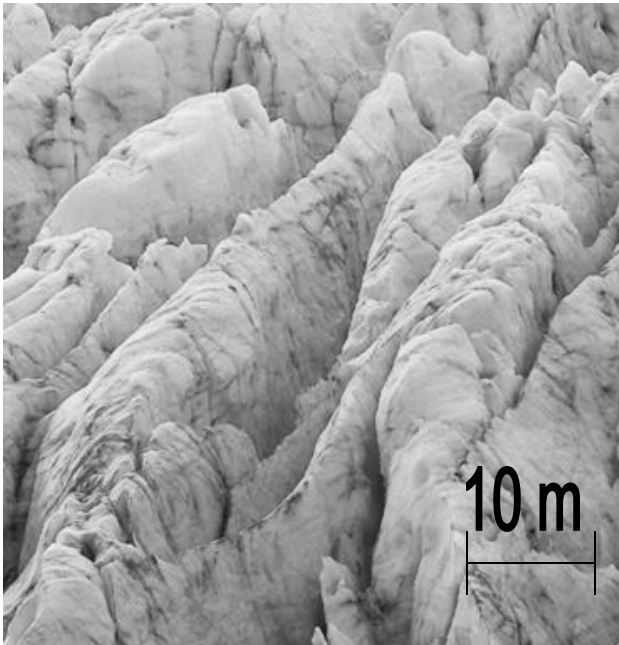
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2011/08/05 13:54 N D3.8 x1.0k 100 um

This is uber cool!







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## EXIT GLACIER, ALASKA

This glacier originates from the Harding Icefield in the Kenai Mountains of Alaska. It is named the Exit Glacier because it was the exit point of the first recorded crossing of the Harding Icefield in 1968.

<http://www.fotopedia.com/items/chmehl-45vn9MUv3SU>

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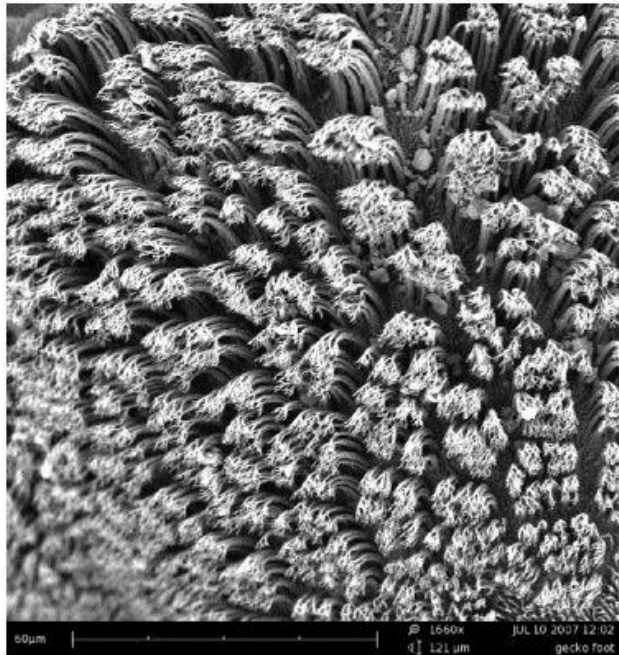
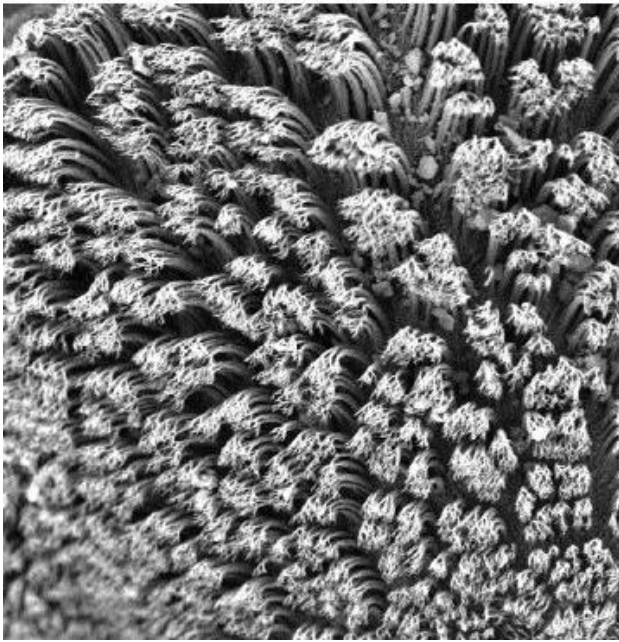


**Aialik Glacier, Kenai peninsula, Alaska.**

Photo by Alan Vernon and posted at:

<http://www.flickr.com/photos/alanvernon/3238665571/>



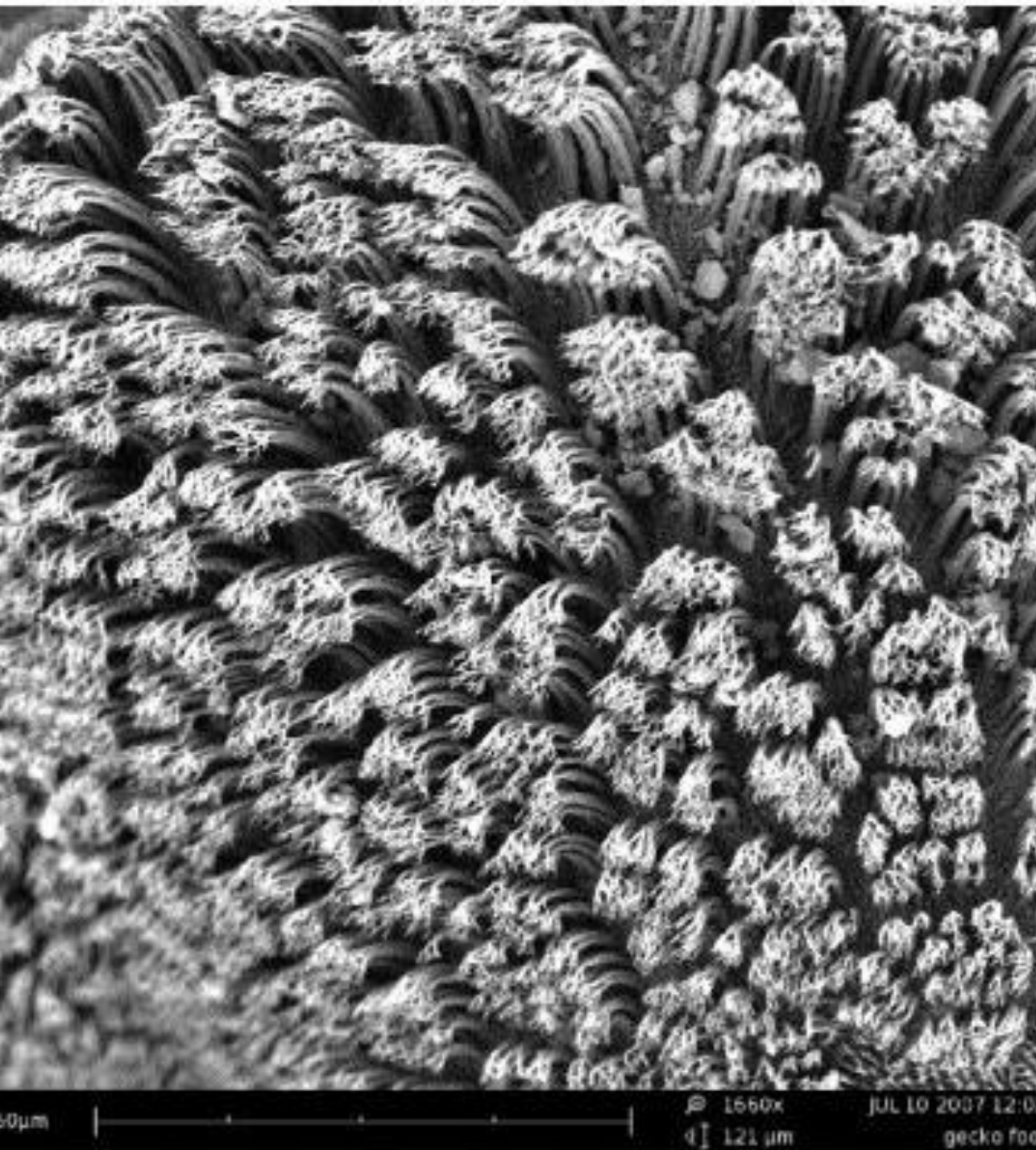


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## GECKO FOOT (8700X)

The feet of the gecko cling to virtually any surface. This scanning electron microscope image shows the branching hairs on the foot's adhesive lamellae. These hairs nestle into nanoscale niches on the contact surface.

A. Dhinojwala,  
University of  
Akron

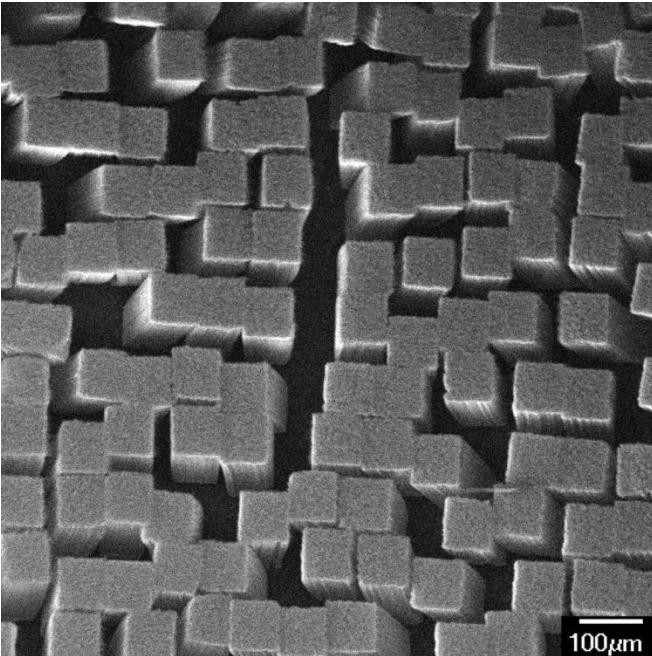
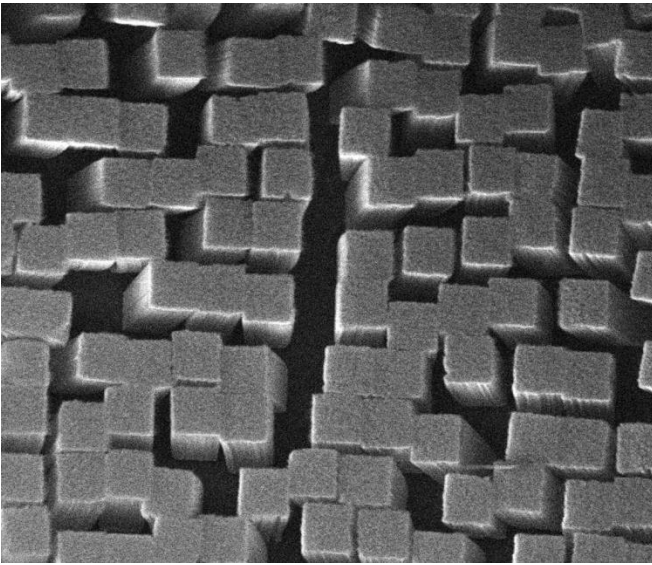
[http://www.nisene.t.org/viz\\_lab/image-collection](http://www.nisene.t.org/viz_lab/image-collection)



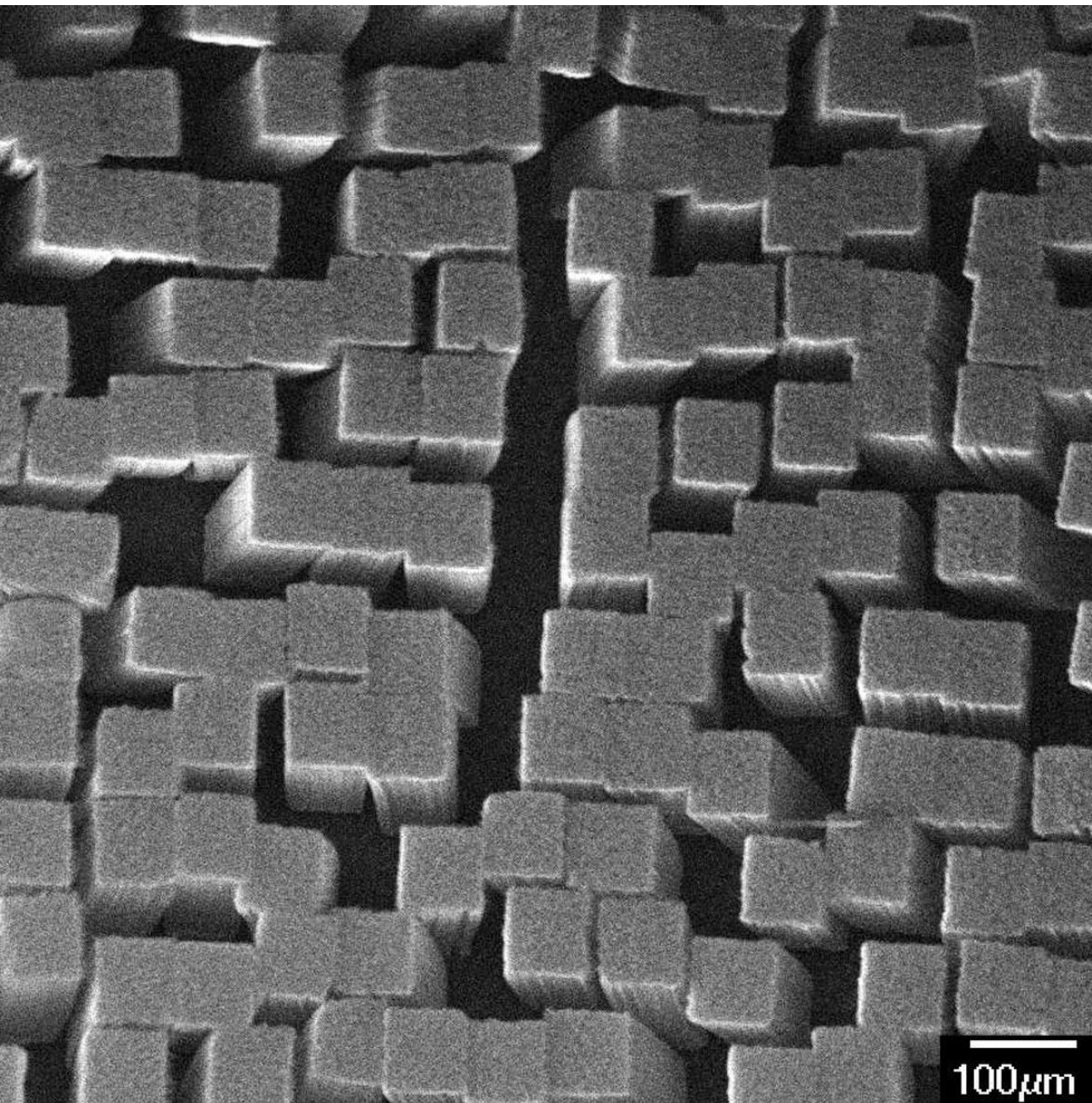


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## CARBON NANOTUBES

Each bundle of carbon nanotubes measures about 70–80  $\mu\text{m}$  in width.

The nanoscale structures on a gecko's foot enable it to cling to most surfaces. This scanning electron microscope image shows multiwalled carbon nanotubes attached to a polymer backing, an experiment designed to replicate the gecko foot's adhesive properties.

A.Dhinojwala,  
University of Akron

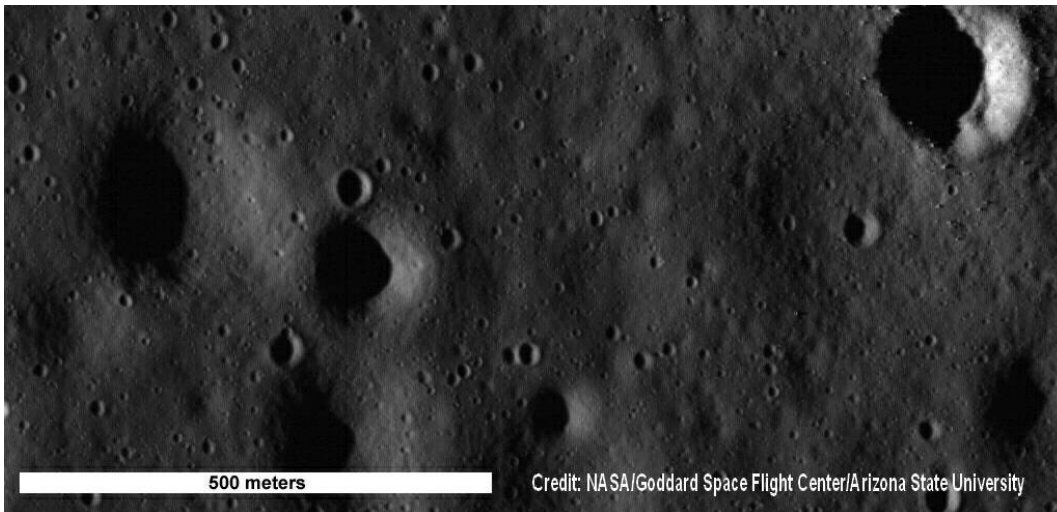
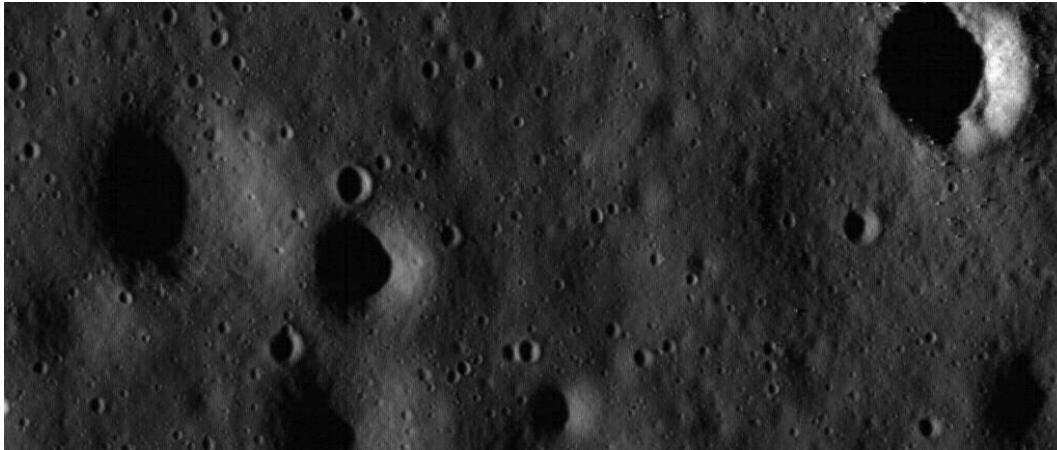
[http://www.nisenet.org/viz\\_lab/image-collection](http://www.nisenet.org/viz_lab/image-collection)





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vinny'swebsite.com

Apollo 11 Lunar Module ---->

500 meters

Credit: NASA/Goddard Space Flight Center/Arizona State University

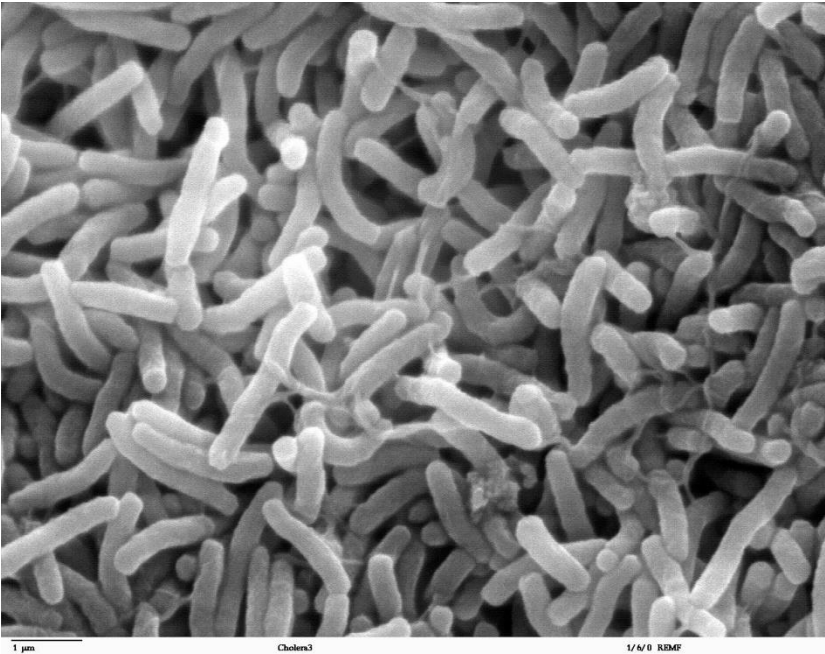
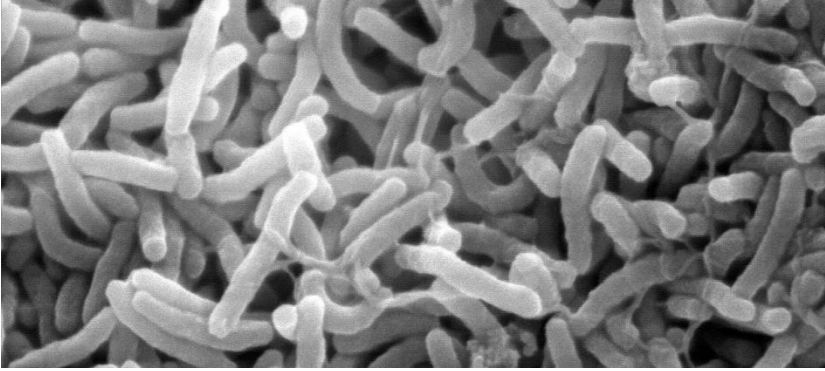
## MOON SURFACE

### **Lunar Module Apollo 11 NASA Lunar Reconnaissance Orbiter Image**

This is a picture of the Apollo 11 Landing site on the moon. NASA's Lunar Reconnaissance Orbiter (LRO) has taken pictures of all the Apollo moon landing sites.

*Image credit:  
NASA/Goddard  
Space Flight  
Center/Arizona  
State University*





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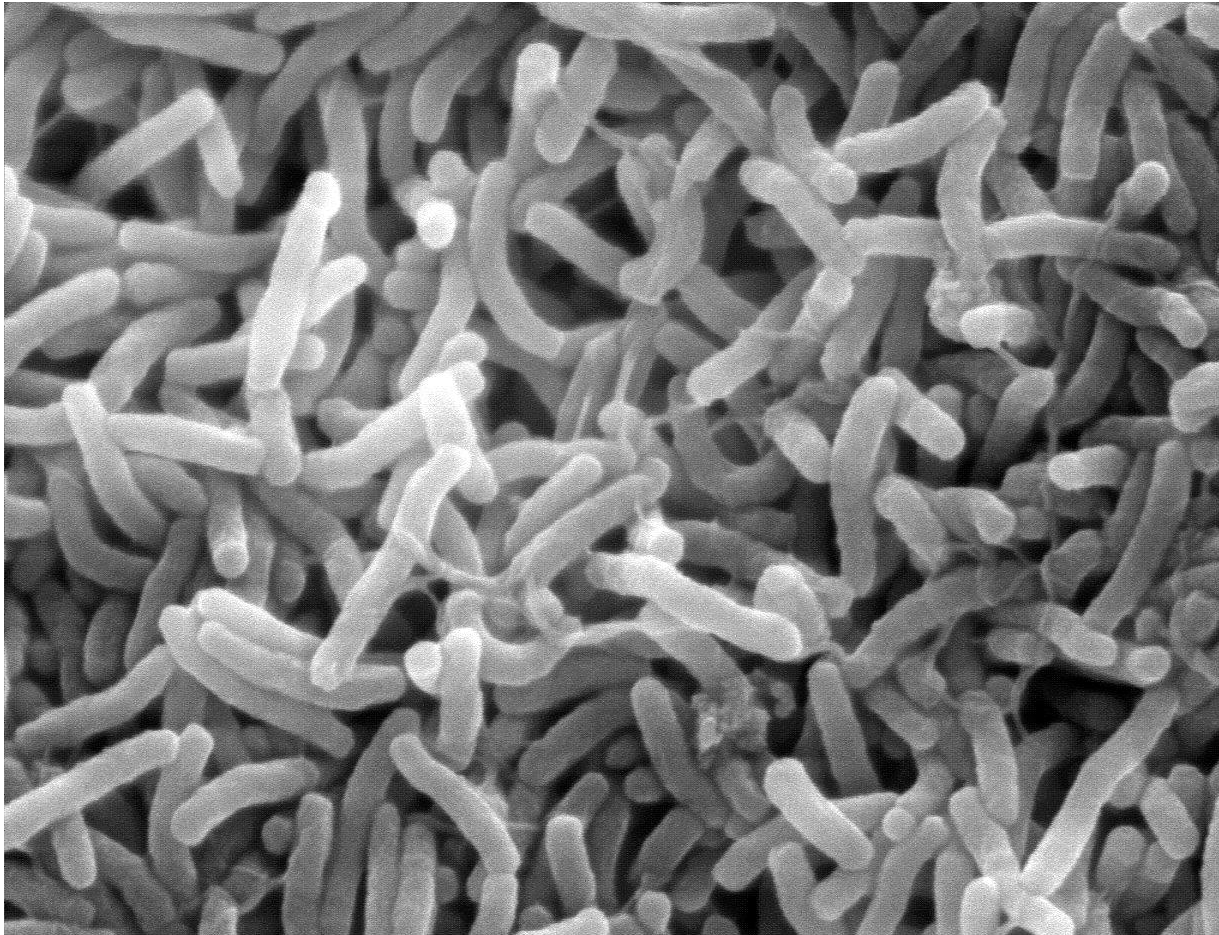
# CHOLERA BACTERIA

Microscope image of Cholera Bacteria, which cause a potentially fatal disease of the digestive system.

These bacteria are each about 500 nm wide and 1–2  $\mu\text{m}$  long.

Dartmouth  
Electron  
Microscope  
Facility

[http://www.nisene.t.org/viz\\_lab/image-collection](http://www.nisene.t.org/viz_lab/image-collection)



1  $\mu\text{m}$

Cholera3

1/6/0 REMF

