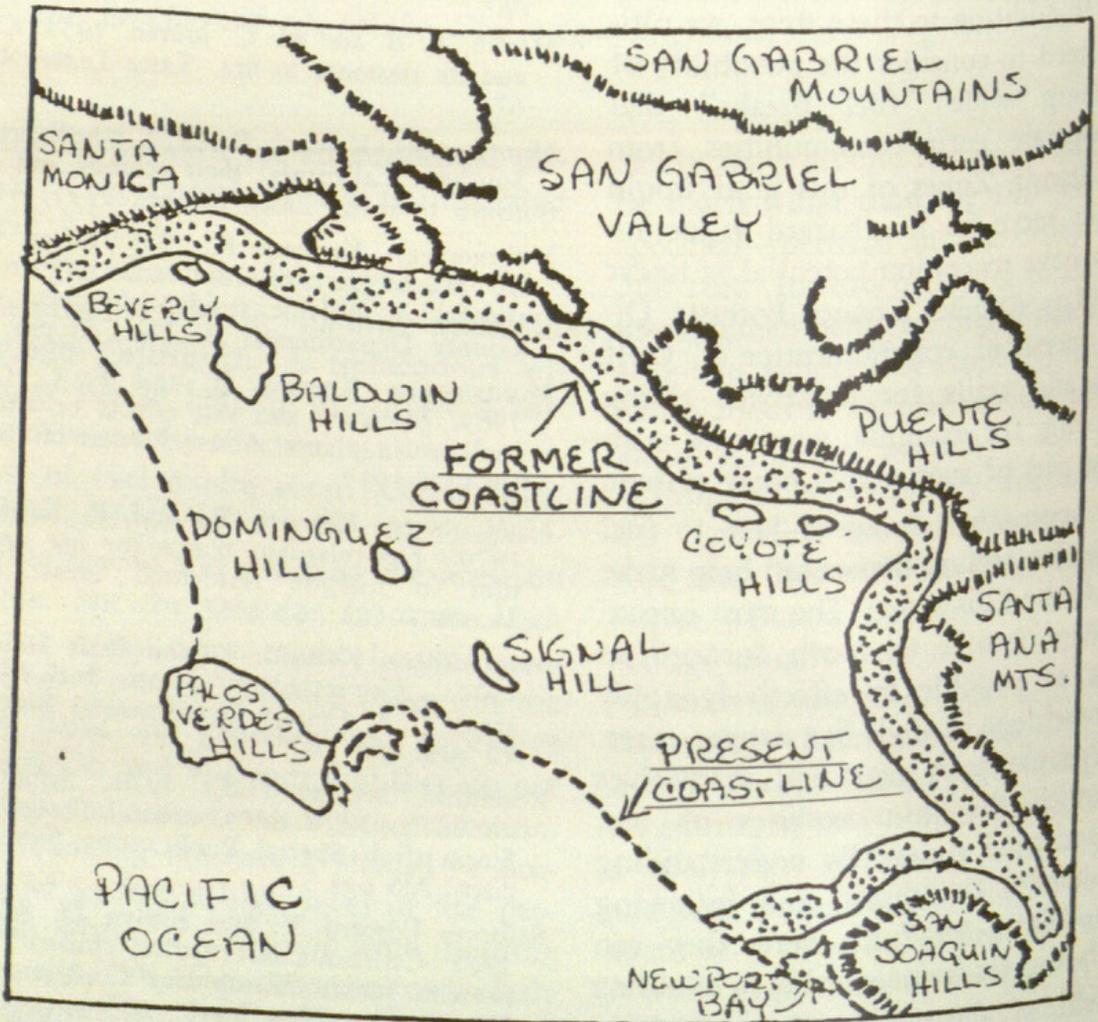


A Landfill Botanic Garden

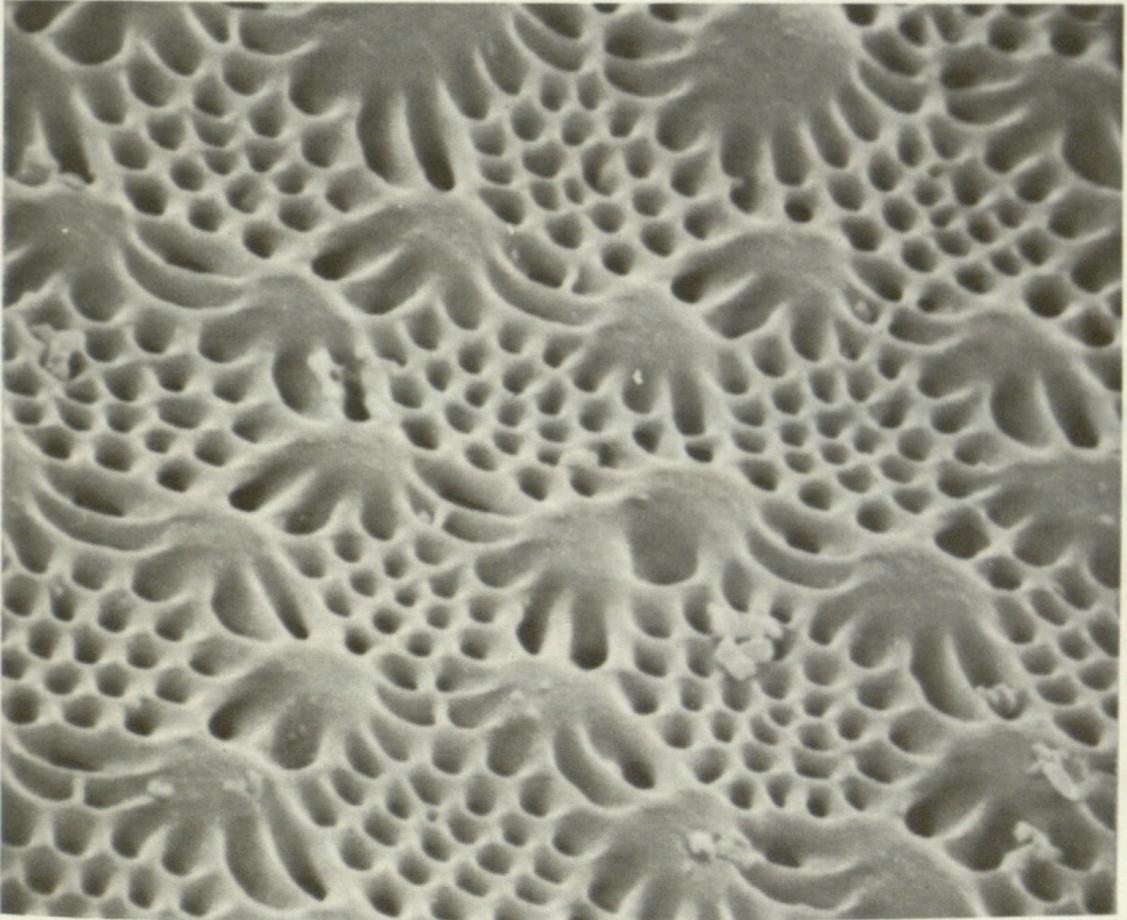
SOUTH COAST BOTANIC GARDEN is unique in its geological history. Fifteen million years ago the Palos Verdes Peninsula, where the Garden is located, was part of an undersea ridge which was gradually sinking as a great rim of mountains was rising and forming a basin. The rim is represented today by the Santa Ana, San Gabriel, and Santa Monica mountains and the Channel Islands. The basin is, of course, our Los Angeles Basin.

Thirteen million years later, or approximately two million years ago, the Palos Verdes Hills began their emergence from the ocean, and one million years later stabilized their position as a large island in a beautiful bay.

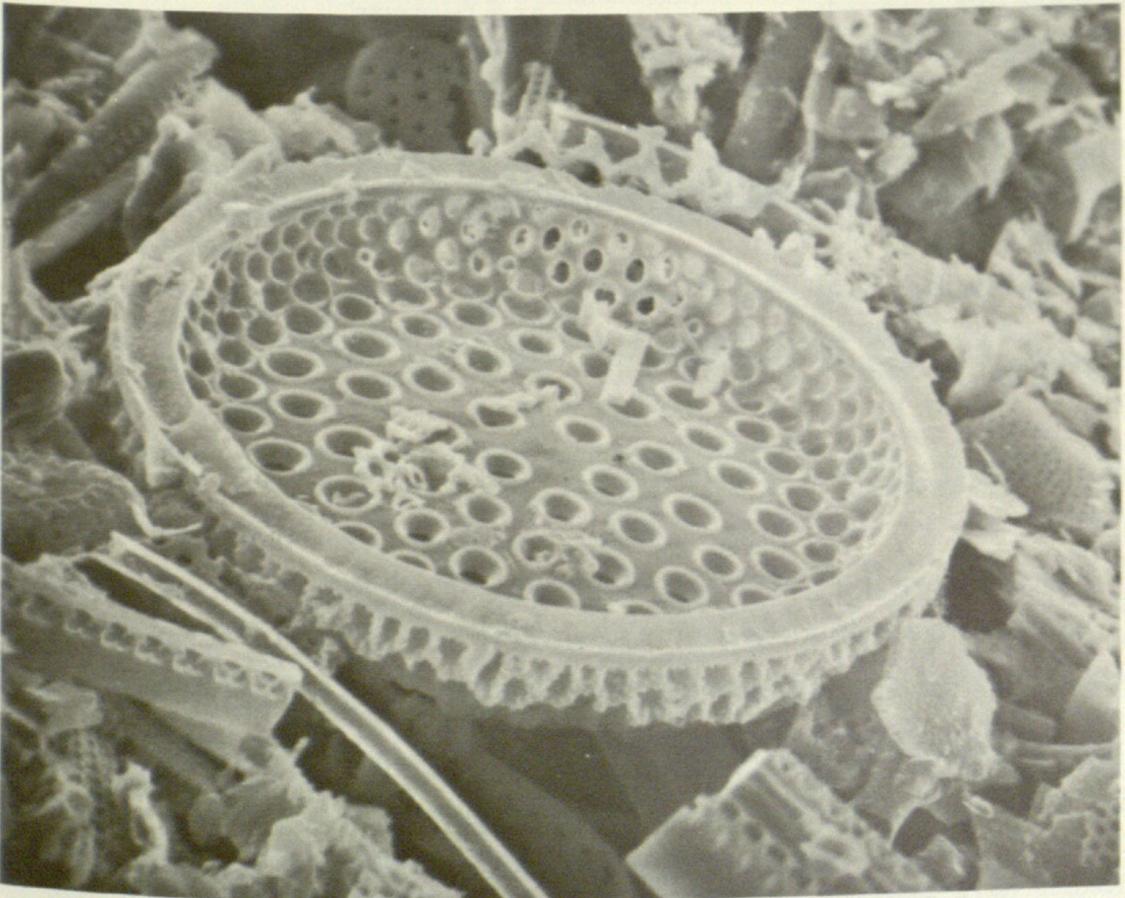
Imagine this bay extending from the base of the Santa Monica mountains east to the Hollywood Hills, southeast to the Puente Hills, and then southwest to Laguna's San Joaquin Hills, with a string of beautiful small islands consisting of



Sketch showing former and present coastline of Palos Verdes Peninsula.



Silicified skeletons of diatoms, magnified (upper) 10,000 times and (lower) 3,500 times.



the Palos Verdes Hills, Beverly Hills, Baldwin Hills, Dominguez Hills and lone Signal Hill. The Los Angeles Basin was this beautiful bay until 50,000 years ago; then, as the sea receded, sediment from the northern San Gabriel Mountains filled this gap with rock, gravel, and silt.

The peninsula itself gathered sediment of shales, mudstones, sandstones, and diatomite as it gradually emerged higher and higher in a series of spasms evident today in the terraces of this land area. Silica from volcanic eruptions millions of years before and present in the coastal waters was used by the minute, one-cell diatoms. Diatoms are an algae which make up a very large group of primitive plants that appear to have changed very little during geological times. Algae rarely are colorless and are sometimes considered as the simplest of green plants. They are numerous and widely distributed, primarily aquatic and can be unicellular like the diatoms, or multicellular like the seaweeds.

This group of plants manufacture their own food from inorganic substances and furnish the link between the inorganic and organic compounds by becoming the primary food of all aquatic creatures.

Their possession of chlorophyll enables them to synthesize sugars from carbon and water, and manufacture food. The development and maintenance of aquatic animal life would have been impossible without them.

The great importance of this algal food chain can be further appreciated when we realize that this planet was once a water covered mass. After the development of the one cell plant that was able to manufacture its own food, the aquatic animal life dependent on this food was able to develop. In truth, animal life would be impossible without the simple diatom and its fellow algae.

Diatoms have played a crucial role in the life-cycle food chain of this earth

since life began. Their skeletal remains have also proved to be of great industrial importance. These aquatic algae lived and died by the trillions leaving layer upon layer of their silicified shells or skeletons on the ocean floor. After the emergence of the peninsula, these deposits of diatomite sediment resulted in our present day native diatomaceous earth at South Coast Botanic Garden.

Diatomaceous earth plays a significant role in our daily lives, especially in the filtration of liquids. Many familiar commercial products would be economically impossible to produce without diatomite filtration. Examples are sugar, antibiotics, beer, swimming pool filters, and cleaning fluid recovery, all requiring various kinds of clarification and purification in their production. Diatomaceous earth is also used as a filler in the manufacture of paint, pesticide, paper, and asphalt, and of equal importance is its role as a heat-saving insulation material in ovens, kilns and furnaces.

The exceptional heavy deposits of diatomaceous earth were recognized by the Great Lakes Carbon Company which mined this future garden site from 1944 until 1954. The abandoned mine site was purchased in 1956 by the Los Angeles County Sanitation Department. The first load of trash was deposited in 1957 and on February 15, 1965 at 10:30 a.m. the last load was deposited. Three and one half million tons of trash in depths of five to one hundred and sixty five feet rest under this botanic garden today, but because of the careful contouring of the terrain by the Sanitation Department the visitor is not aware unless informed by the tour guide or helpful volunteer.

This is another in a series of articles by Armand Sarinana, superintendent of South Coast Botanic Garden, tracing the origin and development of that garden.



Sarinana, Armand. 1975. "A landfill botanic garden." *Lasca leaves* 25, 26–28.

View This Item Online: <https://www.biodiversitylibrary.org/item/130958>

Permalink: <https://www.biodiversitylibrary.org/partpdf/140041>

Holding Institution

Missouri Botanical Garden, Peter H. Raven Library

Sponsored by

Los Angeles Arboretum

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: The Arboretum Library at the Los Angeles County Arboretum and Botanic Garden

License: <http://creativecommons.org/licenses/by-nc-sa/4.0/>

Rights: <https://www.biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.