

# HARMFUL BACTERIA

For thousands of years mankind has lived in fear of disease. Sometimes the same disease would come suddenly, spread very rapidly and kill thousands of people. It was called an epidemic. No one knew what caused it or how to stop it.

About 100 years ago Louis Pasteur, a French scientist, discovered that some diseases were caused by tiny, microscopic life forms that are not plants or animals.\* These tiny living things, called bacteria, would enter the body of an animal or plant and damage the cells.

The science of bacteriology developed from this discovery. Since the days of Pasteur, scientists have discovered hundreds of different bacteria that cause different diseases. And they have found many ways to fight the harmful bacteria.

In this set of slides you can examine some of the harmful bacteria that cause disease in animals and plants.

## 1 DIPHTHERIA (2,000x)

Since the bacteria are so tiny, we had to use a very powerful microscope to magnify them 2,000 times.

This slide shows the bacteria that cause diphtheria (dif-theer-ia). These tiny rods of living things can be found all about us.

Bacteria are one-celled living plants. The poison given off as waste by diphtheria bacteria does serious damage to the human body.

There was a time not too long ago, when a certain kind of sore throat, called diphtheria, resulted in the death of thousands of children each year. The disease was caused by bacteria, but no one knew this until two scientists discovered the cause in 1875.

Today very few people get sick from these bacteria. The reason is that almost all infants are given an injection called a vaccine. This causes the body to build up a protection against the disease.

## 7 BACTERIA OF POTATO RING-ROT (2,000x)

Bacteria cause a variety of diseases in plants as well as in animals. Some plant diseases cause millions of dollars worth of damage. The constant war waged by scientists and farmers against harmful bacteria is one of the ways we have of saving and increasing our food supply.

This slide was made from a thin slice of a spoiled potato. The potato has become black

and soft.

At (A) we can see some healthy potato cells with starch grains inside. The small red spots at (B) are some of the bacteria that cause a disease in the potato known as potato ring-rot. Notice that the starch has been emptied from the swollen cell. A completely rotted cell is shown at (C).

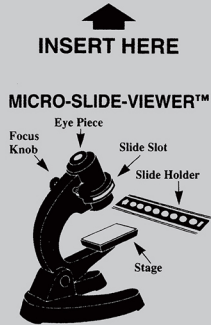
## 8 BACTERIA OF APPLE FIRE-BLIGHT (2,000x)

There is a disease that attacks and destroys apples, known to farmers as fire-blight. A thick mass of the bacteria that cause this disease can be seen at (A).

A single one of the bacteria can be seen at (B). This one-celled bacterium will divide and grow many times.

The eight bacteria we have been examining in this set are only a few of the many harm-

ful bacteria which cause disease in plants and animals. Bacteria can be found everywhere, in the air we breathe, in the food we eat, in the water we drink, in the ground we walk on. But they grow and cause disease only under special conditions. Scientists are constantly searching for greater knowledge of bacteria and the conditions under which they grow. This knowledge will help us to control harmful bacteria and prevent disease.



Face the Micro-Slide-Viewer so that as much light as possible falls on the white Stage.

Insert the numbered end of the Slide Holder into the Slide Slot of your Viewer, moving it from your right to left.

View with your eye close to the Eye Piece.

With Slide No. 1 in place, focus by turning the Focus Knob.

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