

Harmful Bacteria

For thousands of years mankind has lived in fear of disease. Sometimes the same disease would come suddenly, spread rapidly, & kill thousands...an epidemic. No one know causes and how to stop it.

Harmful Bacteria

About 100 yrs ago, Loius Pasteur, a French scientist, discovered that some diseases were caused by microbial life that are not plants or animals...these Monerans, called bacteria, enter the body of an animal or plant and damage the cells. The science of bacteriology developed from this discovery.

Harmful Bacteria

Since the days of Pasteur, scientists have discovered 100s of different bacteria that cause diseases and have ways to fight them.

In this set of slides, you can examine some of the harmful bacteria that cause disease in animals and plants. Since they are so tiny, the image has been magnified 2000 times.

1. Diphtheria

This slide shows the bacteria that cause diphtheria. These tiny rods of living things can be found all about us. Bacteria are one-celled living monera. The poison given off as waste by diphtheria does serious damage to the human body. There was a time not long ago when a soar throat, called diphtheria, led to 1000s of deaths in children annually. The disease was caused by bacteria but wasn't discovered until 1875. Today, few get sick from them. Vaccines in infants cause the body to build up a protection against it.

Diphtheria



2 TYPHOID FEVER BACTERIA (2,000x)

There are thousands of different kinds of bacteria. The typhoid fever bacteria shown in this slide have long threads growing outward. This type of bacteria lives in water. The motion of the long threads called flagella (fla-JELL-uh) moves the bacteria through the water. When people drink water or eat food in which these bacteria live, they may get a

3 PNEUMONIA BACTERIA (2,000x)

The bacteria shown on this slide are among the most dangerous of the different kinds that cause pneumonia — a disease that settles in the lungs.

Some of the bacteria on this slide can be seen growing in pairs surrounded by a thin coating or capsule. The capsule is the white

4 BACTERIA OF TUBERCULOSIS (2,000x)

In the center of this slide are two red rods, slightly bent. These are the deadly germs which cause tuberculosis. They attack the lungs and other organs of the body.

This slide was prepared in a tuberculosis hospital. One of the patients coughed up some

disease called typhoid fever. In the Civil War, for example, typhoid fever killed more soldiers than all the bullets, bayonets and cannon put together.

After scientists discovered what caused typhoid fever, a vaccine was produced to help the body build up an immunity (protection). A good camper always boils water to be sure that any possible typhoid bacteria will be killed.

area and the bacteria are the dark spots within it.

Because the capsule provides a very strong protection for the bacteria, the body finds it difficult to fight the disease.

The pneumonia bacteria are often found in the throat. But they can do us no harm as long as our bodies are strong and we eat properly and get plenty of rest. Our white blood cells can kill these bacteria about as fast as they grow.

mucus. A bit of this was placed on a slide, stained to make the bacteria more clearly visible, and placed under the microscope. The bacteria that were growing in the patient's lungs can be seen here.

Tuberculosis was once one of the main causes of death in the United States. Today, although there are still many cases of tuberculosis, it is not quite as widespread.

5 BACTERIA OF BLOOD POISONING (2,000x)

These are the bacteria that cause blood poisoning. Round bacteria such as these, that grow in chains, are called streptococci (strep-toe-COX-see). To make this slide, a drop of blood was taken from a person suffering from blood poisoning.

The large forms all around the bacteria are white blood cells which are drawn to the invading bacteria to destroy them. The white blood cells have been stained to appear purple in color. Otherwise it would be very difficult to see them.

6 BACTERIA OF FOOD POISONING (2,000x)

These are the bacteria that cause a kind of food poisoning called botulism (BOT-ulism).

Notice the unusual form they have — a rod with a knob at one end. Once these bacteria get into food, they grow in large numbers and spread rapidly. As they develop, these bacteria give off a waste which is a powerful poison, one of the deadliest known to science.

The specimen on this slide was prepared from some spoiled food that had caused the death of several people.

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 had 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 harmful 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.

Typhoid Fever Bacteria



3. Pneumonia Bacteria

The bacteria shown

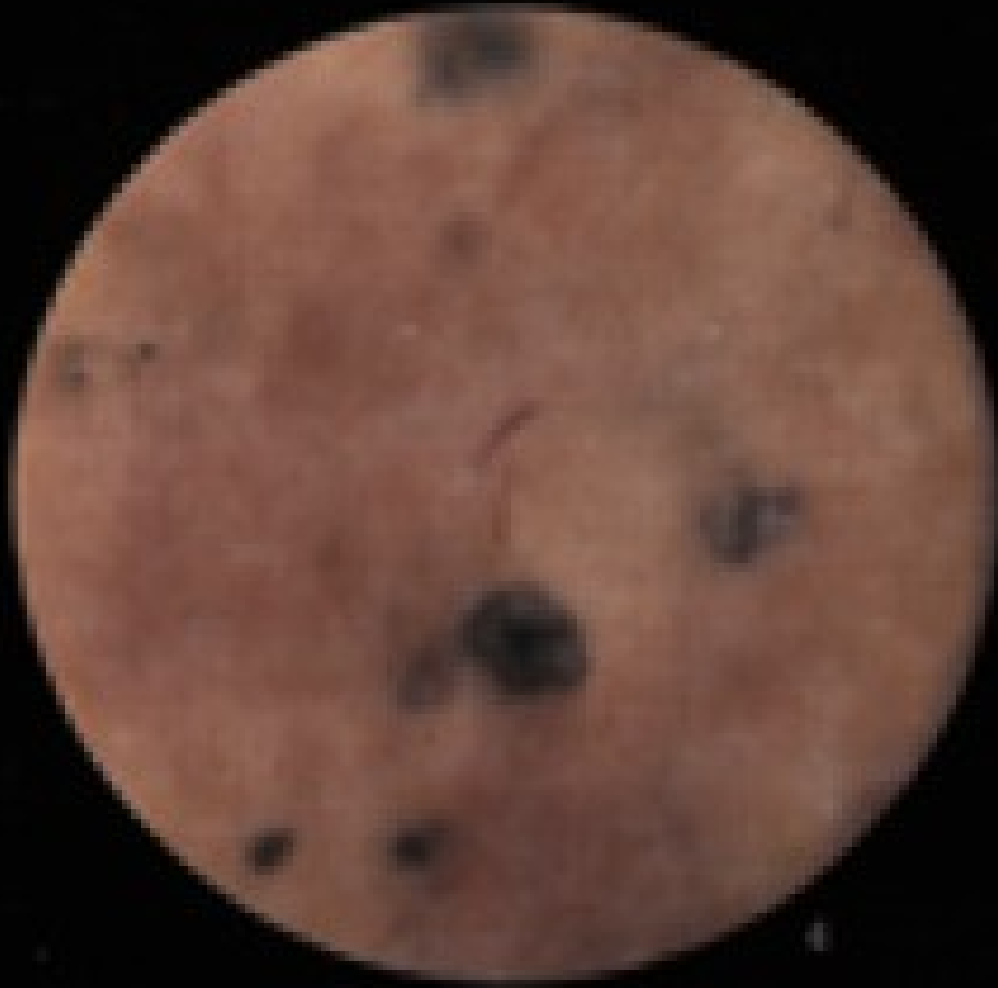
Pneumonia Bacteria



Bacteria of Tuberculosis

In the center of this

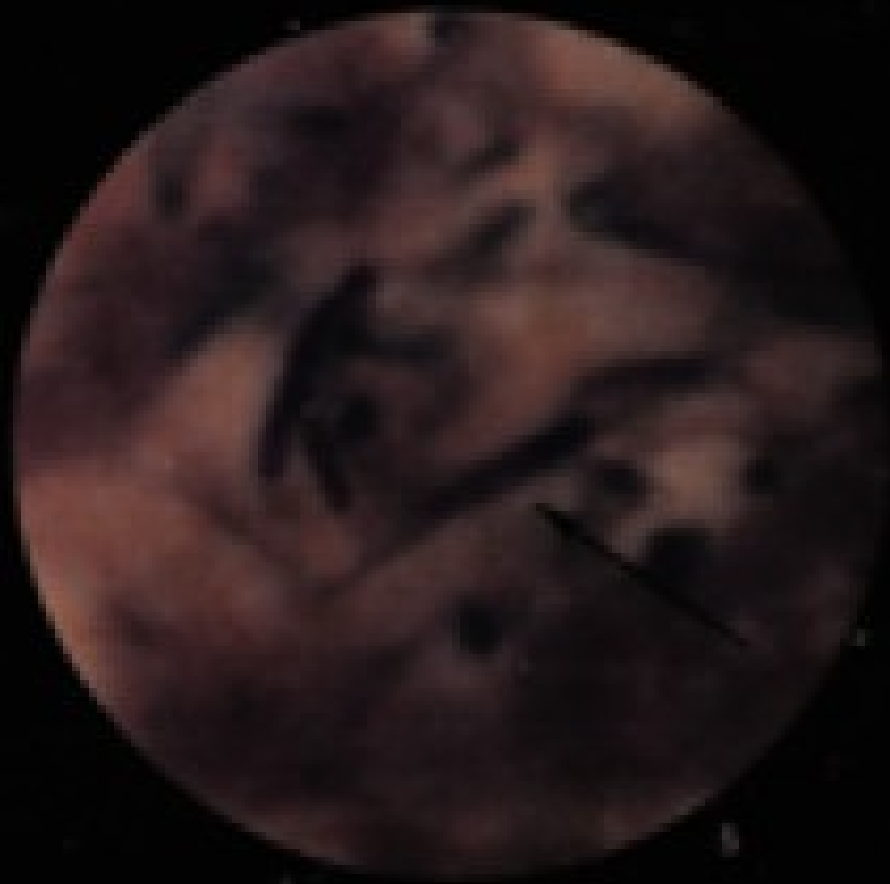
Bacteria of Tuberculosis



5. Bacteria of Blood Poisoning

These are the bacteria

Bacteria of Blood Poisoning



6. Bacteria of Food Poisoning

These are the bacteria that

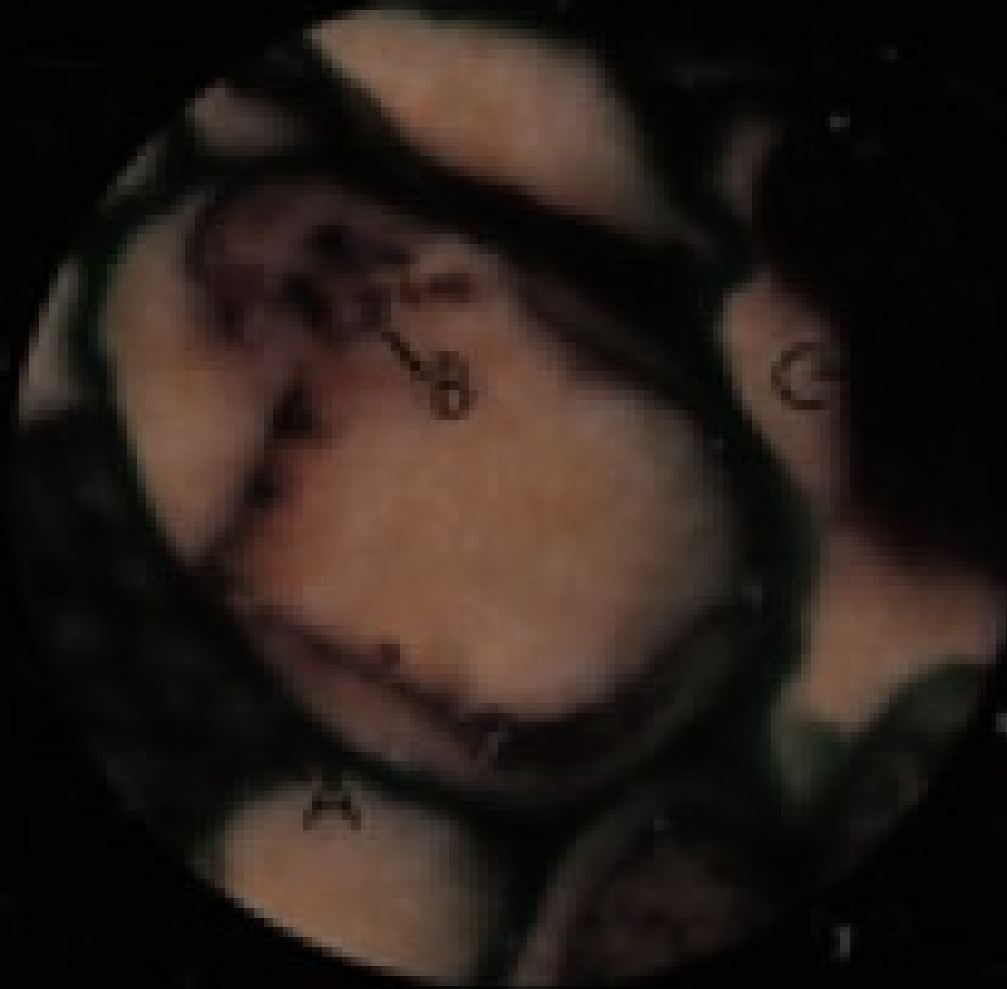
Bacteria of Food Poisoning



Bacteria of Potato Ring-rot

Bacteria cause a variety of

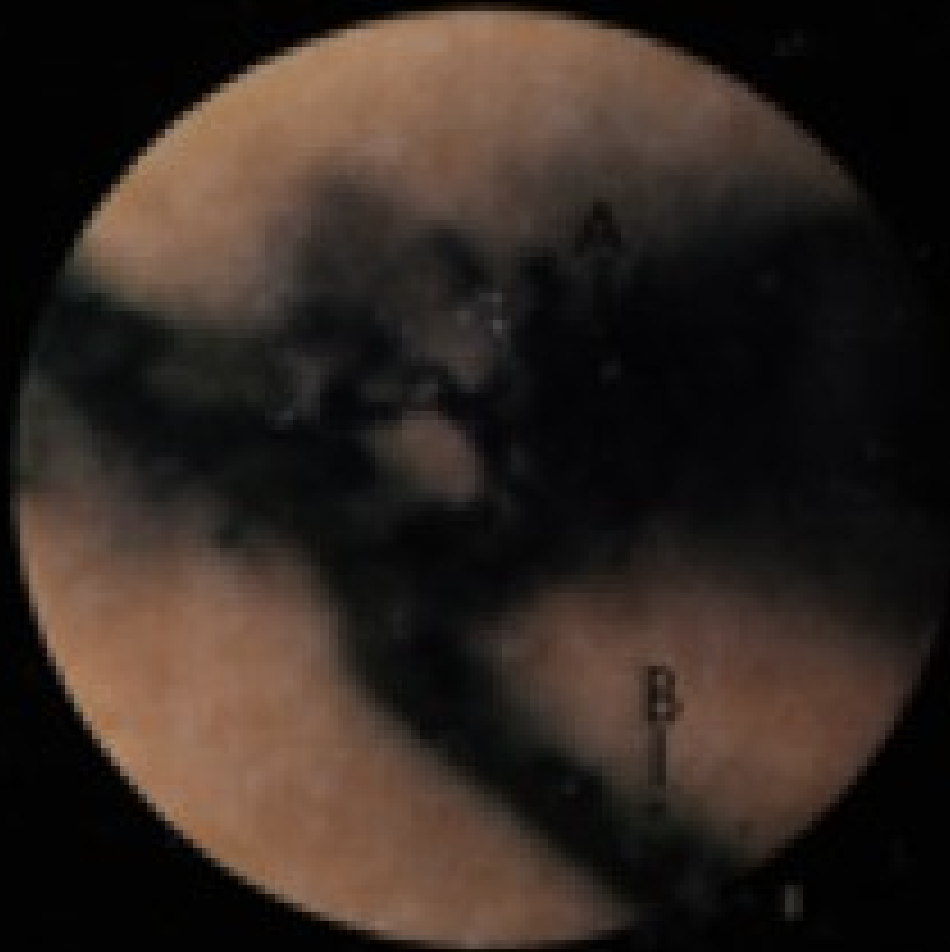
Bacteria of Potato Ring-rot



8. Bacteria of Apple Fire-Blight

There is a disease that

Bacteria of Apple Fire-Blight



The End