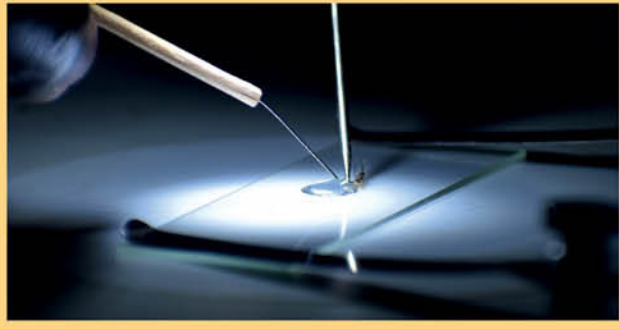


Wars Waged Under the Microscope



The War Against **Malaria**



Cynthia O'Brien

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The Enemy

People have been battling malaria for many thousands of years, and the fight continues today. Malaria is a serious, sometimes deadly, disease caused by a **pathogen**. In 2019, there were about 229 million cases of malaria around the world. In the same year, 409,000 people died of the disease.

What Causes Malaria?

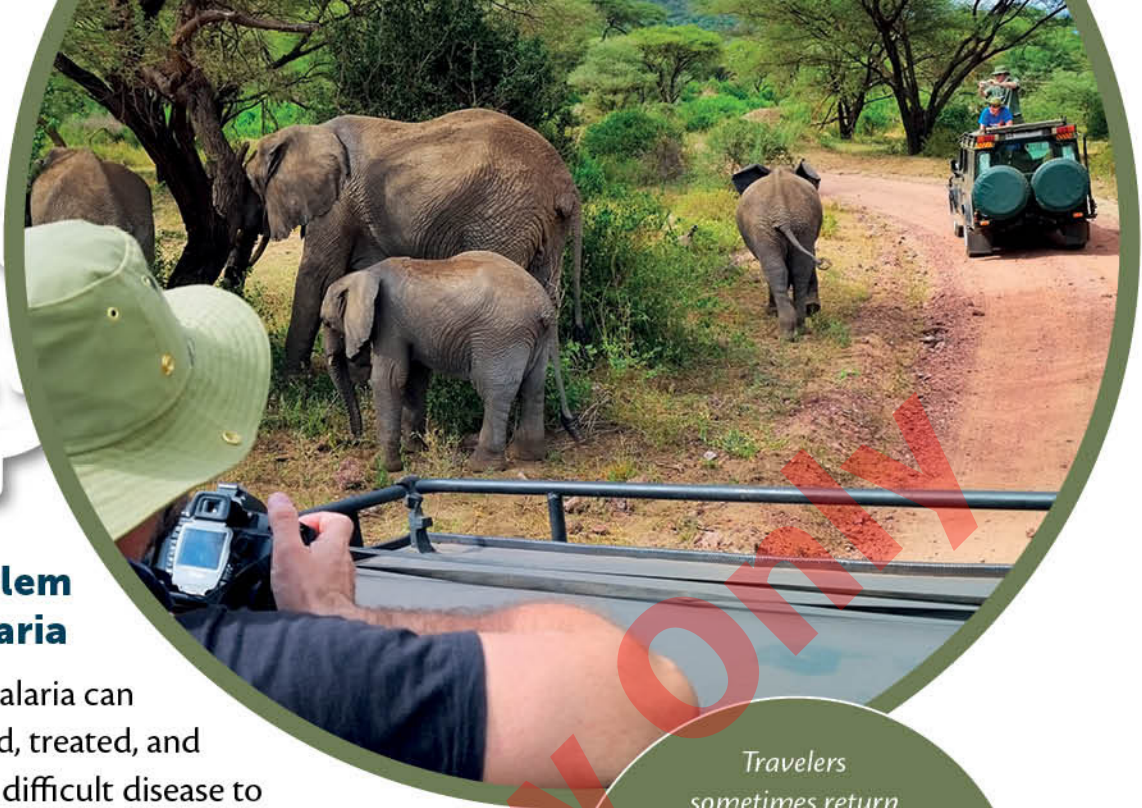
The pathogen that causes malaria is a **parasite**. Certain species, or types, of the female *Anopheles* mosquito pick up the parasite from people who have it. The mosquitoes then bite other people and pass on the parasite. Children under five years old and pregnant women are most at risk. Other people at risk are the elderly and people who have traveled from countries with no malaria to countries where malaria is a problem. All these people have little **immunity**, or natural protection, against the disease and therefore easily get sick.

Dealing with Malaria

All people who travel to or live in places where malaria is a problem are encouraged to protect themselves by covering their skin with clothing and by sleeping under a **mosquito net**. There are also treatments for the disease.

It is especially important that children under the age of five have access to doctors who can provide medicine to help prevent malaria, as well as treat children who have it.





The Problem with Malaria

Although malaria can be prevented, treated, and cured, it is a difficult disease to control. This is mainly due to where it occurs. Most cases are in African countries south of the Sahara Desert, but malaria is also a problem in Eastern Europe, Southeast Asia, and Central and South America. Mosquitoes thrive in these places, and many people there are poor and do not have access to mosquito nets or medical treatment. This makes tackling the disease very difficult.

Travelers sometimes return home with the disease when they visit countries where malaria still exists. Every year, about 2,000 Americans return to the United States with malaria and must be treated.

“

...we're dealing with a really complex enemy...this enemy takes place often in the hardest-to-reach areas, affecting **impoverished communities** with little access to health systems...We have very imperfect tools. So all of this put together means we're fighting what some have termed the biggest enemy of mankind in history.”

**Dr. Pedro Alonso, Director of the Global Malaria Programme,
World Health Organization (WHO)**

”

Malaria Hotspot

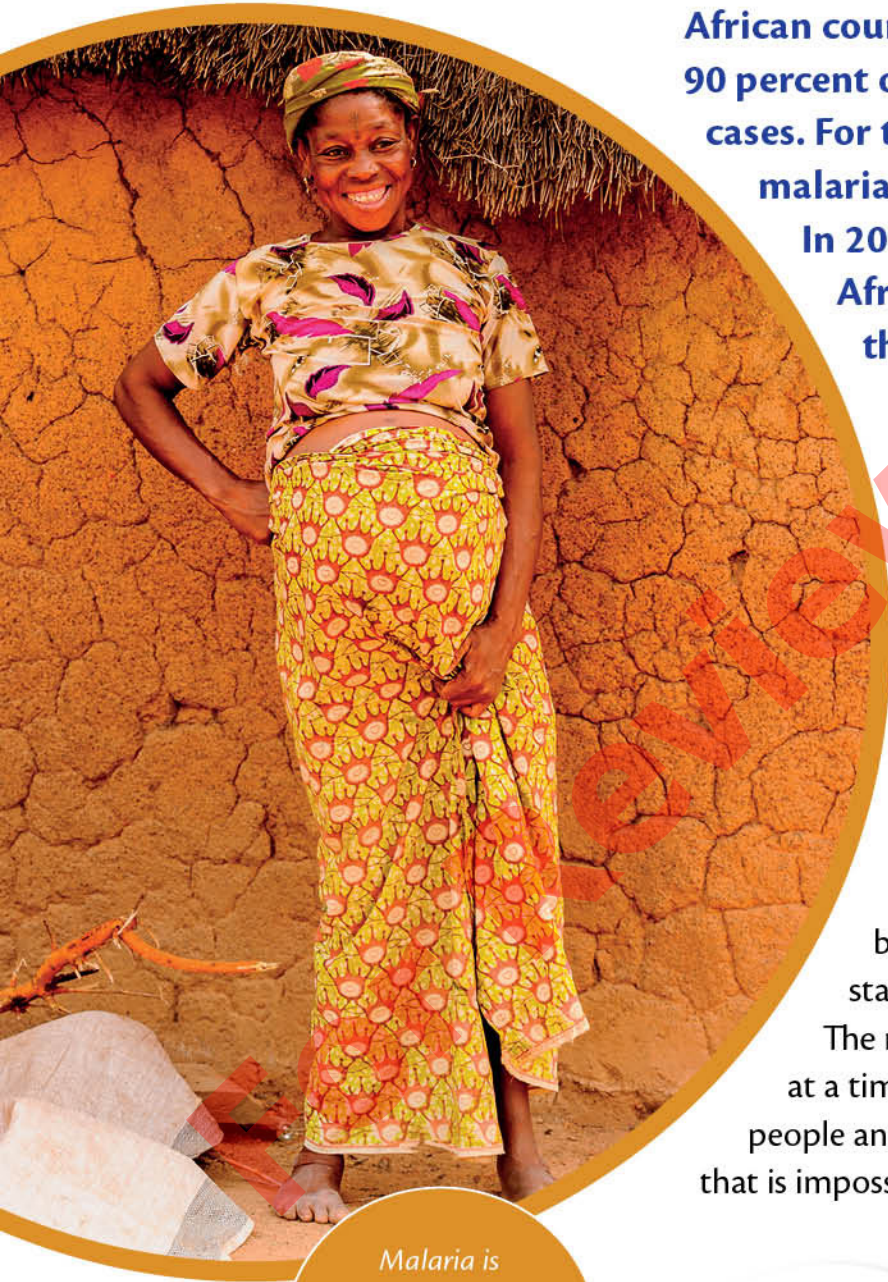
African countries have more than 90 percent of the world's malaria cases. For the people living in Africa, malaria is a constant threat.

In 2019, more than 274,000 African children died from the disease.

The Right Conditions

Today, in countries south of the Sahara Desert, species of *Anopheles* mosquito carry a complicated parasite that causes more serious cases of malaria. The **climate** and **environment** in these hot African countries is ideal for mosquitoes. Rainy seasons bring flooding, which creates stagnant, or standing, water.

The mosquitoes lay 50 to 200 eggs at a time. The mosquitoes then bite people and lay more eggs, causing a cycle that is impossible to break.



Malaria is dangerous for pregnant women and their unborn children.



CASE STUDY: LIVING IN A MALARIA ZONE

Nigeria has about one-quarter of the world's malaria cases. More than half of Nigerians live in poverty and in **remote** areas. Many people do not have money to buy mosquito nets to sleep under or **insecticides**. Hospitals and **clinics** are usually far away from these **rural** communities, and many do not have access to transportation if they need to get to a hospital.

Nigerians spend a lot of money on preventing and treating malaria. This leaves them with less for food and other supplies. When they are sick, the treatment costs money. Being sick also means that they cannot work and earn the money. When children become sick, they cannot help their parents on their farms and they cannot go to school.

Global organizations and charities are trying to change things for the better. This involves health care workers who teach people how to prevent malaria and how to treat it. It means getting mosquito nets to people, setting up clinics in remote areas, and making sure people get the right medication.

Every two minutes, a child dies of malaria somewhere in the world. Many are in Africa. Better medication will help stop this from happening.

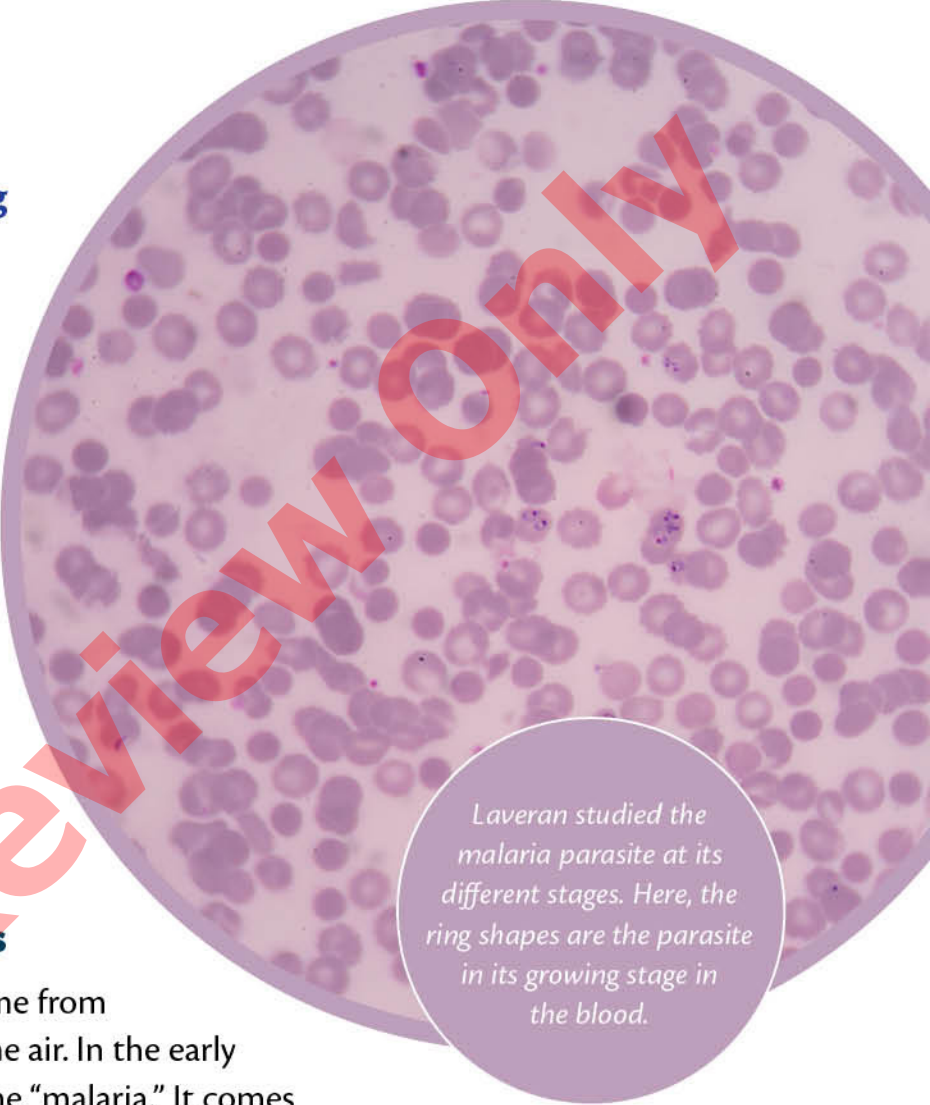


The Battle Begins

Malaria has been attacking people for thousands of years. Ancient Indian writings from as far back as 1500 BCE called it the “king of diseases.” Malaria was a problem for the ancient Chinese, Greeks, and Romans, too. But it took many centuries for people to understand what caused this terrible illness.

The First Breakthroughs

People believed that malaria came from swamps and traveled through the air. In the early 1800s, they began using the name “malaria.” It comes from the Italian words for “bad air.” However, in the later 1800s, the true cause of this disease was revealed. While working in North Africa in 1878, a French military doctor named Alphonse Laveran examined blood **samples** from malaria patients. He did many tests and discovered that there was something invading the patients’ **red blood cells**. In 1880, Laveran identified the **protozoan** parasite that causes the disease. He and another scientist named Patrick Manson also suggested that mosquitoes might carry the parasite.



Laveran studied the malaria parasite at its different stages. Here, the ring shapes are the parasite in its growing stage in the blood.

Identifying the Mosquito

In 1895, British doctor Sir Ronald Ross began studying malaria. He wanted to find out if Laveran and Manson were right about mosquitoes carrying the parasite. Ross was living in India, where mosquitoes were common. Meanwhile, a group of Italian scientists was working on the same ideas. In 1897, Ross and the Italians discovered that the parasite grew in the *Anopheles* mosquito and that the mosquito carried the parasite from person to person.

In 2010, scientists discovered evidence of malaria parasites in the remains of the Egyptian pharaoh, or king, Tutankhamun. He ruled ancient Egypt more than 3,300 years ago.

A Global Fight

Once scientists identified what caused malaria, they could fight it. Insecticides, drugs, and window screens helped eliminate, or get rid of, malaria in North America by the 1950s. Twenty years later, Europe had eliminated it, too. From 1998, the Roll Back Malaria Partnership brought together governments, organizations, and others to share information, raise money, and fight for a common cause: eradicating malaria everywhere.

