I was walking on campus the other day and just happened to notice a group of students promoting T-shirts emblazoned with the words, "End Malaria." These Purdue students, on behalf of World Vision, are part of a campaign to end malaria deaths by 2015. A noble goal to be sure!

The target date of 2015 sounds a bit ambitious to me. After all, malaria has been a human disease for 50,000 years or more and still runs rampant in parts of the world. According to the World Vision information, 2,000 children die daily from the disease.

A lot of people, including the Purdue students, are jumping on the wipe-out-malaria bandwagon these days. The U.S. president has established a malaria initiative, and the World Bank has a malaria booster program. Last year, the Bill & Melinda Gates Foundation sponsored a second forum on malaria. Some 300 leading scientists, health leaders and government officials gathered at this meeting in Seattle to address eradication of malaria.

Getting rid of malaria would be a good thing. Probably no disease has inflicted more suffering and death on the human population than malaria. Some suggest that malaria may have contributed to the decline of the Roman Empire. For sure, malaria played a role in World War II; 500,000 U.S. troops caught malaria, and 60,000 died.

For hundreds of years people recognized the condition but knew very little about it. The disease was first known as ague or marsh fever.
Ague is a term that has been used to describe a condition marked by chills, fever and sweating. The name marsh fever was an indication that the disease seemed to be associated with such a habitat. Eventually the word malaria - meaning "bad air" in Medieval Italian - became the name for the disease.

In 1880, a French military doctor named Charles Laveron was the first to observe malaria parasites inside red blood cells of humans. He later won the Nobel Prize in medicine for the discovery. A Scottish physician named Sir Ronald Ross isolated the malaria organism from the salivary glands of a female mosquito and proved the relationship of the disease with a mosquito vector. He, too, won the Nobel Prize in medicine for his work.

In general, here's how malaria works. The disease organism is a protozoan of the genus *Plasmodium*. It has two distinct cycles: one in humans and one in *Anopheles* mosquitoes. In the mosquito, the disease organism first infects the gut cells and then moves to the salivary glands. When the mosquito takes a blood meal from an animal such as a human, the salivary secretions and the disease organism are transferred. Once in a human, the disease organism moves to the liver and then to the red blood cells where it can be picked up by a blood-feeding mosquito. At this point the cycle begins again.

Malaria is a disease that is endemic to the tropics and subtropics. It probably did not exist in the New World prior to the arrival of Columbus. But the early visitors to the New World brought the *Anopheles* mosquito vector and the *Plasmodium* causative agent with them. At one point the Great Lakes region had one of the highest concentrations of malaria in the world.

Henry Wadsworth Longfellow wrote about the disease in "Song of Hiawatha."
"He, the mightiest of magicians,
Sends the fever from the marshes,
Sends disease and death among us!

Slay this merciless magician,
Save the people from the fever
That he breathes across the fen-lands
And avenge my father's murder!

All the air was white with moonlight,
All the water black with shadow,
All around him the Suggema
The mosquito, sang his warsong."

This was written in 1855 and predated the scientific work that proved mosquitoes were associated with malaria. But certainly, Longfellow chronicled the relationship between the disease, a mosquito vector and the swampy conditions that served as breeding sites for the insects. He did make a mistake, though. He attributed the evil deed to a male mosquito. In truth, the female mosquito takes a blood meal and is the disease vector.

Longfellow got most of the story correct. Let's hope the modern efforts to eradicate malaria can do as well!

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