

The Discovery of Penicillin

A short story by Rachelle Payne

Once upon a time, the world was ruled by an invisible, yet very powerful army of bacteria. Many people suffered and died because of bacterial infections. For instance, just hurting your finger on a nail could be fatal! Even worse, this army kept increasing in size and thriving all over the place. So far, no one had been able to discover a cure...

1928: St'Mary's Hospital, London, England.

A scientist named Alexander Flemming was researching agents that could potentially be used to destroy bacteria. One very infectious bacteria during that time was *staphylococci*. Suddenly he exclaimed:

“Oh dear...my head aches...and I haven't found anything of real scientific value for weeks! I know what I need! A vacation, to rejuvenate my tired, old brain! I shall pack immediately.”

Some time later, as he was about to walk out the door, he stopped in his tracks. He had just realized he had left his *staphylococci* culture plates unwashed...

“I'll clean these culture plates when I come back...sunny and delightful countryside, here I come!”

But while our friend was away, London experienced a spot of cold weather, and as the staphylococci bacteria on the culture plate ceased growing for a while, a piece of mold began to grow. When the weather warmed again, and the bacteria resumed its growing process a shocking event occurred. The mould had begun to secrete a sort of substance that made the bacteria retreat its invasion of the culture plate!! Flemming came home in the best of moods...

“What an amazing time I had! The countryside was quite pleasant indeed...but what is this? Mould on my culture plate, secreting an unusual substance...that is making the staphylococci bacteria retreat?! How fascinating!! I will name this strange substance *Penicillin*, after the type of mould *Penicillium notatum* that is residing on the culture plate.” Flemming carried out a few experiments with penicillin. However, since he could not purify it he decided to shelve his discovery. What he was unaware of was the power that penicillin carried to end bacterial problems. But the door hadn't been fully closed on his discovery, yet...

10 years later, Oxford, England.

The brilliant chemist, Ernest Chain, was working for Howard Florey, the head of the Sir William Dunn School of Pathology at the time. He was reading a report written by Alexander Flemming on penicillin in his study, Florey sat by his side absorbed in his own work. The silence in the room was suddenly broken by Chain...

“My word! This Flemming chap has certainly stumbled upon something of great significance. Howard, I do believe we should take a closer look at this Penicillin substance don’t you agree?”

Florey reflected upon this. He then replied cautiously:

“Hmmm...alright, I guess it is worth looking into. Though we shall see about its significance, let us not get *too* carried away.”

After performing a few toxicity tests on the substance, which did not reveal anything negative, Florey came to a conclusion...

“Well...your hypothesis was certainly correct; this substance does hold a lot of potential. I have a brilliant idea! Why don’t we assemble a research team including the *crème* of the crop of scientists, and begin clinically testing Penicillin.” Being a very practical person and possessing a lot of drive and energy, Florey commenced a large cooperative effort with other researchers to achieve this goal. There was a great deal of contribution from the team members. One in particular, Norman Heatley, produced several technical inventions that allowed for Penicillin to be produced on a large scale. Also, by experimenting with different methods of growing mould in various containers he reached a better understanding of the purification process...

“These ordinary bedpans seem to be the most efficient containers for growing penicillin.” He had announced to his teammates.

May 1940. After acquiring enough Penicillin, it was time for the first trial of this substance. Four mice severely infected by a new kind of fatal bacteria, streptococci, were given a Penicillin treatment. The team of scientists watched and waited. After a full day of treatment, the mice had been saved! Florey was astounded...

“It looks like a miracle” He had told his teammates with triumph.

After the undoubtedly successful first trial, it was deemed time to carry out a trial on a human being. However, human beings need a much greater amount of penicillin than mice do, about 3000 times greater. The heat of World War 2 had also put a strain on the team’s finances. But the team pulled through in a creative manner. Heatley proposed:

“These four hundred stackable ceramic bedpan containers should make enough penicillin.” And the team found a way to make this plan a reality. Even after all the effort they put into producing enough Penicillin, nature decided to turn things around, and the trial was unsuccessful. Florey however was not discouraged...

“Let us not give up. We must continue journeying on, for there is still hope in this world and so many more lives to save.” And there was still hope. By 1941, they convinced the medical industry in the US to start Penicillin production. At the end of World War 2, there was enough penicillin to treat all the wounded soldiers.