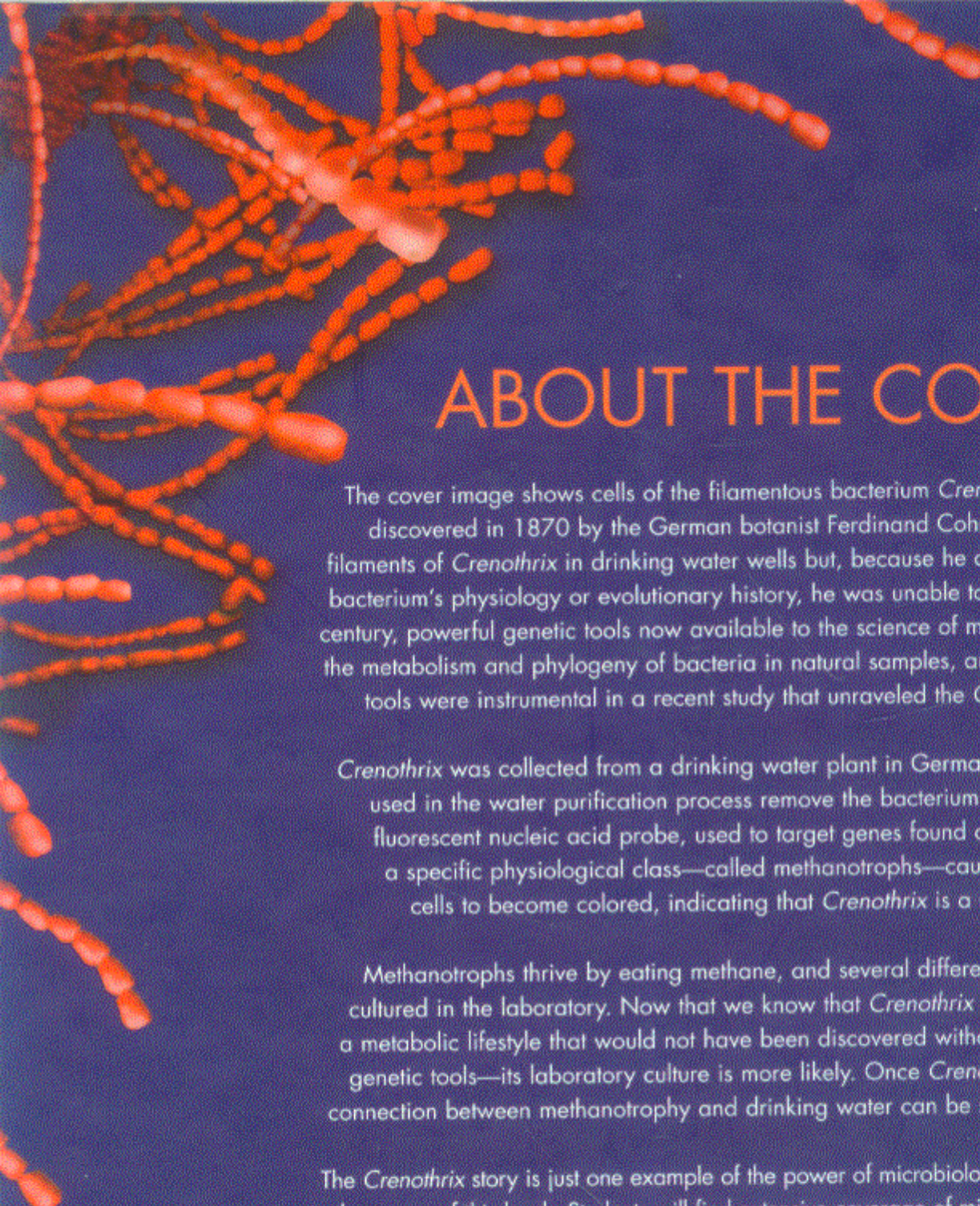




ABOUT THE COVER

The cover image shows cells of the filamentous bacterium *Crenothrix*, an organism discovered in 1870 by the German botanist Ferdinand Cohn. Cohn observed filaments of *Crenothrix* in drinking water wells but, because he did not understand the bacterium's physiology or evolutionary history, he was unable to culture it. In the 21st century, powerful genetic tools now available to the science of microbiology can reveal the metabolism and phylogeny of bacteria in natural samples, and these state-of-the-art tools were instrumental in a recent study that unraveled the *Crenothrix* mystery.

Crenothrix was collected from a drinking water plant in Germany, where sand filters used in the water purification process remove the bacterium from the water. A fluorescent nucleic acid probe, used to target genes found only in bacteria of a specific physiological class—called methanotrophs—caused the bacterial cells to become colored, indicating that *Crenothrix* is a methanotroph.

Methanotrophs thrive by eating methane, and several different types have been cultured in the laboratory. Now that we know that *Crenothrix* is a methanotroph—a metabolic lifestyle that would not have been discovered without the use of modern genetic tools—its laboratory culture is more likely. Once *Crenothrix* is cultured, the connection between methanotrophy and drinking water can be studied experimentally.

The *Crenothrix* story is just one example of the power of microbiology. Many others appear in the pages of this book. Students will find extensive coverage of microbial diversity, ecology, genetics, and evolution together with the fundamental principles of microbiology.

www.pearsonhighered.com

Please visit us online at www.pearsonhighered.com for more information. To order any of our products, contact our customer service department at (800) 824-7799 or (201) 767-5021 outside of the U.S., or visit your campus bookstore.



ISBN-13: 978-0-13-232460-1
ISBN-10: 0-13-232460-1

