

book review

Live Long and Evolve:

What Star Trek Can Teach Us about Evolution, Genetics, and Life on Other Worlds

Mohamed Noor

Princeton University Press (2017)

211 pp., \$20.80 USD (hard cover)

LIVE LONG AND EVOLVE, the newest book from Dr. Mohamed Noor, a professor of biology at Duke University, follows his introductory evolutionary biology course with a twist. He uses the popular series *Star Trek* to showcase examples of evolution on Earth and what evolution might look like across the cosmos. It is apparent to the reader early on that an encyclopedic knowledge of *Star Trek* is not necessary for one to enjoy the book, but such knowledge would make the book better. *Star Trek* fans will appreciate the footnotes, included to point out particular episodes that serve as counter or bonus examples to the points Noor makes throughout.

One of Noor's strong points is introducing, covering, and recapping the topic throughout the book. This organization helps hammer home the main concepts. The book's opening covers the differences between what is experienced on Earth compared to what one might expect elsewhere. Readers get interesting examples of the various, crazy life-forms on Earth and a bit of a thought experiment on what people generally consider to be alive.

This book covers many topics, including the central dogma of evolutionary biology and gene editing using new technology, such as CRISPR. The appendix includes a fascinating snapshot of times *Star Trek* got evolutionary concepts exactly right versus times the show got the concepts totally wrong, as well as times the writers showed mixed levels of understanding. The point of the book, though, according to Noor, "is not to critique the efforts of *Star Trek*, but instead to help people learn about the topics of evolution and genetics."

What strikes this reviewer as the best part of this book, and a piece that

could be further developed, is the author's use of figures. Figures, like those found in a basic genetics course, reinforce particularly interesting points. They include, but are not limited to, a Punnett square, a phylogenetic tree, and a genetic sequence. The figures help readers visualize the concepts, though there is room to expand upon their connection to the series as some are totally unrelated to Star Trek.

Noor expressed hope that people who grew up watching Star Trek would pick up this book and get a crash course in evolution and genetics. To that point, he said, "Star Trek, and other sci-fi series, are wildly mixed in their accuracy of use of evolutionary terms and concepts. However, the series are not completely divorced from reality with respect to the terms natural selection, DNA, and genetics, and I hope this book expands on those fundamentals . . . I want readers to know that understanding evolution is not threatening or controversial."

At a school board debate, Noor questioned the board about their thoughts on teaching evolution. A few said they taught evolution as science understands it, several did not answer, a few taught equal time, and one long-tenured member was vehemently against teaching evolution in the classroom. Through the use of science fiction, particularly Star Trek, Noor hopes that these sorts of events become rare.

Noor is not afraid to use Star Trek to advocate for accuracy in science education. A recent trend in science is that predatory journals exhibit a pay-to-play publication mantra. Unsuspecting academics, especially those early in their careers, may find the invitation for publication from a journal irresistible, as publications are the currency of academia. However, some journals use the term peer-review too loosely. Trustworthy academic journals have teams of scientists who read papers and suggest that journal editors reject a paper for various reasons, accept a paper with major revisions, or accept it with minor revisions. Rarely are papers accepted as is. However, in 2017, a paper about evolution under warp drive, authored by the cast of Star Trek Voyager, was accepted as is and published with the correspondence address listed as Starfleet Academy. Noor hopes that by using Star Trek—either to teach about concepts such as genetics and evolution or to highlight predatory journals—otherwise seemingly boring topics may become interesting to a wider group of people. This interest would ideally lead to a better understanding of the world around us and the scientific process.

—Andrew Flick

Reference:

Flick, Andrew (2018) "Review: *Live Long and Evolve*", *Leading Edge Magazine*, Brigham Young University science fiction and fantasy magazine, issue 13, pages 130-131.