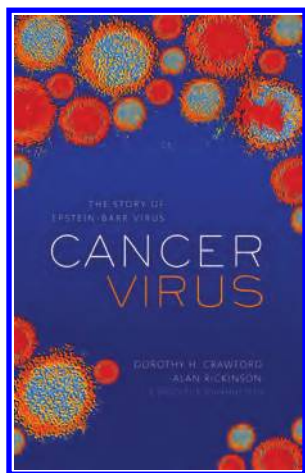


## CANCER



***Cancer Virus: The Story of Epstein-Barr Virus.*** By Dorothy H. Crawford, Alan Rickinson, and Ingólfur Johannessen. 2014. Oxford University Press. (ISBN 9780199653119). 208 pp. Hardback. \$27.95.

After the success of the polio vaccine in the 1950s, scientists turned to other “microbe-conquering” agendas, including finding connections between viruses and cancer. Even Jonas Salk turned to a cancer vaccine after preliminary data suggested that the measles virus was linked to leukemia. The renewed association between viruses and cancer in the 1960s provided the backdrop to the 1964 discovery of the Epstein-Barr virus (EBV). Fifty years later, various research teams, using a host of new technologies, have provided multiple lines of evidence that EBV does more than cause mononucleosis. As a 50-year anniversary text, *Cancer Virus* uses a straightforward chronology to tell us EBV’s complicated story, one in which we learn of the many scientists involved with EBV and their astounding findings. The narrative, however, does not stop in 2014, because EBV’s possible links between multiple sclerosis and individuals with previous

mononucleosis infections serves notice that there is even more to learn about this particular herpes virus.

*Cancer Virus*’s authors are virologists who were, or continue to be, involved with EBV research. Lead author Dorothy H. Crawford is an emeritus professor of medical microbiology at the University of Edinburgh. Crawford has written several similar books, including *The Invisible Enemy* (2000) and *Deadly Companions: How Microbes Shaped Our History* (2007). Similar to her previous books, *Cancer Virus* is intended for an educated general audience. Crawford’s coauthors are Alan Rickinson and Ingólfur Johannessen, both active researchers on human tumor viruses, including EBV.

EBV was the first human virus to be seen with an electron microscope. With subsequent improvements in animal studies and refined antibody detection techniques, researchers were soon able to document how EBV targets B lymphocytes and, in some cases, causes the infected B cells to undergo uncontrolled division, resulting in the formation of tumors packed full of immortal B cells. Considering that approximately 95% of us have encountered EBV sometime during our lifetime, one wonders why not everyone develops EBV-implicated diseases such as Hodgkin’s disease, nasopharyngeal carcinoma, Burkett’s lymphoma, XLP syndrome, and organ graft disease.

*Cancer Virus* makes it clear that most of us allow EBV to lie dormant within our bodies for a lifetime. Small populations of EBV-infected people, however, must contend with EBV’s lytic phase. What triggers EBV to become active is not completely understood, but the authors do discuss the geographically related, age-related, and genetically related aspects of EBV cancers. For example, EBV-caused Burkett’s lymphoma is prevalent in children who live in malaria-prone areas,

and nasopharyngeal carcinoma is 10 times more common in males living in south China. Because there are many different factors that appear to be associated with EBV tumors, Crawford makes it clear that the epidemiology of virus-caused cancers is rarely simple and clear-cut.

A more in-depth examination of molecular and immunological aspects associated with EBV may be found in the book *Epstein-Barr Virus*, edited by Erle S. Robertson (2005). However, Robertson’s academic text, which includes a chapter by Alan Rickinson, a coauthor of *Cancer Virus*, will set you back \$300. *Cancer Virus* is considerably cheaper and keeps the science of EBV contextualized within the history of science, something that is often lacking in multiple-authored texts. This is not to say that the book is missing detailed research methodologies (and acronyms). Since *Cancer Virus* involves narratives about people and technology, the book holds your attention all the way to the end. What a leap it would be for biology instructors, especially those teaching microbiology or Advanced Placement biology, to use *Cancer Virus* as a required text. In addition, for those teachers who are not sure where to begin in broadening their nature-of-science content, this book would be a good place to start.

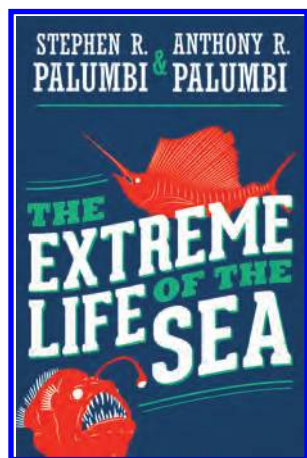
After finishing *Cancer Virus*, I found myself wanting to know more about the scientists, especially the husband-and-wife research team of Werner and Gertrude Henle in Philadelphia. The Henle story is one that might warrant a separate examination altogether. *Cancer Virus*, along with its accompanying (and much appreciated) maps, pictures, charts, reading list, and glossary, illuminates not only EBV, but also how science is done. I hope that this will not be the last book that Crawford publishes. Certainly, the Ebola virus could stand a similar treatment as heightened

public curiosity about Ebola's pathogenicity and control begs for an account, much like what Crawford has written about EBV.



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## MARINE ORGANISMS



*The Extreme Life of the Sea.* By Stephen R. Palumbi and Anthony R. Palumbi. 2014. Princeton University Press. (ISBN 978-0691149561). 240 pp. Hardcover. \$27.95.

I was excited to read a book about unusual marine organisms written by a big name in marine science and his science-writer son. I looked forward to learning a plethora of new information, but unfortunately I was disappointed. Rather than delving into any particular organism, this book takes a scattershot approach, akin to a “who’s who” of amazing marine animals, but the reader comes away with very little in depth of understanding. For someone who already knows a lot about marine organisms, the book can serve as a fun trip down memory lane, triggering memories that are invariably much more in depth than what the book presents. But watching a *Blue Planet* video will serve that purpose more effectively. For someone

who knows little about marine organisms, this book might introduce some interesting new factoids, but largely the tidbits are placed in isolation rather than a connected framework, with nothing tying organisms within a chapter together other than the fact that they all are “small,” “old,” “fast,” “live in the deep,” or “travel far or fast.” As such, the book reads more like an extended version of a *Guinness Book of World Records* rather than the comprehensive, cohesive, interest-inducing read that I had expected. The authors have made a concerted effort to make sure that their information has copious references for further reading for those interested, both from scholarly sources and widely accessible websites, but I pick up a pleasure-reading book because I am interested in the subject already and want to learn a lot from that book, not because I want to be led to 60 other references that I can find in my spare time to learn more.

In addition to the cursory view of most of the animals presented, there is a tone throughout the book that seems overly dramatic, as if the authors are trying too hard to convince their audience that the subject matter is interesting, rather than merely letting the information speak for itself. This overly exerted effort at times borders on annoying and sometimes on factual fallacy. For instance, in describing a battle between a sperm whale and a giant squid (which has never been witnessed by humans, a fact the authors mention in passing after describing the entire event), they pit a male “bull whale” against a “mother squid” (p. 3), but squid don’t travel with babies and typically die after laying eggs, so why label it a “mother squid”? Additionally, some common misconceptions about other organisms are perpetuated. For example, the authors state that Archaea “remain in extreme environments, in the closest analogues to the planet they lost” (p. 8), but recent findings are showing that these organisms are found in nonextreme environments as well, including the open ocean. In the brief coverage of each

group, terms are used, but not explained, that I am not sure typical readers would understand, such as the difference between RNA and DNA, or the “primitive pinhole apertures instead of lenses” (p. 22) of the nautilus, or their ammonoid cousins, which would likely make the reader wonder “What were the ammonoids, and how are they different from nautiloids?” Of course, the reader could look this up; the point is that a book detailing marine organisms shouldn’t make the reader wonder such things. The authors draw nice analogies and have funny statements that make the reader chuckle and stay awake (comparing the benefits of old VW bugs to living fossils, calling oxygen a “home wrecker”). I enjoyed reading the book in small doses, because it did bring me down memory lane regarding many of my favorite organisms. This is a good place to start for someone looking to be wowed by marine organisms, but I think even that person would be left thinking, “I really wish there was more information on that, I have so many questions.” Fewer topics and taxa and more in-depth discussion with links among the organisms highlighted would have produced a much more interesting, engaging, and ultimately useful book.



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