

Endings, Spring 2006

Questions for study VII

(be prepared to discuss Tuesday, May 16, and turn in these questions thereafter)

Ward and Brownlee, *The Life and Death of the Planet Earth*

1. (page 150) Well, we've killed off pretty much all life. Define **galaxy** and **solar system**, and specifically address which one of the two describes a **bigger** thing. Why won't a galactic collision, as hypothesized, *necessarily* affect our solar system?
2. (page 153) My goodness! There's a **black hole** with a mass of two million times our Sun at the center of the Milky Way Galaxy (ours). Why aren't we being sucked straight into it, if it's so large (this is one "ending" you *don't* have to worry about)? (Black holes, as you might recall, are the final stage of a massive star's life; the galactic center black hole did not form from the collapse of a single star. No one quite knows how such a large black hole might form.)
3. (page 158) The implications of this page are profound: what do the comments of this page suggest about the **size** a star should be if any orbiting planet were to have **animal** life? Does this **increase** or **decrease** the chance of finding ETs to talk to "out there"?
4. (page 159) It would be neat to be part of a **supernova**. However, it seems like that will not happen; the Sun is not massive enough, according to the book. Why is there a **minimum size limit** for a star to go supernova? Find an astronomy textbook or website that will tell you the answer and **cite the source**.
5. (pages 162 and 163) How does the **moon** literally end? How does the **Earth** end?
6. (page 168) An English question: The authors mention the book *On the Beach* by Nevil Shute. It is a fascinating look at the consequences on a small group of humans that survives an all-out nuclear war. We probably should have assigned this book as part of the reading for the course. Find any source (including your classmates who have read it already) and tell me how the novel **ends** (I mean the plot, not the last words). (As a side point, *absolutely do not rent* the movie – it makes this topic *boring*).
7. (pages 169 through 173; Davies, pages 1 and 2) Excellent descriptions of the consequences of a comet striking the Earth. But why a **comet**? (That's a rhetorical question). In fact, they point out that it was a ten-kilometer-wide **asteroid** that caused the dinosaurs to go extinct. What's the difference between a comet and an asteroid? (That's a real question). Explain if an asteroid impact or a comet impact is more devastating. Hint: see http://news.nationalgeographic.com/news/2003/01/0128_030128_comets.html
8. (pages 169 through 173; Davies, pages 1 and 2) Apart from being a longer account, what **additional effects** of cometary impact do Ward and Brownlee note that Davies does not? Describe **at least four similarities** between either account of a comet impact and the description given in Revelation 16:18-21; might it be reasonable to conclude that the writer(s) of Revelation may have seen or have heard of a tale of an impact?

9. (pages 174 and 175) Are **gamma rays** part of the electromagnetic spectrum, along with visible light and radio waves? If so, what makes them **different** from visible light and radio waves, and why can this difference be **lethal**?

Davies, *The Last Three Minutes*

10. (chapter 4) What's a **supernova**? What causes a star to "go supernova"? Will the Sun go supernova? How do we know the answer to the last question?