

HONORS BIOLOGY SUMMER ASSIGNMENT

2009



The Hot Zone, Richard Preston, ISBN: 0-385-47956-5



"the single biggest threat to man's continued dominance on the planet is the virus."

Josh Lederberg, geneticist. Nobel prize

laureate

This is due in my hand on the first day of class at the beginning of the period

Directions:

After reading The Hot Zone, I would like you to critically think about the situation of which you have read. In order to do this you will need to complete **both** parts of this assignment, so we can generate some interesting and stimulating class discussions the first week of school.

All responses must be typed in times new roman font, size 12, double spaced, with all page margins no larger than 1 inch. If you do not have a computer, I suggest you visit the public library, or open a free account at St. Mary's College of Maryland library.

Part One

Part one should be only ¾ - 1 page in length total using the guidelines in the box above.

- After reading the Non-fiction book The Hot Zone, write a **short summary** of the book. Include major events and the general chronological timeline of the described events. Do not include many minor details in this section.
- Give **your response** to the events described in the book. How did you feel about what you read? What would you do if a lethal disease was detected in your area? What would you do if a close relative (same house) contracted a deadly contagious disease?

Part Two

I would like you to give me **your thoughts on two of the four quotes** included in this part of the assignment. Each **response should be around ¾-1 page in length- no more**

- It has been hypothesized that the most likely source of the Ebola virus is in Kitum Cave in western Kenya. Viruses are parasites that typically spend part of their life history in one organism which they do not harm, and part in another host organism. **Read the following quote from the book and comment on the possible sources of infection from which one could contract Ebola. Include how easy or difficult it may have been for Monet to "catch" Ebola.**

Monet and his friend wandered through the cave, shining their lights on petrified rainforest. Did he run his finger over the stone trees and prick his finger on crystal? They found petrified bones sticking out of the ceiling and walls.... There were spiders hanging in webs among the logs.

The spiders were eating moths and insects. Over [the ceiling] hung a velvety mass of bats which had fouled the pillar with black guano- a different kind of guano from the green slime near the mouth of the cave. These bats were insect eaters and the guano was an ooze of digested insects. Did Monet put his hand in the ooze?

- 2) There are those that think that the application of modern science is a “cure all” for the potential hazards of Mother Nature. Read the following excerpt from Ed Regis’ book Virus Ground Zero: Stalking the killer Viruses with the Centers for Disease Control. **After thinking about the quotes give your reaction regarding your views based upon what you have read in the book. Do you agree or disagree, and why or why not?**

Regis write, “Ebola is absolutely no danger to the world at large. It is a dangerous virus, but it’s relatively rare and quite easily contained..... The media is scaring the world out of its wits, and movies like *Outbreak* are doing people a disservice.”

A physician who was interviewed after an Ebola outbreak reports “...in the end, Ebola killed less than 1/10 of 1 percent of [the] population-300 people out of half a million, in a crowded city with poor medical care and abysmal sanitary conditions. [After the outbreak], they cleared out and carefully disposed of the vomit, urine, excrement, dirty needles, and dead bodies, liberally applying bleach solution to everything.”

- 3) “Moving targets” are notoriously hard to hit. **Read the following excerpt and give your reaction regarding the difficulties (as you see them) of trying to come up with a treatment or cure for a virus such as Ebola. Most viruses behave in the same manner as the AIDS virus does in the following passage.**

The AIDS virus is a fast mutator; it changes constantly. It is hyper mutant, a shape shifter, spontaneously altering its character as it moves through populations and through individuals. It mutates even in the course of one infection, and a person who dies of HIV [AIDS] is usually infected with multiple strains, which have all arisen spontaneously as mutants in the body... The AIDS virus and other emerging strains [like Ebola] are surviving the wreck of the tropical biosphere [destroyed rainforest] because they can mutate faster than any changes taking place in their ecosystems.

- 4) The “GAIA hypothesis” states that the Earth is actually a living organism, and maintains all of the conditions necessary for its survival like any other single organism. The Earth is also prone to all of the ills as any other single organism. **After reading the following excerpt, give your reaction to the thoughts presented by Preston regarding the “actions” of the Earth. Do they make sense? Why/Why not? Give one or two other examples of the Earth reacting to its environment.**

The emerging viruses are surfacing from ecologically damaged parts of the Earth. Many of them come

from the tattered edges of tropical rainforest, or they come from tropical savanna that is being settled rapidly by people... I sense, Earth is mounting an immune response against the human species. It is beginning to react to the human parasite, the flooding infection of people, the dead spots of concrete all over the planet, the cancerous rat-outs in Europe, Japan and the United States, thick with replicating primates, the colonies enlarging and spreading and threatening to shock the biosphere with mass extinctions. Perhaps the biosphere does not "like" the idea of five billion humans... Nature has an interesting way of balancing itself... The Earth's immune system... is starting to kick in.

To paraphrase the words of Dorothy: "Marburg, Ebola, and AIDS... OH MY



Have a great summer break- Mrs. Denham

