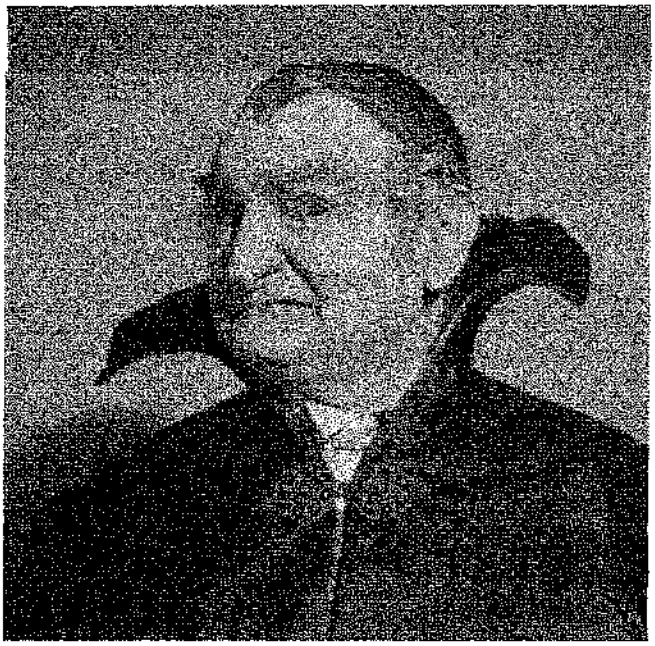

Physicists Prove That Vampires Could Not Exist

Two physicists have published an academic paper where they demonstrate, by virtue of geometric progression, that vampires could not exist, since they would almost immediately deplete their entire food supply (a.k.a, all of us).

If you've ever read *Salem's Lot* (or seen the lame Starsky and Hutch-era miniseries adaptation starring David Soul), then you know that after a vampire decides to settle in your town, the undead begin to multiply at an alarming rate (he bites two friends, who bite two friends, and so on, and so on...).

Putting aside for a moment the issue of how that would impact neighborhood property values, this phenomenon raises an even more pressing question: If vampires are indeed living (unliving?) among us, then shouldn't we have seen an undead population explosion by now?

Fortunately, our best minds are on the case. Physicists Costas Efthimiou and Sohang Gandhi's paper "Cinema Fiction vs. Physics Reality" offers a full explanation.

Efthimiou and Gandhi conduct a thought experiment: Assume that the first vampire appeared on January 1, 1600. At that time, according to data available at the U.S. Census website, the global population was 536,870,911. Efthimiou and Gandhi calculate that, once the Nosferatu feeding frenzy began, the entire human race would have been wiped out by June 1602 (thus forever changing the course of history by preventing the invention of the slide rule eighteen years later).

The physicists note:

Another philosophical principal related to our argument is the truism given the elaborate title, the anthropic principle. This states that if something is necessary for human existence, then it must be true since we do exist. In the present case, the nonexistence of vampires is necessary for human existence. Apparently, whomever devised the vampire legend had failed his college algebra and philosophy courses.

Oooh, snap! But, this gauntlet had been barely thrown down before it invited a rebuttal from mathematician Dino Sejdinovic. In his article, "Mathematics of the Human Vampire Conflict" (Math Horizons, November 2008) Sejdinovic faults Efthimiou and Gandhi's logic, since they have not "accounted for the birth-rate of non-vampires and death-rate of vampires (actually the death-death-rate since they are already dead, but when they die again they should stay dead but stop being living) due to close encounters with stakes, garlic and holy water." Moreover, "vampires are presented exclusively as greedy consumers: a rational strategy of managing their human resources is not considered."

Here, Sejdinovic cites the pioneering research conducted by Austrian mathematicians Richard Hartl and Alexander Mehlmann, who published the landmark 1982 paper, "The Transylvanian Problem of Renewable Resources," later followed up by "Cycles of Fear: Periodic Bloodsucking Rates for Vampires" (Journal of Optimization Theory and Application, December 1992). Hartl and Mehlmann argue that vampires would never be stupid enough to deplete their entire food supply, and by applying the *Hopf-Bifurcation Theorem (don't ask), they demonstrate how vampires can adopt an* optimal "cyclical bloodsucking strategy."

However, there is a serious flaw in the Hartl and Mehlmann model: The assumption that human beings would be docile prey. Their research provoked an outraged response from economist Dennis Snower, who in his article "Macroeconomic Policy and the Optimal Destruction of Vampires" (The Journal of Political Economy, June 1982), declared:

One wonders what conceivable interest the authors could have had in helping vampires solve their intertemporal consumption problem. The implicit assumption of the Invisible Hand (or Fang)-whereby vampires, in pursuing their own interests, pursue those of human beings as well-is of questionable validity. The study by Hartl and Mehlmann is not concerned with the macroeconomic implications of blood-sucking behavior modes. Nor does it consider the policy instruments whereby human beings can protect themselves from vampires. Instead, humans are modeled as passive receptacles of blood whose cultivation and harvest are left to vampire discretion.

Hooyah! Snower argues that the mortal world can manage its resources in a manner that keeps the undead population in check, while simultaneously promoting long-term economic growth:

A transfer of labor services from the widget sector to the stake sector reduces human welfare at present but may raise welfare in the future (since an increase in stake production reduces the vampire population and thereby increases the future labor force whereby future widgets may be produced).

Still, I'm not entirely confident in Snower's conclusions-not least because his complex mathematical proof indicates that the complete destruction of vampires would not be "socially optimal." (And you wonder why economics is known as the dismal science?)

In fact, all of these models rest upon the assumption that vampires are at the top of the undead food chain. Who says that the blood-sucking population is not kept in check by something that preys on vampires? Time to consult the zoology journals.

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