

A Response to the March 31, 2005 Wall Street Journal Article from Mark Ludwig

Dear Ms. Low and Mr Fields,

I am writing you in reference to your March 31 article about American Eagle Publications, Inc. in The Wall Street Journal. You seem to be trying to rouse up some kind of feeling that "there ought to be a law against that".

Now I realize that reporters in America tend to march in lockstep with the needs of the establishment, and I know that there are a lot of people in the establishment that want some kind of law. They've been trying to pass such laws for years. As such, I'm not surprised at the article. It is only one of many over the past 15 years. What I am surprised about is your feeble efforts to make contact with "the other side of the story". You simply say "Mr. Ludwig couldn't be reached for comment", however your use of "couldn't" is bold, to be polite. There are several email addresses on the site, including my own. Evidently you didn't look very hard or try very hard. (At least your readers have been somewhat more successful in that endeavor.)

In any event, I have contacted you now.

It would also seem that you didn't make much of an effort to find out why I publish this material. The not-so-implicit assertion in your article is that I simply do it to make money. However, I would like to ask you if you think there could--just possibly--be some deeper reasons to my actions: I mean, why should a Ph.D. physicist who got through MIT in two years, who is independently wealthy, and whose hobbies include innovative architecture and theoretical research in high energy physics give a damn about "hawking" viruses?

Clearly, you didn't look into that possibility too much either. If you had simply read the descriptions of some of my books in the American Eagle site, I think it would have raised that possibility in your minds. If you had taken the time to read some of my books, you would have probably thought twice about what you wrote.

Really, this is a fundamental issue. From your article, one gets the impression that you think the bill of rights is flawed in the area of free speech, and it needs to have its wings clipped. Are you aware that a similar issue was raised in France at the publication of my books, and that the matter went to the Supreme Court of France? Are you aware that in that case the french government said this was like putting Gallileo on trial again?

I realize that America is very much concerned about potential terrorism at this time, but don't you think somebody has to ask whether it is worth destroying what America is and what made America great for the sake of a moron with a gun? When America was founded, the ideals that went into its founding were generally considered to be a light to all nations. Rights were understood to be inalienable--something that couldn't be taken away by the machinations of men or their laws. This is no longer the case today. In the name of anti-terrorism, etc., non-US citizens have been robbed of those rights once considered inalienable: things like the right not to be imprisoned without being formally charged with a crime. This change went almost unnoticed in the furor after 9-11, however it was a huge shift in basic philosophy. What it says to me is that America no longer cares to be a light to the nations, and to espouse principles that lead to freedom, truth and goodness, but rather to espouse the base idea that might makes right. The problem is that such principles are good for survival only if you happen to have the might . . . and that can change with time. Nobody seems to understand that, and nobody seems to think about the fact that people all around the world who once turned to America for light in the darkness of their own societies can no longer do so . . . at least not on this point.

One of the fundamental principles of America has been the freedom of thought, and the right to speak or publish those thoughts. The whole point of guaranteeing such freedom is that people can have thoughts and ideas that others may argue with or disagree with, and the immediate popularity of an idea is not a good indicator of its value. The founders of our country were only too

familiar with this problem in a religious context. The pilgrims came to America because they were persecuted for their ideas about religion. A number of the founding fathers were intellectuals and tried to think through their religion and reject worn out traditions for the sake of truth. They knew that in another age, they would be burned at the stake for that, and they didn't want to see America crucifying people for ideas just because those ideas held a certain amount of danger for the establishment.

I honestly believe it is these ideas that made America great. Freedom of thought encourages thought. It encourages ideas, and ideas encourage more ideas. The freedom to do what you want with your own property encourages people to build and grow from generation to generation. In combination, these ideas have been a foundation for the greatest advances in human civilization in all of history. If you throw them away, though, you destroy what has made America great. With it you will throw away America's greatness. It will wan thin and collapse.

Let me explain: As I said, architecture is one of my "hobbies". With my background in physics, and my ability to tackle extended, difficult problems, I can do things that ordinary architects can't. In the United States today, it is practically impossible to practice innovative architecture if you want to go beyond paper. With all the building codes and regulations, the government won't let you build what you want to build, and especially, they won't let you experiment. This effectively closes peoples' minds. Architects are forever reworking the little boxes people live in and kowtowing to the demands of style and show-off. The lack of freedom here closes their minds. They don't think about the things they're not allowed to think about. They don't think innovative thoughts. They think petty thoughts. By and by most of them become petty men who can only think petty thoughts, worms grovelling in the dust. As the trend continues, we breed a nation of petty men who can only think petty thoughts . . . and who tear down and destroy anyone who has more than petty thoughts. In the end, though, America will become an also-ran, and another country will seize the day. Another country will go to the stars. Another country will develop the super-weapon that will command the world. Another country will build the fabric of our daily lives. (Go into any store and see where the bulk of the things we buy are made already.)

My own solution was to leave the country. I'm working to design the buildings people will live in when they populate the oceans and when they populate the stars. I'm just doing it in a place where I am free to build what I want, when I want, and that isn't America.

Anyway, back to computer viruses: Most people have decided that computer viruses are bad, and the best thing we can do is to suppress them. Make sure people don't have virus code hanging around. Make sure the knowledge of how they work doesn't get abroad, etc., etc. Could this really be stupid and short sighted though?

Have you considered the immensity of what has happened in the past 50 years? It is tantamount to a second creation event. Man has created a world, if you will, called cyberspace, and populated it with life--simple organisms to be sure, but fully capable of both reproduction and Darwinian evolution. In the space of 25 years, these life forms have gone from the simplest imaginable conceptual models that never made it out of the laboratory to very successful models that have been able to reproduce millions of times in an hour and fill the internet.

The stupid response is to blot them out. They're bad. By the same argument, why not blot out all life in the universe, since it just contributes to the entropic decay of the universe? Yet the stupidity is not just philosophical. It is technical too. Simple viruses can be blotted out, yes. However, one of my fundamental contentions is that, since a virus can reproduce using something akin to a genetic code, there could be a sort of "flash point", where the normal reproduction we are used to is strongly augmented by Darwinian evolution. It is very similar to our handling of diseases. A simple virus like small pox could be effectively eliminated by an aggressive inoculation program. When we try to wipe out TB and malaria though, we get a potentially dangerous side effect: although our drugs can help many people, they also produce treatment-resistant strains that are more virulent than what existed before.

What if something like that happens the next time? Suppose some petty-minded anti-virus

"expert" releases his quick-fix for the latest virus. His anti-virus company is driven by the market. They have to release a fix within an hour of the attack becoming known. If they can do that, they won't lose customers to somebody else who beats them, and they may catch a few thousand new customers besides. So the antivirus experts hawk their solutions, however this time, evolution kicks in. The population of the virus drops to 1% of what it was, and everybody breathes a sigh of relief. Soon it will be over . . . or so they think. The 1% that is left, however, has developed an evolutionary strategy to beat the anti-virus programs. In a few hours, the population is twice what it had been originally. The anti-virus developers go back and create another one-hour fix. The scenario repeats, only this time the population drops to 2% of the second peak. The anti-virus developers go around like this a few more times, but rather than getting better at beating the virus, they're losing the battle. The networks of the world are clogging up. The virii have found their way around firewalls and across barriers once thought impervious. Computers around the world are shutting down. Banking and the military are shut down. Communication lines cut, the ability to fight the virus is at a standstill. For all intents and purposes, the virus has won.

From a scientist's point of view, according to our present understanding of the laws of nature, there is no reason why this couldn't happen. The potential that a few human minds (the people who do anti-virus work) would be no match for the creative power of a hundred million multi-gigahertz computers doing Darwinian evasion is very real. A century ago nobody dreamed that a machine could perform a simple calculation like $5 \cdot (2+3) \cdot 8/2$ faster than a computer. It wasn't too long ago that nobody seriously thought a computer program could do calculus faster than a man.

If nobody knows anything about computer viruses except that they are bad, then you will be without hope when this day dawns. And if somebody doesn't make that information known because there is a law against it, nobody will know anything about them, except the select few who have made themselves pea-brained idiots in order to get the permission to come into the inside circle. None of them will be creative thinkers, and none of them will be a match for the hundred million machines.

Now, add to this the possibility that there are people in the world who would be perfectly happy to see such scenarios come to pass, and who might well attempt to push things over the edge in this direction. They might be misanthropes. They might be terrorists who would like to see the technologically advanced nations take a nosedive.

In short, our knowledge of computer viruses is about at the level of a witch doctor's knowledge of medicine. He might have a few herbs that work by experience, and a lot of hocus pocus to wow his customers, but he knows nothing of the theory or the possibilities in the wide world.

My work on computer viruses has been to make some of the basic knowledge of how they work known in an accessible, systematic format, and also to explore some of the possibilities and problems discussed in this letter. This includes the "Outlaws" CD which you mention in your article. I defend it because it is essential information for anyone who takes an interest in these things. I mean, what would you think of a marine biologist who had lived all his life in the desert, and had never actually seen a fish? Would you entrust yourself to a surgeon who had never opened up a human body before?

Science requires the free exchange of information. I am trying to make sure that free exchange takes place. Otherwise the science that could save your skin someday will never grow up. You criticize the way I market the CD, however you must realize that I have done nothing but state the facts. You must also realize that it is the antics of all of the people who want to silence this knowledge who make such marketing necessary. I'm not looking for establishment types to buy this because they're just too far gone. Instead, I have to find people who are interested in viruses wherever they are, and offer them something that will pique their interests, and hopefully further their interests. That is my freedom as an American, and I believe that freedom in this particular case will be hugely beneficial to mankind in the long run.

I hope you'll think hard about what I have said here. It's important. And when you do, I hope you'll write an article discussing why we need a science of computer viruses instead of a law against

them.

Sincerely,

Mark Ludwig
American Eagle Publications, Inc.