

This is the final section—the Afterword—of the book *Making the Dragon: How I built the first action-adventure game, planted the first Easter Egg, and helped launch the video-game revolution*, by Warren Robinett. (See [warrenrobinett.com/adventure](http://warrenrobinett.com/adventure) for more information on the full book.)

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## ***Monsters and Morons— and the Future of Interactivity***

Now, 40 years after the glorious beginning of the microcomputer revolution—and 40 years after the design of *Adventure*—it is time to pause and take stock.

Now, in 2018, we can make computer-mediated interactive experiences. We have the computing power to simulate complex phenomena. We have the Internet. We have virtual reality. There are many things happening. There is rapid change.

Yes, Silicon Valley has changed the world.

Yes, the amount of money generated has been, and is, staggering.

Yes, Silicon Valley was very good to some of the young nerds who journeyed to California: a few young billionaires were minted in that fiery and turbulent forge, and many more mere millionaires. One of them was me.

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Yes, Silicon Valley is changing the world. But are these changes actually beneficial for us?

*I don't think we yet fully understand the potentialities—or the pitfalls—of interactivity.*

Look what we use it for.

A. Today, **game developers** seek to bore players to death, so as to get big spenders on in-game purchases (called "whales") to buy their way past obstacles; this strategy is more profitable than making and selling games that are fun to play.

B. Many **product search engines** take under-the-table bribes from vendors to have their products up-voted. This is their business model. They are only pretending to help users find the best products and the best deals. This strategy is more profitable than helping users find the best products.

C. Most websites have **click-bait** (provocative paid ads), which lead either to porn, or to misleading information. Website owners get paid per-click. Click-bait never leads to neutral, truthful facts; doing this would be a money-losing activity, because advertisers have to pay for each click.

D. Some of the **"news" outlets** seem to be mostly vehicles for scaring voters, and planting (often untrue) talking points in the heads of their viewers. The fear-mongering news sites make huge profits. Truth and moderation are not profitable. In spite of their outrageous lies and distortions, the fear-mongers have convinced their viewers that they alone are the courageous truth-tellers and defenders of freedom. They feed the faithful "fake news" while cynically branding all other news outlets as fake news. The faithful

rage, on cue, to daily provocations—securely isolated within the echoing castle walls of their news-site's information silo; and they roar their rage at one another. The owners of these propaganda outlets are billionaires; and their talking heads have become extremely wealthy. Fake news is a better money-engine than neutral news.

E. **Search engines** give you free email, and record every click you make and every word you type. No, sorry, that was the NSA that records every word; the search engines only get 90% of what you say and do. Both construct profiles of your activities, beliefs, medical history, college hijinks, memberships, relationships, etc. The search engines sell these profiles to anyone who will pay. They use them to target ads to people with certain profiles. They know what you want. They know what makes you angry. They know what you believe. They know about your tiny little crevices of doubt. Of course they do: their bots have read every email you sent for the last 10 or 20 years. The owners of the search engines are billionaires; collecting this information, and using it, is their business model. This strategy, too, is a powerful money-generating engine. Fiduciary duty to their shareholders demands that they continue to exploit the profiles of their users.

F. **Social media** sites also read your email, and build profiles of their users. They sell these profiles, too. It is easy to set up accounts, and pretend to be someone you are not. It is easy to invent fake news, and post it. There is no way to verify what is true, and what is not. They don't even know the true identities of the posters. Provocative posts tend to go viral. The owners of these social media sites are billionaires, and they are getting richer every day; they are not incentivized to make fundamental changes. They like viral postings that are read by millions. Their shareholders demand continued profits.

*What is wrong with this picture?*

*Something is going badly wrong somewhere.*

Is this what inevitably happens when you mix the profit motive with rapid technological change?

The thing that really bothers me is that the billionaire founders of these high-tech companies are FORBIDDEN to do the right thing, even if they want to do so. They are obligated by their duty to their shareholders *to do whatever makes the most money*. If reporting lies is most profitable, they must do it. If selling user profiles (for unknown purposes) is most profitable, they must do it.

*This pattern of incentives is a recipe for disaster.*

*Is This the Best We Can Do?*

Somebody, please tell me no. Surely there is a better path forward. Or could it be, God forbid, that this is the high-water mark of human civilization?

Is this what happens when humanity acquires instant, high-bandwidth, global communications?

Are we already screwed? Is greed—ungoverned by heart or brain—the most powerful force in the universe?

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Well, old habits die hard. And I, for one, refuse to accept this.

## *I Refuse To Be A Helpless Victim*

I refuse to sit passively and watch the greedy and the power-mad pick apart American democracy, institution by institution.

I refuse to sit and watch the blatant lies that pass for news, and do nothing to counter them.

I refuse to sit passively and watch our air, rivers, and oceans be poisoned, simply to further enrich a few fabulously-wealthy megalomaniacs, who are passionately committed to a deeply-held political philosophy—getting more money for themselves.

I refuse to watch the important scientific fact of human-caused climate change be ridiculed and denied by greedy power-mad liars.

I refuse to sit passively until it is too late to stop the planet from over-heating.

I refuse to sentence my grandchildren—and everyone else's grandchildren—to a life sentence in a hellish prison, from which there is no escape.

That hellish prison is approaching faster than you think.

"Hellish prison" is just another way of saying "dying planet."

## *How to Undo This Mess*

I have to hope that I am not alone, nor part of some small minority—but that many people feel the way I do. We have to do something to get out of this fix. We cannot just sit passively in the rowboat waiting to be swept over the waterfall's edge.

As John Lennon put it:

*You may say I'm a dreamer,  
but I'm not the only one...*

So here is the plan I am proposing.

I am calling out to my tribe—the nerds of America, and the world.

The world needs you.

To my fellow Americans, I would like to say "Your president needs you."—the classic call to patriotic duty—except for the small problem that your president does not need or want you to do anything. Your president is a lying, vainglorious, morality-free, treacherous, and greedy bastard. The only way he is worth 10 billion dollars is if he doesn't count the 15 billion he owes the Russians. Even through the flattering lens of Fox News, you can see that there's something wrong with him. Our president admires dictators, and wants to join that exclusive club. Our president is part of the problem. But he is not the cause of the problem. He is a symptom.

So again, I call out to my tribe—the nerds of Planet Earth.

## *Nerds, Wake up!*

There are evil bad guys trying to kill your planet. And Mother Earth is the only planet we've got.

This is not a drill.

Our planet's chances to survive this crisis are roughly equivalent to those of Captain Sullenberger\* when both engines of his Airbus A320 aircraft shut down—instant decision and corrective action are required to survive.

But Sullenberger had the advantage that his cockpit instruments were not lying to him. No one had rigged up a sound system to make fake engine noise when the real engines went silent. There was no way to generate fake acceleration, when the "seat of his pants" told him the engines' massive thrust had shut down.

There may, or may not, exist a trajectory that provides our planet a "safe landing." Some say it is already too late. I say those are the words of a helpless victim; the situation is complex, and we have to assume there is a way to survive. However, most climate scientists do agree that we are quickly running out of time.

Nerds of Planet Earth: Have I got your attention?

Let's review the complex of problems we face. But first...

### *A Moralistic Digression*

Killing the planet is a mind-boggling act of EVIL.

There is no religion in which killing the planet is presented as a good thing.

If you're not worried about our planet, you're either a monster, a moron, or... um... a buffalo.

- You're a monster if you don't care that the planet is being killed.
- You're a moron if you've looked at the scientific evidence, and don't believe it.
- But what does it mean to be called a "buffalo?"

A "buffalo" is a dumb animal that can be stampeded to its death by hunters. To explain...

Herds of buffalo were regularly driven over cliffs by the Blackfoot tribe of Western Canada, in the days before Europeans came to North America. Many tribes did this. Such a cliff was called a "buffalo jump." Here is how it worked.\*

The Blackfoot hunters herded the buffalo toward the cliff, often from miles away; and then the buffalo were stampeded over the cliff, breaking their legs. Tribe members waiting below then killed the buffalo with spear and bow. This type of hunting had been going on for 10,000 years at the time of Columbus. The hunters believed that if any buffalo escaped from one of these slaughters, then the rest of the buffalo would learn to avoid humans, and become much harder to hunt. Therefore they made sure to kill every single buffalo that went over the cliff.

Returning to the morality sermon... Very few people are truly monsters. And reasoning with monsters is futile, anyway.

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\* [https://en.wikipedia.org/wiki/Chesley\\_Sullenberger](https://en.wikipedia.org/wiki/Chesley_Sullenberger)

\* [https://en.wikipedia.org/wiki/Buffalo\\_jump](https://en.wikipedia.org/wiki/Buffalo_jump)

If you've already studied the scientific evidence and don't believe it—you are truly a moron. But more likely, you were shown a very short and distorted version of the science, by a highly-biased talking head. In that case, having seen only the dumbed-down fake evidence, you are a buffalo.

The next section is for buffalos—those who have never truly looked at any of the scientific evidence for climate change.

I'm calling you a buffalo because you are being stampeded off a cliff by fear-mongers who are hiding the real dangers from your eyes.

### *Some Scientific Evidence: the Keeling Curve*

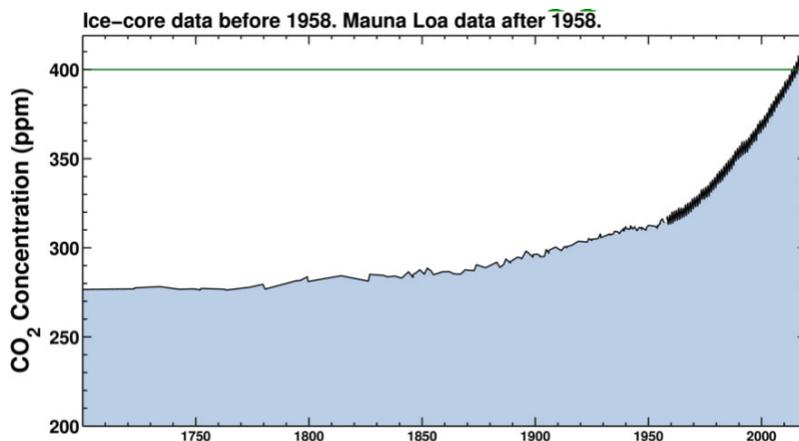
If you actually look at it, the scientific evidence for climate change is pretty simple to understand.

The curve below, called the *Keeling curve*

(see <https://scripps.ucsd.edu/programs/keelingcurve/>)

shows the atmospheric concentration of carbon dioxide (CO<sub>2</sub>) for the last 300 years or so—from 1700 to 2018.

*CO<sub>2</sub> Concentration: Last 320 years, in ppm (parts-per-million).*



You can see that the CO<sub>2</sub> concentration—or CO<sub>2</sub> level— wasn't changing much back in the 1700's, but it started edging up in the 1800's. Since 1900, and especially since 1950, it has gone up a lot. Notice that the CO<sub>2</sub> level passed 400 ppm just a few years ago.

This curve gives the best current scientific data estimating the world-wide CO<sub>2</sub> concentration in the Earth's atmosphere as a function of time.

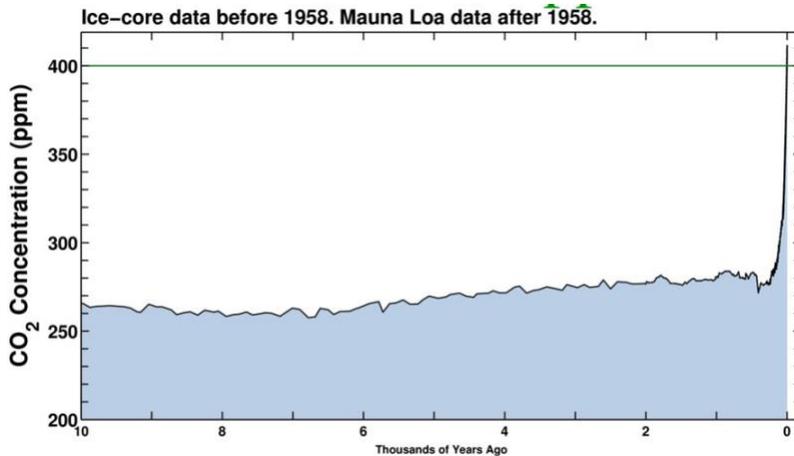
This is good data, the best science has to offer, and it is the truth. I am not going to debate its validity here, but if you have doubts, you can go to the Scripps Institute website given above, and read what they have to say. A good place to start would be the article "Is the Current Rise in CO<sub>2</sub> Definitely Caused by Human Activities?" (Its first sentence is: *The rise in CO<sub>2</sub> is unambiguously caused by human activity, principally fossil-fuel burning.*)

But if you've watched Fox News every day for the last 15 years, there is no way you are going to listen to simple unvarnished facts—so why don't you go jump off a cliff?

Most Fox News viewers will walk away—so strong is its hypnotic power—so I will carry on with those readers willing to learn some important facts about the patterns of change in the Earth's climate.

The Keeling curve website lets you look at the changes in CO<sub>2</sub> level over different time-scales—the plot above was for the last 320 years, and below we see the plot for the last 10,000 years.

*CO<sub>2</sub> Concentration: Last 10,000 years.*

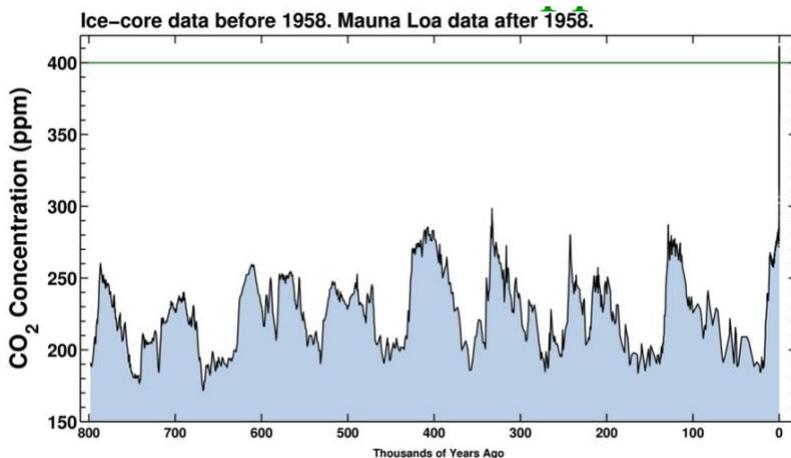


The graph shows that, for the first 9½ of the last 10 millennia, there was some slow change and some fluctuations—but in the last 500 years, there was an abrupt spike upwards.

Not much change for 9500 years, then an abrupt rise to over 400 ppm.

Interestingly, when we look at an even longer time-scale—800,000 years—we see a much different picture.

*CO<sub>2</sub> Concentration: Last 800,000 years.*



What is going on here? What you see here are the last nine or so *ice ages*. The ice ages match up with the dips in the CO<sub>2</sub> concentration (when glaciers covered much of the planet, the atmosphere was colder, causing the CO<sub>2</sub> concentration to drop).

There is considerable variation in this graph of the CO<sub>2</sub> concentration. But for the first 799,000 of this 800,000 years, the CO<sub>2</sub> level stayed with the range of 170 to 300 ppm. The spike to over 400 ppm is still there, though—and can be seen as an almost vertical line on the graph's right side.

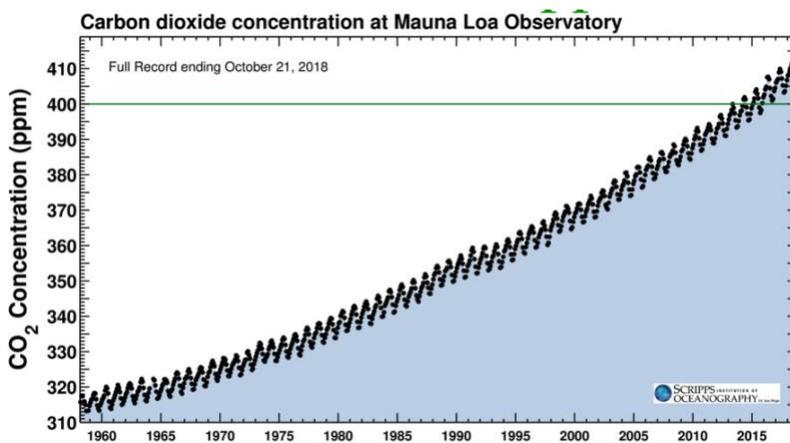
What do we learn from these three graphs of CO<sub>2</sub> level across different time-scales?

1. The current level of CO<sub>2</sub> concentration in our atmosphere is much higher than it has ever been in the 799,900 years preceding the last 100 years.
2. Yes, there was historical variation in the CO<sub>2</sub> concentration levels in the past; but during the ups-and-downs of nine ice ages, it never got above 300 ppm. Yet it is now above 400 ppm.

To say that the climate is always changing is true. But this does not contradict the data showing that the CO<sub>2</sub> level is higher now than it has ever been during the last 800,000 years. Climate change has patterns that are fairly easy to see, when you actually look at the data.

Another obvious pattern is shown in the graph below, which covers a much shorter time period—the last 60 years. We see that there is a seasonal—that is, annual—variation in the CO<sub>2</sub> level. (The main cause of this seasonal variation is that the Northern Hemisphere has more land area than the Southern, and the plants of the Northern Hemisphere pump out more CO<sub>2</sub> in the northern summer, than do the (fewer) plants of the Southern Hemisphere during the southern summer.)

*CO<sub>2</sub> Concentration: Last 60 years.*



Clearly, the regular seasonal variation is superimposed upon an increase in the CO<sub>2</sub> level over the last 60 years. It was below 320 ppm in 1958 and is now, in 2018, above 400 ppm. The seasonal variation is about 10 ppm.

No one who accepts this data as valid could say that the CO<sub>2</sub> concentration in the Earth's atmosphere is not increasing.

So the monsters do two things. They don't show this data to their viewers, ever. And they claim that the scientists collecting the data are lying. But, in fact, it is the monsters who are lying.

### *The Run-Away Greenhouse Effect*

And why do we care about the increase in the CO<sub>2</sub> level?

Because once it gets fully started, we cannot stop the Earth from getting hotter and hotter. The sky becomes filled with more and more clouds. The heat from the sun is absorbed by the Earth, but it is less able to radiate

the heat away into space. The increasing heat creates more clouds. The heat increases further. It gets hotter, and hotter, and hotter.\*

Where does this stop? Take a look at our sister planet, Venus, which is perpetually shrouded in impenetrable clouds. The average surface temperature, beneath the clouds on Venus, is 460 degrees Celsius—or 860 degrees Fahrenheit. Earth, being farther from the sun, would only get up to 250 °C (482 °F). This is hotter than the setting I use in my oven—350 °F—to roast a turkey on Thanksgiving Day. This is what may well happen to the Earth.

Of course, few (if any) humans would live to see the Earth reach the 250 °C stage of the Greenhouse Effect. We would be dead and gone.

Naturally, the monsters deny every step in the horror story I have just told you. But, once again, the story is true and the monsters are lying to you.

### *The Snake-Pit of Problems*

It is, I admit, a complicated mess of intertwined problems that we are facing. But defining the problem is the first step towards solving it. Here are some of the big ones.

- Human-caused climate change is going to kill the planet, unless we rapidly take action.
- The increase in global temperature will cause global food production to decrease. Starvation will set in before the heat itself kills us.
- People will not sit quietly and starve—there will be wars.
- There will probably be nuclear wars—the other way to kill the planet. People lacking food, but possessing nuclear weapons, will make demands. As the food supply decreases, the situation will worsen.

Solving any of the above problems is mixed up with informational problems.

- Corruption of news organization into propaganda-spreaders; and the difficulty of truth-checking.
- Integrity of elections, and the potential failure of American democracy.
- The dangers of unrestrained capitalism, unchecked by rules or laws.

I, myself, do not know how to solve these problems.

But I know that they will not be solved unless a great effort gets started very soon by a great many smart people.

Somebody has got to blow the trumpet—and no, I am not talking about the president's latest mistress.

Somebody has got to climb up and light the signal fire that summons every ally we've got.

We've got to get started somehow.

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\* Stephen Hawking, Chapter 7: Will We Survive on Earth?, *Brief Answers to the Big Questions*, Bantam Books, New York NY, 2018.

## *A Call to Action for Nerd-Kind*

Inadequate as it may be, here is a plan for getting started. I hope that cleverer people than me will improve it, or come up with a better plan, and better ideas. But we have to start.

The alternative is... unthinkable.

Are you listening, nerds of the world?

Here are some things we've got to do. And that means things that you—nerd-kind collectively—have got to do.

1. *Re-invent the news.* Get rid of the professional talking heads, and newsbabes. Find a way to check the facts. Immediately identify lies, and call them out as lies. Eliminate the perverse incentives inherent in having the news paid for by advertising. Advertisers want people to watch their ads. So they will flock to news outlets with the biggest viewerships. Exaggeration, outrageous claims, and outright lies have been proven to work to attract large viewerships. We've done the experiment. Now we need a better way. Here's an operational test to see if you're on the right track. On a really dull day, when nothing much happened at all, the news site should evaluate the news items for significance—much as a volcanologist uses the Richter scale to evaluate earthquake magnitude—and if nothing above Richter 3.0 happened that day, the news site should say so: *Nothing much happened today, you can turn me off.*

2. *Support informed, collective, decision-making.* Do it on the Internet. How, exactly, I can't tell you. Figure it out.

3. *Secure American elections from hacking, and from fake news* (from both foreign and domestic sources). Get the vast amounts of corrupting money out of politics. Here I do have an idea. Give both candidates the same amount of air-time. Ban paid political advertising. Find a way to discuss issues, rather than attack the opponent's character. If this sounds hard, it will be. But it is not impossible. Find a way to make attack ads, which are usually grossly exaggerated, no longer effective. Find a way to label lies coming out of a candidate's mouth, in real time, as lies. I'm imagining a purple and orange circle, with a slash across it, appearing round his face.

4. *Use games or virtual reality in history class to teach us more about the despots of the past*—like Hitler, Stalin, Mussolini; as well as our own bad actors like Huey Long and Joseph McCarthy. Become familiar with the behavior patterns and warning signs of wannabe dictators. Learn how the ones that were stopped early were defeated; and what happened when they were not stopped.

5. *Simulate the climate and show what is likely to happen, for various courses of action.* We want a simulation with fidelity here. Explore possible futures, and make an informed choice.

6. *Teach the science behind the climate simulations to the rising generation* with super-computers and computer graphics. This is more important than any game, but it could be presented as a game. Use game technology to teach the math behind the sims, too.

7. *Show us the ugly future, in game form, where rival dictators rule the world, all possessing nuclear weapons.* The setting is a hot planet, that is getting hotter, with crops beginning to fail. This will not be pretty, but it might make us think a little harder about where we are now, and where we want to be in 40 years. If you don't know how to tell a story as grim as this, go read Cormac McCarthy's book *The Road*. Or go watch the 1962 film *Doctor Strangelove*. Where is the Stanley Kubrick of videogames?

## *And Where are America's Tech Billionaires?*

America has five behemoths that dominate the tech business world at present, each with at least one surviving billionaire founder. These guys, all still relatively young, have immense personal fortunes, and having created so much from almost nothing, must know that their actions can have dramatic impacts.

- Amazon has Jeff Bezos.
- Google has Larry Page and Sergei Brin.
- Facebook has Mark Zuckerberg.
- Apple has Steve Wozniak; and though Steve Jobs has died, his fortune has passed to his wife Laurene Jobs.
- Microsoft has Bill Gates; and though Paul Allen has died, his fortune will pass, presumably, to his sister Jody Allen.

Will you eight mega-billionaires do nothing to avert the looming catastrophe?

Are you scared to cross Trump? I can promise you that waiting is not going to make him any easier to deal with.

Your vast coffers of money are not going to save you—or your children—when the world's food supply runs out, and the nuclear missiles come screaming across the sky.

Many in this group have done significant philanthropy. But among them, Bill Gates seems to be the only one who truly realized that a personal fortune of tens of billions of dollars carried with it an obligation to use it for worthwhile purposes.

To these eight billionaires, I offer an old-fashioned idea—you need to give back. *Give back one-tenth of your money to save the planet.* This would be a tithe, analogous to the money asked for—and sometimes demanded by—Christian churches.

Give back in gratitude, for the American entrepreneurial environment that let you amass this money.

Give back to save yourselves, and those you love, from the hellish future that may be coming.

Give back because it is the right thing to do; and the smart thing to do.

## *We Need Everyone to Help: Nerds to the Rescue*

We will need money to win this game, and even more important, we will need good ideas. Do you think that re-inventing the news will be easy? It will not. That's why we need the collective genius to those who invented the microcomputer, and who invented the Internet, and who invented the entire computer industry.

And if you are a tech billionaire, or a mere centi-millionaire, who didn't make it onto the list of the Big Eight above, we need you, too.

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As a case of particular significance, I'm going to single out the creators—Rockstar Games—of the game *Grand Theft Auto*. GTA is a series of videogames, based on the theme of stealing cars, that has, over the last 20 years, earned 6 billion dollars in revenue. It is the biggest money-earner ever, among videogames.

GTA is classified as an action-adventure game. So it is a descendant of *Adventure*.

Six billion dollars? For a game about stealing cars???

You're stuck in a rut making games about stealing cars, when a real-life villain—as nasty and immoral as any villain ever seen—is stealing your planet???

*Where is the game about bad guys so evil (and stupid) that they would try to kill their own planet?*

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The above message is not just for the GTA guys—it's for all of you game designers out there.

The extended childhood has been fun. But now it is time to grow up.

If videogames are truly a new art-form, it is time for games that provide some insight into the real world. This is one of the most important parts of an artist's job: to reflect back reality to readers and viewers and players. And to reflect it back in a way that let's them see things they never saw before.

My art professor at Rice—Mr. Bob Camblin—said it this way:

*A man who works with his hands is a laborer.*

*A man who works with his hands and his mind is a craftsman.*

*A man who works with his hands, and his mind, and his heart is an artist.*

Nerds of Planet Earth: it is now time to use your hands, your minds, and your hearts.

## *Portrait of Evil*

A couple chapters back, I told you that my game *Adventure* contained bad guys embodying *two kinds of evil*.

The bat—which stole your stuff—was an abstraction of *pure greed*, a love of and addiction to money (and the things it buys): an addiction so strong that nothing else has any importance to the addict.

In contrast, the dragons represented *pure rage*—an ungovernable anger that seeks only to kill and destroy. The dragons were berserkers: they sought your death, in a perpetual rage that knew no restraint, and certainly no empathy for the devoured.

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If you think about it, these two archetypes describe some of the major players in current American politics fairly well.

*Pure greed* describes the donor class of the Republican Party. These people embody true evil—a love of money so strong that they are willing to trade the later death of the biosphere for "thirty pieces of silver" in their hands now. They are willing to sacrifice their own grandchildren's futures for more money now. They are already fabulously wealthy, but no amount of money is enough.

*Pure rage* describes quite well the President of the US, Donald J. Trump. He is a berserker—ungoverned by conscience, religion, morality, laws, intelligence, knowledge, or principles.

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Trump is insane, and yet he is President of the United States. Trump is drunk with power, and drunk with the narcissistic gratification he gets from the pomp of the office.

The donor class, perpetually drunk with greed, did get the tax cuts they wanted. But will it be worth it in the long run? Are they really stupid enough to believe the lies that they themselves paid for? Do they not care about their own grandchildren?

Surely some donors must know the truth. Those who know that climate change is real, that the point-of-no-return in the runaway-greenhouse-effect is near, and that the time to act is now or never—those who know this, and yet choose money over the life of the biosphere—these people are truly monsters.

### *Action Items*

Again, here is what I am asking you, nerds of the world, to do.

1. *Re-invent the news.*
2. *Support informed, collective, decision-making.*
3. *Secure American elections from hacking, and from fake news.*
4. *Use games or virtual reality in history class to teach us more about the despots of the past.*
5. *Simulate the climate and show what is likely to happen, for various courses of action.*
6. *Teach the science behind the climate simulations to the rising generation.*
7. *Show us the ugly future, in game form, where rival dictators rule the world, all possessing nuclear weapons, and the food-supply is failing.*

And last, and most importantly, I am asking you to re-invent this list, and improve it, and add to it the items that I should have put on it.

### *And Save the Planet While You're at It*

You cannot tell me that the quest to find a way to save the planet is not a compelling story. And the Holy Grail—the solution to the riddle of how to get humanity to take action to safeguard the Earth, before it is too late—this is a goal and prize of immeasurable value.

We need to create virtual worlds to help us save the real world.

*Nerds of America, and nerds of Planet Earth—arise and go forth to defend Mother Earth, and save her from the evil monsters that seek to destroy her.*

It will not be easy. But the price of failure is very dark indeed...

- No more children listening to bedtime stories...
- No more teenagers courting beneath the moon...
- No more beers on a Friday night...
- No more Super Bowl...

- No more World Cup...
- The Statue of Liberty a melted wreck...
- The Golden Gate Bridge toppled into the Bay...
- The Great Wall of China splintered from the heat...
- The Eiffel Tower gnarled and corroded...
- The oceans evaporated...
- The entire Earth a fiery hell...
- Not a single human left alive...
- The extinction of *homo sapiens*...
- The end-game of the human adventure.

Is this the future you want?

The monsters are trying to drive you over this cliff.

We need to take care of Mother Earth. Because this one, single, lonely blue planet—a tiny speck in the black ocean of endless night—is the only world we have.

*The End?*