

Denialism

- How Irrational Thinking Hinders Scientific Progress, Harms the Planet, and Threatens Our Lives - by Michael Specter
- The Penguin Press: New York, NY, 2009
- Summary by Douglas W. Green, EdD
- dgreen@stny.rr.com

For more go to DrDougGreen.Com 1 If you like this summary - buy the book.

Denialism - What is it?

- We have all been in denial at some point in our lives; faced with truths too painful to accept. Rejection often seems the only way to cope. Denialism is denial writ large - when an entire segment of society, often struggling with the trauma of change, turns away from reality in favor of a more comfortable lie.
- Unless data fits neatly into an already formed theory, a denialist doesn't really see it as data at all. That enables him to dismiss even the most compelling evidence as just another point of view. (Doug: This is consistent with modern learning theory the says we try to make new observations fit with our existing mental models.)
- An example: Crops created through the use of biotechnology are “ Frankenfoods ” and therefore unlike anything in nature. This is an evocative term and so is genetically modified food. There is, however, no such thing as food that hasn't been genetically modified. All the foods we eat have been modified, if not by genetic engineering then by plant breeders or by nature itself. Genetic mutations occur naturally in all living things. Evolution depends on it.

For more go to DrDougGreen.Com

2

If you like this summary - buy the book.

Denialism - The Science Connection

- Specter cites the scientific approach, which he defines as the disciplined and dispassionate search for knowledge as the crowning intellectual achievement of humanity. Denialism couldn't exist without the common belief that scientists are linked, often with the government, in an intricate web of lies. When evidence becomes too powerful to challenge, collusion provides a perfect explanation. For example, a former leader of the Sierra Club was convinced that the government approved genetically modified food in order to guarantee profits for Monsanto.
- Denialism is not green or religious or anti-intellectual, nor is it confined to utopian dreamers, agrarians, or hippies. It is not right- or left-wing; it is a fear expressed as frequently and with as much fervor by Oxford dons as by bus drivers.

For more go to DrDougGreen.Com

3

If you like this summary - buy the book.

Chinks in the armor of science

- Fifty years ago we venerated technology. That vision no longer seems quite so enchanting. A number of well publicized events serve to gradually erode the scientific mystique. Here are some examples:
- In 1969, the heavily polluted Cuyahoga River erupted in flames near Cleveland, creating an indelible image of industry at war with nature. In 1976, Karen Ann Quinlan was removed from life support, igniting the first horrific battle of the modern era over how we live and die. In 1979, the accident at the Three Mile Island nuclear power plant showed that not all effects of the industrial revolution were benign. The thalidomide disaster, mad cow disease, and the dramatic lies of Big Tobacco have all contributed to the sense that the promise of science wasn't always the truth. No matter how you ask the question, at least one in three American adults rejects the concept of evolution.

For more go to DrDougGreen.Com

4

If you like this summary - buy the book.

Vioxx and our distrust of big pharma

- Vioxx was introduced by Merck in 1999 as a medication to control inflammation and pain due to arthritis and other ailments. When it was found that patients taking Vioxx were more than twice as likely to have heart attacks as those taking Aleve, Merck attributed it to the miraculous functions of Aleve rather than a problem with Vioxx. (Doug: It was pulled from the market in 2006. See this link for the story. <http://www.msnbc.msn.com/id/6192603/>)
- The fact that Merck had access to data that showed the problem made some see it as one of the most remarkable breaches of trust in American scientific history. After thousands of law suits, Merck placed nearly \$5 billion into a settlement fund which was the largest settlement ever made by a pharmaceutical company. What person, after watching Vioxx kill her husband, wouldn't say no to the next wonder drug? As a result, a 2008 Harris poll reports that only 27% of respondents somewhat or strongly trust the industry.

For more go to DrDougGreen.Com

5

If you like this summary - buy the book.

Risk has a numerator and a denominator

- Eric Topol was the man who first noticed that the data on Vioxx showed that it was the likely cause of excessive heart attacks. He has since, however, said he would be happy if it were back on the market as long as patients were told their risks up front. He states that “you have to judge risk properly and almost nobody does. You rarely see a discussion of the effect of *not* having drugs available.” Risk always has a numerator and a denominator. People tend to look at only one of those numbers. A recent study showed that Vioxx increased the risk of having a stroke or heart attack by less than one percent. Those are odds that many people would accept.
- We only hear about failures such as plane crashes, Chernobyl, or Bhopal. This has fed the development of unrealistic standards that are almost impossible to attain. If you applied FDA drug approval criteria to driving an automobile, nobody would be allowed to enter one in nearly any American city.

For more go to DrDougGreen.Com

6

If you like this summary - buy the book.

Vaccinations and Denialism

- In spite of many studies that show greater risk to children and populations if children are not vaccinated against common childhood diseases, many people are convinced that vaccines have contributed to the increase in children with autism. Many think it is the ethyl mercury used as a preservative that is responsible. The evidence suggests, however, that if anything, ethyl mercury is associated with a lower autism incidence. A great deal of misinformation is easily found on the Internet, also known as the “University of Google”. Nobody celebrates when they avoid an illness they never expected to get. Humans don’t think that way. Choosing to vaccinate an infant requires faith in pharmaceutical companies, in public health officials, in doctors and above all, in science. By choosing not to vaccinate their children, parents are not protecting them from autism. They are simply putting them at greater risk of contracting diseases that could send them to the hospital or worse. How far will we have to descend into denialism before the fear of disease once again overshadows the fear of vaccines?

For more go to DrDougGreen.Com

7

If you like this summary - buy the book.

The Organic Fetish

- A poll by the author revealed that most people feel that organic produce would improve their health and contribute to a better fate for the planet. At the same time, America's number one food group is sweets and obesity is one of our most significant diseases. There is, however, almost no such thing as natural food for sale in American grocery stores. Even spring water is processed. Food grown organically is assumed to be better for you. Recent studies don't support that supposition. Insisting that we can feed 9 billion people with organic food is nothing more than utopian extremism.
- No continent needs agricultural improvement more than Africa; yet there is no place where fear and denialism are more pronounced.

For more go to DrDougGreen.Com

8

If you like this summary - buy the book.

Complimentary and Alternative Medicine (CAM)

- Forty percent of American adults made use of some form of alternative medical therapy in 2007. They spent \$23.7 billion on dietary supplements alone. It has been one of America's biggest growth industries. These supplements don't have to undergo the same testing that the FDA requires of medicines. You can't advertise a product as a supplement that reduces cholesterol, but you can mention that it maintains healthy cholesterol levels. Too much vitamin A can cause birth defects and osteoporosis. Its potential to harm consumers is far greater than the likelihood that it will do good. While we need vitamins and minerals, Specter's evidence implies that we should rely on getting them from food rather than supplements. Too many of us, however have faith in substances that have yet to pass scientific muster.
- Specter cites many studies that show no positive effect and in some cases a negative effect of CAM. Many South Africans have died from AIDS because the government won't allow use of effective AIDS drugs.

For more go to DrDougGreen.Com

9

If you like this summary - buy the book.

Race and the Language of Life

- The idea has become fashionable that we are all one species and that ethnicity and race do not play defining roles in determining the causes of disease. If you look at the data, the one-size-fits-all approach to medicine and to drug therapy does not work. In this country there have been major efforts, guided by endless waves of political correctness, to close the door to the possibility that there could be important racial differences among human beings. For example, albuterol is effective on whites for asthma but not on many Hispanics. Another drug (BiDil) works far better on blacks than whites for congestive heart failure and became the first race-based medicine approved by the FDA. The concept of race remains highly valuable in medicine, and people only pretend otherwise out of a misguided sense of decency. It's crazy to banish race just because it makes people uncomfortable. Unfortunately, different races get different standards of health care (Doug: due mostly to race-based variations in wealth). We are in the early days of genomic testing. At some point medicine will be personal and everyone will be a member of his own race.

For more go to DrDougGreen.Com 10 If you like this summary - buy the book.

Surfing the Exponential

- Specter discusses a number of genetic engineering projects that are under way. Some are already producing useful results while others are promising. Will the promise of this technology be realized to cure disease, create clean energy, and clean up our environment, or will the denialists win out in their efforts to control it? Unfortunately, the ability to use this technology is getting to the point where someone with the knowledge, Internet access, a credit card, and a garage can produce their own biology for better or worse. Since 2001, the speed at which the capacity to synthesize DNA has grown like our ability to grow computer capacity. A world created by Darwinian evolution will be replaced with a world created by us. Creating new microbes might soon be middle school projects and we have a chance to create a new diversity in organisms.
- “The most promising technologies always present the biggest dangers. That’s scary, but turning our backs on this opportunity would be scarier still.”

For more go to DrDougGreen.Com 11 If you like this summary - buy the book.

Cool Quotes

- Any sufficiently advanced technology is indistinguishable from magic. Arthur C. Clark, 1961.
- Civilization is a race between education and catastrophe. H. G. Wells.
- Science without religion is lame, religion without science is blind. A. Einstein.
- The nine most terrifying words in the English language are “I’m from the government and I’m here to help.” Ronald Reagan

For more go to DrDougGreen.Com 12 If you like this summary - buy the book.

What I left out of this summary

- ❖ In an effort to encourage my readers to buy this book I have left out enough content to encourage anyone interested in my summary to get this book in their hands. Here are some topics that I did not include in my summary.
- ❖ Each chapter in this book has large portions that read like a novel you can't put down. This is a high compliment for what is essentially a science book with a cultural connection.
- ❖ In giving you the high points, a lot of interesting material was left out. The chapter on The Organic Fetish, for example, is 43 pages long and I turned it into a single slide. If you like the slide you will love the chapter.
- ❖ The chapter on race contains a lot of information about how races differ in terms of disease and response to drugs. It also explains how having your genome analyzed can tell you which diseases you are more likely to get and how this knowledge can impact your lifestyle decisions.
- ❖ The final chapter has a lot of interesting detail on current bioengineering prospects and possibilities.

For more go to DrDougGreen.Com 13 If you like this summary - buy the book.