Science Denial on the Left and Right

Quote of the day:

"I would rather have questions that can't be answered than answers that can't be questioned."

--physicist Richard Feynman

Readings for next time

Connection of last class and this class

Can you name a scientific claim about the world that you think is (a) correct, and (b) threatening to your values, ideology, and political identity?

If not, there are three broad possibilities:

1. You're remarkably skilled at not letting your desire for what you want to be true influence what you think is actually true.

2. You're not aware of the well-supported scientific claims that threaten your values, ideology, and political identity.

3. You have deluded yourself into thinking the scientific evidence on various matters is "on your side" even when it's not.

To learn about how science denial can arise, we need to understand where a person's values, ideology, and political identity come from. Some plausible answers:

- Their genetic predispositions and life experiences

- Their position in society and their place within social networks

Mass ideologies, in turn, are historically contingent, with content varying greatly cross-culturally and over time.

If the previous slide is correct, it would be a miracle if any person (or ideology) stumbled upon the complete set of scientifically correct beliefs about the world.

More likely, every person will have areas of science denial, where they either do not know or do not accept the scientific consensus on a particular subject.

Furthermore, people will differ (due to their preexisting beliefs, tribal affiliations, etc.) on which scientific findings they reject.

Smith: In almost every instance, accepting scientific conclusions requires only minor adjustments to a person's political commitments.

Let's start on the left end of the political spectrum. Liberals and progressives often say, "I follow the science." Is that right, across the board? Or are there blind spots among liberals and progressives?

One possible area is the safety of GMO foods, which include the vast majority of corn, soybeans, and sugar beets in the U.S., along with some minor crops.

American Association for the Advancement of Science (AAAS): "the science is quite clear: crop improvement by the modern molecular techniques of biotechnology is safe."

Wikipedia on GMOs:

https://en.wikipedia.org/wiki/Genetically_modified_food_controversies

A caveat: the larger debate over GMOs includes factors besides safety.

Despite this expert consensus on GMO safety, most Americans think GMOs are unsafe.

Poll: "Scientists can change the genes in some food crops and farm animals to make them grow faster or bigger and be more resistant to bugs, weeds, and disease. Do you think it is generally safe or unsafe to eat genetically modified foods?" (Pew Research Center, 2014)

37% Generally safe

57% Generally unsafe

6% Don't know/refused

Those answering "no" are disproportionately (though not overwhelmingly) on the liberal or progressive end of the spectrum.

Smith: There is nothing intrinsic to being a liberal or progressive that requires a person to reject the science on GMO safety. In fact, liberals and progressives could embrace GMOs as a way to feed the planet's growing population and reduce water, fertilizer, and pesticide use.

Luana Maroja, "Self-Censorship on Campus Is Bad for Science"

https://www.theatlantic.com/ideas/archive/2019/05/self-censorship-campus-bad-science/589969/

One area Maroja addresses is intelligence. Some of Maroja's students start from the assumption that intelligence tests are racist, purely a function of a person's socioeconomic status, and lacking in predictive power.

Wikipedia on intelligence:

https://en.wikipedia.org/wiki/Intelligence

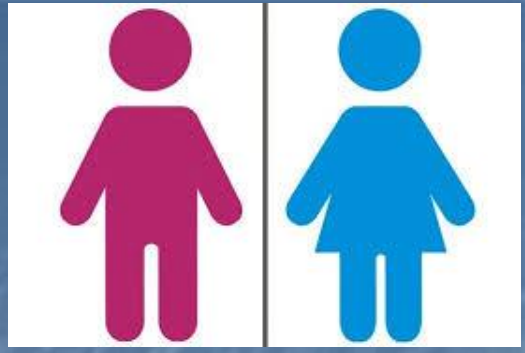
Wikipedia on intelligence quotient:

https://en.wikipedia.org/wiki/Intelligence_quotient

The scientific consensus thus includes a few components:

- **IQ is partly heritable, partly environmental.**
- **IQ (as a measure of intelligence) gives us some leverage in predicting a person's life outcomes.**
- **There is no good evidence of genetic differences in IQ across races.**

A liberal or progressive need not deny these scientific findings. If you have high (or low) IQ through genetic and environmental forces outside your control, do you deserve the downstream effects on your life outcomes? Recognizing that reality could strengthen—not undermine—the rationale for progressive taxation, a robust welfare state, and other measures to reduce economic inequality.



Another area of science denial that is disproportionately on the progressive side: various controversies around gender. How can both of these statements possibly be true at the same time?

- gender is a social construction

- a person's transgender status is innate ("born into the wrong body")

Although contradictory, those two beliefs can be understood as people working backwards to construct scientific reality to match the vision of society they want to create.

- **If gender is a social construction, then women (and men) can be anything they want. Gender roles lose any justification.**

- **If transgender status is intrinsic to a person's essence from birth, then society should affirm whatever gender a person identifies with.**

Smith: you can promote those same goals while seeing gender as partly biological, partly social.

- **The variation between women, and between men, allows us to break down gender roles. People can act as individuals without being expected to fit into a box.**

- **What difference does it make as to the precise biological and social forces contributing to a person's transgender or cisgender status? Claims to individual autonomy do not hinge on the chain of causation that makes people who they are.**

Let's look next at areas where conservatives reject scientific findings.

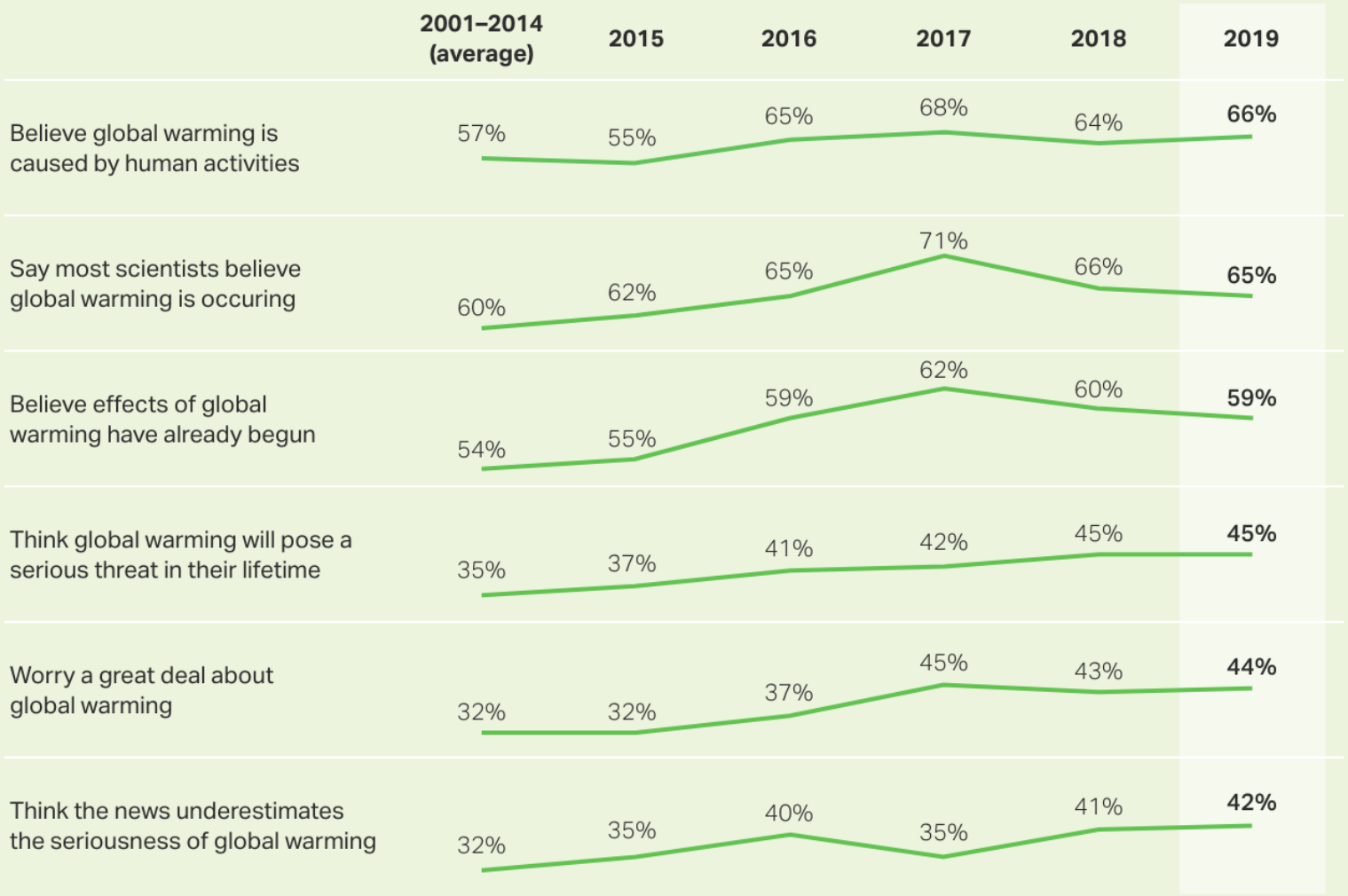
Climate change is the most obvious example. The potential consequences of science denial on this issue dwarf the others on either side of the political spectrum. Avoid false equivalence.

Intergovernmental Panel on Climate Change, 2018 report.

https://www.ipcc.ch/sr15/

Wikipedia on climate change:
https://en.wikipedia.org/wiki/Global_warming

Summary of Americans' Views on Global Warming

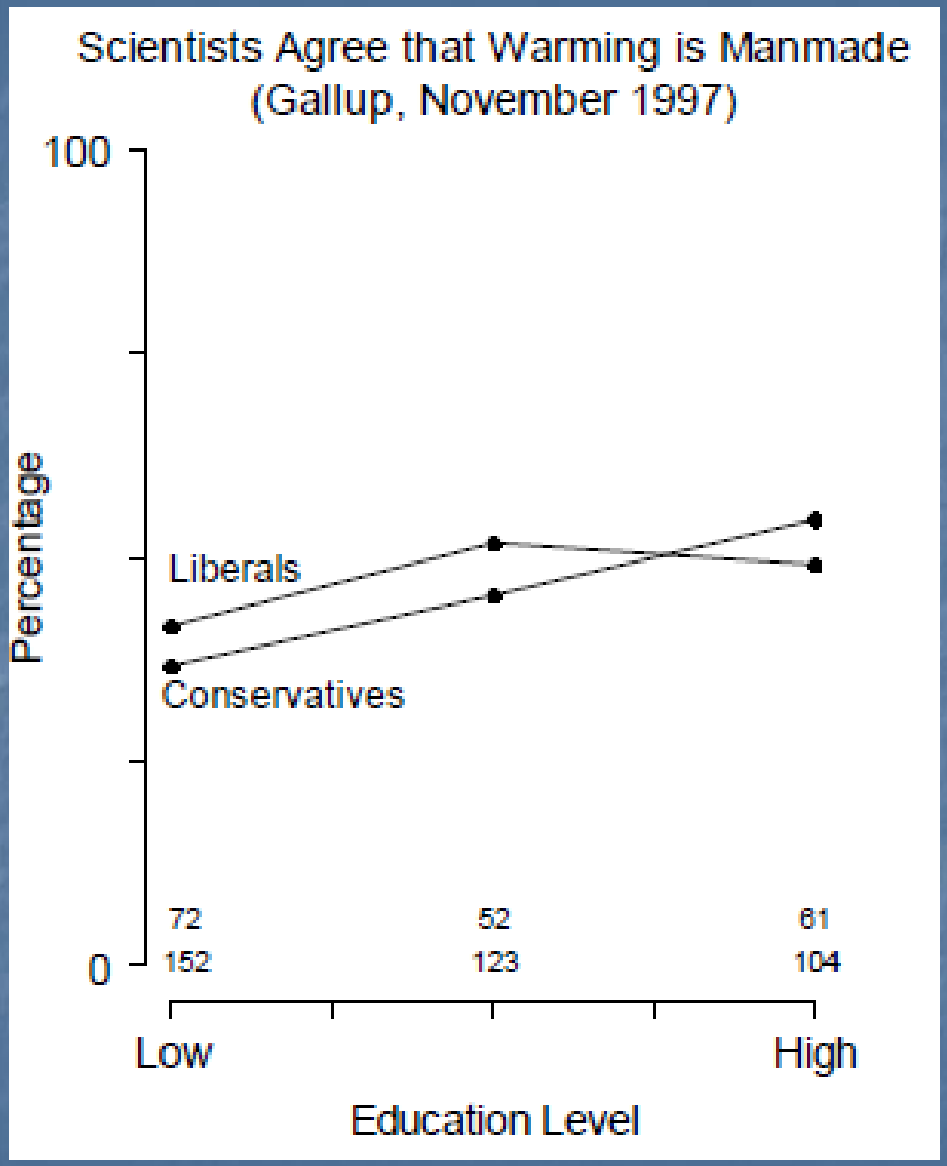


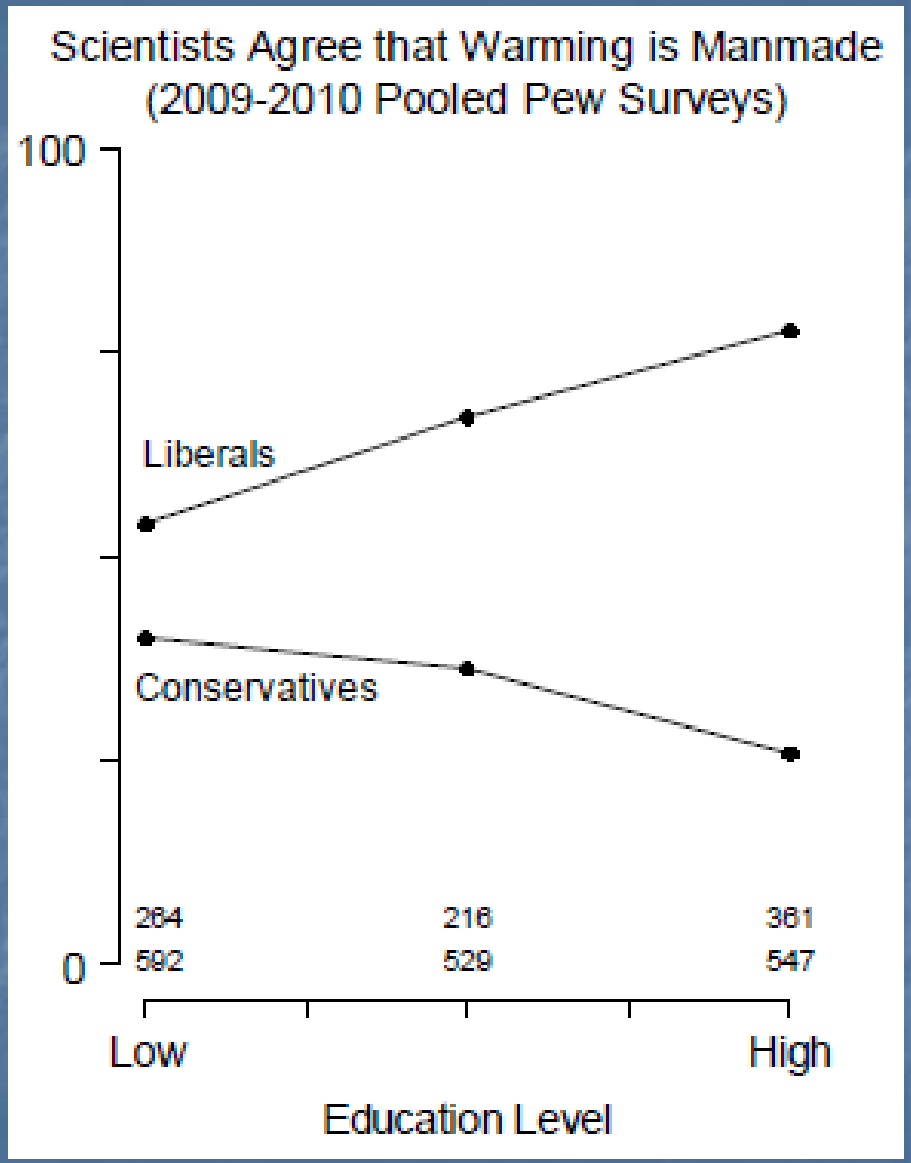
All polls conducted in March

GALLUP

Those answering "no" on the above questions are disproportionately conservatives. Maybe conservatives would accept climate science if only they were better educated? Alas, the reality is more complicated.

Political scientist Michael Tesler (2018):





Smith: There is nothing intrinsic to being a conservative (or libertarian) that requires denying climate science. Conservatives and libertarians could accept the science and support solutions such as a carbon tax, which need not involve much government expansion.

The best hope for action on climate change (in the U.S., at least) is therefore to move the issue out of the realm of tribal identity. Easier said than done, because conservative elites and masses are reinforcing each other.

The other route to action on climate change is for progressives to gain political power across all American institutions. Also easier said than done.

The reality of evolution is a second area where many conservatives deny the scientific consensus.

A sampling of the evidence supporting evolution:

- **Progression of the fossil record**
- **Transitional forms occur at the predicted ages**
- **Homologous structures such as the "hands" of land mammals, bats, and whales**
- **Vestigial structures and atavisms**
- **Other aspects of good enough rather than optimal design**
- **The DNA relatedness of species perfectly matches expectations from evolution**
- **Pattern of species on continents and islands**

How do we know that there is a scientific consensus on evolution? Because of systematic reviews of the peer-reviewed literature, surveys of scientists, and Project Steve.

Wikipedia on evolution:

https://en.wikipedia.org/wiki/Evolution

Flat earth beliefs can be understood as a subset of creationist beliefs, and thus disproportionately on the conservative side of the spectrum.

Wikipedia on flat earth
https://en.wikipedia.org/wiki/Flat_Earth

Four broad positions on Christianity and evolution:

- **Young-earth creationism. Based on calculating dates from the Bible. Universe, earth, and humans all less than 10,000 years old. Requires rejecting major findings in physics, geology, and biology.**

- **Old-earth creationism. Based on a more flexible biblical interpretation. Accepts major findings in physics and geology but rejects part of biology (evolution).**

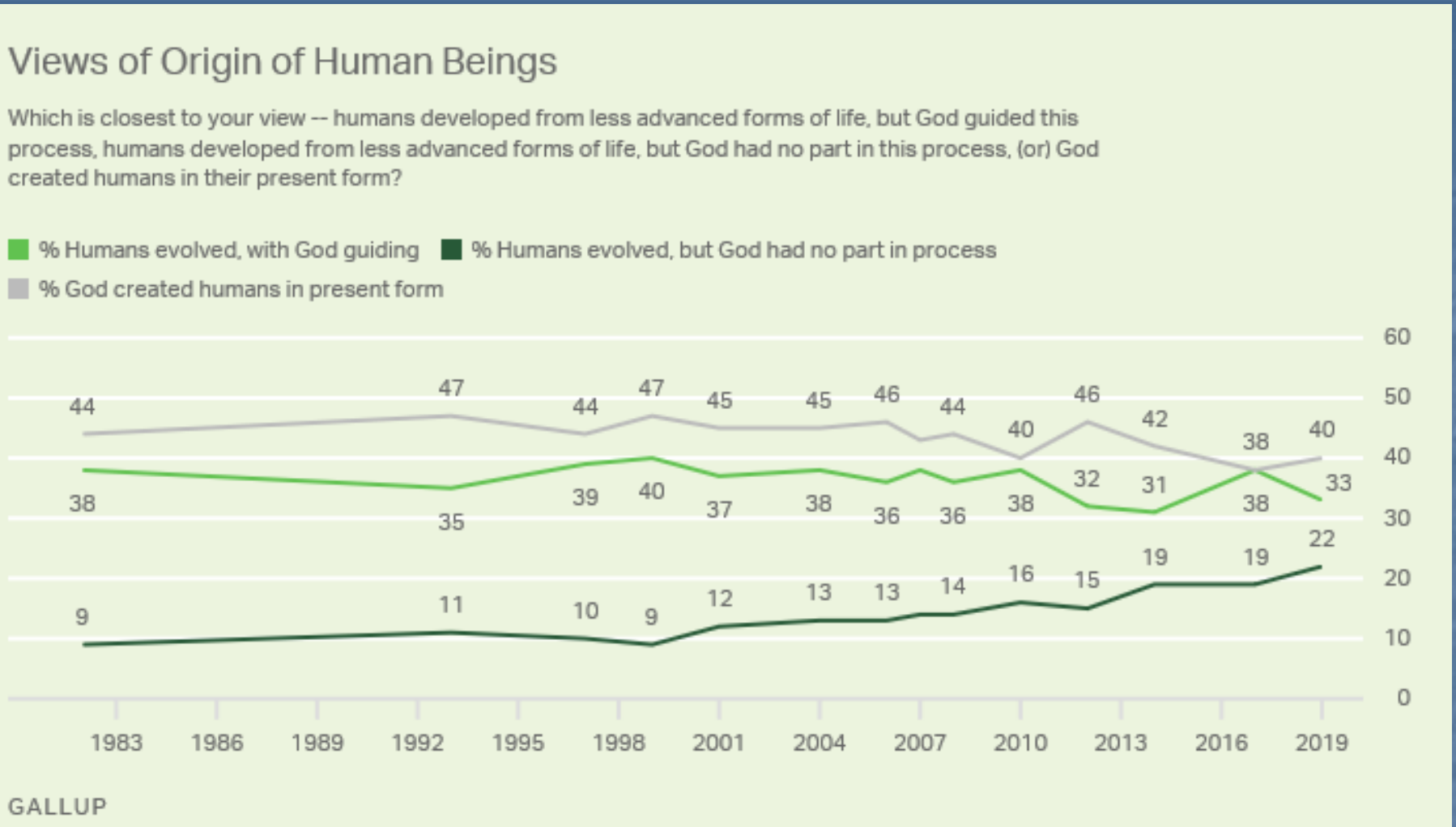
- **Theistic evolution. Based on a still more flexible biblical interpretation. Accepts physics, geology, and biology, and sees evolution as God's mechanism for creating human beings.**

- **Materialistic evolution. Human beings evolved through natural forces alone.**

Materialistic evolution is a purely scientific claim, whereas theistic evolution adds a faith commitment. However, there is no way to distinguish them empirically (i.e., we can't show whether evolution is or is not divinely guided).

What about intelligent design? It was designed (pun intended) to get alternatives to evolution taught in public schools.

Intelligent design is a "big tent" challenge to materialistic evolution. It can potentially include young-earth creationism, old-earth creationism, and theistic evolution.



Those believing "God created humans in present form" are mostly religious conservatives.

Smith: Religious conservatives could accept the science of evolution while retaining their faith. Young-earth and old-earth creationism would have to die, but conservative Christians could embrace theistic evolution (as the Catholic Church already does, more or less).