

Science, Literacy and Democracy

“Is it possible,” asked British historian H.D.F Kitto, “for a whole people to have the sustained wisdom and self-control to manage its own affairs wisely?”

Similar questions were raised in the local Sierra Club’s recent talk: Can a democracy survive without aware, educated citizens? In our time, can a nation survive and prosper without science literacy?

Our new Assemblyman Andrew Zwicker is well prepared and positioned to ask these important questions. Not only is he engaged in governing our state, but he earned a PhD in physics and is the Head of the Science Education Department at the University’s Plasma Physics Laboratory.

While many in Mercer County meet the necessary educational levels, there is little evidence that the nation’s president and many of his supporters do. Is this an even-handed assessment? Mr. Zwicker introduced the subject of his talk by quoting

astrophysicist and science communicator, Neil De Grasse Tyson: “The great thing about science is that it’s true, no matter what you think.” In contrast, the President and many of his supporters deny the conclusions of science, claiming that global warming is a hoax – against the conclusions of 97% of scientists.

Can we live governed by blindness?

We’ll survive, for a while anyway, and many are working for change. Nonetheless the conditions that threaten us will continue to get worse, if we don’t alter course.

Zwicker reminded us (generally well educated, the audience had come nonetheless to learn,) that government and governing matter ... as does science literacy. And with that in mind, Zwicker’s first initiative in the Assembly has been to establish a new committee on Science Innovation and Technology.

He noted that while some rail against national funds spent on Science, modern history has revealed that the numerous innovations and inventions originally funded by government have led to societal and commercial uses that returned the original investment many times over – from computers to communications, from radar and transportation to medicine. With the Apollo Project, for every dollar invested, seven more have since been created – including many new jobs in new industries.

Zwicker quoted a poll that 63 percent of Americans believe that global warming is caused by man and want something done about it. But unfortunately the opposing minority, and vested interests, are holding up national responses. Fortunately states such as New Jersey, California, and others

we like it or not. Zwicker projected world maps showing the Earth’s temperatures through recent history, and the very noticeable rise in temperatures beginning in the 1970s. Again, this change is not a question of belief, but measurement, through science and technology.

What is our problem then? Zwicker quizzed the audience on basic science. They did pretty well. But across the country a mere 21 percent could answer some of the basic questions. Another staggeringly high percentage of Americans still do not believe in Darwin’s theory of evolution. The answer? We need more science literacy, along with more plain literacy, so that we can read and write and discuss at the levels we need. There is no question that we need to know a lot more than we did in prior times.

He warned that without that knowledge, we cannot make educated, informed decisions. How do we decide whether or not to adopt vaccines, GMOs, diets, fund medical research, or elect presidents? (Hillary and Gore won the popular votes. Imagine if only...) How do we as a nation decide whether or not to keep the Electoral College, conceived in very different circumstances and now delivering dangerous, undemocratic results.

How do we achieve greater science literacy? Certainly, Zwicker reasoned, emphasizing STEM studies (Science, Technology, Engineering, and Math,) in our education would help. And on the way, we need to learn how to become skeptical, indeed critical thinkers – questioning, or at least reviewing, received wisdom, and our own views. He observed that people often

means trusting people pretty much like themselves. We live in bubbles. But what if science was more often used to evaluate issues, rather than what is familiar, or comfortable, or a prevailing view? Zwicker imagined what it might be like if both Democrats and Republicans sought support in real science. The agreed upon conclusions could be accepted by all, based on evidence – undermining charges of fake news. And it might result in some interesting discoveries or unforeseen conclusions.

But how do politicians gain insight? One way, Zwicker noted, is to have constituents speak to, or at least contact, them. Leaders at all levels of government need to hear what people think. That was one of the first things he learned in his new Assembly position. And he encouraged us to get out there and talk to our representatives, town, county, state and national.

He ended with the wry observation that scientists are those who upon hearing a new, cogent theory, say, hey, that’s interesting; that changes my thinking. Politicians are those who don’t.