Scientist and Public: Chapter and Verse from David

A presidential science adviser is usually surrounded by government experts and statesmen of science, but last week science adviser Edward E. David, Jr., found himself discussing the truthfulness of the Bible, free will, and a "little green man" inside the human brain with a national gathering of Presbyterians. David gave a luncheon address on public influences on science and technology as part of a day-long program on science, technology, and the church at the week-long annual general assembly of the United Presbyterian Church, USA, in Rochester, New York. The day was sponsored by the National Science Foundation and may be a prototype for others aimed at explaining the ways of science to the layman. Flanked by an extraordinary lineup of dignitaries* of the science and education communities, David delivered his prepared speech to the audience of 280 delegates. But afterward, he was interrogated by the half-dozen student delegates who attended. Did he believe, one bearded youth asked, that certain events could only be explained by the existence of a supernatural being?

The man who worries about whether there in fact will be more money for basic research fielded the question thus: the indeterminacy of the world is such that both scientists and churchmen need to explain things that they don't understand. But every time scientists find rational explanations to peel away apparent irrationality a new layer of irrationality turns up. So it goes, layer after layer. "So, if you want to call what's underneath a supernatural being, that's all right with me," he finished.

"Don't you think most scientists and engineers are taught so much science and engineering that they don't learn anything about people?" asked another delegate from the back of the hall. First David tried to get one of the professors or university presidents next to him to answer, but the audience wouldn't let him. "That's apt," he smiled, and sat down.

Then a young man queried: "There is considerable proof that the things in the Bible actually happened." How would David compare the proving of scientific hypothesis with the proof of the truths of the Bible? Well, replied the former Bell Telephone Laboratories communications specialist, scientific hypothesis is verified by controlled experiment. When you move away from the physical sciences into the social sciences, its very hard to run a controlled experiment which will prove or disprove a given statement. Moving even further along the scale to the Bible, he said, there are many more problems in proving or disproving given statements in a scientific fashion. And besides, he added, the Bible should be approached as a "framework" and a "guide"—not as a collection of provable statements of fact.

The President's science adviser is often expected to promote science. But in his prepared speech to the Presbyterians, David talked about the limits of science. Even when scientists explain how the body operates "there is still something left," he said. This "something" was portrayed in a Walt Disney film about the senses as "a little green man known in research circles as homunculus. This little fellow had eyes and ears too, so that in the end, the final step of perception remained to be explained." Dr. David said that the public has "unrealistic" expectations of science. In particular, he criticized the popular assumption that "if we can accomplish successfully the Apollo missions, we should be able to clean up the environment, provide adequate mass transportation, increase the availability of health care, and so on." This, he said, was logically a "non sequitur."

He also explained to his audience why he thought man did not entirely have free will; "Man is different today than in millennia past, and he will be different in the years to come. Technology has and will play a prime role in this evolution." Hence man can only exert "partial control" over his future. But to a concerned student who queried him on the issue of free will, he added that "it does make a difference if you believe in free will, because it changes your perception of yourself."

Toward the end, a question on the problems of long-term planning finally brought David onto better-trod ground for a science adviser. He compared the Nixon Administration now with the Kennedy Administration in 1961, when, 10 years ago, it was setting goals for the decade. "I didn't say we can't solve our own problems. The nation set objectives in the early 1960's which were achieved. Most of these objectives today sound superficial—the missile gap, landing on the moon, and so forth. But I believe that by the end of the 1970's we will have solved most of the problems we perceive now: transportation, energy, pollution. It's just that we can't do everything. No master plan will carry us to Utopia. If we ever arrive at Utopia it will be by a series of successive approximations." The morning of the day-long program involved workshops with the ministers and the scientists talking about the issues raised by genetic manipulation, population control, organ transplants, and euthanasia responsibility for the environment and citizen organization to analyze the impact of a given technology such as transportation. In the afternoon, after David's talk, while most of the 1500 meeting attendees continued in committee meetings on church business, about 150 questioned a panel about government policy formulation, scientific and technical education, and what the role of the church should be.

The program was sponsored by the National Science Foundation program for the public understanding of science and organized principally by Rustum Roy, director of the Materials Research Laboratory, Pennsylvania State University. Roy, who assembled the cast of science dignitaries to suit the needs of the Presbyterians, plans a series of similar programs. The next one now under discussion would be with the United Auto Workers next May.—DEBORAH SHAPLEY.

* Participants in the meeting included Clarence E. Linder, president of the National Academy of Engineering; Robert L. Sproull, president of the University of Rochester; Myron Tribus, senior vice president of the business products group of Xerox Corporation; Charles H. Townes, University Professor of the University of California at Berkeley; and Robert Berg, professor of preventive medicine at the University of Rochester Medical School.