



PSSC in Historical Context: Science, National Security, and American Culture during the Cold War

by *John L. Rudolph*ⁱ

The Physical Science Study Committee was always more than simply a collection of individuals dedicated to improving student achievement in physics. The group and the curriculum it produced were born of and defined by deep conflicts across the world and within American culture in the 1950s and 1960s, conflicts that influenced all aspects of society throughout this period.

The global, cold-war struggle with the Soviet Union is perhaps the first conflict that comes to mind. This long battle—of both weapons technology and political ideas—set the stage for the emergence of a public mindset that saw high school science education itself as a weapon in an arsenal aimed at controlling Soviet ambitions for world domination.

With the outbreak of the Korean War in 1950, concern over the scientific manpower supply rose to the top of the national security agenda. In some of the earliest meetings of the Office of Defense Mobilization's Science Advisory Committee, Jerrold Zacharias, the physicist who would become the chief architect and director of PSSC, recalled the military people complaining repeatedly about the scientist shortage—"that the Russians were getting ahead of us, that we had to do something about education," in his words.

The publication of a wide-ranging assessment of Soviet technical education in 1955, *Soviet Professional Manpower*, brought the problem squarely into public view, resulting in a huge influx of federal money targeted on the development of U.S. technical and scientific training. Physics, as it had done during World War II, took the lead. At the urging of his colleagues on the Science Advisory Committee and officials at the National Science Foundation in July of 1956, Zacharias began to assemble the key players who would eventually make up the PSSC group, individuals such as Fran Friedman from MIT, Philip Morrison of Cornell, Ed Purcell of Harvard, MIT president James Killian, Polaroid founder Edwin Land, and Educational Testing Service president Henry Chauncey.

This effort, backed by national security officials in the Eisenhower Administration was well underway when Sputnik arced across North-American skies in October of 1957. The Russian satellite launch shocked the nation and brought even greater pressure for reform in all science subjects along the path set by PSSC.

For many, historians included, the story of the cold-war curriculum reforms begins and ends with this scientific manpower account—PSSC as a curricular program designed to train more scientists and engineers to meet the Communist threat. Clearly the push for reform, first by individuals within the Eisenhower administration and Congress and the American public not long after, would never have occurred if not for the perceived military threat from Russia. Nothing short of a national security crisis could have justified



curriculum development efforts that cost taxpayers well over \$200 million when all was said and done. Such external pressures alone, however, would never have produced anything close to what PSSC ultimately became.

What defined the project more than anything were the scientists themselves, dedicated individuals who possessed “first-class intellect” as Zacharias often described them. The commitment from physicists like Zacharias, Morrison, and Friedman came not from concerns over the Soviet scientific threat, but rather from what they perceived to be an increasingly dangerous situation at home—a rising tide of irrationalism and suspicion among the general public that, they believed, directly threatened the continued health and advancement of science in the United States. While the military conflict opened the door to reform, it was this cultural conflict that fundamentally shaped its substance.

The most visible manifestation of this hostility came in the form of the McCarthy investigations and the Red Scare that swept the nation in the mid-1950s. As much as scientists of the time were revered by the citizen on the street for their ability to produce new technologies for national defense and other wonders of the scientific age, their perceived aloofness, intellectual powers, their possession of the so-call “atomic secret” combined with the liberal politics of some made them politically suspect as well.

Scientists during these years labored under the increasingly onerous security restrictions and curbs on international scientific communication that were implemented following the war. Zacharias and Morrison, however, were among a smaller group that felt the sting of more direct political attacks. During the government inquiry into Robert Oppenheimer’s security clearance in 1954 (an episode that itself did much to damage the strained relationship between scientists and government officials), Zacharias had been accused of belonging to a subversive group of physicists that was sympathetic to communist politics and ambitions. And Morrison, as a former Communist-Party member, was repeatedly harassed and denied promotion in his position at Cornell University despite his exemplary record of research productivity. Experiences such as these reinforced the general feeling among scientists that their profession was under attack—that the basic foundations of reason and rationality were being cast aside in the blind reaction against some vaguely defined Communist menace.

In later years, Morrison described the reasons he got involved in PSSC: “I was oppressed by the feeling of the early fifties that science and intellectual reason itself were not being given a fair chance in the schools and in public life.” The need for a more rational citizenry was apparent to Zacharias as well. His decision to lead the project was based, in his words, on “*deep* political reasons,” which were tied directly to the “Joe McCarthy era.” This was the ultimate justification of the course. Based on his experience during the war, and after seeing “the American public...being *molded* by Joe McCarthy,” it was clear to him that “to get people to be decent in this world, they have to have some kind of intellectual training that involves...observation, evidence, and basis for belief.” This was what PSSC was created to provide.

Although it wasn’t the intention of Zacharias and his PSSC group to produce more scientists, it didn’t mean they weren’t targeting an elite sub-group of the high school population. Zacharias recalled that “we had to establish a first-class collection of stuff for the intellectual elite of the country, no question.” But it was clear as well that this group



represented the “non-scientific” elite—those who would go on to become the lawyers, business leaders, doctors, and, most importantly, government leaders, people who would be the decision makers of the next generation. Individuals such as these would be responsible for shaping the social, cultural, and economic environment in which future scientists would work in the U. S. Ultimately the overriding conflict for which PSSC was developed was the struggle for public respect and support -- both financial and political -- that would ensure the most favorable conditions for scientific work and the advancement of knowledge in Western society.

The irony of all this was that many of the scientists of the time considered the Soviet Union, the very source of the military threat that produced the conditions necessary for the rise of PSSC, as a model of sorts for the kind of environment U.S. scientists sought to emulate. James Killian, an ardent supporter of PSSC, commented that in America, a country with such a strong spiritual heritage, it seemed strange that the life of the mind would be so denigrated, whereas in the Soviet Union, “a system of government based on materialism has found a way to bestow its highest awards on men who deal in abstract ideas.” The creation of a similar respect for and cultural embrace of the role of rational thought that science so well exemplified was the end toward which Zacharias and the other members of the Physical Science Study Committee had directed their efforts.

