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Presentation

Introduction: "Since you have all read the paper and are now familiar with the ethical issues plaguing the scientific community, lets look at a couple of cases where these issues coalesced and had a major impact on scientific progress, public spending, and public support of science. In the book, *Science, Money, and Politics*, Daniel Greenberg brings up two cases, which we will be looking at closely today. These are the Strategic Defense Initiative, or SDI, and the Superconducting Supercollider, or SSC. Both are megaprojects which raked in billions of dollars of funding with very little scientific reasoning for doing so. The reasons the projects were able to garner so much financial support intertwines with the ethical issues presented in the paper."

SDI :

What it is :

- It was a defense program with the goal of producing a network of anti-ballistic missile defenses to shield North America from nuclear attack by the Soviet Union.
- It was proposed by President Ronald Reagan in 1983 and began development in 1984.
- The shield was to be built using advanced technology, consisting of relatively undeveloped technologies and heavily based in nuclear power.
- The core of the program was invested in the idea that the targeting systems would be able to destroy intercontinental ballistic missiles... with lasers... from space.
- Now, if that seems overly fantastic to you, you are not alone: the media branded the program as "Star Wars," referencing the recently released film.
- This relation conjures the image of the famous Death Star from the first film in the original trilogy.
- (pause) The reality is that it had a far greater resemblance to the Death Star from the third movie.

Teller :

- So where did this project come from? It boils down to two issues: the seclusion of the scientific community from national politics and the relative influence of those scientists who dare enter the public arena.
- One scientist in particular took on the latter role, and he was no newcomer to the politics of weaponry.
- Edward Teller was a leading nuclear physicist
- Contributer to the Manhattan Project
- Shifted to fusion research when fission created an inadequate bomb for him
- Left Los Alamos National Labs to push for formation of Lawrence Livermore National Laboratories, which was founded in 1952
- Pursued further research of nuclear weapons and avidly promoted their use

- Thought up creative ways to use nukes, such as to dig out canals and to shoot down nuclear missiles
- Reagan liked the latter idea and appointed Teller to his White House Science Council
- Teller was a close friend to Reagan and had most influence in the Council
- Teller used this position to promote both LLNL and his nuclear missile defense plans

X-ray laser :

- At this time, LLNL was developing a new kind of laser—the X-ray laser
- Teller believed that this type laser could be used for missile defense if one were to use the X-rays produced through nuclear fission and focusing them with a dozen lasing crystals to strike a dozen targets at once. This method was also discovered at LLNL
- That claim, however, was severely overinflated
- Several scientists who had worked on the lasers or had close relations with scientists who developed the laser were even skeptical
- Greenberg interviewed two of these scientists
- One was D. Allan Bromley, the presidential science advisor at the time SDI was announced and the mentor of a graduate student who built the first X-ray lasers. Greenberg quotes him as saying, "The X-ray laser was hyped as far as I know from the very beginning... That was one of those areas where Ed Teller really hoped to make Livermore a key player."
- Reagan's previous science advisor, who personally worked on the development of the laser, also had concerns about Teller's claims. When asked about it, he told Greenberg, "You know, Los Alamos, with all its imperfections, Los Alamos doesn't lie; Livermore lies."
- Unfortunately, neither of these advisors had either the influence or the guts to stand against Teller and the president

Science community: What was the rest of the scientific community doing during this time? The project itself was no secret to the public, and while some of the details were classified, it was a well-known fact that the system revolved around X-ray lasers. Well, many of the scientists were jumping at the prospect of more money. In fact, the Strategic Defense Initiative Organization reported that over 3,000 university scientists applied for funds to aid in the missile defense endeavor. However, not all scientists decided to abandon their morals. About 2,300 researchers pledged to not apply for or accept funds from the Strategic Missile Defense Organization. In the highly divided nature of scientists from real politics, such an action is virtually meaningless and easily looked past in the national (theatre?). And this was the best the scientific community could muster! They rolled over and watched as precious funds were diverted away from more productive research and sifted into a fairy tale defense program. In fact, from its inception in 1984 until 2000, Star Wars outspent cancer research three to one. The National Academy of Sciences—the most politically influential scientific organization—put out one feeble attempt to verify the credibility of the program. Unfortunately, the Academy viewed it as necessary for a study for the Academy to have access to the classified material surrounding the project;

and that access only comes through an official request for a study from the White House. To put a nail in the coffin, a majority of the Academy members signed a petition of opposition to the SDI, which further removed them, politically, from being sought after for independent study. It would have been possible for the Academy to perform a study using the vast collection of unclassified material—specifically, they could have looked into the claims about the X-ray lasers—but since there was no financial gain for the Academy, they did not even consider that option.

Budgetary issues: So the program continued. Naturally, due to the sheer size of the project, it immediately began to strain the budget. The program began with a budget of $1 billion in 1984 and quickly grew to $3.9 billion by 1988, with further increases to follow. Over the next 15 years, missile defense would come to amass over $60 billion. In 1985, as Congress evaluated the budget needs for Star Wars, the Congressional Office of Technology Assesment (OTA) was called into action to report on the program.