

**“Policy, Politics and Science in The White House”
-- The Reagan Years --**

**University of Colorado at Boulder
Boulder, Colorado
January 31, 2006**

**G. A. Keyworth, II
Science Advisor to the President, 1981-86**

It is always a real pleasure for me to visit Boulder. Some might even think I live here, that I might even be on the UC-Boulder faculty, retrained as a sinologist. In truth, it’s just that my son and I share the same name. So Boulder is a special place for me. But it’s also special because of the tremendous progress that the University has made in recent years in moving to the forefront of academic scientific research, with UC-Boulder scientists earning three Nobel prizes in the last five years.

I also commend you for attempting to provide a rational basis for understanding science policy, a goal that I hope will not prove too elusive. Studying how White House science advice, and OSTP, the Office of Science and Technology Policy, work is a good window into how science policy is made.

Since several other science advisors have already spoken in this series of talks, I will refrain from giving you the history of the office.

Nor will I spend much time addressing presidential science advising in general. Instead I'll just try to share with you some of my own experiences and observations from what was for me a fascinating five years, and for the whole world a time of monumental change. It was that brief period where US-Soviet tensions first heightened, then waned, with the Cold War quickly, and unpredictably, ending.

Let me first insert a little perspective. OSTP remains somewhat of an anomaly among Executive Offices of the President, viewed by some White House staffers as an asset, but by some others as an imposition. How a consensus among those diverging views emerges, assuming it does, has much to do with how the office functions. And circumstances differ. Each of us has advised different presidents, at different times. Priorities varied, pressures were different, and personalities created different relationships. In my comments today I'm going to dwell somewhat on the key relationships that developed during my tenure, because they were key to my ability to be effective.

I joined the Reagan Administration in early May, four months after the President's inauguration and after the assassination attempt. During the first few months, as well as during the transition planning, there had been much debate over whether a science advisor was, in fact, needed. Opposition stemmed largely from the perception that OSTP in its then-form had been re-created

by the Congress to represent its, and the scientific community's, interests in science and technology, while the White House staff was there to serve the President. In other words, a number of the President's closer and trusted friends and advisors viewed a science advisor as somehow likely to be different from them, and likely to come with an agenda that might differ from the President's. The countervailing view, which eventually prevailed, was simply that since so many of the Administration's top priorities – for example, defense, energy and the changing economy – were deeply rooted in science and technology, they needed a team member with competency in science. Without expertise on the President's policy team, the White House would be dependent upon the external agencies, and they would be even less certain to share the President's priorities. By the time I was invited to Washington as a candidate for science advisor, the debate was over and resolved, and I sensed a real spirit of welcome.

In its first term, the process of policy development in the Reagan Administration was conducted in a somewhat more centrally organized manner than in some administrations. Edwin Meese, who bore the title of Counselor to the President, coordinated all policy making, whether domestic, defense or even foreign policy. This wide-ranging power, along with Ed's real talent for the job and

his uniquely close relationship with the President, led to him often being referred to as the “Deputy President”.

One of the means Ed used to coordinate policy development was to hold meetings each evening in his office, with leaders of each White House office involved in policy matters, including OMB, about six of us, to discuss both the tactical issues of the day as well as the longer-lasting, more strategic areas. Ed Meese made it possible for me, early on, to develop a relationship with the President, as I will explain, and with the other members of the President’s senior staff.

A President, in fact, has many assistants, but few *bona fide* advisors. Only he can make that distinction. You’re hired as an assistant. Whether you ever become an advisor depends on the value you can provide. The opportunities may not be what you expect.

In the summer of 1981, one of the Reagan children began to appear frequently in the press in apparent sympathy with a number of anti-nuclear activists. Worried about her being exploited, the President turned to Ed Meese for advice. Ed suggested I might help. The President then called me to ask if I would mind coming over to talk about a personal matter. Sensing that his daughter would probably not react well to his own counsel, the President asked if I

would go out to California and talk with her. I did, and that became the first step in my personal relationship with the President.

Just a few weeks later the President again called unexpectedly, also at Ed Meese's suggestion. I remember it as being on a Saturday morning, and the President asked if I'd "mind coming over to discuss an issue he was pondering". He put the question quite simply. A lot of good people were suggesting to him that we commit a hundred billion dollars or so to this new technology called "Stealth", and he needed to know some basics before making that commitment: In particular, he queried "does it really work, and if so will it continue to do so?"

This was a turning point for me, in two different ways. One is that, as I started to give an answer, it suddenly occurred to me that this wasn't the kind of scientific exchange I was used to engaging in with my colleagues at Los Alamos. Here, there would be no opportunity to revise my best guess. Catching myself, I deferred in answering until I could gain enough knowledge to be confident in my advice. As it turned out, it took several months. The second reason this was a turning point was this was the first time I confronted the unusual nature of advice to the President, and the extraordinary isolation the President has in so many of the key decisions he must take. And I saw that vulnerability time and time again.

As a result of that simple question as to the viability of Stealth, and the challenge that responding to it entailed, we were able to develop within OSTP some substantial expertise in some of the more arcane, and more sensitively classified areas of defense technology. In Stealth, anti-submarine warfare, space-based surveillance and other key technologies that underlay our defense modernization efforts, we became “credentialed” and OSTP became a full member of the President’s team. We were assigned a role both in advising on defense issues, and in articulating the basis for decisions on defense. In those years of the early eighties, clearly the Administration’s top priority was defense. As a result of the role OSTP played I became a regular attendee of the National Security Planning Group – the pared down version of the Cabinet that dealt with issues of national security.

Now, let me stray here to comment on that initial concern that the Science Advisor might have an agenda separate from the President’s. Many of my colleagues may not have had agendas of their own. I confess that I truly did. It was a strong belief stemming from my own observation that no federal research dollars, on average, gain more fruitful rewards than do those relatively few committed to basic research, the search for pure knowledge. In contrast, federal R&D ostensibly directed toward aiding the economy largely fail.

We had quite a few opportunities to weigh in on policy issues having to do with industrial competitiveness, such as the rise of Japanese microelectronics. Fortunately, we generally wound up advising no action, which turned out to be the best policy. But I was committed to making basic research a major priority in our Administration’s support of R&D. Now, while that may not have been, initially, much of an Administration priority, it was consistent with the President’s views of the proper role of government. And, to an extent, simply as a member of the President’s personal team, I could put forth the cause for basic research. And I did. But, to be truly effective in terms of major funding, it takes more than simple persuasion. There are simply too many competing needs. Instead, one has to earn what I’ll simply refer to as “points”, the means to barter effectively for competing priorities.

Just as in many other walks of life, one earns points by producing value. Let me share with you one example. In the fall of 1982, the Administration was having a difficult time finding a politically acceptable basing mode for the land-based MX missile. As the final link in the Administration’s program to modernize nuclear forces, and central to returning to more fruitful arms reduction negotiations with the Soviet Union, much hinged on solving this problem. Many options were reviewed, a process in which OSTP played a prominent role. Finally, agreement began to

emerge on a somewhat arcane concept, called “Densepack”. However, controversy arose over just who would articulate the technically complex rationale behind the decision. In an effort to resolve an impasse between the National Security Council and the Pentagon, OSTP was asked to take on the task.

It took months of effort by a good portion of the OSTP staff, and turned out to be a particularly difficult task. In the end we failed to win Congressional support, but we did succeed in raising awareness of the importance the President put on completing the MX program, and that paid off later. The battering that OSTP took on this effort, and the evidence that we could hold our own on a nasty public and Congressional battlefield, earned us some additional legitimacy. We had acquired some “points.”

Few people who come to Washington for the first time really understand what they’re getting into. This is especially applicable to science advisors, who come from a wholly different world. So you either learn, and quickly, or you become irrelevant. Fortunately, early in my tenure in Washington, an acquaintance had suggested that I study the wisdom to be found in Machiavelli’s writings, especially in *The Prince*, perhaps the greatest treatise ever written on the exploitation of power.

Unlike business, Washington is far more about power than it is about process. Where we in OSTP most needed power was in the

budget process. While the Administration had agreed that funding for basic scientific research, particularly in universities, deserved the special protection first defined by Vannevar Bush as a “federal trust”, there was of course a range of opinion as to what funding increases were needed.

The seventies had been a generally tough decade for basic research, especially with the high rates of inflation of the previous few years, and we in OSTP felt that some pretty heroic funding increases were required. This is where we chose to spend our points. We spent them on the subsequent 18% annual increases in NSF’s budget; on the introduction of a number of major new programs such as the NSF Centers and Young Investigator Awards; on new facilities not in agency’s budgets. Those and other increases were the result of negotiations where such “points” were required. While each of these thrusts were consistent with Administration policy, the individual initiatives could only be obtained because OMB knew we were willing to let Ed Meese, or the President, resolve differences of how to implement those policies.

Finally, let me come to the single issue that most shaped OSTP in the Reagan years. It is the one issue for which OSTP during that time was best known, it was controversial and divisive beyond imagination, and it certainly had the most impact on the world.

From my earliest meetings with the President, and with him of course knowing about my background at Los Alamos, he often spoke to me about his concern over the basic premises upon which nuclear deterrence was founded. Like Presidents before him, he was saddled with a defense strategy that relied on the threat of genocidal retaliation to prevent nuclear attack. From the start he detested the concept of mutual assured destruction, and unlike his predecessors, and most of the defense community, he had little, and lessening, confidence that it served either the nation's or the world's long-term interests. He also observed that, in spite of various arms control treaties and agreements, the nuclear arms race continued. Still more distressing to the President was his observation that even the fundamental assumption about the validity of nuclear deterrence, its presumed stability, was eroding. In nuclear deterrence, stability is the all-important condition that defines the likelihood of one side deciding to risk a pre-emptive strike that would be capable of reducing the chance of significant retaliation. With stable deterrence, there's simply no incentive for anyone to initiate an attack. This was the case for decades, where population centers were targeted. However, with two particular technological advances of the seventies, more precise targeting of warheads, and the ability to mount multiple warheads on single missiles, it became feasible to make the other sides' weapons, such as missiles in silos,

the targets. While still unlikely, preemption was beginning to be conceivable. One could see the trend lines, and the result was that stability was going to continue to erode over time. The situation would just get more dangerous.

During his first two years, modernizing the nation's strategic forces and rebuilding the military was the President's top priority. He was immersed in every aspect of it. In weighing the various options for modernizing our strategic forces, in moving arms control from the SALT framework--strategic arms limitations--to START--strategic arms reductions, and simply in trying to understand the Soviet Union's motives and intentions, President Reagan grappled with all the intricacies of deterrence. As a consequence, when the opportunity presented itself in early 1983 in the form of new technologies, he decided to take the bold step of SDI, or the Strategic Defense Initiative. Expressed most simply, he concluded that the stability of deterrence was eroding, that it was wrong, and that there had to be a better way, in the long term, to ensure our national security.

And he was taking the long view, not proposing a development project but proposing a research program that would lead to development. In this sense he was a Science Advisor's best and most demanding client. He believed, based on evidence of some remarkable new technologies, that US efforts in science and

technology could develop better, more humane, and more lasting responses to nuclear threats than currently existed. He challenged the science and technology community to make it happen, and he never wavered in that determination.

Well, what was OSTP's, and my role in all of this? This is one of those areas where most people on the outside had little idea of what really occurred. So let me correct just two of the many myths that unfortunately masquerade as accepted knowledge. First, the idea of SDI had roots that went back many years in the President's mind, and he had bided his time through his first two years as President until he could find the right time to bring it to fruition. I know that because we talked about deterrence on many occasions. Few people on the outside knew it because they only saw the visible first stage of his defense planning, which I characterized earlier as the strategic modernization program, which focused on traditional weapons systems. So SDI was his idea, waiting to emerge. Second, there was substantial technical assessment of SDI's long-term feasibility prior to the announcement. When I was consulted by him, I already had the benefit of some recent studies by a classified group of my advisory group, the White House Science Council, that showed a dramatic change in potential defensive technologies. I was asked for a go/no-go opinion on SDI's feasibility, which I can assure you was the most momentous and terrifying decision ever thrust

upon me. But my role was as an advisor, and to tell him what was possible.

The President wrote virtually the entire announcement of SDI himself. I advised him, helped edit the speech and offered him choices for restating key points. I did my best to explain the President's intent to other members of his staff or his Cabinet. George Schultz, in his book *Turmoil and Triumph* argues that the President relied too heavily on my advice. For technology assessments, he did rely heavily on me, but that was my job. But I had little initial input into shaping the larger policy, and my input was not needed. One need only reexamine how Ronald Reagan carried out his negotiations, personally, with Mikhael Gorbachev, to see just how independent and determined he could be. The President had, from the beginning, a clear vision of where he was leading the country, and SDI was part of how to get there.

He and he alone made the estimates of the risks and benefit. And he never wavered. From the point at which SDI was announced, March 23, 1983, I became a single-issue Science Advisor. Those were my orders. Fortunately we had already set in motion the restoration of support for basic research, and the OSTP staff did a good job of maintaining that pressure in the years following. But the President asked me to represent his interests and intentions on SDI, so that was my priority. I did that as a very

visible spokesman inside and outside the White House, and I coordinated the beginning and re-orientation of research efforts until a formal program was established in the Pentagon. In particular, while the diplomats were trying to position SDI as just another pawn to be traded away in return for some modest gains in arms control, I was traveling the world, visiting heads of key allied states, carrying the President's message that SDI was not open for negotiation. I knew his commitment, I suppose better than anyone else, and spoke with confidence that everyone else thought was misplaced. It was not until the end of 1986, at Reykjavik, that the rest of the world recognized the depth of his commitment to SDI. He turned down a remarkable offer of arms reductions from the Soviets because the price of it was killing SDI. The world, or at least most of it, was aghast and accused him of a massive blunder. They were wrong, and it was at Reykjavic that the Berlin Wall began to fall.

While I wouldn't for a moment claim that these times are akin to those that I experienced a generation ago, neither are they as different as I suspect many believe. The end of the Cold War has not seen as much diminution in defense spending as some had expected, and it has brought into focus new, and demanding technological challenges in national security. Arguments that basic research is no longer necessary are as unjustified as was the

suggestion, more than a century ago, to abolish the patent office since most ideas had already been invented.

Now, with that as an introduction, I look forward to the best part -- a good discussion.

###