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Oppenheimer & Groves: The Duality That Led To Trinity

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Abstract:

The alliance of J. Robert Oppenheimer, scientist, and Leslie R. Groves, military leader, is often interpreted as the classic example of the clash between the academic mind and the military style. Evidence suggests, instead, that it was a collaboration that led to the dawn of the nuclear age. Instead of a clash, it was collaboration and an implosion of the diverse talents needed for the success of this project. Discussion of these flawed and fascinating individuals still ignites controversy today.

This presentation will explore the backgrounds and personalities of these two men and their work together to accomplish their mission. Was the aftermath inevitable, given a relationship based on respect, but perhaps not trust? The genesis of the modern military-industrial complex rested on the genius of these two men, though they personify two distinct American sub-cultures.

What lessons can be drawn from their wartime and post-war relationship? What analogies can be drawn for current American values?

Introduction

For the past fifty-seven years the myth of the "good" scientist vs. the "evil" military man has been personified by the relationship of J. Robert Oppenheimer and Leslie R. Groves during and after World War II. This paper attempts to discuss their lives and their relationship and dispel a bit of the myth. New examinations of their relationship and contributions to the development of the atomic bomb are overdue.

J. Robert Oppenheimer

Fifty-seven years after the Trinity test, J. Robert Oppenheimer, first Director of Los Alamos and head of the Manhattan Engineering District's "Project Y", remains one of the most famous and revered figures of the atomic age. What makes this remarkable today is the cloud of suspicion of Oppenheimer as an atomic spy, a cloud that ebbs and flows with each decade's new allegation, book or revelation from decrypted cables or declassified files, from the earliest years of Project Y to the present day. Yet his reputation as an atomic cult figure remains virtually untarnished with the only group he himself ever seemed to care about, his scientific peers.

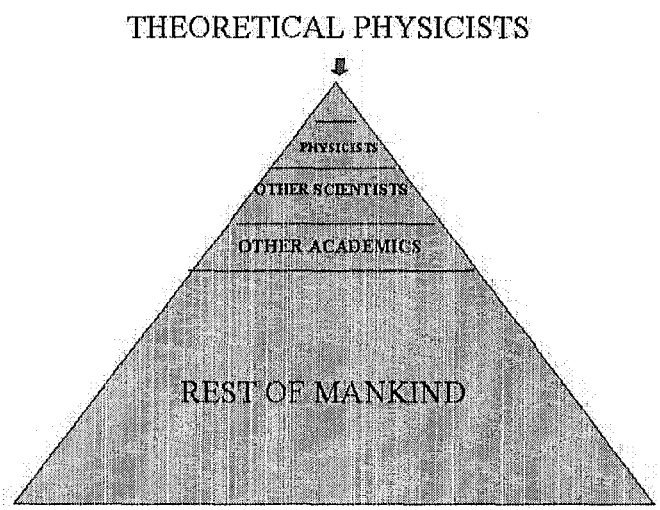
The privileged childhood has been well documented. J. Robert Oppenheimer was born the 22 of April 1904 in New York City to German/Jewish-American parents. Though his father, Julius Oppenheimer, had emigrated from Germany in 1888 and came from a farm background, by the time Julius married Ella Friedman in 1903 his father had established himself firmly in the textile importing business and was a prosperous member of the middle class.

The Oppenheimers were sufficiently wealthy to provide Robert with a private education, extensive travel, and extended vacations. This private education included the Ethical Culture School in New York City, Harvard University, Cambridge and the University of Göttingen for graduate work and Post-graduate work at California Institute of Technology, the University of Leiden, and the University of Utrecht, Eidgenossiche.

It was perhaps this private education, combined with the credible academic qualifications of the young Oppenheimer, that led Percy Bridgman, a Nobel laureate in physics, in writing to Ernest Rutherford in 1925 on behalf of Oppenheimer, to describe him as *"...a Jew, but entirely without the usual qualifications of his race. He is a tall, well set-up young man, with a rather engaging diffidence of manner, and I think you need have no hesitation whatever for any reason of this sort in considering his application."* (Freedman, James. O., "Ghosts of the past: Anti-Semitism at elite colleges", The Chronicle of Higher Education, Washington: Dec.1, 2000)

In the subculture of academia and science where the respect and admiration of one's peers is a driving force, Robert Oppenheimer had imbued these values as the only ones necessary for his public persona. Concomitant with this value system is the intense trust one places in members of one's peer group.

Further, science has its own hierarchy with "theoretical physics" at its pinnacle.



In this construct where the most difficult problems of mankind are addressed by theoretical physicists, by 1941 with his election as a member of the prestigious National Academy of Sciences, J. Robert Oppenheimer had it all: an excellent education, a brilliant mind devoted to the most important questions of the time, the "best" academic degrees, 50 articles published in peer-reviewed journals, and full professorships at two prestigious institutions. Outside of a Nobel Prize, what other honors and accomplishments were open to a young, yet ambitious professor of physics in 1942? The developing Manhattan Engineering District opened up such opportunities and made him into an icon for the developing "new" physics".

Leslie R. Groves

Leslie R. Groves, on the other hand, was not the product of a privileged lifestyle.

He was born August 17, 1896 in Albany, New York, the son of a Presbyterian army Chaplin. He claimed not to have spoken until he was four years old, and his first word was "cheese." His father was often separated from the family by his military duties, but they also followed him to various places.

After attending both the University of Washington and MIT, for several years, Groves was admitted to West Point (a lifelong ambition) and graduated fourth in his class on Nov. 1, 1918. He attended the Army's engineering school at Fort Humphreys in 1920. Early in his career he was assigned work in various areas of the United States, Hawaii, Europe and Central America. He gained a reputation of being *"... an uncompromising problem solver who avoided army politics and focused on getting results."* (Encyclopedia of the Atomic Age, p. 128)

Of these assignments, he said, *"We made the technical decisions. We didn't depend on some Ph.D. to tell us what to do."* (Ermenc, p. 214)

He was successful in getting many projects completed, and gained a reputation as a problem solver. In 1940, as deputy chief of construction for the Army, he began the task of overseeing the construction of the Pentagon. (Although parts of the building were occupied in 1942, the actual construction was not completed until Jan. 1943.)

On Sept. 7, 1942, he reluctantly agreed to head the Manhattan Engineering District (later known as the Manhattan Project). Ever aware of rank, he asked to be promoted to brigadier general before assuming the position.

He was not a popular choice. Upon meeting him, Vannevar Bush sent a memo to James B. Conant: "I fear that we are in the soup." Bush changed his mind as Groves quickly pushed the project forward. In a matter of weeks, he had purchased the Oak Ridge site, obtained a large supply of uranium. By January 1943 work had begun on the plutonium production facilities at Hanford, under a contract with DuPont.

Initially, he was told that the job was to build some plants, organize a workforce to assemble the parts and build the weapon, that the basic research and development work were already done. He soon learned that this was not the case, and that the research was far from conclusive that the idea was even viable, that most of the work was theory only, and that many respected scientists doubted that it would ever succeed, or that there was even enough material to produce the "parts" needed for research, much less a weapon.

He was even less impressed when a group of scientists in Chicago told him that they, despite their lack of experience in the area, could construct the facilities themselves. *"They wanted to build the Hanford plant themselves ... they never once admitted that they*

had been sort of foolish, or childish, even after they had seen that it took all the strength of DuPont to do the job." (Ermenc, p. 246)

No wonder he responded in kind, telling them that his years of independent study, while not focusing on physics, gave him the equivalent of two Ph.Ds. It was not a good start for either side.

"Groves was an engineer with a firm understanding of engineering practice. He had little patience for theoretical speculation or the intuitive order-of-magnitude approach so valued by physicists...Groves was uncomfortable in such surroundings and not a little defensive." (Goldberg, 1995, p. 38)

So it was imperative that Groves find the right person to lead the research arm of the project, one who understood the importance of the mission, and yet could motivate this odd breed, these scientists, someone from their own world. With ideas and calculations untested, impossible living conditions, and oppressive restrictions, how else was the project to inspire hard work?

Los Alamos: Project Y

The record is unclear how strongly Oppenheimer courted the appointment. When one considers that it was Oppenheimer's dream fulfilled to be allowed to combine physics and New Mexico, however, one suspects that he worked his formal and informal network of colleagues heavily, especially James Conant, formerly the deputy of the Office of Scientific Research and Development (OSRD) and President of Harvard University, and Arthur Compton at the University of Chicago.

While J. Robert Oppenheimer was not Groves' first choice to head the design effort, the lack of other suitable choices led the practical Groves, as we know, to take a risk in making the appointment. The lack of administrative experience, of a Nobel Prize, and of other suitable senior scientists not already engaged in the war effort seem to have been the major obstacles that Groves considered when weighing his choices. (Groves, 1962, p.62)

The Directorship of Project Y gave Oppenheimer the formal authority to recruit the best scientists available for the task, often cajoling or using the influence of Conant to persuade scientists to join the project. In the long run, the personal respect of his peers combined with his persuasive management style proved to be the ideal leadership required for the successful completion of this project.

While respecting the authority of Groves by providing him with detailed accounts of the technical work (perhaps far more than the Nobel laureates managing other aspects of the Manhattan Project) Oppenheimer's essential collegial values prevailed. He asked everyone to work hard, as did he. He fought successfully for an easing of security compartmentalization so that scientific discussion and consensus could take place. In his

ethos, the project could not succeed without open discussion and the essential weighing of ideas by one's peers.

What seems amazing at first glance that Oppenheimer and Groves were able to work together at all becomes expected after an examination of the needs of the project.

But both men were compelled most strongly by a strong personal ambition. Groves wanted to be a General and Oppenheimer wanted to head the most exciting and important physics project ever conceived. At Los Alamos the two men's ambitions intersected.

Both men were adept at getting what they wanted, although through different means.

Edward Teller sums up Oppenheimer's leadership in this manner: *"He knew how to organize, cajole, humor, soothe feelings – how to lead powerfully without seeming to do so. He was an exemplar of dedication, a hero who never lost his humanness. Disappointing him somehow carried with it a sense of wrongdoing. Los Alamos' amazing success grew out of the brilliance, enthusiasm and charisma with which Oppenheimer led it."* (Teller, Edward. "Seven Hours of Reminiscences." Los Alamos Science, Winter/Spring, 1983.)

Conversely, Groves has been portrayed as the consummate military man, giving orders and expecting them to be obeyed. A famous description of him is this one by Lt. Col. Kenneth D. Nichols: *"the biggest sonovabitch I've ever met in my life."*

Nichols does go on to say, *"but also one of the most capable individuals. He had an ego second to none, he had tireless energy ... He had absolute confidence in his decisions and he was absolutely ruthless in how he approached a problem to get it done ... I've often thought that if I were to have to do my part all over again I would select Groves as boss. I hated his guts and so did everybody else but we had our own form of understanding."*

Within a few weeks of taking command of the MED, the Oak Ridge site was selected and a large stockpile of uranium had been purchased. By January 1943, a contract had been settled with DuPont and work had begun on the plutonium production facilities at Hanford,

Groves was very aware that this project could end in failure, but he persisted, showing a rare faith in the "crackpots" gathered to do this work. He obviously worked well with governmental agencies and private industry, presenting the realistic view that this project, involving great amounts of effort and money, could fail.

One of the more subtle management techniques for group projects involves giving the group a target, a focus for discontent. It releases tensions and gives a sense of cohesiveness to individuals who might otherwise allow their disparate needs and personalities to deflect energy from the task at hand.

In many ways, Groves served this purpose. He was an easy target, with his physical image as a source of humor and his mannerisms a source for imitation. His absence from the Los Alamos site as he worked on the larger Manhattan District issues made him seem distant.

For example, there is a widely repeated story that his only vice was demanding that his secretary keep candy bars in the General's desk. This story serves the dual purpose of ridiculing his weight problem, and of making him sound like a repressed little boy, hiding candy.

"One of the big complaints made about me after the War was that the scientists didn't like me," he said in 1967. *"I think the answer to that is: who cares whether they liked you or not. That wasn't the objective."* (Ermenc, p. 248)

It is apparent, however, in reading contemporary accounts of this time, that Oppenheimer wisely did not participate in this focus.

And while Oppenheimer did not particularly care for the nickname "Oppie," there is no denying that it is still spoken today with great affection. In point of contrast, one of the many nicknames for Groves at Los Alamos was "His Nibs."

Trinity Test: July 16, 1945

The rapport between the two was graphically illustrated at the Trinity test, July 16, 1945. Oppenheimer had been there for several days when Groves flew in with high-ranking officials.

In addition to the many other details facing them that night was the additional worry about the weather. Would they be able to test "the gadget" or would the weather cause a delay? Groves, ever practical, took a nap until time for the next weather check.

Said Groves, *"... I was with Dr. Oppenheimer .... Naturally he was nervous, although his mind was working at its usual extraordinary efficiency. I devoted my entire attention to shielding him from the excited and generally faulty advice of his assistants who were more than disturbed by their excitement and the uncertain weather conditions. ... During most of these hours the two of us journeyed from the control house out into the darkness to look at the stars and to assure each other that the one or two visible stars were becoming brighter."* (Groves report on the Trinity Test, dated July 18, 1945)

The "two visible stars" of this story, Oppenheimer and Groves, have been portrayed as stereotypical opposites: one intellectual, one total pragmatic. One charismatic, one graceless. One charming, one a bully. One from the laboratory, one from the construction site.

And yet, here they were, at the culmination of all of their efforts, and the efforts of all the Manhattan District facilities and people, working together.

All coming down to one rainy night in the desert, and two very different men, walking together, looking for stars.

Post Manhattan Project: Groves
Groves remained as Chief of Army's Special Weapons Project until 1947. It was replaced by the civilian Atomic Energy Commission, a reorganization supported by the scientists and politicians, but not by Groves, although he did serve as military liaison.

Groves retired from the military in 1948, and became a Vice-President at the RAND Corporation.

He testified before the federal Personnel Security Board in the 1954 Oppenheimer hearings. Published evidence indicates that he knew about Oppenheimer's links to Communism, and felt there were minimal, especially compared to the need for the Project.

In 1962, his memoir of the Manhattan Project "Now It Can Be Told" was published. The book deftly conveys a sense of the enormity of the project and the determination of its leaders. However, it gives no sense of Leslie Groves as person outside of the project; there are few references to his family life, his reactions to world events at a personal level, etc. For that we must rely on the recollections, often unflattering, of others.

The Groves myth is that of the arrogant military man, who knew nothing about science. The tale of his assessment of the Los Alamos staff as the "greatest collection of crackpots ever seen" is often repeated, and usually with a sense of pride of being part of that collection.

But the truth is more than that. His legacy, according to LANL archivist Roger Meade, "continues to grow positively. If not for Groves the bomb may not have been built!"

Groves died of heart disease on July 13, 1970.

Post Manhattan Project: Oppenheimer
In the post-war years and into his own security clearance hearings the ethos of peer regard continued to be relied upon by Oppenheimer, even when all evidence should have suggested more humility, less ambiguity, and more deference to authority.

But by then J. Robert Oppenheimer was a cult hero genuinely indifferent to the regard which others outside his peer group gave him. This personal value system, which served him admirably in academia and Los Alamos, compelled him to be ambiguous where security was concerned, to protect peers others deemed unworthy, and to appear arrogant to those outside the peer group.

President Lyndon Johnson reinstated his security clearance in 1963, and he received the Atomic Energy Commission's Enrico Fermi Award. One of the people who promoted that award for Oppenheimer was Edward Teller.

The legacy of J. Robert Oppenheimer endures within his peer group and, mostly, with the public. Significantly, Oppenheimer's last visit to Los Alamos in 1964 was to pay homage to Neils Bohr in a scientific colloquium. Most recently in 2000, the belief that only the community of physicists can be trusted was fortified when members of the American Physical Society including Hans Bethe soundly defended Oppenheimer (Letters, Physics Today, Feb.2000 and June 2000) when the book *Venona Secrets* (Romerstein, p. 275) accused him of being a spy and others doubted his scientific contribution to the development of nuclear weapons. However, it is not know if his cult status will endure after the passing of his peers.

Oppenheimer died of throat cancer in 1967. He never wrote his memoirs.

Leslie Groves flew in a chartered plane to attend the memorial.

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