

‡ CHAPTER 5 ‡

**LESLIE R. GROVES, WEST POINT,  
AND THE ATOMIC BOMB**

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How did West Point shape Leslie Richard Groves and how did the Academy contribute to the skills he used to oversee one of the nation's most ambitious enterprises, the building of the atomic bomb during World War II?<sup>1</sup> The Manhattan Project was, among other things, a gigantic engineering, construction, and industrial effort, run by the Army under great secrecy, accomplished rapidly through unorthodox means to deal with uncertain technologies. Overemphasis of the roles played by a few individual scientists has distorted our understanding and appreciation of these features. A closer look at Groves the administrator and builder will supplement—and partially correct—common misperceptions of the project and provide us with a fuller understanding of how the atomic bomb was built.

The Manhattan Project did not just happen. It was put together and run in a certain way: Groves's way. His is a classic case of an individual making a difference. Being in the right place at the right time is the secret of winning a place in history, but rarely does a person arrive there by accident. Groves ran the Manhattan Project in precise and resolute ways, recruiting some of the giants of American industry and science to design, build, and run his atomic factories and laboratories. Without Groves's organizational and managerial skills, and construction know-how, the project might have failed; in any case it would have taken longer to accomplish. Individuals do make

a difference, and in this instance Groves was indispensable to the project's success.

Many factors contributed to the development of Groves's personality and character, ranging from family influences and growing up on military posts at the beginning of the 20th century, to service in the interwar army with the Corps of Engineers. West Point was one of the most significant of those factors leaving an indelible mark upon him. It transformed an ambitious and aggressive but disorganized and carefree boy into a remarkably self-disciplined man imbued with assiduous work habits and a sound technical education. In addition, the Cadet Honor Code provided him with a moral compass that he followed throughout his life.

Dick Groves (he was known by Dick after his middle name Richard) entered the Academy on 15 June 1916 as a member of the Class of 1920. He later recalled that "entering West Point fulfilled my greatest ambition" and went on to give his reasons for wanting to attend the Military Academy:

I had been brought up in the army, and in the main had lived on army posts all my life. I was deeply impressed with the character and outstanding devotion of the officers I knew. I had also found the enlisted men to be good solid Americans and in general far superior to men of equal education in civil life. I was imbued with the idea that the West Point graduates were normally the best officers and on the whole enjoyed higher respect from the enlisted men.<sup>2</sup>

Like many cadets of his day, he had completed several years of university level education prior to entering. Groves had spent one year at the University of Washington and two years at MIT. The decision to go to West Point was his, and it was something he wanted intensely. His father, an Army chaplain for 20 years, did not encourage his son to follow him, and in fact preferred he choose another career. His mother, before her death in 1913, tried in discreet ways to influence her son against an Army career. It was to no avail.

Groves attended West Point for less than two and a half years, graduating with the Class of November 1918. The standard four-year course was cut short by the expected need for officers for World War I, though

as it turned out he graduated only ten days prior to the armistice.

What was West Point like? In those early years of the 20th century West Point was a smaller, more tradition-bound institution, resistant to, even fearful of, change. As one scholar has described it:

At West Point, graduates had all taken the same classes, undergone the same hazing, marched in the same formations. This common experience gave them a sense of community, of fraternity, that they could not bear to see destroyed. A change in the continuity at the Academy would have the effect of disturbing their bond. To tamper with West Point would be to tamper with the cement that held the army officer corps together.<sup>3</sup>

West Point influenced family priorities and practices. Sons of graduates were usually encouraged to attend the Military Academy. Classes were small enough that a cadet would probably know most of his classmates, and even many in the classes just ahead or just behind.<sup>4</sup> Graduates would often marry young women whose fathers were graduates themselves. (Thus Groves married the daughter of a member of the Class of 1877.) The Regular Army officer corps was inbred and in many ways isolated from the society at large.

Like every new cadet, Groves wanted to realize the promise of West Point. In a contemporary account a former instructor describes what a cadet feels when he arrives.

To the candidate [his arrival at West Point] conjures a vision of all that he hopes to be. The honor of being a cadet, the privilege of wearing the uniform, the immense possibilities of physical and mental achievement, the soul-satisfying fear of an ambition about to be realized, the glamour of military life, and, it must be admitted, a secret feeling of righteous superiority over his boy friends at home—all these thoughts crowd his imagination so that for once he sees frozen the vague ideal that he always has had of himself.<sup>5</sup>

No sooner did one class graduate in early June than a new plebe class—formally, Fourth Class—arrived, trudging up the hill from the

train station on the west bank of the Hudson River.<sup>6</sup> Groves was one of the 322 cadets of what would have become the Class of 1920 who entered that summer of 1916, the largest class up to that time. Two days before Groves's arrival, President Woodrow Wilson had delivered a half-hour address to the graduates of the Class of 1916 and awarded them their diplomas.

From all Groves had heard he knew that his first three weeks as a cadet in "Beast Barracks," the indoctrination into West Point ways, would be the most demanding experience of his young life. And indeed it was, with early reveille and long hours of physical training and military drill. This rite of passage also included considerable hazing by upperclassmen on the Beast detail.<sup>7</sup> The severe treatment of plebes had its purpose. As a contemporary of Groves said,

The standards of West Point are entirely unlike those of any other institution. To preserve those standards unchanged it is considered necessary that a young man entering the Academy be subjected to the severest discipline, that even his personality be more or less suppressed in order to give the spirit of West Point time to get hold of him, to allow him to adapt himself to the ideals of the Corps, and to keep those ideals from being, through him, perverted.<sup>8</sup>

After two months in summer camp at the northwest corner of the Plain, Groves moved into cadet barracks to begin the first academic term. Like every plebe, he was issued a copy of *Bugle Notes*, a pocket-sized handbook known as the Plebe bible and containing useful information about the rites and rituals, schedules and procedures of West Point. It stated, "The purpose of the Academy is to shape a man and a soldier—an honorable, loyal, courageous, self-reliant, disciplined, intelligent gentleman and officer." There was also a section titled "English as She Is Spoke at the U.S.M.A."<sup>9</sup> The plebe was required to learn a new vocabulary that helped describe his new life. In the first year he was frequently "braced" (ordered to assume a severe position of attention); "skinned" (reported as being in violation of regulations); and "quilled" (reported as having committed one of the offenses listed in the "Black Book"). But if he

"hived" (understood) his study assignment or "specked" (memorized without understanding) his assignment, he might "max" (achieve a maximum grade on) the lesson.

The cadets lived in either South Barracks or North Barracks. Each room was identical, 14 feet by 22 feet, with the same furniture for its two cadets: two iron cots, two plain wooden tables, two wooden chairs, two steel clothes lockers, and two washbowls. Bathing or toilet call required a trip to the "sinks" (lavatories) in the basement. Rugs on the floor and pictures on the wall were prohibited. The mirror was flanked by notice of the hours of instruction and the schedule of the cadet. Failing to have it correctly posted was an offense. There were also hooks on the wall to hang clothing, in the proper order: the first hook for the raincoat, the second for the overcoat, the third for the dress coat, and so on. Shoes were aligned toes-out alongside the bed, in order of size from biggest to smallest. During the day mattresses were folded, with bedding folded and piled on top, ready for any inspection that might occur.

Activities were prescribed for almost every minute of the day. The cadet was up at 6:00 a.m. with breakfast at 6:30. Normally there were two classes from 8:00 a.m. to 12:35 p.m. Dinner lasted 40 minutes and was followed by another class until 3:45 p.m. Then it was drill, athletics, and parade, with supper at 6:25 p.m. Call to quarters followed, with a study period from 7:30 to 9:30, taps at 10:00 p.m., and lights-out.<sup>10</sup>

A cadet was issued an extensive wardrobe of uniforms of different types and combinations, depending upon the season, weather, and function.<sup>11</sup> Cadets knew the proper uniform for each occasion by looking out of their barracks room window to see which uniform flag flew in the courtyard. A cadet was not allowed to have money; before admission he had to deposit sufficient funds with the treasurer to cover the cost of his uniforms, about \$160 when Groves was a plebe. His pay was \$600 per year, but that too was deposited, and all costs he incurred were drawn against it. The cost of meals—\$29.19 per month in 1918—books, laundry, blankets, sheets, pillowcases, mattresses, candy, tobacco, uniform replacements, and furloughs kept the cadet constantly on the verge of debt, or in it.

During meals there were ordered procedures that had no variation. A bugle or drum call summoned the cadets to formation for marching to Grant Hall, the cadet mess. Cadets marched everywhere, at all times. If even two cadets were going from the chapel to the library, they kept in step. Once inside the mess hall the cadets arranged themselves at tables according to seniority, standing at attention behind their chairs. After the order "Take seats," the meal began. A First Classman (senior), known as the table commandant, was in charge of each table, and he sat at its head. Second Classmen (juniors) and Third Classmen (sophomores) came next, positioning themselves down the table until at the foot sat three or four lowly plebes, who performed the menial duties of serving their superiors. One plebe, known as the water corporal, poured the water and milk; another, the meat corporal, carved the "bone"; and a third, the coffee corporal, poured the coffee. The gunner supervised the supply of food brought from the kitchen by civilian waiters. If plebes were in short supply, they might have to double up on their duties. Busy with their chores, the plebes ate in spasms when they had a free minute. Meals were not leisurely affairs. Including announcements from the officials about various matters, the meal was over in half an hour. At its conclusion the cadets were called to attention and dismissed, to make their way back to their rooms.

During plebe year many drop out for one reason or another. In Groves's class seven were gone in the first three weeks, not making it past Beast Barracks; others departed as a result of academics, and a few were lost to the Honor Code, the strict rules that demand the reporting of dishonorable behavior. The Cadet Honor Code—"A cadet does not lie, cheat, or steal, or tolerate those who do"—stands as the keystone in fulfilling West Point's mission.<sup>12</sup> The code is about trust. If officers in the Regular Army could not trust one another, especially in war, then the prospects for battlefield success would be undermined.<sup>13</sup> West Point graduates believed in the values taught there and used them as the central principles of conduct throughout their lives. Groves was a prime example: he lived by the code and expected others to do so as well.

Some of the more dramatic differences between then and now are to be found in the course of instruction. The curriculum of Groves's day, as well as the nature and purpose of a West Point education, was still deeply rooted in 19th-century traditions, though some reforms were occurring.<sup>14</sup> A uniform course of study for all helped forge a unified and homogeneous officer corps. Mental discipline and character-building were the essential ways to prepare young men to be Army officers.<sup>15</sup> Thus the curriculum at the time offered no choices. No matter what his previous schooling, every cadet took every subject, every cadet had to recite every day and was graded on his answers, and every cadet had to be proficient in every subject to advance. There were no exceptions.

Cadet Groves's first-year courses included mathematics, English, history, practical military engineering (surveying), and drill regulations (infantry and artillery).<sup>16</sup> The technical curriculum was heavily weighted in the first two years toward mathematics, consuming about 45 percent of the course work. Groves had already taken several math courses at the University of Washington and MIT, so he did well in math and surveying, placing fifth and second, respectively. Overall at the end of plebe year, he ranked 23d and was one of the 26 distinguished cadets of the Fourth Class entitled to wear stars on his collar.<sup>17</sup>

The cadets were marched by sections to class in the East Academic or West Academic (now Pershing Barracks) Building. After the cadets were in the classroom, the section marcher closed the door, faced the instructor, saluted, and reported either that all were present or that those noted were absent. In Groves's day there were probably a dozen or so cadets per section. After the order "Take seats," the instructor asked if there were any questions about the day's assignment. Answering them took about half the period. Then the instructor would say, "Take boards," and each cadet would stand and face a blackboard, write his name in chalk in the corner, and listen for instructions. If it were a math class, for example, the boards were marked odd and even. Cadets at the odd blackboards would work on two or three problems over the next 30 or 40 minutes, while their neighbors at the even boards would work on two or three different

ones. Whereas the honor system was operative every minute of the day, the odd-even system helped prevent an inadvertent observation that might arise due to peripheral vision.

With the order "Cease work," the cadet stopped where he was. The instructor would then give the pointer to a cadet, who would have to explain how he solved his assigned problem. After the class was dismissed, the instructor assessed each of the boards and recorded a grade. At the end of the week all the marks were compiled into the weekly report ("tenth sheets" reflecting the numerical grading system that discriminated to the first decimal place) and posted on Saturday on bulletin boards in the sally ports of the barracks, where all could see every cadet's progress or lack thereof. Once a month the cadets were "resectioned" according to merit, with the most capable moving up to higher sections and those less so moving down. Each month the grades were mailed to the parents to keep them informed. This was a highly competitive environment where tenths of a point. The instructors gave grades using a scheme laid down by Sylvanus Thayer, superintendent from 1817 to 1833. Perfect was scored 3.0; passing was 2.0. Thus there were only 11 possible passing grades between 2 and 3—2.0, 2.1, 2.2, 2.3, and so on—and the grade competition was fought out there ("fighting for tenths"). Anything below 2.0 of course was a failure. The system was slightly skewed, with instructors of the top sections more likely to continue to give higher grades to those cadets, often for identical work, than did instructors in the middle or bottom sections.<sup>18</sup>

From the daily recitations to weekly compilations, to the monthly, semester, year, and finally entire four years, an aggregate grade, to the second decimal point, was calculated. This score—along with demerits—determined the General Order of Merit, or class rank, and would follow the cadet to the end of his days (and even beyond), determining what branch he would enter and thus where he would be assigned, when he would be promoted, even which set of quarters he would be assigned.<sup>19</sup> It was a system that fostered competition, and Groves thrived on it, for he truly enjoyed competing; he liked nothing better than excelling at whatever he undertook. His copies of the annual Official Register are full of his penciled computations,

carried to five significant figures, of his standing relative to that of his classmates—keeping track of progress toward his goal of being Number One, a goal that he likely would have attained if his class had not graduated early.<sup>20</sup> Even so, he finished fourth out of 226 in the Class of November 1918. The Thayer system developed Groves's will to win and made it a lasting part of his makeup.

Early in the 20th century a new emphasis came to be placed on the physical conditioning of cadets.<sup>21</sup> In 1905 President Theodore Roosevelt ordered all cadets to attend gymnasium daily. By 1910 they used the new gymnasium for boxing, fencing, bowling, and squash. The following year an indoor swimming pool was installed. Physical exercise also came in the courses that exposed the cadet to the other branches of the Army besides engineering: field artillery, infantry, and the cavalry. Equestrian exercises were practiced in the huge riding hall.

Exercise also came in daily drills and parade. In order to drill in formation and appear visually as a coherent whole, the Corps was "sized." This involved lining up the cadets by height and assigning them to companies based on how tall they were. The number of companies depended upon the size of the class; always beginning with A it might run to I, as it did for Groves's class. The tallest cadets were in Companies A and I, the next tallest in Companies B and H, next C and G, and so on. Thus when the Corps was formed in a line of companies on the parade ground, it appeared as though everyone was the same height. Cadets in A and I Companies were known as Flankers. Cadets assigned to the center companies were known as Runts. While the purpose of sizing was for the Corps to appear of uniform size when drilling, the cadets used it as a means of social differentiation, leading to some real animosity and contempt among them. Flankers held themselves superior to the lowly Runts, who were considered officious, aggressive, and overly military—a combination that was commonly termed a "runt complex." During his plebe year, Groves was in H Company and at five feet ten and one-half inches (tall in his day), a Flanker. This was a source of great satisfaction to him, leading him to make shorter classmates the butts of his derisive comments.

There was also an extensive athletic program, with intramural and some intercollegiate competition. Groves favored the contact sports, football and wrestling. In his plebe year he played on the junior varsity football squad, and in his yearling year he played on the varsity, whose only loss in eight games was to Notre Dame. The schedule did not include arch rival Navy, the contest being canceled for the duration of the war. Groves did not play in two-thirds of the games and thus did not earn an A letter.<sup>22</sup> The star of that team was Elmer "Ollie" Oliphant, a year ahead of Groves, an All-American fullback and co-captain. On 10 November 1917, Army played the Carlisle Indian School and beat them 28-0. Groves was the second-string center behind his roommate, Arthur Pulsifer, and played in the game.<sup>23</sup> In the winter months there was intramural wrestling. In his plebe year during the indoor meet he came in second in the light heavyweight class.

Groves kept somewhat apart from his classmates. While his roommates and hall mates were spending their free time in the evenings gossiping, playing cards, or horsing around, Groves studied or wrote letters home, while lecturing the other cadets about not wasting their opportunity to excel. Although some considered him a bit of a grind, he was respected for his ambition and his dedication; it was clear to several of his classmates, even then, that he was destined for higher leadership.

The commandant of cadets, assisted by the tactical officer for each company, is responsible for the military instruction and discipline of the Corps. In Groves's time the commandant was Lt. Col. Guy V. Henry. The officers in the tactics department prescribed the order of the barracks, the mess hall, and just about every other detail of cadet life. For breaches of regulations cadets were skinned, or reported, as we noted earlier. With so many rules there were ample opportunities for infractions, ranging from being late for class to inattention to instruction to missing a button on one's uniform. The cadet had to submit a written explanation of his delinquency and, depending on the severity of the offense, might receive punishment in lieu of or in addition to demerits. It might be a "punishment tour," one hour of walking an assigned pattern on Wednesday or Saturday afternoon in

the central courtyard known as the Area. It might mean confinement to one's room, loss of furlough, deprivation of privileges, reprimand, or, in the most serious cases, suspension or dismissal. Conduct was factored into overall class standing and when relative class standing could hinge on tenths of a point, demerits could make the difference in where one eventually ranked.

Groves never had any serious disciplinary problems.<sup>24</sup> As a plebe he ranked in the middle in conduct; like most of his classmates he was awarded the bulk of his demerits during the first six months.<sup>25</sup> At that time there were seven classes of offenses. A Class 1 offense was the most severe; playing at cards or games of chance, for example, could result in 11 to 20 demerits. Least severe were Classes 5, 6, and 7, which resulted in the fewest demerits (three, two, and one, respectively). Almost all of Groves's demerits were 7s and 6s, with an occasional 5. His worst day came on 14 October 1917, when, under the watchful eye of tactical officer Captain Kelly, Groves was awarded six demerits for three separate offenses at inspection: a dirty rifle, a soiled collar, and a tarnished breastplate—awards that were considered to be "character building." In his case, they most certainly were. For, though he walked the area on account of them, he decided that doing so was a waste of his time; after that he walked no more.

Although Groves's academic performance at the University of Washington and MIT had been mediocre to average, at West Point he was an excellent student. Considering his entire two and a half years, Groves ranked fourth in his class. He graduated and was commissioned a second lieutenant on 1 November 1918.<sup>26</sup>

The developments of the European war, under way since 1914, had been slow to influence the conservative Academy.<sup>27</sup> Occasionally the war intruded in the form of distinguished visitors. Gen. Joseph Joffre, hero of the Marne, visited West Point in May 1917. The following May, a group of French combat veterans, the Blue Devils, visited. The West Point Band played "The Marseillaise" and 900 cadets marched as one in their honor.<sup>28</sup>

The initial response at West Point to the Great War in Europe was that no change was needed at all in the tradition-bound crucible forging America's officer class. Until 1917, the Academy refused to

acknowledge the changes brought about by the war, adhering to the curriculum that had been established prior to the American Civil War. In military instruction, the well-established great captains—Alexander, Caesar, and Napoleon, as well as the Civil War leaders—were studied intensively, while such modern developments as the Gatling gun and trench warfare were largely ignored.

But when the United States formally entered the war on 6 April 1917, the War Department, badly in need of officers, accelerated the graduation dates of West Point cadets. Eventually the six wartime classes that entered between 1913 and 1918 would all graduate in the 38-month period between April 1917 and June 1920, leaving the Military Academy practically empty.<sup>29</sup> This rush to produce West Point officers through accelerated graduation was controversial within the Army's high command. Granted, large numbers of officers were needed to lead the huge numbers of men going off to war. A partial solution to that problem was to give commissions to thousands of civilians, so-called emergency officers.<sup>30</sup> In 1916 there were 5,175 officers in the Army. The following year there were 34,224; in 1918, 130,485.<sup>31</sup> When the war was over, many of these wartime officers became Regulars. The long-term impact of this infusion, known as the "Hump," profoundly affected the interwar army, freezing officer promotions throughout two decades and causing Groves and his classmates to remain first lieutenants for 16 years.

On the morning of 2 October 1918, a rumor began spreading through the Corps that the Classes of 1920 and 1921 would graduate on 1 November of that year. At dinner that evening an announcement confirming the rumor was made in the main mess hall. It was a moment of high drama. Immediately after the order had been read, the acting commandant held up his hand for silence and said, "Now let's see what sort of discipline you have . . . I want everyone to keep absolutely silent for five minutes."<sup>32</sup> After what seemed to be an excruciatingly long period the cadets were told to make as much noise as they wanted; what followed was pure pandemonium. A hectic four weeks followed, "a nightmare of lectures and drill . . . busy morning, noon, and night . . . a mad attempt to give us a year's work in three months."<sup>33</sup>

Because of his high class standing Groves could choose his branch. He opted for the prestigious *Corps of Engineers*, the almost automatic choice of the smartest cadets decade after decade. West Point was, after all, founded as an engineering school, and traditionally the top-ranking graduates chose engineering as their vocation. Indeed, leadership of the Academy was confined to the Corps of Engineers until 1866, when Congress passed a law allowing those from other branches of the Army to serve as superintendents. Nevertheless, of the 30 who served from 1802 to 1918, 20 were from the Corps of Engineers.

There was a large number of engineer spaces available, so Groves had lots of company. Twenty-nine out of the top 30 cadets in his class, and 44 out of the top 50, chose the Corps of Engineers. Twenty-five percent of the entire class—62 cadets—chose the Corps. The choices for most of the remaining second lieutenants were infantry (50), field artillery (32), coast artillery (29), and cavalry (22). One other option was available, air service, and Eugene Luther Vidal (a famous football star, later known for being Gore Vidal's father) and a few of his classmates took it.

The hurriedly arranged graduation ceremony took place on the parade ground in the presence of about 3,000 people. In a short address Assistant Secretary of War Benedict Crowell told the 511 new second lieutenants (the Classes of November 1918 and 1919 graduated at the same time) that it was the government's intention to have them in France within four months. Ten days later the Armistice was signed, proving once again that it is not always easy to predict when wars might end.

The imprint of Groves's experience at West Point on his personality, character, professionalism, and leadership runs deep, and though we will treat this subject more expansively toward the end of the chapter let us pause briefly to note those traits that appear to reflect most directly the correspondence between his Academy training and his approach to officership.

The Academy regimen imbued Groves with extraordinary self-discipline—the will to harness his energies, impulses, inclinations, thoughts, and acts, and focus them laser-like upon the accomplish-

ment of a larger purpose. The math-science orientation of the Academy curriculum produced in Groves an analytic mind, one marked by remorseless objectivity, logic, and organization. It was a mind able to apply scrupulous attention to the particularities of a problem when such was required, but which never lost sight of the overarching principles leading to answers to the great and complex questions. The Academy's continued emphasis upon the causal connection between leadership and mission accomplishment remained with Groves for life. He was a master artist in adapting his accustomed leadership and managerial style to the various exigencies of the moment, always with a tenacious regard for getting the job done. Most important of all, of course, was the Cadet Honor Code, which infused Groves with the grand imperative that an officer's word is his bond, an imperative informing every act in his subsequent professional life.

Over the next 20 years, from 1919 to 1939, Groves served in the interwar Army in several capacities with the Corps of Engineers. An understanding of this experience and his indoctrination into the special culture of the Corps are essential to appreciating the skills and abilities Groves put to use in building the bomb. The interwar Army was an interesting institution, minuscule by contemporary standards, but miraculously able to provide much of the military leadership for World War II. Its average strength was about 135,000, some 12,000 of whom were commissioned officers. The number of officers in the Corps of Engineers during the period was only around 600, about five percent of the Army's officers.

It was a very small group in which everyone knew one another, and it was easy to spot who had ability and intelligence and who did not. The Corps of Engineers has traditionally seen itself as the elite branch of the Army, the best and the brightest with their own motto, "Essayons" (Let us try), and special buttons on their uniform. In many ways the Corps was a caste apart, semi-independent from the main Army and not really integrated into it at all. The other branches felt that distance as well. Engineers, with a few exceptions, normally were not chosen for the highest levels of command in the Army. Nevertheless the Corps fostered a tradition of excellence and was proud

of its accomplishments of exploring, surveying, developing, and improving the expanding nation from colonial days to the present.

In 1918, the Chief of Engineers was concerned that the war-accelerated graduations at West Point had produced officers who were inadequately prepared to perform engineering duties, so he established a special course at the Army Engineer School designed to round out their education. Thus, Groves's first assignment was to that course. From there he went on to serve in a variety of duties from Hawaii to Delaware and from Vermont to Nicaragua—always closely observed and guided by outstanding senior officers. He learned a great deal from them; he did well in every assignment and gradually gained a reputation of being a man who could get things done.

He spent four years in Washington, DC, in the Chief of Engineers' office in the early 1930s, and then attended the Command and General Staff School (as it was known at the time) at Fort Leavenworth, Kansas. Clearly on the fast track, he attended the Army War College at Fort McNair in Washington, and then served on the General Staff just as World War II began in Europe. In late July 1940, as the Army mobilized for war, he was assigned as special assistant to the Quartermaster General where responsibility for military construction lay. The story of how the Corps of Engineers took control of construction over the next year and a half is too complicated to recount here, but it was a classic bureaucratic battle over turf with Groves in the middle of it. Eventually Groves ended up as Deputy Chief of Construction and in that capacity was responsible for all domestic Army construction during the period leading up to Pearl Harbor and for nine months afterwards, overseeing the construction of dozens of Army camps, depots, air bases, munitions plants, airplane plants, and hospitals, as well as building the Pentagon. His daily challenges were monumental and unrelenting. In July 1942, the construction peak was reached, with a million men at work and a monthly expenditure of \$720 million, the cost equivalent of 15 Pentagons or about \$14 billion in today's dollars. It was here that he became widely known as someone who could get things done, and in a hurry. He knew how wartime Washington functioned with its emergency boards and committees that allocated resources and manpower to priority projects. And as

he worked with the large construction and industrial firms he came to know their executives and engineers. He would soon be calling upon them to help him build the bomb.

Groves was a classic example of the right person being in the right place at the right time. His prior experience and record made him the most logical choice to head the Manhattan Project. From the day when he first took charge and for every day that followed he put his skills to work to build the bomb in the fastest time possible. The element of speed was overriding in all of his actions. From the outset he dedicated his efforts to winning the war. His assignment to the project had denied him the opportunity to go overseas and serve as a combat engineer; yet his actions make it clear that, after a few moments of disappointment, he decided that building the bomb would be his life's achievement. Knowing that it might end the war was the main source of Groves's extraordinary determination and energy.

His mission order, dated 17 September 1942, was all-inclusive: "Colonel Groves' duty will be to take complete charge of the entire project . . . [and] draw up plans for the organization, construction, operation, and security of the project, and after approval, take the necessary steps to put it into effect." At the beginning Groves was engineer and builder, charged with constructing the plants and factories that would make the atomic fuels—highly enriched uranium and plutonium. As the project accelerated, he came to oversee a vast security, intelligence, and counterintelligence operation with domestic and foreign branches. Through his power to make final decisions, he was ultimately in charge of all scientific research and weapon design, including keeping close watch on the laboratory at Los Alamos. He was involved in many key high-level domestic policy issues and in several international ones as well. By 1945, in addition to all else, he effectively became the operational commander of the bomber unit he established to drop the bomb, and was intimately involved in the planning, targeting, and timing of its missions. One is struck, in discovering all of his many activities, by just how much power Groves accrued. As a West Point classmate and friend later observed, "Groves was given as much power in that position as any officer ever has had."<sup>34</sup> A remarkable statement.

Groves's education at West Point and elsewhere clearly did not qualify him to solve personally the scientific challenges of the Manhattan Project. Nor did it need to. Yet, the Academy's technical curriculum gave him the foundation necessary to build upon. Groves was always a quick study. He did his homework, asked questions, and had a rudimentary knowledge of the physics and chemistry of the atom; he did not need to be a world-class scientist since he had scores of them working for him. Eight on the project had already won a Nobel Prize, and more than a dozen others would do so after the war. Issues requiring scientific analysis were thoroughly reviewed by his advisers; still, in the end it was Groves's choice about which path to take. And these were not easy decisions; the proposed solutions were not always clear-cut and often more than one alternative seemed promising, each backed by sound scientific advice.

In the face of the baffling, enigmatic nature of the scores of such problems, arriving at the right solution in two or three cases could have been mere luck or chance. But to do so repeatedly over a period of three full years, as Groves did, bespeaks an engineer-administrator with uncanny judgment and the keenest of scientific-technological instincts.

Equally important to the project's success was Groves's broad, integrative perspective. The clashing worldviews of the theoretical physicist and the practical engineer were ever present in their different approaches to the bomb. This point was brought home to him a few weeks after getting the job. In October 1942 Groves visited the University of Chicago to assess the status of the project and to meet some of the scientists. He asked them the practical question of how much fissionable material—either highly enriched uranium or plutonium—would be needed for a bomb. Expecting a reply within a narrow range of uncertainty, he was horrified when they told him that they could estimate only within a factor of ten. In other words if it was determined that 100 pounds of plutonium might be needed, the correct amount could be anywhere from ten pounds to 1,000 pounds, not a good basis upon which to start building production facilities. In the months that followed Groves was relentless in demanding an answer to the crucial question of how much material

was needed for a bomb. Eventually an answer was found and producing that amount became the determining factor of when there was a bomb ready for use.

Groves possessed to an unusual degree four of the essential qualities of leadership, be it on the battlefield or off: the ability to choose able subordinates and let them work without interference; the self-confidence to take decisive action when needed; the will to win; and personal integrity. Groves's dozens of personnel choices speak for themselves. He had an extraordinary ability to size people up almost instantly and to know whether they could perform the job he was assigning them or not. As for decisions, he made most of the important ones, risking hundreds of millions of dollars in the process and not getting too many of them wrong. When there was a misstep he was usually able to reverse himself quickly. Since so many of the steps in the theory-to-hardware production cycle were first-time engineering ventures—literally steps into the unknown—and since in those early years even the theory itself was uncertain and untested, the fear of failure hung over the project from the beginning. Not until 16 July 1945, when the first atomic explosion occurred in the New Mexico desert, were the doubts dispelled. Though the weight of his responsibilities must have borne heavily upon him, he never let it show. Exhibiting any doubt would have eroded the morale of everyone. He knew that leaders must project a confident exterior to maintain enthusiasm and focus.

These first two qualities of the man—shrewd insight into his fellowman and robust self-confidence—were probably a part of his birthright; as he matured, service with the Corps of Engineers developed and strengthened them. The last two—the will to win and integrity—are more directly attributable to his time at West Point, when constant exposure to the highly competitive atmosphere of the Thayer system imbued him with a fiercely competitive spirit and an indomitable will to win. After that, he would allow nothing to deter him from accomplishing his mission, however distasteful to him it might be and no matter who stood in the way. And the Cadet Honor Code provided the rock upon which his personal integrity was founded. As Sir James Chadwick said of him: “[H]e was a man of

his word. He could be trusted. When he said he would do something, it would be done."<sup>35</sup>

Throughout his life he kept close ties to West Point. A former officer under whom he served (Francis B. Wilby), a close friend (Maxwell D. Taylor), and his executive officer (James B. Lampert) became Superintendents. His son and grandson were graduates and Groves served as President of the Association of Graduates for four terms. As he said late in life, "To be a graduate of West Point is an honor that comes to few and one that is never forgotten by any former cadet."<sup>36</sup>

<sup>1</sup> This chapter is derived in part from Robert S. Norris, *Racing for the Bomb: General Leslie R. Groves, the Manhattan Project's Indispensable Man* (South Royalton, VT: Steerforth Press, 2002). I would like to thank James L. Abrahamson for his comments on an earlier version.

<sup>2</sup> Leslie R. Groves, *For My Grandchildren*, Entry 7530N, Papers of LRG, Record Group 200, NARA, 103.

<sup>3</sup> Stephen E. Ambrose, *Duty, Honor, Country: A History of West Point* (Baltimore: The Johns Hopkins Press, 1966), 207.

<sup>4</sup> For the classes from 1910 to 1919, the average number of graduates was 140; from 1920 to 1929 it was 225; from 1930 to 1939 it was 456. For the classes from 1990 to 1999 the average number of graduates was 970.

<sup>5</sup> Robert Charlwood Richardson, Jr., *West Point: An Intimate Picture of the National Military Academy and the Life of the Cadet* (New York: G.P. Putnam's Sons, 1917), 103. Captain Richardson (Class of 1904) was an assistant professor of English in Groves's plebe year. His book is an account of what it must have been like when Groves was there. See also Jeffrey Simpson, *Officers and Gentlemen: Historic West Point in Photographs* (Tarrytown, NY: Sleepy Hollow Press, 1982).

<sup>6</sup> *Plebe* is short for the Latin word *plebeian*, referring to a member of the lower or ordinary class—or, in the West Point dictionary, "less than nothing." *The Howitzer: The Yearbook of the Class of 1919*, 361.

<sup>7</sup> Theoretically it ended with his class. *The Howitzer: The Yearbook of the Class of 1920* says that they "were the last plebe class to go thru the mill under the old regime of intensified hazing," 14.

<sup>8</sup> Brig. Gen. William W. Ford, "Plebe Life 1918," *Assembly*, June 1982, 37.

<sup>9</sup> The Young Men's Christian Association beginning in 1908 published *Bugle Notes* annually. In 1924 it was edited and distributed by the upperclassmen. The plebe was refunded his money if he knew the contents.

<sup>10</sup> *Regulations for the United States Military Academy*, 1 April 1918, para. 109; *Bugle Notes* 10 (1918-1919), 96-97.

<sup>11</sup> *Regulations for the United States Military Academy*, 1 April 1918, paragraphs 178-195; *Annual Report of the Superintendent, United States Military Academy, 1918*, 39; Frederick E. Todd, *Cadet Gray: A Pictorial History of Life at West Point as Seen Through Its Uniforms* (New York: Sterling Publications, 1955).

- <sup>12</sup> The Honor Code goes back to the beginnings of the Academy, deriving its basic precepts from the code of honor of the Army's officer corps. The first part of the current Code ("A cadet does not lie, cheat, or steal") was not formalized until 1947, and the second part ("to tolerate those who do") until 1979. See Department of the Army, Cadet Honor Committee, *Honor System and SOP*, 1 April 1999. The wording changed slightly in 2001. It now reads, "A cadet will not lie, cheat, steal, or tolerate those who do."
- <sup>13</sup> Never better expressed than by Secretary of War, Newton D. Baker (1920): "Men may be inexact or even untruthful, in ordinary matters, and suffer as a consequence only the disesteem of their associates, or even the inconveniences of unfavorable litigation, but the inexact or untruthful soldier trifles with the lives of his fellowmen, and honor of his government: and it is, therefore, no matter of idle pride but rather of stern disciplinary necessity that makes West Point require of her students a character of trustworthiness which knows no evasions."
- <sup>14</sup> Roger H. Nye, "The United States Military Academy in an Era of Educational Reform," (Ph.D. diss., Columbia University, 1968).
- <sup>15</sup> A compilation of data of the academic standings of all West Point graduates who held the rank of major general or higher in the Civil War, World War I, and World War II (a total of 618), shows a correlation between academic proficiency and later career success. Of the 275 cadets who later became major generals or higher in World War II, 119 graduated in the top third of their class (43 percent), 98 in the middle third (36 percent), and 58 in the bottom third (21 percent). The percentages are comparable for the Civil War and World War I. Col. Charles P. Nicholas, "Six Hundred and Eighteen Major Generals," *Assembly*, January 1952, 10–11.
- <sup>16</sup> The courses he took in his plebe year and the textbooks he used are described in *Official Register of the Officers and Cadets, United States Military Academy for 1916* (West Point, NY: USMA, 1916), 75–79.
- <sup>17</sup> *Official Register of the Officers and Cadets, United States Military Academy for 1917* (West Point, NY: USMA, 1917), 34, 52–53. A distinguished cadet is one who exceeds 92 percent of the possible total. The Hon. John C. Calhoun, Secretary of War, instituted the practice of reporting distinguished cadets on 10 February 1818.
- <sup>18</sup> Through special tests at the end of the term called Written General Reviews, the system provided a way for cadets in the middle or lower sections to improve their ranking. A cadet who did well on WGRs could add points and thereby move upward.
- <sup>19</sup> There are many exceptions to the rule. Ulysses S. Grant (Class of 1843) graduated 21st in a class of 39. Four generals who recently served as Chairman of the Joint Chiefs of Staff (John W. Vessey, Colin L. Powell, John M. D. Shaikashvili, and Henry H. Shelton) did not attend West Point, having been commissioned through OCS or ROTC.
- <sup>20</sup> In a letter to Chaplain Groves, his brother Owen reported Dick claiming "that if they stay there the full four years, he will emerge at the top of his class. If they are cut short he expects to be third or fourth." Letter, Owen Groves to Chaplain Groves, June 1917, author's collection.
- <sup>21</sup> Nye, "The United States Military Academy," 115–124.
- <sup>22</sup> To receive credit for playing a game the cadet must be in at least one full period of the game. *Bugle Notes* 10 (1918–1919), 67.
- <sup>23</sup> "Carlisle Easy for Army," *New York Times*, 11 November 1917. The eight games are described in some detail in *The Howitzer: The Yearbook of the Class of 1919*, 262–69.
- <sup>24</sup> *Register of Demerits, Class of November 1918, Part I (A–L)*, USMA Archives; *Abstract of Delinquencies*, 11 vols., 1 June 1916–30 November 1918, USMA Archives; *Regulations of the United States Military Academy*, April 1916.

- <sup>25</sup> Demerits were not recorded for one month after admission. For the remainder of the period to 31 May, one-third of the number of demerits received each month was deducted. *Regulations for the United States Military Academy*, 1 April 1916, 81.
- <sup>26</sup> For well over a century since its founding, graduates of West Point received a commission in the Army. In 1933, all graduates also began receiving a Bachelor of Science degree, retroactively conferred to those who had graduated after the Academy had been accredited by the American Association of American Universities in 1925.
- <sup>27</sup> The authorized strength of the Corps of Cadets for 1915 was 706. For 1916 this nearly doubled, to 1,332, though it took some time before that level was actually reached.
- <sup>28</sup> *New York Times*, 12 May 1917; *New York Times*, 7 May 1918: "Blue Devils' of France Pay a Visit to West Point," *News of the Highlands*, 11 May 1918.
- <sup>29</sup> The Class of 1920 (Groves's class) graduated on 1 November 1918, 19 months early, 10 days before the armistice, after having spent 28 months at West Point. The class was originally called the Class of 1920. Later when there was another class that actually graduated in 1920, it became the first Class of 1920. Finally it became the Class of November 1918.
- <sup>30</sup> When World War I broke out there were 4,900 officers of the Regular Army who had at least one year of commissioned service. When the U.S. entered the war over 193,000 emergency officers were commissioned. Thomas J. Fleming, *West Point: The Men and Times of the Military Academy* (New York: William Morrow & Company, Inc., 1969), 303.
- <sup>31</sup> *Historical Statistics of the United States, Colonial Times to 1970, Bicentennial Edition* (Washington, DC: U.S. Department of Commerce, 1975), pt. 2, 1141.
- <sup>32</sup> As quoted in Brig. Gen. William W. Ford, "Plebe Life 1918," *Assembly*, June 1982, 38.
- <sup>33</sup> *The Howitzer: The Yearbook of the Class of 1920*, 16.
- <sup>34</sup> Wesley G. Jones, "A Conversation with an Engineer Legend: Retired Major General Claude Henry Chorpening— Class of November 1918," *Assembly*, September 1992, 20.
- <sup>35</sup> Edward Teller with Allen Brown, *The Legacy of Hiroshima*, (Garden City, NY: Doubleday & Company, Inc., 1962), 33.
- <sup>36</sup> Handwritten note by LRG on letter, Jacob Bucal to LRG, 15 January 1968, Box 3, Entry 7530M, Papers of LRG, RG 200, NARA.