# Citizen Soldiers and Professional Engineers: The Antebellum Engineering Culture of the Virginia Military Institute

Jonson Miller

Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

Doctor of Philosophy
In
Science and Technology Studies

Daniel Breslau
Christopher Clement
Gary Downey
Ann Laberge
Marian Mollin
Anita Puckett

September 17, 2008
Blacksburg, Virginia

Keywords: history of engineering, Virginia Military Institute, southern middle class, whiteness, masculinity

# Citizen Soldiers and Professional Engineers: The Antebellum Engineering Culture of the Virginia Military Institute

Jonson Miller

## ABSTRACT

The founders and officers of the Virginia Military Institute, one of the few American engineering schools in the antebellum period, embedded a particular engineering culture into the curriculum and discipline of the school. This occurred, in some cases, as a consequence of struggles by the elite of western Virginia to gain a greater share of political power in the commonwealth and by the officers of VMI for authority within the field of higher education. In other cases, the engineering culture was crafted as a deliberate strategy within the above struggles. Among the features embedded was the key feature of requiring the subordination of one's own local and individual interests and identities (class, regional, denominational, etc.) to the service of the commonwealth and nation. This particular articulation of service meant the performance of "practical" and "useful" work of internal improvements for the development and defense of the commonwealth and the nation. The students learned and were to employ an engineering knowledge derived from fundamental physical and mathematical principles, as opposed to a craft knowledge learned on the job. To carry out such work and to even develop the capacity to subordinate their own interests, the cadets were disciplined into certain necessary traits, including moral character, industriousness, self-restraint, self-discipline, and subordination to authority. To be an engineer was to be a particular kind of man. The above traits were predicated upon the engineers being white men, who, in a new "imagined fraternity" of equal white men, were innately independent, in contrast to white women and blacks, who were innately dependent. Having acquired a mathematically-intensive engineering education and the character necessary to perform engineering work, the graduates of VMI who became engineers were to enter their field as middle-class professionals who could claim an objective knowledge and a disinterested service to the commonwealth and nation, rather than to just their own career aspirations.

For my brother Carl,

Who would've read this thing
from cover to cover, argued
with me about it, and then
declared it "awesome".

## CONTENTS

# ILLUSTRATIONS

Figures



Tables

## ACKNOWLEDGEMENTS

The members of my dissertation committee have shown great patience as I switched from one project to another and dragged this work out. I must first thank Gary Downey and Ann Laberge who helped to get this project started. They also set me on intellectual trajectories that have defined my work. Ann got me to look critically at the Enlightenment, which has led to me question everything I have believed. Gary got me interested in engineers and taught me the difficult lesson of taking seriously the worldviews of others. Dan Breslau, my committee chair, supported and guided a project that veers far afield of his own work. I'm not really sure why he took such a strong interest in the project, but I am thankful that he did. His questions and comments enabled me to see more deeply into my subject than I had before and set me on more interesting paths. Chris Clement provided some key references that provided one of the fundamental insights that guided my analysis, without which things may have turned out very differently. I appreciate his willingness to stick with me when I shifted from one project to another and as he moved from one coast to another. Marian Mollin went far beyond any reasonable expectations of a committee member and read every chapter of every single draft I wrote. Through her comments, I learned something of how to write history. Anita Puckett was willing to join the committee after the dissertation was already well underway. Her insights into the politics and culture of Appalachian Virginia helped me to understand the purplexing actions of some of the actors. She also provided helpful comments that forced me to clarify my argument and theoretical approach. I thank all of them again.

Several members of the staff of VMI's library and archives provided indispensible assistance and generosity. Head archivist Diane Jacob and archives assistant Mary-Laura

Kludy happily fulfilled my relentless requests for documents and copies and volunteered recommendations for additional resources. Interlibrary loan librarian Megan Newman provided some useful hints and discussions. I thank all three of them for their assistance and for access to materials without which this research would have been impossible.

Numerous colleagues provided advice, criticism, and encouragement throughout my work. In particular, I must thank Donna Augustine, Saul Halfon, Jane Lehr, and participants in the Research in Engineering Studies group. Mark Barrow, Megan Boler, Barbara Ellen Smith, and Doris Zallen offered me teaching and other professional opportunities that helped to sustain me at Virginia Tech. I also thank the faculty and staff of Drexel University's Department of History and Politics who gave me badly needed opportunities while I finished this work. Most especially, I thank Amy Slaton, who expressed unbounded enthusiasm for the project and opened up many valuable opportunities for me. A 2005-2006 College of Liberal Arts and Human Sciences Graduate Student Endowed Scholarship greatly assisted in covering the expenses of my archival research.

My family has provided profound encouragement and support from the time I entered college until now. I never doubted their pride in my accomplishments. I appreciate their patience with my long and meandering path. Pap and Carl in particular were anxious to call me Doctor Miller. I wish they were here to share this day with me. And I'm overjoyed that Jo, who helped to bring me back up when I got down on this project, *is* now here to share it.

## PREFACE

I began this project while I was starting preliminary work on an entirely different dissertation topic. My experience as a teaching assistant for Gary Downey's *Engineering Cultures* course had convinced me of the importance of engineers in modern technics. I was also anticipating teaching *Engineering Cultures* on my own. I then found myself in need of a paper topic for Ann Laberge's *Science and Technology in the Enlightenment* course. So, I decided to do my course paper on some topic on engineering. Downey suggested that I look into the origins of the Virginia Military Institute, which seemed to him, with its emphasis on a French-style engineering curriculum, like an odd school to appear in antebellum Virginia. Perfect! I thought it would be easy to relate French engineering knowledge and practices to the Enlightenment. But I ended up with much more.

As I began reading about the history of VMI. I became captivated by quotations from letters and reports by officers of the school. I was particularly struck by the constant discussion of manhood. Perhaps it should seem obvious that someone would be discussing manhood in the context of an antebellum military school, but the persistence of these discussions struck me as having greater significance than just the fact that the cadets were all men. I quickly found myself carting off large stacks of books on masculinity studies from our library and getting excited about ideas of "Jacksonian manhood" and, thanks to what turned out to be a fateful suggestion from Chris Clement, the "imagined fraternity of white manhood." It seemed clear to me then that that continuing predominance of men in engineering, compared to medicine and law, had strong historical roots that we might not yet really understand, but that could be teased out through careful historical studies.

In my paper for Laberge, I wrote about the surprising convergence of egalitarian politics, Enlightenment rationality, and anti-elite masculinities in an engineering school. I knew I was just skirting the edges of the topic, so I did more research and rewrote it the next term for Downey's course on engineering studies. With this second paper, I became hooked. I spoke with my committee chair, Dan Breslau, about dropping my original dissertation topic in favor of continuing my work with VMI. He and my other committee members agreed that it was better and more feasible than my earlier project.

During my continued work on this project, it became evident that VMI and the approach to engineering that developed there could not be captured by something as simple as a "French" approach to engineering. I would have to zoom in closer and abandon the emerging historiographic trend of examining national patterns of engineering. I began to wonder if I would end up as an American historian, a southern historian, or an Appalachian historian. All three scales, as well as international events, ended up being necessary parts of the story.

I had allowed the concern with masculinity and the scales of analysis to arise out of the research itself. Meanwhile, the question of whiteness kept nagging at me. It didn't seem unreasonable that the actors in the story were just as concerned about whiteness as they were about masculinity, yet they said nothing about it. I did not want to impose race as an analytical category onto the project. So I waited patiently for whiteness to emerge. Then Marian Mollin asked, seemingly just as an aside, if I knew when Virginia adopted universal white male suffrage. With that, the story on race began to emerge.

What had begun as a simple story of an engineering culture determined by vague and macro-scale concepts like "the Enlightenment" and "French engineering" had become a

complex story of the active participation of engineers and other actors in regional power struggles, changing meanings of masculinity and whiteness, and class formation. Moreover, it became apparent that the origins of what had seemed like obvious relationships between engineering at VMI and masculinity, whiteness, middle-class professionalism, and French engineering traditions were not so obvious.

# CHAPTER One

## INTRODUCTION: WHITE MANHOOD AND AN ANTEBELLUM ENGINEERING PROFESSIONAL CULTURE

On 2 September 1856, more than one hundred young Virginia men, mostly in their late teens, gathered at the Virginia Military Institute (VMI). Some of them, sons of poor farmers and tradesmen, had just arrived at the school's campus in Lexington (Figure 1.1) and brought with them hardly any education whatsoever. Others had drilled and studied there nearly every day for the previous three years and, in the process, acquired one of the strongest math and science educations available in the United States. All of them gathered together that day to hear one of the most dominant figures in their lives address them as they prepared to enter their classrooms for the new academic year.

Superintendent Francis Henney Smith spoke to these cadets to impart to them the importance of their mission and his high expectations, just as he had done in some form or another every year for the previous seventeen years. Having already described the successes of several graduates, Smith provided an example of a graduate who overcame economic and educational disadvantages to become a successful engineer:

> Another youth with scarcely better early opportunities and whose associations at home were little calculated to favor the development of mental or moral worth, enters the Institution shortly after. A boy in age, his deficiencies, in even academic education, well nigh arrested him in his first year's course. He struggles against them. He graduates with distinction in his studies. He teaches for several years with satisfaction to his patrons. He commences the profession of Engineering, and now, after a service of less than 10 years in a public life, is the chief Engineer on one of the most important rail-roads of Virginia, exercising an influence and commanding a confidence, inferior to few men in the service of the state.[1]

1. Francis H. Smith, *Introductory Address to the Corps of Cadets of the Virginia Military Institute, on the Resumption of Academic Duties, September 2nd, 1856* (Richmond: Macfarlane & Fergusson, 1856), 18-19.

Smith sought to inspire the new students, to assure them that their merit, not their background, would lead them to success through service to Virginia. They, moreover, could become the equal of any man. Despite all of the clues and available records, I cannot determine to whom Smith refers; too many graduates fit the description. Regardless, we face more important questions than the identity of this self-made man.

Out of what conflicts and challenges did VMI, a southern educational institution, emerge that it came to provide education for the sons of farmers and tradesmen? What does it mean that Smith placed importance on the story of a boy struggling against his station and attaining a high status? Why did Smith hold up this man and others, whose accomplishments lay entirely within the realm of civilian work, as successes of a military school? How did a young man, after perhaps only six or seven years, or even less, of engineering work, become the chief engineer of a major railroad, at a time when most engineers in the United States spent many years working their way up from labor and surveying positions? How could Smith consider working as even the Chief Engineer of a railroad as service to the commonwealth? The answers to these questions help to reveal the origins and character of one of the several engineering professional cultures of the antebellum period.

In this dissertation, I identify the pattern of knowledge and practices of that local engineering culture and what it meant to be an engineer, as it was embedded in the practices of the school. Moreover, I provide a detailed analysis of the processes by which the participants constructed that engineering culture and how this construction intersected with debates and conflicts over meanings of manhood, whiteness, and virtue, as well as class and regional conflicts. With this analysis, I provide insight into the importance of

micro-scale struggles in constructing engineering cultures in general, as well as a detailed study of one of the many antebellum cultures out of which a later national engineering culture emerged.

**Engineering Cultures as Strategies**

**in Struggles of Authority**

Engineering Studies scholars expend much effort on the examination of differences between the practices, knowledge, and identities of engineers from different nations.[2] Drawing on historian Eda Kranakis's usage, I find it useful to understand these differing patterns as "engineering cultures." I use the term culture in a restricted sense that has been used by historians,[3] rather than in the more sophisticated and all-encompassing ways that has been and is used by anthropologists. Anthropologist Allen Batteau defines culture as "that which is cultivated, the stories, myths, symbols, rituals, and stylized actions and interpretations the group uses to make sense of what they are doing, what they have done, and what they should do."[4]. I am certainly concerned with

2. Melvin Kranzberg, ed., *Technological Education-Technological Style* (San Francisco: San Francisco Press, 1986). Peter Meiksins and Chris Smith, eds., *Engineering Labour: Technical Workers in Comparative Perspective* (New York: Verso, 1996). Eda Kranakis, *Constructing a Bridge: An Exploration of Engineering Culture, Design, and Research in Nineteenth-Century France and America* (Cambridge, MA: MIT Press, 1997). Gary Lee Downey and Juan C. Lucena, "Knowledge and Professional Identity in Engineering: Code-Switching and the Metrics of Progress," *History and Technology* 20 (December 2004): 393-420. Konstantinos Chatzis, "Introduction: The National Identities of Engineers," *History and Technology* 23 (September 2007): 193-196.

3. Burton J. Bledstein, *The Culture of Professionalism: The Middle Class and the Development of Higher Education in America* (New York: W. W. Norton, 1976). Kranakis, *Constructing a Bridge*.

how engineers make sense of their work and what they should do, but I can not tackle and am not interested in an engineering "culture" at, for example, the level of "stylized actions" and so forth that take place between individual engineers. Nor am I interested in the overall "organizational culture" of VMI. Batteau defines organizational cultures as "generative frameworks of meaning that enable those who make up an organization to figure out how to get on and get along" in the pursuit of the organization's goals.[5] Again, it is not the culture of VMI as an organization that concerns me, but, rather, the meanings and practices of engineering that participants in that institution embedded in the curriculum, discipline, and evaluative practices of the school.

I use "engineering culture" to refer to a limited range of phenomena that reveal general patterns in the practices and knowledge of engineers. For example, how are new engineers to be made? What sorts of knowledge do they employ and value? For whom are they to work and in what capacity? For what purpose are they to perform their work? What does it mean to them to be engineers? The answers to these questions are not simply values or beliefs that exist in the heads of the members of a particular engineering culture; the answers are embedded in the institutions, practices, words, and works of those engineers. Individual members of any given engineering culture may not always agree on the answers to these questions and variations may exist, but Engineering Studies scholars have demonstrated that we can, nonetheless, see general patterns at some level, whether at the national level or within a single institution.

---

4. Allen Batteau, "Negations and Ambiguities in the Cultures of Organizations," *American Anthropologist* 102 (2001): 727.

5. Ibid., 737.

*Development of "Cultures of Professionalism"*

Prior to the introduction of the concept of an engineering culture, Historian Burton Bledstein described a general middle-class professional culture that emerged in the northern United States the 1840s. The engineering culture of VMI shared some features with the professional culture that Bledstein describes. In *The Culture of Professionalism*, he agues that participants in this culture produced a distinct set of interests that were shared by specialized professionals, as well as members of the middle class in general. They valued career aspirations, economic competition, and individual merit. Members of this culture emphasized self-discipline, restraint, morality, and industriousness as those character traits necessary to participate in the professions and the culture of professionalism. Following the Civil War, members of the middle class institutionalized this culture primarily within universities and professional schools. Through these schools, the middle class established higher education as the primary means of obtaining professional authority and provided an institutional space in which the professionals could reproduce themselves and their values. The middle class, as a whole, came to see itself as the ideal American class, more democratic and virtuous than both the lower and upper classes. As such, professionals claimed for themselves a distinct position in US society, that of disinterested administrators of the public good.[6]

This development of a middle-class culture of professionalism occurred in the South as well as the North. Southern professionalism, however, developed some features distinct from those found in the North, including an earlier emphasis on higher education. Bledstein describes this middle-class professionalism as solely a northern phenomenon.

---

6. Bledstein, *The Culture of Professionalism*, x, 1, 5, 26-27, 33, 84, 11-123, 129-130.

In fact, he argues that northerners constructed this professionalism to some extent, in opposition to a southern culture characterized, according to northern commentators, by aristocracy instead of meritocracy, intemperance instead of morality, and violence instead of discipline. Moreover, Bledstein saw professionalism as stifled in the South because of a lack of investment in education, as opposed to the widespread expansion of public schools in the North.[7] Historians Jennifer Green and Jonathan Wells, however, identify the parallel development of a southern middle class during the antebellum period. This new class drew heavily upon northern middle-class culture, contacts, and institutions for its own development. In doing so, the class established a distinct culture and identity from that of the southern elite culture. It was that elite culture to which Bledstein's characterization of southern culture best applied. This southern middle class had a political commitment to improving and expanding education, internal improvements, urbanization, and manufacturing. Green, ironically, identifies as one of the distinctions between the southern and northern middle classes the much earlier employment of higher education as a site of the development of southern middle-class professional culture. The southern military schools, in particular, served this role.[8] As the first of these schools and the model for those that followed, VMI participated in the development of the southern middle class and the general professional culture. I, however, will focus on the construction of a particular engineering culture at VMI, while acknowledging

7. Ibid., 28.

8. Jennifer R. Green, Books and Bayonets: Class and Culture in Antebellum Military Academies (PhD Diss., Boston University, 2002), vi-vii, 208. Green, "'Practical Progress is the Watchword'," 364. Jonathan Daniel Wells, *The Origins of the Southern Middle Class, 1800-1861* (Chapel Hill: University of North Carolina Press, 2004), 6, 67.

commonalities with the broader professional culture described by Bledstein, Green, and Wells.

*Engineering Cultures*

In describing and seeking to understand differences between engineers of different nations, Engineering Studies scholars have referred to "engineering styles," "technological styles," "national styles," and "engineering traditions."[9] Other scholars have emphasized differences between "national identities" of engineers.[10] Eda Kranakis employs my preferred term: "engineering culture."[11] Regardless, all of these scholars have emphasized general patterns among engineers within a single nation that distinguish them from engineers of other nations. Their work prevents us from taking for granted that we can readily identify engineers, their work, and their purpose within any given society based on our understanding of engineers within one nation or by reference to some assumed essence of engineering. Engineers from different nations hold remarkably varied social positions, enter engineering through a variety of educational and vocational pathways, and engage in sometimes differing works, even when comparing contemporary western capitalist nations with a long history of interaction, such as France, the United

9. Kranzberg, *Technological Education-Technological Style*. Meiksins and Smith, *Engineering Labour*. Terry S. Reynolds, "The Education of Engineers in America before the Morrill Act of 1862," *History of Education Quarterly* 32 (1992): 459-482. John K. Brown, "Design Plans, Working Drawings, National Styles: Engineering Practice in Great Britain and the United States, 1775-1945," *Technology and Culture* 41 (2000): 195-240.

10. Downey and Lucena, "Knowledge and Professional Identity in Engineering". Chatzis, "Introduction: The National Identities of Engineers".

11. Kranakis, *Constructing a Bridge*.

Kingdom, and the United States. Those interested in national patterns have explained these patterns in terms of differing economic and labor environments,[12] differences in educational and economic institutions,[13] and varying conceptions of progress.[14]

These national-scale analyses, by identifying general patterns, can present images of homogeneous professional cultures of engineers within each nation, giving a sense of a singular culture that constitutes the field of engineering and thus potentially obscuring significant differences within a nation. Eda Kranakis, for example contrasts generalized French and American engineering cultures. She describes American engineers as showing little interest in the application of mathematics and fundamental physical principles to the solution of engineering problems. Also, they sought commercial success through individual competition within the market and professional success through the successful completion of projects.[15] I contend that she provides us with a detailed study of *one* engineering culture in the antebellum US, but one that contrasted greatly, not just with that of the engineering culture of elite French engineers, but also with that of VMI, which emphasized public service and a strong mathematical and theoretical approach to engineering. Even Terry Reynolds, who describes several distinct patterns of engineering training in the antebellum period, resorts to references to national styles by attributing

12. Meiksins and Smith, eds., *Engineering Labour*. Brown, "Design Plans, Working Drawings, National Styles," 195-240.

13. Kranakis, *Constructing a Bridge*.

14. Downey and Lucena, "Knowledge and Professional Identity in Engineering," 393-420.

15. Kranakis, *Constructing a Bridge*, 281-282.

differences to the inheritance of British and French engineering styles by different groups of American engineers.[16]

Kranakis argues that "*specific* mechanisms within [engineers'] immediate environments shaped the development of technological traditions".[17] She, consequently, produced a detailed analysis of the work of an American and a French engineer in order to understand nineteenth-century American and French engineering cultures. But, by focusing on a single engineer, she crafted an over-generalized image of a national engineering culture in the United States at a time when one probably did not exist. She acknowledges, however, that this is a danger.

> To the extent that laws, institutions, and networks function at a national level, it makes sense to speak of national differences. Looking at national trends in technology is quite justified. The existing patterns at a national level does not preclude the possibility of other patterns' [*sic*] existing at a regional or municipal or individual level. The national level is just one of the levels at which structural patterns can be studied.[18]

Her claim of the usefulness of national-scale studies has been substantiated repeatedly by the numerous such analyses that have been published. But what happens when laws, institutions, and networks do not function at a national level? Or when they also operate strongly at lower levels? Or when engineers bring to their work parts of themselves that are not determined by the institutions of the nation-state? Science and Technology Studies scholar Gary Downey points out that the very question of whether or not the United States was a nation-state or a collection of states prior to the Civil War

---

16. Terry S. Reynolds, "The Engineer in 19th-Century America," in *The Engineer in America: A Historical Anthology from* Technology and Culture, ed. Terry S. Reynolds (Chicago: University of Chicago Press, 1991), 7-26.

17. Kranakis, *Constructing a Bridge*, 2 (emphasis in original).

18. Ibid., 211.

contributed to the diversity of patterns of engineering in that period. This diversity makes it particularly difficult to attribute a national engineering culture to the United States in the period prior to the Civil War. It was not, Downey argues, until after the war and the settlement of the question of the nature of the United States that a national pattern emerged among American engineers.[19] So, in the case of the early republic and the antebellum period, the assumption of a single national culture or identity can be particularly hazardous, thus necessitating the examination of multiple engineering cultures at levels lower than the national level.

Analyses of national patterns of engineering can also portray engineers as passive recipients of an inherited pattern, especially when we move past an examination of the origins of a pattern and deal with subsequent generations of engineers who must contend with that pattern. Such approaches may, for example, give the impression that the economy of a nation functionally determines the engineering culture of that nation. They can also, however, miss the agency that the engineers themselves may have exhibited in the initial construction of their engineering culture. Was that culture determined by economic and institutional structures? Or did the engineers directly contribute to its construction? What decisions were they able to make within the existing structural constraints? What meanings did they attach to their work within those constraints? Did they employ such features as a means to legitimate their work in some way? The agency of those engineers who came after is at even greater risk for being submerged in such accounts. We must, after all, acknowledge that the actions of earlier engineers will have an influence.

---

19. Gary Lee Downey, "Low Cost, Mass Use: American Engineers and the Metrics of Progress," *History and Technology* 23 (September 2007): 294.

Science and Technology Studies scholars Gary Downey and Juan Lucena have dealt with the problems of the overgeneralization of national patterns and the passivity of engineers by re-theorizing, not just engineering cultures or identities, but culture and identity in general. They theorize culture as a set of "dominant cultural images" that a member of a culture need not necessarily accept, but must nonetheless confront. Each member actively constructs an individual identity, including an identity as an engineer, by navigating these competing and often contradictory images. Through this process, engineers of a nation collectively and actively construct an engineering culture. Downey and Lucena argue that images of national progress and priorities constitute one of the most powerful sets of images that engineers must confront. Globally, engineers express this by reforming their professional cultures primarily in response to their fears of diminishing relevance to their nations during periods of redefinition of national priorities. This redefinition often results in "activist engineers" working to transform engineering education.[20] Downey's and Lucena's approach to analyzing engineering cultures has the strength of acknowledging heterogeneity, while still describing and explaining national patterns.

*Agency in Fields of Struggle*

In order to emphasize the agency of the actors in my study, I highlight the actors' roles in various conflicts. Consequently, we can see the elements of the engineering culture to which they contributed as strategies in those struggles. Like Downey and Lucena's work, sociologist Pierre Bourdieu's theorizing of "fields" enables us to

20. Downey and Lucena, "Knowledge and Professional Identity in Engineering," 394-396, 399.

understand professions and professional cultures as strategies, rather than functionalist givens. Moreover, both Downey's and Lucena's and Bourdieu's approaches emphasize the importance of the content of professional knowledge in these strategies and professional cultures. Bourdieu, however, broadens our view of the scope of the conflicts in which members of a profession may find themselves. Competing and changing professional cultures become strategies of engineers to maximize their cultural capital within the field of engineering, or in whatever field the struggles takes place, by redefining professional authority and knowledge.

Bourdieu defines a field as a space of competition between individuals attempting to accumulate cultural capital and to increase the value of that capital. This cultural capital, at least in scientific and academic fields, takes the form of authority, whether it is recognized by one's peers or by the institutions in which the individuals operate. The individuals maintain rules and structures for limiting the entrance of new participants into the field. They employ mutually-recognized, but contested, definitions, both implicit and explicit, of knowledge and authority. Participants, however, mobilize their capital to change those definitions in a way that increases the value of their own capital.[21] A profession or professional culture, however, does not necessarily constitute a field. Instead, participants in a field may create a variety of competing professional cultures as strategies in their struggles.

One cannot assume that a field corresponds to even a professional field, even when the individuals involved are members of a single profession. For example, in the case of VMI, the individuals who produced the engineering culture did not do so just in

21. Pierre Bourdieu, "The Peculiar History of Scientific Reason," trans. Channa Newman, *Sociological Forum* 6 (1991): 5-8, 13.

the field, in Bourdieu's sense of the term, of engineering. Instead, they constructed and mobilized an engineering culture as a strategy in the field of power, in which they challenged the elite of eastern Virginia. By employing an educational institution in that competition, they then found themselves also in a contest for authority within the field of higher education. In that context, the engineering culture served as a strategy to gain authority by redefining useful knowledge in such a way as to minimize the capital of liberal colleges and to maximize that of VMI. In both cases, the participants, including the engineers, actively engaged in the struggles to redefine authority.

I employ the concept of engineering cultures to understand the general patterns of practices and knowledge of engineers and their sense of what it means to be an engineer. I do not attempt to map out a national engineering culture. Instead, I examine just the origins of one particular engineering culture within the antebellum United States. The actors in this story actively contributed to a particular engineering culture in response to their own anxieties and interests. I examine how they did so in order to serve a strategy to maximize their cultural capital in struggles for academic authority and political power.

## Whiteness and Masculinity as Contested Categories

American Studies scholar Dana Nelson argues that we must "rethink the emergence of professional disciplines as one important aspect of an ongoing, national reorganization (and reenlistment) of manhood."[22] In my research, however, I found that I had first to understand the "reorganization (and enlistment) of manhood," specifically

22. Dana D. Nelson. *National Manhood: Capitalist Citizenship and the Imagined Fraternity of White Men* (Durham, NC: Duke University Press, 1998), 15.

white manhood, in order to understand the emergence of an engineering culture. I employ "whiteness" and "white manhood" as historically-contested and contingent terms and identities. I do not employ these terms in a way that assumes any single meaning. In fact, I focus much attention on conflicting senses of white manhood that provided an important context for the founding of the Virginia Military Institute and that directly contributed to its engineering culture. I reject "white" and "white manhood" as *a priori* terms of analysis, and employ them instead as concepts and identities that require explanation.

Sociologist Michael Kimmel acknowledges that most of the history written about the United States has been about men and their activities, but he argues

> such works do not explore how the experience of being a man, of *manhood*, structured the lives of the men who are their subjects, the organizations and institutions they created and staffed, the events in which they participated. American men have no history of themselves *as men*.[23]

The latter part is no longer true; there has been much research by historians and sociologists on American men *as men*.[24] What all of this research makes clear is that

---

23. Michael Kimmel, *Manhood in America: A Cultural History* (New York: The Free Press, 1996), 2.

24. For examples, see: David G. Pugh, *Sons of Liberty: The Masculine Mind in Nineteenth Century America* (Westport, Connecticut: Greenwood Press, 1983); Susan Jeffords, *The Remasculinization of America: Gender and the Vietnam War* (Bloomington, Indiana: Indiana University Press, 1989); Anthony E. Rotundo, *American Manhood: Transformations in Masculinity from the Revolution to the Modern Era* (New York: Basic Books, 1993); Mark Kann, *The Gendering of American Politics: Founding Mothers, Founding Fathers, and Political Patriarchy* (Wesport, Connecticut: Praeger, 1999); Ruth Oldenziel, *Making Technology Masculine: Men, Women, and Modern Machines in America, 1870-1945* (Amsterdam University Press, 1999); Kristin Hoganson, *Fighting for American Manhood: How Gender Politics Provoked the Spanish-American and Philippine-American Wars* (New Haven: Yale University Press, 1998); Nelson. *National Manhood*; Craig Thompson Friend and Lorri Glover, eds., *Southern Manhood: Perspectives on Masculinity in the Old South*, (Athens: University of Georgia

there is no single experience of manhood. At any given time, a man's class, race, sexuality, and the region in which he was born or lived shapes his experience of his manhood. Consequently, social theorists speak not of masculinity, but of masculinities, in recognition of the fact that no single meaning or experience of manhood exists.[25]

This is not to say that many men from differing backgrounds are not often confronted by a common dominant expression of masculinity, to which they may or may not measure up. But even when this is the case, that dominant meaning of American manhood changes over time. Illustrating this point, historian Anthony Rotundo maps out the transformation of a dominant masculinity among the middle or middling classes of the North. It began with what he calls "communal manhood" in New England up through the early eighteenth century. In this masculinity, one's manhood was defined by duty to the community and control over one's passions. From the late eighteenth to the early nineteenth centuries a "self-made manhood" developed in response to the growth of the market economy. Men then defined themselves by their individual accomplishments, rather than their duty to the community, and valued their passions as the driver for their accomplishments. This self-made manhood was succeeded by a "passionate manhood" that valued aggression, toughness, virility, consumption, and leisure.[26] The variation in

---

Press, 2004); bell hooks, *We Real Cool: Black Men and Masculinity* (New York: Routledge, 2004); and Amy S. Greenberg, *Manifest Manhood and the Antebellum American Empire* (New York: Cambridge University Press, 2005).

25. Harry Brod and Michael Kaufman, eds., *Theorizing Masculinities* (Thousand Oaks, California: Sage Publications, 1994). Tim Carrigan, Bob Connell, and John Lee, "Toward a New Sociology of Masculinity", in *The Masculinity Studies Reader*, ed. Rachel Adams and David Savran (Malden, Massachusetts: Blackwell Publishers, 2002), 111-112.

26. Rotundo, *American Manhood*, 2-6.

experiences with and meanings of masculinity between men and across time shows us that we cannot take masculinity for granted.

Just as gender and masculinity in America have a history and constantly change, so to do race and whiteness. Americans established basic racial categories, especially black, Indian, and white, before the 1830s, with whiteness constructed primarily in opposition to blackness and Indianness. White Americans, however, continued to maintain very fluid boundaries for those categories and had no fixed conceptualization of race itself as a category. Nonetheless, prior to the 1840s, white appears to have included largely the same peoples included under white today, given its construction in relation to Indians and blacks. For example, Jews, often excluded from whiteness later, often counted as white for purposes of obtaining citizenship. However, they still generally experienced discrimination and limitations because of their Jewish identity. Ulstermen, English, Welsh, and French peoples counted as white. On the other hand, Germans, who made up a substantial portion of the population of western Virginia, held a more ambiguous racial status. For example, Benjamin Franklin, who saw only Saxon Germans and English peoples as white, lamented the large numbers of Germans in Pennsylvania, despite their legal status as white for purposes of citizenship. Irish, at least in the urban North, often lived outside whiteness. They often lived side-by-side with blacks and, along with them, experienced violence at the hands of white rioters.[27]

---

27. Thomas F. Gossett, *Race: The History of an Idea in America*, 2nd ed. (New York: Oxford University Press, 1997), 29-31, 84. Ivan Hannaford, *Race: The History of an Idea in the West* (Washington, DC: Woodrow Wilson Center Press, 1996), 182-184. Matthew Frye Jacobson, *Whiteness of a Different Color: European Immigrants and the Alchemy of Race* (Cambridge: Harvard University Press, 1998), 31, 40, 46. David R. Roediger, *The Wages of Whiteness: Race and the Making of the American Working Class*, rev. ed. (New York: Verso, 1991), 27-30, 135-136.

A common sense of whiteness, of belonging to a community defined by whiteness that consolidated a variety of class, regional, religious, and ethnic differences, began to emerge only during the debates over the ratification of the US Constitution and the establishment of a stronger centralized state and a more unified nation.[28] American Studies scholar Dana Nelson argues that at that point "[w]hite *manhood* was thereby specified as the legal criteria of civic entitlement, attaching the 'manly confidence' idealized by defenders of the Constitution to the abstractly unifying category of 'whiteness'." Nelson describes this abstract unity as an *imagined fraternity* of white men.[29] This development distracted white men from the differences between their more local, as well as European and colonial, identities and interests to produce a national unity. White manhood then took on an explicitly American connotation, becoming, as Nelson calls it a "national manhood."[30] Participation in civic life, however, required men to express this commitment to the new national unity by exhibiting the self-control necessary to set aside their local identities and interests. In so doing, they subordinated their personal interests to one construction of national interests.[31]

The men who participated in this abstract unity, which Nelson refers to as an imagined fraternity of white men, had to abandon a very real fraternity with other men with whom they actually interacted and then transfer their sense of fraternity to symbolic men, such as the President, or to unknown others. The brotherhood of Revolutionary War

---

28. Nelson. *National Manhood,* 5-6.

29. Ibid., 6. Emphasis in original.

30. Ibid., 6-7, 32, 36.

31. Ibid., 11-12.

soldiers provided the model for this imagined fraternity. During the war, men from various states and backgrounds developed a real fraternity with one another, "united by a similarity of language, sentiment, manners, common interest, and common consent in one grand mutual league of protection."[32] But the end of the Revolutionary War denied men the field within which to learn and demonstrate this brotherhood. They had to learn and express it elsewhere. They did this, Nelson argues, through competition with other men in the marketplace, through which they earned a living in order to provide for and protect, not their nation, but their families. Despite the competition, participants were to understand their competitors, regardless of their place of origin or class, as brothers in the imagined fraternity, united by their white manhood.[33]

A *national manhood* may have operated in at least some specific or local contexts, perhaps even in a more general northern context. It did not, however, dominate in Virginia by the 1830s. In fact, attempts to establish a sense of common white manhood constituted a crucial part of VMI's founding. Regardless, Nelson contributes an important means of analyzing these struggles through her theorizing of *national manhood*. In particular, I employ her emphasis on the importance of individuals subordinating their local interests and identities to broader ones in order to participate in an imagined fraternity of white men.

In the local contexts of my study, I cannot separate whiteness and masculinity and, therefore, must, like Nelson, speak of white manhood. Both men and women of the emerging white working class struggled to establish an equality between whiteness and

---

32. Quoted in Ibid., 20.

33. Ibid., 19, 21, 34.

independence. However, this equation, when eventually achieved, came to refer only to white men. The laws and traditions of the time excluded white women from this primary characteristic, leaving them marked as inherently dependent and thus incapable of civil participation. White women and all blacks, all inherently dependent in the new racial and gender regime, remained under the mastery of white men.[34] Although I must speak of whiteness and masculinity together, rather than employ them as distinct categories, I do not refer to a singular white manhood. This term and identity was and remains diverse and contested.

In the course of my research, it became evident that this imagined fraternity of white men played a central role in the efforts to found VMI and to construct the engineering culture of VMI. The early advocates of the school, as a means of legitimating their claims to greater political power, called upon white men to reject old hierarchies and to, instead, participate in this imagined fraternity. The founders and officers of VMI actively constructed a white manhood in which to train the students. Moreover, they embedded this white manhood into the engineering culture through an emphasis on the need to subordinate one's personal interests, which was vital to the "national manhood," by employing one's engineering work as *service* to Virginia and the nation.

34. Roediger, *The Wages of Whiteness*, 56-59. Robyn Wiegman, *American Anatomies: Theorizing Race and Gender* (Durham, NC: Duke University Press, 1995), 48-49.

**The Virginia Military Institute**

**in the History of Engineering**

VMI opened in 1839 within a highly heterogeneous professional environment with a variety of patterns of engineering, each with its own or overlapping sets of knowledge, practices, and ideas of the role or purpose of engineers.[35] Reynolds provides a general taxonomy and overview of the means by which men entered into the field. He organizes this taxonomy according to national styles, with an emphasis on influences from French and British engineering within a distinct US context.[36] He identifies West Point, VMI, and Norwich University as examples of French-influenced military schools that emphasized formal education and a strong use of mathematics and science. Reynolds also identifies British-influenced approaches that emphasized craft knowledge learned on the job. He also identifies several attempts by colleges to provide some mathematical and scientific training to either supplement the practical experience of engineers or to serve as the basis for entrance into an engineering career.[37] This taxonomy provides only a general mapping of the means by which men entered into engineering during the antebellum period. But, as Downey argues, these patterns may reflect, not British and French understandings of engineering, but American understandings of British and French models adapted to a new context.[38]

---

35. Downey, "Low Cost, Mass Use", 293.

36. Reynolds, "The Engineer in 19th-Century America," 7-26. Reynolds, "The Education of Engineers in America," 459-482.

37. Reynolds, "The Education of Engineers in America," 459-482.

38. Downey, "Low Cost, Mass Use", 293.

The size and scope of the southern military-school tradition that began with VMI indicates that this school produced one of the significant antebellum engineering cultures. Historians of engineering, however, have overlooked these military schools in their accounts of the development of engineering education. Historian Daniel Calhoun, in his early and important study of the history of civil engineering in the United States, gives a detailed discussion of the places of West Point, Rensselaer Polytechnic Institute, and Norwich University. He, however, reduced VMI to just one in a list of eleven other schools that taught something related to engineering between 1831 and 1841. Moreover, he follows this list with the statement that, "Most of these made engineering no more than a minor part of instruction; in many, the courses offered probably went into a decline with the depression of 1837-1843."[39] His subsuming of VMI into this statement along with the other schools greatly downplays VMI's longevity - students continue to study engineering there today - and the thoroughness of its engineering instruction. Reynolds, on the other hand, does note the general lack of recognition of these schools in his 1992 overview of antebellum engineering education. But, given the limitations of a single journal article on a broader topic, he provides no analysis of the schools and their place in the history of engineering. He does, however, list some of the courses provided by VMI, thus giving some impression of the thoroughness of its curriculum.[40] Kranakis, on the

39. Daniel Hovey Calhoun. *The American Civil Engineer: Origins and Conflict* (Cambridge: The Technology Press, 1960), 41-46.

40. Reynolds, "The Engineer in 19th-Century America," 7-26. Reynolds, "The Education of Engineers in America Before the Morrill Act of 1862," 464.

other hand, did not identify the southern military schools at all in her account of nineteenth-century American engineering traditions.[41]

The general invisibility of the military schools in the history of engineering mirrors their long-standing invisibility within the history of higher education. Only very recently have historians begun to give more attention to these schools.[42] Historian Jennifer Green, in her analysis of the place of southern military schools in the history of education, notes, "Exploring military schools thus fills in the neglected history of education in the antebellum South. The northern experience has become the historiographic model, with the South relegated to an exception." She then notes in particular that "[e]ngineering programs were rare nationwide; as a major site of engineering education, military schools merit more historiographic attention."[43] In fact, every site of antebellum engineering merits more attention. I intend, with this dissertation, to provide a much-needed and detailed analysis of the first of the southern military schools and its importance as site of engineering in the antebellum period.

**Methodology and Sources**

In this study, I examine the initial emergence of the particular engineering culture constructed at the Virginia Military Institute. To do so, I emphasize the founders and

---

41 Kranakis, *Constructing a Bridge*, 248.

42. Rod Andrew Jr., *Long Gray Lines: The Southern Military School Tradition, 1839-1915* (Chapel Hill: University of North Carolina Press, 2001), 11-12, 18-19. Jennifer R. Green, "'Practical Progress is the Watchword': Military Education and the Expansion of Opportunity in the Old South," *Journal of the Historical Society* 3 (Fall, 2005), 363, 365.

43. Green, "'Practical Progress is the Watchword'," 366, 380.

officers of the school and the conflicts out of which it arose in order to uncover the origins and features of that engineering culture. I do not indicate by this that the students passively accepted this engineering culture. An analysis of their active roles, however, would require a different set of data and require following the graduates out into their professional lives. I cannot do that here. Regardless, an analysis of the actors that I have chosen has enabled me to produce a detailed understanding of an engineering culture. This work can then provide a basis from which to study later how VMI graduates contended with the engineering culture in which they had found themselves upon entering the school and how they asserted themselves and their interests within it, while perhaps transforming or expanding that culture.

Previously published research indicates that the engineering culture of VMI may have persisted and even grown beyond the school. The legislature of South Carolina, for example, used VMI as a direct model when it established the South Carolina Military Academy – The Citadel – in 1842. Just like VMI, that school served to replace the "alien" guard of the Charleston arsenal with "sober, responsible natives." By 1860, every southern state, except Texas, had at least one public military school, while some also supported additional private military schools, for an estimated total of eighty-three, all modeled after VMI. These schools educated approximately eleven thousand boys during that time. After the Civil War, southern states expanded the military-school system even further through the Morrill Act. Moreover, these schools contributed to the development of a broader southern middle-class culture.[44]

---

44. Andrew, *Long Gray Lines*, 11-12, 18-19. Green, "'Practical Progress is the Watchword'," 363, 365.

The numerous subsequent southern military schools employed VMI as their model, though we need more research to determine to what extent and in what ways. Regardless, these schools collectively graduated substantial numbers of engineering students, some of whom went on to work as engineers or professors of engineering. Jennifer Green's study of the students of these schools indicates that they eagerly adopted a shared masculinity, distinct from competing southern masculinities, and a middle-class professional culture that shares features of that which I identify as emerging out of VMI.[45]

I base my analysis on a variety of primary sources. These include institutional records from both VMI and Washington and Lee University, which sits immediately adjacent to VMI. I also employed all available legislative records, including the *Journal of the House of Delegates*, *Journal of the Senate of Virginia*, governors' papers, and citizen petitions. The local newspapers, the *Lexington Gazette* and *Valley Star* provided documentation of some disputes concerning VMI and competing public images of the school. The first superintendent, Francis Smith, left many personal papers, as well as many published writings. These papers allowed for an extensive analysis of his educational and professional philosophy. I also examined any available textbooks employed during the study period in order to analyze the actual curriculum.

I end my study in 1851, bracketing the study between two constitutional conventions in Virginia. The first convention began in 1829 and led to the ratification of a new constitution in 1830. The sectional tensions expressed during that convention

---

45. Andrew, *Long Gray Lines*, 11-12, 18-19. Green, "'Stout Chaps Who Can Bear the Distress'," 175-176. Green, "'Practical Progress is the Watchword'," 365, 373, 379.

provided a primary context for the founding of VMI. The second convention began in 1850 and voters adopted a new constitution in 1851. This convention resolved some of the conflicts of the first convention. The discourse of the school changed in several ways during the early 1850s, a period of great expansion of and support for the school by the Virginia legislature. With the resolution of some east-west sectional tensions within Virginia, the discourse began to shift to emphasize the North-South tensions that led to the secession of West Virginia from Virginia and of Virginia from the United States, changing, to some extent, the meaning of the school and its place in the commonwealth. Also, the curriculum expanded to include scientific agriculture, broadening the purpose and scope of the school. Consequently, the later convention provides a convenient end point for my study.

**Organization of Dissertation**

I follow a semi-chronological order in this dissertation, though the chapters, especially four and five, often overlap. This organization also reflects the changing contexts and the introduction of new actors who contributed to the engineering culture of VMI. By closely following these events, I reveal the genealogy of various aspects of that culture and the functions they were to serve in the conflicts from which that culture emerged.

I begin in Chapter Two with the origins of VMI in a struggle for legislative power between the elites of eastern and western Virginia. Of particular importance was the effort of westerners to gain this power in order to achieve tax support for internal improvements in the west, including roads, canals, and banks. I examine this struggle in

the context of the 1830 constitutional convention. During this convention, the western elite allied themselves with white men of the lower classes to call for broadened suffrage to enhance the power of the west, where the white population was growing faster than in the east. The basis for this broadened suffrage was a growing movement to create an imagined fraternity of white men in which white manhood itself was the guarantor of the independence and virtue seen as necessary for participation in politics. Having failed to secure these reforms, the elite and the nascent middle class of Rockbridge County organized to establish a military school that would provide a basic liberal education to disenfranchised boys in order to justify their participation in politics.

Only after gaining legislative approval for the new school did the idea of providing engineering training arise. The early proponents of the school approved this plan gladly, seeing it as providing a source of competent engineers to carry out the internal improvements they had sought earlier. In Chapter Three, I examine the various interventions that led to the decision to train engineers. New actors, including engineers, became involved in establishing the school. These middle-class actors sought to turn the poor boys that were to attend the school into middle-class professionals and leaders.

In Chapters Four and Five, I provide a detailed analysis of the discipline (Four) and curriculum (Five) of the school from its opening in 1839 up until about 1851. In Chapter Four, I analyze the process by which the officers of the school attempted to discipline the students into embodying a particular type of independent and virtuous white manhood that could justify the founders' claims for broader political participation, not by enabling the students to emulate the eastern elite, but by arguing for a new basis for political authority.

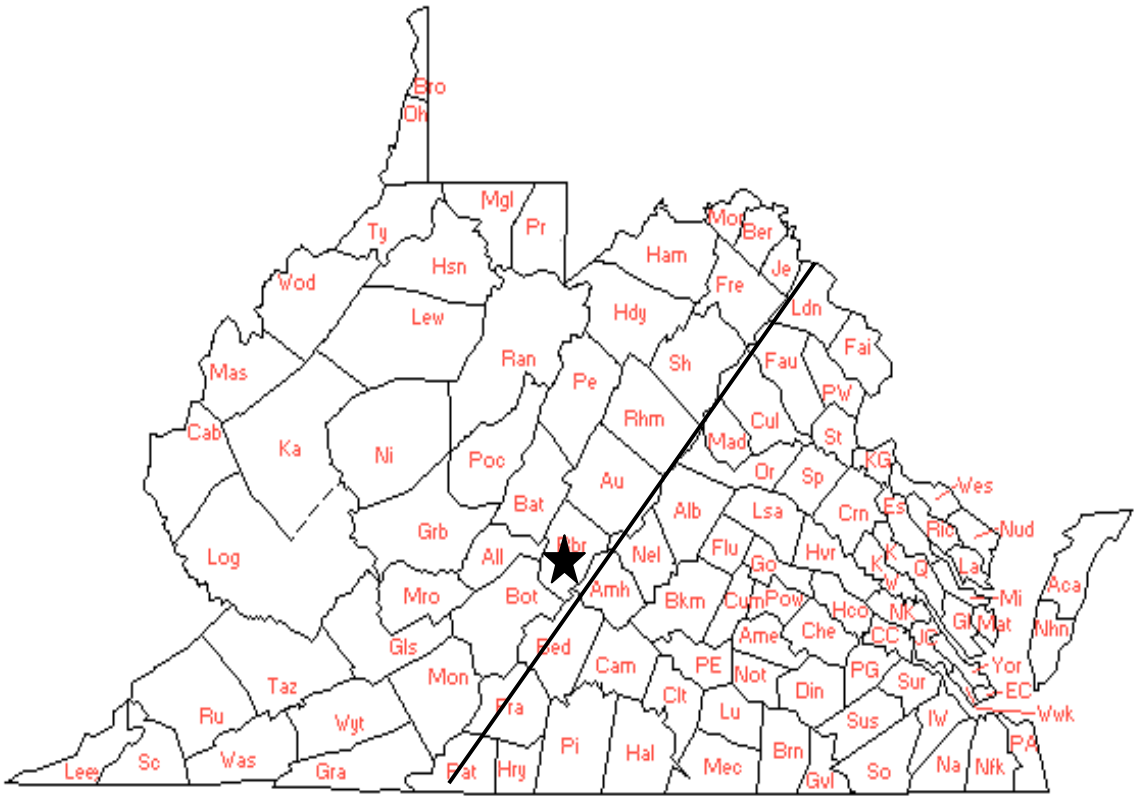
With the school having begun operation, the officers of the school then found themselves competing with the liberal colleges for authority within the field of higher education. In Chapter Five, I discuss how the officers of the school cultivated pedagogical practices and a curriculum that would enable them to challenge the authority of the older and more elite colleges. They did this, again, not by emulating their competitors, but by trying to redefine authority within the field of higher education. The curriculum served other purposes as well, including enabling poor students to overcome the deficiencies of their earlier educations, or lack thereof, and to create a group of elite engineers who could enter their field as managers and leaders of engineering projects.

Chapter Six covers a shift in the discourse at VMI up through 1851. By this time, a self-conscious middle class had emerged in the South. It possessed a distinct sense of its own political interests and had adopted its own middle-class culture. I discuss how VMI participated in the emergence of this class and culture by training young men to adopt the practices of that culture and to enter into the middle class as professionals, particularly as engineers and educators. Coinciding with the emergence of the middle class was a new discourse of progress linked to Manifest Destiny and westward expansion. I analyze the development of a counter-discourse at VMI that emphasized a narrower view of progress that emphasized the economic development of Virginia in order to return the commonwealth to an earlier position as a leader of the nation. As middle-class professionals, the graduates of VMI were to provide the leadership for this progress through their work as engineers on infrastructural projects.

I conclude the dissertation with a brief discussion of the consequences of Virginia's 1851 constitutional convention. This convention led to a redistribution of

political power in Virginia. While it left many Virginians west of Rockbridge County still dissatisfied, it seemed to sufficiently resolve the conflicts for at least the upper and middle classes in the region around VMI. Consequently, it brought to a close many of the struggles in which VMI was to serve as a strategy. With this partial closure of tensions, I then provide an overview of the characteristics of the engineering culture that had emerged from those struggles.

**Figure 1.1: Virginia in 1830**[46]




The star indicates the location of Lexington and the Virginia Military Institute with respect to county borders of Virginia according to the 1830 census. The line marks the approximate location of the Blue Ridge.

46. Map modified from "1830 Census" available at http://www.rootsweb.com/~varussel/map1.htm. Last accessed 23 October 2006.

## CHAPTER TWO

## ORIGINS OF THE VIRGINIA MILITARY INSTITUTE IN SECTIONAL TENSIONS, 1834-1836

On December 5, 1834, thirteen men gathered for a weekly meeting of the Franklin Society in Lexington, Virginia.[1] They had done so since at least 1811, when the literary and debating society adopted its new name in honor of Benjamin Franklin's "usefulness, seriousness, intellectuality, and patriotism," using "a name that all the people claimed regardless of creed or class."[2] They raised the following question: "Would it be politic for the state to establish a military school at the arsenal near Lexington, in connexion with Washington College on the plan of the W. Point Academy." Over the next three weeks, the members debated this issue, first voting unanimously in opposition and then unanimously in favor.[3]

The Rockbridge County community took seriously any conclusion of this society, through which white artisans, mechanics, farmers, and merchants, as well as politicians, discussed current political and cultural affairs.[4] After presiding over both meetings during which the members voted to discuss the issue, as well as joining the final unanimous vote in favor of it, one member, Alfred Leyburn, would join the House of

---

1. 1830-35 Secretary Book, 5 December 1834, Franklin Society and Library Company Papers, Collection 103, Special Collections, James Graham Leyburn Library, Washington and Lee University.

2. Cited in Charles W. Turner, 'The Franklin Society, 1800-1891," *The Virginia Magazine of History and Biography*, 66 (October 1958), 433.

3. 1830-35 Secretary Book, 12, 20, 27 December 1834, Franklin Society and Library Company Papers, Collection 103, Special Collections, James Graham Leyburn Library, Washington and Lee University.

4. Turner, "The Franklin Society, 1800-1891," 435.

Delegates during the next legislative session and introduce the petition advocating the establishment of the school.[5] After about fifteen months of debate and struggle, the Virginia General Assembly adopted the plan. They authorized the replacement of the guard of the Lexington Arsenal with a corps of cadets, drawn from across the commonwealth, who would take on the guard duty in exchange for an education they could not otherwise afford.[6] It would take, however, three more years before the first cadets arrived and before John Thomas Lewis Preston, a Lexington lawyer and landowner, named the school the Virginia Military Institute.[7]

Historian Rod Andrews Jr. attributes the origins of the southern military-school tradition, which began with VMI, to a southern commitment to republicanism, as typified by military virtues of self-reliance, individual merit, and a willingness to act in defense of personal autonomy, the commonwealth, and the nation. He argues, "American republicanism of the mid-nineteenth century emphasized political equality for white men, insisted on a rough social equality and equality of opportunity, valued personal behavior that was at least outwardly moral, and stressed valor and self-reliance." Moreover, "the

---

5. 1830-35 Secretary Book, 5, 20, 27 December 1834, Franklin Society and Library Company Papers, Collection 103, Special Collections, James Graham Leyburn Library, Washington and Lee University. Earl G. Swem and John W. Williams, *A Register of the General Assembly of Virginia, 1776-1918, and of the Constitutional Convention* (Richmond, VA, Commonwealth of Virginia, 1918), 140. *Journal of the House of Delegates of the Commonwealth of Virginia*, 1835-1836 (1836), 79.

6. An act re-organizing the Lexington Arsenal, and establishing a military school in connexion with Washington College, Acts of the General Assembly of Virginia, 1835-1836 (March 20, 1836). Cives, "The Lexington Arsenal", *Lexington Gazette*, August 28, 1835, 2.

7. Col. J. T. L. Preston, Historical Sketch of the Establishment and Organization of the Virginia Military Institute, Prepared at the Request of the Board of Visitors, 4 July,1889. (MS# 240 (facsimile) Virginia Military Institute Archives, 12.

ideal republican citizen, then, was self-reliant, outwardly moral, mindful of his rights and civic responsibilities, and most importantly, eager and capable of bearing arms in self-defense or for the public good."[8] He thereby challenges older arguments that southern states founded their military schools in the context of a culture of militarism and emphasis on North-South tensions.[9] Similarly, historian Jennifer Green rejects these earlier interpretations, as well as the claims that the South, in contrast to the North, lacked significant interest in science and education. While not commenting on their origins, she argues that the southern military schools, instead, served to expand educational opportunities for white boys of the "middling" class and promoted science and scientific education in ways that paralleled northern efforts and contrasted with colleges that emphasized the classics.[10]

Andrews argues, "Mid-nineteenth-century military schools, however, were not out of the mainstream of Jacksonian republicanism. They were, instead, in touch with the dominant political and social trends of their day. Many Americans, perhaps southerners especially, saw military education for the young as essential to liberty and to the health of the republic."[11] At the military schools, the promotion of this health included providing discipline for a generation of unruly southern boys, promoting industry through

---

8. Ibid., 3.

9. Ibid., 1-4. See John Hope Franklin's *The Militant South, 1800-1861* for the argument that the schools emerged out of a broad cultural of southern militarism that emerged from conflicts with Native Americans, the control of the enslaved population, and an emphasis on the violent defense of honor.

10. Jennifer R. Green, "'Practical Progress is the Watchword': Military Education and the Expansion of Opportunity in the Old South," *Journal of the Historical Society*, 3 (Fall, 2005), 363.

11. Ibid., 8-9.

education, and promoting egalitarian principles by providing greater educational opportunities for poorer boys and eliminating social distinctions between cadets by enforcing uniform dress and discipline.[12] Green disputes the claims that parents chose these schools primarily to discipline their unruly sons.[13] Regardless, Andrew argues, "In the long run the drive for military readiness was neither the sustaining force nor the overriding justification for the dozens of military schools that sprang up all over the South in the 1840s and 1850s." Moreover, "The most logical conclusion is that the sectional tension was one of the least important factors in igniting the southern military-school craze of the 1830s, 1840s, and 1850s."[14]

Before the General Assembly considered the establishment of a military school in Lexington, citizens of Rockbridge County debated other educational proposals as well, with at least ten articles promoting different schemes appearing in the *Lexington Gazette*, the weekly paper of Rockbridge County, between mid-July 1835 and mid-January 1836 and with additional articles appearing after the submission of petitions to the House of Delegates. These proposals, despite their sometimes-heated language, shared a common goal of providing an education for poorer white boys, boys politically disenfranchised by property-ownership requirements for suffrage. The presence of this agreement, as well as the disagreement over how to accomplish it, and the perceived importance of the issue suggests that something important happened, something that the proponents of the

12. Ibid., 13-17.

13. Green, "'Practical Progress is the Watchword'", 372-373.

14. Andrew, *Long Gray Lines*, 11, 22.

Virginia Military Institute, the model for the southern military school tradition, hoped a school could help to resolve.

I argue that, rather than emerging out of some broad southern egalitarianism, the Virginia Military Institute emerged out of sectional struggles between the elites of eastern and western Virginia. In this struggle, elites west of the Blue Ridge deployed a new imagined fraternity of innately independent white men as a strategy to legitimize universal white male suffrage as a means of shifting political power away from the dominant planter-elite of the east. The failure of western Virginians to achieve a redistribution of power or support for internal improvements during the 1830 constitutional convention provides the primary context for the movement to establish a military school in Lexington, the first of the southern military-school tradition. Although Andrews argues for a southern egalitarianism rooted in a particular republican citizenship, over one third of even white Virginian men did not yet have voting rights. Although the western elite failed to institutionalize the new white manhood in universal suffrage, they continued their attempts to elevate the status of disenfranchised white men through higher education.

**Deploying A New White Manhood at the**

**1829-1830 Constitutional Convention**

The planter-elite of eastern Virginia dominated the legislature from the founding of the Commonwealth of Virginia to 1850, despite the increasing settlement and economic development of western Virginia. The struggles of western Virginians to increase their political power provided the primary context for the founding of the

Virginia Military Institute. Citizens living west of the Blue Ridge attempted to gain stronger political representation in order to achieve their interests, especially greater tax support for internal improvements. This conflict resulted in new constitutions in 1830 and 1851, the two events bracketing this study. At both conventions, western elites sought to increase their political power primarily by establishing universal white-male suffrage and changing legislative apportionment. The eastern elite opposed these reforms on the grounds of their aristocratic republican philosophy that limited suffrage.[15] Westerners, in response, attempted to redefine citizenship and political authority by introducing a new republican philosophy in which they grounded authority in a new sense of a common white manhood. This attempt at reform through a legislative process largely failed at the 1829-1830 convention, resulting in an intensification of sectional tensions to the point of westerners threatening secession. VMI emerged out of these conflicts.

*Internal Improvements and Legislative*

*Power as Sources of Sectional Tension*

Western Virginians had strong interests in state support for internal improvements, including roads and banks, in the west, but did not succeed in securing these because of eastern-planter domination of the legislature. The planters, generally opposed to state-supported internal improvements, secured their greater legislative power partly through apportionment of legislators based on both the free white and enslaved

15. Robert P. Sutton, *Revolution to Secession: Constitution Making in the Old Dominion* (Charlottesville: University Press of Virginia, 1989), 65. William G. Shade, *Democratizing the Old Dominion: Virginia and the Second Party System*. (Charlottesville: University Press of Virginia, 1996), 60-61.

black populations, the later of which was concentrated in eastern Virginia. The planters also secured their power through land-ownership requirements for suffrage, both limiting the power of non-planters in the east and westerners, who were disproportionately disenfranchised. Western elites attempted, largely unsuccessfully, to redistribute legislative power through a new state constitution, which was ratified in 1830.

American interest in roads and canals grew in the early nineteenth century along with the market revolution, during which the market economy and manufacturing expanded greatly, but both the market expansion and internal improvements faced opposition. These roads and canals, referred to as "internal improvements," would support western settlement and the inclusion of those settlements in the market economy by enabling them to transport goods to and from the market. Proposals for public support for these improvements, however, generated much contention. Except for construction of lighthouses and harbor improvements, as well as the 1818 National Road from Cumberland to Wheeling, the federal government ultimately rejected calls for its support. James Madison, for example, vetoed federal support for canal construction in New York in 1817, declaring the appropriations bill unconstitutional. Others expressed concern that federal improvements would benefit manufacturing and commerce at the expense of agriculture, including slave-based plantation production. This growth of commerce would accelerate the growth of the market economy, already seen by many as destabilizing American society by widening the gap between the classes and creating

political factions. Consequently, any public support for internal improvements would have to come from the states.[16]

Just like the people of western New York who supported the Erie Canal, the people of western Virginia generally supported internal improvements to further their inclusion in the market economy. Privately developed turnpikes began to appear in the west in the 1820s. The Lexington-Covington Turnpike, for example, connected Lexington to Covington to the west by a 45-mile toll road completed in 1832. This, however, still left Lexington without any turnpike heading directly eastward to more conveniently connect the town to Richmond or the Atlantic coast until after the 1850s. Westerners called for state support for roads and canals and, after the 1830s, railroads. Canals began to appear in western Virginia in the 1830s, but none reached Rockbridge County until the 1850s. Westerners also wanted charters for banks in the west to provide loans and increase the availability of the cash necessary to participate in a market economy. The planter elite of the east, however, had limited interest in using public money, derived in part from taxation on slaves and their large land holdings, for western improvements. In order to assuage sectional tensions and demands for constitutional reform, in 1816, the legislature established the Fund for Internal Improvements administered by the Board of Public Works. The Board employed a Principal Engineer to conduct surveys and oversee the work of the private turnpike companies, with

16. Carol Sheriff, *The Artificial River: The Erie Canal and the Paradox of Progress, 1817-1862* (Hill and Wang, 1996), 16-18, 20-21. Harry L. Watson, *Liberty and Power: The Politics of Jacksonian America* (New York: Noonday Press, 1990), 8, 61-62.

construction carried out by men who generally lacked any engineering training or even experience. Roads, however, appeared too slowly to satisfy the west.[17]

Each county sent two delegates to the General Assembly, but with the size of counties depending on population, both free and enslaved. With the overwhelming majority of enslaved blacks living in the east, eastern counties had substantially greater representation than western counties. Westerners referred to this as the "black basis" for apportionment, as opposed to the "white basis," or the counting of only the white population, which would have increased the number of western delegates.[18] The "black basis" may seem to be *just* a means of increasing the power of eastern planters. But the "white basis" had no innate justification either. For example, no women, regardless of race, could vote, but they counted for apportionment. Not even citizenship, granted only to whites, justified the "white basis," because non-naturalized whites also counted for apportionment. Westerners drew upon race alone to argue for the "white basis." The "black basis," in fact, included all people for apportionment, regardless of their legal status or ability to participate in governance.

Virginia's 1776 constitution, to which westerners objected, retained the Colonial standards for suffrage, "that all men, having sufficient evidence of permanent common interest with, and attachment to, the community, have the right of suffrage."[19] The

---

17. Robert F. Hunter, "Turnpike Construction in Antebellum Virginia" in *The Engineer in America: A Historical Anthology from* Technology and Culture, ed. Terry S. Reynolds (Chicago: Chicago University Press, 1991), 44, 59. Oren F. Morton, *A History of Rockbridge County, Virginia* (Staunton, VA: McClure, 1920), 165. Robert P. Sutton, *Revolution to Secession: Constitution Making in the Old Dominion* (Charlottesville: University Press of Virginia, 1989), 59, 108.

18. Shade, *Democratizing the Old Dominion*, 60-61.

delegates understood "interest" and "attachment" in terms of land ownership, following the earlier requirement of ownership of fifty acres.[20] 1785 legislation extended suffrage to "[e]very white male citizen (other than free negroes and mulattoes) of this commonwealth, aged twenty-one years" who owned either only twenty-five, rather than fifty acres, of land with a house and plantation or a legally designated city or town lot containing a house.[21] This extension of suffrage, however, still left over one-third of white adult Virginia men disenfranchised, with a disproportionate number in the west.[22]

The planter elite of the east employed landownership requirements for suffrage to institutionalize a republican philosophy that advocated governance through representation by the virtuous few in order to protect the liberty of all. One had to demonstrate virtue, the capacity for restraint and self-sacrifice necessary to set aside one's own interests in favor of the common good, in order to govern responsibly. Otherwise, employing government or one's vote to advance one's own interests or personal liberty would create a threat to the liberty of others. Governance by the virtuous on the behalf of all would ensure the long-term security of liberty for all. Many, since the American Revolution, accepted that this meant limiting suffrage and office holding to those with the wealth and family background to ensure the independence necessary for virtue in order to prevent the virtueless masses from corrupting democracy for their own interests. Americans

---

19. Virginia Constitution (1776), sec. 6.

20. Sutton, *Revolution to Secession*, 26.

21. William Waller Hening, *Statutes at Large: Being a Collection of all the Laws of Virginia, from the First Session of the Legislature, in the Year 1619*, v. 12 (Richmond, Virginia, 1823), 120.

22. Shade, *Democratizing the Old Dominion*, 4.

generally understood women and all blacks as having an innate *in*capacity for public virtue. Consequently, they could not embody the essential quality of independence necessary for political participation.[23] This exclusion, however, did not mean that all white men were innately virtuous. They had to demonstrate their capacity for independence in some way, with property ownership providing an important means.

Delegates to Virginia's 1776 Constitutional Convention established landownership as the marker of virtue in the constitution. Many delegates feared that enfranchisement of nearly all white men, a proposal that had the support of the influential and radical Thomas Jefferson, would lead to the enfranchisement of black men as well. The delegates, however, set this fear to rest by arguing that slaves could not experience freedom and equality because those qualities rested upon the capacity of a person, by free contract, to give away his innate rights. Enslaved peoples had no innate rights and, therefore, could not enter into contracts. Regardless, the delegates still did not argue for universal white male suffrage, arguing that participation in governance required having a stake in society, particularly through land ownership. This stake would ensure respect for private property, one of the foundations of liberty. Moreover, porpoerty would demonstrate one's independence and, therefore, capacity for governance.[24]

---

23. Ruth H. Bloch, "The Gendered Meanings of Virtue in Revolutionary America", *Signs* 13, 41-42. Matthew Frye Jacobson, *Whiteness of a Different Color: European Immigrants and the Alchemy of Race* (Cambridge: Harvard University Press, 1998), 22, 26-27, 31. Watson, *Liberty and Power*, 6, 43, 45, 49.

24. Shade, *Democratizing the Old Dominion*, 66-69. Sutton, *Revolution to Secession*, 24-26, 45.

*A New White Manhood and Redefining Virtue*

Since before the American Revolution, many disenfranchised citizens challenged the republican insistence upon narrow suffrage. Many white men argued for a new basis for the independence necessary for participation in governance and, in the process, further racialized citizenship and transformed the meaning of white manhood. While most states adopted universal white male suffrage by the 1820s, Virginia maintained its suffrage restrictions. Western Virginians responded with a push for a constitutional convention, hoping to achieve both broader suffrage and to eliminate the "black basis" in favor of the "white basis" of legislative apportionment as a means of shifting political power westward.

Nationally, disenfranchised white men struggled to broaden suffrage by transforming the meaning of white manhood, identifying it with the independence seen as necessary for political participation. Historian David Roediger describes how these men accepted the innate dependence of white women and blacks, but argued for the innate independence of white men. White men could, by their very nature, exert the restraint and self-sacrifice necessary to set aside their personal interests in order to act for the common good. Previously, womanhood generally excluded one from political participation and even from the public sphere as a whole. Manhood, on the other hand, while necessary, did not provide sufficient credentialing. Likewise, a man's whiteness did not guarantee political participation. Whiteness was also necessary, but not sufficient. Advocates of the new white manhood successfully argued for a more intensely racialized sense of public virtue. The resulting broadening of suffrage for white men often occurred along with greater restrictions on the rights and political participation

of free black men, a few of whom previously could vote upon meeting the same land-ownership requirements as white men. The racialization of political participation broadened suffrage for white men, while necessarily restricting it for black men.[25]

The elite of western Virginia supported universal white male suffrage, hoping that it would strengthen the legislative power of the west, making them better able to assert their interests. Disenfranchised men of the middling classes, such as merchants and artisans, also support broader suffrage of course, as it would include them in political participation. Moreover, they had at least as much interest in gaining internal improvements for the west in order to better integrate them into the market economy. After much agitation, particularly within western Virginia, including Lexington, the commonwealth held a new constitutional convention in 1829-1830. However, eastern planters, who dominated the legislature, also dominated the convention and, in fact, included a particularly conservative group of men. They maintained their arguments for limited suffrage, seeing property ownership as a commitment to property protection, as well as ensuring political independence through financial independence. In contrast, they saw white men dependent upon others for wages as subservient to the interests of their masters, compromising the ability of the men to act independently. Some delegates directly compared white male laborers to black slaves, seeing them as serving equivalent functions and arguing, by analogy, that no one would consider granting suffrage to slaves, so they should not grant it to white laborers, who held an analogous, even if not equivalent, status as dependent. Additionally, they did not expect men who did not own property to responsibly protect the property of others. Some delegates opposed even the

25. David R. Roediger, *The Wages of Whiteness: Race and the Making of the American Working Class*, rev. ed. (New York: Verso, 1991), 56-59.

"white basis" of representation out of fear that it would rapidly lead to the abolition of slavery.[26]

Despite the dominance of the convention by eastern conservatives, they accepted a compromise in the new constitution. The delegates rejected the "white basis" in a close vote of forty-nine to forty-four. Opponents feared that, because the white population was increasing faster in west than east, a white basis would lead to a western majority and, therefore, western dominance of the legislature. This situation would lead, they argued, to taxation of the east for internal improvements in the west. They feared that it could endanger slavery as well, since slaveholders were a minority. Instead of the white basis, they compromised by establishing a fixed distribution of fifty-six delegates to the west and seventy-eight to the east. Likewise, the west would have thirteen senators and the east nineteen. While this increased western representation, it maintained eastern dominance.[27]

The planter elite that dominated the convention reaffirmed the old distribution of power by maintaining limited suffrage.[28] They did, however, specifically identify only "white male citizen[s]" as eligible for suffrage,[29] as many other states had recently done. The ratification vote fell cleanly along sectional lines, with eastern counties nearly

---

26. Shade, *Democratizing the Old Dominion*, 66-69. Sutton, *Revolution to Secession*, 24-26.

27. Sutton, *Revolution to Secession*, 85, 87-88, 90-92.

28. Shade, *Democratizing the Old Dominion*, 4, 52, 58-61, 64.

29. General Assembly of Virginia, *The Code of Virginia: With the Declaration of Independence and Constitution of the United States and the Declaration of Rights and Constitution of Virginia* (Richmond: William F. Ritchie, 1849), 42.

uniformly voting in favor of ratification and western counties against.[30] The maintenance of eastern legislative domination prevented western elites from achieving their particular and sectional interests, including tax-supported internal improvements. Consequently, with little change achieved, sectional tensions intensified.[31]

*The Need for a New Strategy*

The suffrage struggles of the 1830 convention challenge Rod Andrew's thesis that the southern military school tradition emerged out of a broad southern republican egalitarianism in which the Virginia General Assembly welcomed a school to benefit and elevate poorer white boys. Whatever the interests the Assembly had in the Virginia Military Institute, given their maintenance of limited suffrage at the convention, it was not to recognize and promote the equality of white men. However, I agree with Andrews in a certain sense. The western elite's strategy of attempting to establish white manhood as the basis of political equality provided the context out of which the movement to establish the school emerged. Western Virginians, having failed to achieve their desired reforms through a new constitution, had to turn to new strategies to achieve their political interests. Along with the rest of the nation, these tactics included participating in the transformation of white manhood. Locally, this transformation was manifested in the struggle to establish a new institution: an educational institution that served to legitimate the equality of white manhood.

30. Sutton, *Revolution to Secession*, 106.

31. Shade, *Democratizing the Old Dominion*, 65, 103, 107.

**Higher Education and the Legitimation**

**of a New White Manhood**

Having failed to satisfactorily shift power westward through the institutionalization of an imagined fraternity of white men through constitutional reform, citizens of western Virginia turned to other strategies to redefine public virtue and to legitimate the new white manhood. This included several proposals for educational opportunities for poorer white men, the advocates seeing education as a means by which disenfranchised men could demonstrate their merit and prove their possession of virtue. Beginning as early as December of 1834, citizens of Rockbridge County made competing proposals for providing white boys with greater access to education. Lexington already served as an important educational center in Appalachian Virginia by serving as the home of the Ann Smith Academy, an academy for girls, and Washington College, an academy and college for boys, now named Washington and Lee University. John Preston argued that to the presence of these schools and especially to the "influence of Washington College is to be attributed much of the character of our town for intelligence and virtue." Additional schools would enable Lexington to "become the Athens or Boston of Western Virginia."[32] The various education proposals, despite the sometimes-heated arguments over them, shared a common goal of providing an education for poorer white boys, boys politically disenfranchised by suffrage requirements reconfirmed in the commonwealth's 1830 constitution. With this education, they could claim public virtue and serve as an argument for a broader franchise that would shift legislative power to the west, which would better enable the western elites to secure their political interests.

32. Cives, "The Lexington Arsenal-No. II", 1.

*Franklin Society Proposal for a Military School*

*to Create a "Crowd of Honorable Youths"*

John Thomas Lewis Preston (Figure 2.1), writing to the *Lexington Gazette* as "Cives" in three letters in August and September of 1835,[33] provided the dominant public articulation of the Franklin Society proposal, in which he emphasized both providing an education to those who could not otherwise afford one and employing military discipline to transform the students into ideal and useful citizens. I have not seen any reports on or transcriptions from the Franklin Society debates that can provide an indication of just how faithfully Preston presented the views from the debates or to what extent his "Cives" letters reflected the issues raised during the discussion. Regardless, Preston, through these three letters and personal lobbying of legislators in Richmond,[34] provided crucial public support for the proposal. Nonetheless, he denied having originated the idea, claiming that people had proposed it ever since the commonwealth first established the arsenal,[35] though no one has offered evidence for any other originator. Jennings C. Wise, former Commandant of Cadets and early historian of VMI, speculated that Claudius Crozet may have proposed it to local residents while passing through Lexington as part of his work as Principal Engineer of Virginia. Wise argued that the graduate of the *École Polytechnique*, a military engineering school in Paris, and former professor of engineering at West Point would have found the idea obvious.[36] Given Crozet's later role

33. Preston, Historical Sketch, 4.

34. Ibid., 11.

35. Cives, "The Lexington Arsenal", *Lexington Gazette*, August 28, 1835, 2.

as the President of the Board of Visitors of VMI, I would expect evidence of this claim to have come forward. While I can only speculate, I suspect that Preston served as the primary voice in favor of the proposal during the final Franklin Society debate because the proposal unanimously failed during the first debate, which occurred in his absence, but then unanimously succeeded after his return.[37] Unfortunately, we do not know what arguments failed and what succeeded.

In the first letter, of August 28, 1835, Preston reformulated the Franklin Society question as, "*whether it be practicable, so to organize the Lexington Arsenal, that it shall preserve its present character and uses as a military establishment, and be at the same time a Literary Institution for the education of youths*." Denying any particular political or personal motivation, he claimed to make the proposal "solely by a sincere desire to bring about what we sincerely believe would be beneficial at once to the State, to this community, and to the cause of education." He specifically proposed "to supply the place of the present Guard, by another, composed of young men from sixteen to twenty-four years of age, engaged for four years to perform the necessary duties, who would receive no pay, but in lieu, have afforded to them the opportunities of a liberal education."[38] At least one student would come from each senatorial district, thus distributing the benefits throughout Virginia.[39] He proposed having a tutor to teach "the

---

36. Jennings C. Wise, *The Military History of the Virginia Military Institute from 1839-1865* (Lynchburg, VA: J. P. Bell Company, 1915), 31-32.

37. 1830-35 Secretary Book, 20, 27 December, 1834, Franklin Society and Library Company Papers, Collection 103, Special Collections, James Graham Leyburn Library, Washington and Lee University.

38. Cives, "The Lexington Arsenal", 2.

classics, and the higher branches of an English education," a professor of "the sciences generally," and a Captain to maintain the guard and to teach "the military art." During the first year, students would focus on developing military discipline; during the second, have primary responsibility for the guard; during the third, focus on classes at the school; and during the fourth, take classes at Washington College. They would all, however, take some classes throughout, with Latin and other "higher branches of English" during the first, Latin and mathematics during the second, mathematics and natural philosophy during the third, and natural philosophy, chemistry, and military arts during the fourth. Such a plan would enable students to make up for a lack of earlier education and provide them with one "sufficiently liberal to enable a young man to prosecute it further, unassisted, or creditably to enter upon the study of any of the learned professions."[40]

The above plan, despite the inclusion of military training, did not offer a radical change in curriculum from that offered at Washington College or other colleges. Although VMI became one of the first engineering schools in the United States, Preston made no mention of engineering education in his letters. In his reformulation of the Franklin Society question, he had eliminated any reference to West Point as the specific model for the proposed school. West Point emphasized an engineering education for its cadets, so this omission may be significant. No such mention of engineering occurred until February, 1836, when Alden Partridge, former West Point superintendent and advocate of popular military education, recommended to Charles Dorman, one of the Rockbridge County delegates, civil engineering as the primary curriculum for a military

---

39. Cives, "The Lexington Arsenal-No. III", *Lexington Gazette*, September 11, 1835, 2-3.

40. Cives, "The Lexington Arsenal", 2.

academy.[41] As in the other educational proposals, here Preston argued for greater access to education, as it existed at the time, rather than for some new form of education, except for the addition of military training. That would come later. He did, however, offer a distinct role for education as a form of service to the commonwealth.

Preston argued that, by providing this education, the commonwealth would benefit in several ways. First, the Arsenal would remain effectively guarded at the same cost as previously. Second, the school would strengthen the state militias through the dispersal of trained military men throughout Virginia. Third, "[t]he State is benefited by everything that promotes the cause of education." Lexington and Rockbridge County, on the other hand, would also benefit, because "the soldiery of the Arsenal is the most unpleasant part of our population."

> They are men of idle, dissipated dispositions, to whom the easy duties, and licentious morals of a barracks, offer greater charms than the laborious, regular life of the artisan or farmer. Their idleness engenders and fosters vice, and their wages afford the means for its indulgence. …They are entirely a distinct, separate, and to a certain degree, odious class. In short, as a body they are respected by none, considered obnoxious by some, and disliked by all.[42]

The proposal, therefore, would provide multiple benefits to both the commonwealth and the community at no extra cost.

In contrast to the perceived immorality and disruptiveness of the professional soldiers, a student guard would learn "industry, regularity, and health" through military drilling and discipline.[43] Preston argued

---

41. *Lexington Gazette*, February 12, 1836, 1-2.

42. Cives, "The Lexington Arsenal-No. II", *Lexington Gazette*, September 4, 1835, 1.

> How different would be the feeling toward a corps of young men, guided by virtuous principles, ennobled by the ardor of patriotism, and cheered by the proud consciousness that they were, by their own exertions, preparing themselves for the highest posts under their *own free government*, of which they should be capable–mingling with the citizens as their duty might permit upon the *equality of gentlemen*, ready to aid in every enterprise of patriotism or philanthropy, and at last leaving, sorrowing and sorrowed, a community whose confidence and regard they had secured, and whose sympathies and best wishes would continue to follow them in after life.[44]

These young men would not become common soldiers. Instead, they would seek to elevate their positions through their educations. Moreover, they would cultivate the independence understood as so necessary for public virtue, establishing them as the equals of "gentlemen" and beloved by the community.

Preston drew fundamental distinctions between the troublesome soldiers and the future students. The soldiers required military discipline to restrain them and, even then, the community saw them as a disturbance. The students, on the other hand, would learn to exert self-restraint, while, not only *not* creating trouble, but also proudly serving Virginia. Preston summarized this contrast with the following image of the arsenal buildings:

> And who would not wish to see the change if it would be as practicable and advantageous as we have represented–who would not wish to see those really handsome buildings, which upon their commanding site, adorn the approach to our village, no longer the receptacle to drones, obliged to be restrained by their coercion of military rule, a discordant element in our social system—but the healthy and pleasant abode of a crowd of honorable youths, pressing up the hill of science with noble emulation, a gratifying spectacle, an honor to our country and State, objects of honest pride to their instructors, and fair specimens of citizen-

---

43. Cives, "The Lexington Arsenal", 2.

44. Cives, "The Lexington Arsenal-No. II", 1. Emphasis added.

> soldiers, attached to their native State, and proud of her fame, and ready, in every time of deepest peril to vindicate her honor, or defend her rights.[45]

The particular method of education or educational environment would thus transform those seen as vice-ridden and undisciplined into a new form of gentleman committed to the defense of Virginia. Denied enfranchisement and political leadership through a lack of land ownership, these boys would demonstrate their capacity for such leadership by learning to embody the ideals of independence and through demonstrations of their commitment to the commonwealth as a whole, rather than to simply their personal interests or to these interests of those from whom they might receive wages. Through this, the military school would undermine eastern elite claims about the inability of poorer and disenfranchised white men to participate in the governance of others.

Preston lamented the number of great minds lost as a result of poverty and lack of access to education, arguing that "Genius knows no fixed locality, and is as often born under a cottage roof, as the dome of a palace; and there are hundreds of young men whose minds thirst for an education which they have not the means of obtaining." Public support generally went to those who did not really need it, while colleges, which might have waived tuition for those in need, still required boarding expenses that most could not afford. Religious institutions might have offered charity, but this generally required a particular religious affiliation on the part of the potential student. Also, many boys may have resented charity as a mark of deficiency. Preston, on the other hand, proposed the means of offering both an education and boarding, but without any charity.

45. Cives, "The Lexington Arsenal-No. III", 2-3.

Beyond the benefits of the school to those who could not otherwise afford education, Preston suggested that the military character of the school might offer such benefits as to attract even those who could afford education elsewhere. He argued,

> the military discipline of the place would essentially conduce to the formation of good habits, and the exercise to health, and many a parent anxious about the morals or the constitution of his son, might be glad to send him here rather than to the collegiate institutions of the country; and if this scheme should go into operation, it would not be a matter of surprise to see students there upon their own expense, in addition to those supported as a guard by the State.[46]

Even though the school might offer a more limited or less advanced liberal curriculum than that available at Washington College, parents might find the system of discipline attractive because of its emphasis on moral training and health. Beyond this moral and military training, Preston advocated little change in actual curriculum. This suggests that creating a school "on the plan of the W. Point Academy," as described in the question discussed at the Franklin Society, meant an education under military organization and discipline, rather than the mathematically-intensive engineering education provided by West Point.

*A Manual-Labor School to Elevate the Manual Laborer*

Some supporters of the Franklin Society proposal, as well as others, also supported a proposal to bring together the trades and higher education to both provide a means for poor white boys to obtain an education and to elevate the respect for and status of manual labor and, therefore, manual laborers. A. B. Davidson, who also voted in favor

46. Ibid.

of establishing a military school during the Franklin Society debate,[47] and J. F. Caruthers proposed in August of 1835 the model of the manual-labor school by advertising the constitution of the Manual Labour Society of Western Virginia and their hopes for the society establishing a relationship with Washington College in order to provide "gratuitous instruction to young men of good moral character and respectable talents."[48] Moreover,

> The object of this society shall be to afford all young men of good moral character and respectable talents, who may be desirous of obtaining an education at Washington College, all practicable facilities, for obtaining cheap and comfortable boarding, and for meeting the expense of boarding, by a wise and prudent application of their hours of recreation to some profitable and healthful employment in manual labour.[49]

The society would provide for some of the expenses of the manual labor students through fundraising and by providing land to Washington College, while the students themselves would generate funds by selling the products of their own labor.[50]

Men anxious about social instability and a growing gap between classes as a result of the growth of the market economy and industry participated in the manual-labor school movement. They sought to use higher education to create a new class of men that partook of the virtues of both tradesmen and professionals in order to bridge the gap between those classes. Theodore Dwight, spokesman for the Society for Promoting

---

47. 1830-35 Secretary Book, 27 December, 1834, Franklin Society and Library Company Papers, Collection 103, Special Collections, James Graham Leyburn Library, Washington and Lee University.

48. A. B. Davidson and J. R. Caruthers, "Constitution of the Manual Labor School of Western Virginia", *Lexington Gazette*, August 21, 1835, 2.

49. Davidson and Caruthers, "Constitution of the manual Labor School of Western Virginia", 2.

50. Ibid.

Manual Labor in Literary Institutions, argued that education, or the lack of, differentiated the classes, so enabling a larger proportion of the population to access education would help to minimize class disparities. Although the students learned trades, they also received the same liberal education, in classical languages, mathematics, and philosophy, as those of the higher classes. These schools spread across Pennsylvania, New England, and the West in the 1830s. However, they consistently lost money and failed to provide adequate supplies and tools for the students' manual-labor work. Consequently, schools generally abandoned this system during the economic decline of 1837. Beyond financial failures, however, these schools failed to create the new class of men for which the manual-labor school promoters hoped. Moreover, provided with a liberal education, the graduates abandoned manual labor and entered into the professions or became merchants.[51]

Following the announcement of the Manual Labour Society, someone writing under the name "Agricolus" wrote to the *Lexington Gazette* in October to argue for it as a superior mode of education and, ignoring or challenging the Franklin Society proposal, as the *only* plan for making education accessible to the sons of farmers and artisans. Bemoaning the general denigration of their class, he urged them not to "content ourselves with being 'beasts of burden'—'hewers of wood and drawers of water,' and doom our sons and our sons' sons, to this condition." They must demand respect and every

51. Jeffrey A. Mullins, "'In the Sweat of Thy Brow': Education, Manual Labor, and the Market Revolution", in *Cultural Change and the Market Revolution in America, 1789-1860,* ed. Scott C. martin (New York: Rowman & Littlefield, 2005), 144, 147, 151-152, 155, 166-169. Frederick Rudolph, *The American College and University: A History* (1962; reprint, with an introductory essay and supplemental bibliography by John R. Thelin, Athens: University of Georgia Press, 1990), 217-218.

privilege, with education as the means of doing so.[52] Discussing the example of South Hanover College in Indiana, established in 1827, he described the merits of the manual-labor school system:

> One of the Professors remarks, that this unparalleled success was owing to the fact of the advantages afforded by its manual labour arrangements. -- I saw a young man from that institution who informed me that the rich, as well as the poor, took pleasure in applying their hours of recreation to useful and healthful employments. It obviated the temptations to vice and promoted habits of order and [illegible], which rendered the government of the institution an easy matter. Many Presidents of Colleges and Professors have looked upon the manual labour system under proper modification, as the means of introducing a new era in the literary world, and of opening up a highway to the posts of honour and [illegible], free to every youth of talents and enterprise, however humble his condition in life.[53]

Agricolus presented manual-labor schools as superior to strictly liberal colleges like Washington College. While both types of schools provided liberal educations, manual-labor schools also provided benefits to boys of any class by teaching virtue through physical labor, instilling the manly independence and self-reliance that leaders of the manual-labor school movement so strongly emphasized.[54]

Assuming that the members of the Franklin Society voted for more than simply a replacement for a supposedly annoying arsenal guard, the manual-labor school proposal may appear to have acted as a competitor to the military academy. Many, however, supported both, including Davidson, the Manual Labour Society's chairman, and Preston,

---

52. Agricolus, "To the Farmers and Mechanics of Western Va.", *Lexington Gazette*, October 2, 1835, 2.

53. Ibid.

54. Mullins, "'In the Sweat of Thy Brow'," 144.

whose name appears in the advertised list of society members.[55] Unsurprisingly then, both proposals emphasize, along with a traditional liberal education for those who could not otherwise afford one, a moral training through physical discipline to turn graduates into "useful" and virtuous citizens.

*Saving Washington College by Expanding its Enrollment*

Faculty, trustees, and alumni of Washington College expressed mixed reactions to the Franklin Society proposal, from voting for it during the society debate and signing the legislative petition to seeing the proposal as a threat to Washington College's survival. Given the condition of Washington College at the time, one might have seen the proposal as either the savior or death knell of the school, as a potential source of income through cooperation or as state-sponsored competition for students. Regardless, advocates of the military school and defenders of Washington College both, at least within Rockbridge County, had to legitimate their institutions through appeals to the elevation of poor white boys through education.

Just as it had frequently since its founding as an academy in 1749, Washington College came near to collapse around the time of the Franklin Society debates, retaining only three or four college students and eight to ten grammar students. The decline occurred, in part, because of curricular changes in 1830. Louis Marshall, the new president, abolished formal classes and instituted self-directed studies, with faculty present only to assist and guide students. Marshall left in 1834 after an 1832 inquiry by trustees into the decline of enrollment and complaints by townspeople about the declining

55. Davidson and Caruthers, "Constitution of the manual Labor School of Western Virginia", 2.

reputation of the school. The trustees then re-instituted the old curriculum under the presidency of Henry Ruffner, who had served as a temporary president several times in the past when numerous other presidents resigned or failed.[56]

Some participants in the education debates recommended establishing relationships between Washington College and other institutions, responding to a desire to expand educational opportunities for white boys, but also as a means of increasing enrollment and funding for the college. The Manual Labour Society, for example, proposed this. John F. Caruthers, who served as both secretary of this society and co-author of its initial announcement, and Captain Robert White, listed as a member of the society, both served as trustees of Washington College. Likewise, John Preston, a Washington College alum, proposed cooperation between the military academy and the college.[57] John F. Caruthers and William Taylor, trustees; Henry Ruffner, professor and acting president; and William Armstrong, professor; signed the petition to the legislature requesting the establishment of the military school.[58]

Others proposed adding to Washington College's curriculum, including courses in the military arts and law, in order to attract new students and new sources of funding, especially the Cincinnati Fund for military education. The Society of the Cincinnati, founded in 1783 for officers of the Revolutionary War, established a fund to support educational institutions. The Virginia chapter chose to support Washington College in

---

56. Ollinger Crenshaw, *General Lee's College: The Rise and Growth of Washington and Lee University* (New York: Random House, 1969), 48, 50-51, 55, 92.

57. Cives, "The Lexington Arsenal", 2.

58. 13 January 1836, folder 63, box 222, Virginia General Assembly Legislative Petitions, Rockbridge County, 3 February 1834-1864, Library of Virginia, Richmond, VA.

1802 and decided in 1807 to require the school to have a professor teach fortification and gunnery in order to qualify for the money. The society handed over the funds to the commonwealth in 1824, granting the treasurer the authority to disburse the money only when Washington College qualified. This potential income encouraged some to reject the Franklin Society's proposal in favor of Washington College hiring its own military professor. Others, however, hoped to employ a relationship between the military school and the college to qualify for the funds. Ultimately, the initial 1836 act establishing VMI explicitly acknowledged that the establishment of VMI, not yet named such, would enable Washington College to qualify for the fund and, moreover, initially established VMI as the military school of Washington College. The later part, however, exceeded the authority of the legislature because of Washington College's private status. The legislature amended the act in 1839 to establish VMI, then so named, as an independent institution, but one empowered to enter into cooperative relationships with Washington College. It still, however, took some time before Washington College received the funds. The treasurer, Jerman Baker, embezzled them, resulting in on-going legal action by Washington College to obtain the funds, in which they succeeded only in 1848, in part, as a result of its use of VMI professors to provide the required military training.[59]

Others viewed the Franklin Society proposal as a threat to Washington College. In an open letter to the Trustees of Washington College in the *Lexington Gazette*, anonymous author "Washington" argued that Washington College should revive itself by

---

59. Crenshaw, *General Lee's College*, 31-33, 51. An act re-organizing the Lexington Arsenal, and establishing a military school in connexion with Washington College, Acts of the General Assembly of Virginia, 1835-1836 (March 20, 1836). An act amending and reducing into one the several sets concerning the re-organizing the Lexington Arsenal and establishment therewith a military school at Washington College, Acts of the General Assembly of Virginia, 1838-1839 (April 10, 1839).

petitioning the legislature for funds, as unnamed "rival institutions," perhaps the public University of Virginia, had done. "Washington," however, went beyond expressing concern for just the financial security of the school. He placed his proposal in the context that partially defined the post-Franklin Society debate, that of the expansion of educational opportunities for white men. "Washington" stated, "I do firmly believe that Washington College is now, in every respect, one of the best institutions in the State, for young men of limited means...."[60] "Washington" thereby indicates two things. First, young white men could already avail themselves of higher education, should they choose, thus requiring no new, and possibly rival, institutions, though the costs of boarding probably precluded poor boys from taking advantage of even entirely free tuition. Secondly, it indicates satisfaction with the curriculum and organization of Washington College, suggesting that white men of classes lower than those typically attending colleges could and should receive the same liberal education. Regardless, though not a supporter of the new proposals directed specifically towards the elevation of poor white men, even "Washington" had to legitimate his support for the older college through this new discourse.

*Common Schools and Asylums for the Lowest of Society*

Cornelius C. Baldwin, the owner of the *Lexington Gazette*, personally supported two very different proposals, one for the expansion of common schools for all white children and one for a "deaf and dumb asylum," with both proposals part of larger national education-reform movements. These movements emphasized the moral

60. Washington, "To the Trustees of Washington College", *Lexington Gazette*, July 17, 1835, 2.

improvement of all whites, especially the poor, through discipline and moral training, in order to improve society as a whole by mitigating supposed causes of crime and disorder. Interest in this emerged in response to anxiety over increasing pluralism through immigration and the social transformation caused by urbanization and the growth of manufacturing and the market economy.[61] These movements aimed their work at either all peoples or those deemed in need of training to overcome particular disabilities, rather than establishing educational institutions for particularly meritorious members of the lower classes.

Beginning in the 1830s, a national education-reform movement advocated for the expansion of tax-supported common schools as part of a broader social-reform movement that included abolitionism and temperance. Supporters of the common schools sought to ensure all white children access to education in order to prepare them for citizenship and work by providing them with basic literacy and mathematical training, as well as training in morality and discipline. An unknown but surely small number of Virginia's children enrolled in a school in any given year in the 1830s. Perhaps only twenty percent of Pennsylvania's and New Jersey's children did so as late as 1840. Much higher proportions, however, did so in northern cities. Those children who did receive education in Virginia did so in four primary ways. First, planters often hired private tutors for their children, teaching them English, Greek, Latin, and mathematics. Second, members of the middling classes and planters may have paid tuition to send their children to academies, such as Lexington's Ann Smith Academy for girls and Washington College, which

61. Carl F. Kaestle, *Pillars of the Republic: Common Schools and American Society, 1780-1860* (New York: Hill and Wang, 1983), 75, 77, 81. David J. Rothman, *The Discovery of the Asylum: Social Order and Disorder in the New Republic* (Boston: Little, Brown and Company, 1971), xiii, xviii-xix.

provided academy training as well collegiate training, for boys. Like the private tutors, academies provided education beyond basic literacy by providing students with a foundation in classical languages and literature, often as preparation for college. Third, rural communities sometimes "subscribed" to a teacher, often with dubious qualifications, for a fixed period of time to provide a basic education, perhaps even just basic reading and writing. Fourth, parents could sometimes avail themselves of Virginia's Literary Fund to assist them in paying for some education for their children or perhaps attend "charity schools" in cities.[62] Common-school advocates sought a uniform system of tax-supported schools organized and overseen by the states and in sufficient numbers and distribution to provide an education to all white children.

Baldwin, while initially offering tentative support for Preston's plan as preferable to the professional arsenal guard, first supported a proposal to use the reorganization of the arsenal as a means of funding common schools.[63] In December of 1835, one year after the Franklin Society meetings, "A Citizen of Lexington," in response to the impending petitioning of the legislature by supporters of the military academy, argued for eliminating the arsenal guard, selling the arsenal property, re-establishing the arsenal in town, and having "three or four respectable men" live in the two ground floors beneath the arms, and then using the savings to establish common schools. He argued that this money could provide for the education of "400 CHILDREN WHO ARE NOW GROWING UP IN OUR STATE, ALMOST AS IGNORANT AS THE BRUTES THAT PERISH!", as compared to the twenty or so men he assumed might be educated at the

62. Kaestle, *Pillars of the Republic*, 24, 75, 80-82, 100, 106-107, 194-200.

63. *Lexington Gazette*, December 25, 1835, 3.

military academy.[64] In the next issue, Baldwin offered his support for "A Citizen's" plan "for the plain reason that the money will do more good in establishing primary schools." However, both Baldwin and "A Citizen" preferred, at least initially, Preston's plan to the current arsenal situation and hoped for its success, if adopted by the legislature.[65]

By the next month, Baldwin and "A Citizen" came to prefer, instead, the use of the savings to establish a "Deaf and dumb" asylum on the grounds of the arsenal. These asylums emerged after 1820 along with a broader proliferation of institutions and asylums for those deemed deviant or dependent, including criminals, the insane, orphans, and the poor. Previously, Americans reserved institutionalization for extraordinary circumstances in which individuals and families found it impossible to care for an individual. Even criminals were commonly subjected to flogging, stocks, or execution, rather than long-term confinement. The new institutions, which increasingly became the preferred mode of dealing with the deviant and dependent, appeared, like the common schools, in response to rapid social change and increasing fears of social instability. These institutions emphasized rehabilitation through regimentation and moral training for the purpose of transforming charges into industrious and orderly members of society, thus ensuring order and stability for the community and nation as a whole.[66]

In January of 1836, Baldwin published and signed onto a memorial, or citizen petition, to the House of Delegates written by "A Citizen," in which they commented upon the general failure of other military schools, possibly referring to many of the

---

64. A Citizen of Lexington, "Lexington Arsenal", *Lexington Gazette*, December 18, 1835, 3. Emphasis in original.

65. *Lexington Gazette*, December 25, 1835, 3.

66. Rothman, *The Discovery of the Asylum,* xiii, xviii-xix, 237-239.

military schools of Alden Partridge, which routinely closed after a short period of operation. Changing at least their public position, they then unambiguously denounced Preston's proposal, stating, "As a tax paying citizen, I enter my solemn protest against such a foolish expenditure of public treasure as that proposed by [John Preston]."[67] In this memorial, they proposed employing an inexpensive scheme for securing the arms of the arsenal and using the savings to establish a "deaf and dumb asylum" on the old arsenal grounds. The signatories of the memorial expressed their

> expectation that you will no longer permit our beloved State to remain behind the very foremost of her sister States, in contributing generously from the public purse, to elevate to intelligence, and respectability, and usefulness, and happiness, this most unfortunate class of society, whose mute eloquence appeals irresistibly to the noblest and most generous sympathies of the human heart, but that, in a spirit of enlightened wisdom, worthy of Virginians, you will, by the immediate establishment of the proposed institution, illustrate the high character of this proud Old Dominion, (God bless her!) for patriotism, liberality, and humanity.[68]

Here, they appealed to the legislature's pride by identifying Virginia as lagging behind other states in their participation in the reform impulse. Virginia certainly did not lead in these endeavors, with leadership and greatest efforts coming from northern states. While encouraging Virginia to participate in these movements, the signatories also agreed with the goals of the asylum movement, employing institutionalization and education to transform the students into useful members of society.

Both the common-school and asylum proposals reflect a prioritizing of education to raise people out of potential ignorance and immorality, rather than to establish an equality of white men. That does not mean, however, that Baldwin and the signatories of

---

67. A Citizen of Lexington, "To the Honorable the Senate and House of Delegates of Virginia," *Lexington Gazette*, January 8, 1836, 2.

68. Ibid.

the memorial did not believe in and support such an equality. In fact, along with much of western Virginia,[69] Baldwin and the *Lexington Gazette* strongly supported, for example, universal white male suffrage by continually printing articles calling for a new state constitutional convention to establish it. Their support of such equality, however, may have manifested, in part, through a distrust of establishing what might have become another elite educational institution, not an unreasonable concern for Jacksonian Democrats. Instead, they sought to elevate the "common man" and to contribute to social stability and improvement through institutions established for all or for the "most unfortunate class of society," rather than for the most meritorious.

*An Education for Cultivating Independence*

The western elite had hoped to secure universal white male suffrage at the 1830 constitution as a means of gaining a greater share of legislative power in order to secure their interests in internal improvements. They did this by employing a new imagined fraternity of white manhood in which membership itself was a guarantor of the independence and, therefore, the virtue seen as necessary by the eastern elite for participation in governance. Having failed, the elite of Rockbridge County, along members of the middling classes of merchants and artisans, considered several education reform proposals as a new strategy for arguing for a broader franchise by establishing a form of education that would cultivate or prove the independence of poor white men.

All advocates of education reform in Rockbridge County legitimated their proposals by arguing for the capacity of their plans to provide education to those who

69. Shade, *Democratizing the Old Dominion*, 58.

could not otherwise afford it, in order to elevate the social status of those students. In contrast to the eastern planter-elite, the participants in these debates generally identified poverty as an artificial barrier to the demonstration of virtue. Through education, however, poor white men could overcome this barrier and demonstrate the independence necessary for virtue, regardless of land ownership. The proposals differed, however, in their intended audiences and means of accomplishing their goals.

Those who argued for either military, manual-labor schools, or Washington College as the best means for providing poor white men with education all emphasized providing education only to those who had already proved themselves as meritorious in some way, particularly in their morality. The advocates of the military and manual-labor schools appeared, however, to express some conflict over this. On the one hand, applicants had to have already demonstrated their morality, but the school would, on the other hand, provide moral training. In contrast the advocates of the common schools and asylum presumed no particular merit. The common schools would provide educational opportunities for all whites in order to teach and instill morality to elevate that class as a whole. Likewise, the asylum advocates sought out students deemed dependent by defect in order to teach discipline to enable the students to contribute to society.

Advocates of the military school, manual-labor school, and Washington College all supported a liberal education that emphasized classical languages, mathematics, and philosophy, the traditional curriculum of colleges attended by the elite. They advocated, not distinct curricula, but distinct modes of discipline. "Washington" made no suggestion of changing discipline at Washington College. Instead, poor boys would take the same courses and live and work in the same manner as their wealthier classmates. Preston, on

the other hand, strongly emphasized the military character of the school. The military training would enable the students to serve as arsenal guards and, thus, finance their education, but it would also provide a sort of moral training. Through military discipline the students would learn self-discipline. With this discipline, they students could then claim public virtue and, therefore, claim a right to participation in governance. Likewise, the advocates of manual-labor school saw the use of labor as more than a means of financing an education. The labor served as discipline to transform the students into useful and independent men. In the case of the advocates of both military and manual-labor proposals, they saw this discipline as possibly even making their proposals superior to traditional colleges. Even sons of the elite, they believed, would seek out or benefit from this discipline.

**Legislative Closure and the Founding**

**Of the Virginia Military Institute**

Even though advocates of the military school plan intended to use the school to further their own sectional interests, the legislature, dominated by eastern planters, accepted that proposal. Of the various proposals made in response to the Franklin Society debate, only two made their way to the legislature: the asylum and military academy proposals, doing so by means of citizen petitions. The manual-labor school proposal required no legislative action, only local monetary support. No substantial support, however, appears to have come forth and nothing like the proposed plan materialized. No available evidence indicates directly why the legislature acted as it did,

but the possibilities include interests in strengthening the state militia and appeasing westerners still frustrated by the lack of reform at the constitutional convention.

The military academy proposal arrived at the House of Delegates on January 13, 1836, bearing ninety-three signatures. The petition stated very simply:

> The undersigned citizens of the town of Lexington and vicinity and county of Rockbridge, believing that a change in the organization of the Lexington Arsenal, giving to that institution a collegiate as well as a military character, would be highly advantageous to the cause of learning, to the community in which it is hosted, and to some important interests of the State at large, and that this change is practicable and compatible with the purposes for which said institution was established, pray that the Legislature would take the subject into consideration and adopt such mode of reorganization as to their wisdom may seem best.[70]

Moreover, eighteen citizens of Fairfield, about fifteen miles north of Lexington and also in Rockbridge County, submitted a supporting memorial, employing much of the same wording as the Lexington memorial.

> The under signed citizens of Fairfield [and] its vicinity believing that a change in the organization of the Lexington arsenal, giving to that institution, a collegiate as well as a military character, could be beneficial to the cause of Learning [and] some important interests of the state at large. [And] that such a change is practicable [and] compatible with the purposes of the state in establishing said institution, pray that the Legislature will take the subject into consideration and adopt such mode of organization as to their wisdom may seam best.[71]

These petitions, employing a deferential tone, emphasize unspecific benefits to Virginia, the Lexington area, and to the "cause of learning," the details of which they left to Rockbridge County delegates to provide.

---

70. 13 January 1836, folder 63, box 222, Virginia General Assembly Legislative Petitions, Rockbridge County, 3 February 1834-1864, Library of Virginia, Richmond, VA.

71. 13 January 1836, folder 64, box 222, Virginia General Assembly Legislative Petitions, Rockbridge County, 3 February 1834-1864, Library of Virginia, Richmond, VA.

Alfred Leyburn, one of the Rockbridge County Delegates and future trustee of both Washington College and VMI, presented the petitions on the 13th.[72] Charles Dorman, the other Rockbridge Delegate, sponsored the legislation and successfully moved to have the petition sent to the Committee of Schools and Colleges on the 16th to "be instructed to enquire into the expediency of establishing, in connexion with Washington college in the county of Rockbridge, a military school, and substituting said school, in lieu of the public arsenal at that place, as the depository of the public arms, and that said committee have leave to report by bill or otherwise."[73]

After appearing first in the *Lexington Gazette*, the approximately 1200-word asylum proposal arrived on the 19th of January with only four signatures, including that of Cornelius Baldwin, the owner of the *Gazette*, and without the support of the Rockbridge delegates.[74] On the 21st, the House of Delegates moved both proposals to the Committee on the Militia Laws.[75] Unfortunately, we have no record of who sat on either committee or what they said of either proposal. The safety of the arsenal arms, however must have come up, because Dorman personally wrote to Alden Partridge, a former West Point

72. *Journal of the House of Delegates of the Commonwealth of Virginia*, 1835-1836 (1836), 79.

73. Ibid., 82.

74. A Citizen of Lexington, "To the Honorable the Senate and House of Delegates of Virginia", 2. 19 January 1836, folder 82, box 222, Virginia General Assembly Legislative Petitions, Rockbridge County, 3 February 1834-1864, Library of Virginia, Richmond, VA.

75. *Journal of the House of Delegates of the Commonwealth of Virginia*, 1835-1836 (1836), 92.

superintendent and an advocate of military education,[76] to inquire about this sometime in December. Dorman received an enthusiastic reply in the affirmative, which he had published in the *Lexington Gazette* on the 22nd, the same day the *Gazette* reported that Dorman had introduced the military academy petition to the House.[77]

With the issue having gone before the legislature, attempts to establish support for either plan continued both in Richmond and in the pages of the *Gazette*. Preston himself traveled to Richmond to lobby the delegates to support the military-school petition, giving each delegate a copy of his Cives articles.[78] Throughout February, the *Gazette* published three statements from other papers, including from Richmond, supporting the asylum plan on the basis of cost, effectiveness, and the honor it would bring to Virginia. They also republished their asylum memorial.[79] Dorman had them publish a second letter from Partridge in which he extolled the virtues of the commonwealth establishing a military school, stating:

> And here I would ask would it not well comport with due reputation and dignity of Virginia, the State which all the members of our vast confederacy cheerfully and with just pride unite in hailing as the parent State, to take the lead in this as she has done on many other important subjects, and adopt a system of education in perfect accordance with the principles of our republican institutions, by blending the citizen with the

---

76. Dean Paul Baker, "The Partridge Connection: Alden Partridge and Southern Military Education", (PhD diss., University of North Carolina-Chapel Hill, 1986), 290. George S. Pappas, *To the Point: The United States Military Academy, 1802-1902* (Westport, CT: Praeger, 1993), 77.

77. A. Partridge, "Military Academy: To Col. C. P. Dorman, of the House of Delegates, Dec. 31, 1835" and "Virginia Legislature", *Lexington Gazette*, January 22, 1836, 1-2.

78. Preston, Historical Sketch, 11.

79. *Lexington Gazette*, February 5, 1836, 3. February 26, 1836, 2.

> soldier and thereby set an example well worthy of being followed by all her sister States?[80]

Like the asylum proposal, quoted previously, this letter called upon the pride of Virginia, pointing to the opportunity for Virginians to lead the nation in the creation of a new type of education, one fitting a republic. This institution would train its students in citizenship and soldiery, creating perhaps the ideal leader, an ideal that would have resonated with the western Virginians for whom Dorman published the letter.

While no available evidence indicates what arguments or whose influence held sway, the Committee on the Militia Laws reported on March 9 that the military academy petition "is reasonable," meaning the proposed reorganization could serve to maintain the security of the arsenal, and rejected the asylum petition.[81] On March 29, the General Assembly created the act "re-organizing the Lexington arsenal, and establishing a military school in connexion with Washington College." While providing the school's Board of Visitors substantial autonomy, the act called only for a professor to teach "military science," with additional courses provided free of charge by Washington College, whose students could receive military training at the military school, making Washington College finally eligible to receive the long-delayed Cincinnati Fund.[82]

So why would a legislature dominated by the eastern planter-elite support this legislation? I have not seen direct evidence for any answer. Rod Andrews's argument

---

80. A. Partridge, "Mr. Partridge's Letter to Col. Dorman, Jan. 6, 1836", *Lexington Gazette*, February 12, 1836, 1-2

81. *Journal of the House of Delegates of the Commonwealth of Virginia*, 1835-1836 (1836), 199.

82. An act re-organizing the Lexington Arsenal, and establishing a military school in connexion with Washington College, Acts of the General Assembly of Virginia, 1835-1836 (March 20, 1836).

suggests that they did so in a rush of Jacksonian egalitarianism. However, their actions and discourse during the 1830 constitutional convention make this highly improbable. Far more probable, they saw the school as a means of not only providing an arsenal guard, but also of inexpensively improving the state militia by spreading trained artillery men and men with officer training throughout Virginia. The legislators would likely have seen this as important for two reasons.

First, the debate over the arsenal arose during the decline in the regular army following the War of 1812 and during a period when many continued to view standing armies and professional officer corps as a threat to republicanism. Professional soldiers, unlike militiamen, with roots in their local communities and states, could, many feared, develop primary loyalties to their officers and the military itself, posing the threat of a *coup d'etat* or military rule.[83] Virginia's 1830 constitution reflected such fears of divided allegiances within a professional military by excluding from suffrage any seaman, soldier, or officer of the US military.[84] By supporting the military school, the planter-elite could have helped to stave off a perceived threat to the republic. They may have seen themselves as doing this by strengthening the militia in order to avoid having to support strengthening a national military. A larger military meant more men whose stake in society, whether in a local community or in the commonwealth, was questionable because of the possibility of divided allegiances. So support for the military school may have served to strengthen their more aristocratic republicanism rather than to weaken it.

---

83. John K. Mahon, *History of the Militia and the National Guard* (New York: Macmillan Publishing, 1983), 42, 78-79.

84. Article III, Sec. 14, Constitution of Virginia, 1830.

Second, the proposal came less than five years after Nat Turner's slave revolt in Southampton, Virginia, during which the rebels killed over fifty whites, including children. Militiamen crushed the revolt and killed over one hundred blacks, including many with no involvement in the revolt. This event created such fear of further revolts that the Virginia legislature even debated whether or not to gradually emancipate enslaved blacks and then forcibly remove them from Virginia, perhaps even removing them to Africa. The militia would again serve as the primary force for reasserting control in the event of such future revolts.[85] Although we have no record of any local advocate of the school ever justifying the school in the context of slavery, Partridge advocated the development of state military schools in the South to prepare specifically for slave revolts.[86] It is possible that the legislators were simply willing to support any proposal that would help to secure white control over enslaved blacks.

Alternatively, the eastern legislators could have simply offered the military school as a pittance to quiet western discontent after the 1830 convention, as they did with some western transportation projects.[87] They felt that a few internal improvements projects could be worth it to avoid any stronger pressure for the eastern elites to share power with the west. Such pressure could possibly have led not just to a sharing of power with western elites, but also to a broadening of suffrage across Virginia. This, the eastern-elite feared, could have led to heavy taxation on landowners and possibly even the abolition of

---

85. Louis P. Masur, "Nat Turner and Sectional Crisis" in *Nat Turner: A Slave Rebellion in History and Memory*, ed. Kenneth S. Greenberg (New York: Oxford University Press, 2003), 154-156. Sutton, *Revolution to Secession*, 54.

86. Baker, "The Partridge Connection", 310-311.

87. Shade, *Democratizing the Old Dominion*, 108.

slavery. The eastern-elite had secured its authority in the new constitution, but they may have seen the military school as part of the price of doing so.

Despite the enactment of this legislation and regardless of the motivations for it, no cadets arrived until November of 1839, after further legislation in March of that year. Officers of Washington College protested that the legislature overstepped its authority by legislating the operations of a private college when it required the school to provide courses to the cadets of the military school. In response, the legislature amended the act to simply empower the board of visitors of the military school to negotiate collaboration with Washington College.[88]

**Conclusions**

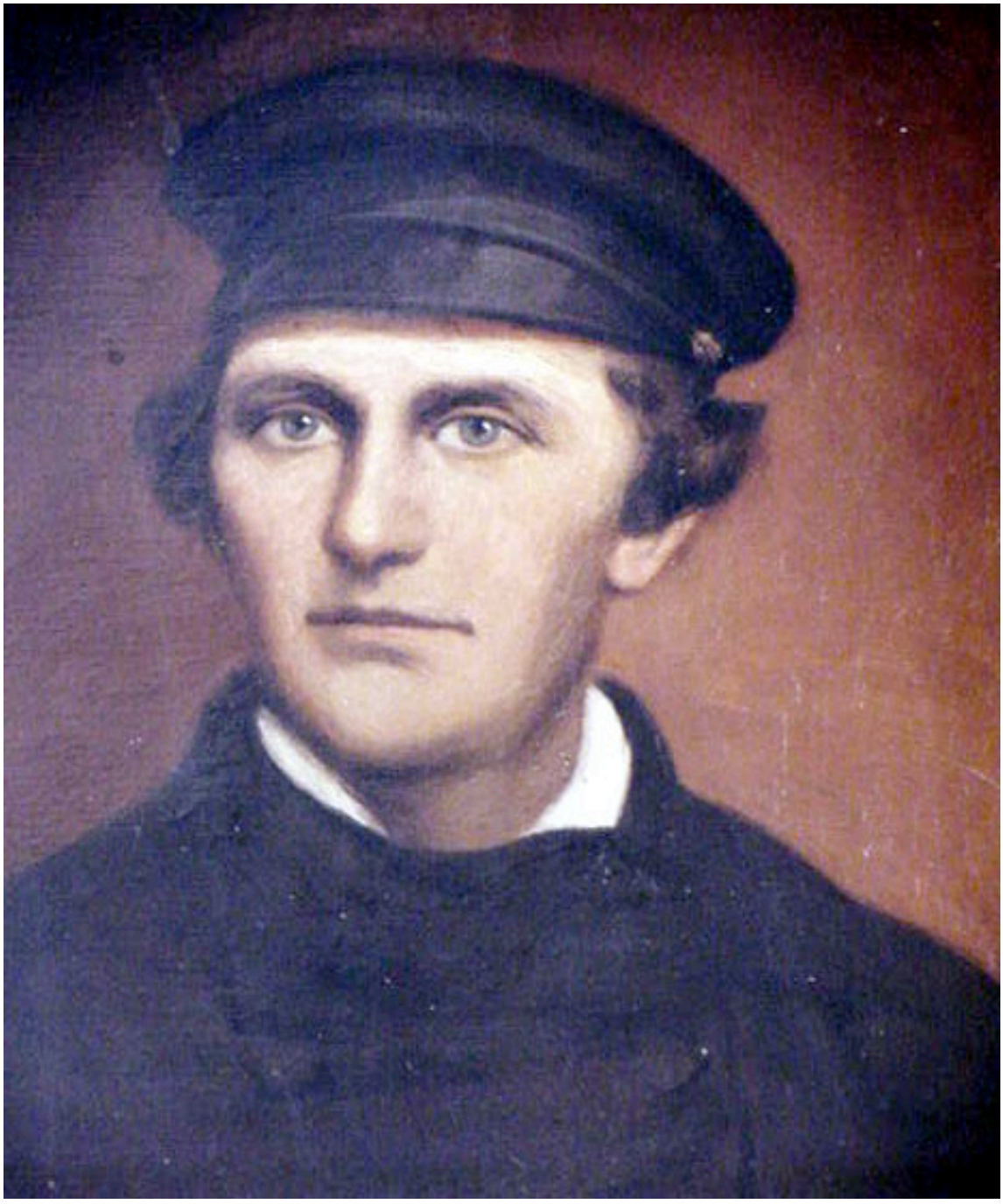
Previous contextualized analyses of the development of the southern military-school tradition have emphasized the emergence of the schools out of or as part of broad and homogeneous social contexts, whether a general southern militarism or an egalitarian republicanism. But we must pay close attention to the immediate and heterogeneous contexts of the emergence of individual institutions. Rod Andrews Jr. and Jennifer Green have convincingly challenged arguments for North-South sectional tensions as the crucial contributing factor for the tradition as a whole.[89] Andrews, however, asserts an equally broad claim that does not hold up when examining the origins of at least the Virginia Military Institute, the first of these schools. He argues that they emerged out of a broad,

88. An act amending and reducing into one the several sets concerning the re-organizing the Lexington Arsenal and establishment therewith a military school at Washington College, Acts of the General Assembly of Virginia, 1838-1839 (April 10, 1839).

89. Andrew, *Long Gray Lines*. Green, "'Practical Progress is the Watchword'".

popular, and egalitarian expression of republican philosophy and commitment to military defense and that they did so with the enthusiastic support of state governments. The proposal for VMI, however, came within the context of increasingly strained east-west sectional tensions in Virginia, with the elites of the western half of Virginia struggling for greater political power by trying to enfranchise the disproportionately disenfranchised white men of western Virginia, with whom they shared political interests in the use of taxation for internal improvements. Whether or not the more elite western advocates of the school had a sincere interest in the equality of white men, they drew upon the struggles to establish white manhood as a sufficient indication of public virtue, thus challenging the eastern planter-elite. Because I have seen no record of the legislative debates and backroom discussions, I can only argue that the eastern-dominated legislature took up the proposal, certainly not out of an egalitarian impulse, but, most likely, out of an interest in securing their own authority. They hoped to strengthen control over those they enslaved, to minimize the need for a national military that could subvert soldiers' commitments to their local communities and states, or to quiet the discontent of an already frustrated western population.

**Figure 2.1: John Thomas Lewis Preston (1811-1890)[90]**



90. Portrait of John Thomas Lewis Preston, Preston Library, Virginia Military Institute, Lexington, Virginia.

## CHAPTER THREE

### "A SCHOOL IN WHICH WOULD BE TAUGHT THE PRINCIPLES OF CIVIL ENGINEERING…", 1836-1839

The Virginia Military Institute came to provide a mathematically-intensive engineering curriculum based on that of West Point and the *École Polytechnique* of Paris. Citizens of western Virginia welcomed this curriculum as a means of facilitating internal improvements, the negligible pace of which continued to frustrate them. The founders of the curriculum also saw it as a means by which white boys of any social class could compete with one another according to supposedly objective standards, thus revealing and cultivating the merit of the students, merit that poverty may have obscured. Through this, the founders institutionalized the vision of a white manhood of innate independence as a strategy to increase western legislative power by challenging landownership as the basis for the public virtue necessary for participation in governance. New middle-class supporters, however, also advocated for this curriculum as a means of creating a group of middle-class engineers – engineers who epitomized an ideal republican citizen.

Although engineering came to dominate the curriculum of VMI, it could have turned out otherwise. The initial question posed by the Franklin Society, "Would it be politic for the state to establish a military school at the arsenal near Lexington, in connexion with Washington College on the plan of the W. Point Academy,"[1] specifically provided West Point as the model for the school. In describing his vision of the school, however, John Preston, writing as "Cives" in the *Lexington Gazette*, never mentioned

1. 1830-35 Secretary Book, 12 December, 1834, Franklin Society and Library Company Papers, Collection 103, Special Collections, James Graham Leyburn Library, Washington and Lee University.

either West Point or one of the primary characteristic of the school's curriculum: military and civil engineering.[2] Rod Andrew, on the other hand, argues that Preston did indeed have engineering in mind, citing Preston's inclusion of scientists and engineers like Robert Fulton in his list of prominent and useful men in the United States.[3] Preston's detailed description of his proposed curriculum, however clearly indicates a combination of military training and liberal education. Moreover, as I will describe below, Preston and others at the time would not even have necessarily identified formal education as an obvious means of entering engineering. The additional evidence outweighs that used by Andrew to conclude that Preston imagined an engineering school from the beginning. West Point, therefore, likely offered to the initial proponents of the Franklin Society plan only a model of military discipline and training and a means of maintaining the arsenal guard.

VMI, the school that emerged from this plan, did ultimately become one of the earliest and largest engineering schools in the United States and took much of its curriculum, as well as professors, from West Point. As such, it fulfilled the earliest proposal in ways unanticipated by its initial proponents. We cannot, however, take this for granted and must explain how engineering came to dominate VMI's curriculum. This began with an early intervention by Alden Partridge, an advocate of public military and engineering education, and the appointment of Claudius Crozet, a former West Point professor and a professional civil engineer, to the first Board of Visitors of VMI.

---

2. Cives, "The Lexington Arsenal", *Lexington Gazette*, August 28, 1835, 2. Cives, "The Lexington Arsenal-No. II", *Lexington Gazette*, September 4, 1835, 1. Cives, "The Lexington Arsenal-No. III", *Lexington Gazette*, September 11, 1835, 2-3.

3. Rod Andrew Jr., *Long Gray Lines: The Southern Military School Tradition, 1839-1915* (Chapel Hill: University of North Carolina Press, 2001), 14-15.

Partridge never had any connection to VMI and Crozet soon moved to the background of its leadership, despite his presidency of the Board of Visitors. The Board's appointment, however, of Francis Henney Smith, a West Point graduate and admirer of Crozet, as the first superintendent and professor of engineering ensured the maintenance of a strong West Point model of engineering education. The educational backgrounds of these men positioned them to view military training and engineering education as complementary and even as obvious partners within a single school. Moreover, Crozet and Smith saw the training provided by both as the ideal training for producing a new class of leaders whose virtue was demonstrated by supposedly objective measures of merit, rather than through property ownership.

**The Varieties of Pathways into**

**Civil Engineering Before 1839**

The Virginia Military Institute opened within a professional environment that included several different engineering cultures that left the United States with no single national pattern of engineering practice. Men entered into engineering through a variety of pathways during the antebellum period, including on-the-job training and various academic approaches. Nonetheless, in the period prior to the founding of the VMI, the United States possessed little capacity to train or otherwise obtain engineers. Although foreign engineers played an important role in the development of US engineering, they did not come to the country in any great numbers, despite attempts to recruit them. The US had few engineering schools and, except for West Point, which provided comprehensive civil and military engineering training, those few offered minimal training

and produced few engineers. Most engineers learned their trade through on-the-job craft training under the guidance of more experienced engineers.[4] Consequently, the early advocates of VMI may not have even thought of a school as place in which to train engineers. In any case, they made no significant statement of having considered it for their school.

Engineering in the United States essentially began during the Revolutionary War, when the Continental Congress, with the aid of French military engineers, established the Corps of Engineers. The new national government made this corps, which focused on artillery engineering and fortifications, permanent after the war and eventually stationed it at West Point, New York. Congress later transformed the base of the corps into the US Military Academy, which it established to, in part, continue training military engineers. The academy, however, had no formal classes or curriculum until after the War of 1812, when the Superintendents endeavored to more explicitly remodel the school after the *École Polytechnique*, the most prestigious engineering school in France and the world. Claudius Crozet, a French engineer who studied at the *École Polytechnique* and later served as the first president of the Board of Visitors of VMI, participated in reconstructing the academy's curriculum, particularly its math courses, in order to make them more rigorous and to better conform to that of the *École Polytechnique*.[5]

Independent civil engineering developed later with large-scale civilian infrastructural projects, including the Erie Canal, whose construction began in 1816.

---

4. Daniel Hovey Calhoun. *The American Civil Engineer: Origins and Conflict* (Cambridge: The Technology Press, 1960), 10.

5. Terry S. Reynolds, "The Engineer in 19th-Century America" in *The Engineer in America: A Historical Anthology from* Technology and Culture, ed. Terry S. Reynolds (Chicago: University of Chicago Press, 1991), 10-11, 16.

With so few American engineers present and little capacity for formally training new ones, many men learned engineering on the job by advancing from lower labor to higher engineering positions. West Point graduates provided the one substantial source of formally-trained engineers for these projects. The academy repeatedly trained more officers than the US Army could accommodate with posts, so many graduates left the military to apply their training to the new transportation projects.[6]

Both French and British influences contributed to differing engineering cultures during the antebellum period. The French military engineers during the Revolutionary War and, later, Claudius Crozet introduced French textbooks and their mathematical and theoretical approaches to the early Corps of Engineers and West Point. British engineers, however, offered crucial leadership in some early infrastructure projects and thus helped to shape the training of many American engineers and brought a craft-knowledge orientation to the new profession.[7] Despite the early emphasis on French-style military engineering, American engineers, like British civil engineers, largely served as independent consultants, rather than as state employees or as members of engineering corps, like those found in France.[8] A few states did, however, establish state engineer positions. Crozet, for example, served as such for both Virginia (1823-1830 and 1837-1843) and Louisiana (1832-1834).[9]

---

6. Reynolds, "The Engineer in 19th-Century America," 11-20.

7. Ibid., 13, 16.

8. Calhoun, *The American Civil Engineer*, x, 55.

9. Robert F. Hunter and Edwin L. Dooley, Jr., *Claudius Crozet: French Engineer in America, 1790-1861* (Charlottesville: University Press of Virginia, 1989), 30, 51, 85, 97, 103, 124.

Additional formal engineering programs appeared in the 1820s and 1830s. Alden Partridge, a former superintendent and professor of engineering at West Point, founded the American Literary, Scientific, and Military Academy, now Norwich University, in 1820 in Norwich, Vermont. Partridge intended to use the school to produce citizen-soldiers who also trained as civil engineers.[10] While based on the West Point model and employing military discipline, Norwich did not offer the intensive and structured training of West Point. Norwich became more of an academy, rather than a college or institute like VMI would become, and primarily served boys between twelve and eighteen years of age. It subsequently functioned largely as a preparatory school. Rather than a rigorous engineering and military training, it offered a mix of liberal arts, classical, scientific, engineering, and military training, from which cadets and their parents, to a large extent, could choose their own course of study. These studies included surveying, algebra, higher math courses, Latin, Greek, philosophy, Spanish, French, topography, and geography. Because of the less-than-universal enthusiasm for engineering among the cadets and their parents, Partridge soon reduced the school's emphasis on engineering, but maintained the sciences as the school's strongest department.[11]

The Rensselaer Institute, now the Rensselaer Polytechnic Institute, offered a very different approach to formal engineering training, one influenced by English craft traditions. It offered a civil engineering program after 1835, but had offered some surveying and engineering courses to compliment the early agricultural emphasis of the

10. Calhoun, *The American Civil Engineer,* 44.

11. Dean Paul Baker, The Partridge Connection: Alden Partridge and Southern Military Education, (PhD diss., Chapel Hill: University of North Carolina, 1986), 139-140, 148, 230, 249.

school since 1828.[12] In contrast to West Point and Norwich professors, which followed the mathematically-oriented model of the *École Polytechnique*, Amos Eaton, Rensselaer's engineering instructor, argued explicitly against teaching any mathematics beyond arithmetic. He also denied the usefulness of books in engineering instruction.[13]

In addition to technical and military schools, traditional colleges and universities also attempted to provide some engineering training. A few schools, including the Columbia, the University of Vermont, the University of Virginia, and Princeton, offered courses or lecture series beginning in the late 1820s for students interested in gaining some engineering training, but not in earning a degree. Students could, however, obtain a certificate in engineering from the University of Virginia after 1836. These engineering courses sometimes consisted only of mathematics and mechanics. Some colleges and universities, including William and Mary, the University of Alabama, and the University of Georgia, offered some engineering courses as electives in traditional degree programs. These limited courses declined after 1850, probably because they offered insufficient training or prestige to advance an engineering career. The students had neither the full formal education of a West Point graduate, nor the practical experience of an engineer who learned on the job.[14]

In contrast to today, Americans entered into engineering from a wide variety of pathways, including on-the-job training, self-teaching, or one of several academic

---

12. Terry S. Reynolds, "The Education of Engineers in America Before the Morrill Act of 1862," *History of Education Quarterly*, 32 (Winter, 1992), 466.

13. Calhoun, *The American Civil Engineer*, 45.

14. Reynolds, "The Education of Engineers in America Before the Morrill Act of 1862," 467-471.

approaches. In this regard, engineering did not necessarily differ from other professions at that time. Also as with other occupations, entering into engineering by no means guaranteed that a man would remain an engineer for his entire career. In fact, most did not.[15] Regardless, the initial proposals for VMI contain no indication of an interest in an engineering curriculum. In fact, given the uncertain definition of an engineer and the dominance of informally-trained engineers, the military school advocates may not have even conceived of a school as a place for training engineers. Nonetheless, yet another engineering culture emerged from VMI and into an already heterogeneous professional environment.

**Alden Partridge and the Origins of**

**VMI's Engineering Curriculum**

The first suggestion of the proposed military school in Lexington providing civil engineering training to its students came from Alden Partridge, an advocate of public and private military education from Vermont. The early advocates of the school made no indication of an intent to provide engineering training. In fact, as discussed above, John Preston clearly identified a mix of military and liberal education as the curriculum. Partridge, however, suggested teaching engineering in a January 1836 letter to Rockbridge County Delegate Charles Dorman, who had written to Partridge to ask his opinion on the viability of students guarding an arsenal. This education would, Partridge argued, provide the graduates of the school with a practical training that they could apply

15. Bledstein, *The Culture of Professionalism: The Middle Class and the Development of Higher Education inAmerica* (New York: W. W. Norton and Company, 1976), 163, 171-172. Calhoun, *The American Civil Engineer*, 13.

directly to a career in building a transportation infrastructure to support the rapidly expanding nation.

*Partridge's Advocacy of Military*
*and Engineering Education*

Alden Partridge developed an interest in and plan for a major expansion of military education in the United States while a professor and superintendent at West Point, where he first studied and then taught engineering. He hoped to spread this combination of military and engineering training through networks of public and private colleges that employed military discipline, though not necessarily to produce military officers. These efforts even took him to Virginia, where he briefly taught military arts to students at the University of Virginia and the state militia in Richmond. In the end, however, he had little success in establishing his own schools.

Alden Partridge, of Norwich, Vermont, graduated from West Point in 1806, and immediately received a commission as a First Lieutenant and an appointment as Assistant Professor of Mathematics at his alma mater. He received an appointment as Professor of Engineering in 1813 and then another promotion to Superintendent in 1815, but largely because of a lack of any other willing candidate. Students and instructors soon complained of his authoritarian style of administration. After complaints reached even President James Madison, Partridge received orders to take leave. He returned to duty after a Court of Inquiry cleared him of charges in 1816, but subsequent complaints and intrigues, including an attempt at arresting the new superintendent, eventually led President James Monroe to order Partridge removed from his position as Superintendent

and court-martialed. Found guilty on charges of disobeying orders and mutiny, the Chief of Engineers placed Partridge on indefinite leave. In response, Partridge resigned from the military in 1818.[16]

Even before the start of his West Point troubles, Partridge had begun what he would later adopt as his life's work: establishing a system of public and private military schools to produce citizen-soldiers and to support state militias through military education that emphasized science and engineering. Partridge began with an unsuccessful attempt in 1816 to convince New York Governor Daniel Tompkins to support a state-sponsored military academy. After he resigned from the military, Partridge worked to establish the American Literary, Scientific and Military Academy in his hometown of Norwich, Vermont, which he succeeded in doing in 1820. He hoped the school, through an engineering curriculum, would fulfill what he saw as a need to train civilians to build a national infrastructure, including canals and roads, though he soon lessened the school's emphasis on engineering in order to accommodate the desires of students and their parents for a more traditional liberal training. He reincorporated the school as Norwich University in 1834.[17]

Partridge continually struggled to establish additional schools, to which he, when he succeeded, often appointed former students as their heads. He very actively pursued his work in southern states, either personally or through newspapers, because he perceived the South as more receptive to his schemes than the North. He did in fact

---

16. George S. Pappas, *To the Point: The United States Military Academy, 1802-1902* (Westport, CT: Praeger, 1993), 49, 53, 73, 77, 80, 82, 83, 85, 91, 94.

17. Baker, The Partridge Connection, 40, 44, 55, 113, 120, 127-128, 292, 294, 302, 335, 366-367.

manage to recruit about one-third of his ALS&MA cadets from southern states. Partridge, a defender of slavery, argued that the schools could serve to provide a guard in case of slave rebellions, an argument he hoped would facilitate the spread of his schools.[18]

Although he did not successfully establish any lasting schools of his own in a southern state prior to the movement to establish VMI, he did establish the Virginia Literary, Scientific & Military Institute in Portsmouth, Virginia, near Norfolk, after receiving an invitation to visit the town in 1839. It officially closed in 1849, but reopened as a normal school. Partridge, himself, briefly taught in the South, where he offered a military course at the University of Virginia during the spring of 1834 and then again for the state militia in Richmond in 1835-1836.[19]

*"The Partridge Connection" with VMI*

Probably because of Alden Partridge's enthusiastic advocacy of military education in the South based on the model of West Point and a misunderstanding of the role of the Virginia legislature in founding VMI,[20] some historians, including Terry Reynolds, assume that the legislature took direct inspiration from Partridge when it established VMI.[21] On the other hand, Dean Paul Baker, in his dissertation, "The Partridge Connection: Alden Partridge and Southern Military Education" states,

---

18. Ibid., 290, 310-311, 380.

19. Ibid., 385, 389, 394, 411-412.

20. Ibid., 134-135, 164.

21. Reynolds, "The Education of Engineers in America Before the Morrill Act of 1862," 464.

"Although they were working toward similar goals, there is no known evidence of collaboration between [VMI Superintendent Francis Henney] Smith and Partridge or of influence by either in the creation of the other's academy."[22] Although technically correct about the relationship between Partridge and Smith, Baker incorrectly identifies Smith, not appointed until 1839, as the crucial figure in establishing an engineering curriculum at VMI. Rod Andrew Jr., in *Long Gray Lines: The Southern Military School Tradition, 1839-1915*, comes closer to describing the nature of the "Partridge Connection," characterizing it as an "indirect" transmission of "the main features of West Point to… state-supported institutions in the South."[23] However, while Andrew recognizes and cites letters that Partridge wrote to Rockbridge County Delegate Charles Dorman, sponsor of the founding legislation, to enthusiastically support the establishment of the school,[24] I argue that Andrew underestimates the importance of these letters, which provide the earliest preserved indication of any suggestion to provide engineering training at the school.

Despite eventually providing an engineering curriculum that rivalled all but West Point's after 1839, the first efforts to establish VMI did not include any emphasis on engineering and no one has presented evidence that John Preston or any other early advocate looked to Norwich or Partridge for their models. Nonetheless, we cannot disregard the reasonable possibility that Preston did indeed know of Partridge and his work, especially given Partridge's presence in Virginia in 1834, prior to the first

22. Baker, The Partridge Connection, 394.

23. Andrew, *Long Gray Lines*, 10.

24. Ibid., 12.

discussions of the plan at the Franklin Society meetings in December of that year. Dorman, a close associate of Preston, must have known something of Partridge and his work to have asked him for his opinion on the military school proposal. We do not, however, know when Dorman first heard of Partridge, which may not have occurred until after the first proposals. Regardless, Preston, like Partridge, took direct inspiration for the form of a military school from West Point, even if he did not look to its engineering curriculum for inspiration. Andrew claims that Preston began to consider establishing a school along the lines of West Point after visiting the school while accompanying a Lexington boy who enrolled as a cadet.[25] Andrew, however, mistakenly attributed this story to Preston, taking it from a posthumous and unsubstantiated story about Hugh Barclay, a future member of the first Board of Visitors of VMI, given as possible evidence of Barclay as the originator of the idea of establishing a military school.[26] I was unable to find evidence that indicated that Preston ever visited West Point, an event he would have surely noted in his histories of VMI.

Although we have no evidence of Partridge's direct influence on Preston, Partridge did have some influence with Charles Dorman well before VMI's Board of Visitors appointed Francis Henney Smith the first superintendent in 1839. As I described in the previous chapter, Partridge, through communication with Dorman in December of 1835, argued that students could provide better protection for the arsenal arms than the present guard, and, thus, provided important expert support for the school while the

25. Ibid., 12.

26. Colonel William Couper, *One Hundred Years at V.M.I.*, v. 1 (Richmond, VA: Garrett and Massie, 1939), 15, n. 11.

legislature debated the legislation in 1836.[27] Moreover, Partridge may have instigated the first consideration of providing an engineering education at the new school.

After publishing Partridge's first letter, Dorman then had the *Lexington Gazette* publish a second letter, in which he extolled the virtues of the state establishing a military school, stating:

> And here I would ask would it not well comport with due reputation and dignity of Virginia, the State which all the members of our vast confederacy cheerfully and with just pride unite in hailing as the parent State, to take the lead in this as she has done on many other important subjects, and adopt a system of education in perfect accordance with the principles of our republican institutions, by blending the citizen with the soldier and thereby set an example well worthy of being followed by all her sister States?[28]

But more importantly, Partridge also advocated that the school focus on teaching civil engineering, as did West Point. Engineering, however, had not yet entered into any public discussion as far as the preserved record indicates. But, in publishing this letter, Dorman may have opened up an entirely new front of support for the school in the West by now tying the project to internal improvements, something nearly universally supported in western Virginia, including by the *Lexington Gazette*.[29]

Providing a critique of higher education nearly identical to that which Francis Henney Smith would later use as a cornerstone of future legitimations of VMI, Partridge argued:

---

27. A. Partridge, "Military Academy: To Col. C. P. Dorman, of the House of Delegates, Dec. 31, 1835" and "Virginia Legislature", *Lexington Gazette*, January 22, 1836, p. 1-2.

28. A. Partridge, "Mr. Partridge's Letter to Col. Dorman, Jan. 6, 1836", *Lexington Gazette*, February 12, 1836, p. 1-2

29. Robert P. Sutton, *Revolution to Secession: Constitution Making in the Old Dominion* (Charlottesville: University Press of Virginia, 1989), 108-109.

> The department of Civil Engineering now opens a wider field for lucrative and useful employment to young men who are properly prepared to enter upon its duties than any other occupation, and is rapidly extending every year. But while such is the fact the means of properly preparing young men for the correct discharge of the duties of this department are very limited in every part of the United States. It is a well known fact that in the older Colleges and Universities of our country the course of education is any thing but practical. It is true that the mathematics are taught or professed to be taught at all these Seminaries, but the mode of instruction is entirely abstract without the science ever being reduced to practice. The consequence is that students after having completed their education are just as ignorant of practical Science as when they commenced.[30]

Beyond providing military training, Partridge argued that military schools should also provide a "useful" training for civilian pursuits, which the colleges and universities of the time, in his estimation, did not provide. Moreover, he did not foresee the graduates of these schools going into professional military service in any substantial numbers and would, therefore, need to pursue some form of civilian work. Of all civilian work, Partridge most favored engineering, for which he, because of the irregular and limited training of American engineers, saw enormous opportunity. Citizens of Rockbridge County later used Partridge's language from the above quotation to promote the school by emphasizing its proposed contribution to internal improvements through the training of civil engineers.

Partridge's 1836 letter to Dorman provides the earliest clear evidence of an association of civil engineering with the school that became VMI. I have seen no such mention in the discussions of the military school proposal in 1834 or 1835. Despite the fact that West Point provided what later became the model for VMI's engineering curriculum, the early advocates of a military school may not have even thought of civil engineering as something to teach in schools. Instead, they likely thought of it as

30. Partridge, "Mr. Partridge's Letter to Col. Dorman, Jan. 6, 1836".

something one learned on one's own or through on-the-job training. While the early advocates of the school probably did not draw their inspiration from Partridge's schools, Partridge did directly generate the initial interest in establishing an engineering curriculum at that school. This, however, occurred over a year after the first efforts to found the school began.

## Claudius Crozet: Architect of the Virginia Military Institute

Claudius Crozet, as the first president of the Board of Visitors, provided the primary leadership to establish an engineering curriculum at VMI. He drew upon his experiences as a graduate of the *École Polytechnique* and the Imperial Artillery School of France and as a professor at West Point to establish, at VMI, military regulations and a curriculum modeled after those schools. Moreover, his earlier participation in an elite French engineering culture challenged him to view engineering as a profession of national leadership, in which engineers contributed to the progress of the nation through the application of reason to construct a rational infrastructural network. Engineers justified their leadership by objectively and publicly demonstrating their merit in math-intensive examinations and courses.

### *Claudius Crozet: Educator, Engineer, and Soldier*

Prior to his affiliation with the Virginia Military Institute, Claudius Crozet's career demonstrated substantial experience with and expertise in education, engineering, and military arts, all of which prepared him for and shaped his administration of the new

school. He (Figure 3.1) was born in France in 1790 into a bourgeois family. He graduated from the *École Polytechnique*, a French engineering school that employed military discipline, in 1807 in the midst of Emperor Napoleon's military successes. After graduation, he qualified for the Artillery Corps (*Corps de l'Artillery*) and gained admission to the Artillery School at Metz (*École d'Artillerie*). In 1809 he received an assignment to the First Battalion of Bridge Builders. He gained substantial practical engineering experience, particularly with bridges, while serving in Germany and Holland. Rising to the rank of Captain, he participated in the initial invasion of Russia, probably being taken prisoner in 1812, and remained a prisoner of war for two years. However, he reportedly spent his imprisonment in the home of a Russian noble, teaching French to the nobleman's children and writing a Russian grammar book for French students. The Russians released him in April of 1814, after the abdication of Napoleon. Crozet returned to his father's home and his family in Paris, where he recuperated after he received leave from the military. He resigned in 1816 after a short and uneventful reactivation.

Crozet emigrated to the United States with his new wife, Agathe Decamp, in the summer or fall of 1816. During the voyage, Crozet met American General Simon Bernard, who had received an appointment as a military engineer stationed at West Point. Probably through this contact, Crozet obtained the position of Assistant Professor of Engineering at West Point beginning in September of 1816. There, he became the first teacher of descriptive geometry in the U.S., a subject that became fundamental to American engineering. He also created new courses for principles of artillery, tactics, and topography, along with his other teaching duties. Besides these developments,

Crozet also participated in the improvement of the overall curriculum, including making the mathematics courses more rigorous and complete. Present for the conflict that led to Alden Partridge's dismissal, Crozet associated himself with the anti-Partridge faction. Regardless, Partridge respected Crozet and nominated him as his replacement as Professor of Engineering in 1816. Crozet, however, did not like Partridge because of his autocratic manner regarding academic issues. Such issues eventually brought Crozet himself into conflict with the Superintendent when Crozet advocated for greater independence for professors from military authority, including what he saw as the overbearing authority of the Superintendent. In general, Crozet did not like West Point. He received less pay than the philosophy professor, had no teaching assistants unlike the other professors, and felt he had received less courtesy and respect than other professors, despite the great importance of the subjects he taught. Finally, he disliked the remoteness of West Point.

Crozet left West Point in 1823 after failed attempts to join the faculty of the new University of Virginia. Instead, he took a position as the Principal Engineer of the Virginia Board of Public Works. He resigned, however, in 1830, probably because of his frustration with his lack of authority to see projects carried out in the manner he recommended and with the interference of the planter elite and legislature in what he saw as a rational development of a statewide transportation network. He would have been accustomed to having such authority as an engineer in France, which had centralized government control over infrastructure development. He accepted a new position as the state engineer of Louisiana, where he felt comfortable because of the prevalence of French and the state's interest in developing railroads, a development that Crozet strongly

supported. He resigned from this position as well in 1834 after even greater frustration than that experienced in Virginia, largely because of the great distractions of pork-barrel projects. He then took a position as Professor of Mathematics and President of Jefferson College, a new public academy in Convent, Louisiana. He resigned, however, in February of 1836 to take a surveying position with the city of New Orleans. The following year, Crozet accepted Governor David Campbell's invitation to return to Virginia as the state engineer.[31]

*Crozet Establishes an Engineering Curriculum*

After several years of delays, the Virginia legislature finally took the action necessary to actually open the new school. This coincided with the return of Claudius Crozet to Virginia, who then also accepted the first presidency of the school's Board of Visitors. Much of the leadership in organizing the institution then fell to Crozet. He adopted both the system of discipline and academics of West Point for VMI. However, he emphasized a civil engineering curriculum over even the military curriculum and, thus, established VMI as primarily an engineering school.

After complaints that the Virginia legislature had not acted to establish the military academy as prescribed by the 1836 legislation,[32] Rockbridge County Delegate Charles Dorman urged Governor David Campbell, in April of 1837, to quickly appoint a Board of Visitors. He argued, "An Enlightened Board, who will make wholesome regulations, and whose standing will give Character to the institution, is exceedingly

31. Hunter and Dooley, *Claudius Crozet*.

32. C. "The Arsenal", *Lexington Gazette*, January 13, 1837, p. 2.

desirable. Another suggestion I beg leave to make, viz. that the Board be selected from various portions of the state." He recommended General Botts of Fredricksburg, General William Ligon of Powhatan, General Johnston of Smyth, General Baldwin of Augusta, and General Watts of Botetout.[33] By the end of March, Governor Campbell appointed Ligon and Johnston as recommended, as well as General George Rust, Jr. of Loudoun and, as required by the founding legislation, Virginia Adjutant General Bernard Peyton.[34] In addition, he appointed Claudius Crozet, who had returned to Virginia that year from Louisiana at the invitation of Governor Campbell himself.[35] The rest of the board apparently approved of Crozet's appointment and elected him President at their first meeting on August 7, 1837 in Lexington.[36]

I have seen no evidence that indicates why Governor Campbell appointed Crozet to the Board. He may have chosen Crozet for his extensive military and educational background, including employment as a former West Point professor and president of Jefferson College, both of which Campbell would have seen as exceedingly useful for administering a school inspired by West Point. Campbell may have also chosen him for his position as one of the most experienced and competent engineers in the United States,

---

33. C. P. Dorman to Governor David Campbell, April 26, 1837, RG 3 Executive Papers, April to June, 1837, Box 349, Library of Virginia, Richmond, VA.

34. The 1794 Uniform Militia Act required all states to appoint an Adjutant General to oversee their militias and to ensure their compliance with the Act. John K. Mahon, *History of the Militia and the National Guard* (New York: Macmillan Publishing, 1983), 52.

35. "Lexington Arsenal", *Lexington Gazette*, May 26, 1837, p. 2. An act re-organizing the Lexington Arsenal, and establishing a military school in connexion with Washington College, Acts of the General Assembly of Virginia, 1835-1836 (March 20, 1836). Hunter and Dooley, *Claudius Crozet*, 30, 51, 103.

36, Hunter and Dooley, *Claudius Crozet*, 126.

but only if Campbell already anticipated an engineering curriculum for the new school.[37] I do not, however, know if the decision to provide this curriculum had yet been made or if Campbell had seen even Alden Partridge's recommendation to do so. Regardless, Crozet's assumption of leadership almost assured his vision of an engineering school based upon the models of West Point and the *École Polytechnique*.

The first direct evidence of any actual decision to establish an engineering curriculum for the military school comes from after Crozet's appointment and the first meeting of the Board of Visitors, for which we have little information. In January of 1839, Rockbridge County Delegate Alfred Leyburn introduced a petition to the legislature bearing eighty-seven signatures, as well as an additional endorsement from John Preston. In this petition, these citizens of Rockbridge County requested that the legislature act on a recommendation of the Board of Visitors to amend the founding legislation and provide the funds necessary to establish the school, which, as yet, continued to exist only on paper. As part of their justification, they claimed, "A school in which would be taught the principles of *Civil Engineering* would prepare our young men to participate in the progress of a profession at present more lucrative than any other and to aid the state in the prosecution of her plans of public improvement,"[38] using much the same language as that used by Partridge in his letter to Dorman. Presumably, the Board had already determined at their first meeting in 1837 that they would pursue an engineering curriculum and that this had become known by the citizens of Lexington,

37. Ibid., 17, 98-100.

38. 19 January 1839, folder 82, box 222, Virginia General Assembly Legislative Petitions, Rockbridge County, 3 February 1834-1864, Library of Virginia, Richmond, VA. Emphasis added.

though such information did not appear in the *Lexington Gazette*. Even if Partridge's letter had convinced these citizens of this course, Crozet would have needed little persuasion to advocate it himself. Nor did Crozet require the urging or influence of Partridge, whom he knew intimately from West Point.[39]

With the building of the military school stalled while the Board of Visitors waited for the legislature to act on its recommendations, little work occurred and Crozet continued to focus on his position as Principal Engineer for the commonwealth. No one, in fact, had even yet named the school. Citizens of Rockbridge County finally prompted the legislature, in January of 1839, to amend the initial legislation, which it did on March 29, 1839. Based on the recommendation of John Preston, the legislature adopted the name, The Virginia Military Institute. Additionally, it reconstituted and enlarged the Board of Visitors, provided additional money for new buildings, and clarified the relationship between VMI and Washington College.[40] Governor Campbell appointed the new board the following month and included Crozet as one of its members. Curiously, Dorman, who again urged the governor to quickly appoint a board, did not include Crozet among his recommendations.[41] Whether or not Dorman had any concerns about or

39, Hunter and Dooley, *Claudius Crozet,* 22.

40. An act amending and reducing into one the several sets concerning the re-organizing the Lexington Arsenal and establishment therewith a military school at Washington College, Acts of the General Assembly of Virginia, 1838-1839 (April 10, 1839).

41, 6, 13 April 1839, box 358, RG 3 Executive Papers, April to July 1839, Library of Virginia, Richmond, VA.

dislike of Crozet, the new board, including John Preston, did not. Once again, the members selected Crozet as President,[42] a position he held until he resigned in 1845.[43]

Under Crozet's leadership, the board set to work in Lexington on May 30 to finally bring the school to life. They first worked with a committee from Washington College to establish and make official the relationship between the two schools, which sat adjacent to each other without even a wall or fence between them. The board then continued on with other crucially important work, including determining that the cadets' breakfasts would consist of "Hot Corn Cakes and Fresh Light Bread" and "Butter, Coffee and cold Meat." More importantly, they spent five days drafting regulations, the governance structure, and academic departments.

The Board established four academic departments: Infantry Tactics and Military Police, Mathematics, Science and Practice of Artillery, and Civil and Military Engineering.[44] In addition to these four departments, they established two additional courses of study that cadets would pursue at Washington College. The one course, English Language and Literature and French and German Languages, emphasized modern, rather than classical, languages and literature. The other course, Natural and Experimental Philosophy, included astronomy, chemistry, mineralogy, and geology. The extensive mathematics course included algebra, geometry, trigonometry, mensuration, descriptive geometry, analytical geometry, and differential calculus. Most likely at the

---

42. "Virginia Military Institute," *Lexington Gazette*, June 1, 1839, p. 3.

43. V. 2 Board of Visitor Minutes, vol. 02 1839-1853, Virginia Military Institute Archives, Lexington, VA.

44. 30 May to 12 September, 1839, v. 2 Board of Visitors Minutes, 1839-1853, Virginia Military Institute Archives, Lexington, VA.

recommendation of Crozet, one of the nation's greatest experts on engineering mathematics, the Board selected several textbooks for use, including several mathematics texts written by either French authors or else modeled directly after or translated from French texts.[45]

The Board established a system for calculating merit rolls that indicate how they valued the various academic courses. As done at the *École Polytechnique* to this day, cadets were individually and publicly ranked by a numerical score so that everyone knew their relative accomplishment compared to the other cadets. Not all courses, however, provided equal weight in these calculations at VMI. Conduct, engineering, mathematics, and natural philosophy weighed heaviest with a multiplier of three. The purely military courses provided less weight, with one's infantry tactics score multiplied by two and artillery, along with English, French, German, and drawing, by only one.[46] These indicate the primacy of engineering training over military training.

Through their various actions, the Board defined the operations of VMI on the model of West Point in both discipline and curriculum. But, although unanticipated by Preston and others when they first proposed the use of West Point as a model, the board also defined VMI as largely an engineering school. Just as had Crozet at the *École Polytechnique*, the cadets would learn military and civil engineering while living under military discipline. One other decision would solidify these decisions and bring them into operation. They unanimously selected Francis Henney Smith as the first

45. Ibid.

46. Board of Visitors, *Regulations of the Virginia Military Institute at Lexington* (Richmond, VA: Shepherd & Colin, 1839), 10, 13.

Superintendent and professor of mathematics and engineering.[47] After providing the leadership that created an enduring vision of VMI, Crozet, though he faithfully traveled from Richmond to attend annual Board meetings, receded from outright leadership to focus on his role as principal engineer for the commonwealth.[48]

*Engineering, Merit, the Commonwealth, and the Nation*

Crozet, because of his training at the *École Polytechnique* and his subsequent training and work as an artillery engineer in France, drew upon an elite French engineering culture in order to understand engineering. Despite residing in Virginia, that engineering culture would have continued to inform how he viewed an engineering curriculum and the students studying that curriculum, including their relationship to the commonwealth and the military discipline of VMI. Because of the pathway by which men entered into engineering education and then employment, French engineers strongly associated engineering work with merit, with one's school and a professional position reflecting that merit. Moreover, following the French Revolution, civil and military engineers assumed the highest professional prestige, which again reflected the perceived proven merit of those men who became engineers. Part of this prestige came from engineers assuming a position as the implementers of a particular conception of national progress.[49] So Crozet would likely have seen engineers as the most accomplished of men, as meritorious national leaders.

---

47. 8 June, 1839, v. 2 Board of Visitors Minutes, 1839-1853, Virginia Military Institute Archives, Lexington, VA.

48. Hunter and Dooley, *Claudius Crozet*, 129.

Crozet graduated from, or in their terminology, received a promotion to, the *École Polytechnique*, the highest-ranking institution in a well-defined educational hierarchy in France. He then received a promotion to the *École d'Artillerie*, the highest ranking of the *Grandes Écoles*, or more advanced specialized schools. Consequently, Crozet, as well as French people in general, would have seen himself as among the most meritorious of men in France. Prior to the French Revolution, men demonstrated their merit through the loyalty and service to the monarch showed by their families, which indicated that they would, themselves, continue that loyalty and service, justifying government and military appointments. As a result of several decades of transformations in the military, particularly the artillery corps, military leadership became associated with the theoretical and practical knowledge and the skills necessary for the new sciences of warfare. This increasing emphasis on personal ability edged out nobles from the corps and resulted in their replacement with a new class of men who acquired the necessary skills through formal education. Through these changes, French military engineers participated in the construction of a new form of merit, one based on testing performance according to impersonal or objective standards. Mathematical ability, supposedly not being subject to interpretation or privileging nobility, served as a principal tool for the objective evaluation of one's capacity to serve the state.

Performance on math-intensive tests demonstrated one's merit relative to other test-takers and determined one's appointment within the educational hierarchy, with the *École Polytechnique* sitting at the pinnacle. These objective standards, however, tended

49. Gary Lee Downey and Juan C. Lucena, "Knowledge and Professional Identity in Engineering: Code-Switching and the Metrics of Progress," *History and Technology* 20 (2004): 403-404.

to reinforce class disparities, though in ways that differed from the old form of inherited merit. The *École Polytechnique* largely drew students from sons of upper civil service, wealthy landowners, high-ranking military officers, wealthy professionals, and wealthy businessmen, like Crozet's father. Wealth generally determined one's access to the tutoring necessary to learn the mathematics needed for entry into the higher schools.[50] The founders of VMI had a more egalitarian vision of their school than what emerged in French engineering education and actively sought to recruit white boys from the lowest classes. Regardless, Crozet would have seen the mathematically-intensive curriculum laid out under his leadership as a means of both cultivating and demonstrating the high merit, as well as the leadership and authority, that he associated with engineers.

Crozet would have also have faced particular concepts of progress that he strongly associated with the work of engineers and the purpose of engineering. Possessing the greatest skills in mathematical theory, the ultimate expression of reason, civil engineers worked to rationalize the nation, in part, through the development of a comprehensive infrastructure network. Engineers would plan this network upon a rational global basis, rather than according to the idiosyncrasies of local interests. Moreover, through such rational means, based upon fundamental mathematical and mechanical principles, engineers provided the means to move France towards an ideal state of perfection characterized by a perfect rational organization that mimicked that of the perfect and

50. Ken Alder, "French Engineers Become Professionals; or, How Meritocracy Made Knowledge Objective," in *The Sciences in Enlightened Europe*, ed. William Clark, Jan Golinski, and Simon Schafer (Chicago, University of Chicago Press, 1999), 94-95, 98-99, 104-105. Eda Kranakis, *Constructing a Bridge: An Exploration of Engineering Culture, Design, and Research in Nineteenth-Century France and America* (Cambridge: MIT Press, 1997), 218.

rational nature described by René Descartes.[51] The expectations of authority and rationality that Crozet learned as a French engineer probably contributed to the great frustration that he experienced as Principal Engineer of both Virginia and Louisiana. For example, he did not have the authority to ensure that engineers and private contractors carried out projects according to his plans. Also, the legislatures and the decentralized governance of those states prevented the implementation of a rational statewide infrastructural plan.[52] While his frustrations may have tempered his expectations for the graduates of VMI, Crozet would have still seen the engineering curriculum as cultivating future leaders engrained with the rationality necessary to, if given a chance, bring about a more perfect and rational Virginia and nation.

**Francis Henney Smith and the**

**"West Point course" at VMI**

The Board of Visitors of VMI selected Francis Henney Smith as the first Superintendent and professor of mathematics and engineering at VMI, which gave him the responsibility of taking the framework produced by the Board under Crozet's leadership and of putting it into action. Smith accepted this responsibility, but immediately sought to build further upon this framework and to turn VMI into the "West Point of the South." Smith had graduated from West Point and always employed it as his standard for all higher education, in terms of both discipline and curriculum. Smith, consequently, solidified VMI as a school for civil engineering.

---

51. Downey and Lucena, "Knowledge and Professional Identity in Engineering," 402-403.

52. Reynolds, "The Engineer in 19th-Century America," 12.

Francis Smith (Figure 3.2) was born on October 18, 1812 in Norfolk, Virginia to an English, slave-owning Episcopalian family. Smith, himself, enslaved at least one man, Tom Carter. Smith's father first worked as a merchant in the trans-Atlantic tobacco and grain trade, but, after bankruptcy because of embargoes against trade with England, worked as a "Gauger and Inspector" for the city, introducing Smith to engineering.[53] Smith received a liberal education at a private academy where he studied French, Latin, and Greek.[54] He then went to West Point, New York, at the age of sixteen, to receive private mathematics tutoring from a former boarder of the Smiths. He received an appointment as a cadet at the Military Academy the following year. He graduated fifth in his class in 1833 and received an officer's appointment in the Army. While there, he developed a close relationship with Professor Charles Davies, author of several mathematics and engineering textbooks, some of which Smith and the Board of Visitors adopted for use at VMI.[55]

After several rapid and uneventful transfers as a member of an Army artillery unit, Smith returned to West Point to serve as an Assistant Professor of Geography, History, and Ethics.[56] Smith, however, married and wanted to "advance himself in civil

---

53. F. H. Smith III, "Old Spex of the VMI", Francis H. Smith, Superintendent, 1839-1889, Virginia Military Institute Archives, Lexington, VA, 11.

54. Ibid., 12.

55. Ibid.

56. James L. Morrison, Jr., *"The Best School in the World": West Point, the Pre-Civil War Years, 1833-1866* (Kent, OH: Kent State University Press, 1986), 23. Department of Mathematical Science, "Francis Henney Smith, USMA 1833", United States Military Academy, http://www.math.usma.edu/people/Rickey/dms/00711-Smith-FH.html (accessed 24 June 2008).

life,"[57] so he resigned from the army in 1836 and joined his brother's company to develop land in the West. Smith, however, found it unprofitable and returned east. He then accepted a position as an assistant topographical engineer and conducted surveys between Norfolk, Virginia and Charleston, South Carolina, which he also did not enjoy. He finally settled as Professor of Mathematics at Hampden-Sydney College in 1837, where he remained until his appointment at VMI.[58]

Smith, despite initial frustrations, found great happiness in his work at Hampden-Sydney. He taught algebra, geometry, and trigonometry to freshmen, analytical and descriptive geometry and surveying to sophomores, and differential and integral calculus to juniors. He found, however, that the college, like most, did not sufficiently prepare their students for such intensive mathematics. He required his junior students to review the freshmen and sophomore materials, which initially created great hostility and resentment towards him. He said of this, "I entered upon the duties of my chair with zeal, if not the judgment, of a Professor who wished to bring his classes up to the standard of the West Point mathematical courses." Students, however, eventually developed great respect for him. Even seniors, who had already finished their math course before Smith's arrival, asked to review mathematics, with some even paying to do so through private tutoring.[59] Reflecting on his experiences later, he recalled,

> In the first place I put every [illegible] Arithmetic, I set out with a determination of adopting the West Point course throughout. By great labor and perseverance and after encountering opposition from Trustees

57. Smith, "Old Spex of the VMI," 28.

58. Ibid.

59. Ibid., 33.

> and students, I finally graduated the class on Math! and with a credit to them, which would not have been dishonorable to West Point.[60]

Besides instituting one of the most rigorous mathematics courses in the US outside of West Point, Smith also introduced the first public examinations of students in Virginia, a practice he brought from West Point and later carried out at VMI,[61] where Crozet had instituted the practice prior to Smith's arrival.[62]

Smith's appointment at VMI began with an inquiry from John Preston, who received Smith's name from George Baxter, President of the Union Theological Seminary, during his visit to Lexington for a Presbyterian Synod. According to Smith's grandson, "Preston told Doctor Baxter that he wanted a Christian gentleman competent to teach mathematics, and one who, in addition, possessed the requisite military qualifications to superintend a military school." Baxter immediately recommended Smith, whom he knew because of the connections between Hampden Sydney and the Union Theological Seminary.[63] On April 29, 1839, Preston wrote to Smith and claimed he "had my attention drawn to yourself" as a potential candidate to, along with serving as commandant [later titled superintendent], teach "a thorough course of Mathematics, especially as applied to Civil and Military Engineering, and the exercising of the cadets in Military tactics." Preston told Smith that the position "is an important one, which will

---

60. F. H. Smith to Benj. Alvord, 20 August, 1840, Superintendent (Francis H. Smith) Correspondence, Outgoing Letter Book, 1840 July 25 - 1844 Feb 8, Virginia Military Institute Archives, Lexington, VA.

61. Smith, "Old Spex of the VMI".

62. *Regulations of the Virginia Military Institute at Lexington* (Richmond, VA: Shepherd & Colin, 1839), 12.

63. Smith, "Old Spex of the VMI," 9, 15, 53.

be occupied by one who will preside over the opening of such an institution, and of course in an important degree, will determine its future character."[64] After substantial consideration, Smith agreed to have the board consider him as a candidate, seeing this as an opportunity for him to develop his reputation and career by building a new institution.[65] Supported by letters of recommendation from General Winfield Scott, Commanding General of the US Army; Major Charles H. Smith, Paymaster of the Army and brother-in-law of Board of Visitors member General Thomas H. Botts; and John R. Triplett of Richmond, friend of Board member General Bernard Peyton;[66] Smith received the unanimous vote of the Board.[67]

Smith had studied the curriculum at West Point that Crozet helped to create and took well to the framework established for him by VMI's Board of Visitors. The scheme, however, seemed too small in scope in him.[68] More than just bringing Crozet's and Preston's vision of an engineering school under military discipline into manifestation, Smith worked to expand the size of the school and to turn it into the "West Point of the South." Moreover, he later looked beyond VMI and wrote and consulted about national education reform, but always looked ultimately to West Point as his standard. Although he cultivated a love of teaching at Hampden-Sydney, he also developed a critique of

---

64. J. T. L. Preston to F. H. Smith, 29 April, 1839, Preston-Smith Letters, Virginia Military Institute Archives, Lexington, VA.

65. Smith, "Old Spex of the VMI," 56.

66. Ibid., 55.

67. 8 June, 1839, v. 2 Board of Visitors Minutes, 1839-1853, Virginia Military Institute Archives, Lexington, VA.

68. Smith, "Old Spex of the VMI," 63-64.

liberal education, judging it against the standards under which he studied at West Point. Besides the insufficient mathematical preparation of the students, he also expressed concern about the lack of discipline among the students, as well as the means of enforcing discipline. He saw suspensions, for example, as "a strange way of correcting idleness and bad conduct," since it essentially enforced idleness on the students.[69]

Later, in writing to a recently resigned Army officer starting a career as a professor of mathematics at Transylvania University, he warned of the problems with liberal education in scathing terms:

> You will have difficulties in your way. Teaching in a College is a different matter from teaching at West Point. You will go where the [illegible] with their no [illegible], but each student directs his own course of study without regard to the judgement or wish of his Professor. You will have a [illegible] system of Education to overcome, full of generablility [sic] but producing no permanent good in the pupil.[70]

Such concerns occupied Smith for decades afterwards, during which he worked for national educational reform. With West Point as his personal model of academic excellence, Smith fit well with the vision of Crozet to bring into operation a military school emphasizing an engineering curriculum. And like Crozet, he required no influence from Partridge to pursue this course.

**Conclusions**

Although engineering became the dominant feature of the VMI curriculum, it could have turned out otherwise, with, perhaps, a combination of military drilling and a

---

69. Ibid., 34.

70. F. H. Smith to Benj. Alvord, 20 August, 1840, Superintendent (Francis H. Smith) Correspondence, Outgoing Letter Book, 1840 July 25 - 1844 Feb 8, Virginia Military Institute Archives, Lexington, VA.

liberal education obtained through Washington College. However, the public intervention of Alden Partridge and the appointment of Claudius Crozet led to the early adoption of highly mathematical engineering, based on the models of West Point and the *École Polytechnique*, as a primary part of the curriculum.

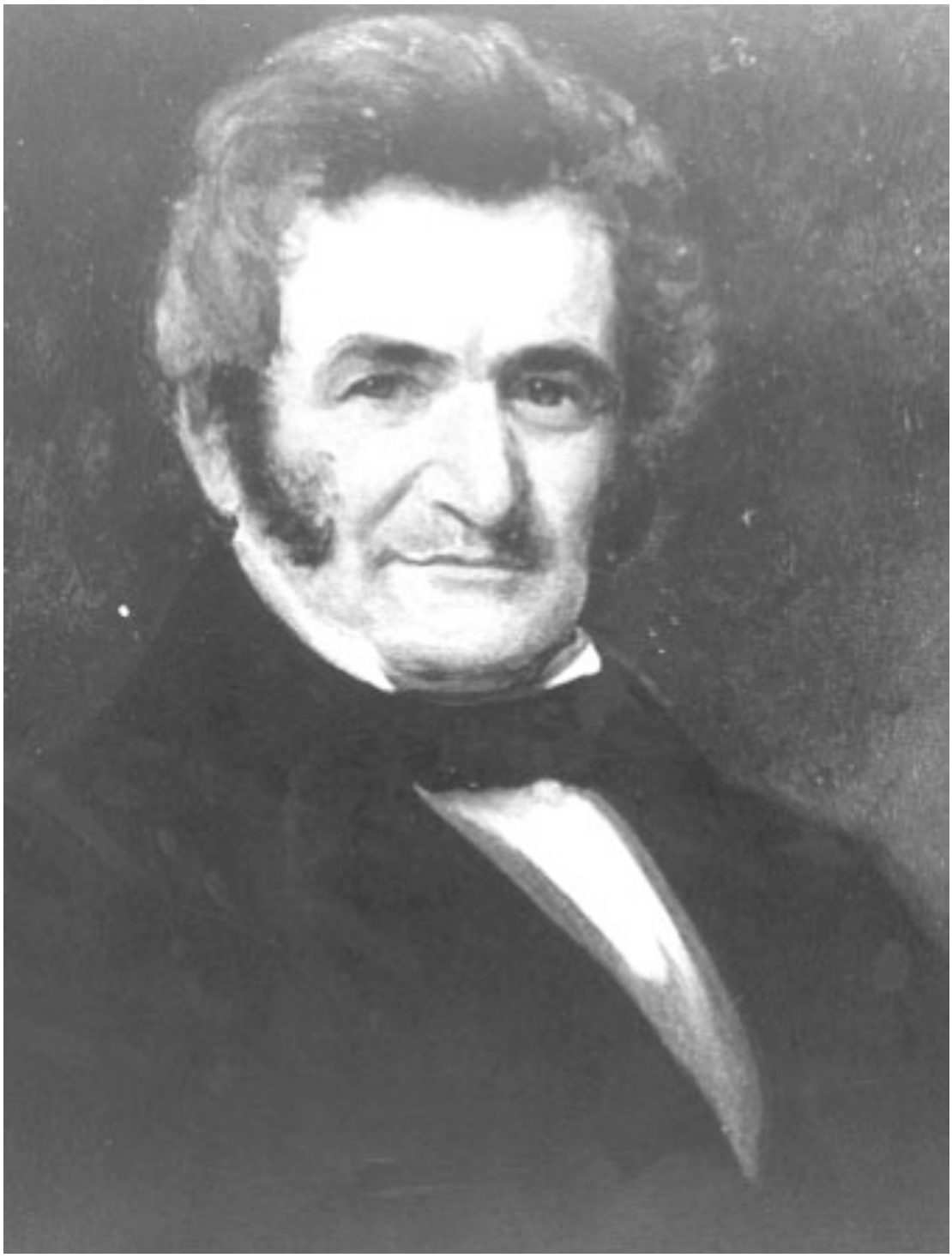
For both Crozet and Partridge, engineering had a natural connection to military education, with the need for engineering in fortifications, artillery, and so forth. But both also saw this training as applicable to civilian careers, which the citizen soldiers graduating from VMI would pursue. Crozet himself had applied his training and experience to the building of canals, roads, and tunnels for statewide civilian transportation infrastructure. While most American engineers had no such formal training, the backgrounds of Crozet and Partridge, as well as Crozet's personal frustrations with working with those informally-trained engineers, disposed them towards advocating formal education as the best means for producing engineers. Moreover, they both advocated a highly mathematical approach to such training, in contrast with, for example, the curriculum at Rensselaer.

Crozet and Partridge placed great importance on the need for developing transportation networks and cultivating resources for the growing nation. So engineering provided, not only a career with natural affiliations to the military, but also what both men saw as greatly needed at the time in order to support the expansion of the market economy and the state. Concerned about the lack of appropriate training, the new school would, to them, greatly aid both Virginia and the nation by training competent men to carry out these important tasks. This interest in engineering, even if not raised during the initial efforts to found VMI, found great resonance among the people of western Virginia,

who had advocated, with little success, for greater tax and government support for internal improvements during the 1830 constitutional convention. Partridge's advocacy of civil engineering education, therefore, fell on fertile ground and the citizens of Rockbridge took up the cause as they continued to advocate for the school. Additionally, such training perfectly suited the boys for whom they intended the school; boys who did not already have wealth and land upon which to live later and who required an occupation with which to support themselves. The western elite could readily accept an engineering curriculum as one suited both to elevating poor white boys by providing them with a profitable profession and to securing western interests in internal improvements.

To Crozet, elevating poor white boys meant raising them into a middle-class profession, the members of which he saw as ideal leaders. He saw the mathematical and engineering training as capable of cultivating and revealing the natural merit of these boys, even providing an objective means by which to rank and measure that merit. The supposed objectivity would transcend class differences and provide a position from which to argue for a new basis for political authority, one that extended that authority to people more like himself. Moreover, the mathematical training would develop their rational faculties, which provided, to him, at least at some level, the true legitimation of their imagined future roles as leaders of the commonwealth and nation. Smith, having studied the West Point curriculum shaped by Crozet, readily picked up these interests in this particular sort of engineering and military training, as well as in the cultivation of merit and practical work.

**Figure 3.1: Claudius Crozet (1790-1864)**[71]



71. Portrait of Claudius Crozet, Preston Library, Virginia Military Institute, Lexington, VA.

**Figure 3.2: Francis Henney Smith (1812-1890)**[72]

72. William J. Hubard, Portrait of Francis H. Smith, 1853, Preston Library, Virginia Military Institute, Lexington, VA.

# CHAPTER FOUR

## WHITE MANHOOD, SERVICE, AND THE SUBORDINATION OF THE SELF, 1839-1851

Although the supporters of the Virginia Military Institute used the proposed military character of the school to justify the employment of the cadets as a guard for the arsenal and to argue for a benefit to the state militia, the military discipline served as much more. VMI's officers used it to train the cadets to embody the new white manhood, a manhood that contrasted with that of the eastern elite of Virginia and that served the interests of the western men of the middling and elite classes who first proposed the school. The discipline, therefore, served to subordinate the individual identities and interests the cadets brought with them from across the commonwealth and from across class boundaries in order to subordinate the cadets to service to Virginia and the nation through, to a large extent, engineering work. The cadet life allowed only for distinctions of personal merit based on individual character, as measured by one's adherence to military discipline and one's academic accomplishment. VMI, consequently, served as a microcosm of the political order its founders hoped to create. There, innately independent white boys competed with one another on even ground, regardless of class, section, or family. Poverty no longer artificially masked one's virtue and wealth did not artificially elevate one to positions of leadership. This contributed to the construction of an engineering culture in which engineers were to see their field as a meritocracy in which white men competed with one another in their training and work, but for whom their work meant service rather than personal gain.

## Recruiting the Meritorious Poor and Admitting from the Middling Classes

The founders of VMI and legislators instituted a unique system of admissions, one necessary for the admission of those with a limited previous education, but who possessed the physical and moral qualifications for the distinct military discipline of the school. This system, however, resulted largely in the admission of boys from the middling classes, but also some from the poorer and wealthier classes. It also drew boys from across the commonwealth at a time of powerful sectional tensions within Virginia. Consequently, VMI brought together a relatively diverse group of boys who brought with them differing class and sectional values.

### *Two Classes of Cadets: State and Pay Cadets*

The Virginia Military Institute accepted two classes of students: state and pay cadets. State cadets, in accordance with the original proposals for the school, received a free education in exchange for participating in the arsenal guard. After 1842, the legislature also required graduates to teach in an academy or school in Virginia for two years. The enabling legislation required the Board of Visitors, responsible for admissions, to ensure that it did not privilege any geographic region of the state in accepting state cadets. It first had to grant an opportunity for admission of one boy from each senatorial district or, barring a sufficient number of acceptable applicants, at least ensure a reasonable distribution of cadets from the "four great Constitutional Divisions of the State": the Tidewater, from the Tidewater to the Blue Ridge, from the Blue Ridge to the Allegheny, and the Allegheny region (Figure 4.1). Pay cadets received the same

education, lived under the same military discipline, and performed the same guard duty as state cadets. But pay cadets, in contrast, paid tuition to attend and did not have to serve as a teacher after graduation. While both classes of students could come only from Virginia, the Board of Visitors did not need to ensure an equal numbers of pay cadets from the various districts or regions of the state.[1]

The Board admitted twenty state cadets, referred to as "regular cadets" at the time, and thirteen pay, or "irregular," cadets, for a total of thirty-three, to the first class of VMI. Four state cadets came from each of the constitutional divisions, except for the region from the Tidewater to the Blue Ridge, which provided eight cadets. The Pay Cadets, however, came disproportionately from the counties near VMI, within the Shenandoah Valley or just across the Blue Ridge Mountains, with three from Albemarle and one each from Augusta, Campbell, Fluvanna, Shenandoah, and Rockbridge. The Board nearly doubled the number of cadets the following year, admitting six additional state cadets and twenty-two pay cadets, for an approximate total of sixty. Again, the pay cadets came disproportionately from the surrounding region, in fact, more so, with five from Rockbridge County itself, and four from Augusta County and two from Bedford County, both adjacent to Rockbridge.[2]

Even during its first years, VMI's enrollment compared favorably with or even exceeded those of the traditional colleges. Around the time of the opening of VMI,

---

1. *Regulations of the Virginia Military Institute at Lexington* (Richmond: Shepherd & Colin, 1839), 5, 34. *Regulations of the Virginia Military Institute at Lexington* (New York: John Wiley, 1848), 9. The Board of Visitors did not use the terms "State" and "Pay" Cadets until 1841. See 9 July 1841, V. 2 Board of Visitor Minutes, vol. 02 1839-1853, Virginia Military Institute Archives, Lexington, VA.

2. 12 September 1839, 20 June 1840, V. 2 Board of Visitor Minutes, vol. 02 1839-1853, Virginia Military Institute Archives, Lexington, VA.

Washington College had only three or four students, Hampden-Sydney about sixty, the University of Virginia around one hundred ninety-one, the University of North Carolina around eighty-nine, Princeton two hundred twenty-seven, and Yale four hundred thirty-eight undergraduate students. Many colleges experienced increased enrollments over the following decades. Likewise, over the next decade, VMI grew to ninety-one cadets in 1845 and one hundred twenty in 1850. Meanwhile, Washington College increased rapidly and substantially, with more than forty-five in 1849, Hampden-Sydney had around fifty-one, the University of North Carolina grew to four hundred fifty by 1861, Princeton grew to probably more than two hundred seventy, and Yale stayed constant with four hundred thirty-two undergraduates.[3]

*High Moral and Low Academic Qualifications for Admission*

Admission to VMI required applicants to come in person to VMI to meet with the Board of Visitors and Superintendent Smith and to deliver a written recommendation of

3. For VMI, see merit rolls in 1846 Semi-Annual Examination of the Cadets of the Virginia Military Institute, AMI Archives, Lexington, VA; "The Institute," *Lexington Gazette* 1, March 21, 1850, 2. For Washington College, see Ollinger Crenshaw, *General Lee's College: The Rise and Growth of Washington and Lee University* (New York: Random House, 1969), 50 and "Washington College," *Valley Star* 11, n. 18, September 13, 1849, 2. Hampden-Sydney numbers from an 1838 petition and for 1849, see John Luster Brinkley, *On This Hill: A Narrative History of Hampden-Sydney College, 1774-1994* (Hampden-Sydney, 1994), 157, 188n11. UNC numbers for 1835 and 1861, see William D. Snider, *Light on the Hill: A History of the University of North Carolina at Chapel Hill* (Chapel Hill: University of North Carolina Press, 1992), 59. UVA numbers taken from an average enrollment for the years between 1825 and 1842, see Philip Alexander Bruce, *History of the University of Virginia, 1819-1919*, v. II (New York: Macmillan Company, 1920), 71-72. Princeton numbers for 1835, 1847, and 1860, see Thomas Jefferson Wertenbaker, *Princeton, 1746-1896* (Princeton: Princeton University Press, 1946), 250. Yale numbers for 1839 and 1850, see George Wilson Pierson, *A Yale Book of Numbers: Historical Statistics of the College and University, 1701-1976* (Yale University, 1983), 4, 6.

their virtue. The Board and Smith had to assure themselves that cadets possessed both the physical and moral qualifications to serve as an arsenal guard, participate in military drilling, and submit to military discipline. Applicants could be no younger than sixteen and no older than twenty-five years old and had to display good physical strength and health. In addition, they had to be free of "any disorder of an infectious or immoral character". Presumably, small pox would have disqualified a cadet in the first case and syphilis in the second.[4]

The Board and Smith did not just rely on their own judgement of an applicant's moral qualifications. They also required a letter of recommendation attesting to such. Those writing these letters rarely wrote lengthy recommendations and, instead, generally made short statements of the applicant's moral character, as exemplified by the following:

From John Thompson, Jr., regarding George Coleman:

> Young Mr. Coleman is of one of our most respectable families and himself a moral and steady youth, and already has quite a respectable education and I doubt not will conform cheerfully to all the rules of the Institute, and seems so anxious to join the school that I have no doubt, but that he will make a worthy member.[5]

From William Brown, MD, regarding Lawson Botts:

> ... his conduct has always been highly exemplary. His deportment to his parents [and] friends has ever been kind [and] affectionate. He has been steady [and] regular in his attention to his studies, [and] his progress has

---

4. *Regulations of the Virginia Military Institute at Lexington* (Richmond: Shepherd & Colin, 1839), 4-5.

5. John Thompson Jr., to Samuel McDowell Reid, June 1841, George Colemen File, Cadet Applications & Letters of Recommendation, 1839-1864, Virginia Military Institute Archives, Lexington, VA.

> given general satisfaction to his tutors. He has a strict regard for truth [and] veracity, a virtue in my estimation of the highest importance, [and] is remarkably exempt from the petty vices which are too often found to exist among youths of his age.[6]

From Nathaniel H. [...], regarding William R. Terry:

> His moral standing is unexceptionable, his habits industrious, his capacity good,...[7]

The writers often commented upon the applicants' morality in general, as well as their industriousness, previous academic accomplishment, and honesty or other virtues.

Beyond the moral and health qualifications, VMI had to deal with unusual academic admissions standards if they were to admit cadets form among those "hundreds of young men whose minds thirst for an education which they have not the means of obtaining,"[8] as Preston described them. In order to accommodate these boys, who would likely not have a liberal education from either private tutors or academies, the Board "placed the terms of admission so low as to admit talent from any and every quarter; and yet high enough to meet the usual demands of the colleges, saving in *Greek* and *Latin*."[9] In practical terms, this meant that each applicant had to be able to "read and write well" and do fundamental arithmetic, including "reduction, of simple and compound

---

6. William Browne, M.D., 18 June 1841, Lawson Botts File, Cadet Applications & Letters of Recommendation, 1839-1864, Virginia Military Institute Archives, Lexington, VA.

7. Nathaniel H. [illegible], 16 June 1846, William R. Terry File, Cadet Applications & Letters of Recommendation, 1839-1864, Virginia Military Institute Archives, Lexington, VA.

8. Cives, "The Lexington Arsenal-No. II," *Lexington Gazzette*, Friday, September 4, 1835, v. 1, n. 38, p. 1.

9. Francis H. Smith, *Introductory Address to the Corps of Cadets of the Virginia Military Institute, on the Resumption of Academic Duties* (Richmond: MacFarlane & Fergusson, 1856), 11.

proportions, and of vulgar and decimal fractions."[10] This contrasts with the 1842 requirements for admission to Washington College, which, along with "satisfactory evidence that he is of good moral character, orderly habits," included the following

> The requisites of admission into any department of College instruction are a competent knowledge of English Grammar, Geography and Arithmetic, especially Vulgar [and] Decimal Fractions and the rule of Proportion.
>
> For admission into the lowest class in the department of languages the applicant must be well versed in the Grammar of the language which he proposes to study and the application of its rules in parsing; in addition to which he must have read accurately the following books or their equivalent Viz in Latin Jacobs' Latin Reader, both parts throughout, Caesar 6 books, Sallust's Jugurthin War; Golds Ovid throughout with the Latin Prosody and [illegible]; Virgils Bucolics, Georgics and 6 books of the Aeneid; and eight orations in Cicero. In Greek, Jacobs Greek Reader throughout and Johns Gospel.[11]

Only the mathematical requirements compare between the two schools. Had the Board followed Washington College's standards, they would have found very few candidates for state cadet positions.

Not all applicants to VMI came from poor families. Many came from substantial wealth and from prominent families. The officers of the school, however, publicly proclaimed concern only with the merits of the individual applicants, rather than with the family contacts and wealth that might have otherwise led to favoritism in admissions. All applicants, whether they applied for a state or pay cadet position, had to submit themselves to the same application process. At least some outside of VMI also espoused this belief in the integrity of the admissions process. An anonymous writer to the

---

10. *Regulations of the Virginia Military Institute at Lexington* (Richmond: Shepherd & Colin, 1839), 5.

11. 30 January 1842 Board of Trustees Minutes, January 11, 1815 - October 1844, Washington and Lee, Special Collections, Lexington, VA, 170-171.

*Richmond Compiler* made the following observation upon the arrival of two applicants to VMI and the fair evaluation of their abilities to pay tuition. He described the applicants thusly, "One of these young men was the son of independent, if not wealthy, parents--the other was ambitious, but poor, and a strong evidence of his perseverance and enthusiasm was afforded in the fact that he walked all the way to Lexington with his wallet on his back." The writer reported that the Board accepted the poor boy as a state cadet, but not the rich boy, who then received admission as a Pay Cadet. The paper praised the decision, stating, "We trust this may be ever the case in such a contest, and that this State Institution may never be liable to the charge of favoring the wealthy."[12]

*Cadets of the Middling Classes*

The founders of VMI, from the first debates prior to its opening to official reports twenty years later, repeatedly justified its existence and contribution to the commonwealth upon the ability of the school to provide an education for those who could not otherwise afford one. While the state cadets often reflected this, they did not necessarily come from among the poor. In the second of his three Cives letters to the *Lexington Gazette*, Preston made clear his interests in providing an education for poor boys, writing

> It is melancholy to reflect how much of the energy of the world is crippled up by poverty, and how much of its power is wasted in obscurity. Every community holds in its bosom many a spirit of finest tone, fretting like a generous steed degraded to the service of a hack at the compulsory inferiority of a station in life for which it feels too good. Not a few have, after severe struggles, forced their way up through opposing difficulties, and gained for themselves noble names in the world's history; but for

12. "Lexington Institutions," *Lexington Gazette*, October 5, 1843, v. 5, n. 8, p. 2. Reprinted from the *Richmond Compiler*.

> every one who has succeeded, what unnumbered and unnamed multitudes, have sunk heart-broken under the effort. Genius knows no fixed locality, and is as often born under a cottage roof as the domes of a palace; and there are hundreds of young men whose minds thirst for an education which they have not the means of obtaining.[13]

VMI's officers would seek out and educate these geniuses and, in doing so, would unleash a previously untapped wealth of creative energy to benefit the nation as a whole. The school, therefore, would not duplicate the efforts of colleges that served the wealthy.

Francis Smith, six years after the school opened, described the state cadets as coming "from that class of our citizens whose means deny them the opportunity of obtaining a liberal education."[14] He also explicitly identified "Aid furnished to the poor" as one of the advantages of VMI to the commonwealth as a whole, stating, "The assistance which the institute annually confers upon those in indigent circumstances, in affording them the means of an education, is its *noblest* feature."[15] In a period without Federal Student Aid or substantial primary or secondary education opportunities, not having the means of obtaining an education can mean quite a bit and we must not assume that the sons of the poorest independent white farmers filled the school. Regardless of the intent of the founders and examples of boys on either extreme, most of the cadets of VMI and other early southern military schools came from the "middling" classes. The truly poor could not afford the fees of $90 per year for state cadets and $255 per year for pay cadets. Moreover, the year-round military discipline and summer drilling made it

---

13. Cives, "The Lexington Arsenal-No. II," 1.

14. 4 July 1846, V. 2 Board of Visitor Minutes, vol. 02 1839-1853, Virginia Military Institute Archives, Lexington, VA.

15. 6 January 1845, Superintendent's Semi-Annual Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA, 10.

impossible for the cadets to work their way through school to pay those fees. The parents of "middling" boys, on the other hand, while often unable to pay full tuition, could afford the additional fees, while also having the capacity to provide the minimal education required to meet the modest admissions standards.[16]

The officers of VMI may not have spoken disingenuously when they spoke of the impoverished students who attended the school. "Middle class" did appear in usage in the South by the 1830s, but not commonly until the 1850s, when a distinct set of middle-class values and interests solidified into a self-conscious middle class. Prior to that, people tended to speak of the "middling class" or "middling sorts" to distinguish "the storekeepers, bankers, clerks, teachers, doctors, editors, ministers, and their families who tended to reside in the small towns and larger cities of the Old South" from wealthy landowning planters on one hand and independent white yeomen farmers on the other.[17] Consequently, Preston, Crozet, Smith, and others would not necessarily have conceived of a middle class when they thought of the class of boys from which to draw for the new school. Instead, they may have thought largely of poor boys and yeomen in contrast to the sons of elite planters and large landholders, people much like Preston himself.

Even though the demographics of the cadets did not perfectly match the vision provided by Preston in 1834 and 1835, at least some Board members do appear to have taken very seriously the commitment to education for the meritorious poor. As an

---

16. Jennifer R. Green, "'Practical Progress is the Watchword': Military Education and the Expansion of Opportunity in the Old South," *Journal of the Historical Society* 3 (Fall, 2005): 367-368, 382. *Regulations of the Virginia Military Institute at Lexington* (New York: John Wiley, 1848).

17. Jonathan Daniel Wells, *The Origins of the Southern Middle Class, 1800-1861* (Chapel Hill: University of North Carolina Press, 2004), 6, 8, 11-12, 67, 156.

example, Smith recounted an incident in which a meritorious but poor boy, whose "thirst for an education induces him to travel on foot over an hundred miles to press in person before the Board of Visitors his application," lost a position as a state cadet to another competing meritorious and poor boy. A sympathetic board member, however, resubmitted the first boy's application, but as a pay cadet, and personally paid the expenses from his own pocket.[18] Regardless, even though they may not have come from poor families, many of even the middling boys who went to VMI could not have otherwise afforded higher education.

*A Diverse Body of Cadets*

By employing a new system of recruitment, admissions, and funding, the framers of VMI brought together a unique and diverse group of white boys. Although drawing many pay cadets from central Virginia, the Board and Smith admitted boys from across the commonwealth, from present day West Virginia to the Chesapeake Bay, at a time of great sectional tension. While the costs and year-round schedule of VMI generally precluded the participation of the poorest of white boys, the school did draw boys from across class boundaries, though most of them came from the still vague middling class with no clear sense of its own identity. Through this diversity, VMI, as a state institution, served all parts of the commonwealth, as well as boys from differing and conflicting backgrounds. By drawing upon a larger pool of candidates than was available to most colleges, VMI grew quickly, almost immediately eclipsing some of Virginia's other colleges, and attaining an enrollment comparable to more established colleges.

---

18. Smith, *Introductory Address to the Corps of Cadets of the Virginia Military Institute*, 39.

The diversity of the cadets and the discourse of the Board and other framers of VMI reflected the egalitarian impulse behind the school. This does not mean, however, that the founders intended the school for all white boys. They did not imagine the school or future schools like it as a place for all who wanted an education to obtain one. Instead, they hoped to draw the best students by eliminating the barriers of class, admitting students based on their individual merit alone, not by their access to wealth and influence. Moreover, they wanted only boys who could fulfill the duties required of them. This meant that they wanted, not only the most intelligent and diligent boys, but also the healthiest and most moral, regardless of their wealth or connections.

**No Distinctions But Those of Personal Merit**

Regardless of one's admissions status, the Board and Superintendent Smith intended that no one make any initial distinctions between the cadets. Smith described the lack of privilege or disgrace for either state or pay cadets:

> Both classes of cadets enjoy the same privileges, perform the same duties, dress in the same uniform, and are not distinguishable but by reference to the records of the institution. No disgrace attaches to the fact that the state supports in part the one class. The service the state cadet renders in his military character, and the duty of instruction required after graduation, are regarded as full equivalents for the aid which he receives, while poverty, which is an indispensable condition for the state cadet appointment, can never be a matter of reflection, when it is so often found accompanied by genius and high moral worth.[19]

So, at least ideally, new cadets entered into the school as the equals of all others, with only their individual merit and accomplishments to distinguish between them. To ensure

19. 6 January 1845, Superintendent's 1845 Semi-Annular Report Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA, 8.

this, the Board and Smith established a wide range of practices to test this merit and to suppress distinctions based on wealth and family.

This task of overcoming distinctions required some effort, given that, after admission, a cadet found himself within a more diverse group of boys than the one to which he had likely grown accustomed. These boys came from all parts of Virginia, including both sides of the Blue Ridge, at a time of great east-west sectional tension. They included the sons of yeomen farmers as well as the sons of state politicians. They belonged to Baptist, Episcopalian, Methodist, Presbyterian, and, perhaps, even Catholic churches. The Board made no record of the ethnic or religious backgrounds of the cadets. Through the military discipline and equality of treatment, the Board and professors of VMI attempted to force the cadets to subordinate their class, regional, religious, and ethnic interests to a common interest with the other cadets and to ensure unity among them.

Pierre Bourdieu theorizes disciplinary processes as mechanisms for training individuals to employ their bodies in particular ways that identify them as members in social groups, such as manhood or womanhood. These uses of the body can include how one holds one's arms, hairstyles, or in what public spaces one places one's body. Doing so, moreover, excludes those from membership who do not employ their bodies in the appropriate way, those who did not experience the necessary disciplinary process. Through such disciplinary process, through which everyone in every society undergoes, social relations are also embodied.[20] While Bourdieu focused on less overt practices of discipline, such as those through which boys and girls learn to become men and women,

20. Pierre Bourdieu, *Masculine Domination*, trans. Richard Nice (Stanford, CA: Stanford University Press, 2001), 22-28.

we can apply this emphasis on the embodiment of particular social categories to more formal disciplinary regimes, such as military discipline. Superintendent Smith may have found this idea quite obvious. Indeed, of the regulations and system of military discipline at VMI, Smith said, "It is evident then, that the practice of these important principles for three years, will so fasten themselves upon the cadet as to become *part of his nature*." It is the repetition of physical acts and constant self-monitoring that turns discourse promoting particular values into the lived experiences of the targets of disciplinary regimes.

*Military Discipline: Producing Unity*
*and Suppressing Distinctions*

Regardless of one's admissions status, or any other status, every cadet had to submit to the same military discipline. This discipline encompassed every aspect of the cadet's life – nearly every day, all year long. Cadets engaged in a constant regime of drills, from marching to parade formations to artillery drills. These exercises taught the basics of the military arts and discipline, taught acceptance of orders, and created a sense of unity among the diverse cadets. The cadets also wore uniforms, of course, and engaged in a regime of personal care and responsibility. All of these features of military discipline increased the sense of unity among the cadets and served to suppress regional and class distinctions between them.

The regulations of VMI imposed a daily regime that minimized their opportunity for immoral behavior, but that also made every aspect of their lives subject to uniform military discipline. The cadets engaged in either infantry or artillery drilling everyday for

one to one-and-a-half hours, Monday through Friday (weather permitting) between March 1 and December 1. They held dress parade every evening.[21] Cadets marched collectively to and from meals.[22] They also marched to and from the river for bathing on Tuesdays, Thursdays, and Saturdays, which they all did together. These constant and regulated practices limited the free time of the cadets, making even the walk to class a military exercise.[23]

The daily and year-long military discipline made it difficult for the cadets to find opportunities to participate or resubmerge themselves in the culture of their particular sections or classes. Rather than returning home for the summer, like college students, the cadets remained on post, but left the barracks for tents and the classrooms for the field. They usually established the tent camps directly on post or on the surrounding hills. There, the cadets spent the summer drilling, studying and practicing tactics in the field, and went on marches and bivouacs.[24] "Second class" or second year cadets could receive leave during this time. But the Superintendent held even this permission subject to the availability of a sufficient guard and the merit of the individual cadet.[25] Consequently, the cadets had few chances to take refuge among those of their class or region during the

---

21. *Regulations of the Virginia Military Institute at Lexington* (Richmond: Shepherd & Colin, 1839), 19.

22. Ibid., 28.

23. Colonel William Couper, *One Hundred Years at V.M.I.*, v. 1 (Richmond: Garrett and Massie, 1959), 81.

24. Henry A. Wise, *Drawing Out the Man: The VMI Story* (Charlottesville: University Press of Virginia, 1978), 26.

25. *Regulations of the Virginia Military Institute at Lexington* (Richmond: Shepherd & Colin, 1839), 14.

entire period of their education, which further strengthened the disciplining process and the bonds between the cadets. The drilling produced both visual and tactile clues of uniformity for the cadets. This disciplined them to embody that uniformity, helped to further suppress any distinctions of identity between them, and produced a sense of unity and camaraderie that transcended any differences. The cadets, however, did not simply obey orders during their drilling. Even the lowest ranking cadets had to periodically serve as "Officer of the Day" and lead the parades, providing them the opportunity to gain leadership experience, including leadership over upperclassmen or even from more elite families than themselves.[26]

Along with military drilling, the Board also proscribed behavior that would lead to informal distinctions between cadets on account of wealth and privilege. According to regulations, for example, "No Cadet shall be allowed to keep a waiter, horse, or dog." Cadets also could not contract debts, presumably with local merchants; cook or provide their own food; or receive money or items from their parents or anyone else without the permission of the Superintendent.[27] As one would expect of a military school, the cadets had to wear prescribed clothing, essentially the West Point uniform, at all times, except in the privacy of their rooms.[28] The uniforms, besides providing a standard visual element for a military institution, also served to prevent distinctions between cadets through richer

26. Couper, *One Hundred Years at V.M.I.*, 83.

27. *Regulations of the Virginia Military Institute at Lexington* (Richmond: Shepherd & Colin, 1839), 16, 18.

28. Ibid., 9. 12 September 1839, V. 2, Board of Visitor Minutes, 1839-1853, Virginia Military Institute Archives, Lexington, VA.

or poorer dress. Finally, regulations also required common hair cuts for the cadets, furthering the visual unity.[29]

Besides proscribing behavior, the Board also prescribed behavior that forced the cadets to learn a disciplined care of the self. For example, cadets had to break down their beds upon waking, clean their own rooms every morning, care for their arms, and regularly deliver their laundry for cleaning.[30] Many cadets probably may have never had to do these things prior to attending VMI, regardless of their wealth or status.

All of the above were designed to inculcate self-discipline in the cadets. It was also, however, to serve the crucial function of taking a diverse body of cadets, with distinct interests and backgrounds, and create a sense of unity among them, a unity that transcended class and regional distinctions. Any unity developed, in part, by suppressing the outward signs of those distinctions, whether in appearance or action. Through this, Superintendent Smith and the other professors could discipline the boys into embodying the meritocratic and egalitarian white manhood promoted by the founders of the school.

*The Demerit System and Distinctions of Individual Merit*

The officers of VMI did not seek to abolish all distinctions between cadets, but only those that arose from wealth and privilege. In fact, they established a method for cultivating and evaluating distinctions of individual merit. Following the models of West Point and the *École Polytechnique*, the Board instituted the demerit system of discipline and the practice of ranking all cadets on a public merit roll. Smith identified this system

29. *Regulations of the Virginia Military Institute at Lexington* (Richmond: Shepherd & Colin, 1839), 20.

30. Ibid., 20-21.

as the core of the discipline at VMI, stating, "Its tendency is to keep the subject of it constantly upon his guard—to make him watch against trifling indiscretions, for he knows that while the penalty for a single offence may be small, the limit of demerit is reached by the accumulation of these units."[31] This provided a means of regulating the cadets, teaching them to monitor themselves, and of quantitatively evaluating their moral and academic merit.

The Board established seven classes of offense, taken from the West Point system, given demerit values ranging from one to ten. Moreover, upperclassmen earned additional demerits for the same offenses, with the total number increased by 1/6th for second year, 1/3rd for third year cadets, and after adding a fourth year to the curriculum, 1/2 for the fourth year cadets. After a cadet accrued two hundred points in a single year, he was reported to the Board for dismissal.[32] Smith gave the following excerpt of one cadet's accumulated demerits as an example of the application of this system:

| | |
|---|---|
| Absent from French class parade | 3 |
| Not holding arms in prescribed position | 1 |
| Visiting in study hours | 5 |
| Smoking cigars | 5 |
| Coat unbuttoned at guard mounting | 1 |
| Absent from drawing class parade | 3[33] |

31. Smith, *Introductory Address to the Corps of Cadets of the Virginia Military Institute,* 8.

32. *Regulations of the Virginia Military Institute at Lexington* (Richmond: Shepherd & Colin, 1839), 13-14. *Regulations of the Virginia Military Institute at Lexington* (New York: John Wiley, 1848), 24. Register of the Officers and Cadets of the U. S. Military Academy, June 1839, Official Register of the Officers and Cadets (1818 to 1966), United States Military Academy Special Collections and Archives, West Point, New York, 20.

33. "Semi-Annual Report of the Superintendent of the Virginia Military Institute, Together with Accompanying Documents," Doc. No. 28, *Journals of the House of Delegates*, 1845, 6.

A cadet's total number of demerits, modified according to his class, was then subtracted from an initial score of three hundred in order to produce a final score according which to compare cadets. So a higher score indicated greater merit in conduct. This score, out of a possible 1000 points, then contributed to an overall merit ranking that also included scores in several academic categories (figure 4.2).

As Smith argued, this practice produced a constant vigilance in the cadets that trained them to serve as their own police over a range of behaviors from proper dress to smoking to showing up for the assemblies leading to class. But it also provided a quantitative evaluation of the individual merit of each cadet, enabling anyone to compare the merit of any two cadets. Through this, the cadets distinguished themselves from one another through their moral and academic merit, which transcended any other sectional or class distinctions between them.

*Creating a Level Field for Competition*

The cadets of VMI came from both sides of the Blue Ridge Mountains, from contemporary West Virginia to Norfolk, and brought their regional identities and interests with them. Because of the presence of both state and pay cadets, students also came from across class boundaries, from the sons of senators to the sons of poor farmers and middling mechanics. They also came from across denominational boundaries. All of this contributed to an intersection of "local" interests in each cadet that distinguished them from one another. Upon arrival, however, Smith put a *uniform* on them and then made them march, drill, eat, and even bathe in a *uniform* manner. Furthermore, they all studied the same curriculum, obeyed the same orders, did the same guard duty, and accepted the

same discipline. Through this, they entered an environment and system that suppressed their local distinctions and encouraged unity and camaraderie among them. They learned, through physical drilling and outward uniformity, to embody unity.

The VMI environment also provided the cadets with the opportunity to compete with their fellow cadets, but under a different standard of evaluation than that provided for them outside of the post. They competed only on the basis of their individual merit, which was established by a semi-quantitative measure of their morality and academic success, as framed by the Board in the regulations of VMI. Rather than relying upon their family connections and wealth, or struggling for lack of them, they had to compete upon equal standing based on their own merit and efforts and, thus, embody the *national manhood* of innately equal white men.

## Morality and Self-Discipline

Besides attempting to suppress the distinctions between the cadets, the Board and professors also embedded a particular morality, one that required and expressed a particular sense of self-discipline, into the practices of the school. They did this primarily through the disciplinary regime of the school, the regulations, and the promotion of Evangelical Christianity.

### *The Necessity of Discipline and the Cultivation of Morality*

Superintendent Francis Smith, in one of his writings on education reform, argued that the fact that college students have not yet reached adulthood during their education

necessitated a strong disciplinary system to protect the morality of the students. This necessity applied to the students of any institution of higher education.

> The college, therefore, assumes the responsibility of guarding, by these regulations [required to be in their rooms during study hours and at night], the morals of the student. Is it right that it should? We answer unhesitatingly it is. Young men leave home to enter college usually before they reach maturity. We have no means of ascertaining with accuracy the average age of entrance into college, except in the experience of the institution to which the writer belongs. It may be assumed, however, at eighteen years. Is a young man at this age capable of taking care of himself? If so, why does the law of the land trammel his liberty until he is twenty-one? This interesting period of his life is the very one, which, from its peculiar temptations, it should be the office of a college to protect by all the moral appliances which could be brought to bear upon it. A young man leaves his home, he has been accustomed to all the restraints which parental anxiety and affection deem essential to his welfare. He enters college, and is at once thrown amid a thousand temptations, which he had not known before, or if known, had been protected from, by parental vigilance and counsel. Must he meet these temptations alone? Or shall not the authority of the college be thrown around him to shelter him from the dangers which have, alas! but too often shipwrecked the hopes of many a promising youth?.[34]

The system of discipline served as a surrogate parent to protect students from immorality. It did this by proscribing immoral activities and by teaching the self-discipline necessary to resist immoral behavior. Any institution that failed to provide such protection failed to accept its responsibility to the students.

John Preston, in his second Cives letter, argued for the use of military discipline to not just provide military training, but also to ensure the morality of the students. He argued that

> the military discipline of the place would essentially conduce to the formation of good habits and the exercise to health, and many a parent anxious about the morals or the constitution of his son, might be glad to send him here rather than to the collegiate institutions of the country and if

34. Francis H. Smith, *College Reform* (Philadelphia: Thomas, Cowperthwait & Co., 1851), 36.

> this scheme should go into operation, it would not be a matter of surprise to see students there upon their own expense, in addition to those supported as a guard by the State.[35]

Even before VMI opened and even before the Virginia legislature established the school, Preston proposed military discipline as a means to both ensure the physical health of the students and to teach them moral behavior. Moreover, Preston imagined this as possibly leading to a system of discipline that parents might come to see as superior to that employed by liberal colleges.

Smith later argued that VMI had indeed proven Preston's anticipation of the superiority of military discipline. Smith, however, also identified the demerit system as one of the primary features of VMI discipline that distinguished it from the common system of discipline, such as suspensions, employed at colleges. VMI not only protected the morality of the cadets, but also taught moral behavior. Of the combination of military discipline and the demerit system, Smith said:

> It gave discipline in its truest and fullest sense—a discipline which extended to and defined every duty, and provided for every necessity,--a discipline which waited not until a youth became hopelessly vicious, but which aimed to *train* him in habits of order, propriety, study, decency and morality, by appropriate penalties graded to correspond with the offences committed, or the duties left undischarged or imperfectly performed.[36]

Military discipline and the demerit system dictated nearly every moment of a cadet's life from his admission to his graduation. VMI, therefore, provided a total discipline that trained cadets in moral behavior in every situation they might experience while students, but also protecting them from some temptations to immorality.

---

35. Cives, "The Lexington Arsenal-No. II," 1.

36. Smith, *Introductory Address to the Corps of Cadets of the Virginia Military Institute,* 8. Emphasis in original.

The total system of VMI, argued Smith, provided a superior system of moral training and discipline to that provided by liberal colleges. In contrast to VMI, under the usual system of discipline of colleges, "[t]he control is only partial. Young men of notoriously bad habits may be dismissed, but the discipline does not effectively reach offences of a minor grade. The incentives to virtue are not sufficiently urgent, or the restraints to vice sufficiently strong."

> Now, young men have evil passions, which it should be the object of discipline to restrain; they have careless, idle, and procrastinating habits, which discipline should correct; and they have noble qualities, which discipline should properly cultivate and direct. Small offences should be noticed and checked, lest they grow into larger ones; and promptness, punctuality, and system, in the discharge of all duties, should be cultivated as *habits*, the importance of which will be felt in the active business of life. This discipline should admit of being carried into effect, without exciting the angry passions of teachers or pupils; for unless there exists a mutual respect and regard between the teacher and the pupil, no satisfactory results can be attained by either.[37]

The colleges abdicated their responsibility to students by only punishing immoral behavior, and only the most excessive behaviors at that. They failed, in contrast to VMI, to teach morality and discipline in every action.

With regard to the success of the VMI system, Thomas Hoomes Williamson, Professor of Tactics and Drawing, argued not only for the superiority of that system over that of the liberal colleges, but also over that of West Point. Williamson had himself attended West Point as a classmate of Smith's and, like Smith, he looked to West Point as both the model for VMI and as the standard against which to judge higher education in general. He argued before the Board of Visitors:

> In relation to the moral discipline of [VMI], and indeed in regard to all other matters, with the exception herein admitted, I assert from my own

37. Smith, *College Reform*, 38-40.

> knowledge, that this Institution is fully equal to West Point, and in many respects far superior to it in its discipline. I was nearly four years at West Point, in its palmiest days, under the superintendence of Col. Thayer, an officer of high and deserved reputation, and I have been nearly five years here, and have enjoyed an opportunity of comparing the two Institutions, not possessed by the Board. And speaking from actual knowledge and experience, I assert without fear of contradiction, from any competent judge, that the moral discipline of the cadets here is far superior to what it was at West Point when I was acquainted with that institution; that I have witnessed fewer acts of insubordination on the part of the cadets here than I have witnessed there, and none of as violent a character, as I have known to occur at West point...[38]

At both West Point and VMI, military discipline taught the basics of soldiery to their students. But at VMI, it also instructed the cadets in morality and even protected them from immorality.

While Smith explicitly criticized the disciplinary systems of liberal colleges, the others quoted above did so implicitly, indicating their belief in the superiority of the VMI system. The officers and advocates of VMI emphasized the role of military discipline and the demerit system in cultivating morality and self-discipline, features they described as generally lacking in boys of college age. The officers also implied that, in contrast to VMI, colleges did not check the immorality inherent in boys of college age. Consequently, this implied that VMI produced more moral graduates, despite the fact that they came primarily from the middling and even the poorer classes, while college students generally came from the planter class. The possession of virtue served as a prerequisite for participation in governance, including voting, in antebellum Virginia. So claims to the moral superiority and virtue of the disenfranchised class of boys who attended VMI could have served to challenge the authority of the eastern elite and,

---

38. 15 June 1847, Report on Police by Williamson, Board of Visitor Minutes, vol. 01 1839 May-1844, Virginia Military Institute Archives, Lexington, VA, 194.

therefore, promote the interests of the western elite by enfranchising the growing population of the west.

*Christian Education and Evangelical Morality*

Although I describe the religious "diversity" of the admitted cadets, all, as far as we know, came from a Christian background, regardless of what they themselves professed. Superintendent Francis Smith, an Episcopalian, saw this as crucially important. Consequently, he placed Christianity squarely within the system of discipline and education at VMI. Emphasizing this point, he wrote, in one of his early texts on education reform, the following

> Suffice it to say, that the object of all education, if limited to this life only, is to make men happy in themselves and useful to others; and it may be assumed as an indisputable point, that we shall most surely secure these ends by laying deep in the youthful mind the principles and precepts of the Christian religion. But the *great end* of education is a preparation for another state of existence, and here the teacher's voice should give "no uncertain sound." Parents want *Christian* teachers, that they may be sure their children receive a pure morality. They want *Christian* teachers, because they know that "the fear of the Lord is the beginning of wisdom."[39]

Moreover, "The avowed opposer of the Christian religion is unfit for the trust of a public teacher."[40]

Evangelical Christianity had become the dominant religious movement in the South by the time VMI opened in 1839 and, in so doing, had placed Christianity and a strict morality at the center of Southern life, especially for the lower and middling

---

39. Francis H. Smith, *The Regulations of Military Instructions, Applied to the Conduct of Common Schools* (New York: John Wiley, 1849), 28. He uses the same quote in a later reform work. See Smith *College Reform*, 51-52.

40. Smith, *The Regulations of Military Instructions,* 29.

classes.[41] Presbyterian John Preston and Episcopalian Francis Smith participated in this movement and sought to teach evangelical values to the cadets. Evangelicals emphasized the need for a spiritual rebirth in order to achieve salvation, attained only through the granting of grace by God. One could, however, seek God's favor through moral behavior after acknowledging and repenting one's sins. Evangelicals rejected the "worldly pleasures" of dancing, drinking, gambling, and hunting, all of which constantly tempted Christians. Resistance required the character traits of humility, self-discipline, and self-restraint. Congregations did not, however, leave this to the individual. Instead, they monitored one another's behavior and sought to enforce morality as a community. They also promoted education in order to ensure that congregants could read the Bible.[42]

The origins of evangelicalism coincided with some of the tensions that led to the founding of VMI. It first gained popularity during the Colonial period among those outside of the Anglican slave-holding class. The emphasis on humility and rejection of the opulence, arrogance, and worldliness of the elite provided an alternative means of legitimation for those unable to afford the expense of elite lifestyles and manners. Besides the opulence, they also rejected as immoral the tobacco smoking, drinking, and hunting so popular among the elite. The evangelicals first appeared in conflict with slaveholders, but moderated themselves and gained greater acceptance as members of the

---

41. John B. Boles, "Evangelical Protestantism in the Old South: From Religious Dissent to Cultural Dominance" in *Religion in the South*, ed. Charles Reagan Wilson (Jackson: University Press of Mississippi, 1985), 25. Christine Leigh Heyrman, *Southern Cross: The Beginnings of the Bible Belt* (New York: Alfred A. Knopf, 1997), 5. Donald G. Mathews, *Religion in the Old South* (Chicago: University of Chicago Press, 1977), XV, 38.

42. Boles, "Evangelical Protestantism in the Old South," 27. Heyrman, *Southern Cross*, 6-7, 8. Mathews, *Religion in the Old South*, 13, 19, 42, 89.

middling classes and even some elites converted and joined Baptist and Methodist churches. In Virginia, evangelicalism began to grow into a substantial religious movement during the eighteenth century, particularly among Presbyterians, like John Preston, Methodists, and Baptists. Evangelicals facilitated this growth, in part, by accommodating themselves to slavery and, therefore, to the slaveholding elite. They increasingly accepted slavery as a necessary institution for the paternal care of the souls of blacks. Evangelicals employed their various institutions, including educational institutions, to help spread evangelicalism. Presbyterian evangelicals, for example, founded Hampden-Sydney College and its seminary. By 1820, even the Episcopal Churches, which descended from the very Anglican Church against which evangelicals formed in reaction, adopted elements of evangelicalism.[43]

Superintendent Smith, an evangelical Episcopalian, accepted the evangelical responsibility for monitoring and ensuring the morality of the cadets. In practical terms, Christian education for the cadets largely meant that

> Besides the regular course of instruction above noticed, each class is required to attend recitations in the Bible, or the Evidences of Christianity, on the Sabbath. These classes are under the care of the professors. The cadets are also marched in a body, when the whether will permit, once every Sabbath, to one of the churches in Lexington -- an equal distribution of their attendance being made among the four existing denominations. The cadets have also formed themselves into a Bible society, auxiliary to the Virginia Bible society, and promote this cause by annual contributions.[44]

---

43. Boles, "Evangelical Protestantism in the Old South," 15-17, 25-26, 29. Heyrman, *Southern Cross*, 4. Mathews, *Religion in the Old*, xvii, 9, 20, 38.

44. 6 January 1845, Superintendent's 1845 Semi-Annular Report Superintendent's Annual Reports to the Board of Visitors, VMI Archives, Virginia Military Institute, Lexington, VA, 7.

Cadets who belonged to a particular denomination, however, needed attend only their own church.[45] Evangelicals, seeing individuals as weak, emphasized the need for members of congregations to observe one another's behavior and enforce morality. Consequently, they believed it necessary for individuals to join an evangelical community to both learn morality and to submit oneself to moral monitoring. Smith's requirement of church attendance ensured this joining of community.

In his private publications on educational reform, Smith also recommended the following

> As a general rule, all teachers should, when practicable, open and close their schools by reading a chapter, or part of a chapter, in the Bible. This may be done even by those who do not profess religion; for surely such persons read the Bible themselves in private, and it is only urged that they shall give to their pupils the benefits which result from the daily reading of the word of God, and the influence which the teacher's public recognition of its value will produce.[46]

I have seen no specific evidence that this occurred at VMI, either in Smith's own classes or in the classes of other professors. But Smith did punctuate the education of the cadets by handing each graduate a Bible with a personal inscription at the same time he handed them a diploma.[47] In so doing, in his last moment of influence over the cadets, he reemphasized his belief that education ultimately served the purpose of preparing students, not for their earthly careers, but for their afterlife.

---

45. Major-General Francis H. Smith, LL. D., Superintendent, *The Virginia Military Institute: Its Building and Rebuilding* (Lynchburg, VA: J. P. Bell Company, 1912), 95.

46. Smith, *The Regulations of Military Instructions*, 29.

47. Couper, *One Hundred Years at V.M.I.*, volume 1, 96.

Besides preparing students for the afterlife, the officers of VMI saw religious observance as directly linked to the maintenance of discipline at the school and evangelicalism provided the specific model of moral behavior. The Board of Visitors commented on this role for Christianity:

> The Board cannot but refer to the fact that the most parental regard is paid to the morals of the young men educated at this Institution. Sobriety is a striking and exemplary trait in their character, while their social relations suppress all arrogance on one hand and severity on the other in every portion of the Cadets. Intolerance in all matters of opinion is excluded from any influence within the Institute and with the exception of the obligation imposed upon the Cadets to attend Church, in a body on each sabbath, going to each Church in succession there is no constraint in matters of religious opinion, but it must be remembered that while no constraint is exercised, a religious influence is at all times pervading the Corps arising from the knowledge that within the [illegible] of their Institution there is one spot where 'the fire on the altar never goes out.' And it is this simple fact that the Board attribute in a great degree the order, discipline, sobriety and attention which prevails among the numerous body of young men whose character are to shape on a great degree the future destiny of the Commonwealth.[48]

While they claimed religious tolerance, they also asserted an emphasis on evangelical morality by specifically claiming to teach a rejection of arrogance and the acceptance of self-discipline. They regulated against much individual conduct, including smoking, playing cards, and drinking alcohol or even entering places that sell alcohol. Beyond specific regulations, "[t]he Cadets are not only required to abstain from all vicious, immoral, or irregular conduct, but they are enjoined on every occasion to conduct themselves with the propriety and decorum of gentlemen."[49]

---

48. 4 July 1848, "1848 Report to Governor," Board of Visitor Minutes, vol. 01 1839 May-1844, Virginia Military Institute Archives, Lexington, VA, 249-250.

49. *Regulations of the Virginia Military Institute at Lexington* (Richmond: Shepherd & Colin, 1839), 15-17, 21.

A great many of the boys who arrived at VMI would likely have already gained great familiarity with some of the values taught to them there. Coming from the middling classes that gave so much support to the evangelical movement, they would likely have already had exposure to the evangelical values of self-discipline and temperance.[50] We can, however, certainly question whether or not they so restrained themselves prior to their arrival. Historian Jennifer Green argues that some students of the various antebellum military schools did undergo the crucial rebirth experience of evangelicalism during their matriculation. So, once under the strongly Christian discipline and teaching of VMI, it is likely that some VMI cadets did so as well. Green reports that at least one VMI graduate, Robert Gatewood, experienced this rebirth soon after graduating in 1849. He went on to become an Episcopal clergyman and a chaplain for the Confederate army.[51]

**Service and Subordination to Authority**

The officers of VMI sought to do more than discipline the cadets in order to better educate them or provide military training. Moreover, the purpose of the moral training went beyond simply reinforcing an articulation of Christian morality. The framers saw the discipline and moral training as necessary for producing a particular sort of citizen that embodied a particular white manhood. These citizens would embody the moral

---

50. Mathews, *Religion in the Old South*, XV, 38.

51. Jennifer R. Green, "'Stout Chaps Who Can Bear the Distress': Young Men in Antebellum Military Academies," in *Southern Manhood: Perspectives on Masculinity in the Old South*, ed. Craig Thompson Friend and Lorri Glover (Athens: University of Georgia Press, 2004), 184-185. *The 2000 Register of Former Cadets of the Virginia Military Institute* (Lexington, Virginia: VMI Alumni Association, 2001).

character necessary to go into the world to engage in engineering and teaching, the sort of work required to expand the infrastructure and economy of the commonwealth and nation. The framers embedded service at the center of the engineering culture that they crafted. But a commitment to service, to both commonwealth and nation, required the cadets to become particular sorts of men. The officers of VMI built this commitment to service upon the foundation of subordination to authority, self-discipline, and industriousness. And as with the morality taught to the cadets, the officers used military discipline in an attempt to train the cadets to embody these traits.

*Service to Virginia*

The officers of VMI justified the legislature's commitment to the school in terms of the service they claimed was rendered by cadets. But they also emphasized the role of service as a means of training the cadets in public virtue and committing them to Virginia as patriots. This service consisted of serving in the arsenal guard, teaching in Virginia's schools, and providing leadership in the state militia. Superintendent Francis Smith argued that the intensity of the commitment of VMI and the cadets to service by stating

> … I may say, we aim to make the youth entrusted to our care *useful* citizens, who shall be capable of rendering service to their state in war as well as in peace. They are disciplined to habits of economy, industry, promptness and fidelity in the discharge of all their duties. Being members of an institution which has been created by the state, and is supported by the state, they are taught to respect its laws, and to obey those in authority; and if we may judge from the past, we have every reason to believe they will always prove themselves, (what the motto of their banner promises for them,) '*faithful to Virginia*.' ...[52]

52. 11 November 1841, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA, 2.

The cadets, according to Smith, became "useful" citizens through their service and their training under the disciplinary system of VMI. They did not just fulfill their service as a trade for their education. Instead, the VMI system sought to transform the cadets into patriots and citizens committed to service to Virginia.

VMI cadets entered into a role of service to Virginia immediately upon their admission to the school. They did this by participating in the arsenal guard, a service that justified the very existence of the school to the Virginia legislature. Superintendent Francis Smith characterized this service in the following manner

> The substitution of a body of young Virginians for the band of hired soldiers as a guard to the state arsenal, and the additional security which is also effected by increasing the number of the guard fourfold, without augmenting the expense to the state.[53]

Although pay cadets did indeed pay for the privilege of serving in the arsenal guard, state cadets did not, in Smith's estimation, receive a free education through charity. Instead, they earned it by providing an arsenal guard superior to that which previously existed. Moreover, they did so without increasing costs to the commonwealth.

In contrast to the "band of hired soldiers," which citizens of Lexington found so troublesome,

> the state has substituted the defense and protection of her sons education in sentiments of intelligent patriotism and public virtue. The state has made a successful experiment; she has substituted the education and intelligent student, taken, in all cases, from among her own children, and made them the guardian of her means of defense, and by educating them and by sending them forth as Instructors throughout the commonwealth she has made even the means of defense less necessary.[54]

---

53. 6 January 1845, Superintendent's 1845 Semi-Annular Report Superintendent's Annual Reports to the Board of Visitors, VMI Archives, Virginia Military Institute, Lexington, VA.

While the previous professional guard performed their service for pay, cadets, instead, benefited from their service by using it as an opportunity to learn patriotism and public virtue. The commonwealth, in turn, benefited from the spread of these virtuous young men across the state after graduation.

Beginning in 1842, the legislature added another service requirement for state cadets to fulfill in exchange for their education. They would have to teach in a Virginia school for at least two years after graduating.[55] Unlike the guard service, which applied to all cadets, this new requirement applied only to state cadets. But pay cadets did often serve as teachers as well. This provided a means of improving primary and secondary education in Virginia at a time when few of Virginia's children attended school and, when they did so, often suffered under poor quality teachers with few credentials.

Describing the benefits of the teaching requirement to both the commonwealth and the cadets, William H. Richardson, the Adjutant General and VMI Board member, stated

> This valuable institution is, as you will see, rapidly raising up for the state a band of *native born* teachers, of the highest qualifications, in both the pay and state cadets. Many of the most distinguished graduates of the former class have taught, and are now teaching; some while preparing themselves for one of the learned professions, and some as a permanent occupation.
>
> As regards the state cadets, the law is most beneficent and salutary in its operation. The state gives them the best education (an independence) which they could not otherwise obtain; and they repay her by their services as teachers in her public schools, receiving at the same time the emoluments of the stations in which they are placed; and thus many

54. 4 July 1848, 1848 Report to Governor, V. 1, Board of Visitor Minutes, 1839 May-1844, Virginia Military Institute Archives, Lexington, VA.

55. *Regulations of the Virginia Military Institute at Lexington* (New York: John Wiley, 1848), 9.

> meritorious young men, who but for this institution would have lived and died in ignorance and poverty, enter upon life enlightened, useful and independent citizens.[56]

Again, the service of the cadets benefited not just Virginia, but also the cadet. The commonwealth benefited by obtaining qualified teachers for the slowly expanding common schools. The state cadets, of course, received an education in exchange for their service. This education, according to Richardson, provided them with a means of independence, the hallmark of a free man and a virtuous citizen. Besides serving by simply fulfilling their mandatory years of service, the cadets further performed service by participating in a "useful" profession, thus contributing to Virginia, rather than just working for personal enrichment.

Smith argued that, after ten years of operation, VMI did indeed expand education greatly in Virginia by providing teachers. Moreover, the training of the school produced cadets of such high qualification that schools sought to hire more cadets than were available. Quantifying this, Smith stated

> Besides furnishing 6 professors for colleges, 57 of our graduates have carried with them the peculiar system of the institution into the academies and private schools of the state, and so fully have they met public expectations that it is impossible to supply the annually increasing demand for them.[57]

Believing in the superiority of the VMI system, Smith saw the spread of its graduates as elevating the quality of schools by spreading elements of the VMI system to other schools. He, furthermore, claimed that, in part, through the increased number of teachers

---

56. Introduction, 1849 Superintendent's Semi-Annual Report, Semi-Annual Reports of the Virginia Military Institute, Virginia Military Institute Archives, Lexington, VA, 2.

57. 1850 Superintendent's Report, Report of the Board of Visitors of the Virginia Military Institute, Virginia Military Institute Archives, Lexington, VA, 10-11.

who came out of VMI and, after 1856, the University of Virginia, they increased the number of college students in Virginia from 500 in 1845 to 2500 in 1860, "thus giving to Virginia the proud pre-eminence of having a larger number of young men attending college in 1860, in proportion to white population, than any other state of this country."[58]

VMI officers, including Richardson in the above quote, also argued that the service of the cadets as teachers benefitted the commonwealth by increasing the proportion of native Virginians teaching in schools. This helped to ensure that Virginia's students would learn from teachers who accepted and defended slavery. Smith argued that Virginia, at the time, relied on northern and sometimes British teachers, with a few exceptions of teachers who graduated from the University of Virginia. He explained this in part, by recalling, "At that time it was regarded as an unworthy calling for a young Virginian to teach school."[59] So, by providing high-quality teachers, VMI helped to raise the status of teachers and encourage others to take up the profession. Smith, moreover, extolled the benefit of no longer "being compelled as heretofore to resort entirely to other states for teachers, who are unacquainted with our habits and unaccustomed and too often opposed to our Southern Institutions,"[60] meaning slavery. Consequently, by serving the commonwealth as teachers, VMI graduates would help to prevent northern teachers from corrupting of white southern youth and turning them into abolitionists. This would have certainly appealed to the planter-dominated legislature upon whom VMI depended for funding.

---

58. Smith, *The Virginia Military Institute*, 79-80.

59. Ibid., 77-78.

60. 1846 Report to Governor, V. 1, Board of Visitor Minutes, 1839 May-1844, Virginia Military Institute Archives, Lexington, VA, 153.

Early advocates of the school also promised that VMI would produce leadership for the state militia by sending well-drilled cadets with knowledge of military tactics and leadership to all parts of Virginia. Perhaps convinced of their qualifications in this regard, Governor David Campbell, writing to Smith, said of the cadets, "I have no doubt, their country will hereafter look, as the men [illegible] filled and qualified to defend its constitutional liberty and its rights."[61] Smith argued for the superiority of the cadets in such a service and in their commitment to the defense of Virginia.

> The moral power of an intelligent and disciplined corps of young men, annually sent forth to mix in the affairs of society, will exercise the greatest influence in maintaining respect abroad and peace at home. Young men who are educated in a strong moral sense of the duties of patriotism will never desert the standard of the commonwealth nor see its flag trailed in the dust; and educated for usefulness and trained to virtue, their influence in all the relations of society must be beneficent.[62]

The graduates, according to Smith, did not just train to serve in militias, they also learned, through their military discipline, to become patriots and virtuous citizens.

*Traits of the New White Manhood*

As discussed previously, besides teaching evangelical morality and restraint, the officers of VMI also taught that productive work, subordination to authority, and personal responsibility were character traits necessary for service to the commonwealth and nation. John Preston, looking back on the first fifty years of VMI, stated that the military discipline "had special advantages in promoting the health of its pupils, in training them

---

61. 17 June 1844, Campbell Governor David 1844 011, Superintendent (Francis H. Smith) Correspondence, Incoming, Numbered Letter Series, 1839-1844, Virginia Military Institute Archives, Lexington, VA.

62. 4 July 1848, 1848 Report to Governor, V. 1, Board of Visitor Minutes, 1839 May-1844, Virginia Military Institute Archives, Lexington, VA, 224.

in habits of subordination to lawful authority, to industry and punctuality, and in accustoming them to prompt obedience to every call of duty, small or great, without regard to preference, or self-indulgence."[63] These habits, however, derived from the evangelical self-discipline and restraint necessary to set aside one's personal preference and subordinate one's self to authority and service to others.

Jennifer Green, in her analysis of the cadets of antebellum military schools in general, describes how the discipline of the schools conflicted with elite southern manhood. The values taught at VMI contrasted with and challenged the values of an individualistic and even violent elite southern manhood. This manhood emphasized a sense of honor defined by the assertion of independence, mastery over others, genteel manners, fearlessness, and a martial bearing proven through such exploits as horsemanship and hunting. Boys and men expressed their independence through a refusal to submit to authority outside of one's family. For children, deference to one's elders was total, but taught them that they too could later expect deference from those younger than them or from their social inferiors. In contrast to this subordination within the family, parents taught children to challenge even the authority of their teachers in order, for example, to defend their personal and family honor against an attempt to impose punishment. Besides asserting one's honor through independence, boys and men also asserted it through mastery over others, which demonstrated one's capacity to master those one had, as a slaveholder, to enslave. This mastery over others frequently took the form of violence against social inferiors, including inferior whites. Despite an emphasis

63. Col. J. T. L. Preston. Historical Sketch of the Establishment and Organization of the Virginia Military Institute, Prepared at the Request of the Board of Visitors. 4 July 1889. MS#240 (facsimile), Virginia Military Institute Archives, Lexington, VA, 20.

on genteel manners, young men as young as fourteen expressed a "rugged manhood" by engaging in drinking and gambling and getting into much trouble. This demonstrated, among other things, one's toughness and fearlessness. An honorable boy or man had to overcome his fears, of whatever sort. One exception to this was the constant fear of the shame of failure, whether in hunting or carrying out one's duties or failure of any other sort. Boys and men had to confront any challenge to their honor, often through the use of violence and even lethal duels. Not all of these aspects of honor and elite manhood were confined to the elite. Poorer boys and men performed much of it, except for challenges to authority.[64] So even the young men who entered VMI with a strong evangelical upbringing probably had, as boys, also confronted the rougher manhood of the elite.

Evangelicals taught self-discipline and restraint, and the officers of VMI employed military discipline and the demerit system to, as emphasized previously, train the cadets to embody this restraint. Superintendent Smith observed

> *Habits of economy, method and respect for lawful authority are formed*.-- At least ten rolls are called each day, at all of which every cadet must be present, and every absence or irregularity at each of these is noted. The cadet is required to examine into his expenses, and being controlled in every dollar which he spends, he learns the importance of care in his expenditures. Obedience is the first law of the soldier. It is evident then, that the practice of these important principles for three years, will so fasten themselves upon the cadet as to become part of his nature.[65]

While the planter elite, against whom both the early evangelicals and the initial proponents of VMI reacted, engaged in ostentatious displays of their wealth, the cadets, generally coming from much less wealth, learned thrift and restraint. And just as

---

64. Green, "'Stout Chaps Who Can Bear the Distress'," 175-176.

65. 6 January 1845, Superintendent's Semi-Annual Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA. Emphasis in original.

evangelicals were to submit to the will of God, cadets learned to submit to the will of earthly authority.

Along with thrift and restraint, cadets, as Jennifer Green observed about military-school cadets in general, also constructed for themselves a particular sense of honor through subordination to authority and through service to others, a sense of honor that the officers of VMI hoped would mark the cadets as valued citizens.[66] Board of Visitors President Claudius Crozet, foretelling the success of VMI in 1839, stated

> Here will be a school patronized by the state, and the essential principle of which will be a sense of *honor* and duty. Here the young student will find in each one of his associates the correct deportment of a gentleman and the honorable feelings of a soldier. Impressions received at this age will rarely fade away, and the youth who shall have learned to perform his duty punctually and to acquit himself honorably on all occasions, may be expected to regulate all his future actions by the same propriety of conduct and to establish for himself the character of a respectable citizen.[67]

Respectable and honorable citizens, in Crozet's estimation, fulfilled their duties, whether their duty was to appear for the daily roll on the drill field or to defend the commonwealth or nation against attack.

Cadets, armed with self-restraint and a practical engineering training, also learned that they could fulfill their duty to Virginia through productive work, which would, in turn, prove the cadets as virtuous citizens. Commenting on the success of the VMI system, Preston claimed, "The Institution has, in its history, vindicated the practical value

66. Green, "'Stout Chaps Who Can Bear the Distress'," 179-181.

67. 21 November 1839, Report of the Board of Visitors to the Governor, Virginia Military Institute Archives, Lexington, VA.

of its training. Energy, Efficiency, Reliability, have been characteristic of its graduates in every pursuit of life, practical and professional -- in peace and in war!"[68] Moreover,

> The Board express the opinion that the system adopted works well in practice, is admirably adapted to the Institution under their supervision and is [illegible] to make useful, careful, economical, industrious citizens; that the standard of intellectual attainment is elevated and that the necessary restraints imposed lead to virtue and happiness.[69]

The planter elite demonstrated their virtue through the independence afforded by property ownership and, consequently, independence from productive labor. The cadets, in contrast, learned useful work and industriousness as virtues.

Along with clearly stating the intent to employ discipline as a way to instill particular values and character traits, the above statements identify three important classes of traits, those related to subordination to authority, personal responsibility, and productivity, all of which would, according to Preston, make virtuous and happy men. Both Preston and Smith explicitly spoke of subordination to or respect for, not just any authority, but "lawful authority," which indicated a commitment to law and constitutions, for example, rather than just to any individual in a position of authority. They supported this subordination to authority through the demand for habitual obedience, recognition of duty, and the capacity to subordinate one's own preferences or "self-indulgence" in the fulfillment of that duty or response to authority.

Although the Board prescribed nearly every action of a cadet's day and proscribed so much, they promoted personal responsibility. They did this, not by providing the

---

68. Preston. Historical Sketch of the Establishment and Organization of the Virginia Military Institute, 20-21. Emphasis in original.

69. 4 July 1848, 1848 Report to Governor, V. 1 Board of Visitor Minutes, 1839 May-1844, Virginia Military Institute Archives, Lexington, VA.

opportunity for the cadets to independently achieve it, but through the thorough and constant disciplining of the cadets to it. They had to constantly demonstrate this responsibility through some of the virtues described above, including punctuality, thrift, reliability, and careful action. Beyond any usefulness to the individual cadet, these virtues also provided them all the means to fulfill their obedience to authority.

The virtues taught at VMI provided cadets with the character traits necessary for the particular sorts of professional pursuits their superiors imagined for them. The cadets, mostly having neither independent wealth nor much prospect of a professional military career, had need of other professional pursuits, at least if they were to abandon the farms and crafts of their fathers. The Board and Smith, therefore, promoted traits to enable the cadets to move into new middling professions, particularly teaching and engineering. These traits included industriousness, energy, thrift, efficiency, and usefulness, traits seen as contrary to those of elite landowners who lived largely off of the wealth and labor of others.

Subordination to authority, personal responsibility, and useful work prepared the cadets for service to Virginia and the nation. Through subordination to authority, they learned patriotism and a commitment to government institutions. The personal responsibility they learned provided them with the character necessary to fulfill that service. Finally, their commitment to a particular expression of productivity prepared them for careers that served the commonwealth and the nation, whether as teachers to develop the educational system of Virginia, as engineers to develop the resources and infrastructure of the nation, or as soldiers to fight the nation's wars.

At least for those cadets who had faced the expectations of an elite expression of white manhood, they experienced a powerful contrast of demands upon entering VMI. Jennifer Green argues that to deal with this, the cadets reconciled the military discipline to new understandings of independence and honor. They did this, in part, by *choosing* to subordinate themselves to discipline, unlike blacks and women, who, in the constructions of the white boys, had to submit by their very natures as innately dependent people. This choice to submit required self-discipline, self-restraint, and self-control, the characteristics they learned as cadets. Also, largely having no access to permanent wealth, they turned hard work into a virtue and accepted the value of industriousness promoted by their professors. Through this, the ability to bear the military discipline and hard work later on in life became a sign of manliness.[70] In addition, the elite southern masculinity emphasized the maintenance and defense of *individual* honor, challenges to which could lead to lethal duels. The regulations of VMI not only barred dueling, but also prohibited cadets from even insulting any fellow cadet for refusal to duel or fight. The elite masculinity contrasted with the cool and disciplined commitment to others and honor through service, self-sacrifice, and defense of others inculcated at VMI. Through this regulation, cadets had to subordinate themselves to others in order to act honorably.

*A White Manhood of Service*

Superintendent Francis Smith sought to discipline the cadets to embody a particular white manhood. Most importantly, this construction of manhood emphasized

70. Bertram Wyatt-Brown, *Southern Honor: Ethics and Behavior in the Old South* (New York: Oxford University Press, 1982), 152, 155-157, 162. Green, "'Stout Chaps Who Can Bear the Distress'," 175, 176, 179, 181, 183.

moral character, self-discipline, restraint, personal responsibility, obedience to authority, and industriousness. These characteristics themselves provided the cadets with the capacity to fulfill their obligations and perform the services required of them by, to some extent, providing the cadets with the ability to subordinate their personal interests to particular articulations of state and national interests. This service took the form of military service in defense of the United States, productive or useful work of engineering to improve the wealth of Virginia and the nation, and improving the education of Virginians by teaching in Virginia's schools.

**Conclusions**

The founders of VMI established the school in the context of intensifying east-west sectional tensions in Virginia, tensions produced by the inability of the growing western elite to achieve their political interests. The school, through participation in the arsenal guard, fulfilling post-graduation teaching requirements, and relatively low overall costs, provided the means for a small number of white boys to obtain access to education that their class status had generally denied to them. Embedded in the discipline of the school was a claim of the viability of genius and leadership among white men of the disenfranchised classes, a claim of a common white manhood as the guarantor of political participation. An expanded franchise would redistribute power so as to strengthen the west and, thereby, enable the western elites to achieve their political interests. The boys who left the school, however, would not leave as simply copies of the elite boys leaving the colleges. The school, while providing an argument for the equality of the boys coming from the lower classes, also provided a critique of the elite classes and the

colleges that served them. The school provided a *useful* education that prepared them for a role in internal improvements, as engineers and teachers. It thereby constituted an implicit, and at times explicit, critique of what it implied was the *useless* education in the colleges and even of the *uselessness* of their graduates and perhaps even of the planter elite itself, the class that dominated the legislature and the political life of Virginia. In so doing, the success of the cadets served to undermine the authority of the eastern elite.

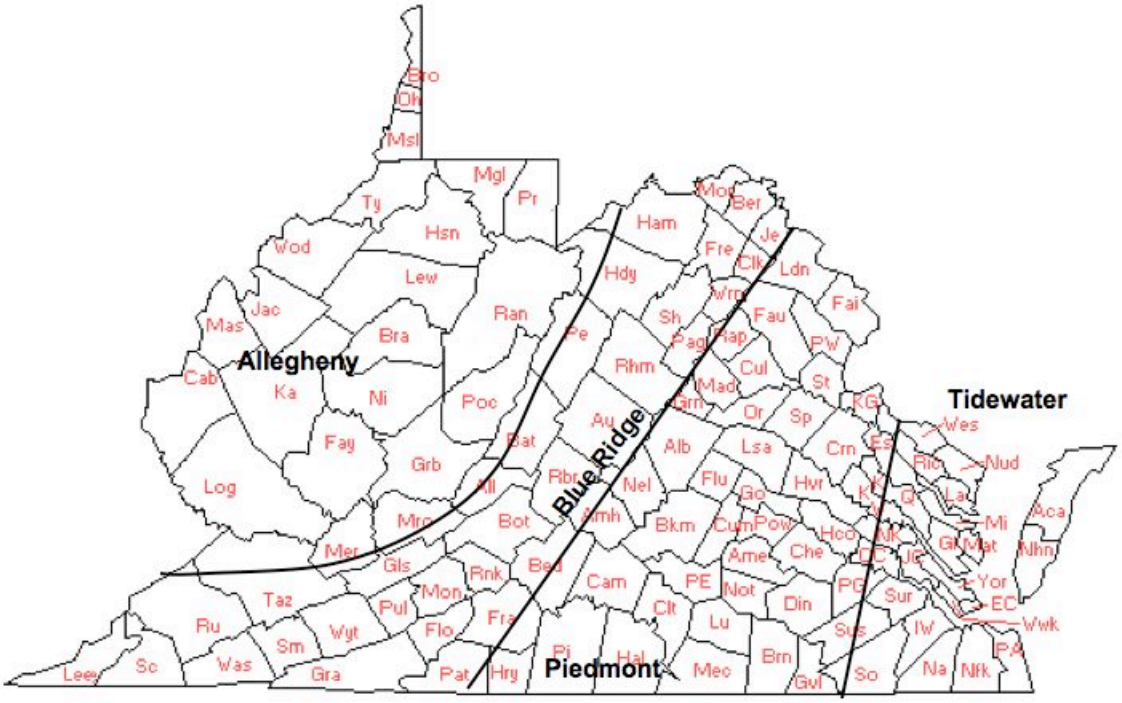
In order to make the above arguments, the officers of VMI, particularly the first Board of Visitors, led by Claudius Crozet, and Superintendent Smith, had to establish a new system of education, one using new criteria and practices by which to judge merit and worth. They, first, brought together a diverse body of white boys from across the commonwealth. While most of these boys came from the middling classes, they also come from the poor, as well as from the elite. They, in contrast to the republican philosophy held much of the eastern planter elite, then placed great emphasis upon rejecting distinctions of class, connections, or region among the boys, whether it bestowed privilege upon or prejudice against them. The military discipline and regulations served to suppress the markers of such distinctions. Moreover, the constant drilling and the inability of the cadets to take leave to return home produced a sense of unity amongst the cadets, a unity that transcended those distinctions. Having rejected and suppressed class and regional distinctions between cadets, the officers then established a new metric for evaluating merit. They adopted a system of objectifying, measuring, and cultivating individual moral and academic merit; a system that allowed the boys, regardless of their class status or family, to compete against one another on equal terms, distinguishing themselves only upon the basis of their individual merit and efforts; a

system to redefine virtue and authority in favor of the growing white population of the west.

If they succeeded in suppressing the local identities of the cadets, Smith and the other professors could then discipline the cadets to embody a particular type of white manhood. The regulations and discourse of the school, while it did not explicitly promote any particular Christian denomination, promoted evangelical morality. The morality, characterized by the restraint of lust and the cultivation of self-discipline, already experienced popularity within the middling classes that dominated the cadet body. This self-discipline and commitment to moral behavior served to demonstrate the superiority of the cadets and, therefore, of the basis of virtue claimed by the founders of VMI. Moreover, the self-discipline provided the basis for other values and commitments, particularly the commitment to service, especially service to Virginia and the nation. The cadets demonstrated this service in very real ways, including guarding the arsenal, serving as *native* teachers in Virginia's schools, serving in the military, and, after graduation, through their work on internal improvements. But this enactment of service required other character traits, traits built upon the self-discipline of the cadets, including industry, punctuality, subordination to authority, and thrift. Rather than working simply to produce or maintain personal wealth and rather than producing wealth through mastery over others, the cadets were to commit themselves to *productive* or *industrious* work that cultivated the human and natural resources and infrastructure of the commonwealth and nation and, therefore, served the commonwealth and nation, as well as their citizens. This commitment also required the subordination of personal interests to those of Virginia, the nation, and their fellow citizens. Embedded in the disciplinary practices of

school and, therefore, a feature of the engineering culture, was the model of an engineer as a particular type of white man, one who demonstrated the self-restraint and self-discipline necessary to carry out the work of an engineer. The purpose of engineering, in that engineering culture was to serve one's state and nation, rather than just one's own financial interests, through civil engineering.

**Figure 4.1: Constitutional Divisions of Virginia**




Approximate divisions drawn over county boundaries based on the 1840 census.

## Figure 4.2: First-Class Merit Roll[71]

MERIT ROLL.—*First Class.*

| General merit. | NAMES. | COUNTIES. | Conduct. | Engineering. | Tactics. | Chemistry. | English. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | H. T. Lee, - | Frederick, - | 300 | 300 | 198 | 100 | 100 | 998 | Assistant professor of languages. |
| * 2 | J. B. Sherrard, - | Hampshire, - | 300 | 300 | 200 | 97.5 | 97.5 | 995 | Captain. |
| 3 | H. B. Hill, - | Buckingham, - | 300 | 297 | 198 | 97.5 | 99 | 991.5 | Assistant professor of languages. |
| 4 | D. A. Langhorne, | Campbell, - | 297 | 300 | 196 | 98.7 | 98 | 989.7 | Lieutenant. |
| 5 | Caleb Boggess, - | Harrison, - | 300 | 300 | 194 | 98.5 | 97 | 989.5 | Quartermaster. |
| 5 | R. T. W. Duke, - | Albemarle, - | 295 | 300 | 196 | 96.5 | 100 | 987.5 | Assistant professor of mathematics. |
| 6 | R. H. Simpson, - | Warren, - | 300 | 297 | 192 | 99.5 | 99 | 987.5 | |
| 8 | W. H. Wheelwright, | Westmoreland, | 300 | 297 | 192 | 95.5 | 99 | 983.5 | Lieutenant. |
| 9 | W. H. Baker, - | Frederick, - | 290 | 297 | 192 | 96 | 97 | 972 | Lieutenant. |
| 10 | H. W. Williamson, | Norfolk, - | 288 | 294 | 196 | 97 | 91 | 966 | Lieutenant. |
| 11 | J. B. Moorman, - | Pendleton, - | 300 | 291 | 187 | 92 | 90 | 960 | |
| 12 | W. H. Harrison, - | Richmond City, | 280 | 294 | 188 | 77 | 96.5 | 955.5 | |
| 13 | V. T. Churchman, | Augusta, - | 293 | 285 | 186 | 95 | 92 | 951 | |
| 14 | W. H. Stith, - | Richmond City, | 291 | 282 | 184 | 97 | 95 | 949 | |
| 15 | R. M. Wiley, - | Botetourt, - | 294 | 288 | 182 | 86.5 | 98 | 948.5 | |
| 16 | J. R. Cabell, - | Pittsylvania, - | 300 | 273 | 185 | 94 | 96 | 948 | |
| 17 | J. P. Mason, - | Rappahannock, | 294 | 270 | 194 | 91 | 93 | 942 | Adjutant. |
| 18 | A. H. Powell, - | Brunswick, - | 267.5 | 288 | 192 | 93.5 | 98 | 939 | Lieutenant. |
| 19 | R. L. Walker, - | Albemarle, - | 276 | 288 | 190 | 87.5 | 97 | 938.5 | Lieutenant. |
| 20 | E. M. Anthony, - | Botetourt, - | 273.5 | 279 | 183 | 95 | 100 | 930.5 | |

71. "Semi-Annual Report of the Superintendent of the Virginia Military Institute, Together with Accompanying Documents," Doc. No. 28, *Journals of the House of Delegates*, 1845, 11.

# CHAPTER FIVE

## A "PRACTICAL" ENGINEERING CURRICULUM, 1839-1851

Having chosen education as a strategy by which to assert the equality of white men, the officers of the Virginia Military Institute had to then legitimate the engineering and military school within a field of higher education dominated by the liberal colleges that served the sons of the planter elite. The officers of VMI did this in several, sometimes conflicting, ways. They expressed a variety of views regarding liberal education, but some of them, especially Superintendent Francis Smith, went beyond legitimating VMI as one viable mode of higher education. They also criticized liberal education and argued, in fact, for the superiority of VMI. They did this by creating a binary opposition between the "practical" or "useful" education of VMI and what was, by contrast, the impractical or useless education of the liberal colleges. VMI could not and would not compete with them through traditional curriculum and pedagogy, so Smith and others criticized that curriculum and pedagogy and adopted new standards, those that VMI met.

The curriculum and pedagogy employed at VMI reflected the unique mission and student body of the school. The Board and Superintendent had to adopt lower standards of admission than the colleges in order to accept the poorly educated boys for whom the school was established. Consequently, the school had to provide some remedial training to enable the cadets to succeed in the core curriculum of mathematics and engineering. Moreover, the cadets required some basic training in liberal courses to enable them to fulfill their service as teachers for the commonwealth. But, while the Board and Smith

set lower standards of admission, they established higher standards of testing, which they made public in order to legitimate the school before a broader audience.

The Board built the curriculum around a core focus on engineering, thus providing the graduates of the school with a practical training that would enable them, lacking the inheritances and land to guarantee wealth, to pursue careers. But, unlike most engineers in the United States, they received a substantially theoretical and mathematical training to provide them with a more universal knowledge of engineering principles applicable to any situation in which the graduates would find themselves. As part of this training, the cadets received what was probably the most extensive mathematical training available in the United States outside of West Point. Moreover, their scientific training eventually equaled, if not rivaled, that of most colleges. But rather than pointing to this training to argue for the superiority of VMI graduates over other engineers, the officers of VMI, instead, emphasized the practicality and thoroughness of the training as indicative of the superiority of VMI's mode of education over that of the liberal colleges. Nonetheless, the school's officers saw the "practical" theoretical training as enabling the cadets to enter quickly into the role of middle-class managers and leaders of engineering projects, rather than working their way up from labor positions, as did so many craft-trained engineers. In short, this training would enable VMI graduates to become, like their peers from West Point and the *École Polytechnique*, an elite among engineers.

**A Distinct and Superior Institution**

The framers of the Virginia Military Institute, including Superintendent Francis Smith and Professor John Preston saw the school as offering something distinct from that

which came before. Indeed, Preston and other early advocates for the school intended it to serve a distinct population from that served by traditional colleges. VMI would provide an education to those boys who previously had little or no chance of obtaining one. But besides arguing for providing education to a distinct population, the officers also argued that VMI provided a new form of education. This argument served to settle fears that the new state-funded institution competed with the private colleges of Virginia. These arguments, however, often contained a suggestion of the superiority of VMI as well.

At the request of Governor James McDowell in 1838, John Preston gave the school its name, which he crafted to emphasize the distinctiveness of the institution, explaining:

> Virginia -- as a state Institution, neither sectional nor denominational.
> Military -- indicating its characteristic feature.
> Institute -- as something different from either College or University.[1]

Preston justified the use of "Institute" as a means of immediately distinguishing, even for those who knew nothing about the school except for its name, the school from colleges. The Rensselaer Institute, for example, provided first an agricultural and then an engineering training rather than the liberal education of a college. Institute suggested a specialized purpose for the school, though the name did not necessarily suggest what. Even though the name did not make clear the emphasis on engineering education, it did make clear the distinct military discipline under which students lived.

---

1. Col. J. T. L. Preston. Historical Sketch of the Establishment and Organization of the Virginia Military Institute, Prepared at the Request of the Board of Visitors. 4 July 1889. MS#240 (facsimile), Virginia Military Institute Archives, Lexington, VA, 12. Emphasis in original.

Addressing the Corps at the beginning of the 1856 academic year, Superintendent Smith reflected on the beginnings and impact of VMI, saying, "It at once broke in upon the established systems of college education as they had come down from the monastic institutions of Europe."[2] He, here, distinguished the approach of VMI from that of the liberal colleges, which he aligned with medieval traditions of cloistered scholars far removed from the practical considerations of life. Continuing on, he explained

> [VMI] placed the terms of admission so low as to admit talent from any and every quarter; and yet high enough to meet the usual demands of the colleges, saving in *Greek* and *Latin*. It omitted *Greek*, as more properly belonging to theological institutions. It retained *Latin* to meet the necessities of those who might be called to teach, and because of its great value as an auxiliary in the study of the English language. It substituted *French* as the language of science, and opened wide the field of scientific culture, theoretic as well as practical.[3]

Here, Smith, identified VMI with science, rather than the classics that dominated the colleges of the elite. He, however, asserted the equality of the institution with the colleges. VMI did not omit the classics as a sign of inferiority, but rather because of the school's emphasis on practical scientific training. He reduced even the Latin training that remained to a practical training meant to serve those graduates who went on to teach in academies that normally offered Latin.

Despite their emphasis on the distinctiveness of VMI, both Smith and Preston also emphasized the need for amity between their new form of education and the old, represented by Washington College, which sat adjacent to VMI and shared board members with VMI. Preston, an alum of Washington College, stated

---

2. Francis H. Smith, *Introductory Address to the Corps of Cadets of the Virginia Military Institute, on the Resumption of Academic Duties* (Richmond: MacFarlane & Fergusson, 1856), 10-11.

3. Ibid., 11.

> I think I may say that the general controlling purpose of the Board was to furnish to its graduates for their personal benefit, and for the advantage of Virginia, an education which, *while not antagonizing the established system of classical education*, should have a direct bearing upon what, for want of a more distinctive term, may be designated the practical pursuits of life.[4]

VMI would, again in contrast to the liberal colleges, emphasize a practical education to serve graduates in their pursuits of careers. But Preston also suggested that this new system should coexist with the old.

Thirty-three years earlier, Smith spoke similarly, requesting, "Let both exist together, that the wants of all may be supplied."[5] Moreover, the Board argued to the Governor in 1845

> Neither are they [members of the Board of Visitors] actuated by the vain ambition of building up a rival institution to any now existing. The peculiarity of the system of discipline and instruction, and the mode of selecting cadets can make it justly a rival to none, except so far as the peculiar system makes it preferable to those now existing.[6]
>
> This desire on the part of the people has been met by a corresponding spirit on the part of the board, who are desirous to extend the benefits of its peculiar instruction to the greatest number, and yet we cannot receive all who would come.[7]

The Board unambiguously stated the distinctiveness of VMI in regards to instruction, discipline, and the intended population of students. That distinctiveness, they argued, precluded any possibility of the state-funded school creating conflict or competition with

---

4. Preston. Historical Sketch, 19. Emphasis added.

5. Smith, *Introductory Address to the Corps of Cadets of the Virginia Military Institute*, 20.

6. 4 July 1846, 1845 Board of Visitors Report to the Governor, v. 2 Board of Visitors Minutes, 1839-1853, Virginia Military Institute Archives, Lexington, VA, 160.

7. Ibid., 159.

private liberal colleges. They did, however, indicate an exception to this; the distinctiveness of VMI may in fact have made it superior to the colleges. The fact that the school received more suitable applicants than they could accommodate served as proof of this superiority to the officers of VMI.

We might assume that the above moderating statements might reflect simply the recognition of the school's precarious financial dependence upon a legislature controlled by the very people any criticisms might antagonize. At least some officers of the school, however, genuinely respected liberal education. Board member General William Richardson, for example, wanted his son to attend VMI, but worried that he would not learn sufficient Latin and Greek.[8] Preston, who had originally envisioned a limited classical education combined with military training, expressed some frustration, as the Professor of Languages, at the relative neglect of the Latin training of the cadets. Besides not providing a sufficiently long training, he perceived that, because it did not receive the priority of the other courses, some irregularity in the Latin recitation schedule developed, hindering the progress of the cadets.[9]

*Pedagogy and a Critique of Liberal Education*

Along with the distinctive military discipline and curriculum of VMI, the Board of Visitors and Superintendent Francis Smith established pedagogical practices distinct

8. William Richardson to Francis Smith, 7 September 1840, letter 1840 024, Superintendent (Francis H. Smith) Correspondence, Incoming Numbered Letters Series (1839-1844), Virginia Military Institute Archives, Lexington, VA.

9. Prof. J.T.L. Preston, 13 June 1844, 1 July 1847, undated [1848?], Report of the Professor of Languages, Faculty and Departmental Reports, 1843-1844, Virginia Military Institute Archives, Lexington, VA.

from those of most colleges. They drew many of these practices from their experiences with West Point, the school that, for them, set the standard for higher education. Smith, in particular, contrasted these practices with those of the colleges as a criticism of elite liberal education in order to argue for the superiority of VMI and, therefore VMI graduates. The use of annual public examinations also served to show off the cadets and legitimate the school to the public of Virginia.

VMI professors employed several pedagogical strategies, including recitations and the use of blackboards, which was innovative at the time, while minimizing the use of lectures, which Smith saw as ineffective and a waste of a student's time. Smith, below, described the general classroom routine employed at VMI.

> Each class is divided into sections of 10 or 12 cadets each, which recites daily on each subject, the object of the instructor being to give every cadet an examination by the lesson of each day. The instructor keeps a daily record of the recitation of each cadet, giving three to a *perfect* recitation, and a lower mark proportionate to the character of the recitation. A weekly report of the recitations is made to the superintendent every Saturday, an abstract from which is recorded, and the total of each cadet's and weekly marks forms an element in his standing at the examination. The recitations are oral, and consist in demonstrations from the *blackboard*, and rigid catechetical instruction. Two public examinations are held each year – one in January, the other in the presence of the visitors in July.[10]

As with behavior, the instructors quantified the daily learning of the students as a contribution to their overall numerical standing at the end of each year. In order to do this, the professors had to emphasize constant student participation during class and intimacy between students and professors, neither of which lectures made possible.

---

10. 6 January 1845, Superintendent's Semi-Annual Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA, 7.

Smith advocated the employment of small class sizes in general, in any kind of school. Moreover, he advocated organizing them into groups of comparable ability in any particular subject.[11] At Harvard, on the other hand, students entered into classes based on their date of entry and by alphabetical order.[12] Under Smith's organization, the students could advance as rapidly as suitable to their backgrounds and talents, rather than having any individual delayed in his progress by the slower pace of learning of his fellow cadets.

Recitations, employed to some extent at most colleges as well, generally involved either reciting memorized passages from required reading or the replication of the solutions to mathematical problems as demonstrated in a textbook. The professor or assistant professor would continually quiz the students on their performance, in order to gauge their understanding or draw out a greater depth of explanation for the benefit of the rest of the class. Some educators, however, had begun to criticize the recitation method in the years prior to the opening of VMI. For example, Harvard Professor, George Ticknor, influenced by his experiences in German universities, sought to reform Harvard in the 1820s, making it more practical and career oriented, as well as reforming the pedagogy. Interestingly, he, like Smith, saw West Point as superior to Harvard in the rigor of its examinations. However, he also saw recitations as largely a waste of time, requiring the professor's entire attention just to determine if the students had done the

11. Francis H. Smith, *The Regulations of Military Instructions, Applied to the Conduct of Common Schools* (New York: John Wiley, 1849), 15.

12. Frederick Rudolph, *The American College and University: A History* (1962; reprint, with an introductory essay and supplemental bibliography by John R. Thelin, Athens: University of Georgia Press, 1990), 119.

assigned reading. But others, including an 1828 Yale commission, defended the use of recitations.[13]

Smith saw the time-intensiveness of recitations, not as a liability, but as the means of insuring the thorough education of the cadets prior to their examinations, preventing unnecessary failures. But to avoid employing all of a professor's time with this, the Board established assistant instructors, as Smith described later.

> The principle guiding the Board of Visitors in making this provision for assistant instructors was, by enabling the Superintendent to divide the classes into *small sections*, to ensure *thoroughness* in the instruction, by the *daily drill* of each cadet on the appointed lesson. This is an important principle, and has contributed, in a great degree, to the efficiency of the graduates of the Institute, in their professional pursuits, particularly in the work soon to be given them by law as teachers. It was steadily adhered to over forty years; and every departure from it has uniformly tended to dilute the instruction, and to increase the number of deficient cadets.[14]

Smith's evaluation of the success of recitations, however, requires reference to his goal. Not only did he want to prepare the cadets to succeed at their semi-annual and annual examinations, but also to provide a means of producing a quantitative evaluation of the cadets and their learning, allowing for a ranking of cadets according to their individual merit.[15]

Lectures, unlike recitations, could not provide any means by which the professor could evaluate students. Criticizing the widespread employment of lectures, as well as lack of discipline of attendance, in colleges, Smith wrote

---

13. Rudolph, *The American College and University*, 118-120, 134.

14. Major-General Francis H. Smith, LL. D., Superintendent, *The Virginia Military Institute: Its Building and Rebuilding* (Lynchburg, VA: J. P. Bell Company, 1912), 67. Emphasis in original.

15. Smith, *The Regulations of Military Instructions,* 17.

> *The mode of instruction* [in colleges] is in part by recitation, in part by lectures; but as attendance upon the class-room is not always imperative upon the student, the actual number of recitations of a student in any one subject is often less than one a week. [illegible] Deficiency in studies may subject a student to a second examination, or deprive him of his diploma; but neglect of studies or want of capacity will not exclude him from the privileges of the college, provided he conform to college laws and pay the college fees. No classification is made of the student in order of merit, except to specify those who deserve 'honors' of the class...[16]

Smith's use of scare-quotes around "honors," in the last sentence, may indicate his skepticism of the capacity of lecturers to evaluate the merit of their students. Also, the vagueness of evaluation and the passiveness of students during lectures did not provide much incentive to the students to either attend classes or to excel.

Smith did not see VMI and West Point as superior to just the colleges of America, he also argued that the system of small recitations made West Point superior to even the "scientific schools of Europe."[17] Theses schools included the *École Polytechnique*, which Smith admired so greatly. So Smith made a very strong statement here in claiming the superiority of the methods of VMI to even one of the schools that provided the model for VMI itself.

The VMI professors also employed another of these superior West Point innovations that we now take for granted:

> The requirement that each member of the section shall demonstrate fully the subject assigned him at the black board, --giving as he proceeds detailed explanations of the various steps with the reasons for the operation on the board, as boys sometimes work

---

16. Francis H. Smith, *College Reform* (Philadelphia: Thomas, Cowperthwait & Co., 1851), 16-17. Emphasis in original.

17. Smith, *Introductory Address to the Corps of Cadets of the Virginia Military Institute,* 16. First quote italicized in original.

> what they call 'sums,' on their slates – the instructor being satisfied, if the answer be correct.[18]

Crozet employed this method himself while a professor at West Point. Initially, West Point cadets worked the blackboard as part of their recitation examinations, but professors also picked up the practice as a means of demonstration, perhaps the earliest regular employment of this method in the United States.[19] Smith identified the following advantages to student use of the board during recitation: the student gained self-confidence by having to explain his knowledge to others, it provided a good review for both the class and the student at board, and it provided an opportunity for the instructor to quiz the student as he worked at the board.[20] Thus, it not only enabled the instructor to evaluate the student, but also helped to develop his character, in this case, cultivating confidence in one's knowledge.

In order to maximize the use of class time for evaluation, rather than instruction, VMI cadets relied heavily on their textbooks to learn new material. While Ticknor of Harvard criticized recitations as a waste of the professor's time, Smith saw lectures as a waste of students' time. Instead, "Lessons should as far as practicable be *learned from the text-book*, and each student thoroughly examined each day upon the lessons of the day."[21] This freed all class time for examination of cadets and clarification of the material.

---

18. Ibid., 16. First quote italicized in original.

19. George S. Pappas, *To the Point: The United States Military Academy, 1802-1902* (Westport, CT: Praeger, 1993), 32, 41.

20. Smith, *The Regulations of Military Instructions,* 13-15.

21. Smith, *College Reform*, 28-29. Emphasis in original.

The annual final exam conducted in the presence of the Board of Visitors, the public, and invited guests provided the crucial evaluation of both the cadets and the professors charged with their education. Their results on this exam, combined with their daily recitation scores and demerits for behavior, determined their relative standing. Of the exam process, Smith said

> The examination being an important element in the standing, should be as thorough as possible, and *viva voce*, all the members of the board of trustees being present at the one which fixes the merit for the year. There is much to recommend the *viva voce* system of examination. It gives interest to the occasion, imparts confidence to the student, and stimulates to exertion. No one with proper pride would like to stand up before a board of intelligent gentlemen, and fail to answer the questions proposed to him. Such an examination gives the board of trustees an opportunity to judge not only of the progress of the class, but of the competency and fidelity of the professor.[22]

Consequently, the exam provided an evaluation – a public evaluation – of both the cadets and the institution.

The public took great interest in the final examinations. Although routinely invited, few governors attended, with Governor James McDowell's presence in 1843 an early exception, though not a surprising one, given his home in Rockbridge County.[23] Many local residents, including newspaper owners, did, however, regularly attend. Also, the entire faculty of Washington College attended at least the first examination. Smith, describing Board President Claudius Crozet's questioning of the students at that first

---

22. Ibid., 31.

23. Governor John M. Gregory to Francis Smith, 22 May 1841, letter 1841 016; Governor David Campbell to Francis Smith, 17 June 1844, letter 1844 011, Superintendent (Francis H. Smith) Correspondence, Incoming, Numbered Letter Series, 1839-1844, Virginia Military Institute Archives, Lexington, VA. "Commencement Week," *Lexington Gazette* 4, n. 47, 6 July 1843, 2.

examination, wrote, "[H]is questions were rigid, close, but clear, and were readily apprehended by the class." Moreover,

> When this was completed a murmur of satisfaction passed through the crowd of spectators. It was obvious that the examination was no 'made up' affair; and on that day the Virginia Military Institute earned for itself the title, which it has ever since proudly borne, of the West Point of the South. This was secured as well by the discipline enforced as by the severe ordeal of the examinations.[24]

The examinations satisfied Smith that the professors and cadets had met his West Point standards for education and that they had satisfactorily demonstrated the legitimacy of the school to the public.

The *Lexington Gazette*, which routinely reported on the examinations and commencements of VMI, as well as the Ann Smith Academy and Washington College, offered similar assessments. It described the 1842 examination as "thorough and rigid, and it is universally conceded that the young gentlemen have thus far acquitted themselves with the highest honor." Moreover, it provided evidence that VMI was

> …a school which with the encouragement it deserves from the Legislature will soon be equal in every respect to the United States Military Academy at West Point, a school which is destined to confer the greatest blessings upon Virginia, in sending forth accomplished soldiers to impart skill and discipline, and a military spirit to her militia, and in giving to her common schools gentlemen who are educated and capable to instruct the youth of our State.[25]

Thus, Smith may have correctly read the impact of the examinations on the public. Even the newspaper that had challenged the founding of VMI conceded the close comparison of the quality of the school with the West Point. Thus, Smith and the Board appear to have succeeded in employing public examinations to legitimate the school, the cadets,

---

24. Smith, *The Virginia Military Institute*, 63-64.

25. "Virginia Military Institute," *Lexington Gazette* 3, n. 47, 7 July 1842, 2.

and their pedagogy. It was absolutely necessary to do so if the cadets were, as described in the previous chapters, to serve as an argument against the authority and power of the eastern planters.

*Creating the "West Point of the South"*

The Board of Visitors and professors of VMI modeled the curriculum after that of West Point, but modified it somewhat to lessen the emphasis on military arts and, instead, emphasized civil and military engineering. But they also repeatedly expanded the offerings and even added an additional year in order to better meet West Point standards and increase the scientific courses to support the core engineering training. For Smith, this was necessary to establish an institution of sufficient prestige to challenge the authority of the liberal colleges.

Smith had ambitious plans to truly build VMI into the "West Point of the South." He had claimed initial misgivings about taking the position as Superintendent and told Preston "that I had some ambition and that with the education I had received at West Point, I could not feel satisfied to anchor myself at the simple work of teaching a few young men, say 20, or at most 40."[26] However, given the substantial employment of the West Point system and the permission to admit some pay cadets, he felt that the school had promise, even if Professor John Preston, and Board President Claudius Crozet, and the others did not appear to him to have a vision of an expanding Institute.[27] And it did

26. Francis H. Smith, 1886 "Report of Superintendent," *Report of Board of Directors*, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA, 7.

27. Ibid., 7.

grow, with the Board and legislature approving the addition of a fourth year of study and the right to confer a degree, "Graduate of the Virginia Military Institute," in 1845, something advocated by Smith and the Board since at least 1842.[28]

The first VMI cadets entered into a three-year curriculum consisting of the following:

> 1st. *Infantry Tactics and Military Police:* According to the system established for the government of the Army of the United States.
> 2d. *Mathematics:* Algebra, Geometry, Trigonometry, Mensuration, Descriptive Geometry, Analytical Geometry, Differential Calculus.
> 3d. *English Language and Literature*, and *the French and German Languages*.
> 4th. *Drawing:* Topography and Architectural Drawing.
> 5th. *Natural and Experimental Philosophy, Astronomy, Chemistry, Mineralogy and Geology*.
> 6th. *Science and Practice of Artillery*.
> 7th. *Civil and Military Engineering*.[29]

This first group of cadets entered in as the "third class," then, the following year, entering the "second class" and then "first class" in their final year.[30] This curriculum, however, was insufficient for Smith's vision for the school.

Smith advocated expanding the course offerings at VMI from nearly the beginning. In the earliest years, the cadets studied chemistry at Washington College, while the college students could and did participate in military drills at VMI. Smith,

---

28. 8 July 1845, Board of Visitor Minutes, vol. 02 1839-1853, Virginia Military Institute Archives, Lexington, VA, 95. Francis H. Smith, 1842 Superintendent's Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA, 8. Francis H. Smith, 1845 Semi-Annual Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA, 7.

29. *Regulations of the Virginia Military Institute at Lexington* (Richmond: Shepherd & Colin, 1839), 10.

30. Ibid., 11.

unhappy at having a subject so important as natural philosophy taught at another school, stated, "Considering the importance of the physical sciences I cannot hesitate to recommend to the Board the propriety of securing at the earliest day possible the service of a Professor in this department," succeeded in establishing a new professorship in Natural Philosophy in 1845, though the new professor did not arrive until 1846.[31]

The VMI course and the changes to it also resulted from an ongoing struggle by Smith and other professors to more firmly emulate part of the West Point course, which, in the year Smith graduated, included the following:

> 1st, Infantry Tactics, and Military Police; 2d, Mathematics; 3d, The French Language; 4th, Drawing; 5th, Natural Philosophy; 6th, Chemistry and Mineralogy; 7th, Artillery Tactics, the Science of Gunnery, and the duties of Military Laboratory; 8th, Engineering and Science of War; 9th, Rhetoric and Moral and Political Science; and 10th, The use of the Sword.[32]

The VMI course initially included much of the above, but in a less thorough form, including in both natural philosophy and the military courses. VMI, instead, emphasized civil and military engineering. The Board of VMI also added additional language training beyond French, first in German and then in Latin. Professor of Engineering Thomas Williamson, however, proposed in 1848, to "increase" the engineering course to

---

31. Francis H. Smith, 1842 Superintendent's Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA, 7-8. Francis H. Smith, 1845 Semi-Annual Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA, 7. Colonel William Couper, *One Hundred Years at V. M. I.*, v. 1 (Richmond: Garrett and Massie, 1939), 157-158.

32. Report of the Board of Visitors of the Military Academy, 1833, Annual Report of the Board of Visitors (1819 to 2002), United States Military Academy Special Collections and Archives, West Point, NY, 1.

make it as much like West Point as possible.[33] Indeed, the curriculum did grow to more closely emulate West Point's scientific and engineering course. As part of this, after expanding to a four-year program, VMI provided its own course in chemistry and no longer relied upon Washington College for the course. In 1851, VMI added a course in Geology and Mineralogy, the knowledge of which would, among other things, aid in the construction of tunnels and the exploitation of Virginia's natural resources (Table 5.1).

In contrast to both VMI and West Point, Washington College offered the following classical course by 1842:

> *Classics*: Four years of Greek and Latin
> *Mathematics* (1st and 2nd year): Algebra, geometry, some trigonometry, and analytical geometry, as well as some surveying and navigational mathematics.
> *Physical Sciences* (3rd year): chemistry, electricity and magnetism, mechanics, optics, astronomy, botany, mineralogy, geology
> *Rhetoric* (4th year): "philosophical grammar", logic, rhetoric and criticism, elocution, history, and composition
> *Ethics* (4th year): mental philosophy, moral and political philosophy, US constitution and state law, political economy, and "The Evidences of Christianity, or Natural Theology"[34]

Students had the option of supplementing their liberal education with additional courses in calculus and civil engineering,[35] but, almost certainly, at VMI as part of the course exchange agreement between the two schools. I have, however, seen no evidence that any students pursued this option.

---

33. Thomas H. Williamson, 21 June 1848, Report of the Professor of Engineering, Faculty and Departmental Reports, 1843-1844, Virginia Military Institute Archives, Lexington, VA.

34. 30 January 1842, Board of Trustees Minutes, January 11, 1815 - October 1844, Special Collections, Washington and Lee University, Lexington, VA, 172-173.

35. Ibid., 173.

Washington College, perhaps out of desperation for students and money or to compete with VMI, also began offering additional one- and two-year courses that, like the curriculum of VMI, emphasized practicality. They offered a two-year agricultural course "... designed to qualify young men to become intelligent farmers [and] men of business." This course consisted of one year of math and rhetoric and a second year of physical sciences and ethics. The College also offered a one- or two-year normal course, consisting of one year of math, rhetoric, and, "other auxiliary studies, specially aiming to make the student accurately acquainted with the English Language," and one year of physical sciences, ethics, grammar, and composition, with the option of studying French at VMI. Besides these, they also offered a course for students who wanted to attend Washington College, but wanted to take the VMI course.[36] It included

> the regular mathematical course, in connection with the Rhetorical course the first year, and with the Physical sciences the second year. The third year will be occupied with the extra mathematics civil and military engineering (including Fortification and Gunnery) filling up spare time through the whole course with other branches of science and modern languages. They will also attend the exercises in tactics at the Military Institute, where the Military part of their studies will be pursued under the Cincinati Professor[37].

Despite efforts by the board of Washington College to draw upon VMI as a means of expanding its own curriculum and student body, the two schools offered very different courses. But, besides its liberal focus, Washington College did offer some training in the physical sciences, upon which VMI cadets relied for several years, and substantial mathematics, though not as thoroughly as VMI. VMI, on the other hand, employed the mathematics and science courses as a means of supporting the core engineering course.

---

36. Ibid., 173-174. Emphasis in original.

37. Ibid., 174.

VMI was neither established to nor likely capable of challenging the prestige and authority of the liberal colleges by employing a liberal curriculum. Nonetheless, upon entering into the field of higher education, the officers of VMI did have to contend with those schools. The officers attempted to challenge them by establishing both new pedagogical practices and a new curriculum that built off of the existing strengths of VMI, including its emphasis on providing a practical training for boys from lower classes. But merely establishing an alternative was not sufficient; Smith had to craft VMI into a prestigious institution that could *prove* its superiority to the liberal colleges in terms of shaping the morals of its graduates (discussed in chapter four) and by creating more competent graduates. Smith attempted to demonstrate the later through the public examination of the cadets and by building a robust curriculum. While observers of the examinations may not have accepted VMI as superior, the exams at least generated respect for VMI as a legitimate institution of higher education.

**A Curriculum to Overcome the Barriers of Poverty**

The constant expansion of VMI's curriculum enabled the school to offer increased remedial training to a body of students that, because of lesser wealth, entered the school with a poorer educational background than did students of liberal colleges and, as a result often experienced increased difficulties as they progressed through the curriculum, sometimes even failing as a result of inadequate preparation. By changing the curriculum to reflect the particular needs of the students, VMI officers attempted to better fulfill its mission of eliminating poverty as an artificial barrier to the expression of individual merit and better equipped the cadets to succeed in their classes. The school,

also changed in order to adapt to the new requirements of teaching service placed upon them by the legislature.

The earliest curriculum offered by VMI, as well as subsequent changes to it, accommodated the relative deficiencies of the cadets, compared to those entering the liberal colleges. Of the cadets who undertook this curriculum, Preston said

> They are for the most part young men who have never studied any of the subjects taught at the Institute, and whose minds have not been trained by previous education. As soon as they enter, they are put upon a very trying course of Mathematics, are required to learn two languages, each entirely new, and after January spend two hours every other day in Drawing - add to this occasional exercises in Composition [and] Declamation. So as all this, as it ought to be done, requires uncommon capacity or uncommon diligence.[38]

Any difficulties experienced by the corps as a whole did not reflect any lesser overall merit compared with the students of the colleges. Instead, it reflected the extraordinary conditions of trying to both make up for a lifetime of educational deprivation and to provide a thorough higher education in the span of only three years.

The Board added the fourth year partially in response to this inadequate prior training of the cadets.

> This has been done by introducing into the first year the study of the elementary branches of an English education. The appointment of State Cadets being made from that class of our citizens whose means deny them the opportunity of obtaining a liberal education, it has been found that many such enter whose attainments are so limited as greatly to embarrass and prejudice them in their subsequent course. The board have felt it to be their duty to suit the instruction to the wants of this class, and they have no doubt the result will be beneficial in saving from discharge many who come unprepared, and in providing better teachers for the common schools.[39]

---

38. Prof. J.T.L. Preston, 13 June 1844, Report of the Professor of Languages [and] of the Progress of the Classes Under His Instruction, Faculty and Departmental Reports, 1843-1844, Virginia Military Institute Archives, Lexington, VA.

Again, the failure of some cadets had come from a lack of prior preparation as a result of their poverty, rather than from their innate merit. The addition of another year, therefore, made up for this and, just as VMI was supposed to do by providing any education at all, served to further limit the effects of poverty as an artificial barrier to the expression of merit.

Most of the English and language course served largely as a remedial education for poorly prepared state cadets who had to teach in Virginia schools for two years after graduation. The standards of education set by the liberal colleges of the elite emphasized the study of classics, including Latin, as well as English literature and rhetoric. And the academies that would hire the cadets as teachers expected them to teach the basics of these subjects. This began with a course in "Rhetoric, English Literature" for the "First Class" or final-year cadets, but, beginning in 1845, included an additional course for the "Fourth Class" or first-year cadets. This later course came with the addition of English grammar, composition, and geography and then history in 1846.[40]

The initial language course also included French and German, but the Board replaced German with Latin in 1842 after the legislature added the requirement that state cadets teach in a Virginia school for two years after graduation. Superintendent Francis Smith recommended this change, finding

German requires more time than the Cadets can advantageously spare for

---

39. 1845 Board of Visitors Report to Governor, Board of Visitor Minutes, vol. 02 1839-1853, Virginia Military Institute Archives, Lexington, VA, 158.

40. Register of the Officers and Cadets of the Virginia Military Institute, Lexington, VA., 1843, 1844, 1845, 1846, 1848, 1849, 1850, 1851, Publications Catalog, 1840-1864, Virginia Military Institute Archives, Lexington, VA. Francis H. Smith, 1845 Superintendent's Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA, 7.

> it from studies which are more important. Latin is substituted as called for by the recent law which requires our graduates to teach two years. While Latin is made a part of the course in our common schools, it may be the duty of the Board to prepare the Cadets for the services which have been prescribed for them. Further, our entire neglect of Latin has been a ground of objection to the Institute in the minds of some, which however erroneous, cannot in the infancy of the school and at the present day be utterly disregarded. Major Preston is fully qualified to teach the Latin course, and will take pleasure in embracing it in his regular duties.[41]

Despite the apparent enthusiasm of some, including John Preston, for Latin, Smith appears to have advocated its teaching for the purely practical reason of fulfilling the cadet obligation to teach in Virginia schools for two years, an obligation that required teaching at least the rudiments of Latin. Though later advocating "its great value as an auxiliary in the study of the English language,"[42] Smith does not appear to have initially seen any particular value in Latin itself, though even West Point included some basic instruction in both Latin and Greek, at least for some time around 1815. But even West Point adopted this instruction only to improve the school's academic reputation in a period in which elite education emphasized classics.[43]

John Preston, as Professor of Languages, enthusiastically adopted the responsibility for teaching Latin. He complained, however, that they could not even prepare the cadets for their minimal obligation of teaching the basics of Latin.

> It must be evident that the short time allowed in our course in Latin, is not sufficient. The plan of study adopted by the Board is not intended to embrace a course of Latin as extensive as that pursued at most colleges, but it is intended to impart at least such knowledge of the languages as

---

41. F. H. Smith, 1842, Superintendent's Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA, 10.

42. Smith, *Introductory Address to the Corps of Cadets of the Virginia Military Institute,* 11.

43. Pappas, *To the Point*, 77.

> may enable those who are to be teachers of common schools to undertake the instruction of beginners. I think that this may be accomplished, even for those who have had no previous advantages, by one years' uninterrupted study.[44]

He hoped, however, to reduce the interruptions by decreasing the emphasis on French, a move probably not welcomed by Smith, who saw French as the "language of science" and that "opened wide the field of scientific culture, theoretic as well as practical."[45] While both Smith and Preston hoped only to enable the cadets to fulfill their future teaching responsibilities, Smith lacked the enthusiasm for the classics that would convince him to prioritize Latin.

The Virginia legislature founded VMI on the premise that students could guard the Lexington Arsenal and that, properly trained, graduates of the school could contribute to the improvements in the Virginia militia. While basic drilling could have enabled the cadets to fulfill the former, more formal courses were necessary for the later. The Board, as they did with most of the rest of the VMI curriculum, based the military course on West Point's course, but streamlined it to emphasize core courses.

Besides basic drilling and the use of guns, including artillery, the cadets also studied how to organize, manage, and conduct a militia. Professor Thomas Williamson, another West Point graduate, taught this during the cadets' final year, first as part of the "Engineering, Science of War, Infantry Tactics" course, and then later in "Tactics,

---

44. Prof. J.T.L. Preston, 1 July 1847, Report of the Professor of Languages, Faculty and Departmental Reports, 1843-1844, Virginia Military Institute Archives, Lexington, VA.

45. Smith, *Introductory Address to the Corps of Cadets of the Virginia Military Institute*, 11.

Infantry, and Artillery."[46] Combined with training in military engineering, this course trained the cadets in "the methods of fortifying towns and camps, of making and repelling attacks, crossing rivers, conducting armies during marches, and in general whatever may be useful to the soldier in time of war." In addition, thanks to the provision of the necessary equipment by the US War Department, Williamson also provided "instruction in *pyrotechny*," which "will embrace the manufacture of signal and war rockets, incendiary compositions of every kind, and the various uses of powder and inflammable substances in time of war." These courses did not train common soldiers; they provided essential training for future officers and military engineers who would find themselves in leadership positions within the militia.

While the core of the VMI curriculum emphasized engineering and supporting subjects, much of the curriculum provided remedial training for the generally ill-educated classes of boys entering the school. These courses in English and arithmetic enabled the cadets to overcome their deficiencies and to compete with better-prepared boys, whether at others schools or at VMI itself. Although many of the boys entering VMI were poorly educated to begin with, they were still expected to provide several services to the commonwealth both during their education and upon graduation. The cadets, consequently, required additional training in order to fulfill this service. This included military training to enable the cadets to serve as officers in Virginia's militia and training in English and Latin to enable them to teach in the schools of the commonwealth.

46. Register of the Officers and Cadets of the Virginia Military Institute, Lexington, VA., July 1843 and July 1846, Publications Catalog, 1840-1864, Virginia Military Institute Archives, Lexington, VA.

## A Scientific Engineering Curriculum

The Board of Visitors and Superintendent Smith crafted a curriculum that provided cadets with an engineering training, the premises for which derived from the state schools of the engineering elite of France and of West Point. Through this curriculum, VMI's graduates would also join that class of elite engineers. This style of engineering emphasized a theoretical foundation, including the use of mathematics and mechanics to understand the application of forces within materials in order to determine, for example, the types and thicknesses of materials necessary for construction in any given circumstance. Despite this emphasis on theory and mathematics, rather than craft knowledge, the officers and cadets of VMI understood this training as "practical." They could, for example, readily apply their mathematical and scientific training to engineering projects, whereas the comparable studies in the liberal colleges remained abstract. This emphasis on practical engineering also provided the cadets with the means of pursuing a money-earning career immediately upon graduation. The college graduates, on the other hand, often pursued further training in law and medicine to provide themselves with a career. This further education was often out of reach for the graduates of VMI, though many of them did ultimately pursued legal and medical careers. The graduates of the colleges also often derived their wealth from inheritance and land ownership, while VMI graduates did not. Instead, they had to pursue a career in which they could earn money. The engineering curriculum was practical in that it enabled the graduates to do this.

*French: The "language of science"*

The VMI curriculum emphasized the study of French, the language of professional engineering as Board President Claudius Crozet and Superintendent Smith understood it. They, either directly or indirectly through West Point, accepted French formal engineering training as the model of professional engineering, in contrast to the on-the-job training acquired by most engineers in the United States. They required the study of French as essential to their professional training and the cadets, in fact, required it in order to read some of their math and science textbooks.

The cadets relied on many textbooks either written in or translated from French, such that they required their French instruction simply to enter into their higher mathematics and mechanics courses. Cadets used, at least, J. L. Boucharlat's *Élémens de Mécanique* and *Élémens de Calcul Différentiel et de Calcul Intégral* in the original French.[47] They, fortunately, could employ English translations, including one of Smith's own, for their lower mathematics courses while they first learned the new language.[48]

---

47. J. L. Boucharlat, *Élémens de Mécanique*, third edition (Paris: Bachelier, Imprimeur-Libraire de L'École Polytechnique, 1840). *Élémens de Calcul Différentiel et de Calcul Intégral* (Paris, Bachelier, 1830). Register of the Officers and Cadets of the Virginia Military Institute, Lexington, VA., July 1843, Publications Catalog, 1840-1864, Virginia Military Institute Archives, Lexington, VA.

48. A. M. Legendre, *Elements of Geometry and Trigonometry; With Notes*, trans. by David Brewster, rev. by James Ryan (New York: N. & J. White; Colins & Hannay; Collins & Co.; and James Ryan, 1832). Francis H. Smith, *An Elementary Treatise on Analytical Geometry: Translated from the French of J. B. Biot, for the use of the Cadets of the Virginia Military Institute at Lexington, VA: and Adapted to the Present State of Mathematical Instruction in the Colleges of the United States*, 2nd edition (Philadelphia: Charles DeSilver & Sons, 1846). Register of the Officers and Cadets of the Virginia Military Institute, Lexington, VA., July 1843, Publications Catalog, 1840-1864, Virginia Military Institute Archives, Lexington, VA.

*Mathematics and Natural Philosophy*

The mathematics and science courses provided a foundation for the engineering courses that made up the core of the VMI curriculum. These courses provided the cadets with a mathematical and scientific training at least as good as and often much more thorough than that available in colleges. The Board of Visitors and Superintendent Francis Smith prioritized these courses in order to meet the standards of West Point and to provide the training deemed necessary for engineers in the French engineering tradition. To achieve this, VMI employed both West Point and French textbooks and course formats.

Smith described the early mathematics course as "embracing arithmetic, algebra, plane and solid geometry, analytical and descriptive geometry, differential and integral calculus, shades, shadows and perspective, theory and practice of surveying, and mechanics."[49] Contemporary engineering students in the United States will still recognize most of this curriculum, but they will have already had at least arithmetic, algebra, and geometry in high school. Most VMI cadets, on the contrary, required arithmetic as a remedial course to accommodate their poor educational backgrounds. VMI offered a mathematics course that, although still recognizable today, was not typical of the training of most US engineers at the time. In fact, it surpassed the courses of perhaps almost all other American schools except for West Point, which provided the primary model for VMI courses.

49. Francis H. Smith, 1845 Superintendent's Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA 6, 7.

The selection of mathematics textbooks asserted the importance of West Point and French engineering schools as the standard for VMI. VMI and West Point professors wrote many of the books, but based them on French texts. Beginning in 1845, the cadets used an arithmetic book written by Smith and R. T. W. Duke, an assistant professor at VMI. The algebra course initially employed a textbook written by West Point Professor Charles Davies, which he employed at West Point for decades. He based his *Elements of Algebra* on the *Treatise on Algebra* by M. Bourdon, which had served as a standard text in France and became the basis for "every subsequent work on the subject of Algebra, both in Europe and in this country."[50] After 1848, however, VMI cadets used Smith's own algebra text, one also based on French examples.[51] For geometry and trigonometry, cadets used a translation of a French text, though "[r]evised and altered for the use of the military academy at West Point."[52]

Cadets studied calculus from at least two books. For differential and integral calculus, they studied from Boucharlat's book in the original French, at least up to 1850.[53] For analytical geometry, cadets used Smith's own translation of a book by Jean-Baptiste Biot, a graduate of the *École Polytechnique*, later professor of mathematics and physics at the *Collège de France* and then the *Université de France*. Biot was a renowned physicist who performed research in magnetism, mineral chemistry, sound, and especially optics.

---

50. Francis H. Smith, A.M. *An Elementary Treatise on Algebra: Prepared for the Use of the Cadets of the Virginia Military Institute, And Adapted to the Present State of Mathematical Instruction in the Schools, Academies, and Colleges of the United States* (Philadelphia: Thomas, Cowperthwait & Co., 1850).

51. Ibid.

52. Legendre. *Elements of Geometry and Trigonometry*.

53. Register of the Officers and Cadets of the Virginia Military Institute.

For his work, he was elected vice president of the *Académie des Sciences* in 1835, was admitted to the French Legion of Honor in 1814, and received a prize from the Royal Society of London in 1840.[54] Of Biot's textbook, Smith wrote

> The original work of M. Biot was for many years the Text Book in the U.S. Military Academy at West Point. It is justly regarded as the best elementary treatise on Analytical Geometry that has yet appeared. The general system of Biot has been strictly followed.[55]

During an 1858 tour of European "scientific schools," Smith met Biot and gave him a copy of the translation. Of it, Biot said, "Oh! I know your work and you have done me great honor, for when I read it your own improvements were so great that I hardly recognized the original." They spoke for at least an hour. After this, Smith wrote jokingly of Biot, saying "... there is no one that I have seen that has interested me so much, and I said to him that if we only had him in America, we should make something out of him."[56]

One early VMI course sticks out as unfamiliar to contemporary American engineering students. Descriptive geometry involves using geometric principles to draw three-dimensional geometric shapes or to calculate distances, such as locations of intersections or vertices, given certain knowledge of the shapes, thus enabling engineers to make drawings and calculations based upon fundamental mathematical principles, typical of the French engineering style (Figure 5.1). Claudius Crozet introduced

---

54. M.P. Crosland, "Biot, Jean-Baptiste" in *Dictionary of Scientific Biography* 2, edited by Charles Coulston Gillispie (New York: Charles Scribners and Sons, 1970), 133-137.

55. Smith, *An Elementary Treatise on Analytical Geometry*, 1846 iv.

56. F. H. Smith III, "Old Spex of the VMI," Francis H. Smith, Superintendent, 1839-1889, Virginia Military Institute Archives, Lexington, VA, 209, 212.

descriptive geometry to the United States after his arrival at West Point in 1815 and his assessment of the inability of the cadets to proceed with any engineering study until they had learned more mathematics. No textbooks existed, so to teach the subject, he employed some sketches he had acquired from the *École Polytechnique*.[57] West Point Professor Charles Davies remedied this lack by writing the text that VMI cadets later used: *Elements of Descriptive Geometry, With Their Application to Spherical Trigonometry, Spherical Projections, and Warped Surfaces*.[58]

Davies, like Smith after him, looked to France as an ideal of mathematics education and engineering. In the 1826 preface to this book, which Smith surely read while a cadet at West Point, Davies explained the importance of descriptive geometry and, at the same time, compared the state of engineering and mathematics in the US to that of France.

> The subject of Descriptive Geometry, which is treated in these Elements, has not, as yet, been considered in this country as a necessary part either of a polite or practical education. It has been taught in the Military Academy since 1817, but has not found its way into other Seminaries with a rapidity at all proportionate to its usefulness. The progress of science, like that of truth, is always slow; yet it compensates for its want of velocity in the steadiness of its advancement and the certainty of its success. In France, Descriptive Geometry is an important element of a scientific education; it is taught in most of the public schools, and is considered indispensable to the Architect and Engineer. Its intimate connexion with Civil Engineering and Architecture, and the facilities which it affords in all graphic operations, render its acquisition desirable to those who devote themselves to these pursuits.[59]

---

57. Pappas, *To the Point*, 105.

58. Charles Davies, *Elements of Descriptive Geometry, With Their Application to Spherical Trigonometry, Spherical Projections, and Warped Surfaces* (New York: A. S. Barnes & Co., 1834).

59. Davies, *Elements of Descriptive Geometry,* iii-iv.

More specifically, Williamson said of descriptive geometry that it "will enable [the cadets] to make, not only military reconnaisances of a country for military purposes; but also drawings of fortification, gun carriages, bridges [etc.] when called upon to so."[60] In a period without calculators and computers, descriptive geometry provided a powerful tool of analysis and design for those engineers who sought to employ scientific principles, rather than rule-of-thumb methods. Because of both a minimal mathematical education and the rarity of teaching descriptive geometry in the United States, few American engineers had the ability to employ this tool, even if they had wanted to. Consequently, VMI and West Point graduates could claim an elite mathematical education as a credential for both civil and military engineering.

The courses in natural sciences initially consisted of mechanics, "[n]atural and experimental philosophy, astronomy, optics and chemistry"[61] and required the cadets to employ their knowledge of trigonometry and calculus. Superintendent Smith, however, quickly worked to expand the scientific curriculum that he, as the instructor for mechanics, valued so much. After having acquired Professor Thomas Williamson to teach the essential courses in engineering and military tactics in 1841, Smith next prioritized finding a professor to teach the sciences. He argued before the Board of Visitors in 1842 that, "Considering the importance of the physical sciences I cannot hesitate to recommend to the Board the propriety of securing at the earliest day possible

60. Thomas H. Williamson, 20 June 1845, Report of the Instructor of Tactics and Teacher of Drawing, Faculty and Departmental Reports, 1843-1844, Virginia Military Institute Archives, Lexington, VA.

61. Francis H. Smith, 1845 Superintendent's Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA 6, 7.

the service of a Professor in this department." Moreover, chemistry, for which the cadets relied on courses from Washington College, "should be particularly taught here, and the facilities we can afford for the operations of a chemical laboratory must engage the attention of the Board."[62] But because of various difficulties in locating and securing a professor, they did not succeed until 1846 when Professor William Gilham arrived.

Smith saw West Point, of course, as the standard by which to judge the science courses of VMI. He said of his early mechanics course

> With a view of placing our graduates somewhat on an equality with those from West Point I have devoted an hour each day to the more particular instruction of the first class in Mechanics, their examination in which will evidence to the Board, the extent to which they have carried the subject.[63]

He prioritized this instruction specifically to meet his West Point standard. This mechanics course included statics and dynamics, as well as fluid dynamics, divided into *hydrostatique* and *hydrodynamique*.[64]

Gilham, another West Point graduate, used the same optics course as that employed at West Point. Moreover, he employed a textbook written by a West Point professor for use at West Point. This course included not only what we now think of as basic optical physics, but also extensive study of a range of telescopes, microscopes, and other optical instruments, such as the *camera obscura*, a device used to project images onto a paper for accurate tracing.[65] Gilham's chemistry course included recitation and

---

62. Francis H. Smith, 1842 Superintendent's Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA 7-8, 8.

63. Ibid., 5.

64. Boucharlat, *Élémens de Mécanique*.

"illustrative experiments."[66] This suggests that the students learned largely from a chemistry textbook and observation of experiments, probably meant to demonstrate principles discussed in the text, but did not perform any of their own laboratory work.

The VMI cadets received a state-of-the art education in mathematics, at least relative to that available in the US, with West Point providing the model and the standard. Although they strove for comparable completeness in the sciences, the Board and Smith experienced some frustrations in establishing this course, having neither sufficient instructors nor facilities. Few colleges, however, offered anything more substantial; science entered college curricula in an extensive way only in the 1840s.[67]

*The Engineering Course*

Engineering, at VMI, meant primarily civil and military engineering, but also architecture. These courses provided the cadets with both a theoretical and an empirical knowledge of engineering. It also required them to obtain an extensive foundation in mathematics, mechanics, and theoretically-informed drawing. This curriculum

65. William Gilham, 20 June 1847, Report of the Professor of Physical Sciences, Instructor of Tactics, and Commandant of Cadets, Faculty and Departmental Reports, 1843-1844, Virginia Military Institute Archives, Lexington, VA. William H. C. Bartlett, A.M. *An Elementary Treatise on Optics, Designed for the Use of the Cadets of the United States Military Academy* (New York: Wiley and Putnam, 1839).

66. William Gilham, 20 June 1847, Report of the Professor of Physical Sciences, Instructor of Tactics, and Commandant of Cadets, Faculty and Departmental Reports, 1843-1844, Virginia Military Institute Archives, Lexington, VA.

67. Roger L. Geiger, "The Rise and Fall of Useful Knowledge: Higher Education for Science, Agriculture, and the Mechanic Arts, 1850-1875," *The American College in the Nineteenth Century*, ed. by Roger Geiger (Nashville, Tennessee: Vanderbilt University Press, 2000), 154-155.

emphasized a set of skills and knowledge that craft-oriented engineers could not have obtained through their on-the-job training.

Based on the content of the courses, engineering work consisted of surveying, producing topographic maps, and the construction of buildings, bridges, railroads, canals, roads, and ports. Military engineering also included the construction of fortifications, such as trenches, embankments, and walls. Cadets learned these topics in distinct surveying, civil engineering, and military engineering courses.[68] The surveying course employed a textbook by, once again, West Point Professor Charles Davies. It explained the use and application of surveying tools, as well as specific instruction in laying out boundaries of land, producing topographic maps, determining and laying out level surfaces, determining elevations, performing surveys and mapping of coasts, and even navigation of ships by various methods.[69]

Professor Thomas Williamson added architecture to the civil engineering course in 1848. He could not, however, locate a textbook and did not know of any other course offered in the US. So, in order to avoid lecturing on the subject, he edited a compilation of architectural drawings and writings, soon after publishing a textbook. This book, however, went well beyond the architecture of buildings and discussed the construction of bridges, canals, railroads, and roads, work generally considered under the field of civil engineering. He even included descriptions of the basic mechanisms of locomotive

---

68. Register of the Officers and Cadets of the Virginia Military Institute, Lexington, VA., July 1851, Publications Catalog, 1840-1864, Virginia Military Institute Archives, Lexington, VA.

69. Charles Davies, LL.D, *Elements of Surveying, and Navigation, With Descriptions of the Instruments and the Necessary Tables*, Revised (New York: A.S. Barnes & Burr, 1859).

engines. Regardless, he clearly identified architecture as an engineering art, spending much of the introduction to his book assessing the accomplishments of French and British engineers and discussing the future expansion of transportation infrastructure.[70]

Williamson justified the study of architecture by appealing to the need to produce "native" architects and to provide a "useful" profession for the graduates.

> The first effect of the introduction of this study, will be to improve the public taste and to create a demand for the services of those who are properly prepared to gratify this taste. It will also wipe off a reproach to our State which no Virginian can contemplate but with the deepest mortification. Who, now, ever thinks of applying to a native architect, for the plan of any public building of any importance, or indeed of any private edifice; but of the most ordinary structure? Is not this fact as notorious as it is lamentable? And will we any longer endure this stigma, when the remedy is within our reach, I trust not. Both patriotism and self-interest forbid it. Duty, interest, and State pride, all concur to stimulate us to wipe off this foul reproach upon our intelligence and upon our enterprise. We have made a beginning at the Virginia Military Institute, and I most sincerely hope that our example will be extensively followed throughout the State.[71]

Like the construction of roads, American architecture had been left, according to Williamson, to either the incompetent or the foreign. VMI cadets, who required some profession and work after graduation, could enter into that niche and rival, on the grounds of their basic competence and Virginia births, their competitors.

Williamson did not, however, intend for the cadets to serve primarily as architects. They could, instead, fill the gap until a more professional architecture developed. To this end, in writing his textbook, he

---

70. Major Thomas H. Williamson, *An Elementary Course of Architecture and Civil Engineering, Compiled from the Most Approved Authors for the Use of the Cadets of the Virginia Military Institute* (Lexington, VA: Samuel Gillock, 1850), 28-29, 136-141.

71. Williamson, *An Elementary Course of Architecture and Civil Engineering*.

> embraced with the general principles, such details as were absolutely necessary to enable the student to comprehend the construction of a design and have presented such ideas of the art as I have found set forth by the most distinguished writers on the subject. I believe any Cadet who will pass credibility through the course of architecture, as I have prepared it, will avoid, when called upon to furnish a plan, those gross deviations from correct principles every where observable throughout the extent of our state.[72]

Rather than mastering architecture, they learned the basic principles that others lacked so that they could simply avoid basic mistakes. This, combined with their general engineering training, enabled them to achieve a basic competence.

Besides the late addition of architecture, the civil engineering course included discussion of the variety of structures an engineer might design, including bridges, roads, railroads, canals, and river and coastal improvements. For this course, cadets used yet another West Point textbook, that of D. H. Mahan of Virginia. The text began with an extensive discussion of various building materials and then went on to explain each of the various types of structures.[73] Cadets studied from another text by Mahan for their military engineering courses. This work focused on the production of fortifications, including trenches, embankments, and walls.[74]

---

72. Thomas H. Williamson, 21 June 1848, Report of the Professor of Engineering, Faculty and Departmental Reports, 1843-1844, Virginia Military Institute Archives, Lexington, VA.

73. D. H. Mahan, M.A., *An Elementary Course of Civil Engineering: For the Use of Cadets of the United States' Military Academy*, sixth edition (New York: John Wiley, 1864). John Hope Franklin, *The Militant South, 1800-1861* (Boston: Beacon Press, 1956), 10.

74. D. H. Mahan, *A Complete Treatise on Field Fortification, With the General Outlines of the Principles Regulating the Arrangement, the Attack, and the Defence of Permanent Works* (New York: Wiley & Long, 1836).

Success in the engineering courses required that cadets acquire a variety of skills and theoretical knowledge not held by their peers, who were trained on the job. This produced a much less craft-oriented engineer in favor of a more theoretically-informed engineer, like those of West Point and the French schools. Of the various skills required, the curriculum placed great emphasis on drawing, often based on mathematical or geometric principles. Besides descriptive geometry, which provided the mathematical principles for engineering drawing, the cadets took two years of drawing courses of various types. This began with drawing the "human figure" during the one year and then added topography and "Shades, Shadows, and Linear Perspective" during the next year.[75]

This emphasis on drawing contributed to the distinctiveness of VMI's curriculum. Of the art of drawing, Smith said

> There is no part of the education of a man of science more necessary and at the same time more neglected than drawing. To the *soldier* and *engineer*, this art is absolutely indispensable. As a preparation for this branch of our exercises, instruction had been previously given in descriptive geometry, in connection with the mathematical course. The classes this year will be engaged principally in pencil and pen drawing, as applied to *sketching* and *topography*. With the exception of the United States Military academy, this is I believe the only institution in the country, in which instruction is given in this useful and ornamental art.[76]

---

75. Register of the Officers and Cadets of the Virginia Military Institute, Lexington, VA., July 1843, Publications Catalog, 1840-1864, Virginia Military Institute Archives, Lexington, VA. Register of the Officers and Cadets of the Virginia Military Institute, Lexington, VA., July 1845, Publications Catalog, 1840-1864, Virginia Military Institute Archives, Lexington, VA. Charles Davies, *A Treatise on Shades and Shadows, and Linear Perspective*, Second Edition (New York: Wiley & Putnam, Collins, Keese & Co., 1838).

76. Francis H. Smith, 1841 Superintendent's Report, Superintendent's Annual Reports to the Board of Visitors, Virginia Military Institute Archives, Lexington, VA, 2.

Again, according to those who, like Smith, valued theory and basic principles as the foundation of engineering, gave the VMI cadets an advantage over the craft-trained engineers who dominated American engineering.

Like descriptive geometry, the study of shadows and perspective provided the cadets with a means of drawing and representation with reference to mathematical principles. Davies, the author of one of their drawing textbooks, said the following of this

> In presenting to the public the following Treatise on Shadows and Perspective, the author cannot but flatter himself that he shall add something to the common stock of useful knowledge. The subjects treated of are certainly useful: to the architect and draftsman a knowledge of them is indispensable. To find with mathematical accuracy the lines of shade and shadow on a complicated building,--which parts are to be darkened, and which parts are to be made light in a drawing of it, is certainly a difficult problem unless it be solved on scientific principles.[77]

Figure 5.2 provides an example of a cadet drawing taken from an exercise in Davies's text. The problem the cadet solved required the following: "To find the perspective of the groined arch and the perspective of its shadows," though the cadet added additional detail, including the tiled floor and the brick pattern.[78] The drawing indicates the potential usefulness of the study of this particular skill for the production of structure design, including for architecture and fortifications. Figure 5.3 provides, instead, an example of topographic drawing, copied from some consistently used source, given that cadets produced numerous nearly identical examples up through 1868.[79] Such drawing

---

77. Davies, *A Treatise on Shades and Shadows*, iii-iv.

78. Ibid., 138-148.

79. See Normant D. Hawkins, 1868, Cadet Architectural Drawings, Mss. #203, Virginia Military Institute Archives, Lexington, VA.

could find use in the production of a variety of maps, including topographic maps and for laying out towns and fortifications.

The cadets also drew upon their mathematics training to succeed in their classes and to understand engineering. Descriptive geometry received particular emphasis, but the cadets also needed knowledge of trigonometry, calculus, and mechanics for some of their courses. The surveying textbook, for example, began with an overview of logarithms, trigonometry, and geometry, which Davies employed throughout his text. In fact, nearly half of the book consists of log and trigonometric tables.[80] The architecture course and text, likewise, required the use of trigonometry and descriptive geometry.[81]

The engineering courses did, however, include a mix of theoretical and empirical knowledge. One of the civil engineering textbooks, for example, included compilations of empirically-derived data on the characteristics of materials. Mahan, however, collected this data from research conducted in the United States and France. Mahan also provided empirical formulas for estimating the strength of wood and cast iron. The book did, however, require knowledge of statics and dynamics, trigonometry, and descriptive geometry.[82] Mahan confined the use of integral calculus to an appendix, in which he described how to model the "force producing the rupture of a solid body by a cross strain on its fibres, and the resistances of compression and extension of the fibres produced by the action of the force."[83]

---

80. Davies, *Elements of Surveying*.

81. Williamson, *An Elementary Course of Architecture and Civil Engineering,* 28-29, 136-141.

82. Mahan, *An Elementary Course of Civil Engineering*, iv, 12-13, 80, 83-84, 92.

Most of Mahan's discussion of the determination of forces acting on various structures deemphasized the use of basic mathematical and physical principles and, instead, emphasized rule-of-thumb knowledge, such as tables of approximations of materials or dimensions required for any particular construction problem. Few force diagrams, derived from the principles of mechanics appeared. On the use of rule-of-thumb knowledge, Mahan stated

> The determination of the form and dimensions of a retaining wall for an embankment of earth is a problem of considerable intricacy, and the mathematical solutions which have been given of it have generally been confined to particular cases, for which approximate results along have been obtained; these, however, present sufficient accuracy for all practical purposes within the limits to which the solutions are applicable. Among the many solutions of this problem, those given by M. Poncelet of the Corps of French Military Engineers, in a Memoir on this subject, published in the *Mémorial de l'Officier du Génie*, No. 10, present a degree of research and completeness which peculiarly characterize all the writings of this gentleman, and have given to his productions a claim to the fullest confidence of practical men.[84]

Following this, he presents a formula for calculating the necessary thickness for a vertical masonry retaining wall built at the base of a sloping earth embankment. He then gives a similar formula for a sloping retaining wall.[85] His references to the scientific work, particular of French engineers, indicates that Mahan greatly valued theoretical research on and understandings of the strength of materials and the forces relevant to construction. However, he saw these as useful for cadets to draw upon for general guidelines, rather than to replicate them with their own experiments or to use the fundamental mathematical principles to derive or analyze material strengths or forces.

---

83. Ibid., 383.

84. Ibid., 140.

85. Ibid., 141-142.

Mahan continued this compromise between theory and empirical data in his military engineering textbook. Despite his claim that "The Military Art, in all its branches, is founded upon a comprehensive, and thorough knowledge of the exact and physical sciences; and in no one branch is the importance of this knowledge more felt, than in that of Engineering,"[86] his text, even more so than the civil engineering textbook, emphasized general guidelines and rules-of-thumb of construction and materials, as well as descriptions of various types of structures. *A Complete Treatise on Field Fortification* required some trigonometry for calculating the amount of material required for building an embankment, for example, but it did not rely upon fundamental mathematical or physical principles. It did, however, require previous knowledge of civil engineering, from which cadets may have drawn upon more theoretical knowledge.[87]

Regardless of the compromise between empirical and theoretical knowledge, the VMI engineering curriculum offered a formal training that provided basic skills that cadets could transfer from one unique engineering problem to another. This required them to obtain an extensive foundation in drawing, mathematics, and mechanics, which set them apart from both their craft-oriented engineering peers and the students of the colleges.

---

86. D. H. Mahan, *A Complete Treatise on Field Fortification, With the General Outlines of the Principles Regulating the Arrangement, the Attack, and the Defence of Permanent Works* (New York: Wiley & Long, 1836), 9.

87. Ibid..

## Conclusions

The founders and officers of VMI explicitly established what they saw, despite the heavy reliance on West Point as their model, as a new and distinct type of institution for higher education. This distinctiveness included the demographic character of the students, the discipline and pedagogy, and the curriculum. The curriculum served three purposes: create a new standard for authority of higher education to enable VMI to compete with the colleges, provide remedial training for students and to prepare them for required service to the commonwealth, and to train an elite class of engineers.

John Preston and others initially struggled to establish the school in order to challenge the power of the eastern planter-elite by elevating the status of disenfranchised white men through education. As the school opened and developed, the officers began to argue that VMI, and therefore its cadets, not only equaled the liberal colleges of the planter elite, but even surpassed them in the effectiveness and quality of its education. Through the use of public examinations of the cadets, Superintendent Smith and other officers hoped to convince the public of this claim.

Although the officers of VMI implicitly and explicitly challenged the colleges and offered VMI as a superior system, they did not have much to say to those engineers that the cadets would challenge in their careers. Most engineers in the United States learned engineering as a craft on the job. VMI, following West Point and the *École Polytechnique*, provided an engineering curriculum that valued theory, even in the study of drawing. In doing so, it gave the cadets a more universal set of skills applicable to a variety of engineering contexts, rather than an intimate knowledge of a narrower range of materials and projects gained through experience. But most of the officers maintained

silence about the contrasts between these modes of engineering. Claudius Crozet, based on his own experiences with craft-oriented engineers, probably had extensive criticisms, but he did not relay these criticisms in the context of VMI's curriculum. Professor Williamson, on the other hand, did offer some criticism of American architects and argued that through formal training the graduates of VMI would prove superior. But the exception of Williamson proves the rule of this silence regarding other engineers.

The silence may have come from either or both of two issues. First, the opportunities in or need for engineering work may have been so abundant as to not necessitate real concerns about competition. Indeed, the United States generally lacked a sufficient number of engineers to carry out the construction of the infrastructure of such a massive and dispersed nation. Criticism of the means by which most engineers gained their knowledge may have only served to diminish the credibility of the profession as a whole at a time when Western Virginians, for example, struggled to acquire the funds necessary for the numerous projects they desired. Second, the officers of VMI may not have seen engineering as the primary field in which they competed for authority. Instead, they sought legitimacy among fellow institutions of higher learning, since education provided the basis for their claims for the equality of white manhood. In order to do so, they argued for a redefinition of educational authority by emphasizing a practical and scientific education committed to the service of the commonwealth. Indeed, VMI probably did provide the most intensive and formal training in both engineering and mathematics outside of West Point and provided a scientific education at least the equal of most colleges. Nonetheless, the theoretical training was meant to prepare the cadets to become elite engineers, like the graduates of West Point and the *École Polytechnique*.

Rather than rise up through the ranks of labor, as did so many craft-trained engineers, the cadets would enter quickly into roles of leadership on engineering projects. In this, I argue in the following chapter, they succeeded.

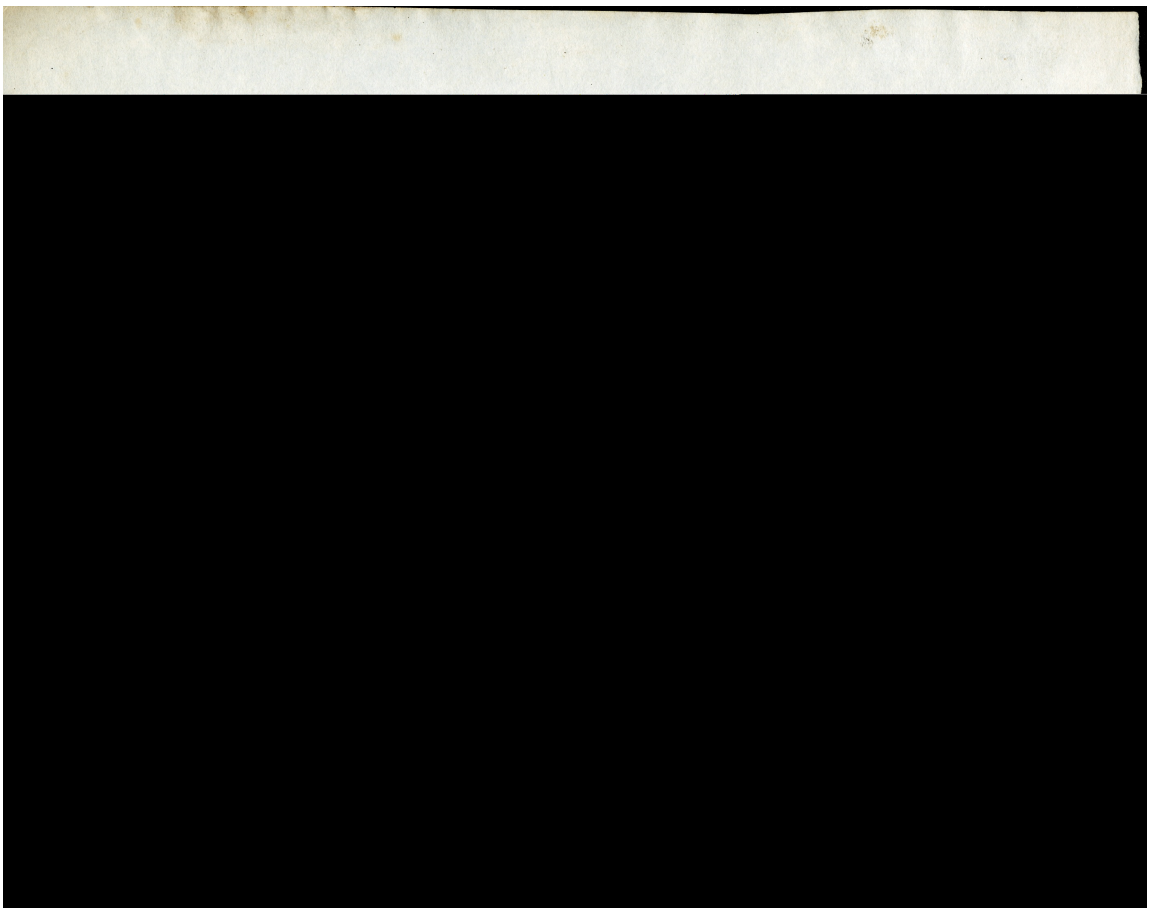
Crozet and Smith may have recognized the existence of other pathways into engineering besides that through which they had gone. Regardless, they, through the development of a particular curriculum, contributed to an engineering culture that identified, first of all, formal education as the means of producing new engineers and, secondly, fundamental mathematical and physical principles as the foundation for engineering knowledge. While engineers could employ other types of knowledge, it was the type of training provided at VMI that would, produce elite engineers.

**Table 5.1: The 1851 Four-Year Course**[88]

| | | Studies | Texts |
|---|---|---|---|
| First Year | Fourth Class | Arithmetic<br>Algebra and Geometry<br>English Grammar<br>Geography<br>French | Smith and Duke's American Statistical Arithmetic<br>Smith's Algebra and Legendre<br>Murray's Grammar<br>Mitchell<br>Levizac's Grammar, vie de Washington |
| Second Year | Third Class | Trigonometry<br>Analytical Geometry<br>Descriptive Geometry<br>Shades, Shadows and Perspective<br>Surveying<br>Diff. And Int. Calc<br>French<br>Drawing, Landscape | Legendre<br>Smith's Biot<br>Davies<br>Letures<br>Davies<br>Church<br>Gil. Blas., Picot, No. 5 |
| Third Year | Second Class | Natural Philosophy<br>Chemistry<br>Latin<br>Drawing, topography, and Linear | Bartlett and Gummere<br>Roger's Turner<br>Anthon's Caeser, Virgil, Cicero, Horace, Terence |
| Fourth Year | First Class | Geology and Mineralogy<br>Military and Civil Engineering<br>Tactics, Infantry, and Artillery<br>English Literature<br>Rhetoric<br>Geography | Hitchcock and Norton<br>Mahan and Lectures<br>Scott<br>Chambers and Lectures<br>Blair and Whately<br>Mitchell |

88. Register of the Officers and Cadets of the Virginia Military Institute, Lexington, VA., July 1851, Publications Catalog, 1840-1864, Virginia Military Institute Archives, Lexington, VA.

**Figure 5.1: Cadet Descriptive Geometry Exercise**[89]

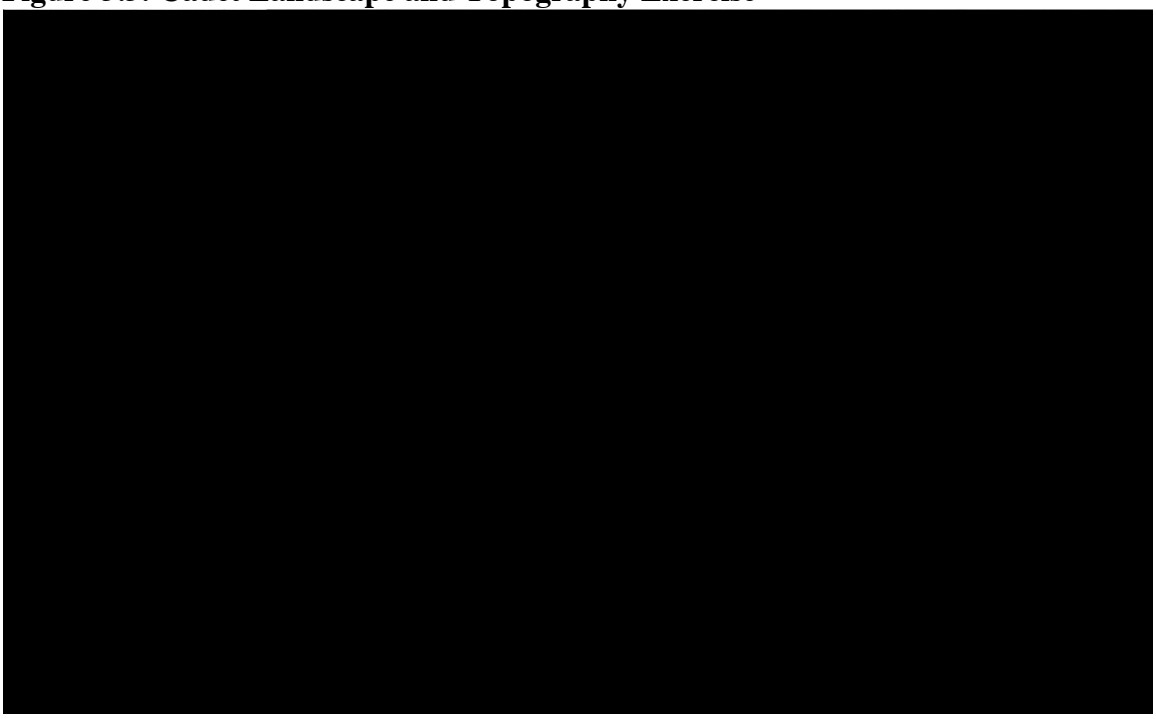


89. G. B. Cooke, January 28, 1857, "Tangent plane to a sphere through a given line," Cadet Architectural Drawings, Mss. #203, Virginia Military Institute Archives, Lexington, VA. Copied from Davies, *Descriptive Geometry*, Plate 9, Fig. 2.

**Figure 5.2: Cadet Shades and Perspective Exercise**[90]


90. Edward L. Smith, 1856, Untitled, Cadet Architectural Drawings, Mss. #203, Virginia Military Institute Archives, Lexington, VA.

**Figure 5.3: Cadet Landscape and Topography Exercise**[91]



91 William E. Kemble, 1851, Untitled, Cadet Architectural Drawings, Mss. #203, Virginia Military Institute Archives, Lexington, VA.

# CHAPTER SIX

## ENGINEERS AS MIDDLE-CLASS AGENTS OF PROGRESS, 1836-1851

A self-conscious middle class with its own political interests and culture emerged from disparate "middling classes" in both the North and South by 1850. The founding and growth of the Virginia Military Institute coincided with this development and was itself one part of it. This new class, which arose from manufacturers, businessmen, and professionals, expressed a political commitment to internal improvements, including both transportation infrastructure and the expansion of education, in order to further their economic interests in the growing market and manufacturing economy. They also cultivated a culture of the restrained and disciplined manhood like that embedded in the disciplinary practices of VMI. They identified the characteristics of discipline, obedience, punctuality, and thrift as those necessary for success in the market. The officers of VMI also linked internal improvements to a particular idea of progress – physical progress, in contrast to moral and intellectual progress. They taught the cadets of VMI to serve as civil engineers to build the transportation infrastructure of the United States and especially Virginia. In doing so, they promoted physical progress, the means to the economic betterment of their home state. So engineers at VMI, like so many of their counterparts elsewhere, were to serve, in their roles as middle-class professionals, as the agents of progress.

### VMI in the Emergence of a Southern Middle Class

In his *Culture of Professionalism*, Burton Bledstein describes the antebellum middle class and its professional culture as constructed largely in opposition to southern

culture, emphasizing the emergence of the middle class as a northern phenomenon.[1] The middle class, however, did indeed emerge simultaneously in both the antebellum North and South, sharing much, but also expressing regional distinctions.[2] The officers and cadets of VMI participated in this development, including through the proliferation of military schools based on the VMI model.

Although the term "middle class" appeared in the 1812 *Oxford English Dictionary*, Americans did not begin to employ it until the 1830s, and did not do so in any widespread manner until the 1850s. In that decade, the middle class achieved a strong sense of itself and the distinctiveness of its interests. Prior to that, people more often spoke of the "middling class" and "middling sorts," which, in the South, distinguished them from the planters above and yeomen below.[3] The middling classes consisted, in the South, of "the storekeepers, bankers, clerks, teachers, doctors, editors, ministers, and their families who tended to reside in the small towns and larger cities of the Old South where they exercised considerable influence."[4] These merchants and professionals made up ten percent of the southern white male population, and even more

1. Burton J. Bledstein, *The Culture of Professionalism: The Middle Class and the Development of Higher Education in America* (New York: W. W. Norton and Company, 1976), 28.

2. Jonathan Daniel Wells, *The Origins of the Southern Middle Class, 1800-1861* (Chapel Hill: University of North Carolina Press, 2004), 6, 67.

3. Bledstein, *The Culture of Professionalism*, 12. Wells, *The Origins of the Southern Middle Class*, 11-12.

4. Wells, *The Origins of the Southern Middle Class*, 8.

in urban areas. Although not as wealthy as the planters, they saw themselves, as others saw them, as above white laborers and yeomen.[5]

In Virginia, this group more quickly became larger in the western part of the state, including Lexington and Rockbridge County, than it did in the east. This happened, in part, because of the lack of class mobility and economic opportunities for white men in the east. Men interested in changing their position often looked west of the Blue Ridge to do so, particularly between 1810 and 1830, the decades prior to the founding of VMI.[6]

This direct migration from the economic and class rigidity of the east to the greater fluidity of the west may help to explain why in Virginia, along with the rest of the South, these "middling sorts" began to see their interests as distinct from the planters and yeomen, especially by the 1850s. These interests, focused on desired transformations of the South, included urbanization, expansion of manufacturing, internal improvements, and the development of libraries and public schools.

Up until the early 1850s, the Whig party came to serve as the primary political voice of these interests and of the emerging middle class.[7] The Whigs, at the national level, endorsed a federally-directed program of national economic development that emphasized the growth of manufacturing and commerce alongside agriculture. They understood this as part of a sweeping "spirit of improvement" of the nation as a whole. In order to achieve this, they argued, the federal government needed to institute tariffs to

---

5. Ibid., 10.

6. Robert P. Sutton, *Revolution to Secession: Constitution Making in the Old Dominion* (Charlottesville, VA: University Press of Virginia, 1989), 55-58.

7. Wells, *The Origins of the Southern Middle Class,* 6, 8, 11-12, 67, 156.

protect domestic manufacturing, provide funds for internal improvements, and create a new national bank to regulate currency and to provide capital for private investment in manufacturing. While this program tended to draw in those invested in the market economy, except for anxious wage workers, the party also attracted middling evangelicals by emphasizing the necessity of a morality of self-restraint and discipline, which Whigs saw as necessary to protect liberty from the undisciplined passions of manipulated masses. To this end, Whigs promoted public education in order to discipline and "improve" individuals. Such discipline had the benefit of promoting the discipline and thrift seen as necessary for work in the market economy and manufacturing.[8]

The early proponents of VMI, despite some of their more elite, planter backgrounds, shared some of these middling interests, particularly internal improvements and the expansion of education. Indeed, many supporters of reform during the constitutional convention later became Whigs, especially in Rockbridge County.[9] Of the primary officers of VMI, at least Board President Claudius Crozet and Superintendent Francis Smith explicitly identified themselves as Whigs.[10] During the 1830s and 1840s, however, interest in internal improvements and expansion of education came by no

---

8. Daniel Walker Howe, *The Political Culture of the American Whigs* (Chicago: University of Chicago Press, 1979), 16, 18, 32-36. Harry L. Watson, *Liberty and Power: The Politics of Jacksonian America* (New York: Noonday Press, 1990), 236-237, 244-245.

9. William G. Shade, *Democratizing the Old Dominion: Virginia and the Second Party System* (Charlottesville: University Press of Virginia, 1996), 75-76, 140.

10. Claudius Crozet to Francis H. Smith, 26 September 1846, 022 Superintendent (Francis H. Smith) Correspondence, Incoming Numbered Letters Series (1845-1846), Virginia Military Institute Archives, Lexington, VA. F. H. Smith III, "Old Spex of the VMI," Francis H. Smith, Superintendent, 1839-1889, Virginia Military Institute Archives, Lexington, VA, 83.

means exclusively from Whigs in western Virginia, where even the Democrat paper, the *Lexington Gazette*, supported both. VMI, however, brought both issues together through a formal engineering education and the promotion of a new middle-class identity.

*Emergence of a National Middle-Class Culture*

The emerging southern middle class cultivated its own culture, including a new sense of white manhood, as well as womanhood, that contrasted with that of both the yeomen and planters. This new manhood, like that at VMI, drew substantially upon evangelical Christianity by emphasizing the values of moral behavior, industriousness, self-restraint, and self-discipline, but also denounced the frivolous behavior, intemperance, and immorality of the wealthier planter elite. The new southern middle-class shared this, including its critique of the southern elite, with the northern middle class. The elite southern culture of honor and dueling, for example, greatly embarrassed many members of the southern middling classes, so they organized to end the practice early on and succeeded in establishing a ban on it in Virginia in 1810.[11] The practice, however, continued, despite an increasingly broad opposition to it. VMI regulations specifically banned dueling, as well as the insulting of others for declining duels. By the 1830s, however, this policy did not distinguish VMI from southern colleges, which often instituted anti-dueling rules in response to widespread violence among students.[12] The

11. Bledstein, *The Culture of Professionalism,* 26-28. Wells, *The Origins of the Southern Middle Class*, 74-76, 81-82, 85.

12. Robert F. Pace, *Halls of Honor: College Men in the Old South* (Baton Rouge: Louisiana State University Press, 2004), 91-97. *Regulations of the Virginia Military Institute at Lexington* (Richmond: Shepherd & Colin, 1839), 17.

founders of VMI and the cadets also participated in this particular expression of white manhood.

Not only did the members of the emerging middle class, in both North and South, see themselves as distinct from those both poorer and wealthier, but they also saw themselves as holding an important position between these two classes. Middle-class men often saw themselves as ideally democratic. They valued individual merit and hard work, in contrast to the inheritance of wealth and leisure of the elite. They also saw themselves as more virtuous than the other classes, having none of the vices of excess or deprivation of those above and below them. Consequently, they claimed themselves as the moral center of the US and challenged the authority of the elite.[13] As discussed in earlier chapters, the founders and officers of VMI participated in this movement, with the school itself serving as an argument for individual merit and for broader political participation and leadership within an imagined fraternity of white men.

Along with a distinct culture and awareness of themselves as a separate class, the middling classes also developed a their own set of political interests. Unlike the northern middle class, members of the southern middle class generally did not oppose slavery. In fact, some members even enslaved people. This issue, in particular, helped to distinguish the southern middle class from its northern counterpart. While the northern middle class and industrialists began to fear the expansion of slavery into industry as a potential threat to northern industrial dominance, the southern middle class, which supported the expansion of southern industry, saw slavery as a means to support manufacturing by

---

13. Bledstein, *The Culture of Professionalism*, 26. Wells, *The Origins of the Southern Middle Class,* 8-9.

eliminating threats of strikes by white workers.[14] The officers of VMI, however, paid little attention to industry in its first decades because they emphasized engineering, which did not, in the antebellum period, include what we now think of as mechanical engineering. Nonetheless, the school, with some of the emerging middle-class interests embedded into the discipline and curriculum, did employ slave labor from the very beginning.[15] In fact, Superintendent Francis Smith and others repeatedly spoke of the value of VMI as a producer of *native* teachers, under the presumption that these Virginians would not undermine their students' support of slavery. Moreover, Smith himself enslaved a man for most of his life.[16]

The middle class of the South also supported, as the core of its interests, internal improvements, public education, urbanization, and manufacturing. Support for urbanization and manufacturing came from the sites of early middle-class development. This included the already urban areas of the South, including Richmond, that served as manufacturing centers. Support also developed in areas of increasing economic diversity that supported "middling" occupations.[17] Such places included Rockbridge County, which had substantial iron production and other manufacturing.[18] Despite this, VMI neither provided instruction intended to directly support manufacturing, nor discussed it in its institutional records. However, when the Governor sought a state commission to

---

14. Wells, *The Origins of the Southern Middle Class,* 11, 152, 183.

15. 10 July 1841, V. 2 Board of Visitor Minutes, vol. 02 1839-1853, Virginia Military Institute Archives, Lexington, VA.

16. Smith, "Old Spex of the VMI," 11.

17. Wells, *The Origins of the Southern Middle Class*, 7-8, 67.

18. Shade, *Democratizing the Old Dominion*, 140.

send to London for the 1851 Great Exhibition of the Works of Industry of All Nations, he turned to the officers of VMI, seeing their scientific training as the credentials necessary to evaluate and report on the manufacturing and machines on display.[19] Regardless, the officers of VMI generally limited the school's role in promoting industry to providing the transportation infrastructure and basic education necessary to sustain the growth of manufacturing and the market economy.

Internal improvements and public education were issues central to the interests of the first advocates of VMI. The inability of western Virginians to secure state support for internal improvements partially drove the struggle for universal white male suffrage in order to break the eastern elite's domination of the legislature and, thereby, shift power to the west. However, while we can understand internal improvements as, in general, a class interest, we can also understand it, in Virginia, as a regional interest, with greatest support coming from the more isolated and less developed western portion of the state, regardless of party or class. VMI, supported by western Virginians, provided support for internal improvements, despite the failure of reformers to gain substantial state funding for projects, primarily by providing engineers to carry out these improvements. But, despite the origins of this in regional interests, VMI came to articulate and institutionalize what also became a middle-class interest, thus aligning its graduates and its form of engineering with the middle class.

This emerging southern middle class advocated public support of education. Drawing upon both education reform arguments that appeared in northern periodicals and

19. Philip St. George Cocke to General W. H. Richardson, 19 November 1850, letter 050 Superintendent (Francis H. Smith) Correspondence, Incoming Numbered Letters Series (1849-1850), Virginia Military Institute Archives, Lexington, VA.

the Jeffersonian ideal of an independent and educated citizenry, they saw public education as necessary for both the health of the nation and for the promotion of industry. Along with expanding tax support for education, the middle class worked to elevate the status and quality of teachers by, in part, professionalizing them.[20] The Jeffersonian discourse on the necessity of education for the health of the republic, however, did not appear in the debates over education that led to the founding of VMI. Instead, these debates emphasized the economic, political, and social elevation of poorer white men, with an emphasis on higher, rather than primary or secondary, education, the sort of education that would prepare men to enter into the professions of the middling classes. Consequently, the officers of VMI, from the beginning, connected higher education to middle-class professional culture. The great majority of middle-class men, even in the South, had not pursued higher education. Nonetheless, the use of higher education as a pathway into the middle class or as the foundation for a middle-class career did became more broadly institutionalized in the South through the spread of the military schools in the years leading up to the Civil War.[21] The officers of VMI did not stop at higher education in their advocacy. Although the legislature imposed the requirement of teaching upon state cadets, the officers of the school took up this requirement with enthusiasm and spoke of it repeatedly as a means of broader education reform. As discussed in the previous chapter, Smith saw the graduates of VMI as not just providing the teachers that the state so badly needed, but as also, through their training, elevating

---

20. Wells, *The Origins of the Southern Middle Class,* 135-138, 142, 149.

21. Bledstein, *The Culture of Professionalism*, 33. Jennifer R. Green, "'Practical Progress is the Watchword': Military Education and the Expansion of Opportunity in the Old South," *Journal of the Historical Society* 3 (Fall, 2005), 364.

the status of teachers and their profession, transforming it into a respectable career, just as middle-class education-reform advocates struggled to do throughout the nation.

Historian Jonathan Wells argues that pre-war personal and professional ties and cooperation between northerners and southerners provide the "key to understanding the rise of a middle class" in the South as a self-conscious class with interests and identities distinct from those of other classes. The southern middling classes drew upon northern middle-class culture to distinguish themselves from planters by, for example, denouncing dueling and promoting mass education. They also read the same northern-based periodicals read by the northern middle class. At the same time, they produced their own periodicals, such as the Richmond-based *Southern Literary Messenger*, which also had a northern readership. Besides periodicals, northern middle-class culture moved southward through the migration of northerners to the South, business interactions, and southerners going to northern schools, especially medical schools.[22] The founders and officers of VMI fit this pattern. John Preston, for example, after studying at Washington College and the University of Virginia, finished his legal studies at Yale.[23] West Point, however, provided, by far, the greatest northern influence on the development of VMI, with it serving as a direct educational model and as a source for most professors and several Board members. It also provided a model of the new emphasis on practical education, but, perhaps not fitting into Wells's thesis well, did not especially represent a northern

---

22. Wells, *The Origins of the Southern Middle Class,* 5-6, 11, 25-26, 30, 42, 49, 53.

23. June F. Cunningham, "Colonel John Thomas Lewis Preston" in *A Crowd of Honorable Youths: Historical Essays On The First 150 Years Of The Virginia Military Institute*, ed. Thomas W. Davis (Lexington: VMI Sesquicentennial Committee, 1988), 50. John Frederick Dorman, *The Prestons of Smithfield and Greenfield in Virginia* (Louisville, Kentucky: Filson Club, Publications, 1982), 307.

middle-class institution. Regardless, the framers of VMI, like many in the class with which some of them later came to identify, did look outside of the South to this northern influence to build an alternative to the culture and interests of the Virginia elite.

The founders and officers of VMI participated in the formation of the southern middle class by institutionalizing many of the interests adopted by the middle class in the years after the founding of the school. The officers trained a diverse body of white boys to adopt those new values and interests, which, according to historian Jennifer Green, they and the cadets of the other military schools largely accepted, and then sent them off throughout Virginia to carry them out. VMI did, however, display some distinctive qualities and differences from the broader middle class in the South. In particular, VMI emphasized civil engineering and internal improvements, but provided no explicit training to support manufacturing, which had much support elsewhere. Board President Claudius Crozet, Superintendent Smith, and the other West Point graduates who dominated VMI would have had little experience with and, perhaps, interest in this. Moreover, VMI emerged out of the interests of largely rural western Virginians, who held many common political interests that transcended party and class. Regardless, VMI, at least through the later proliferation of southern military schools, provided an important institutional location for the emergence of at least one variation of this new class in the South.

*Early Middle-Class Professional Culture*

Although Burton Bledstein generally dismisses the existence of a southern middle class, he identifies a distinctive American professional culture within the emerging

middle class. The class, he argues, was centered around "a distinct vision - the vertical one of career" - that emphasized "a social faith in merit, competence, discipline, and control that were basic to accepted conceptions of achievement and success." He argues that this culture of professionalism gained importance in the US since the 1840s, when a "professional consciousness" developed in the context of reforming asylums, prison administration, and public health statistics. Afterwards, middle-class professionals increasingly came to see themselves as possessing the role of administrators of the public good. However, the emphasis on the modern concept of career as a single profession into which one entered as a specialist did not emerge until the last half of the nineteenth century. Previously, a man switched careers as frequently as necessary to advance himself, employing the qualifications of character, rather than of education. Bledstein, focusing on the development of professional culture in the North, argues that higher education became the primary institution supporting and credentialing professionals only after the Civil War. But this emphasis on higher education began somewhat earlier in the 1850s when specialized professional schools; in, for example, pharmacy, dentistry, and law; experienced dramatic growth.[24]

Although higher education may not have served as *the* institution defining professional culture in the antebellum South, Jennifer Green, in a reversal of the usual historiography, argues that higher education played a more important role there than it did in the North at that time. Whether or not this is true, the emphasis placed on higher education in the South and its role in the development of a southern middle class prior to the Civil War had not been adequately recognized by earlier historians. Of the southern

24. Bledstein, *The Culture of Professionalism*, ix-x, 1, 32, 33, 84, 121, 122-123, 129-130, 163, 171-172, 179-182.

institutions of higher education, VMI and the eighty-two public and private military schools modeled after it were of particular importance to the southern middle class. These schools, up to the beginning of the Civil War, provided an education to 11,000 students with an emphasis on science and engineering and served students from the new middle class. Green estimates that about ten- to fourteen-percent of the graduates of these schools entered into engineering, while forty percent became teachers, nineteen percent lawyers, and fifteen percent doctors, thus helping to expand the southern middle class in the 1850s and early 1860s.[25] But, in other ways, the early southern professional culture did correspond to that of the North. For example, graduates of the military schools did not generally enter into a single profession, not even engineering, for their entire career, but, instead, switched professions to advance themselves economically and socially, with many employing teaching as a first step in their careers.[26]

While the emerging middle class saw the characteristics of evangelical manhood as necessary to engage in professional work, those characteristics, especially self-restraint and self-discipline also acted at a deeper level. Historian Dana Nelson describes the emergence of middle-class professionalism as the production of "a more exclusive practice of" *national manhood*. Just as the middle class came to assert itself as the most moral and democratic of classes, middle-class professionals came to, to some extent, see themselves as exemplifying white manhood. This occurred through the "occultation of the self," the "construction of disembodied universal authority [that] is characteristic of both scientific procedure and modern racist discourse." Through their training and their

25. Green, "'Practical Progress is the Watchword'," 363, 365, 373, 379.

26. Jennifer R. Green, Books and Bayonets: Class and Culture in Antebellum Military Academies, (PhD diss. Boston: Boston University, 2002), 206, 223.

unique capacity for self-restraint and discipline, professional men could act as objective experts, able to engage in their work of administering society without reference to their own desires or social location, subordinating their own interests to those of the nation.[27] In effect, they, rather than the landowning elite, most embodied public virtue. But this occultation and subordination of self hid the middle-class location of these professionals behind a veil of objectivity. Along these lines, the cadets of VMI were trained to subordinate themselves to supposedly objective state and national interests while actually adopting evangelical values, the new white manhood, and western interests in internal improvements.

Civil engineers had already taken a fairly strong place within the middling classes. Chief engineers and their assistants on large transportation projects certainly did, as they served as expert and, often, independent consultants, required to write contracts and manage workers. Some aspired to or claimed an even higher status. But those entering the profession through on-the-job training often entered as laborers, serving on surveying, clearing, and digging teams, with the actual surveyors probably occupying an ambiguous class and professional position.[28] For those entering engineering through formal training at VMI, however, they *began* their careers as middle class professionals.

27. Dana D. Nelson, *National Manhood: Capitalist Citizenship and the Imagined Fraternity of White Men* (Durham, NC: Duke University Press, 1998), 14, 40-41, 103, 124.

28. Daniel Hovey Calhoun, *The American Civil Engineer: Origins and Conflict* (Cambridge: The Technology Press, 1960), 27-29, 47-49, 55-60.

*Class Formation at VMI*

The first advocates for VMI expressed explicit class consciousness, setting out to elevate the status of one class of men, those poorer white men disenfranchised by their lack of land ownership. But, instead, the cadets and officers of VMI participated in the broader creation of a new class. This class emerged from the "middling classes" from which the majority, but not all, of the cadets came. The officers and curriculum of the school promoted many of the interests and values that would come to distinguish the southern middle class from yeomen and, especially, the eastern planter-elite, against which the school's western advocates struggled. These interests included the promotion of internal improvements and public education. It also included the promotion of evangelical values of self-discipline, self-restraint, morality, and industry as those necessary for the productive and professional work of the middle class. Although higher education had not yet become the central institution of professionalism in the North, it attained a more prominent position in the South as military schools proliferated, substantially replicating the VMI model and, by the eve of the Civil War, sent out thousands of young men trained in the emerging middle-class culture and engaging in professional work, including teaching and engineering. Moreover, this firmly established engineering as a middle-class profession and formal education as a crucial pathway into engineering in the South.

**From "Internal Improvements" to "Progress"**

The advocates of VMI emphasized, since 1836, the role of the school in contributing to internal improvements, with this issue contributing to the sectional

conflicts out of which VMI emerged. Although internal improvements included infrastructure development, particularly canals, roads, and railroads, it also included public schools and even banks. The training at VMI emphasized both infrastructure and education. This discourse changed, however, around 1850, with the emergence of an explicit discourse of "progress." This concept of progress emphasized "physical progress" or the development of transportation infrastructure and natural resources as a means to improve the economic standing of Virginia. Consequently, the officers of VMI established a commitment to physical progress as part of the engineering culture at VMI. Moreover, this commitment established, within the discourse of VMI, engineers as agents of progress.

Science and Technology Studies scholars Gary Downey and Juan Lucena argue, as I explain in the introduction, that engineers construct and reform their profession in such a way as to position themselves to contribute to the "progress", as they conceive of it. Consequently, differences in the "dominant cultural images" of progress held by various nations helps to explain differences in the patterns of engineering among those nations. Engineers in France, for example, do not face the same images of progress as do engineers in the United States and, so, French engineering must serve a different purpose than does American engineering. Engineers within a single nation, however, can also face or accept differing conceptions of progress. This was, Downey argues, the case in the antebellum United States, when engineers faced not only differing conceptions of the progress of the nation, but also differing conceptions of the nation itself and of the

relationship of engineers to that nation.[29] The officers of VMI found themselves in conflict with new emerging conceptions of the nation and progress in the late 1840s and early 1850s. In response, they asserted an explicit discourse of progress, one that defined the United States as a collection of states, rather than as a single nation-state, and, for which, progress meant the economic advancement of Virginia, to which the primary loyalties of the officers were directed. Consequently, the cultivated an engineering culture in which the purpose of engineering was to contribute to that progress by providing the transportation infrastructure needed for the expansion of the market economy and the exploitation of Virginia's natural resources.

*VMI's Commitment to Internal Improvements*

Internal improvements entered into the discourse of VMI during the initial struggles to establish the school and soon became a central concern in the engineering culture of VMI. In January of 1836, military-school advocate Alden Partridge sent a letter to Rockbridge Delegate Charles Dorman, in which he argued for the inclusion of civil engineering in the instruction of the school. In this letter, he stated

> There is one most important branch of knowledge, however, which my limits did not permit me to allude to, but which ought to constitute a prominent part of the education to be there acquired. I mean Civil Engineering and practical Science generally. The subject of Internal Improvement engrosses more of the public attention than any other and the construction of Rail Roads and Canals has been commenced in the United States on a scale unrivalled in any other portion of the globe. In consequence of the vast extent of our country a century probably will not

29. Gary Lee Downey and Juan C. Lucena, "Knowledge and Professional Identity in Engineering: Code-Switching and the Metrics of Progress," *History and Technology* 20 (December 2004), 401-402. Gary Lee Downey, "Low Cost, Mass Use: American Engineers and the Metrics of Progress," *History and Technology* 23 (September 2007): 294.

> be long time enough to complete all that will be required in this department. The department of Civil Engineering now opens a wider field for lucrative and useful employment to young men who are properly prepared to enter upon its duties than any other occupation, and is rapidly extending every year.[30]

Here, Partridge made the connection between formal education and civil engineering, a connection that would have appeared obvious to him because of his West Point training. Moreover, he specifically linked this to the promotion of internal improvements in order to give particular purpose to engineering. Engineers did not simply build railroads and canals for some local or personal interest; they built them to connect and improve the dispersed regions of the nation.

Dorman had this letter published in the *Lexington Gazette* for his constituents, who already largely supported establishing a military school. This would have immediately resonated with the people of western Virginia, given the centrality of internal improvements in their struggles during the 1830 Constitutional Convention. Moreover, Partridge's letter made a connection between internal improvements and the use of education to elevate the political status of poor white men, another crucial concern of the military-school advocates. Indeed, Rockbridge County citizens adopted Partridge's language when they sent a petition to the legislature, in which they asked for further progress on the establishment of the school in January of 1839. In this memorial, they identified one of the benefits of the school:

> A school in which would be taught the principles of Civil Engineering would prepare our young men to participate in the progress of a profession at present more lucrative than any other and to aid the state in the prosecution of her plans of public improvement.[31]

---

30. A. Partridge, "Mr. Partridge's Letter to Col. Dorman, Jan. 6, 1836," *Lexington Gazette*, February 12, 1836, p. 1-2.

Though, here, they spoke specifically of "public improvement," rather than internal improvement, emphasizing the role of the legislature in supporting these projects through taxes and the development of comprehensive plans. While the legislature did not much support these with money, they had, since 1817, employed a "principle engineer" with the Board of Public Works to engage in surveying and planning of roads, bridges, tunnels, and so forth. Private corporations, however, carried out these projects, with the principle engineer having little influence in their actual execution.[32] Claudius Crozet served in this capacity twice, the second time during his tenure as President of the Board of Visitors.

The officers of VMI did not, at least in their official reports, speak much of internal improvements from then until the late 1840s. This may, however, reflect concerns about antagonizing the legislature during a period of ongoing sectional conflict over the issue. Support for improvements, especially for transportation, but also for education, exploded in the *Lexington Gazette* in 1844 after the legislature refused to allow the Baltimore and Ohio Railroad Company to bring a line down into the Shenandoah Valley. This would have provided cheaper transport for the farmers of western Virginia, who at that point had to take their products to Richmond over roads before heading to the coast.[33] Illustrating the intensity of sentiment concerning the issue,

---

31. 19 January 1839, folder 82, box 222, Virginia General Assembly Legislative Petitions, Rockbridge County, 3 February 1834-1864, Library of Virginia, Richmond, VA.

32. Calhoun, *The American Civil Engineer*, 31.

33. Rockbridge, "To the Friends of Internal Improvements in Western Virginia", *Lexington Gazette*, March 21, 1844. "Internal Improvements," *Lexington Gazette*, March 6, 1845. "Internal Improvments, and Education," *Lexington Gazette*, April 10, 1845.

"Rockbridge" opened his lengthy anonymous letter to the *Gazette* with the following lines

> The time has arrived when you must assert your rights with the firmness of freemen, or tamely submit to the grossest injustice and tyranny, at the hands of your own State Government. The present is an auspicious moment to demand a redress of grievances, so long endured, that patience under them has ceased to be a virtue. And you have no alternative but to speak out boldly and decidedly, or submit to the disgrace of seeing your just expectations wholly disregarded, and your rights trampled upon, by a government created for the benefit of the whole people of the Commonwealth.[34]

Another writer, whose article appeared immediately below the listing of Whig candidates for the House of Delegates, warned of the possibility of the western portion of the state eventually seceding over the issue if no resolution occurred.[35] This was not, given other outstanding issues from the failures of the constitutional convention, unfounded bluster.[36]

The officers of VMI would likely have had some concern about the school *appearing* as an agent of these sectional interests, even though, in fact, it emerged as exactly that in the context of such heated discourse. They began, however, to speak openly of internal improvements around 1850, after a new constitutional convention, during which reformers, having gained substantial strength from eastern cities, succeeded in establishing universal white male suffrage with little opposition.[37] Regardless, the

---

"To the People of Eastern Virginia," *Lexington Gazette*, April 16, 1846.

34. Rockbridge, "To the Friends of Internal Improvements in Western Virginia," *Lexington Gazette*, March 21, 1844, 1.

35. "Internal Improvments, and Education," *Lexington Gazette*, April 10, 1845, 2.

36. Sutton, *Revolution to Secession*, 109-110.

37. Ibid., 113, 134-135.

school, through its emphasis on civil engineering, did in fact serve as an agent for internal improvements throughout its first decades.

*Cadet Contributions to Improving Virginia and the Nation*

Superintendent Francis Smith, looking back on the beginning of the school, identified as one of the primary benefits of the school to the state, "Engineers for her works of internal improvement."[38] Many cadets did indeed engage in this work and even provided important leadership in engineering projects and often attained a high professional status, both inside and outside of Virginia. To demonstrate this success, Smith wrote in 1851 that

> Many of our graduates have already sought employment in the department of civil engineering. There is scarcely a line of improvement in the state upon which they may not be found. That they have given satisfaction, some of the members of the board may be able to answer from personal observation. I cannot, however, avoid noticing a casual remark made by one of our most enterprising citizens, himself a president of one of our railroad companies, in applying this year for the admission of his son as a cadet, as furnishing most satisfactory information on this point. He says: "From the high reputation of your institute, and from the samples I have seen turned out from it, I mean two cases now under my eye, (Messrs. Wall and Rodes,) as assistant engineers of the Southside railroad company, of which I am president, I am the more anxious to put my son under your good management".[39]

38. 1850 Superintendent's Report, Report of the Board of Visitors of the Virginia Military Institute, Virginia Military Institute Archives, Lexington, VA, 10.

39. The cadets were Robert Emmet Rodes of Lynchburgh and Edwin Girard Wall of Winchester, both of the class of 1848. Wall later served as superintendent of the Southside Railroad, while Rodes became a chief engineer of one unidentified railroad in Alabama and then of the Northeast & Southwest Railroad in Alabama. 25 June 1851, Superintendent's Report, Report of the Board of Visitors of the Virginia Military Institute, VMI Archives, Lexington, VA, 7-8.

Many VMI cadets followed similar paths or even exceeded the accomplishments of Wall and Rodes. Like their West Point peers, the cadets found that employers welcomed their formal engineering training.

Providing a conservative minimum estimate, the *Register of Cadets*, which notes known occupations of former cadets, indicates that forty-seven, or fourteen percent of the 338 cadets (graduates or otherwise) from the classes of 1842 to 1851 engaged in some kind of engineering work.[40] This, however, surely underestimates the number, given missing data, the number of cadets who taught engineering, but are not indicated as having done so, and the number indicated as serving in the military who may have worked as military engineers. Smith, in an assessment of the work of the 226 graduates up to 1856, noted that at least fifty worked as civil engineers in Virginia alone, three worked in western and other southern states, three worked for the US Coast Survey, one surveyed the boundary between the US and Mexico, one worked in Brazil, and one, after having continued his studies at the *École Polytechnique*, surveyed a bridge over the Potomac River in Washington, DC and served as a military engineer and a chief civil engineer.[41] This amounts to at least twenty-five percent of just the graduates up through 1856 having worked as civil engineers.

Besides the examples given above, the cadets served as engineers in many capacities. Many served as surveyors, with one helping to lay out Denver, many worked

---

40. *The 2000 Register of Former Cadets of the Virginia Military Institute* (Lexington, Virginia: VMI Alumni Association, 2001).

41. Francis H. Smith, *Introductory Address to the Corps of Cadets of the Virginia Military Institute, on the Resumption of Academic Duties* (Richmond: MacFarlane & Fergusson, 1856), 22. For the cadet graduating from the *École Polytechnique*, see Alfred Landon Rives, *The 2000 Register of Former Cadets of the Virginia Military Institute*.

as railroad engineers, and at least one constructed telegraph lines. Many of these cadets attained positions as chief engineer or superintendent, and several even became presidents of railroad companies. Besides civil engineering, one worked as a superintendent at the Tredegar Iron Works in Richmond, before becoming president of the Southern Railway Supply Company.[42] Although quantifying the number of cadets who worked as engineers presents some difficulties, the available data attest to the enthusiasm with which the cadets took to the "practical" work so emphasized at VMI.

VMI produced a relatively large number of formally-trained engineers. By 1837, two years before the first cadets arrived at the VMI, West Point had probably, according to historian Daniel Calhoun, graduated two hundred of the civil engineers who worked in the US, while Norwich University graduated between twenty-four and thirty-four, and Rensselaer approximately twenty-four, with another sixteen from Norwich and twenty-nine from Rensselaer by 1843.[43] These numbers, however, may overestimate the actual number of students trained in engineering, because Calhoun erroneously identifies Norwich as primarily an engineering school, not recognizing that it served primarily as an academy and that the school did not require the engineering course. Indeed, many parents chose more traditional courses for their sons. Also, graduation from Rensselaer no more indicated that a man went on to work as engineer than did graduation from VMI. Considering this, VMI, with its, at a minimum, forty-seven engineers by 1851, more than matched Rensselaer and Norwich in their production of engineers. VMI's influence appears considerably larger when we also consider the number of engineers who also

42. *The 2000 Register of Former Cadets of the Virginia Military Institute*.

43. Calhoun, *The American Civil Engineer*, 45.

came out of the other southern military schools that modeled themselves and their curricula after that of VMI.

Calhoun argues that Rensselaer and Norwich graduates did not attain the same high professional status and success of West Point engineers, who provided a disproportionate number of chief engineers on large transportation projects compared to those engineers trained on-the-job.[44] The Norwich graduates would have received a much less thorough engineering training than either West Point or VMI cadets, having had perhaps as much math and science, if they chose to, but little actual engineering training besides surveying, despite Partridge's attempts to employ West Point as a model. Likewise, Rensselaer students likely learned little mathematics and, given the engineering professor's contempt for book learning, studied little from the books written by West Point engineers. Consequently, having neither the intensive theoretical training of West Point and VMI cadets, nor the practical experience of apprenticed engineers, employers may have seen little to commend graduates of Norwich and Rensselaer. So, despite the greater historiographic emphasis on Norwich and Rensselaer,[45] VMI likely developed an engineering culture in which perhaps more people participated during the antebellum period.

---

44. Calhoun, *The American Civil Engineer*, 45, 52-53.

45. Calhoun, *The American Civil Engineer*. Terry S. Reynolds, "The Engineer in 19th-Century America," in *The Engineer in America: A Historical Anthology from* Technology and Culture, ed. Terry S. Reynolds (Chicago: University of Chicago Press, 1991), 7-26. "The Education of Engineers in America before the Morrill Act of 1862," *History of Education Quarterly* 32 (1992): 459-482. Peter Meiksins, "Engineers in the United States: A House Divided," in *Engineering Labour: Technical Workers in Comparative Perspective*, ed. Peter Meiksins and Chris Smith (London: Verso, 1996), 61-97.

At least as many cadets, if not more, served as teachers during some part of their careers. This, of course, should provide little surprise, considering that state cadets had to do so for two years to fulfill their obligations to the commonwealth. The cadets, however, did not confine themselves to teaching in the common schools of Virginia. Many also taught at institutions of higher education, including VMI, the Georgia Military Institute, Alleghany College, Randolph Macon College, and Lynchburg College, often teaching mathematics as their primary subject.[46] Of these contributions of the cadets to education and engineering, Smith wrote in 1853

> Already we have prepared, for the duties of life, 226 graduates. *One-half* of these have been making their impress upon the *educational* interests of the state, upwards of 50 being now engaged in the duty of *teaching*. Some 30 more are pressing forward the *internal improvements* of the state, making at this time nearly 100 of our graduates, who are lending the influence of their talents and education to the development of these two important state interests. And these are *Virginia youths*, who are engaged in this work. What a reform! It is no longer a reproach to a Virginian to teach in our schools, and to labor at the rod of the engineer. We are no longer dependent upon northern teachers and northern engineers; but now, with the co-operation of our sister state institution of learning, we are sending abroad the *native teacher* and the native civil engineer, to form the mind and to develop the resources of our own state.[47]

Smith just as enthusiastically celebrated the contributions of VMI to education as to engineering, both of which Virginians understood as part of internal improvements.

---

46. *The 2000 Register of Former Cadets of the Virginia Military Institute*. Smith, *Introductory Address to the Corps of Cadets of the Virginia Military Institute*, 12-13.

47. 22 June 1854, Superintendent's Report, Report of the Board of Visitors of the Virginia Military Institute, VMI Archives, Lexington, Virginia, 30.

*Scientific Education, Engineering, and the Progress of Virginia*

When the officers of VMI began to once again openly promote internal improvements in the 1850s, they introduced a new emphasis on the discourse of progress in which they linked the work of engineers to the promotion of the progress of the commonwealth and the nation. They distinguished between intellectual and moral progress, which the knowledge of science among the population would promote, and physical progress, which included the spread of transportation infrastructure and the development of natural resources. VMI's graduates would promote both ideas of progress, the former through their service as teachers and the later through engineering work.

Board of Visitor member, Philip St. George Cocke, presented some of the earliest references to progress in the papers of VMI. A West Point graduate, he came to associate progress with internal improvements and scientifically-based engineering. Although profoundly proud of the growth and accomplishments of VMI, he expressed lament to Superintendent Smith that its model, particularly with regard to science and engineering, had not grown more.

> The Institute is at present the only school in the whole South in which the physical sciences are exclusively [and] to some extent thoroughly taught. It is hardly possible that, in this Country of Progress, [and] in this age of physical progress, such a school will not at all times be crowded, and absolutely forced upward [and] onward by the wants [and] tastes of the whole country, until it shall become the great school of the physical sciences, the great school of the Baconian Philosophy where our young men will go to study Nature [and] all her infinite but immutable laws, and where they will leave [here] learned in sciences [and] skilful in practice, with [illegible] to [illegible] all the laws [and] all the processes of Nature in itself of the physical, intellectual [and] moral progress of this Country.[48]

48. Philip St. George Cocke to Francis H. Smith, 28 May 1850, 048, Superintendent (Francis H. Smith) Correspondence, Incoming Numbered Letters Series

Here, he clearly identified the study and application of scientific knowledge with the progress of the nation as a whole, but not just a "physical" progress of expanding railroads and canals, but also a moral and intellectual progress. It was upon a knowledge of natural law, which VMI emphasized in its curriculum and used as the foundation of engineering knowledge, that the nation would base its improvement. The teaching of this knowledge in schools, perhaps by VMI graduates, would promote intellectual and moral progress, while the application of this knowledge to internal improvements would promote physical progress.

Superintendent Smith likewise emphasized progress, but with a greater emphasis on the physical progress of just Virginia, with the aim of employing engineering and science to cultivate the natural resources of the commonwealth in order to reestablish it as an economic leader of the United States.

> The age in which we live is one of progress--and especially of physical progress. The application of science to the arts is daily developing important facts connected with various departments of domestic economy. What is wanting in this great state to place her again in the lead of her sister states but the development of her immense physical resources? What state can compare with this in climate, soil, mineral and agricultural wealth, and in natural channels of intercommunication? Let science be applied to direct her energies and to develop her wealth, and we shall soon witness a change in the growing prosperity of our people and state. Here is a field for the active exercise of the education furnished by this institution, and I feel assured we shall receive the hearty co-operation of the board in the duty which lies before us.[49]

Again, he emphasizes the importance of applying science to the problems of internal improvements and economic development. He does not see these as tasks for just

---

(1849-1850), Virginia Military Institute Archives, Lexington, VA.

49. 25 June 1851, Superintendent's Report, Report of the Board of Visitors of the Virginia Military Institute, Virginia Military Institute Archives, Lexington, VA.

anyone; the engineer, provided with the knowledge of nature, must lead. In other words, the engineer must become *the* agent of progress.

The discourse of progress extended beyond transportation infrastructure to machinery. Great Britain invited manufacturers and producers from other nations to display their work in London at the 1851 Great Exhibition of the Works of Industry of All Nations. Virginia Governor John Floyd asked VMI officers to recommend a commission to go to the Exhibition. Cocke responded

> If however we have nothing to shew we have a great deal to learn [and] it appears to me that our state now just entering upon a grand and glorious career of physical progress [and] development (to which our enlightened public spirited [and] energetic Governor has given already the most effective impulses). I was going to say, our state ought not to lose so fine an opportunity of seeing what the rest of the world has done [and] is doing in all the great industrial [and] fine arts of life.[50]

Here Cocke, in line with the interests of the newly emerged middle class, expressed an interest in manufacturing as part of the physical or economic progress of Virginia. Note, however, that Cocke, as well as Smith, took care to distinguish the progress associated with engineering, internal improvements, and manufacturing from other types of progress. They spoke specifically of "physical progress," in contrast, but not unrelated, to, moral and intellectual progress.

The discourse of a more generalized progress associated entirely with machines and then "technology" did not develop substantially in the United States until the 1860s, when it, along with railroad construction and westward expansion, exploded.[51]

---

50. Philip St. George Cocke to General W. H. Richardson, 19 November 1850, letter 050 Superintendent (Francis H. Smith) Correspondence, Incoming Numbered Letters Series (1849-1850), Virginia Military Institute Archives, Lexington, VA.

51. Merritt Roe Smith, "Technological Determinism in American Culture" in

Americans then began to see machines, especially in the form of enormous networks of railroads and telegraphs, as inherently progressive, rather than acting as a means for progress. But they did not yet employ "technology" as a term until the 1930s, although engineers began using the term in the late nineteenth century as a way of distinguishing their scientifically-informed work with machines from the work of uneducated artisans and, therefore, to distinguish themselves from the artisans. But the engineers intended the term to refer more to their knowledge, rather than to machines themselves. However, later engineers began to promote the term in its modern sense, referring to the machines, in an effort to lay claim to progress as their own, arguing that they served as the producers and managers of technology. Because the machines, and therefore technology, constituted progress, the engineers themselves produced and managed the progress of the nation.[52]

Smith and Cocke, however, had no concept of technology, as we understand it. Nonetheless, they still associated engineers, as well as scientific knowledge, with progress, or at least "physical" progress. But, rather than thinking primarily of machines, although that played a part in it, they understood physical progress in the older context of internal improvements. But internal improvements, unlike machines in the later discourse of technology as progress, served as a *means* of progress, rather than as progress itself. They, like so many in western Virginia and of the emerging middle class, sought internal improvements as a means of developing the economy and resources of the

---

*Does Technology Drive History?: The Dilemma of Technological Determinism*, ed. Merritt Roe Smith and Leo Marx (Cambridge: MIT Press, 1994), 7.

52. Smith, "Technological Determinism in American Culture," 13. Ruth Oldenziel, *Making Technology Masculine: Men, Women and Modern Machines in America, 1870-1945* (Amsterdam University Press, 1999), 14, 23 43-44.

commonwealth and nation. The introduction of this new term, progress, however, requires explanation. While the discourse of "internal improvements" served the needs of those seeking the development of only the western portion of their state, the new concept of progress emerged in the context of westward expansion and in the context of Manifest Destiny.

*The Rejection of Manifest Destiny and*
*a More Constrained Progress*

White Americans, especially after the 1860s, understood progress as westward expansion through railroads and telegraph, with the machines constituting progress for the nation as a whole. But, in their westward expansion, they saw this progress opposed by, as well as to, the "wildness" of the West and Native Americans.[53] But they had little fear of this opposition because they saw their progress as inevitable and unstoppable. This technological determinism, however, had roots in an earlier discourse of unstoppable westward movement, the 1840s discourse of Manifest Destiny. Despite the popularity of this discourse, some of the primary officers of VMI rejected it and limited their ideas of progress to only the development of Virginia or to the then existing borders of the United States. This placed them in opposition to the slaveholding planters who dominated the legislature of Virginia and aligned them, instead, with middle-class Whigs, which, in fact, some of them had become.

Manifest Destiny and the debate over the US invasion of Mexico in 1846 emerged along with a changing conception of race in the US, particularly the development of a

53. Smith, "Technological Determinism in American Culture," 9.

new conception of Anglo-Saxonism. English people had generally referred to everyone living within England as Anglo-Saxon, but, during the early nineteenth century, they began to expand this to refer to all English-speaking peoples, while also racializing the term. Meanwhile, Americans generally used it to refer to whites, in contrast to blacks, Indians, Asians, and Mexicans. The term, however, remained ambiguous and its meaning shifted, depending on context. For example, Anglo-Americans might have seen Irish as Celts on the east coast, but as Anglo-Saxons in California, where they could contrast with Chinese immigrants. Regardless, many white Americans and English had long identified themselves as superior nations, explaining this superiority, in part, on the basis of the superiority of their Anglo-Saxon political institutions, such as parliaments and trial by jury. By the 1840s, however, both the English and white Americans began to explain their superiority on the basis of their Anglo-Saxon blood rather than institutions, thus racializing Anglo-Saxonism.[54]

This racial Anglo-Saxonism experienced great popularity in the South, where the *Southern Literary Messenger* of Richmond served as an important publisher of these ideas, including through reprintings of German Romantic literature and philosophy that promoted this discourse. Moreover, throughout the 1840s and 1850s, the publishers of southern periodicals like this came to increasingly identify themselves as Anglo-Saxons and to identify Anglo-Saxons as the genuine Americans. This marked a shift from the more generalized idea of whiteness that dominated previously.[55]

---

54. Reginald Horsman, *Race and Manifest Destiny: The Origins of American Racial Anglo-Saxonism* (Cambridge: Harvard University Press, 1981), 4, 62.

55. Ibid., 162-163, 167, 174.

The racialization of Anglo-Saxonism took on a particular character that contributed to the doctrine of Manifest Destiny. Drawing on German Romanticism and philology, Anglo-Saxonists came to see themselves as the inheritors of a thousands year-old racial tradition of westward expansion. Assuming a direct correspondence between language and race, they employed linguistic evidence to construct the Indo-European cultural group and claimed that an elite group within it, with an essentially Germanic language, slowly spread westward across Europe. As it did so, it always invigorated the cultures and empires with which it came into contact, thereby spreading civilization and a distinctly Germanic spirit of freedom. For example, the Germanic barbarians brought liberty to a crumbling and decadent Roman Empire and then brought parliaments to the Celtic peoples of Britain. American Anglo-Saxonists took this up and claimed that the founding of the United States occurred as the logical extension of this westward expansion. They now had a racial destiny to continue the westward movement and to bring their institutions of freedom and civilization all the way across the continent and perhaps even into Asia, from which the Indo-Europeans originated, thus completing the cycle begun thousands of years previously.[56] After the 1840s, spreading Anglo-Saxon civilization westward came increasingly to mean spreading machines and what would become known as technology. Moreover, this spread of railroads and telegraphs, and the settlement that followed behind it, became seen as inevitable – as progress itself.

The US-Mexican War stands as the classic event of Manifest Destiny. Southern Democrats supported the war because they hoped to increase the territory of the United States and, thereby, expand slavery westward. In so doing, they would both increase that

56. Ibid., 32-33, 38.

particular form of economic opportunity and increase the power of slave states in Congress. Whigs, on the other hand, wanted to expand the market economy and infrastructure within the existing boundaries of the United States, rather than expand the land-hungry slave-based agricultural economy. So Whigs, especially in the North, generally opposed the war in order to limit the spread of slavery and, therefore, to limit southern power in Congress.[57] Proponents of the war employed the discourse of Anglo-Saxon superiority and Mexican inferiority as a justification for the war. Opponents of the war, however, often employed this racial discourse as well. Whigs, in particular, feared that westward expansion, particularly by conquering Mexico, would actually threaten the Anglo-Saxon institutions of freedom, either by turning the US into a colonial nation that subjugated others or by introducing large numbers of members of inferior races into the nation. Although they could tolerate blacks within the nation, because they remained thoroughly under white control, they wanted to maintain the US as an Anglo-Saxon nation.[58]

Despite the participation of VMI cadets in the US-Mexican War, some of the officers of the school, although they expressed admiration for the service of the cadets, voiced opposition to the war. Twenty-five former cadets fought in the war, with many in both the regular US Army and many others in the 1st Virginia Regiment.[59] Superintendent Francis Smith applauded their performance in a report to the Virginia

---

57. Ibid., 236. Daniel Walker Howe, *The Political Culture of the American Whigs* (Chicago: University of Chicago Press, 1979), 21. Harry L. Watson, *Liberty and Power: The Politics of Jacksonian America* (New York: Noonday Press, 1990), 242, 245.

58. Horsman, *Race and Manifest Destiny*, 167, 182, 238.

59. Jennings C. Wise, *The Military History of the Virginia Military Institute from 1839-1865* (Lynchburg, Virginia: J. P. Bell Company, 1915), 62.

legislature. He claimed, "It is well known that the efficiency of the Virginia volunteer regiment in the Mexican war was in a high degree promoted by the large number of our graduates who held commissions in it."[60] Whether that was true or not, Smith surely hoped his former students performed well when under the scrutiny of the West Point graduates who led the war and who astounded international observers with their tactical brilliance.

This honoring of the contribution of VMI graduates does not, however, indicate any great support for the war. Smith, in a letter to Philip St. George Cocke, fellow West Point graduate and recent addition to and future president of the Board of Visitors, said the following of the war:

> I believed the war to be an unnecessary and unjust one, and with every effort to raise some feeling to enable me to defend or justify it, I have been unable to do so. Had I been drafted, and required by such compulsory process to serve in it, I should have obeyed, but no station in it could be accepted by me. … and it does seem to me that if a foreign power were to invade our soil, as we are invading Mexico, I should agree with Santa Anna, in making "every mountain pass another Thermopylae[?]".[61]

Here, Smith reiterated the subordination to lawful authority that he taught to his cadets. Although he rejected the war as unjust, he expressed his willingness to fight in it, despite his personal interests and beliefs.

---

60. 18 June 1850, Superintendent's Report, Report of the Board of Visitors of the Virginia Military Institute, Virginia Military Institute Archives, Lexington, VA, 10.

61. Thermopylae refers to the 480 BC battle in which a force led by Spartans, outnumbered 20 to 1, held off the superior Persian force at the mountain pass of Thermopylae for three days, and inflicted seven times as many casualties as they received. Despite the retreat of the non-Greek forces, many of the Spartans remained to fight and die to defend Greece, even when defeat was inevitable. Francis H. Smith to Philip St. Geo. Cocke Esqr., 25 March 1847, 313 1844 Feb 10 - 1848 Dec 30 Superintendent (Francis H. Smith) Correspondence, Outgoing Letter Book, Virginia Military Institute Archives, Lexington, VA.

Board President Claudius Crozet, who possessed the personal experience of war that Smith did not, also opposed the US invasion. He spoke of it to Smith, saying

> My [W]hig principles have been strengthened by the Mexican War. It broke out just as I was preparing to depart for Europe; my trunks were actually ready; that and the Oregon question, made me unpack them. Now my son is in it. Some pecuniary interest is at stake, the political horizon is clouded and I am forced to wait until all this ends. Since I have had my [illegible] of war, I am for peace; but at this time I am still moved to [illegible]. Peace, Peace rises at the top of all my thoughts and the feeling makes me twice a Whig.[62]

Crozet directly linked his opposition to his Whig affiliation, as well as to his personal concerns for his son's safety. But both Smith and Crozet unambiguously stated their opposition to the war.

Smith's and Crozet's opposition to the War coincided with their Whig politics, which put them at odds with the predominantly Democratic slave-holding planters who dominated the legislature of Virginia. They did not, however, make any note that indicated opposition to the war based the discourse of racial Anglo-Saxonism. Crozet, as a Frenchman, may have, of course, found little benefit in doing so. Smith's comment that "if a foreign power were to invade our soil, as we are invading Mexico, I should agree with Santa Anna" suggested a belief in some equality between the US and Mexico and that the US had no right to invade. Pro-war Anglo-Saxonists, on the other hand, used racial supremacy as a justification for claiming exactly that right, regardless of whether they supported or opposed the war. Nonetheless, the new discourse of progress at VMI after the US-Mexican War suggests the influence of the transformation of the discourse of Manifest Destiny into that of progress. I see, however, no evidence that the discourse

---

62. Claudius Crozet to Francis H. Smith, 26 September 1846, 022 Superintendent (Francis H. Smith) Correspondence, Incoming Numbered Letters Series (1845-1846), Virginia Military Institute Archives, Lexington, VA.

of Manifest Destiny itself entered significantly into that of VMI, despite the significant participation of cadets in the US-Mexican War.

*Engineering for the Progress of Virginia*

VMI emerged, in part, from sectional struggles over internal improvements in Virginia. Reflecting western interests, as well as emerging middle-class interests, civil engineering became the focus of the VMI curriculum early on and, thus, embedded support for internal improvements into the curriculum. This issue remained contentious during the first decade of the school, even to the point of talk of secession from eastern Virginia. However, with the adoption of a new constitution enacting universal white male suffrage and strengthening western Virginia in the legislature in 1850, the emphasis on the school's mission to support internal improvements came out more openly among the school's officers.

With this new openness came discussion of "progress." However, rather than the later technologically-deterministic concept of progress as the westward spread of railroads and telegraphs, they emphasized a distinct "physical progress" represented by internal improvements. They give no hint of determinism and, rather than as embodying progress itself, the improvements served as a means of economic, moral, and intellectual progress for Virginia and nation. Moreover, I find no evidence that the expansionist and Anglo-Saxonist discourse of Manifest Destiny entered substantially into the discourse of VMI. Instead, the officers of VMI maintained their emphasis on internal improvements and progress as something for Virginia, emphasizing the need for *native* engineers and teachers to lead these improvements to re-establish Virginia as a leader among the states

of the nation. As such, they maintained service to the nation, but to Virginia in particular, through civil engineering as a fundamental mode of service to which the cadets were to commit themselves.

**Conclusions**

VMI provided just one institutional location for the emerging southern middle class, but did participate the development of that class. This participation, moreover, helped to establish engineering as a middle-class profession, one that embodied the culture of that new class. It did so in several ways. First, because of its origins in the sectional tensions over internal improvements in Virginia, the school embedded western support for those improvements into a unique civil engineering education to advance those interests. Although this reflected, to a large extent, sectional interests in Virginia, the emerging middle class, in both the South and the rest of the nation, adopted internal improvements as one of its primary political interests. Secondly, because of the imposition of teaching requirements upon cadets by the legislature, the school, its officers, and graduates became important actors in promoting education reform at the primary and secondary level. Expanding puublic education, because of the middling class's lesser ability to individually pay for the education of their own children, became another primary interest of the class as a whole. VMI, however, also emerged out of western interests in elevating the status of poorer white men in Virginia through higher education. By the eve of the Civil War, higher education became one of the important pathways into the newly emerging professional culture within the middle class in the South, particularly through the proliferation of military schools modeled after VMI. A

number of VMI graduates went on to careers as professors in colleges and these new military schools.

VMI cadets entered into civil engineering in significant numbers, probably more than those coming out of Norwich University and the Rensselaer Institute. Moreover, many cadets attained high professional status as chief engineers of improvement projects and even as railroad presidents. While many other Americans entered into engineering from labor positions through on-the-job training in the rest of the nation, VMI and its cadets, who followed the West Point example of formal and theoretical education, secured engineering for themselves as a middle-class profession by identifying engineering as a "practical" training for the emerging class, regardless of the work into which they later went, and identified it with the new "culture of professionalism." However, the officers of VMI embedded into the discipline and demands of the school the purpose of engineering as a work of service to Virginia through continued civil engineering for internal improvements within Virginia for the economic, intellectual, and moral progress of the commonwealth, with the hopes of re-establishing it as a leading state in the nation. Consequently, these engineers could boast of a commitment to and ability to serve the greater good, rather than their own individual interests. In other words, they could claim to possess virtue, a position increasingly claimed by the middle class. In the engineering culture of VMI, engineering was a middle-class profession of service to Virginia, as well as to the nation, while engineers were themselves the bearers of "physical progress" for Virginia and the nation.

# CHAPTER SEVEN

## CONCLUSIONS: THE ENGINEERING CULTURE OF VMI

Virginia citizens convened another constitutional convention in 1850 in order to attempt yet again to resolve the sectional tensions out of which the Virginia Military Institute emerged and that continued to grow since the 1829/1830 convention. This resulted in some redistribution of power across the commonwealth and across classes. First, westerners established independent branches of government by establishing popular election of the governor, whom the legislature had previously appointed. They similarly established popular election of the members of the Board of Public Works, which westerners previously saw acting more as an obstacle to western internal improvements than as a facilitator. They also eliminated the nearly hereditary county-court judges and replaced them with elected judges, which began the process of breaking the hold of the planter elite on the judiciary.

Along with the above gains, westerners also failed to achieve some of their longstanding goals. Easterner planters, who dominated this later convention just as they did the previous one, passed a constitutional limitation on taxing the slaves of slaveholders. They then passed a new per capita tax on white men and an income tax, both of which shifted the tax burden of Virginia to the west. As foreseen during the 1830 convention, the white population of western Virginia had surpassed that of eastern Virginia in the intervening years. Consequently, easterners continued to fear the abolition of slavery should the commonwealth employ the "white basis," which led to the renewal of conflicts over legislative apportionment. Some eastern delegates pointed disingenuously to Rockbridge County delegates John Letcher and Samuel McDowell

Moore in particular as advocating abolition through the "white basis." Westerners, on the other hand, insisted that a commitment to liberty required that apportionment derive from eligible voters, rather than from property, meaning enslaved and unrepresented blacks. They also tried to assure eastern delegates that they had just as much interest in protecting slavery as those in the east. The deadlock over this issue resulted in threats of western secession and of a walkout from the convention. As a compromise, the convention established somewhat of a balance of power between east and west, with the west holding the majority of seats in the House and the east dominating the Senate. Many western delegates considered this a victory. In contrast to the contentious apportionment issue and the great uproar during the previous convention, universal white male suffrage passed readily and even produced little public comment. The convention approved the new constitution in 1851. Voters then ratified it, with substantial support and even enthusiasm from the west. Following this, the new legislature and Board of Public Works expanded western internal improvements, soon resulting in the arrival of a bank in and canal near Lexington.[1]

Important divisions, however, persisted and remained unresolved until after the election of Abraham Lincoln to the presidency. In particular, westerners resented the tax protections for slaveholders and the new western tax burden. Also, new limitations on the power of the legislature to borrow and spend resulted in unexpected limitations on western improvements, leaving nearly all of what is now West Virginia, except for the northernmost part, without transportation infrastructure. Westerners tried to use the 1861

1. Robert P. Sutton, *Revolution to Secession: Constitution Making in the Old Republic* (Charlottesville: University Press of Virginia, 1989), 122, 124-130, 132-139. Colonel William Couper, *One Hundred Years at V.M.I.*, volume 1 (Richmond, VA: Garrett and Massie, 1939), 258.

convention on the issue of Virginia's secession from the United States to resolve the sectional disputes. Secession votes split significantly, though not wholly, along the old east-west divide, with eastern enthusiasm for secession from the Union and western opposition. The east maintained sufficient dominance to succeed and withdrew Virginia from the United States.

Many westerners remained unsatisfied by movement towards the resolution of east-west conflicts. The east-west divide, however, had begun shifting westward, with greatest discontent in the Allegheny region. Consequently, following the success of easterners in withdrawing Virginia from the United States, westerners in the Allegheny region voted to withdraw from Virginia and to establish their own state within the United States. Delegates to the constitutional convention of the new state of Kanawha instituted the changes that western Virginians had sought for decades. They established the "white basis" for legislative apportionment, reaffirmed universal white male suffrage, prohibited bringing new enslaved people into the state, prohibited free blacks from living in the state, and made provisions for state support of private corporations engaged in internal improvements.[2] Rockbridge County, however, gained sufficient satisfaction from the previous convention and remained within Virginia, keeping VMI as an institution of the newly Confederate, though smaller, Commonwealth of Virginia.

The successes of the 1850 convention and the adoption of the new constitution in 1851 resolved some of the initial tensions that led to the founding of VMI. It also marked, whether coincidentally or causally, a shift in the discourse of VMI and new growth of the school. For example, officers spoke openly of the role of the school in

2. Sutton, *Revolution to Secession*, 140-144, 146-147, 149-150.

promoting those internal improvements previously so contentious, but seemingly made politically acceptable by the new constitution.

Cadets and officers, having suppressed east-west distinctions among themselves for so long, began, like a many Americans, to discuss north-south sectional tensions.[3] The Board of Visitors finally succeeded in obtaining funding for an additional professor of natural philosophy and artillery. By this time, north-south sectional tensions had increased such that Board of Visitors member and convention participant Corbin Braxton said of the pending appointment of a professor, "It matters not the qualifications of a Northern man at this time, the state of public feeling is such in this State that none could be acceptable". So they hired Thomas "Stonewall" Jackson, yet another West Point graduate from Virginia.[4] Despite this new emphasis on north-south tensions at VMI, Superintendent Francis Smith accepted a War Department appointment as President of the Board of Visitors of his beloved West Point.[5] Perhaps this indicated just an unrefuseable offer given Smith's life-long love for the institution that set the standard for VMI. It also suggests that Smith, as well as VMI itself, had acquired a substantial reputation during its early growth and had indeed become the "West Point of the South," a phrase that took on a graver meaning as war approached. Although the politics of Virginia and the discourse of VMI changed in important ways after 1851, earlier struggles, including class, racial, regional, and religious, provided the context for the emergence of the engineering culture of VMI.

---

3. Couper, *One Hundred Years at V.M.I.*, 228.

4. Quoted in Ibid., 235.

5. Ibid., 237, 298, 302.

**The Engineering Culture of VMI**

The founders and early officers of VMI produced a particular engineering culture within the context of a highly heterogeneous professional environment. They embedded this culture into the practices and curriculum of the school. Among the features embedded was the key feature of requiring the *subordination of one's own local and individual interests and identities (class, regional, denominational, etc.) to the service of the commonwealth and nation*. This particular articulation of service meant the *performance of "practical" and "useful" work of internal improvements for the development and defense of the commonwealth and the nation*. To carry out such work and to even develop the capacity to subordinate their own interests, the cadets were disciplined into particular traits, including *moral character, industriousness, self-restraint, self-discipline, and subordination to authority*.

The subordination of one's individual interests manifested as claims to a patriotic and disinterested commitment to the commonwealth and nation as a whole, without regard to class, section, or personal wealth. This emerged out of the founding of the school in the context of east-west sectional tensions within Virginia. The early advocates of the school, prior to the adoption of an engineering curriculum, hoped to use VMI as a strategy to redefine public virtue so as to legitimate the political participation of the lower classes of white men, which was, in turn, a strategy for strengthening the power of the western elite against that of the eastern elite. Virginia's legislative apportionment structure and property requirements for voting disproportionately disenfranchised white men of western Virginia and, thus, limited the ability of westerners to secure their interests, particularly tax support for internal improvements. Some citizens of

Rockbridge County proposed, soon after failing to achieve reforms during Virginia's 1830 Constitutional Convention, employing higher education as a means of legitimating and elevating poorer white men. This elevation would occur, in part, by challenging the dominant definition of virtue that excluded poorer white men from political participation because of their poverty or dependency on others for wages. In contrast, the westerners drew upon an emerging discourse of a common white manhood in which white manhood itself indicated an innate independence and capacity for virtue, in contrast to the innate dependence of women and blacks. This more thoroughly racialized and gendered the discourse of virtue and suffrage. It also served to bind white men to one another in an imagined fraternity that transcended local and personal interests. The Rockbridge citizens challenged the more aristocratic republican philosophy by identifying poverty as an artificial barrier to the true expression of individual merit. Education would provide the means of identifying and cultivating that merit. However, this potential for merit existed only for members of the imagined fraternity of innately independent white men.

The Board of Visitors and the Superintendent of VMI employed military discipline and the regulation of every aspect of cadets' lives to suppress class, regional, and personal interests and identifies. They did this through uniform treatment of all cadets, whether state or pay cadets, and the proscription of any action that might show class distinctions, including the purchasing of one's own choice of clothing or food. Moreover, the constant year-round drilling served to unify the cadets such that they transcended any remaining distinctions. The cadet life allowed only distinctions of personal effort and merit, which were quantified and prominently displayed through public merit roles and examinations. Through this, the officers of VMI institutionalized

the new white manhood and opposition to the aristocratic republican philosophy. This supported the initial western interests in the social and political elevation of the poorer classes of white men. But instead of legitimating these lower classes or enabling members of those classes to rise up into the gentry, VMI participated in the creation of a new class of men. The school institutionalized many of the values that would emerge in the 1850s as those of the newly self-conscious middle class. The cadets, trained as engineers, were to enter into public life and promoted these values and class interests. Working as both teachers and engineers, among other pursuits, they helped to establish those pursuits as middle class professions.

The capacity of the officers of VMI to claim for the cadets a disinterestedness in the pursuit of supposedly universal interests that were in fact very much the interests of the elite of western Virginia was founded on the imagined fraternity of innately independent white men and on the a new middle-class discourse of objectivity and superior morality. In the new imagined fraternity, it was one's membership in white manhood itself that identified one as independent and, therefore, possessing virtue. This was independent of class, so the class origins of a VMI cadet was irrelevant to his potential for leadership and service. On the other hand, class mattered very much. Members of the new middle class identified themselves as the most moral of classes, one that held an important position between degraded lower classes and corrupted upper classes. This claim to middle-class superiority turned the older elite republican philosophy on its head by identifying wealth as a producer of vice, rather than virtue, leading its holders to use political power only to their own advantage. In contrast, members of the middle class, neither degraded and incapable of political capacity, nor

corrupted by wealth and power, worked only in the supposed interests of the nation as whole – the very definition of virtue. As were VMI cadets to do, middle-class professionals in general came to see themselves as disinterested administrators of the public and, as such, applied their professional expertise to decision-making and advising.

Several features of the engineering culture of VMI identified the school and its engineering culture with the broader emerging middle class culture. First, VMI's engineering culture identified a particular white manhood as a marker of the potential to engage in engineering work and the capacity to subordinate one's own interests. Second, it specified individual merit, regardless of class or connections, as the metric of engineering ability and suitability for leadership. Third, it specified formal education as the means of entering into engineering work, at a time when most engineers used practical experience as their claim to professional authority. Fourth, it established engineering as a profession of disinterested service to the commonwealth and nation. Fifth, it identified engineering as a middle-class profession, at a time of some class ambiguity for engineers and during the period of the formation of the middle class itself.

Service, in the engineering culture of VMI, meant the disinterested performance of practical work, particularly internal improvements, for the benefit of the commonwealth and nation as a whole. Cadets learned this commitment to service from the time they entered the school. They actively practiced it, beginning with serving Virginia by guarding the arsenal. It continued, for state cadets, after graduation through two years of teaching in Virginia schools. However, all teaching, which many graduates did well beyond any requirement, served the commonwealth by elevating the status of the profession and by providing *native* teachers committed to the institution of slavery.

Some cadets also continued their service through participation in the militia, even though it was not required. But the ultimate service came through the application of civil engineering to internal improvements. This work attained the level of service through the emphasis on its role in building the infrastructure and economy of the commonwealth and nation as a whole and for the benefit of all. This purpose of engineering contrasted with engaging in engineering work as a means of advancing one's own career or for the benefit of some sectional interest.

The commitment to internal improvements and the adoption of a curriculum that emphasized engineering served the interests of the elite of western Virginia in the sectional struggles from which the school emerged. The western advocates of constitutional reform identified their inability to secure improvements for their more isolated half of Virginia as a primary cause of the need for reform. The school would provide greatly needed trained men to perform the work, whether with or without state support. The initial advocates of the school may not have known what an engineering curriculum could or should have looked like. The governor, however, ensured a thorough curriculum supported by extensive mathematical and scientific training by his selection of engineer Claudius Crozet as a member of the first Board of Visitors. Crozet, trained in France, already viewed engineering as a profession of service to the state, for which engineers served as disinterested architects of a rational and comprehensive transportation network serving the whole nation, rather than individual or local interests.

The founders and officers of VMI hoped to legitimate and elevate the school, its graduates, and the class from which they came through this commitment to service and useful work. But the discourse also contained an implicit critique of the planter elite and

the liberal education that they gave to their sons. While the cadets obtained a "practical" education and engaged in "useful" work, the sons of the elite, by contrast, obtained a "useless" education in the classics. Moreover, the discourse of education at VMI contrasted the useful work of the cadets that benefited all with the unproductive work of the elite, who obtained their wealth from inherited property and the labor of others. So, again, the school served as a strategy to redefine virtue in favor of the west and against the eastern planters who dominated Virginia's legislature.

The engineering culture of VMI demanded a particular type of white manhood, one of a moral, industrious, self-reliant, and disciplined man willing to obey legal authority. The ability to subordinate one's own interests to those of the state depended on these traits. Superintendent Francis Smith employed both military discipline and Christian education to inculcate these traits in the cadets. Discipline suggests obvious references to military culture. Smith, however, also drew upon his own restrained evangelical manhood, popular among the middling classes and western Virginians in general. This manhood emphasized self-discipline, morality, and restraint for inherently weak men facing constant temptation to indulgence and sin. These traits, however, also enabled the cadets to restrain their own interests and desires in order to fulfill their duty to authority and their service to the commonwealth. Through this capacity, they could then legitimate their claims to professional disinterestedness and virtue.

Regardless of any similarities or great distinctions between the professional cultures of engineering at VMI and in other American contexts of the time, we must understand the culture of VMI as arising from particular struggles. Ultimately, the diverse founders and early officers of VMI produced an engineering culture of

disinterested service, which, however, hid the many sectional, class, and even religious interests of the actors.

**Constructing Engineering Cultures**

My detailed analysis of the engineering culture of VMI complements previous general analyses of the influence of national styles and the economic and structural contexts of early US engineering. Those previous approaches have given us excellent insights into how different approaches to and pathways into engineering developed as they did. The question arises, however, why did engineers draw upon engineering cultures from other nations? Why, for example, did West Point and VMI employ a "French" style of engineering? To what extend did they actually do so? It is the emphasis on the particularities of the emergence of VMI and its engineering culture that enabled me to answer these questions.

The example of VMI suggests that engineers and the other actors who engage in these efforts to produce an engineering culture employ a variety of strategies and tools, not to construct an engineering culture itself, but to achieve authority in some particular field. Engineering cultures may emerge out of these struggles, either as deliberate strategies themselves or as a result of employing various strategies. In the case of VMI, we see that a range of actors, sometimes with competing interests, contributed to the school's engineering culture.

Many of these actors, such as Professor John Preston and Delegate Charles Dorman, were not engineers, but contributed important features to the culture. For example, as early advocates of the school, they helped to embed in the school a new

sense of whiteness that became central to the engineering culture. They did this, however, not with an engineering culture in mind at all, but to enroll the growing middling classes, yeomen, and poor whites of western Virginia as allies in their attempts to gain greater legislative power for the west. Board President Claudius Crozet and Superintendent Francis Smith, as engineers, introduced a particular institutional and curricular model for VMI in order to create an elite class of engineers that could promote middle-class interests in expanding the market economy of Virginia. These two groups of actors, despite their alliances, sometimes found themselves in conflict with one another. Preston, for example, favored a stronger emphasis on liberal education of the sort that he had acquired, while Smith succeeded in minimizing such courses in favor of a more scientific training. The actors in these struggles needed neither conspire nor even agree with one another regarding ends or means. Again, their goals were not necessarily to construct an engineering culture, but rather to achieve authority in some struggle, out of which an engineering culture emerged as a set of strategies or even contingent elements that were embedded in the curriculum, disciplinary practices, and organization of VMI.

To engage in efforts to construct an engineering culture, actors can draw on an extensive arsenal of strategies and tools. Examining early American engineering cultures in terms of French and British influences certainly reveals some interesting patterns. But now we can see the employment of these influences as more than just patterns; they were also tools for the actors. Crozet and Smith, for example, did not merely inherit a French tradition that they passively implemented. Instead, they used the association between these traditions and the elite engineers from West Point and the *École Polytechnique* as a

strategy for producing their own group of elite engineers. Smith and others also drew on a perhaps less obvious set of tools as well, including an Evangelical manhood of self-restraint, an imagined fraternity of white men, and newly emerging middle-class economic interests. The use of these tools had profound implications for the engineering culture that emerged at VMI. Perhaps more obviously, it established a particular type of knowledge, mathematical and theoretical, as the basis for authority in engineering, which is still recognizable in American engineering today. Less obviously, it established a particular type of person that one had to be in order to be an engineer. The cadets did not just happen to be white men; it was essential that they be so. Only white men, in the particular constructions of white manhood upon which the actors drew, had the qualities of self-restraint and independence necessary to carry out work of service to the commonwealth, which was the type of work deemed legitimate for engineers. To be an engineer was to be a white man.

**Future Research**

This dissertation demonstrates the usefulness of examining the particular and local origins of distinct antebellum engineering cultures. However, it also begs for detailed comparison. For example, how does the culture of VMI differ from that of West Point, which influenced VMI so strongly? Both emphasized the importance of formal education and intensive mathematical and scientific training. West Point, however, produced officers for the US Army, while VMI imposed no military service upon its graduates. Did this lead differing definitions of service for the two groups? The lack of explicit Christian education and other contingent aspects of West Point likely led to the

production of a different type of man as well. In another example, we do know that the other southern military schools modeled themselves after VMI and frequently emphasized "practical" and "scientific" training. But to what extent? How did their engineering curricula differ? Did their cadets learn a different set of values and adopt important variations on the engineering culture of VMI?

The existing research on the cadets of VMI and the other southern military schools, particularly the work of historian Jennifer Green, strongly suggests that the cadets of these schools generally adopted at least the white middle-class professional manhood in which the engineering culture of VMI participated. We also know that these cadets, at least those from VMI, attained substantial professional success as engineers. We must still, however, do research to determine how they actually carried out their work in the field, as well as in the schools they founded and at which they taught. In addition, we must assess the impact of these cadets on the culture of the profession as a whole. Only a comprehensive comparative study can do this. But, having done so, we might then also assess how these antebellum engineering cultures contributed to and shaped the profession later. Moreover, these detailed studies may help us to identify features of contemporary engineering cultures that might otherwise remain hidden.

## WORKS CITED

### MANUSCRIPT COLLECTIONS

Library of Virginia
Executive Papers
Virginia General Assembly Legislative Petitions, Rockbridge County

United States Military Academy, Special Collections and Archives
Annual Report of the Board of Visitors, 1833
Official Register of the Officers and Cadets, 1818 to 1966

Virginia Military Institute, Virginia Military Institute Archives
Board of Visitor Minutes, vol. 1 1839-1844
Board of Visitor Minutes, vol. 2 1839-1853
Cadet Applications & Letters of Recommendation, 1839-1864
Cadet Architectural Drawings
Faculty and Departmental Reports, 1843-1844
Manuscript Collection
Preston-Smith Letters
Publications Catalog, 1840-1864
Register of the Officers and Cadets, 1843-1851
Reports of the Board of Visitors to the Governor
Superintendent (Francis H. Smith) Correspondence
Superintendent's Annual Reports to the Board of Visitors

Washington and Lee University, James Graham Leyburn Library
Board of Trustees Minutes
Franklin Society and Library Company Papers

### GOVERNMENT DOCUMENTS

Acts of the General Assembly of Virginia, 1835-1839.

Board of Visitors of the Virginia Military Institute. *Regulations of the Virginia Military Institute at Lexington*. Richmond, VA: Shepherd & Colin, 1839.

--------. *Regulations of the Virginia Military Institute at Lexington*. New York: John Wiley, 1848.

General Assembly of Virginia, *The Code of Virginia: With the Declaration of Independence and Constitution of the United States and the Declaration of Rights and Constitution of Virginia*. Richmond: William F. Ritchie, 1849.

Hening, William Waller. *Statutes at Large: Being a Collection of all the Laws of Virginia, from the First Session of the Legislature, in the Year 1619*, v. 12. Richmond, Virginia, 1823.

*Journal of the House of Delegates of the Commonwealth of Virginia*, 1835-1845.

Swem, Earl G. and John W. Williams. *A Register of the General Assembly of Virginia, 1776-1918, and of the Constitutional Convention*. Richmond, VA, Commonwealth of Virginia, 1918.

NEWSPAPERS

*Lexington Gazette* (Lexington, Virginia)

*Valley Star* (Lexington, Virginia)

PUBLISHED WORKS

*The 2000 Register of Former Cadets of the Virginia Military Institute*. Lexington, Virginia: VMI Alumni Association, 2001.

Alder, Ken. "French Engineers Become Professionals; or, How Meritocracy Made Knowledge Objective." In *The Sciences in Enlightened Europe*, edited by William Clark, Jan Golinski, and Simon Schafer, 94-125. Chicago, University of Chicago Press, 1999.

Andrew, Jr., Rod. *Long Gray Lines: The Southern Military School Tradition, 1839-1915*. Chapel Hill: University of North Carolina Press, 2001.

Bartlett, A.M., William H. C. *An Elementary Treatise on Optics, Designed for the Use of the Cadets of the United States Military Academy*. New York: Wiley and Putnam, 1839.

Batteau, Allen. "Negations and Ambiguities in the Cultures of Organization." *American Anthropologist* 102 (2001): 726-740.

Bledstein, Burton J. *The Culture of Professionalism: The Middle Class and the Development of Higher Education in America*. New York: W. W. Norton, 1976.

Bloch, Ruth H. "The Gendered Meanings of Virtue in Revolutionary America." *Signs* 13, 37-58.

Boles, John B. "Evangelical Protestantism in the Old South: From Religious Dissent to Cultural Dominance." In *Religion in the South*, edited by Charles Reagan Wilson, 13-34. Jackson: University Press of Mississippi, 1985.

Boucharlat, J. L. *Élémens de Calcul Différentiel et de Calcul Intégral*. Paris, Bachelier, 1830.

--------. *Élémens de Mécanique*, third edition. Paris: Bachelier, Imprimeur-Libraire de L'École Polytechnique, 1840.

Bourdieu, Pierre. "The Peculiar History of Scientific Reason," translated by Channa Newman. *Sociological Forum* 6 (1991): 3-26.

--------. *Masculine Domination*. Translated by Richard Nice. Stanford, CA: Stanford University Press, 2001.

Brinkley, John Luster. *On This Hill: A Narrative History of Hampden-Sydney College, 1774-1994*. Hampden-Sydney, 1994.

Brod, Harry and Michael Kaufman, eds. *Theorizing Masculinities*. Thousand Oaks, California: Sage Publications, 1994.

Brown, John K. "Design Plans, Working Drawings, National Styles: Engineering Practice in Great Britain and the United States, 1775-1945." *Technology and Culture* 41 (2000): 195-240.

Bruce, Philip Alexander. *History of the University of Virginia, 1819-1919*. New York: Macmillan Company, 1920.

Calhoun, Daniel Hovey. *The American Civil Engineer: Origins and Conflict*. Cambridge: The Technology Press, 1960.

Carrigan, Tim, Bob Connell, and John Lee, "Toward a New Sociology of Masculinity." In *The Masculinity Studies Reader*, edited by Rachel Adams and David Savran, 99-118. Malden, Massachusetts: Blackwell Publishers, 2002.

Chatzis, Konstantinos. "Introduction: The National Identities of Engineers." *History and Technology* 23 (September 2007): 193-196.

Couper, Colonel William. *One Hundred Years at V.M.I*. Richmond, VA: Garrett and Massie, 1939.

Crenshaw, Ollinger. *General Lee's College: The Rise and Growth of Washington and Lee University*. New York: Random House, 1969.

Crosland, M. P. "Biot, Jean-Baptiste." *Dictionary of Scientific Biography*, volume 2, edited by Charles Coulston Gillispie. New York: Charles Scribners and Sons, 1970. 133-140

Cunningham, June F. "Colonel John Thomas Lewis Preston." In *A Crowd of Honorable Youths: Historical Essays On The First 150 Years Of The Virginia Military Institute*, edited by Thomas W. Davis, 47-60. Lexington: VMI Sesquicentennial Committee, 1988.

Davies, Charles. *Elements of Descriptive Geometry, With Their Application to Spherical Trigonometry, Spherical Projections, and Warped Surfaces*. New York: A. S. Barnes & Co., 1834.

--------. *A Treatise on Shades and Shadows, and Linear Perspective*, Second Edition. New York: Wiley & Putnam, Collins, Keese & Co., 1838.

--------. *Elements of Surveying, and Navigation, With Descriptions of the Instruments and the Necessary Tables*, Revised. New York: A.S. Barnes & Burr, 1859.

Dorman, John Frederick. *The Prestons of Smithfield and Greenfield in Virginia*. Louisville, Kentucky: Filson Club, Publications, 1982.

Downey, Gary Lee and Juan C. Lucena. "Knowledge and Professional Identity in Engineering: Code-Switching and the Metrics of Progress." *History and Technology* 20 (December 2004): 393-420.

Downey, Gary Lee. "Low Cost, Mass Use: American Engineers and the Metrics of Progress." *History and Technology* 23 (September 2007): 289-308.

Franklin, John Hope. *The Militant South, 1800-1861*. (Boston: Beacon Press, 1956).

Friend, Craig Thompson and Lorri Glover, eds. *Southern Manhood: Perspectives on Masculinity in the Old South*. Athens: University of Georgia Press, 2004.

Geiger, Roger L. "The Rise and Fall of Useful Knowledge: Higher Education for Science, Agriculture, and the Mechanic Arts, 1850-1875." In *The American College in the Nineteenth Century*, edited by Roger Geiger, 153-168. Nashville, Tennessee: Vanderbilt University Press, 2000.

Gossett, Thomas F. *Race: The History of an Idea in America*, 2nd edition. New York: Oxford University Press, 1997.

Green, Jennifer R. "'Stout Chaps Who Can Bear the Distress': Young Men in Antebellum Military Academies." In *Southern Manhood: Perspectives on Masculinity in the Old South*, edited by Craig Thompson Friend and Lorri Glover, 174-195. Athens: University of Georgia Press, 2004.

--------. "'Practical Progress is the Watchword': Military Education and the Expansion of Opportunity in the Old South." *Journal of the Historical Society* 3 (Fall, 2005): 363-390.

Greenberg, Amy S. *Manifest Manhood and the Antebellum American Empire*. New York: Cambridge University Press, 2005.

Hannaford, Ivan. *Race: The History of an Idea in the West*. Washington, DC: Woodrow Wilson Center Press, 1996.

Heyrman, Christine Leigh. *Southern Cross: The Beginnings of the Bible Belt*. New York: Alfred A. Knopf, 1997.

Hoganson, Kristin. *Fighting for American Manhood: How Gender Politics Provoked the Spanish-American and Philippine-American Wars*. New Haven: Yale University Press, 1998.

hooks, bell. *We Real Cool: Black Men and Masculinity*. New York: Routledge, 2004.

Horsman, Reginald. *Race and Manifest Destiny: The Origins of American Racial Anglo-Saxonism*. Cambridge: Harvard University Press, 1981.

Howe, Daniel Walker. *The Political Culture of the American Whigs*. Chicago: University of Chicago Press, 1979.

Hunter, Robert F. and Edwin L. Dooley, Jr. *Claudius Crozet: French Engineer in America, 1790-1861*. Charlottesville: University Press of Virginia, 1989.

Hunter, Robert F. "Turnpike Construction in Antebellum Virginia." In *The Engineer in America: A Historical Anthology from* Technology and Culture, edited by Terry S. Reynolds, 43-68. Chicago: Chicago University Press, 1991.

Jacobson, Matthew Frye. *Whiteness of a Different Color: European Immigrants and the Alchemy of Race*. Cambridge: Harvard University Press, 1998.

Jeffords, Susan. *The Remasculinization of America: Gender and the Vietnam War*.Bloomington, Indiana: Indiana University Press, 1989.

Kaestle, Carl F. *Pillars of the Republic: Common Schools and American Society, 1780-1860*. New York: Hill and Wang, 1983.

Kann, Mark. *The Gendering of American Politics: Founding Mothers, Founding Fathers, and Political Patriarchy*. Wesport, Connecticut: Praeger, 1999.

Kimmel, Michael. *Manhood in America: A Cultural History*. New York: The Free Press, 1996.

Kranakis, Eda. *Constructing a Bridge: An Exploration of Engineering Culture, Design, and Research in Nineteenth-Century France and America*. Cambridge: MIT Press, 1997.

Kranzberg, Melvin, ed. *Technological Education-Technological Style*. San Francisco: San Francisco Press, 1986.

Legendre, A. M. *Elements of Geometry and Trigonometry; With Notes*. Translated by David Brewster. Revised by James Ryan. New York: N. & J. White; Colins & Hannay; Collins & Co.; and James Ryan, 1832.

Mahan, M.A., D. H. *A Complete Treatise on Field Fortification, With the General Outlines of the Principles Regulating the Arrangement, the Attack, and the Defence of Permanent Works*. New York: Wiley & Long, 1836.

--------. *An Elementary Course of Civil Engineering: For the Use of Cadets of the United States' Military Academy*, sixth edition. New York: John Wiley, 1864.

Mahon, John K. *History of the Militia and the National Guard*. New York: Macmillan Publishing, 1983.

Mathews, Donald G. *Religion in the Old South*. Chicago: University of Chicago Press, 1977.

Masur, Louis P. "Nat Turner and Sectional Crisis." In *Nat Turner: A Slave Rebellion in History and Memory*, edited by Kenneth S. Greenberg, 148-161. New York: Oxford University Press, 2003.

Meiksins, Peter and Chris Smith, eds. *Engineering Labour: Technical Workers in Comparative Perspective*. New York: Verso, 1996.

Meiksins, Peter. "Engineers in the United States: A House Divided." In *Engineering Labour: Technical Workers in Comparative Perspective*, edited by Peter Meiksins and Chris Smith, 61-97. London: Verso, 1996.

Morrison, Jr., James L. *"The Best School in the World": West Point, the Pre-Civil War Years, 1833-1866*. Kent, OH: Kent State University Press, 1986.

Morton, Oren F. *A History of Rockbridge County, Virginia*. Staunton, VA: McClure, 1920.

Mullins, Jeffrey A. "'In the Sweat of Thy Brow': Education, Manual Labor, and the Market Revolution." In *Cultural Change and the Market Revolution in America, 1789-1860*, edited by Scott C. Martin, 143-180. New York: Rowman & Littlefield, 2005.

Nelson, Dana D. *National Manhood: Capitalist Citizenship and the Imagined Fraternity of White Men*. Durham, NC: Duke University Press, 1998).

Oldenziel, Ruth. *Making Technology Masculine: Men, Women, and Modern Machines in America, 1870-1945*. Amsterdam University Press, 1999.

Pace, Robert F. *Halls of Honor: College Men in the Old South*. Baton Rouge: Louisiana State University Press, 2004.

Pappas, George S. *To the Point: The United States Military Academy, 1802-1902*. Westport, CT: Praeger, 1993.

Pierson, George Wilson. *A Yale Book of Numbers: Historical Statistics of the College and University, 1701-1976*. Yale University, 1983.

Pugh, David G. *Sons of Liberty: The Masculine Mind in Nineteenth Century America*. Westport, Connecticut: Greenwood Press, 1983.

Reynolds, Terry S. "The Engineer in 19th-Century America." In *The Engineer in America: A Historical Anthology from* Technology and Culture, edited by Terry S. Reynolds, 7-26. Chicago: University of Chicago Press, 1991.

--------. "The Education of Engineers in America before the Morrill Act of 1862." *History of Education Quarterly* 32 (1992): 459-482.

Roediger, David R. *The Wages of Whiteness: Race and the Making of the American Working Class*, revised edition. New York: Verso, 1991.

Rotundo, Anthony E. *American Manhood: Transformations in Masculinity from the Revolution to the Modern Era*. New York: Basic Books, 1993.

Rothman, David J. *The Discovery of the Asylum: Social Order and Disorder in the New Republic*. Boston: Little, Brown and Company, 1971.

Rudolph, Frederick. *The American College and University: A History*, 1962; reprint, with an introductory essay and supplemental bibliography by John R. Thelin. Athens: University of Georgia Press, 1990.

Shade, William G. *Democratizing the Old Dominion: Virginia and the Second Party System*. Charlottesville: University Press of Virginia, 1996).

Sheriff, Carol. *The Artificial River: The Erie Canal and the Paradox of Progress, 1817-1862*.Hill and Wang, 1996).

Smith, Francis H. *An Elementary Treatise on Analytical Geometry: Translated from the French of J. B. Biot, for the use of the Cadets of the Virginia Military Institute at*

*Lexington, VA: and Adapted to the Present State of Mathematical Instruction in the Colleges of the United States*, 2nd edition. Philadelphia: Charles DeSilver & Sons, 1846.

--------. *The Regulations of Military Instructions, Applied to the Conduct of Common Schools*. New York: John Wiley, 1849.

--------. *An Elementary Treatise on Algebra: Prepared for the Use of the Cadets of the Virginia Military Institute, And Adapted to the Present State of Mathematical Instruction in the Schools, Academies, and Colleges of the United States*. Philadelphia: Thomas, Cowperthwait & Co., 1850.

--------. *College Reform*. Philadelphia: Thomas, Cowperthwait & Co., 1851.

--------. *Introductory Address to the Corps of Cadets of the Virginia Military Institute, on the Resumption of Academic Duties, September 2nd, 1856*. Richmond, Virginia: Macfarlane & Fergusson, 1856.

--------. *The Virginia Military Institute: Its Building and Rebuilding*. Lynchburg, Virginia: J. P. Bell Company, 1912.

Smith, Merritt Roe. "Technological Determinism in American Culture." In *Does Technology Drive History?: The Dilemma of Technological Determinism*, edited by Merritt Roe Smith and Leo Marx, 1-35. (Cambridge: MIT Press, 1994.

Snider, William D. *Light on the Hill: A History of the University of North Carolina at Chapel Hill*. Chapel Hill: University of North Carolina Press, 1992.

Sutton, Robert P. *Revolution to Secession: Constitution Making in the Old Dominion*. Charlottesville: University Press of Virginia, 1989).

Turner, Charles W. 'The Franklin Society, 1800-1891." *The Virginia Magazine of History and Biography*, 66 (October 1958): 431-447.

Watson, Harry L. *Liberty and Power: The Politics of Jacksonian America*. New York: Noonday Press, 1990.

Wells, Jonathan Daniel. *The Origins of the Southern Middle Class, 1800-1861*. Chapel Hill: University of North Carolina Press, 2004.

Wertenbaker, Thomas Jefferson. *Princeton, 1746-1896*. Princeton: Princeton University Press, 1946.

Wiegman, Robyn. *American Anatomies: Theorizing Race and Gender*. Durham, NC: Duke University Press, 1995).

Williamson, Major Thomas H. *An Elementary Course of Architecture and Civil Engineering, Compiled from the Most Approved Authors for the Use of the Cadets of the Virginia Military Institute*. Lexington, VA: Samuel Gillock, 1850.

Wise, Henry A. *Drawing Out the Man: The VMI Story*. Charlottesville: University Press of Virginia, 1978.

Wise, Jennings C. *The Military History of the Virginia Military Institute from 1839-1865*. Lynchburg, VA: J. P. Bell Company, 1915.

Wyatt-Brown, Bertram. *Southern Honor: Ethics and Behavior in the Old South*. New York: Oxford University Press, 1982.

UNPUBLISHED THESES AND DISSERTATIONS

Baker, Dean Paul. "The Partridge Connection: Alden Partridge and Southern Military Education." PhD diss., University of North Carolina-Chapel Hill, 1986.

Green, Jennifer R. "Books and Bayonets: Class and Culture in Antebellum Military Academies." PhD diss., Boston University, 2002.