Early Veterinary Activities at Virginia Polytechnic Institute, 1870s - 1920s: The Rise and Fall of Virginia’s State-Controlled Veterinary Complex

Jill Lee Chapman

Thesis Submitted to the Faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

Master of Science in

Science and Technology Studies

Ann F. La Berge, Chair
Amy Nelson
Peter Wallenstein

July 26, 2006
Blacksburg, Virginia

Keywords: History of Veterinary medicine, veterinary science, VPI, Virginia’s veterinary complex

Copyright 2006, Jill Lee Chapman
Early Veterinary Activities at Virginia Polytechnic Institute, 1870s-1920s: The Rise and Fall of Virginia’s State-Controlled Veterinary Complex

Jill Lee Chapman

(ABSTRACT)

Veterinary activities at VPI between 1872 and 1959 established the Blacksburg institution as the center of Virginia’s veterinary education long before the opening of the Virginia-Maryland Regional College of Veterinary Medicine in 1980. This thesis traces the lineage of VPI’s veterinary medicine program back to the inception of the institution, locates VPI’s contribution to veterinary medicine within the State of Virginia and nationally, and puts all these developments within the general historical context of the role of land-grant agricultural colleges in the development of veterinary medicine. The organization of veterinary activities of the state of Virginia took the form of a veterinary complex, its four main components of education, research, dissemination of veterinary knowledge, and prevention and control of livestock disease located in the late nineteenth and early twentieth centuries on the VPI campus in Blacksburg. This complex--taken as a whole--functioned as the primary actor in the veterinary network in Virginia--along with other veterinary institutions and offices that existed off-campus. The neglected history of early veterinary research and education in Virginia is important, because it clearly establishes these early veterinary activities at VPI as laying the groundwork for the establishment of the VMRCVM in 1980 and it shows why the VMRCVM was established at VPI (now referred to as Virginia Tech).
Table of Contents

Preface iv
List of Illustrations vi
List of Abbreviations vii
Introduction 1

Chapter 1: The Emergence of The State of Virginia’s Veterinary Complex at VPI 15

The Age of the Horse Doctor: Veterinary Medicine in Virginia Prior to the 1890s 16
The Beginnings of Veterinary Medical Education at VPI 18
The Establishment of the Virginia Agricultural Experiment Station (VAES) 21
Dissemination of VAES Veterinary Research 23
The Establishment of the Office of State Veterinarian 25
The State of Virginia’s Veterinary Complex at VPI 26

Chapter 2: The State of Virginia’s Veterinary Complex at Work, 1896–1908 30

Veterinary Instruction at VPI, 1891–1924: Students, Faculty, and Curriculum 34
Veterinary Research, Bulletins, and Disease Outbreaks 40
The Role of the State Veterinarian 46
Veterinary Activities Outside Blacksburg 50

Chapter 3: The End of VPI as the Center of the Veterinary Complex 55

Virginia Veterinary Medical Association’s (VVMA) Professionalization Efforts 60
The State Veterinarian Moves Off Campus 63
Veterinary Education Down Scaled at VPI 65
The Veterinary Complex after the 1920s 70

Conclusion 72

Bibliography 75

Appendix I: Veterinary-Related Bulletins Published by VAES, 1892 – 1929 81
Appendix II: VAMC and VPI Early Veterinary Faculty: 1872-1924 83
Vita 84
Preface

For every topic there is a person or persons connected to it. Does a person seek a topic? Do they stumble across a topic while doing some unrelated research? Or, does a topic find the person? I believe all conditions are possible, but they do not apply to my relationship to the research topic of turn-of-the-twentieth-century veterinary practices at Virginia Polytechnic Institute (VPI). In this case, my interest in medical history and the topic of veterinary medicine meshed easily and have led to a fruitful study.

My interest in medicine started before I entered college as a side interest of why things are the way they are. Specifically, my independent interest in the history of spinal cord injury, prompted by my own injury, has preconditioned me to keep an eye out on most things medical. Even though I started my college career in studio art, my interest in medicine as well as my condition remain with me. As different opportunities presented themselves to me in academia, I found myself studying the history of medicine and the history of science under the tutelage of Professors Jake Spidle and Timothy Moy at the University of New Mexico (UNM). These two gentlemen introduced me to a new area of history where my previous interest in medicine could find a home. After graduating UNM in 2003 with a BA in History, I then entered the Science and Technology Studies graduate program at Virginia Tech (VT). In this institution, topic met researcher.

In my first semester at VT, the topic of the history behind the establishment of Virginia-Maryland Regional College of Veterinary Medicine (VMRCVM) was thrown on the table as a possible research topic to pursue in a historical methods class conducted by Peter Wallenstein. What interested me about this topic was that I did not even know that VT had a veterinary college, and further it was the only topic dealing with medicine. That first semester I weighed the feasibility of doing this study for my thesis within my self-imposed allotted time to complete my program of study. The decision to go ahead and choose this topic for my thesis was based on the fact that most of the primary documents are located on-site and the topic was related to my interest in medicine.

I was all prepared to use the history of the establishment of VMRCVM as my thesis topic as I started my research that first semester. During my second semester, for supplemental background information, I took the seminars “Animals in History,” conducted by Amy Nelson
and “Historical and Contemporary Issues in Medicine and Public Health,” led by Ann La Berge. Wallenstein, Nelson and La Berge encouraged me to pursue this topic. La Berge, with her expertise in medicine and public health history, Wallenstein, with his expertise in the institutional history of VT, and Nelson, with her expertise in animals in history, formed my dream thesis committee.

As my research progressed, I started to find that VPI had in its early years offered veterinary science classes. This finding surprised me, because almost all of the primary research on the history of veterinary medical education focused on the establishment of public colleges of veterinary medicine. When I dug deeper into the secondary literature, I found that historical accounts of veterinary science departments at land-grant colleges was either non-existent or, if such departments and courses were mentioned, the coverage was insufficient to account for their possible contributions to the health of domestic animals at the turn of the twentieth century. This contradiction between the secondary literature and the primary documents I found on the array of veterinary activities at VPI between the 1870s and 1920s prompted me to switch my thesis topic from the establishment of the VMRCVM to this earlier veterinary history at VPI. The research I present in this thesis has been not only personally rewarding, but also constitutes a valuable contribution to veterinary history in Virginia and at VPI.
# List of Illustrations

<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>Page #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Four Basic Components of the State of Virginia’s Early Veterinary Complex at VPI in 1896</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>The Actors in Virginia’s State-Controlled Veterinary Complex at VPI, 1896</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>M. G. Ellzey, 1878</td>
<td>19</td>
</tr>
<tr>
<td>4</td>
<td>Teams Working on the VPI Farm, 1906</td>
<td>28</td>
</tr>
<tr>
<td>5</td>
<td>Part of the VPI Dairy Herd, 1906</td>
<td>29</td>
</tr>
<tr>
<td>6</td>
<td>The State of Virginia’s State-Controlled Veterinary Complex Components in Relation to Other Veterinary Activities in 1896</td>
<td>31</td>
</tr>
<tr>
<td>7</td>
<td>Edwin P. Niles, 1896</td>
<td>32</td>
</tr>
<tr>
<td>8</td>
<td>A VPI Veterinary Class in 1893</td>
<td>35</td>
</tr>
<tr>
<td>9</td>
<td>Map of VPI Campus, 1921</td>
<td>39</td>
</tr>
<tr>
<td>10</td>
<td>Horticulture Hall with the Veterinary Hospital in the Background, 1895</td>
<td>39</td>
</tr>
<tr>
<td>11</td>
<td>The Veterinary Hospital, 1931</td>
<td>40</td>
</tr>
<tr>
<td>12</td>
<td>Cover of The AgreView, 1926</td>
<td>44</td>
</tr>
<tr>
<td>13</td>
<td>Illustration of a Black Leg Vaccine Kit found in VAES Bulletin #90</td>
<td>50</td>
</tr>
<tr>
<td>14</td>
<td>Virginia’s State-Controlled Veterinary Complex in 1896 and in the 1920s</td>
<td>71</td>
</tr>
<tr>
<td>15</td>
<td>Agriculture Hall, 1907</td>
<td>64</td>
</tr>
</tbody>
</table>
List of Abbreviations

VAMC - Virginia Agricultural and Mechanical College, 1872 to 1896
VPI - Virginia Polytechnic Institute, 1896 to 1970
VPI&SU - Virginia Polytechnic Institute and State University, 1970 to Present
VT - Virginia Tech, the present-day common nickname of VPI and SU
BOV - Board of Visitors, the governing body for VPI
VAES [1889] - Virginia Agricultural Experiment Station, established 1889
BOC - Board of Control, the governing body of the Virginia Agricultural Experiment Station
VAES [1914] - Virginia Agricultural Extension Service
VMRCVM - Virginia-Maryland Regional College of Veterinary Medicine, established in 1980
VVMA Virginia Veterinary Medical Association
USVMA AVMA - United States Veterinary Medical Association, later called the American Veterinary Medical Association
VLSSB - Virginia Live Stock Sanitary Board
VVEB - Virginia Veterinary Examiner Board
BAI - Bureau of Animal Industries, an agency under the United States Department of Agriculture (USDA)
Introduction

Jeffrey S. Douglas, the public-relations representative of the Virginia-Maryland Regional College of Veterinary Medicine (VMRCVM), wrote in 1994 that veterinary medical education at VPI found its first home in the department of biology, would prosper under the leadership of Dr. I. D. Wilson, considered by many to be the father of veterinary medicine in Virginia, it eventually [sic], in the Department of Veterinary of Science [sic] at Virginia Tech (VT).¹ Douglas further claims that the status of veterinary medicine at Virginia’s senior land-grant university was elevated significantly in 1959, when the Department of Veterinary Science was created within the College of Agriculture.² These two statements indicate a lack of knowledge of the high level of sophistication of veterinary medicine that existed at VPI and the significance of VPI in early Virginia veterinary history. I. D. Wilson started at VPI in 1923. Douglas’s assertion apart, I. D. Wilson is not the father of Virginia’s veterinary medicine, and there is, in fact, no real claimant to this title. Instead, scores of fully trained veterinarians who worked in Virginia prior to Wilson guided the growth of the veterinary profession and founded the state’s veterinary tradition.

The founding members of the Virginia Veterinary Medical Association (VVMA) represent the spectrum of late nineteenth-century veterinary medicine in Virginia. Dr. W. H. Harbaugh was the surgeon in charge of the veterinary hospital on Adams Street in Richmond.³ George C. Faville, B. Sc., DVM, another founding member of VVMA, and employee of the Bureau of Animal Industries (BAI), came to Norfolk, Virginia in 1894 to join the coordinated efforts to control Texas fever carried by cattle ticks.⁴ Faville remained in Virginia for the rest of his professional career, and became one of the most vocal supporters of professionalism in veterinary medicine.⁵ Harbaugh and Faville are just two of the names that show up in VVMA’s early minutes. However, if there is one person on whom should be bestowed the title of father of

² Ibid., 91.
³ A Century of Service, 35.
⁴ George C. Faville, The Virginia State Veterinary Medical Association (Richmond, Virginia: publisher unknown, 1931), 12.
⁵ Faville’s speech, 1926, to the VVMA, about James Gross Ferneyhough.
Virginia veterinary medical education, then it is Edwin P. Niles—for his distinctive contribution to the academic component of veterinary medicine in the early years of VPI.

Before the veterinary profession was fully formalized, non-degree practitioners of the emergent scientific veterinary medicine restricted their practices to domestic animals in order to contain major losses as well as to comply with new federal and state regulations intended to prevent the spread of livestock and zoonotic diseases. Veterinary medicine at this time was taking shape as an academic discipline both in newly established veterinary colleges and in veterinary science departments at agricultural land-grant colleges. As one of these land-grant colleges, VPI housed programs for veterinary science and research; it also became the center of a brief but vital complex of state-controlled veterinary activities located in Blacksburg, Virginia. The conditions that fostered this intensive activity were several. One, there were new scientific medical advances such as the articulation of the germ theory, formulation of procedures to identify disease-causing organisms, development of vaccinations, advancements in knowledge about the transmission of some diseases carried by insect vectors, and advances in surgical techniques (including antisepsis, asepsis, and anesthesia). Two, there was a shortage of veterinarians schooled and trained in the new scientific advancements in medicine. Three, the land-grant movement had created institutions that could address the lack of trained veterinarians and veterinary research. Lastly, there was a need to control zoonoses in order to protect the growing livestock industry and public health.

In the 1880s and the 1890s, veterinary medicine was on the cusp of its revolutionary scientific and professional transformation from farrier/horse doctor to fully schooled and trained veterinarians and from non-scientific to scientific veterinary medicine. This transformation would take at least eighty years to complete and VPI was an important participant. At the opening of the Virginia Agricultural and Mechanical College (VAMC) in 1872 veterinary medicine was a field poised for major conversion. What was once an uneducated occupation of rudimentary care of domesticated animals, veterinary medicine would develop into a field of medical care for animals as well as an area of public health interest. VPI did not just participate in this transformation, but in fact dominated the state-controlled veterinary activities by virtue of

---

its teaching and research programs, regulation of sick animals, and dissemination of veterinary knowledge to farmers.

Virginians depended on the livestock industry for most of the state’s existence. In 1872, Virginians displayed concern for this essential industry by incorporating animal husbandry and veterinary instruction into their State’s newly established land-grant institution, VAMC, later to be known as VPI. VPI became the center of agricultural training and, later, agricultural research. VPI was established as the VAMC in 1872 through federal funding made possible by the Morrill Act of 1862. The Land-Grant Acts shaped the growth of VPI and other land-grant institutions in the late nineteenth century. In addition, the Land-Grant Acts helped define the disciplines taught at the institutions that received federal funds. As such, the land-grant institutions, including VPI, greatly impacted the veterinary field that was coming into its own around the turn of the twentieth century.

Most historical accounts are devoid of details relating to VPI’s veterinary activities up to the middle of twentieth century. For example, few people know that James Gross Ferneyhough was at the same time an assistant veterinary professor at VPI and the Virginia State Veterinarian. In as much as it has been neglected, VPI’s early veterinary history is important, because VPI was the center of state-controlled veterinary activities around the turn of the twentieth century.

VPI was typical of land-grant institutions with veterinary departments and experiment stations. The college livestock—cattle, horses, sheep, swine, and fowls—was regularly used for instruction in veterinary practices in those early years. VPI agricultural students receiving veterinary instruction were required to participate in veterinary clinics. As noted in many Virginia Experiment Station Bulletins, research was also done on the college’s herd. However, VPI’s role went beyond veterinary education and research, as it became a center of operation for the State of Virginia’s regulation and control of livestock diseases in the late nineteenth-century. As such, VPI housed Virginia’s Office of State Veterinarian, disseminated veterinary medical information, and manufactured and distributed select vaccines.

---

8 To avoid confusion, the use of Virginia Polytechnic Institute (VPI) in this thesis will cover all titles (VAMC (1872-1896), VPI (1896-1970), VPI&SU (1970-present)) and especially for the time periods of the school known as Virginia Polytechnic Institute (VPI) from 1872 to 1970.
9 Bert W. Bierer, American Veterinary History (Privately printed by Carl Olson, 1980), 82-83. The original manuscript was dated 1940.
Except for the Virginia Veterinary Board of Examiners (VVBE), established in 1896, four of the five state-controlled activities that VPI participated in were located in Blacksburg. VPI's veterinary operations were part of a complex of activities comprising four broad components of education, research, dissemination of veterinary knowledge, and regulation of contagious animal diseases (fig. 1). In most cases, the above four components were highly flexible, and they often intermingled. For example, almost all of the early veterinary science faculty at VPI were employed as VAES researchers, wrote VAES Bulletins, and served as State Veterinarians. The above four components became fully operational at VPI in the later years of the McBryde administration between 1896 and 1908. The Virginia veterinary complex fully developed at VPI around the same time as the State's veterinary professional bodies and regulatory agencies emerged in the 1890s. In subsequent years, some components of the complex were either moved out of VPI, or VPI became less involved in them.

Figure 1

The Four Basic Components of the State of Virginia's Early Veterinary Complex at VPI in 1896

Education comprises the agricultural students, faculty, and the college livestock. Research includes the VAES and the college livestock. Dissemination of Veterinary Knowledge refers to
the VAES and veterinary-related Bulletins. Control of Livestock Disease includes the State Veterinarian and VAES’s Board of Control. VPI’s early veterinary faculty mostly participated in all the basic components.

The growth of Virginia’s veterinary complex at VPI and the complex’s partial transition into other roles within the state reflects the general developments within the larger veterinary field. The transformation of the American veterinary profession from its primitive form involving farriers and horse doctors into its modern form employing fully trained veterinarians started after the Civil War. This transformation and the associated formalization of the veterinary profession was more a matter of standardizing educational requirements than of actual experience. Also, veterinary professionals wanted to organize and influence the federal and state governments to regulate veterinary procedures, including livestock vaccinations. The veterinary complex at VPI exemplified these efforts.

While Virginia’s veterinary complex’s activities reflect the veterinary field’s transition around the turn of the twentieth-century, they are not completely explained by nor do they fully explain the specific mix of activities at VPI or the importance of VPI’s role in the growth of Virginia’s veterinary field. Histories that do touch upon Virginia’s veterinary history during the early veterinary transition stop short of highlighting the connections among VPI’s early veterinary activities with general veterinary advances, VPI’s institutional, state-level activities in the field, and the activities of VMRCVM. The available histories do not credit VPI for its role in Virginia veterinary history prior to the 1930s.

Historians’ neglect of VPI’s role is consistent with the general neglect of the role of land-grant colleges in the veterinary transition. Thus, for instance, Joanna Swabe mentions the general change in the intellectual climate and devastating impact of animal plagues on livestock production as the driving force behind the transition, thus accentuating the economic aspect of the problem of livestock diseases.\textsuperscript{10} Susan Jones cites the changing values of animals in accordance with the changes in economic and public health concerns.\textsuperscript{11} O. H. V. Stalheim credits enterprising individuals within the profession as the driving force behind the

\textsuperscript{10}Joanna Swabe, Animals, Disease, and Human Society: Human-animal Relations and the Rise of Veterinary Medicine (London: Routledge, 1999), 88-89.
\textsuperscript{11}Susan D. Jones, Valuing Animals: Veterinarians and Their Patients in Modern America (Baltimore: Johns Hopkins University Press, 2003), 16.
modernization of the veterinary field.\textsuperscript{12} George Christensen points to the rise of scientific veterinary institutions--the veterinary colleges--as the key source of the transformation.\textsuperscript{13} These histories neglect the role of agricultural land-grant colleges as sites for early veterinary education and research. Most early veterinary histories refer to the establishment of private and public colleges of veterinary medicine, but they say practically nothing about the veterinary instruction provided at land-grant colleges.

With the objective of addressing this gap, I shall evaluate Bert Bierer’s \textit{American Veterinary History} (1940) and Jones’ \textit{Valuing Animals} (2003) as a way to establish the historiography of this transitional period of American veterinary history. Even though Swabe’s \textit{Animals, Disease and Human Society} (1999) comprehensively contextualizes veterinary history within Western culture, it does not focus on American veterinary historical developments at the turn of the twentieth-century. While Swabe’s study focuses on Western European veterinary history, Jones’ book provides superficial coverage of what occurred at the turn of the twentieth century at land-grant colleges and agricultural experiment stations. However, Jones does highlight the general insecurities felt by veterinary leaders owing to their small numbers: Veterinary leaders believed that their small numbers led to a lack of influence in protecting their professional turf from pharmaceutical companies, county agents, and other competitors.\textsuperscript{14}

Bierer’s \textit{American Veterinary History} does briefly discuss all veterinary science departments at land-grant agricultural colleges--but from a late 1930s’ perspective. Mentioning that these veterinary science departments at state colleges gave some phase of instruction in veterinary medicine,\textsuperscript{15} he reports that by 1879 the U. S. had over 20 state colleges offering some kind of veterinary medical instruction and by the late 1930s had 9 complete state veterinary colleges.\textsuperscript{16} Bierer also provides accounts of veterinary education available at land-grant colleges.\textsuperscript{17} In regard to VPI, he has the following to say:

\begin{itemize}
  \item \textsuperscript{12} O. H. V. Stalheim, \textit{The Winning of Animal Health: 100 Years of Veterinary Medicine} (Ames, Iowa: Iowa State University Press, 1994), 159.
  \item \textsuperscript{14} Jones, \textit{Valuing Animals}, 99.
  \item \textsuperscript{15} Bierer, \textit{American Veterinary History}, 82.
  \item \textsuperscript{16} Ibid., 26.
  \item \textsuperscript{17} Ibid., 83-97.
\end{itemize}
Virginia Polytechnic Institution, located at Blacksburg, employs three veterinarians.... Two of the veterinarians hold the offices of ‘associate professor of biology’ and “professor of biology.” These two veterinarians are also connected with the agricultural experiment station of the Institution, which also employs a third veterinarian as an “animal pathologist.”

The department of biology offers courses in parasites of domestic animals, anatomy and physiology of domestic animals, diseases of domestic animals. “Diseases of animals are classified and described causes, methods of transmission, control and eradication are discussed and general laws of hygiene and sanitation are studied.”

Even though Bierer discusses veterinary education at land-grant colleges, he does not contextualize it within the broader framework of the veterinary field or within the historical framework of the expansion of the veterinary profession.

It is important to note that what was considered veterinary medicine was in flux at the turn of the twentieth-century. The term veterinary medicine has a double meaning. To analyze the two words we must remove the basic meanings away from their professional influences, so I will use standard definitions from a layman’s dictionary. Medicine can be defined as the science and art of health and the prevention, alleviation, or cure of diseases, and veterinary is defined as the science and art of prevention, cure or alleviation of disease and injury in animals. So, medicine and veterinary have basically the same meaning, and the addition of medicine to veterinary just adds confusion as to what veterinary medicine really is. As far as the significance of veterinary medicine and veterinary science is concerned, the usage of these terms has evolved as the veterinary field has grown. Because the veterinary field was in flux and experiencing changing nomenclature, the term veterinary medicine is a socially constructed term that has become the acceptable usage to refer to the science and art of dealing with the health of animals other than humans.

18 Ibid., 93-94.
19 Merriam-Webster online dictionary, Www. m-w.com/dictionary/medicine and www.m-w.com/dictionary/veterinary.
The modern meaning of veterinary medicine is a social/professional construct of the early twentieth century. Most of this modern meaning is based on the educational status of veterinarians. Prior to the 1900s veterinary training was similar to that of physicians in Colonial America: both trained in a preceptor arrangement. In America prior to the 1880s, most highly skilled veterinarians who did obtain a formal veterinary degree did so in Europe and brought back European expertise of veterinary practices. A degree from a veterinary medical college at least qualified an individual to be referred as a veterinarian.

Veterinary education at land-grant colleges without veterinary medical colleges would be conducted in veterinary science departments. However, the veterinary instruction provided in VPI’s Veterinary Science Department was not just veterinary science, because there was little difference between science and medicine in terms of the veterinary field. The differentiation of science and medicine was used more to demarcate professional veterinary instruction and non-professional instruction. With that said--and for the purpose of this thesis--examination of what was actually taught in the veterinary curriculum at VPI corresponded to the working definitions of veterinary and medicine and those terms are the bench mark I will use. According to the course description of many veterinary science classes offered by VPI between 1891 and 1923, VPI taught not only the scientific knowledge behind veterinary practices, but also hands-on application, that is, the art of veterinary medicine, to its students. Even though students did not receive a complete formal veterinary training such as that obtained by professional veterinarians, the students did in fact receive veterinary instruction that allowed them to recognize some common animal diseases and ailments and to treat and help prevent many diseases. This instruction was not complete in terms of training a professional veterinarian, but it provided the instruction and skills to allow students to recognize, treat, and prevent targeted diseases that were becoming known, treatable, and preventable in the late nineteenth century.

A rare mention of agricultural colleges’ role in American veterinary history through the late nineteenth century occurs in The Veterinarian in America: 1625 - 1975, as follows:

Agricultural colleges began playing an important role in the teaching of veterinary science in the late 19th century. Of the 47 agricultural schools, 23 had professors of veterinary science who lectured on anatomy, physiology, diseases of farm animals and materia medica. Students were taught how to properly care for animals and treat some of
the more common ailments. Although some veterinarians thought these departments and their students would be a menace to the profession, time has proved their value, not only in performing the above functions but also in carrying on vital research concerned with disease and the well being of the nation's livestock.  

VPI's early veterinary departmental activities are generally in sync with the above description. However, a single paragraph history cannot be expected to capture fully what was happening at land-grant veterinary departments, or specifically VPI's early veterinary department. The veterinary field was in existence when VAMC opened in 1872 but was just entering a state of flux. The contributions VPI made to veterinary medicine at both state and national levels are significant. VPI's early veterinary science department illustrates historical trends within American veterinary history of this time because it was not only a land-grant college with a veterinary science department but also had an experiment station producing veterinary-related bulletins. Other states such as Kansas had the same veterinary education and research arrangement prior to the opening of the veterinary medical college there. However, preliminary research suggests that some states may have had slightly different arrangements between veterinary education, research, dissemination of veterinary knowledge, regulation of livestock diseases, and professional development. As previously noted, VPI incubated the following four components of Virginia's state-controlled veterinary complex: veterinary medical education, veterinary medical research, dissemination of veterinary knowledge, and control of livestock diseases.

VPI's early veterinary history is not adequately covered in either Wallenstein's Virginia Tech, Land-Grant University, 1872 - 1997 or Kinnear's The First 100 Years: A History of Virginia Polytechnic Institute and State University. These institutional histories are devoted to

21 Ronnie G. Elmore and Howard H. Erickson, A Century of Excellence: Kansas State University College of Veterinary Medicine (Virginia Beach, VA: Donning Co., 2005), 16-21.
the establishment and development of VPI, but they neglect VPI’s early veterinary activities. Kinnear does mention veterinary faculty appointments, resignations or committee assignments within the institution. For example, he lists faculty appointments made in the wake of McBryde’s reorganization in 1891. Those appointments included that of E. P. Niles as VPI’s first veterinary faculty member.24 Wallenstein mentions the VMRCVM as the first professional college at VPI,25 but he neglects VPI’s early veterinary years. He does refers to the roles of the Virginia Agricultural Experiment Station (VAES 1889) and the Virginia Agricultural Extension Services (VAES 1916) in Virginia’s agriculture program, but focuses only on their botanical aspects at the expense of the research or teaching related to livestock.26 Histories of VMRCVM, in line with the institutional histories of VPI, also give very limited attention to VPI’s early veterinary history.

For instance, recent histories of the VMRCVM treat veterinary medicine as if it was introduced at VPI in the second half of the twentieth-century. Strother and Wallenstein’s From VPI to State University: President Marshall Hahn, Jr. and the Transformation of Virginia Tech, 1962 - 1974 discusses the establishment of VMRCVM by the Hahn administration.27 These authors detail Hahn’s support for the veterinary college project. This history of the Hahn administration’s efforts in establishing the VMRCVM is reiterated in Peter Eyre’s 2005 book, Breaking New Ground, which contains three paragraphs on VPI’s early veterinary years.28 These three paragraphs are based on VVMA’s prior publication, A Century of Service.29

The VVMA’s publication is basically the institutional history of that organization and veterinary medicine in the State of Virginia. In the book, editor James Stanford includes a section on VVMA’s involvement in the establishment of VMRCVM and provides citations from the VVMA’s minutes relating to the hundred-year period between 1894 and 1994. In these

24 Kinnear, The First 100 Years, 145.
25 Wallenstein, Virginia Tech, Land-Grant University, 262.
26 Ibid., 78.
28 Peter Eyre, Breaking New Ground: Twenty-fifth Anniversary of the Virginia-Maryland Regional College of Veterinary Medicine (Blacksburg: Virginia-Maryland Regional College of Veterinary Medicine, 2005).
minutes, of which three versions exist, are found entries indicating a mutual involvement between VVMA and VPI’s veterinary faculty. Even though this record of VVMA is a primary document, it is presented in the publication as secondary literature and still does not give an adequate account of VPI’s early veterinary activities. These minutes tell us merely about VVMA conferences and meetings held at VPI, occasionally mentioning summer refresher courses for veterinarians and complaints about unlicensed extension agents practicing veterinary medicine. VVMA’s history, in other words, does not explain or account for VPI’s early veterinary contributions to Virginia’s veterinary medical history or to public health (via control of animal diseases).

In the case of VPI, the veterinary activities between 1896 and 1908 were part of the U. S. and Virginia’s efforts to provide medical care to livestock before the profession had enough trained veterinarians to do the job. These veterinary activities were therefore practical in nature and not just scientific or theoretical. As such, agricultural students were learning veterinary medicine; farmers were receiving veterinary medical information; VAES was conducting vital research on targeted diseases, such as bovine tuberculosis and cattle tick fever; and Virginia was thus practicing large-scale veterinary medicine at VPI (especially as the State Veterinarian conducted his business from its campus). Land-grant veterinary science departments, in short, not only conducted vital research on animal diseases and livestock health, but also trained agricultural students and provided useful information to farmers. Farmers would remain the most widespread practitioners of veterinary medicine in rural America in the late nineteenth century until the ranks of educated veterinarians could fully take on the responsibility.

VPI’s early veterinary department contributed to the following veterinary objectives: control of animal diseases in Virginia; educating animal husbandry students in practical veterinary instruction; research on state-wide animal diseases, using the college’s herd and experiment station’s subject herds; dissemination of veterinary information to Virginia’s farmers throughout the state via the experiment station bulletins (and, later, but less often, through extension service publications); and networking of Virginia’s emerging veterinary profession. In

---

30 VVMA Minutes exist in the following versions: the original, housed at VT’s Newman Library Special Collections, the version presented by George Faville’s History of VVMA with his additional recollection of events, and James Stanford’s VVMA History, the most recent version.
general, historians have failed to throw light on the above aspects of VPI's early veterinary history.

Focusing on the rise and eventual decline of the State of Virginia’s veterinary complex at VPI is prerequisite to coming to an understanding of the history of Virginia's veterinary medicine. Such a focus is likely to reveal what was going on at other land-grant agricultural colleges that had veterinary departments and experiment stations; it provides insight into the transition of the veterinary practitioner from a horse doctor/farrier to a fully trained professional veterinarian; it also illustrates the efforts to control devastating animal diseases at the turn of the century in America. VPI's early veterinary department represents the key developments in American education, research, regulation, and professionalization of veterinary medicine. Recounting its history is to bring to light a neglected part of American veterinary history. I thus consider VPI as an excellent case to study in order to understand and appreciate the contributions of land-grant agricultural colleges to the professionalization of veterinarians and control of contagious livestock diseases at the turn of the twentieth century.

However, more research needs to be done on whether Virginia's early veterinary complex at VPI is the norm or anomalous. While other experiment stations, such as Kansas, Alabama, and Illinois, were producing a few veterinary-related bulletins, I am skeptical that VAES was the only one that produced more than forty veterinary-related bulletins before 1930.31 I argue that VPI's veterinary science department was the center of veterinary medicine in Virginia at the turn of the century. Because standards of the veterinary field at the time were quite different from today’s, I shall use both late nineteenth and late twentieth-century standards while articulating the association between VPI’s early veterinary activities and its more advanced form of veterinary medicine. VPI’s early veterinary activities are a direct precursor to what we now call veterinary medical education in Virginia. For all that, this study aims to attribute a greater role

A list of Illinois Agriculture Experiment Station Bulletins http://web.library.uiuc.edu/AHX/uasfa/0802801.pdf
to Virginia’s land-grant veterinary science departments and experiment stations in the
development of the Virginia veterinary profession as well as Virginia veterinary history.

As a central component of the above argument, I show that VPI’s early veterinary science
department has been under-represented in the veterinary histories of VPI, VMRCVM, Virginia,
and the United States. As such, I shall use the concept of actor-networks that has been
formulated within the discipline of Science and Technology Studies (STS). The actor-network
approach is meant to help us understand the material-semiotic interactions among goal-related
actors in social contexts. Material-semiotic interactions, the heart of actor-networks, provide a
way to analyze the interdependency of individual actors in a network. Attributed to Bruno
Latour and Michel Callon, the actor-network approach seems well suited to analyzing VPI’s
early veterinary activities as a complex.32 That is because this early state-controlled veterinary
complex brought a range of actors with a variety of individual aims and activities to collaborate
toward some broader common objectives. So, if one actor is missing from the network, it is
possible for the whole network to fail to function toward a common, related goal. For example,
if the college livestock at VPI did not exist or was eliminated from the network, then the faculty,
students, and research actors would have a difficult time fulfilling their separate related goals
within the network’s main goals of addressing diseases and health of Virginia livestock.

The major components of Virginia’s state-controlled veterinary complex at VPI in 1896
were education, research, dissemination of veterinary knowledge, and regulatory control of
diseased livestock in Virginia.33 Each component had network actors such as the students,
faculty and college livestock. Many actors played their roles in more than one component at the
same or different times depending on the stage of the complex’s development. By analyzing
VPI’s early veterinary activities as a complex of component activities with actors, we can come

32 Bruno Latour, Science in Action: How to Follow Scientist and Engineers Through Society
(Milton Keyes: Open University Press, 1987), and Michel Callon, “Some Elements of Social
Translation: Domestication of the Scallops and Fishermen of St. Brieuc Bay,” in John Law (ed.),
Power, Action and Belief: A New Sociology of Knowledge (London: Routedge& Kegan Paul,
1986).
33 There is an additional state-controlled component of veterinary professional licensing, but it
resides elsewhere in the state and never came under the control of VPI, even though many
veterinary faculty members from VPI served on the Virginia Veterinary Examination Board
(VVEB).
to a fuller understanding and appreciation of the contributions of VPI’s early veterinary activities to the formalization of veterinary medicine.
Chapter I

The Emergence of the State of Virginia’s Veterinary Complex at VPI

After the development of the first veterinary science courses, a veterinary complex started to emerge at VPI in the late 1880s. The complex would be completed in 1896 with the attribution of regulatory powers to the Virginia Experiment Station’s Board of Control and the State Veterinarian housed on the campus in Blacksburg. The state-controlled veterinary complex had the following four major components: education, research, dissemination of veterinary medical knowledge, and control of contagious livestock diseases. These components existed almost entirely at VPI, while another veterinary activity (veterinary licensing) that originated elsewhere in the state sporadically held meetings of some form at VPI (figure 2). Veterinary education, research, dissemination of veterinary knowledge, and the state control of livestock disease were the domain of VPI and the key reason why they were brought to the campus was that scientific and professional expertise in veterinary medicine was not predominant elsewhere in Virginia government at that time. The education component was established as part of the agricultural and/or natural science curriculum and became the original component in 1872. 34 In 1889, the research and dissemination components were put in place with the introduction of veterinary research activities at Virginia’s Agricultural Experiment Station (VAES). 35 The last component was added by legislative orders in 1896, in the form of regulation and control of common domesticated animal diseases, troublesome to the state at the end of the nineteenth century. 36 In order to fully understand how and why this complex was introduced to and developed at VPI one must come to terms with the status of veterinary medicine prior to the 1870s.

34 VAMC Catalog 1872-1873, page unknown due to missing corners.
36 E. P Niles, 2nd Annual Report of the State Veterinarian (Blacksburg: Virginia Office of State Veterinary, 1897, 8.
The Age of the Horse Doctor: Veterinary Medicine in Virginia Prior to the 1890s

Prior to 1870, American veterinary medicine was in its infancy and largely non-scientific. This healing art, which had been passed down informally from generation to generation, elevated its professional and educational status with the establishment of the Veterinary College of Philadelphia in 1852. Soon after, other private veterinary colleges opened and subsequently closed. Some of these private institutions--like their medical counterparts--were pressured by the economics of running such establishments to require minimal matriculation requirements and to shorten the curriculum. As a result, individuals graduating from some of these institutions were ill prepared to practice veterinary medicine. Comparing the total number of veterinarians to the U.S. Veterinary Medical Association (USVMA) membership in the 1860s illustrates the inequities in veterinary education and the

---

38 Ibid.
veterinary profession. Of the roughly 1500 veterinarians in the U.S. only about 100 to 200 were members of the USVMA. While there were some veterinary colleges in operation, the number of veterinarians in the country was inadequate to fulfill the needs of the nation’s growing domesticated animal population. The remaining veterinarians not members of the USVMA most probably were a mixture of academically educated veterinarians and veterinarians trained in some sort of preceptorship arrangement, similar to the way physicians in Colonial America were trained prior to the opening of U.S. medical colleges.

For the better part of the late nineteenth and early twentieth centuries, the nation experienced considerable shortages in veterinary manpower proportionate to the animal population. Whenever a shortage occurred, a new veterinary college was established. Prior to the 1870s, the services of veterinarians failed to curb the devastating diseases of U.S. livestock, because those services did not have a sufficient scientific basis. Both regular medicine and veterinary medicine existed without specific scientific knowledge of diseases that Louis Pasteur and Robert Koch researched in the 1860s and 1870s respectively. The meager number of fully trained veterinarians in the 1880s hindered effective treatment and prevention of targeted diseases even though there had been relevant advances in the scientific understanding of germs and disease.

Before Pasteur and Koch’s bacteriological findings were introduced to America, little veterinary research existed. That situation changed as the U.S. government, via the Hatch Act of 1887, established scores of Agricultural Experiment Stations mandated to research crops and livestock diseases. Thanks to this act, the U.S. was poised to combat many diseases that plagued domesticated animals and some that humans contracted by contact with animals and animal handlers.

In addition to the growth in the population of domesticated animals, the dynamics of their changing numbers increased the opportunities to spread disease. In the early nineteenth century,
many animals lived in rural communities and so did not spread diseases to one another. The chances of domestic animals to transmit disease to each other increased as their population began to concentrate in more densely populated areas. With the growth of the meatpacking industry diseased animals spent longer times in cities awaiting slaughter.\textsuperscript{44} Enhanced import of European livestock to improve U.S. stock also introduced various European diseases to the United States.

Prior to 1870, the horse was the primary mode of transport in the cities. In the late nineteenth century, horses were the backbone of America’s urban transport system until the debut of the first successful gasoline-powered automobile. That was because rail transportation was considered unfeasible in many areas of cities. Because of the overwhelming transportational value placed on the horse, many macro and micro economies wanted the animal to stay healthy. As such, valuable horse concentration in the cities attracted many veterinarians to the city. Most veterinarians specialized in equestrian medicine for their own economic reasons. Urban veterinarians could see and treat more horses and make more money compared to rural veterinarians who had to travel great distances to tend to their patients. Against the above backdrop of animal population dynamics and the prioritizing of the horse as the transportation animal, the image of the horse doctor dominated the popular veterinary imagination prior to the advent of scientific veterinary medicine. In “The Metamorphosis of the Horse Doctor” T. Swann Harding squarely described: “the old-fashioned veterinarian ... the old fellow had a gig, a knife, a needle, a ball of twine and a few other instruments he was continually get[ting] mixed up with the carpenter tools. He rode around the countryside cutting hogs, opening abscesses, visiting individual horses, hogs and cows in the manner medical doctors visit…”\textsuperscript{45} This description of the horse doctor in the era of pre-scientific veterinary medicine gives us a glimpse into the image of what veterinary medicine was in Virginia prior to the 1870s.

The Beginnings of Veterinary Medical Education at VPI

Before VPI (then known as VAMC) offered its first veterinary science course in 1889, it had included veterinary instruction in other courses since its inception in 1872.\textsuperscript{46} Specifically, as

\begin{itemize}
  \item \textsuperscript{44} Jones, Valuing Animals, 18, 20.
  \item \textsuperscript{45} T. Swann Harding, “The Metamorphosis of the Horse Doctor,” The Scientific Monthly, vol. 34, no. 5 (May 1932), 446-453.
  \item \textsuperscript{46} VAMC Catalogs 1872-1889 (Blacksburg, VA: Virginia Agricultural and Mechanical College, 1872 - 1889).
\end{itemize}
in other land-grant colleges, instruction in the care and maintenance of farm animals was part of the animal husbandry curriculum.\textsuperscript{47} Students of agriculture generally became the owners, breeders, and managers in Virginia's growing livestock industry. The agricultural students were taught the principles of veterinary practice, the selection, breeding and rearing of domestic animals, their transportation to market and everything of importance in their management, treatment and use.\textsuperscript{48} Professor M.G. Ellzey (figure 3) taught principles of veterinary practices under Natural History and Analytical Chemistry in the 1872-73 school year, and under Agriculture between 1873 and 1879.\textsuperscript{49}

![Figure 3](image)

**Figure 3**

M. G. Ellzey, 1878

First VAMC professor to teach veterinary practices under the Natural History and the Agricultural curricula between 1872 and 1879\textsuperscript{50}

\textsuperscript{47} Bierer, *American Veterinary History*, 27.

\textsuperscript{48} This description of veterinary instruction appears under the Natural History and Analytical Chemistry section of the VAMC catalog of instruction. *VAMC Catalog 1872-73*, page unknown due to missing corner.

\textsuperscript{49} *VAMC Catalogs: 1872-73*, p. unknown; 1873-74, p. 17; 1874-75, p. 18; 1875-76, p unknown; 1876-77, p. unknown; 1877-78, p. unknown; 1878-79, p. unknown. Pages unknown due to page corners missing.

\textsuperscript{50} Photo from the Digital Library and Archives (DLA), University Libraries, Virginia Polytechnic Institute and State University (VPI&SU).
Between 1883 and 1885, Professor Martin P. Scott, M.D. provided instruction in the general care of domesticated animals under the auspices of the Agricultural Department.\textsuperscript{51} In 1886-1867, he taught veterinary science under the Natural History section of the curriculum.\textsuperscript{52} Between the 1888 and 1891 school years, Scott served his final years at VAMC teaching on Monday, Wednesday and Friday mornings the first formal veterinary science classes. These courses on botany, zoology and human physiology--veterinary science--were also taught by Scott but were offered in the department of biology.\textsuperscript{53} Kinnear notes that the chair of veterinary science, which was supposed to have started on January 1, 1886, was temporarily dropped.\textsuperscript{54} However, the veterinary department became part of the agricultural curriculum in 1891 with Professor E. P. Niles in charge.\textsuperscript{55}

The veterinary instruction provided by Ellzey and Scott was probably based on pre-bacteriological veterinary knowledge, that is, before Pasteur’s germ theory as well as the methods of Koch’s Postulates in order to identify disease-causing pathogens. Scott’s veterinary instruction shows the influence of both of old veterinary knowledge of horse doctoring and new scientific veterinary research. The description of veterinary science in the section under the Natural History Department reads as follows:

\textbf{Veterinary Science}

This study has been recently introduced by the Board of Visitors. It is proposed to give a course of instruction upon the anatomy and physiology of our domestic animals, viz: the horse, ox, sheep, and hog, as far as can be done in an institution of this kind. The pathology and etiology of many diseases to which these animals are subject will be treated of, together with an account of the parasites which infest them.

Text Books - Steels[‘] Equine Anatomy, Cobbold[‘]s Parasites which Infest Domestic Animals.\textsuperscript{56}

\textsuperscript{51} VAMC Catalog: 1882-83, p 14; 1884-84, p. 15.
\textsuperscript{52} VAMC Catalog: 1886-87, p 22; 1887-88 p. 26.
\textsuperscript{53} VAMC Catalog: 1888-89, p 18, 26; 1889-1890, p. 14, 22.
\textsuperscript{54} Duncan Lyle Kinnear, \textit{The First 100 Years: A History of Virginia Polytechnic Institute and State University} (Blacksburg, VA: Virginia Polytechnic Institute Educational Foundation, Inc., 1972), 125.
\textsuperscript{55} Ibid.
\textsuperscript{56} VAMC Catalog, 1889, 42.
Notably, the reliance on equine anatomy as a base for the other livestock anatomies in the description above points out the dominance of the horse doctor tradition in veterinary medicine, whereas the reference to instruction in the pathology and etiology of diseases with unknown pathogens reveals the pressing need at the time to instruct on diseases caused and transmitted by parasites.

An examination of the evidence related to the early veterinary instruction at VAMC reveals inconsistency between veterinary practice and veterinary science, pointing to the instability of the VAMC. Prior to the McBryde administration (1891-1908), VAMC struggled to develop into a viable agricultural and mechanical college. Kinnear noted that rural organizations, especially the Farmers Alliance, were dissatisfied with VAMC, and that constant complaints long kept the school in a state of considerable turmoil. However, the repeated switching of veterinary instruction between the Natural History, Agriculture, and Biology Departments is a sign of the general instability of the nomenclature and demarcation of veterinary medicine in the last quarter of the nineteenth century. This instability provides the context for the transition of the veterinary field at this time.

The broader context in which this transition took place had to do with the passage of the first Morrill Act of 1862, which provided the funds to allow states to establish agricultural and mechanical colleges and spawned other land-grant acts that aided these new colleges. The U.S. government saw the potential of land-grant colleges as promoters of scientific advancements necessary for the nation’s agricultural and economic growth. Such research was, of course, considered beneficial to the land-grant colleges themselves, as it was expected to equip them with the capability to train their students in the testing of fields and herds.

The Establishment of the Virginia Agricultural Experiment Station (VAES)

Across the nation, college farms at land-grant agricultural colleges became the major factor and the livestock the major actors in the marriage between agricultural education and

---

57 Kinnear, *The First 100 Years*, 131-132.
58 Hatch Act of 1887.
research.\textsuperscript{59} The Hatch Act of 1887 economized the potential for college farms to be used as agricultural educational fields as well as research laboratories: It provided annual payments to support the experiment stations at land-grant colleges.\textsuperscript{60} Many states pressed their Hatch Act funds into service. Institutions whose primary function was teaching gave their faculty this additional responsibility of research.\textsuperscript{61} On February 29, 1888, the state of Virginia opened the VAES at VAMC, which was to be controlled by the Board of Visitors.\textsuperscript{62} According to the VAES’s first annual report, Chas. [Charles] Ellis DVM was listed as the station’s staff veterinarian.\textsuperscript{63} Ellis was not a faculty member at VAMC, and VAES did not employ Professor Scott to do research at the station. One possible reason could be that Scott possessed a medical degree and not a doctorate in veterinary medicine. Since the Experiment Station was supposed to employ researchers with proper education in their respective fields, Ellis’s appointment meant that between 1888 and 1890, VPI’s faculty did not have a fully trained veterinarian who could do veterinary research. This situation changed in 1891, with the arrival of Professor Niles.

Ellis’s appointment as the experiment station’s veterinarian aside, there seems to have been no veterinary research conducted at the station prior to Niles’ arrival in Blacksburg, and no report appears to have been filed by the station’s veterinarian in the VAES’s 1889 - 1890 Annual Report.\textsuperscript{64} With the exception of bulletin number 10 by David O. Nourse entitled, “Steer and Pig Feeding,” the Station’s bulletins produced prior to Niles’ first bulletin (number thirteen) were all related to botany.\textsuperscript{65} There are a couple of possible reasons for the lack of veterinary research at VAES prior to Niles. These include the newness of the station, lack of research direction, and the disconnection between teaching and research. Upon his arrival at the station on September 18, 1891, Professor Niles found that his predecessor, Charles Ellis, had left the station over a year before. Niles immediately articulated the mission and methodology of the veterinary

\begin{footnotes}
\item[60] Hatch Act, Section 5.
\item[61] Wallenstein, \textit{Virginia Tech, Land-Grant College}, 73.
\item[62] Kinnear, \textit{The First 100 Years}, 131.
\item[63] VAES Annual Report 1889-90 (Blacksburg, Virginia: VAES, 1890), 2.
\item[64] Ibid.
\item[65] Anna Payne Cunningham and Josephine Dudley Obenshain, \textit{Analytical Index and List of Publications of the Virginia Agricultural Experiment Station 1888-1938} (Blacksburg, VA: VAES, 1938), 7.
\end{footnotes}
department of VAES. He argued that the department needed to wait for outbreaks of contagious diseases in order to investigate them, and he ordered that direct experiments in bacteria of wounds and tetanus would be studied. In addition to this ambitious agenda, Niles made a general call to persons interested in the department and its research to send specimens of diseased animal tissue when convenient. He even gave instruction on tissue preservation and packaging for express delivery. Once Niles took command of the department, veterinary research began in earnest at Blacksburg.

Dissemination of VAES Veterinary Research

One original mission of the agricultural experiment station--besides the actual research--was to produce practical knowledge that agricultural practitioners could apply to their enterprises. In a speech delivered in 1891 in Bedford City Institution, Dr. H. B. Battle outlined to Virginia agriculturalists the typical experiment station and its usefulness to farmers. Battle commented on the economic benefits of a station and the potential contributions of each department to agriculture. Describing what bulletins and reports should include, he pointed out that the regular bulletin should contain such information as would be of most service to the farmer. The Hatch Act provision of directing experimental activities toward the production of useful and practical agricultural knowledge foreshadowed the establishment of extension services at land-grant institutions under the Smith-Lever Act of 1914.

That said, insofar as experiment station bulletins disseminated knowledge produced at the stations, they were by default an extension service that preceded the Smith-Lever Act.

Dissemination of veterinary information was the third component of Virginia's veterinary complex to be established at Blacksburg. The Virginia Agricultural Extension Service was established after the complex in Blacksburg began to dissipate around 1908, and it did not

66 VAES Annual Report 1890-91 (Blacksburg, Virginia: VAES, 1890), 14.
67 Ibid.
68 Ibid.
69 Ibid.
70 H. B. Battle, “The Typical Experiment Station, and How It Can Be Made Useful to Farmers,” Delivered at the Bedford Institute 1891, found in The Report of the State Board of Agriculture of Virginia 1891 (Richmond: Virginia Department of Agriculture, 1891), 167-177.
71 Ibid., 175.
72 Smith-Lever Act of 1914. Sec. 2.
provide enough veterinary medical knowledge to be considered part of the complex. The extension service came into existence only after other institutional entities’ mandates to control animal diseases, to strengthen the veterinary profession, and to push for limitations on who could practice veterinary medicine were in place. Kinnear indicated that rural farming organizations such as the Farmer’s Alliance wanted the State of Virginia to establish the Experiment Station in Charlottesville instead of Blacksburg. The Farmer’s Alliance criticized the station in its early years for not producing information that farmers could immediately apply.73

In 1891, the station had a full complement of staff who were also faculty of VPI.74 This solidification of education and research in 1891 improved the quality and usability of VAES bulletins while also enhancing the educational experience of Virginia Tech agricultural students. This improvement is reflected in the veterinary science offerings at Virginia Tech. Not only were livestock owners, managers, and foremen starting to receive useful veterinary bulletins, but the students taking veterinary classes also had mandated opportunities to attend and assist the veterinary faculty and station staff in all operations and the treatment of diseased animals as well as to attend post-mortems.75 This marriage of veterinary education and research at VPI aided the dissemination of information in off-campus veterinary activities.76 VAES circular (number two), “How the Experiment Station can be of Service to the Farmers of Virginia,” has the following declaration:

“What the Experiment Station Can Do:
The Virginia Experiment Station offers to assist farmers of the State by correspondence and personal visits, along with the following advice: The breeding and care of farm animals, including the calculation of rations and the prevention and care of disease.”77

Specifically, as the Station’s veterinarian, Niles could be asked to visit and investigate outbreaks of livestock diseases anywhere in Virginia. He could give herd owners advice on how to prevent or eliminate diseases in sick cattle and recommend the separation of sick animals from

73 Kinnear, The First 100 Years, 131,142.
74 VPI Catalog 1891-92 and VAES Annual Report 1890-91, 3.
75 VPI Catalog 1891-92, 34.
76 Kinnear, The First 100 Years, p. 155.
77 “How the Experiment Station can be of Service to the Farmers of Virginia,” VAES Circular #2 (Blacksburg, Virginia: VAES, 1908), 12-13.
the rest of the herd in hopes of preventing the spread of the disease. Simple advice on how to maintain sanitary conditions in barns and holding areas to prevent the outbreak of some diseases was also a routine call. This extension service task, given specifically to the Experiment Station staff, served the Virginia livestock industry well. With the education, research, and dissemination of veterinary research knowledge components in place, the conditions were ripe for the last component of livestock disease control to emerge at VPI.

The Establishment of the Office of State Veterinarian

The State of Virginia used VPI’s veterinary complex to establish the Office of State Veterinarian in 1896 through authoring and empowering the Board of Control (BOC) of the VAES. The Office of State Veterinarian was mandated to establish, maintain and enforce quarantine guidelines, sanitation rules, and regulations for the control and extirpation of contagious, infectious, and communicable diseases among Virginia’s domesticated animals. The establishment of this office followed the passage of an act on February 18, 1896 by the Virginia General Assembly. The act was intended: “to provide for the protection of domesticated animals and to authorize and empower the Board of Control of the Agricultural Experiment State of the Virginia Agricultural and Mechanical College at Blacksburg to establish livestock quarantine rules and regulations and to prescribe penalties for violating the same.” Simultaneously the act proposed to help control the spread of disease of domesticated animals within the state, utilizing the veterinary expertise of Niles at VPI and VAES. Because of the veterinary, educational, and research resources that already existed at VPI and nowhere else in the state, VPI was the most logical governmental choice as the regulator and controller of Virginia’s livestock diseases.

Both VPI and VAES were institutions of the State of Virginia. The other possible state entity that Virginia could have placed in charge of controlling livestock disease would have been the State Board of Agriculture of Virginia (SBAV). That choice, however, was not an option as there were no veterinary personnel at the SBAV. Another possible contender was the newly formed Virginia Veterinary Medical Association (VVMA), but it was a private organization.

---

78 Second Annual Report of the State Veterinarian, Blacksburg, Virginia 1897, 10.
79 Ibid.
initially mandated to organize the state’s veterinarians. In 1895, in short, Blacksburg was the only place to house state-sponsored veterinary expertise.

Nevertheless, there were other measures being taken in the State of Virginia to control and regulate contagious diseases of domestic animals. While working for the Bureau of Animal Industries (BAI), George C. Faville DVM came to Richmond in 1894 to work on the federal quarantine efforts to control Texas fever, a disease carried by cattle ticks. The BAI represented U.S. federal efforts to control the spread of livestock disease. However, the BAI dealt mainly with the development of animal inspection and quarantine system intended to prevent the importation of diseased livestock, and the transfer of diseased animals across state lines rather than to detect and treat diseases within states. As the BAI was busy with its own agenda in controlling animal diseases, the states were left to fill in the holes where the federal efforts left off. Virginia thus utilized Experiment Station veterinary staff such as the State Veterinarian to do the quarantine work within the state at the expense of the federal government, as the salaries of the station’s staff were funded via the Hatch Act. VPI was under the influence of the State of Virginia through the Board of Control that allocated funds. The veterinary science department at VAMC and later VPI was an entity of the State of Virginia. The VAES was also a state entity, even though it co-operated with the USDA and was funded per the Hatch Act.

The State of Virginia’s Veterinary Complex at VPI

The Land-Grant Acts, specifically, the first Morrill Act of 1862 and the Hatch Act of 1887, empowered the state of Virginia to set up VPI and the VAES respectively. Once the college started veterinary science education, the various components of the complex--education, research, dissemination of veterinary knowledge, and control of livestock diseases--complemented each other as each emerged. This compounding of the components was the final effect of a number of factors. First was the goal of the State of Virginia to provide educational opportunities for the working class. The Morrill Act of 1862 empowered the state to pursue this goal by founding VPI, and the growing livestock industry prompted the state to include veterinary instruction at VPI. Implementing the provision of the Hatch Act of 1887, the Federal

81 George C. Faville, The Virginia State Veterinary Medical Association (Richmond: publisher unknown, 1931), 12.
government offered states incentives to establish agricultural experiment stations. In response, and as the State of Virginia began planning to establish such a station, it chose not to listen to the Farmer’s Alliance’s advice to locate VAES in Charlottesville, and instead followed suit with many other states that had placed their agricultural experiment stations at their agricultural schools. Providing farmers with veterinary information was part of the primary research mission of VAES. The fourth and final component of controlling livestock diseases came to Blacksburg because the majority of the state-controlled veterinary activities were already located at VPI, and the state could utilize existing state veterinary personnel to control or contain contagious animal diseases. Yet another factor contributed to locating all the state’s veterinary complex components at one site:

VAMC had a farm that used domestic animals in education and research (figures 4 and 5). In 1877, the executive committee of the Board of Visitors (BOV) reported that the school’s twenty-one head of cattle were worth $4,550, the fourteen sheep worth $150, the forty swine worth $267, and the five horses worth $625. This farm was not only VAMC’s farm but also the state’s farm. Although this thesis uses activities as the basis for defining a component within the veterinary complex, a special note has to be made concerning the college farm. Upon the establishment of the VAES, the college’s farm was transferred to the station for the purpose of research, but the farm’s facilities and animals were retained by the college with a view to provide hands-on educational opportunities. As a material factor, the farm and site cohesively oriented the growth of the complex as well as the land-grant funding mechanisms for education and research. In the analysis of the veterinary complex, the college farm with its variety of livestock is considered a key factor within the components of education and research, functioning as a valuable field laboratory open to study and experiments. Students who attended clinics poked and prodded sick and post-mortem farm animals to study pathological conditions of these animals. VAES veterinary researchers would also study and test the livestock on VPI’s campus. For example, E. P. Niles tested the viability of the tuberculin test for detecting bovine tuberculosis on the college’s dairy herd. The college livestock, therefore, was as much an actor in this veterinary complex as the veterinary faculty, VAES, and the State Veterinarian.

---

84 Bierer, American Veterinary History, 27.
85 VAES Annual Report 1897-98, p. 11.
86 VAMC President’s Report to Board of Visitors, August 14, 1877.
Based on the actor-network concept developed by Latour and Callon, VPI’s college livestock was an essential actor for the purpose of the education and research components of the complex. The livestock provided the students with hands-on experience and researchers with live subjects/objects to study. This analytical tool of actor-network gives non-human actors agency in the network along with humans. Even though animals may not personally express their goals, their goals are assessed by the situation of their biological survival.\(^{87}\) The same can be said about the bacteria and microbes that infect livestock. According to Bruno Latour, livestock, bacteria, and other microbes function as actors in a network that resides in the larger society.\(^{88}\)

![Figure 4](Teams Working on the VPI Farm, 1906\(^{89}\))

---


Figure 5

Part of the VPI Dairy Herd, 1906\textsuperscript{90}

\textsuperscript{90} Ibid., 20.
Chapter II
The State of Virginia’s Veterinary Complex at Work, 1896-1908

Once all the four components of education, research, dissemination of veterinary knowledge, and control of diseased livestock became operational in Blacksburg, the Virginia State veterinary complex experienced a few years of productive activities. This main feature of the complex is that it shared not only location but also personnel. This overlapping of constituent components was a result of both the provisions of the first Morrill and the Hatch Acts that facilitated the establishment of the VAES in an existing state institution (VAMC) and of the state of Virginia’s choice to co-establish educational and research programs in Blacksburg.91

The overlapping of the components was most obvious for an initial brief period when four components were handled by Professor Niles between 1896 and 1901.92 Along with instructor Frank Roop and assistant professor Charles McCulloch in the department, Niles managed VPI’s Veterinary Science Department.93 Niles also conducted veterinary research at Virginia Agricultural Experiment Station (VAES) on the outbreak of the various diseases.94 In addition, he wrote many of the veterinary-related VAES bulletins (see appendix 1) and served as the State Veterinarian controlling contagious livestock diseases in Virginia.95 Professor Niles also served on the U.S. Livestock Sanitation Board and helped in founding the Virginia Veterinary Medical Association (VVMA). Niles should be considered the father of veterinary medicine in Virginia due to his management of all the components of the state’s veterinary complex in addition to his contributions to the professionalization of the veterinary field in Virginia and beyond.

91 It is not the intention of this thesis to cover the history of why Virginia chose Blacksburg as the site for this instruction and research but rather to recognize this fact. This history can be found in Duncan Lyle Kinnear, The First 100 Years: A History of Virginia Polytechnic Institute and State University (Blacksburg, VA: Virginia Polytechnic Institute Educational Foundation, Inc., 1972).
92 The fifth component of the Virginia state-controlled veterinary complex was the Virginia Veterinary Examination Board (VVEB) that was not housed on the VPI campus.
93 VPI Catalog 1898-99, 42.
94 VAES, VAES Annual Report, 1892.
95 E. P. Niles, State Veterinarian 2nd Annual Report 1897.
Figure 6

The State of Virginia's Veterinary Complex Components in Relation to Other Veterinary Activities in 1896

Within the physical sphere of VPI in 1896, resided the actors associated with four components (Education, Research, Dissemination of veterinary knowledge (veterinary-related bulletins), and Control of animal diseases) of the Virginia veterinary complex, with the fifth, the Virginia Veterinary Examination Board, residing elsewhere in the state. This diagram shows that the
actors on the VPI campus were connected with each other as well as other veterinary-related actors off-campus in Virginia and the nation.

Figure 7
Edwin P. Niles, 1896

There is not much biographical information available on Edwin P. Niles. What information is available comes from Virginia Tech’s archives and shows Niles to have been a highly qualified veterinarian, educator, and researcher.6

How E. P. Niles came to the position of head of VPI’s Veterinary Science Department is an interesting story. During the reorganization of 1891, VPI’s President McBryde first chose W. B. Niles (E. P. Niles’ brother) for the position of the head of VPI’s veterinary science department.7 W. B. Niles could have contributed greatly to the prestige of the veterinary department and VPI due to his renown as the co-discoverer of the Hog Cholera serum.8 However, he declined the position for personal reasons.9 A few years earlier, W. B. Niles had accepted a faculty position at the Iowa Veterinary College, the first public veterinary college in the U.S., established in 1879.10 Following W. B. Niles’ rejection, McBryde made the offer to

---

6 1896 Bugle.
7 1900 Bugle, 176.
9 1900 Bugle, 176.
E. P. Niles, a graduate of the Iowa Veterinary College at Iowa State Agricultural and Mechanical College, because he was also credited with contributing to the development of the Hog Cholera serum. While he resided in Iowa, E. P. Niles served as vice president of the Iowa State Veterinary Medical Association (ISVMA), Assistant State Veterinarian, and a member of the State Livestock Association. It is important to note that Niles came from the Iowa veterinary scene. Iowa was one of the first states to have a public veterinary medical college with one of the most sophisticated veterinary research facilities of the late nineteenth century. So Niles had a firm theoretical and clinical knowledge of veterinary medicine as well as scientific expertise in veterinary medicine that McBryde wanted to bring to VPI’s veterinary curriculum. When Niles was about to move to Virginia to follow up on McBryde’s offer, Iowa refused to allow him to withdraw from the ISVMA, and so he was made an honorary member. Following that, E. P. Niles came to Virginia in 1891 as a fully trained professional veterinarian ready to contribute to Virginia’s growing veterinary field. In addition to his professional affiliation, Niles became a member of the Montgomery Farmer’s Club after urgent solicitation. Niles’ published work in the form of VAES bulletins was extensively copied by various agricultural journals of other states.

As accomplished as he was, however, Niles could not do all the state-related veterinary work. Once the Virginia Veterinary complex was in place, state work increased so rapidly that it prompted employment of an assistant veterinarian. In 1896, the college employed Frank S. Roop, BS, VMD, as an instructor in the veterinary science department, while the state employed him as Assistant State Veterinarian from 1896 to 1898. In 1898, Charles McCulloch, DVS, MD, replaced Roop as assistant Professor of Veterinary Science and replaced Niles as the State Veterinarian.

According to the VPI veterinary history found in McBryde’s archives,

---

101 Kinnear, The First 100 Years, 145.
102 McBryde’s Veterinary Science Department History, 2. This document was found in the McBryde collection at Newman Library Special Collections, VT, Blacksburg.
103 Ibid., 3. This additional affiliation shows that Niles was in much demand for his expertise. I have been unable to find any details about this organization.
104 Ibid.
105 Ibid.
106 VPI Catalog 1897-1898 and VAES Blacksburg Administrative Officers and Professional Staff 1889-1965 (author and publisher information unknown).
107 VPI Catalog 1898-99 and 1899-1900. Veterinary medical degrees varied from institution to institution. DVM became the standard degree in almost all public veterinary medical colleges;
McCulloch received his undergraduate education from the University of Virginia (UVA), he had a veterinary degree from the American Veterinary College in New York and a medical degree from Columbian University in Washington D.C.\textsuperscript{108} In 1886, the Virginia State Board of Veterinary Examiners elected him as its President.\textsuperscript{109}

With the employment of Niles, Roop, and McCulloch in the complex, the state controlled how the complex was run. In any case, the complex was a small operation, directed first by Niles, from 1891 to 1895, by Niles and Roop, between 1896 and 1897, by Niles and McCulloch, between 1898 and 1900, and by Niles, McCulloch and Spencer in 1901.\textsuperscript{110}

\textbf{Veterinary Instruction at VPI, 1891-1924: Students, Faculty, and Curriculum}

VPI’s agricultural students who concentrated on animal husbandry or general science took veterinary courses; a veterinary science or medical degree was not offered by VPI in the late nineteenth century.\textsuperscript{111} Like many land-grant agricultural colleges with veterinary science departments in the 1890s, VPI offered veterinary science classes to supplement existing degrees such as agriculture or general science degrees (Figure 8). A glimpse into the veterinary curriculum and facilities can be had by sampling the courses that James Gross Ferneyhough, a graduate of VPI in 1898, took.
After his VPI education (Ferneyhough entered VPI as a freshman in the fall of 1894), James Gross Ferneyhough graduated from the U.S. Veterinary Surgeon College in Washington D.C., and became an assistant veterinary professor at VPI and then Virginia State Veterinarian. In 1926, George Faville, a founding member of the VVMA, recollected his first encounter with young Ferneyhough as a cadet at VPI when Faville visited E. P. Niles, fellow VVMA member. Faville remembers Ferneyhough as a rather awkward student who was not very prepossessing when on foot, but who liked to show himself off on horseback, especially when he could find a horse that could or would jump. Ferneyhough’s classmates left the following note on Ferneyhough:

---

112 Photo from the Digital Library and Archives (DLA), University Libraries, Virginia Polytechnic Institute and State University (VPI&SU).
113 Bugle 1896, 42. I am unable to pinpoint the date of Ferneyhough’s graduation from the U. S. Veterinary Surgeon College, but it was between the time he graduated VPI in 1998 and the opening of his practice in Charlottesville in 1902.
114 George C. Faville, speech to VVMA on 7 - 9 - 1926. (Found in VVMA manuscript collection at Newman Library Special Collections).
115 Ibid.
Now comes riding by a man whose soul is in his horse. No need to mention his name, for everyone knows it is Ferneyhough. He has and always will have, but two ideas, his horse and the fair maidens, and his horse comes first. He thinks he will be a veterinarian, but he won’t. I see him as one of two things; a horse jockey or a horse trader. He may probably combine the two. As a horse trader he possesses two qualities conducive for success, a large amount of brass and the capacity for hoodwinking others. Should he continue to exercise these qualities his life in this line will be successful. He may marry, if by any possibility he can get his horse long enough off his mind, but the woman who consents to share his equestrian love must either know how to keep silent or talk horse.\footnote{Bugle 1898, 29.}

As the note suggests, Ferneyhough possessed a great love of horses and wanted to be a veterinarian. In the 1890s, before the automobile started to replace horse-powered transportation, Ferneyhough chose the appropriate education to match his love of horses. Ferneyhough represents the embodiment of the two worlds of the horse doctors and the fully trained veterinarians. He grew up in the previous tradition while looking at the potential of being a modern veterinarian. Apparently his classmates viewed him romantically as a horse person, but Faville saw the potential of young Ferneyhough as the future of the veterinary field. As time would tell, Ferneyhough, a man with a love of horses, could break from the previous veterinary tradition and become not only a licensed veterinarian but also assistant veterinary professor at his alma mater and Virginia State Veterinarian.

Ferneyhough was one of those VPI students who used veterinary instruction as part of his general science degree (that he obtained in 1898). After he received his formal veterinary medical schooling, Ferneyhough settled down in a practice in Charlottesville, VA.\footnote{Ferneyhough, Charlottesville, VA, to McBryde, Blacksburg, February 6, 1902. The exact date of Ferneyhough’s graduation from the U.S. Veterinary Surgeon College in Washington D.C. is unknown, but it was most likely sometime between 1898 and 1902.} That aside, Ferneyhough was not a typical VPI student attending veterinary instruction, insofar as veterinary courses were typically attended by agricultural students whereas Ferneyhough was a general science student.

According to the VPI 1894-95 catalog, the mission of the Veterinary Science Department was to provide agricultural students with some basic veterinary knowledge. The following
excerpt is from the veterinary science section of the catalog: “The department aims so to train agricultural students as to enable them properly to care for stock and to treat the simpler forms of disease when the services of a veterinarian are not available. To this end an extensive course of instruction has been arranged embracing the most improved methods of theoretical and practical teaching.”

VPI offered a veterinary science curriculum because too few veterinarians existed in Virginia to treat the growing livestock population using the latest veterinary research and information. At the end of the nineteenth century, there existed only about 2,000 fully trained veterinarians with membership in the USVMA in the entire country. Virginia, in short, lacked the professional veterinary manpower to combat the most devastating diseases, and so a quick fix was to instruct agricultural students who would eventually care for the livestock. Under the thrust of this need, the agricultural students and young Ferneyhough were trained in veterinary medicine in an expanding department.

Young Ferneyhough and others would attend veterinary classes as well as assist in the free veterinary clinic at the veterinary hospital on campus. In 1894, when Ferneyhough set foot on the VPI campus, the Veterinary Science Department offered two veterinary science courses consisting of veterinary anatomy and veterinary medicine. Between 1891 and 1925, the veterinary department had a clinic requirement for its students. In 1925 at the termination of the first Veterinary Science Department, all the veterinary-related courses moved to the newly formed Zoology and Animal Pathology department. As Niles’ faculty position progressed between 1891 and 1902, the courses offered in the veterinary department expanded from two to six. Along with Veterinary Science I and II, VPI began to offer Animal Parasites, Physiology of Domesticated Animals, Bacteriology, and Materia Medica. The veterinary Science Department also used the following texts for veterinary instruction: Chauveau’s Comparative Anatomy of Domesticated Animals, Liautaud’s Vade Mecum of Equine Anatomy, Strangway’s Veterinary Anatomy, Fredburger and Frohner’s Pathology and Therapeutic of Domesticated

118 VPI Catalog, 1894-95, p. 38.
120 VPI Catalog 1891-1908.
121 VPI Catalog1894-95, 32-38.
122 VPI Catalog 1925-20, 137.
123 VPI Catalog 1901-02, 47-49.
Animals, Law’s Farmers’ Veterinary Advisor, Moller’s Operative Veterinary Surgery, Fleming’s Veterinary Obstetrics, Neuman’s Parasites and Parasitic Diseases of the Domesticated Animals, F. Smith’s A Manual of Veterinary Physiology, Sternberge’s Manual of Bacteriology, Abbot’s Principles of Bacteriology, Finlay Dun’s Veterinary Materia Medica, and various parasite-related bulletins. While the veterinary lectures used these texts, the clinic gave students hands-on instruction.

Students applied their knowledge gained in the classroom on the college animals as well as local farmers’ animals brought to the free clinic. Some students might have been enlisted to help conduct some of the Experiment Station’s studies, but there is no documentation of such student interaction with VAES. VPI’s veterinary infirmary originally housing free veterinary clinics existed when Niles arrived in Blacksburg. A new veterinary hospital built behind the Horticulture Hall replaced the infirmary in 1892. The new two-story veterinary hospital remained part of the college’s landscape until the mid 1930s (figs. 9, 10, and 11). The first floor had three single stalls, one large box stall, a dissecting room, an operating room, and a dispensing room. The second floor had an office, a lecture room, a bacteriology room, and a veterinary museum that contained skeletons of a horse and a cow. Students assisted in all phases of veterinary care of diseased animals. Most patients likely came from the college’s farm animals. The college’s livestock thus served as research specimens for the agricultural students from animal husbandry to dairy husbandry as well as serving as veterinary medical case studies. The facilities stood as a fundamental part of the veterinary curriculum and constituted as an important part of the educational component of the veterinary complex at VPI.

124 VPI Catalog 1902-1903, 47-49.
125 VPI Catalog 1892-93.
126 Ibid.
Figure 9

Map of VPI Campus in 1921\textsuperscript{127}

Figure 10

Horticulture Hall, with the Veterinary Hospital in the background, 1895\textsuperscript{128}

\textsuperscript{127} VPI Catalog 1921-22.
Veterinary Research, Bulletins, and Disease Outbreaks

The United States passed the Hatch Act of 1887 to provide research infrastructure to support all aspects of agriculture. Both crops and livestock were provided for equally. In the initial decades following the passage of this act, VAES conducted both crop and livestock research. The emergence of new advances in germ theory and disease identification by men like Pasteur and Koch led to scores of research facilities around the world, beginning the task of identifying transmissible diseases’ cause and developing diagnostic tests and vaccines for recently discovered pathogens. VAES and other experiment stations funded by the Hatch Act, in connection with veterinary science departments or veterinary medical colleges, participated in this research effort. The provision in the Hatch Act was to conduct original research or verify

---

128 VPI Catalog 1895-96, 47.
130 Hatch Act, Sec. 2.
experiments on the physiology of plants and animals, the diseases to which they were subject, with the remedies for the same.\textsuperscript{131} VAES probably interpreted this mandate against the backdrop of their assessment that livestock diseases appeared to be more severe than crop diseases. It seems that VAES set devastating animal diseases as its priority: It had good reason to move research forward concerning those animal diseases that had recently been diagnosed or discovered.

Verifying previous experiments and conducting original research became the task of the veterinary staff at VAES in the 1890s. An additional provision of the Hatch Act mandated that experiment stations produce bulletins on the research being conducted at the stations. These bulletins, the mandate went, shall be published at least once in three months, and provided free of charge by the U.S. Postal system.\textsuperscript{132} VAES fully complied with the bulletin provision of the Hatch Act in 1890 by producing four bulletins that year and four in 1891. However, in 1892, under McBryde’s directorship, the VAES started producing its bulletins monthly.\textsuperscript{133} For the most part, veterinary research conducted at VAES was contingent on what animal diseases were plaguing Virginia at the time. In turn, veterinary-related bulletins dealt with current diseases that affected the state’s livestock.

The first infectious disease discussed by Niles in his first bulletin for VAES was infectious abortion in cows, which showed that in 1892 veterinary medicine was still unable to isolate the micro-organisms responsible for some animal diseases.\textsuperscript{134} In the 1880s and 1890s medical scientific research discovered several of the pathogenic organisms that caused diseases such as typhoid (1880), tuberculosis (1882), streptococcus (1883), diphtheria (1884), pneumococcus (1886), plague (1891), and dysentery bacillus (1898).\textsuperscript{135} Although researchers discovered specific disease-causing organisms, further research was needed to find the therapeutic or preventive measures for known disease pathogens and to identify other pathogenic

\textsuperscript{131} Ibid.
\textsuperscript{132} Ibid. Sec. 4
\textsuperscript{133} Anna Payne Cunningham, and Josephine Dudley Obenshain, \textit{Analytical Index and List of Publications of the Virginia Agricultural Experiment Station, 1888-1938} (Blacksburg, Virginia: Virginia Agricultural Experiment Station, 1938), 7.
\textsuperscript{134} E. P. Niles, \textit{Antiseptic Treatment of Wounds: Infectious Abortion in Cows}, VAES Bulletin # 13 (Blacksburg: Virginia Agricultural and Mechanical College. Agricultural Experiment Station, 1892).
\textsuperscript{135} George Rosen, \textit{A History of Public Health} (Baltimore: Johns Hopkins University Press, 1993), 290.
organisms. In other words, Professor Niles served at VPI during a decade in which some knowledge of germ theory and Koch’s Postulates, drawn from human medical research, began to filter into veterinary medical research. Most of Niles’ bulletins from the 1890s reveal the partial working knowledge of animal diseases and their causes.

In his bulletin concerning infectious abortion in cows, Niles described this disease its symptoms, and progression, but he was unable to identify the exact causal pathogen. Niles used the term infectious because veterinarians believed that the disease might be communicated from one animal to another without actual contact of such animal.136 This bulletin also hinted at the sanitary methods that veterinarians should start to employ to keep livestock healthy. By using the knowledge of germ theory, Niles recommended sanitary techniques such as cleaning, ventilation, and disinfecting the floors of the cows’ living quarters with lime, chloride of lime, or bi-chloride of mercury and carbolic acid as well as bombing the building with a few pounds of sulfur.137 He noted that cows that have aborted are no longer valuable as breeding stock and therefore should be beefed—a practice that he argued would do more to eradicate the malady than anything else.138

Along with the cleaning, ventilation and disinfection of animal environments, quarantine was often used to prevent sick animals from infecting healthy ones. One of the methods Niles alluded to was beefing sick cows. However, for some diseases, slaughtering for human consumption was impractical due to possible transference of the disease. Tuberculosis proved to be one of the most devastating zoonotic diseases that affected animals and humans alike.139 Controlling diseases became urgent when it was found that livestock disease was transferable to humans. Niles’ job as the head of veterinary research was to disseminate this information to farmers. He educated bovine owners and handlers on the importance of eliminating tuberculosis and typhoid from their herds not only for sake of the herd’s health but also for the sake of human consumers of their herds. The most effective means to limit and perhaps eliminate some diseases was to slaughter the diseased animals and then to destroy the carcasses. Some diseases, such as typhoid, simply required providing a clean germ-free environment to livestock. Niles provided farmers with ready remedies to prevent diseases from entering these herd populations and

137 Ibid., 16.
138 Ibid.
139 E. P. Niles, The Cow in Relation to Public Health, VAES Bulletin #32 (Blacksburg: Virginia Agricultural and Mechanical College. Agricultural Experiment Station, 1893), 119-126.
practical measures they could employ to prevent the spread of disease when diseases did enter the herd.

The task of writing bulletins for farmers required by the 1887 Hatch Act Section 4 became an important part of the third component--disseminating veterinary knowledge--of Virginia’s veterinary complex. In the 1890s, Niles wrote the bulk of the veterinary-related bulletins, with McCulloch and Roop providing a few others (See appendix 1). This dissemination of practical information (figure 12) was an extension service activity ahead of the Smith-Lever Act of 1914 establishing the USDA’s State Agricultural Extension Service. For all that, the veterinary researchers dutifully implemented the mandates of the Smith-Lever Act by following up on the Hatch Act of 1887 through the dissemination of the very latest veterinary knowledge and therapeutics to the farmers. Farmers wanted this information on veterinary medical treatment and disease prevention because of the limited number of qualified veterinarians in rural Virginia. This situation was due to the fact that veterinarians in the 1890s in America practiced mostly in cities due to the high concentrations of horses serving most of the cities’ transportation needs.\textsuperscript{140} Niles addressed the lack of rural veterinarians in the bulletin titled “Veterinary Materia Medica for Farmers,” stating the following: “The object of this bulletin is to place before the stock owners of the state who are not in reach of competent veterinarians, a limited amount of information on the subject of veterinary materia medica and to discountenance the use of obnoxious mixtures which frequently do more harm than good.”\textsuperscript{141} The veterinary bulletins were meant to help livestock owners save their investments when veterinarians were not available.

\begin{flushleft}
\textsuperscript{140} Susan Jones, \textit{Valuing Animals: Veterinarians and Their Patients in Modern America} (Baltimore and London: The Johns Hopkins University Press, 2003), 23. \\
\textsuperscript{141} E. P. Niles, \textit{Veterinary Materia Medica for Farmers: Part 1}, VAES Bulletin # 43 (Blacksburg: Virginia Agricultural and Mechanical College, Agricultural Experiment Station, 1894), 101.
\end{flushleft}
Providing very practical information to all citizens of Virginia was a key mission of VPI’s early years.\(^{142}\)

The state of the veterinary field in the 1890s warranted the sharing of limited but important veterinary knowledge with owners of domesticated animals. Although veterinarians stressed that they should medically diagnose and treat animals based on their education, they also realized that their limited professional ranks prohibited them from medically caring for the entire domesticated animal population. In the 1890s, the veterinary community had to accept the fact that demographically the task of prevention and treatment of disease was overwhelming. Therefore, the veterinary community let livestock owners and agricultural students in animal husbandry informally join in the effort to treat, prevent, and control many diseases with known causes.

The veterinary bulletins from the VAES and other states’ experiment stations served as one more measure to curb livestock diseases. The bulletins themselves recorded diseases that afflicted Virginia’s livestock (appendix 1). Because fully schooled and trained veterinarians were in short supply at the turn of the twentieth century, experiment station bulletins produced throughout the country and Virginia helped increase the number of individuals with functional information of targeted diseases. The more individuals who had some veterinary knowledge, the greater the likelihood that a disease such as tuberculosis could be eradicated in time. However, some bulletins, such as the bulletin entitled “The Horse’s Teeth, “ dealt with general hygiene of animals. This bulletin instructed horse owners how to tell when their horse’s teeth needed the attention of a practicing veterinarian.\(^{143}\) It included minor lessons about how the teeth should appear and symptoms associated with equine dental problems.\(^ {144}\) Two other bulletins, *Veterinary Materia Medica* for Farmers I and II, outlined the range of chemicals and herbs in correlation with their relevance to particular problems. In these two bulletins, Niles categorized drugs according to their basic desired effects as follows: antiseptics, deodorizers, astringents, antispasmodics, nerve sedatives and stimulants, purgatives, expectorants, vermicides, diuretics, and antidotes. He also provided information about the purpose and dosage of the above for each species.\(^ {145}\) For example, Nux Vomica, according to Niles: “should be given in the following dosage for an adult animal. Horses take of the powder drug one half to one drachm; cattle one to two drachms; sheep ten to thirty grains; pigs ten to twenty grains; dogs one half to two grains.”\(^ {146}\) Two other bulletins devoted to a non-disease concern for veterinarians included, *Principles of Horseshoeing* and *Shoeing for Special Purposes*.\(^ {147}\) Both bulletins stressed the importance of

---

\(^{143}\) E. P. Niles, *The Horse’s Teeth*, VAES Bulletin # 36 (Blacksburg: Virginia Agricultural and Mechanical College. Agricultural Experiment Station, 1893).

\(^{144}\) Ibid., 4-5.

\(^{145}\) E. P. Niles, *Veterinary Materia Medica for Farmers: Part 1*, VAES Bulletin # 43 (Blacksburg: Virginia Agricultural and Mechanical College, Agricultural Experiment Station, 1894), 99-109; E. P. Niles, *Veterinary Materia Medica for Farmers: Part 2*, VAES Bulletin # 45 (Blacksburg: Virginia Agricultural and Mechanical College, Agricultural Experiment Station, 1894), 119-123.

\(^{146}\) E. P. Niles, *Veterinary Materia Medica for Farmers: Part 1*, 106. Drachms and grains are apothecaries’ weights that were used by pharmacists up to the mid twentieth-century. 20 grains = 1 scruple; 3 scruples = 1 drachm; 8 drachms = 1 ounce; 12 ounces = 1 pound.

\(^{147}\) E. P. Niles, *Principles of Horseshoeing*, VAES Bulletin # 46 (Blacksburg: Virginia Agricultural and Mechanical College, Agricultural Experiment Station, 1894), 127-138; E. P. Niles, *Shoeing for Special Purposes*, VAES Bulletin # 54 (Blacksburg: Virginia Agricultural and Mechanical College, Agricultural Experiment Station, 1895), 81-94.
proper shoeing of horses to prevent lameness that causes unnecessary pain. The second shoeing bulletin addressed special shoeing methods to relieve certain pathological conditions of horse hooves. These bulletins demonstrate that VAES also disseminated non-disease information about ailments of domesticated animals that farmers could use in the absence of qualified veterinarians.

The VAES veterinary bulletins served their purpose of filling the veterinary needs of livestock and controlling disease until the ranks of the veterinary profession increased to the numbers needed to perform these tasks. The first three components of the Virginia veterinary complex--education, research, and dissemination of veterinary knowledge--were a prerequisite for the above transition. These veterinary bulletins--along with the veterinary education provided to VPI agricultural students--brought necessary veterinary knowledge to individuals who handled or would handle livestock.

The Role of the State Veterinarian

Beyond academic teaching, research, and dissemination of information relating to veterinary medicine, the Board of Control of VAES of VPI also practiced veterinary medicine. The State of Virginia gave this body direct control over the State Veterinarian to combat contagious diseases in the livestock population. Controlling disease in the entire state demanded not only taking the advice of the State Veterinarian, but also coordinating with Federal and State governments to enforce the recommendations. This veterinary activity pushed VPI into the forefront of Virginia veterinary medicine in 1896.

In 1896, the Virginia State legislature passed an act to provide protection of domestic animals and to authorize and empower the Board of Control of the Experiment Station of the Virginia Agricultural and Mechanical College at Blacksburg to establish livestock lines, rules and regulations, and to prescribe penalties for violating the same. Implementation of the above became the fourth and final component of controlling livestock diseases of Virginia’s veterinary complex at Blacksburg. The implementation entailed application of veterinary medicine on a

---

150 Second Annual Report of the State Veterinarian, Blacksburg, Virginia, 1897 (Richmond, Virginia: J. H. O’ Bannon, Superintendent of Public Printing, 1897), 13. The Board of Control was the governing body for VAES and in turn governed by the BOV.
large scale by the State Veterinarian. The Board of Control created the rules and regulations, but
only on the advice of the State Veterinarian. The State Veterinarian would go out to various parts
of the state to inspect and diagnose livestock with contagious diseases and to advise the Board of
Control whether a county or area of the state should be quarantined.

The worst and most pressing diseases—tuberculosis and cattle tick fever—posed the
greatest challenge to the state. Practicing veterinary medicine on a large scale was similar to
public health efforts to control disease in human populations. Controlling some livestock
diseases, such as tuberculosis, indirectly controls them in the human population. Tuberculosis
and cattle tick fever were the first two diseases that the Board of Control and the State
Veterinarian tackled. 151

The tuberculin test was utilized by Virginia and the BAI to identify cows with
tuberculosis and to determine if the area where the diseased cows resided needed to be
quarantined. However, Virginia livestock experienced re-infection by infected imports from the
northern states. 152 The northern states’ solution to their tuberculosis problem was to sell off their
sick animals to buyers out of state rather than to put down the animals and dispose of the
carcasses. 153 The executive action by the Board of Control came in the form of a December 12,
1896 recommendation prohibiting the importation of such cattle into the state for dairy or
breeding purposes unless accompanied by a certificate from a qualified veterinarian showing that
such cattle were free from tuberculosis, as shown by the tuberculin test. 154 However, the
governor refused to issue a proclamation on this recommendation, citing undue hardship on
cattle owners. 155 While this attempt to control bovine tuberculosis in the State of Virginia failed,
the Board and the State Veterinarian had more success in helping control cattle tick fever.

Unlike tuberculosis, cattle tick fever had an added feature regarding transmission.
Whereas Niles reported that tuberculosis was transmitted by the microorganism entering a
healthy body through the respiratory or digestive track, sexual organs, or skin, 156 cattle tick fever
was transmitted by an insect vector that transported the microorganism from cow to cow by the

151 Ibid.
152 Ibid., 8.
153 Ibid.
154 Ibid.
155 Ibid.
156 E. P. Niles, Splenetic or Texas Cattle Fever, VAES Bulletin #61 (Blacksburg: Virginia
Agricultural and Mechanical College. Agricultural Experiment Station, 1896), 20.
cattle tick (boophilus bovis). Before the establishment of the quarantine line, the USDA put the entire State of Virginia under quarantine. According to the state Veterinarian’s report all the counties south of the line were to be placed under quarantine, the line described as such:

...all counties in Virginia south of a line beginning on the Virginia and North Carolina boundary line at a point coinciding with the summit of the Blue Ridge Mountains; thence following the summit of said mountain northeasterly to the Blackwater river; thence easterly along the course of said river, through Franklin county, to its intersection with Staunton river on the eastern boundary of Franklin county; thence in a southerly and northeasterly direction along the southern and eastern boundaries of Bedford county to the James river; thence following the James river to the southeastern corner of Charles City county; thence northerly and easterly along the western and northern boundaries of James City, Gloucester and Mathews counties to the Chesapeake bay; thence south to the northern boundary of Elizabeth City county; thence westerly and northerly along the boundaries of Elizabeth City and Warwick counties to the James river; thence southeasterly along the course of said river to the northwest corner of Norfolk county; thence south along the western boundary of said county to its intersection with the northern boundary of North Carolina; thence along the southern boundaries of Norfolk, Princess Ann counties to the Atlantic ocean.

However, the state negotiated with the federal government to slowly lift the quarantine from counties that the state veterinarian inspected and found free of cattle tick. By the time the Governor of Virginia issued his proclamation establishing quarantine lines on February 18, 1896, the State Veterinarian had determined that sixty-three counties were cattle tick-free and could be removed from the federally imposed quarantine. This development left thirty-six counties still under quarantine. Some of these counties, Niles concluded, were badly infested with cattle ticks.

---

157 E. P. Niles, *The Cattle Tick in Virginia*, VAES Bulletin #76 (Blacksburg: Virginia Agricultural Experiment Station 1897), 46-47.
With the quarantine lines established, the State Veterinarian and the Board of Control set out to eradicate the cattle tick from the state county by county. The Governor’s proclamation provided regulation concerning cattle transportation to prevent re-infestation above the quarantine lines, as well as rules and regulations for preventing re-infestation of healthy cattle in counties where infestation was endemic. In his State Veterinarian Report, Niles claimed that before the cattle tick fever eradication effort in Virginia, Virginia experienced frequent outbreaks in all parts of the state.161 The State of Virginia, under the leadership of Niles and the Board of Control, helped establish the claim that there were only small outbreaks in Carroll and Albemarle counties in 1897.162 After the establishment of the quarantine lines the outbreaks north of the line were caused by transportation violations.163 Niles assured the State that if the rules and regulations were followed, the cattle tick would be a thing of the past in the state of Virginia.164

Practicing veterinary medicine on the state’s cattle population became the applied form of veterinary medicine by way of the State Veterinarian on the VPI campus. Along with the State Veterinarian’s efforts, VPI’s Veterinary Science Department also helped in this fourth component of controlling livestock disease by manufacturing the state’s supply of black leg vaccine on the VPI campus.165 In the bulletin entitled “Black Leg Vaccine,” Niles gave all the medical specifications and explained how stockowners could obtain a black leg vaccine kit (figure 13).166 The manufacturing of the black leg vaccine at VPI between 1898 and 1915 indicates that the institution continued to contribute to the efforts of controlling this particular livestock disease many years after the State Veterinarian moved off campus. Veterinary medicine was an integral part of VPI’s intellectual landscape. The position of State Veterinarian and the manufacturing of black leg vaccine was the height of the state veterinary complex, as it existed on the VPI campus. Once all the four components of Virginia’s state-controlled veterinary complex came together in 1896, they continued to function in the VPI campus for over a decade, providing vital veterinary educational, research, informational, and regulatory resources to

161 Ibid., 5.
162 Ibid., 5-6.
163 Ibid., 6-7.
164 Ibid., 7.
165 E. P. Niles, Black Leg Vaccine, VAES Bulletin #90 (Blacksburg: VAES, 1898). Blackleg is a usually fatal toxemia especially of young cattle caused by a soil bacterium Closridium chauvoei. (www.m-w.com/dictionary/blackleg) March 4, 2006.
166 Ibid.
Virginia livestock owners, before the veterinary profession had time to develop in numbers and to standardization the profession.

Figure 13
Illustration of a Black Leg Vaccine Kit found in VAES Bulletin #90

Veterinary Activities Outside Blacksburg

By 1896, the state had created an array of veterinary services: Veterinary medicine appeared to have found a place to grow and contribute to the economic welfare and public health of both humans and animals. For most of the 1890s E. P. Niles was an educator, researcher, and practitioner of veterinary medicine for the state’s complex. Niles’ service was supplemented by his junior colleagues, Roop and McCulloch. This complex remained intact during the years 1896 - 1908, whereafter Virginia moved the office of the State Veterinarian to Burkeville.167

During the eight years preceding the move of the State Veterinarian, VPI was the focus of almost all of the state-sponsored veterinary activities. However, VPI was not the only place

167 Report to the Board of Visitors by McBryde, January 1908, 6.
where veterinary activity occurred. Private organizations, the Federal government, other states, and private practice veterinarians, exemplified by James Ferneyhough’s short-lived practice in Charlottesville, were contributing to the advancement of veterinary medicine outside of Blacksburg. The VVMA, established on February 6, 1894, represented the organized professional veterinarians in Virginia. The Federal government established branch offices of the USDA and BAI in Norfolk, Virginia.

Private veterinary practitioners set up their practices according to where they would have the best opportunity to support themselves rather than the general health of livestock throughout the state. Private veterinarians more often settled in cities and large towns due to the higher concentrations of transport animals in those areas. However, Ferneyhough confided with McBryde in 1902 that his veterinary surgery practice made a good many dollars during a year and that he had a considerable practice in the counties of Orange, Greene [Greene], Madison [Madison] and Alb. [Albemarle] and to some extent in Culpeper and Louisa [Louisa].

Ferneyhough’s list suggests that some veterinarians expanded their practice to rural areas, while keeping the city as their primary setting. A small number of Virginia veterinarians in the 1890s covered both rural and urban areas selectively; however, remote rural areas outside a close circumference around a city were left mainly to their own devices.

The VVMA promoted professionalism within the veterinary field. Based on his experience as a boy, Faville pointed out that prior to 1880, horse doctors provided the majority of the veterinary services and the veterinarians were sort of rara avis. Faville’s life encompassed the complete transformation of veterinary medicine into a professional field. As a youngster, he saw untrained blacksmiths and farmers attempting to treat domestic animals, with little success. He realized that even the best-trained veterinarian often failed to cure certain diseases due to lack of understanding of the germ theory and Koch’s discovery of the tubercle bacillus.

---

168 VVMA Minutes February 6, 1894. Original VVMA Minutes version housed in Newman Library Special Collections, Blacksburg.
169 Faville, The Virginia Veterinary Medical Association, 12.
170 Ferneyhough to McBryde, January 6, 1902 (handwritten).
171 Faville, The Virginia Veterinary Medical Association, 5. Rara Avis is Latin for a rare bird. Faville’s use of this term stresses the rarity of veterinarians prior to 1880.
172 Ibid., 5.
173 Ibid., 7.
By 1931, he had over fifty years of experience in veterinary medicine as a BAI veterinarian and had been a direct participant in the efforts to promote veterinary professionalism in Virginia.

According to Faville, he and the other founding members—W. H. Harbough, E. P. Niles, A. W. Swedberg, W. T. Gilchrist, and T. A. Donaldson—established the Virginia Veterinary Medical Association (VVMA) on a cold blustery afternoon, February 6, 1894, in the office of Dr. W. H. Harbough in Richmond. This group incorporated and set its own mission. Their most important goal was to promote the advancement of veterinary knowledge throughout the State of Virginia. The VVMA therefore required those wishing to seek admission into the organization to pay a membership fee, “furnish evidence of graduation from a recognized veterinary school, “provide proof of “a good moral character and reputable business methods.”

Usually after the business part of each meeting, individual members or invited guests presented veterinary-related papers followed by discussion. VVMA thus served as a forum for Virginia’s veterinarians to learn about new advancements and techniques in their field.

Despite the popular promotion of veterinary knowledge, the VVMA always stood by its principle that veterinary medicine should only be practiced by qualified veterinarians. This zeal for professionalism was reflected in the association’s resolutions. On August 15, 1894, before Virginia established the Virginia Veterinary Examiners Board (VVEB) in 1896, the association resolved the following: “That we condemn the granting of certificates on health for dairies by unqualified men after superficial examinations.” The VVMA also lobbied Virginia’s State Assembly to pass a bill governing the practice of veterinary medicine. The Association’s efforts helped secure the governor’s signature on the act that established the VVEB. The provisions of the act allowed VVMA to send to the governor ten nominations of which the governor would select five. In 1896, the names of W.H. Harbough, T.M. Sweeney, E.P. Niles, H. Bannister, W. T. Gilchrist, G. C. Faville, C. McCulloch Jr., A. J. Burkholder, C. K. Rhodes and

174 Ibid., 14.
175 Ibid., 15.
177 Faville, The Virginia Veterinary Medical Association, 18.
178 Ibid., 20.
179 Ibid., 26.
180 Ibid., 29.
J. E. Miller were recommended to the governor for selection. The establishment of the VVEB equipped the VVMA with the power to define whether an individual was qualified as a veterinarian. The VVMA’s mission of professionalizing veterinary medicine would have a major effect on the subsequent history of the State of Virginia’s veterinary complex, to be discussed in the following chapter.

While individual veterinarians practiced around the state and some worked toward the professionalizing of the field, the U.S. government conducted inspections of domesticated animals with the view to ascertaining their suitability for international and interstate transportation and products obtained from them for human consumption. The Bureau of Animal Industries (BAI), a sub-agency of the USDA, employed veterinarians for meat inspection and scientists for research around the country. In 1894, in Norfolk, Virginia, Faville worked for the BAI, which executed federal policies concerning the control of animal disease. The prevalent disease that preoccupied BAI’s Norfolk officer was the Texas cattle tick fever. The BAI employed Faville based on his previous BAI and State Veterinarian work with the disease in Colorado.

Amidst the rapid growth of efforts to regulate and control livestock disease, attempts were also being made to professionalize veterinary medicine by setting practicing standards. The VVMA, like comparable associations in other states, lobbied for governmental mechanisms to examine and license. There is apparently no evidence that the VVEB, the fifth component of Virginia’s state-controlled veterinary complex, conducted business on VPI soil. What is documented is that VPI faculty members also held prominent positions on the VVEB due to VVMA’s nominations of VPI’s veterinary science faculty members to the Governor. According to the VVMA minutes, both Niles and McCulloch were nominated to the Governor. Physically, the fifth component of the complex may not have been located at VPI, but by the end of the nineteenth century, VPI’s veterinary faculty had contributed greatly to Virginia’s five-component veterinary complex.

---

181 Ibid.
182 Jones, Valuing Animals, 54.
183 Faville, The Virginia Veterinary Medical Association, 12-13.
184 Stanford, A Century of Service, 39.
185 Faville, The Virginia Veterinary Medical Association, 29.
Some veterinary activities seemed to be independent of VPI’s veterinary faculty and the state. However, almost all types of activities, with the exception of BAI, can be traced to the VPI’s veterinary science personnel. Niles, Roop, McCulloch, Spencer, and Ferneyhough variously participated in the array of veterinary activities both at and beyond VPI (see appendix 2). The state’s veterinary complex, as it was originally constructed, was based on the location and utilization of expertise, following the reorganization of VPI under McBryde and Niles’ arrival in Blacksburg (1891). In 1904, when the State Veterinarian moved to Burkeville, the position became less dependent on its geographical proximity to the location of other veterinary activities. The State Veterinarian component no longer needed to share personnel with the other three components of education, research and dissemination of veterinary knowledge. As such, the move of the State Veterinarian from Blacksburg to Burkeville marked the beginning of the decline of VPI as the center of the State of Virginia’s state-controlled veterinary complex.
Chapter III

The End of VPI as the Center of the Veterinary Complex

The dispersal of Virginia’s veterinary complex at VPI may well be traced back to the mushrooming growth of the complex and demands of the components activities. There were increasing veterinary classes offered at VPI, more diseases to research, more information to share with livestock owners, and more regulatory demands placed on the State Veterinarian. This increase in veterinary activities at VPI contributed greatly to the eventual fragmentation of the complex. The decrease of the dissemination of veterinary knowledge to farmer had a lot to do with the professionalization of veterinary medicine throughout the state and the nation. Nevertheless, the clearest indication of the beginning of the fragmentation is found in a letter from James Ferneyhough to McBryde, VPI’s President. Employed in 1902 as both an associate faculty member in the VPI Veterinary Science Department and State Veterinarian, Ferneyhough confided the following about his appointment as State Veterinarian: “I do not want the appointment unless you think I am competent to fill the place nor do I want to be an applicant for the Chair if you think that Dr. John Spencer [head of VPI’s Veterinary Science Department between 1902 and 1908] is the man for that position.” The letter clearly indicates that Ferneyhough felt unsure of his professional abilities, even though he had the desire to serve. As the letter goes on to say, “I should be proud to be appointed Veterinarian of my state, if those who know me personally and know my credentials think that I am the man for the place.”

While Ferneyhough’s hiring at VPI in 1902 marks the beginning of the fragmentation of the veterinary complex, the tenure of W. G. Chrisman, chair of VPI’s Veterinary Science Department between 1913 and 1923, marks its completion. The period between 1902 and 1913 was the turning point in the organizational structure of the veterinary complex. Spencer, the chair of VPI’s Veterinary Science Department between 1902 and 1909, and Ferneyhough performed different component tasks in Blacksburg between 1902 and 1908, then Chrisman and Ferneyhough served different component tasks--Chrisman in Blacksburg and Ferneyhough in

---

186 VPI Catalog 1902.
187 James Ferneyhough, Charlottesville, VA, to John McBryde, Blacksburg, VA, February 6, 1902, 1, 2.
188 Ibid.
Burkeville and Richmond—between 1913 and 1923 (see appendix 2). In 1913, Chrisman, a 1901 VPI graduate, became the head of the veterinary science department, while Ferneyhough continued his tenure as State Veterinarian. There seems to have been no designated veterinary researcher at VAES. Between 1913 and 1923, VAES had neither a veterinarian nor an animal pathologist on staff, and there is no documentation indicating a reason behind this vacancy.189

This fragmentation of the complex at VPI had a lot to do with the rapid growth of veterinary medicine and the specialization of the field within the United States. From the 1890s to the 1920s, veterinary medical researchers, including those from VPI, developed treatments and preventable measures for some of the most devastating domestic animal diseases, such as anthrax, cattle-tick fever, and diphtheria. These advances promoted disciplinary specialization and a professional division of labor. Accordingly, some veterinarians remained in private practice and contracted out their services involving control of outbreaks; others were employed by the BAI as inspectors of meat and dairy products intended for human consumption (with the objective of preventing disease from entering the human population).190 The BAI also employed veterinarians to determine if the livestock was free of contagious diseases, and thus allowed to pass quarantine borderlines.

Although the veterinary medical profession was specializing, many veterinarians feared that their profession would not survive into the next century. While professionalizing helped shape the identity of veterinarians, it also created strife between veterinarians and practitioners—such as uneducated horse doctors, agricultural agents, and livestock owners acting on their own or with the help of the Federal and State governments in efforts to combat livestock disease. The veterinary field was undergoing transformation for other reasons as well. For example, the introduction of the automobile limited the need for horses. Fewer horses to treat meant a smaller need for veterinarians focusing on horses. So, veterinary medicine had to reinvent itself as a caretaker of all animals in order to survive.191 With the loss of their equine clientele and other agents that treated and vaccinated livestock, veterinarians pushed to strengthen their profession by lobbying state and national legislators to restrict who could practice veterinary medicine. In

189 VAES Administration and Professional Research Staff 1889-1965 (Blacksburg: VAES, 1965).
190 Committee on Government Operations, U. S. Senate, Veterinary Medical Science and Human Health (Washington, D.C.: U. S. Senate, 1961), 158.
Virginia, the VVMA voiced objections to extension agents practicing veterinary medicine. These professional concerns aside, the growing numbers of veterinarians still fell short of the numbers needed to address the needs of domesticated animals and public health in the early 1920s. This professional pressure eventually affected veterinary activities at VPI with the termination of VPI’s first Veterinary Science Department and the moving of veterinary related-courses to the Department of Zoology and Animal Pathology in 1925.

The first component of the veterinary complex to leave VPI grounds was the Office of State Veterinarian. The removal of this office, in about 1908, marked the beginning of the actual physical break up of the complex. Ferneyhough was State Veterinarian at this point and advocated that his office continue to remain connected with VPI.192 So, even though Ferneyhough’s physical office was located in 1910 in Burkeville away from the VPI Campus, the State Veterinarian still functioned under the auspices of the Virginia State Live Stock Sanitary Board (VSLSSB) on which Eggleston, president of VPI, served as ex-officio.193 In 1918, with Eggleston still on the VSLSSB, the State Veterinarian office was again re-located, this time to the Lyric Building in Richmond VA.194 Although the Office of State Veterinarian was neither physically connected with VPI nor under the aegis of the Board of Control of VAES, it remained connected with VPI via its president until at least 1920.

The dispersal of the veterinary complex from VPI also was manifested in a decline in veterinary research. By 1913, when Professor Chrisman joined VPI, veterinary research at VAES had decreased to the point that there had been no publications of veterinary research or veterinary-related bulletins between 1910 and 1923. The VAES Annual report of 1917-1918 lists no employed veterinarians or animal pathologists.195 A directory of all the administration and professional research staff of VAES between 1889 and 1965 mentions no veterinarian or animal pathologist employed between 1912 and 1924.196

In the years following 1913, the curriculum for veterinary education, the original component of the veterinary complex, underwent change. During I. D. Wilson’s first year at

193 Ibid.
194 Ferneyhough, Richmond to Eggleston, Blacksburg, January 7, 1916, and Ferneyhough, Richmond to Eggleston, Blacksburg, July 6, 1918.
196 VAES, Administration and Professional Research Staff 1889-1965.
VPI in 1923, the veterinary science department had many of the same courses and administrative structures as it did during E. P. Niles’ tenure. During Wilson’s tenure (1923 -1959), the veterinary courses moved to the Zoology and Animal Pathology Department (in 1925). The shift reflected a change in the target audience for veterinary courses from agricultural students to students preparing for veterinary colleges. On the whole these changes created uncertainty about the future of the veterinary curriculum at VPI.

Some of the changes in the VPI veterinary curriculum were probably due to internal and external pressures on the college. Internally, the diversification of university course curricula contributed to the constant reshuffling of veterinary courses. Externally, the changing entrance requirements for veterinary medical colleges, coupled with the professional licensing constraints on who could practice veterinary medicine, affected the veterinary offerings of VPI. By the 1930s, many of the course and clinical experience requirements from the years 1891-1924 had disappeared or been incorporated into curricula unrelated to veterinary science, medicine, animal husbandry, or dairy husbandry. So, although veterinary science and medicine courses remained in the college curricula, they no longer enjoyed the same importance on the VPI campus as they had in the first thirty years or so under VPI’s Veterinary Science Department.

Comparing the network illustrating the complex in 1896 with that illustrating the same in the 1920s helps us visualize the changing composition of Virginia’s veterinary complex (Figures 6 & 14). By 1910, the VPI campus did not dominate the Virginia State-controlled complex even as the office of State Veterinarian retained an external connection with VPI through President Eggleston’s presence on the VLSSB. All veterinary-related research bulletins at VAES stopped in 1910 with one last pre-1930 bulletin. Accordingly, in 1929, R. A. Runnells, a VAES staff veterinarian, authored a veterinary-bulletin entitled Baccillary White Diarrhea, Pulmonary Infection of the Domestic Fowl, twenty-eight years after Mayo wrote Treatment of Bovine Tuberculosis in 1910 (see appendix 1). The only component of the veterinary complex that remained at VPI after 1910 was education. Since its inception in 1872, VPI has provided veterinary education by incorporating veterinary science and medicine into other courses, offering stand-alone veterinary courses, or much later, in 1980, by establishing a veterinary

---

197 Anna Payne Cunningham and Josephine Dudley Obenshain. Analytical Index and List of Publications of the Virginia Agricultural Experiment Station, 1888-1938 (Blacksburg, Virginia: Virginia Agricultural Experiment Station, 1938), 7-15.
medical college. While Virginia’s veterinary complex began dispersing across the state from 1910 onwards, its educational component remained on the VPI campus.

Figures 6 and 14 respectively:

Virginia’s State Controlled Veterinary Complex in 1896 and in the 1920s

The 1896 complex shows a greater intermingling and connection of actors and components, allowing faculty to engage in many of the components’ activities. Twenty to thirty years later, in the 1920s, the complex is drastically different. In the 1920s complex actors and components were less interconnected because some of them, such as the State Veterinarian, moved off campus. The VAES no longer was a component in the 1920s; however, veterinary education continued on the VPI campus.
Virginia Veterinary Medical Association’s (VVMA) Professionalization Efforts

From its beginnings in 1894, VVMA’s members insisted that the association’s mission consist of professionalizing veterinary medicine. They lobbied Virginia’s governors and state representatives to pass legislation that would govern the veterinary profession. The push to professionalize veterinary medicine gained strength between the 1910s and the 1930s, and conflicted with the incorporation of veterinary medicine into the agricultural curriculum of VPI during the McBryde administration (1891 - 1908). Before the 1920s, owing to the shortage of trained veterinarians, individuals with minimal training could diagnose, treat, and prevent disease in domestic animals. The small number of veterinarians hampered the efforts at professionalizing veterinary medicine; however this did not deter the association’s mission. Dr. Harbaugh, the first president of the VVMA (1896), pointed out:

It is almost incredible to think that this present association, with its present membership sprang from the handful of veterinarians who met in my office not quite two and a half years ago for the purpose of taking some steps to check the incursion of the quacks with diplomas. Vigorous attempts will certainly be made to have our Examining Board law repealed or amended, and we must be on the look out so as to be able to counteract every such attempt. 198

The association was aware of politically uncertain standing, but it also realized that with time, growing membership, and effort it could add credibility to the veterinary profession. Throughout the 1920s and 1930s, VVMA was successful in strengthening the veterinary profession in Virginia.

Most of VVMA’s success in professionalizing veterinary medicine came through supporting or resisting State legislative actions. VVMA supported passage of legislation in 1896 concerning the establishment of the Board of Veterinary Examiners, for which the VVMA submitted nominees to the governor. 199 By suggesting names for another veterinary governing

198 Faville, *The Virginia Veterinary Medical Association*, 30-33.
body, VVMA took its first step toward its goal of professionalizing veterinary medicine. In 1900, VVMA passed resolutions that publicly scorned state and municipal bodies that did not pass adequate disease control laws for livestock and animal products such as meat and milk.\(^{200}\) Because the association sought changes in the Veterinary Practice Act, VVMA monitored the Mills vs. Commonwealth case, which convened in Newport News, in 1908.\(^ {201}\) Faville reports that the Newport News case dealt with an empiric practicing veterinary medicine and claiming to be a veterinarian. On this case, the judicial decision affected Virginia veterinary practice law, and it ruled that, based on the statute, anyone who practices on livestock without being a veterinarian can charge for his services and collect his bill, provided he does not claim to be a veterinary surgeon.\(^ {202}\) Further, the decision claimed that the statute provided that no one who is not a veterinary surgeon has a right to prescribe for domestic animals, except those that are embraced in the term livestock.\(^ {203}\) As the decision threw light on the legal implications of who could call themselves veterinarians and what they could do, the VVMA felt it had scored a point over non-veterinarians in violation of the state’s veterinary law.

The VVMA attempted to be both the professional and political voice of Virginia’s veterinarians as exemplified by a talk, “The Veterinarian as a Politician,” given in 1912 by Ferneyhough, then President of VVMA and State Veterinarian.\(^ {204}\) In the talk, Ferneyhough advocated a closer relationship between the State Veterinarian and general practitioners. Political interaction among veterinarians and other veterinary activities may have been one of the goals Ferneyhough and others in the VVMA hoped to achieve through their broader push for professionalism.\(^ {205}\)

The drive towards professionalism included VVMA’s attempt at getting more involved in other veterinary activities in Virginia. So, in 1928, John R. Hutchinson, future president of VPI, spoke on “The Need for Well Trained Veterinarians in Virginia.” He stressed the need for cooperation among county agents and veterinarians, emphasizing that he did not want the county agents to practice veterinary medicine but rather to aid the veterinarians to meet the farmers’

\(^{200}\) Ibid., 41.
\(^{201}\) Ibid., 42-43.
\(^{202}\) Ibid.
\(^{203}\) Ibid.
\(^{204}\) Ibid., 44.
\(^{205}\) Ibid.
needs. His statement appears to be a reaction to complaints from the VVMA about non-licensed county agents practicing veterinary medicine. This discontent of veterinarians over non-veterinarians providing basic services and advice to livestock owners and over the owners themselves practicing on their animals finally came to a head in 1938, when VVMA members could at last take action against such people.

In 1938, VVMA lobbied to kill an amendment to the Veterinary Practice Act. The amendment allowed county agents or their assistants or game wardens to administer vaccine to animals in counties in which there were no registered veterinarians. Despite VVMA’s effort, this bill was approved by the Virginia Legislature, but Governor James H. Price vetoed the measure. With that veto, the VVMA can be said to have received state recognition at the highest level and to have been given full control over the conduct of the veterinary profession in Virginia. From 1938 on, only veterinarians could practice veterinary medicine in Virginia.

The professionalization of Virginia veterinary medicine necessitated changes in VPI’s veterinary curriculum. The increasing numbers and the political strengthening of Virginia’s licensed veterinarians resulted in a complete change in philosophy of veterinary education at VPI. No longer did it make sense to train agricultural students in veterinary medicine or to pass on veterinary knowledge directly to farmers. Through the 1910s and 1920s the veterinary profession had successfully forced the issue that only fully educated and trained veterinarians should be allowed to attend to the medical concerns of domestic animals. These medical concerns certainly dealt with diagnosing diseases, inspecting livestock for transport to slaughter, administering drugs, and medically treating diseases and ailments. However, non-veterinary practitioners such as farriers and livestock owners would help deliver offspring, shoe horses, dip livestock, and practice sanitary measures that would help ensure the good health of domestic animals. These non-veterinary medically-related activities are what VPI could teach their agricultural students after subsequent changes in Virginia’s Veterinary Practice Act.

VVMA reflects similar efforts of other state veterinary professional associations as well as the American Veterinary Medical Association (AVMA) to define and control who participated in their profession. As a result of VVMA’s efforts non-veterinarians slowly lost their legal

---

206 Ibid., 51.
207 Ibid., 55.
208 Ibid.
ability to perform veterinary procedures. By 1938, in short, VVMA had claimed complete possession of all veterinary duties for veterinarians in Virginia.

The State Veterinarian Moves Off Campus

The State Veterinarian was located at VPI from 1896 to 1908. During this time the State Veterinarian discharged his administrative duties on the VPI campus, but also inspected and evaluated livestock off-campus. The State Veterinarian was usually an individual connected with VPI as a member of the veterinary faculty and/or as the VAES veterinary researcher. When the State Veterinarian was no longer connected with VPI or VAES as faculty or researcher, the physical office of the State Veterinarian could be located elsewhere. This was the case during Ferneyhough’s service as State Veterinarian between 1902 and 1923. Although the archives do not include the dates of the move of the State Veterinarian Office, we do know approximately where the office was located during Ferneyhough’s term.

In 1908, in an annual report, President McBryde announced that the Agriculture Hall (figure 15) was near completion, and that the old Station building vacated by some of the above-mentioned departments (Agriculture, Horticulture, Bacteriology, Veterinary science, and Dairying departments and the Chemical Laboratories of the Station) had been assigned in part to Mr. Phillips, the State’s Entomologist and Pathologist for his own office space. The report went on to say that Mr. Phillips requires four rooms, whereas one or two more of its rooms will also be given to Dr. Ferneyhough, the State Veterinarian. As such, the report firmly establishes the fact that the State Veterinarian’s office was still on the VPI campus in January 1908.

---

209 Niles, Roop, McCulloch and Ferneyhough were VPI Veterinary faculty and State or Assistant State Veterinarians.
210 McBryde’s Annual Report to the Board of Visitors, January 1908, 5 - 6. Photo of Agriculture Hall from VAES Annual Report, 1906, 6.
211 Ibid., 6.
The first move to Burkeville occurred sometime between January 1908 and December 1910. Burkeville is located in western Nottoway County, about forty miles southwest of Richmond, on routes 360 and 480. While the State Veterinarian resided on the VPI campus, that office was governed by the Board of Control of the VAES. Then in 1910, the State Veterinarian was brought under the auspices of the Virginia State Live Stock Sanitary Board (VLSSB). More investigation on this governing body might shed light on why the office was moved to Burkeville, Virginia, where it remained at least until 1914.

Between 1914 and 1916, the State Veterinarian Office moved to the Lyric Building in Richmond, Virginia. There is no clear indication as to why it moved the second time. In 1914, there was a bill introduced to abolish the VLSSB in favor of the State Board of Agriculture as the

---

215 Eggleston, Blacksburg to Ferneyhough, Burkeville, Feb. 23, 1914.
216 Eggleston, Blacksburg to Ferneyhough, Richmond, Jan. 7, 1916.
controlling body of the State Veterinarian. The Bill did not pass and the State Veterinarian Office remained under the control of VLSSB and housed in Richmond.

While the State Veterinarian, Ferneyhough, was not physically located at VPI campus after 1908, he still remained connected with the school. Eggleston, VPI’s President, served as ex-officio on the VSLSSB, and Ferneyhough urged that the connection between his office and VPI remain. One could speculate that Ferneyhough wanted to maintain ties to VPI due to his personal connection with the institution, his alma mater and his former employer, and because of his realization of VPI’s contributions to veterinary medicine. As long as Ferneyhough remained the State Veterinarian, the chances were great that VPI would retain its connection to the office in some way. The physical relocation of the State Veterinarian from Blacksburg did not mean a complete removal of VPI from the Office of the State Veterinarian.

Veterinary Education Down Scaled at VPI

The educational component of Virginia’s Veterinary Complex did not leave the grounds of VPI. From VPI’s beginnings as VAMC in 1872 to the present day, there was always some kind of veterinary instruction in Blacksburg—even though a veterinary department did not always exist. To recount briefly, Ellzey and Scott provided veterinary instruction under the Natural History and Agricultural curriculum at VAMC between 1872 and 1890; under President McBryde’s administration, the first Veterinary Science Department was formed under the leadership of E. P. Niles in 1891; that department remained operational throughout the early 1920s.

Once John Spencer took over VPI’s Veterinary Science Department in 1902, the veterinary curriculum expanded. In the academic year 1902-03, Bacteriology was dropped; in 1905-06 Principles of Horseshoeing was added, followed by Horse Judging in 1906-07. Horse Judging, however, was dropped in 1907-08, followed by Horseshoeing, in 1908-09. It is interesting that these horse-related courses were not veterinary in nature but dealt with subjects that horse trainers and farriers still address today. The addition of these courses also indicates a veterinary department in flux concerning its nomenclature and mission. However, the brief

---

217 Eggleston, Blacksburg to Ferneyhough, Burkeville, Feb. 23, 1914.
218 Ferneyhough, Richmond to Eggleston, Blacksburg, July 6, 1918.
219 VPI Catalog 1902-03, 58.
220 VPI Catalog 1906-07, 98.
offerings of these courses could also have had to do with the presence on campus of Ferneyhough who loved horses.\textsuperscript{221} Once the State Veterinarian Office moved off campus in 1908--and Ferneyhough was no longer teaching at the Veterinary Science Department--the above-mentioned courses had to be dropped, as no teacher specializing in these topics was available to replace Ferneyhough. By the time of Spencer’s last year at VPI in 1909, the Veterinary Science Department offered only four courses: Comparative Anatomy and Physiology of Domestic Animals, Senior Veterinary Pathology and Therapeutics, and Animal Parasites, and Clinics.\textsuperscript{222}

During the short tenure of Professor Nelson Slater Mayo, MS, DVS in the Veterinary Science Department (1909-1913), the curriculum--with one exception--remained the same as it was during the last year of Spencer’s service (1910). That exceptional change was that the clinical part of the veterinary curriculum was changed to practice. The course description and the objectives also changed.

\textsuperscript{221} See Chapter II for discussion of Ferneyhough.
\textsuperscript{222} VPI Catalog 1909-10. 94-96.
VPI Catalog 1908-09, page 95.

319 Clinics. The students are required to attend and assist in all operations, and in the treatment of all sick animals. The principle[s] and practice[s] of surgery are taught by lecture and demonstration and comprise such special features as securing animals for operations, proper uses of antiseptics and disinfectants in connection with surgery, anesthesia, methods of administering drugs. The student is familiarized with the various instruments, appliances, etc., used in practice, of which a good supply is in constant use in this department. Dispensing of drugs is also embodied in this course.

The object of this course is to train agricultural students so as to enable them to care properly for stock and to intelligently treat them when the services of a veterinarian are not available. To this end an extensive course of instruction has been arranged, embracing the most improved methods of theoretical and practical teaching, and to that end special effort has been made to secure abundant clinics.

Five laboratory periods a week, third term Professor Spencer.

VPI Catalog 1909-10, page 95, 96.

319 Practice. Students are required to assist in and familiarize themselves with the proper methods of harnessing, driving, hitching, and confining animals. The preparation and the administration of medicines, bandages, slings, supports, and splints. Disinfection of quarters, spraying and dipping animals. Practical shoeing, minor surgery, castration, treatment of wounds, and examinations as to age and soundness. This course is designed to be as practical as possible, and the students are required to treat ailing animals that belong to the Institution.

Three laboratory periods a week, third term Professor Mayo.

As the course descriptions show, no longer was the focus put on preparing agricultural students to care for and treat livestock when veterinarians were not available.

When William George Chrisman, VS, became the head of VPI’s Veterinary Department in 1913, the veterinary curriculum returned to that offered under E. P. Niles (1891-1901). Under Chrisman, VPI offered Anatomy and Physiology of Domestic Animals, Minor Surgery, Materia
Medica, Animal Parasites, Surgery and Obstetrics, Veterinary Science, and Clinic. In 1916, VPI returned to the focus on veterinary courses for agricultural students while also offering a curriculum for preparatory veterinary medicine for those wishing to advance into a veterinary medical college. More students from other curricula—such as Applied Biology—were taking veterinary science by the time I. D. Wilson took over the department in 1923.

Under Wilson’s leadership veterinary courses changed several times, and courses such as Unsoundness of Horses, Horseshoeing, and Livestock Sanitation were added to the curriculum. By 1925, all veterinary-related courses were housed under the Zoology and Animal Pathology Department. The change is illustrated in the following chart:

<table>
<thead>
<tr>
<th>1924-1925 VPI Catalog page 136</th>
<th>1925-1926 VPI Catalog page 138</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vet Sci 231 – Veterinary Anatomy &amp; Physiology</td>
<td>Zoology 221-311 – Comparative Anatomy &amp; Physiology</td>
</tr>
<tr>
<td>Vet Sci 313 – Animal Parasites</td>
<td>Zoology 312 – Animal Parasites</td>
</tr>
</tbody>
</table>

VPI moved the majority of the veterinary courses to this new department and eliminated the veterinary clinic lab. Additionally, more students were required to take Zoology and Animal Pathology courses. Animal and Dairy Husbandry students were required to take General Zoology, Comparative Anatomy and Physiology, Embryology, Animal Parasites, Diseases of Domestic Animals and Obstetrics. Horticulture and Home Economics students were required to take Entomology, not veterinary-related courses in Zoology and Animal Pathology. At the same time, veterinary sciences—along with other animal-related classes that had nothing to do with veterinary science or medicine, such as Bee Keeping—moved to the Zoology and Animal Pathology Department.

---

223 VPI Catalog, 1913-14, 111-112.
224 VPI Catalog, 1916-17, 30 & 36.
225 Ibid., 51, and VPI Catalog, 1923-24, 132.
226 VPI Catalog, 1923-24, 135.
227 VPI Catalog, 1925-26, 138-139.
228 VPI Catalog, 1925-26, 53-57.
A 1938 description for agricultural students put out by the Zoology and Animal Pathology Department reads as follows:

“The courses for agricultural students deal particularly with the prevention and control of diseases of domestic animals with special emphasis being attached to the study of hygiene and sanitation as pertains to agricultural problems.”

This description suggests that this curriculum is in stark contrast from its counterpart from twenty-five years earlier during the tenures of Niles, Spencer, Mayo, and Chrisman (1891-1923) when VPI provided veterinary instruction to agricultural students due to the shortages of qualified veterinarians. The changes in the curriculum were a reflection of the fact that the number of veterinary professionals had grown significantly by the 1930s, and veterinary medicine had evolved as an academic discipline.

The next major change in veterinary-related classes at VPI occurred in 1935, when the Zoology and Animal Pathology Department was eliminated. All the courses under it were moved to the Biology Department with the idea that agricultural students should be provided with courses that dealt particularly with the prevention and control of the diseases of animals.

There was no curriculum in place between 1923 and 1947 for preparation for veterinary medicine except under professor Chrisman. The preparatory curriculum would return in 1947 following a 1946 proposal that failed to establish a veterinary medical college at VPI.

My story of veterinary education at VPI directly contradicts Jeffrey Douglas’ account in the VVMA’s history which states that veterinary education at VPI was significantly elevated in 1959 with the opening of the Veterinary Sciences Department. What I have established, instead, is that veterinary education was integral to the state’s veterinary complex developed on the VPI campus and that veterinary education has been present throughout the history of VPI.

---

229 Ibid., 139.
230 VPI Catalog, 1934-35, 149.
231 This shift is illustrated by the efforts of the VVMA in lobbying the Veterinary Practices Act and their complaints about Extension Agents practicing medicine without a license.
232 VPI Catalog, 1935-36, 106.
Indeed, it is VPI’s long history of veterinary education whose culmination we see in the establishment of the VMRCVM in 1980.

The Veterinary Complex After the 1920s

The veterinary complex evolved at VPI between 1891 and 1896, and was efficiently managed for over a decade. After the establishment of the VVEB in 1896 and the transfer of the State Veterinarian Office away from Blacksburg, VPI started to lose its dominance over the complex, which continued to grow elsewhere in the state under other organizations controlled by the State of Virginia (figure 14).

![Figure 14](image)

**Figure 14**

The State of Virginia’s Veterinary Complex, 1920s

The state-controlled component of education has always been and continues to remain on the VPI campus. The research and dissemination components sporadically remained at VPI as veterinary research was conducted through VAES, Virginia Agricultural Extension Services, then later with research done at VMRCVM. The control of domestic animals and zoonotic diseases was carried on by the State Veterinarian and the VLSSB in Richmond. The additional state-controlled component, the VVEB, was never housed at VPI but VPI veterinary faculty served on it.
The weakening of VPI’s dominance in the complex in 1920s is attributable to many factors. When the complex developed in the 1890s, it was more practical for the State to assign the tasks of the components to one or two individuals at a single location. However, as the complex grew and more components were added, more veterinary professionals participated in the complex. Geographically, disease did not break out in one place but in many localities throughout the state. Therefore, the component of animal-disease control was operated mainly off-campus, and therefore the Office of the State Veterinarian could be placed anywhere in the State.

The fragmentation of the division of labor occurred in the complex when Spencer and Ferneyhough took the different component positions in 1902. The fragmentation became complete during Chrisman’s tenure when the VAES temporarily employed staff veterinarians. After the mid 1920s, VPI did not teach agricultural students how to conduct minor surgery, diagnose, treat, and prevent disease because the increasing professional restrictions prevented non-veterinarians from practicing veterinary medicine. The Amendment to the Virginia Veterinary Practices Act of 1938 prevented non-degree or non-licensed individuals, such as extension agents and game wardens, from administering vaccinations to livestock. The combination of diversification and professionalization of the veterinary field helped dissolve the prominence that VPI had in Virginia’s state-controlled veterinary complex, but VPI has always been involved in the veterinary field. During the interim years between the two Veterinary Science Departments (1924-1959), VPI continued to be involved in veterinary education and research to some degree.

---

235 Stanford, A Century of Service, 55.
Conclusion

The goal of this thesis was to shed some light on the Virginia Polytechnic Institute’s (VPI) veterinary activities between 1872 and 1959 that established VPI as the center of Virginia’s veterinary education long before the opening of the Virginia-Maryland Regional College of Veterinary Medicine (VMRCVM) in 1980. As such, I have highlighted the key events, individuals, and activities that had an effect on the veterinary field in Virginia. Beyond this unraveling of the archival record, I raise the question of whether VPI’s early veterinary activities had a role in the placement of a veterinary college on its campus. A brief recapitulation of the history provides an answer.

Virginia’s state-controlled veterinary complex was established at Virginia Agricultural and Mechanical College (VAMC) in 1872 with the first component of education being put into operation. The second and third components of research and information dissemination were added to the complex in 1891 when E. P. Niles came to VPI as head of the veterinary science department. The fourth component of livestock-disease control began operations in 1896, with the establishment in Blacksburg of the Office of State Veterinarian (controlled by the Board of Control of the Virginia Agricultural Experiment Station (VAES) which in turn was governed by the Board of Visitors (BOV)). After the complex finished its building stage by 1896, it experienced about twelve years of stability, and then entered a period of gradual decline. Around 1908, the State Veterinarian's office moved to Burkeville and was governed by the Virginia Live Stock Sanitory Board (VLSSB). VPI remained a manufacturer of Blackleg vaccine up to 1915, suggesting that its veterinary science department was still in the business of controlling livestock disease by serving as a producer and distributor of the vaccine.

The next big change occurred when veterinary professor Chrisman came to Blacksburg in 1912, and the VAES temporarily ceased employing either a veterinarian or an animal pathologist on its research staff. Those vacancies lasted until 1923. Veterinary research resumed again at VAES in 1924, and I. D. Wilson was employed as a veterinary researcher by VAES from 1930 until 1938. The final veterinary activity of the early years occurred in 1938, when the State Legislature failed to amend the Virginia Veterinary Practices Act that would have allowed agricultural agents or game wardens to administer vaccines to animals in areas where there were

---

236 VAES Administrative and Professional Staff Directory (Blacksburg: VAES, 1965).
no veterinarians. After 1938, only the components education and research in the veterinary field continued to operate on the VPI campus. This education, however, had an uneasy existence within different departments until the establishment of VMRCVM in 1980.

This case study provides a revisionist history of one institution’s contribution to U. S. veterinary history. My research suggests that much veterinary medical history up to now has been written from the perspective of those within the field; as such, the narratives to emerge from the available documents invariably glorify the development of the profession and the evolution of veterinary colleges. My study is distinguished from previous histories proximate to the topic I have covered. For instance, Kinnear, Wallenstein, and Douglas were unaware that sophisticated veterinary activities were being conducted at VPI around the turn of the twentieth century. Kinnear focused on the grand history of VPI, Wallenstein highlighted VPI as a land-grant institution, and Douglas provided a brief history of VPI’s veterinary department prior to the opening of VMRCVM in 1980. By contrast, my history traces the lineage of VPI’s veterinary medicine program all the way back to the inception of the institution, locates VPI’s contribution to veterinary medicine within the State of Virginia and nationally, and puts all of the above together within the general historical context of the role of land-grant agricultural colleges in the development of veterinary medicine.

This research brings to life the neglected history of early veterinary research and education in Virginia. This history is significant because it clearly establishes these early veterinary activities at VPI as laying the groundwork for the establishment of the VMRCVM in 1980, and it indicates why the VMRCVM was established at VPI (now usually referred to as Virginia Tech). Even more important--and indeed the main argument of this investigation--is that this account uncovers the state of veterinary medicine and science in the late nineteenth and early twentieth centuries in the United States by concentrating on one particular land-grant institution. This study has shown this era to be a time of transformation and nascent professionalization, summed up in the phrase from farrier/horse doctor to fully schooled and trained veterinarian. This narrative describes how before the professionalization of veterinary medicine in the twentieth century, an assortment of people took care of animals: farmers, farriers, college students and professors. In the 1890s the task of preventing and treating animal disease was overwhelming. Therefore, the veterinary community joined with livestock owners and agricultural students in animal husbandry to treat, prevent, and control animal diseases.
The second main thesis of this study is that most of the organization of veterinary activities of the state of Virginia took the form of a veterinary complex, its four main components of education, research, dissemination of veterinary knowledge, and prevention and control of livestock disease located in the late nineteenth and early twentieth centuries on the VPI campus in Blacksburg. This complex--taken as a whole--functions as the primary actor in the veterinary network in the state of Virginia--along with other veterinary institutions and offices that existed off-campus. This research reveals the workings and roles of each of the actors who made the complex an effective, functional system: the students and teachers who held offices such as that of State Veterinarian, worked at the VAES, and produced research bulletins, worked to prevent and control the spread of livestock disease. The illustrations and photos throughout the thesis demonstrate graphically how this complex functioned, the network of actors that constituted the complex, and how their practices and activities were fundamentally and inextricably intertwined.

Of particular interest in this study is the site of education and research: the college farm and the animals who lived on the farm and played a key role in the complex. Invoking actor-network analysis to explain how the complex functioned, this account shows how the college’s livestock served as research objects for the agricultural students from animal and dairy husbandry as well as serving as veterinary medical case studies. The farm was a fundamental part of the veterinary curriculum, constituting an important part of the educational and research component of the veterinary complex. Thus the farm served as the field laboratory, and the animals functioned as major actors in the veterinary complex. Although the central significance of the animals as actors in the network that made up the complex seems obvious, historians have often ignored animals and other living creatures, such as bacteria, in preference to human and institutional actors. But in this narrative, the animals cannot be divorced from the other actors if we are to understand how the veterinary complex worked.

This study opens up the possibility of further investigation of veterinary activities at other land-grant institutions. A comparative study of veterinary programs across those institutions is likely to bring up interesting points of similarity and contrast among various sub-traditions of veterinary medicine in the United States.
Bibliography

Primary Sources

Archives found at VT Newman Library and Newman Library’s Special Collections Department

1. McBryde Papers
   a. An untitled history of the VPI’s Veterinary Science Department, dated some time after 1899.
   b. Ferneyhough, J. D., Charlottesville, to J. M. McBryde, Blacksburg, February 2, 1902.

2. Eggleston Papers
      (With report of the clinical work done by the veterinary Department)
   e. Chrisman, W. G., Blacksburg, to J. D. Eggleston, Blacksburg, July 2, 1915. (With a report on various hog cholera serum plants visited)
   l. Eggleston, J. D., Blacksburg, to W. G. Chrisman, Raleigh, NC, August 1, 1913.
   m. Eggleston, J. D., Blacksburg, to J. D. Ferneyhough, Blacksburg, February 24, 1914.
   o. Eggleston, J. D., Blacksburg, to J. D. Ferneyhough, Richmond, July 19, 1918.
   p. Eggleston, J. D., Blacksburg, to J. D. Ferneyhough, Richmond, October 28, 1918.
   q. Ferneyhough, J. D., Blacksburg to J. D. Eggleston, Blacksburg, February 22, 1914.
   r. Ferneyhough, J. D., Richmond to J. D. Eggleston, Blacksburg, January 7, 1916.
   t. Virginia Live Stock Sanitary Board. Special Cattle Quarantine Notice. 1910

3. Newman Papers
4. Virginia Agricultural Extension Service
5. Virginia Agricultural Experiment Station
   a. How the Experiment Station Can Be of Service to the Virginia Farmer. Experiment Station Circular No. 2. (Blacksburg: Virginia Agricultural Experiment Station, July, 1908).
6. Board of Visitors
7. Virginia Veterinary Medical Associations Minutes, (compared with the minutes found in Stanford, James K., ed. A Century of Service 1894-1994: Virginia Veterinary Medical Association (Salem VA: Gurtner Printing, 1994) and Faville, George, The Virginia State Veterinary Medical Association (Richmond, Virginia: publisher unknown, 1931))
8. VAMC/VAMCPI/VPI/VPI&SU Course catalogs since 1872
9. Bugle: (the Virginia Agricultural and Mechanical College, Virginia Polytechnic Institute, and Virginia Polytechnic Institute and State University Year Books 1895 to 1930.
10. VPI's Agricultural Department
11. Photos are from:
   b. VAES 1906 Annual Report
12. VAES Annual Reports 1889 to 1916
Virginia Agricultural Experiment Station Bulletins

See Appendix 1

Secondary Sources

Books


Bierer, Bert W. American Veterinary History. Privately Printed by Carl Olson, 1980. The original manuscript is dated 1940.


Faville, George C. The Virginia State Veterinary Medical Association. Richmond, Virginia: Publisher unknown, 1931.


Packer, R. A. *The First 100 years of the College of Veterinary Medicine, Iowa State University: A Pictorial History.* Ames: Iowa State University, 1981.


Journal Articles


Speeches


Newspaper and Magazine Articles

“Veterinary VPI School Is Proposed.” The Richmond Times-Dispatch. 18 Jan 1946. p. 3B.

Web Sites


Alabama Agricultural Experiment Station Publications
(http://www.ag.auburn.edu/aaes/communications/listsofpubs/bull1-50.htm),
(http://www.ag.auburn.edu/aaes/communications/listsofpubs/bull51-100.htm),
(http://www.ag.auburn.edu/aaes/communications/listsofpubs/bull101-150.htm), and
A list of Illinois Agriculture Experiment Station Bulletins
Appendix 1

Veterinary-Related Bulletins Published by VAES: 1892-1929

<table>
<thead>
<tr>
<th>#</th>
<th>YEAR</th>
<th>TITLE</th>
<th>AUTHOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>1892</td>
<td>Antiseptic Treatment of Wounds:</td>
<td>Niles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Infectious Abortion in Cows</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>1892</td>
<td>Antiseptics in Relation to the</td>
<td>Niles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Treatment of Wounds</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>1893</td>
<td>Tuberculosis and the Koch Test</td>
<td>Niles</td>
</tr>
<tr>
<td>32</td>
<td>1893</td>
<td>The Cow in Relation to Public Health</td>
<td>Niles</td>
</tr>
<tr>
<td>36</td>
<td>1894</td>
<td>The Horse's Teeth</td>
<td>Niles</td>
</tr>
<tr>
<td>39</td>
<td>1894</td>
<td>Tuberculosis</td>
<td>Niles</td>
</tr>
<tr>
<td>43 &amp; 45</td>
<td>1894</td>
<td>Veterinary Materia Medica for Farmers, Part I and II</td>
<td>Niles</td>
</tr>
<tr>
<td>46</td>
<td>1894</td>
<td>Principles of Horseshoeing</td>
<td>Niles</td>
</tr>
<tr>
<td>54</td>
<td>1895</td>
<td>Shoeing for Special Purposes</td>
<td>Niles</td>
</tr>
<tr>
<td>61</td>
<td>1896</td>
<td>Splenetic or Texas Cattle Fever</td>
<td>Niles</td>
</tr>
<tr>
<td>64</td>
<td>1896</td>
<td>Some Parasitical Diseases of Sheep</td>
<td>Niles and Smyth</td>
</tr>
<tr>
<td>75</td>
<td>1897</td>
<td>Black Leg</td>
<td>Niles</td>
</tr>
<tr>
<td>76</td>
<td>1897</td>
<td>The Cattle Tick in Virginia</td>
<td>Niles</td>
</tr>
<tr>
<td>84</td>
<td>1898</td>
<td>Dehorning</td>
<td>Niles</td>
</tr>
<tr>
<td>85</td>
<td>1898</td>
<td>Tetanus</td>
<td>McCulloch</td>
</tr>
<tr>
<td>86</td>
<td>1898</td>
<td>Preliminary Study of Ticks</td>
<td>Niles</td>
</tr>
<tr>
<td>87</td>
<td>1898</td>
<td>Canine Distemper</td>
<td>McCulloch</td>
</tr>
<tr>
<td>89</td>
<td>1898</td>
<td>Equine Distemper</td>
<td>McCulloch</td>
</tr>
<tr>
<td>Page</td>
<td>Year</td>
<td>Title</td>
<td>Author</td>
</tr>
<tr>
<td>------</td>
<td>------</td>
<td>----------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>90</td>
<td>1898</td>
<td>Black Leg Vaccine</td>
<td>Niles</td>
</tr>
<tr>
<td>95</td>
<td>1898</td>
<td>Bovine Distemper</td>
<td>McCulloch</td>
</tr>
<tr>
<td>96</td>
<td>1899</td>
<td>Experiments with Chickens</td>
<td>Niles</td>
</tr>
<tr>
<td>103</td>
<td>1899</td>
<td>Black Leg Vaccine (revised)</td>
<td>Niles</td>
</tr>
<tr>
<td>104</td>
<td>1899</td>
<td>The Prevention of Texas Cattle Fever and the Amended Laws Controlling Contagious and Infectious Diseases</td>
<td>McCulloch</td>
</tr>
<tr>
<td>108-114</td>
<td>1900</td>
<td>Animal Parasites: Parts I-VII</td>
<td>Niles</td>
</tr>
<tr>
<td>115-117</td>
<td>1900</td>
<td>The Teeth of the Horse As Affected With Age: Parts I - III</td>
<td>McCulloch</td>
</tr>
<tr>
<td>118</td>
<td>1900</td>
<td>The Teeth of Cattle and Sheep As Affected With Age</td>
<td>McCulloch</td>
</tr>
<tr>
<td>119-120</td>
<td>1900</td>
<td>The Most Common Irregularities of the Teeth of the Horse: Parts I and II</td>
<td>McCulloch</td>
</tr>
<tr>
<td>124</td>
<td>1901</td>
<td>Sheep Scab</td>
<td>Spencer</td>
</tr>
<tr>
<td>125</td>
<td>1901</td>
<td>Mange in Horses</td>
<td>Spencer</td>
</tr>
<tr>
<td>126</td>
<td>1901</td>
<td>The Stomach Worm</td>
<td>Spencer</td>
</tr>
<tr>
<td>189</td>
<td>1910</td>
<td>Some Diseases of Swine</td>
<td>Mayo</td>
</tr>
<tr>
<td>199</td>
<td>1910</td>
<td>Treatment of Bovine Tuberculosis</td>
<td>Mayo</td>
</tr>
<tr>
<td>265</td>
<td>1929</td>
<td>Baccillary White Diarrhea, Pullorum Infection of the Domestic Fowl</td>
<td>Runnells</td>
</tr>
</tbody>
</table>
## Appendix 2

### VAMC and VPI Early Veterinary Faculty
**1872-1924**

<table>
<thead>
<tr>
<th>Year</th>
<th>Faculty or Instructor</th>
<th>VAES Veterinary or Instructor</th>
<th>VAES Published Researcher Bulletins</th>
<th>State Veterinarian or Assistant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1872-18--</td>
<td>* Ellzey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1884-1890</td>
<td>Scott</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1891-1895</td>
<td>Niles</td>
<td>Niles</td>
<td>Niles (1892-1895)</td>
<td>Niles &amp; Roop</td>
</tr>
<tr>
<td>1896-1897</td>
<td>Niles &amp; Roop</td>
<td>Niles &amp; Roop</td>
<td>Niles &amp; Roop</td>
<td>Niles &amp; McCulloch</td>
</tr>
<tr>
<td>1898-1901</td>
<td>Niles &amp; McCulloch</td>
<td>Niles &amp; McCulloch</td>
<td>Niles &amp; McCulloch</td>
<td>Niles &amp; McCulloch</td>
</tr>
<tr>
<td>1901-1902</td>
<td>Niles, McCulloch &amp; Spencer</td>
<td>Niles, McCulloch &amp; Spencer</td>
<td>Niles, McCulloch &amp; Spencer</td>
<td>Niles &amp; McCulloch</td>
</tr>
<tr>
<td>1902-1906</td>
<td>Spencer &amp; Ferneyhough</td>
<td>Spencer</td>
<td>Spencer</td>
<td>Ferneyhough</td>
</tr>
<tr>
<td>1907-1909</td>
<td>Spencer</td>
<td>Spencer</td>
<td>Spencer</td>
<td>Ferneyhough</td>
</tr>
<tr>
<td>1910-1913</td>
<td>Mayo</td>
<td>Mayo</td>
<td>Mayo</td>
<td>Ferneyhough</td>
</tr>
<tr>
<td>1913-1923</td>
<td>Chrisman</td>
<td></td>
<td></td>
<td>Ferneyhough</td>
</tr>
<tr>
<td>1919-1920</td>
<td>Chrisman &amp; Nicholas</td>
<td></td>
<td></td>
<td>Ferneyhough</td>
</tr>
<tr>
<td>1920-1923</td>
<td>Chrisman</td>
<td></td>
<td></td>
<td>Ferneyhough</td>
</tr>
<tr>
<td>1923-1925</td>
<td>Wilson</td>
<td>Wilson</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Exact date unknown due to missing VAMC catalogs.
Vita

Jill Lee Chapman was born July 6, 1963 in Paterson, New Jersey. She grew up with her family in Sussex County, New Jersey, where the 1970 census reported more cows in the county than humans. Her family included her father—later her stepfather—her mother, two sisters, and an array of dogs and cats. She graduated from Newton High School in 1981.

After sustaining a spinal cord injury, between 1985 and 1991, she participated in disability issues on a county level by serving on the Sussex County Handicapped Advisory Council for the Chosen Board of Freeholders. She also started the first Little League Challenger (for disabled youth) Division in New Jersey District 20, which serves all of Sussex and most of Warren counties.

In 1991 she moved to New Mexico, where she attended the University of New Mexico – Valencia Campus-- and taught web-based technical classes for them in 1996. Subsequently she studied at the main campus of the University of New Mexico in Albuquerque, graduating summa cum laude with a B.A. in History in 2003. In 2004 she entered the STS program at Virginia Tech. Jill died of cancer on October 7 in Albuquerque. She will receive her M.S. in STS from Virginia Tech posthumously in December 2006.

Her main research interests were histories of medicine, public health and veterinary medicine. Side research interests were histories of time and space, astronomy, animals, environment, sanitation, and web-based human interactions.