# GEORGE F. WARREN

#### FARM ECONOMIST

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BERNARD F. STANTON

George F. Warren

## **George F. Warren** Farm Economist



Bernard F. Stanton



Cornell University

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## Dedication

To the George Warren Family in recognition of their continuing efforts to serve society through education and community service.

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This book seeks to tell the story of the life of George F. Warren. His name has become a part of daily life for many in Ithaca, New York, and at Cornell University. Warren Hall is one of the major buildings on the Cornell campus. Hundreds of Ithacans use Warren Road to get to the post office and the airport. Warren came from Nebraska to Ithaca in 1902 to study with Liberty Hyde Bailey at Cornell. Some thirty-six years later at the time of Warren's death, Bailey wrote of his former student:

George F. Warren was a man apart. He was singularly original. His department in the College of Agriculture broke new ground, at first against opposition. He amassed facts with tireless patience and perseverance. He chose able helpers and let them work out their destiny. He was incisive and chose his words. A few words from him might change the course of a man's thinking. He was honest in his opinions to the point of clarity. He has contributed a great name to agricultural thought, and has left a strong, virile, well-manned department that will continue his work. The people on the land believed in him. We stop to ponder when such men leave us.

This tribute by Bailey to his former student and faculty colleague provides a sense of the motivation for this biography. Warren was a major figure at Cornell University in the years before World War II. He had a major impact on his students, the farming community of the Northeast, and legislation affecting people in rural communities across the State of New York. His voice was heard well beyond the borders of the state where he lived and worked. He left his mark quietly in many places.

This book is an attempt to bring George F. Warren back to the attention of students and the Ithaca community some seventy years after his passing. The author never met Warren, but as an undergraduate, he studied in the building named for him and then returned after graduate degrees elsewhere to work in its halls for much of his life. Warren's former

students often talked about his influence on their lives and all who came in contact with him. He was a powerful figure and a dominating personality.

The chief sources for this book are the speeches, bulletins, and books that Warren wrote. Most of his papers have been preserved in the Cornell University Archives and provide an illuminating picture of his life. His papers include correspondence, as well as the diaries he kept and the notes he made on his travels. The staff members in the Cornell University Library have been most helpful in providing encouragement and assistance throughout this project. Insofar as possible, Warren's own words have been used so that he may tell his own story. Rather than paraphrase, selected paragraphs drawn from books, articles, and writings are provided to let his voice be heard. His direct, open style speaks most effectively.

More than forty years after her father's death, Martha Warren Hertel moved out of the Warren farmstead where she had grown up and then raised her own family. In cleaning out the old house, she discovered a box of letters written by George F. Warren's mother, Julia Stanley Warren, to her son between 1892 and 1911. These letters were passed on to her niece Ruth Warren Gerlach, daughter of Stanley Warren, the oldest of George's children. Ruth set about preserving the letters and transcribing them for her father to read in his retirement. Although these letters represent only Julia's half of the weekly correspondence between mother and son, they provide special insight into George F. Warren's early years and the family out of which he emerged. They help us understand his concerns for rural people and the family base out of which his own career was formed. The impressive figure of his caring and resourceful mother also comes alive in these letters.

An important part of Warren's life was devoted to developing his academic department and the fields of study to which he and his faculty colleagues contributed. Thus, the biography centers attention on the New York State College of Agriculture at Cornell and the output of his department as it grew from the field of farm management to encompass the breadth of agricultural economics, including prices and statistics, marketing, land economics, local government, and rural public policy.

Warren sought to gain information from rural people to help in solving their problems. His doctoral dissertation was based on observations made in farmers' orchards and records he obtained from their management practices. Bailey sent him to learn what farmers were doing in their orchards. Warren developed the survey method as a way to compile both cultural and economic data from farmers' experiences. He spent his life seeking quantitative data to help answer difficult questions. Like Bailey, he saw farms as "experiment stations." Many were places where individual farmers were trying different practices in producing crops and livestock products for sale. Warren sought to learn systematically from their collective experiences. His students and colleagues worked in a similar manner to learn from the operation of agricultural markets, rural banks, and local governments.

Warren stepped forward to serve the needs of New York State during the years of World War I. In 1917, he and his staff had an important role in providing the governor with an inventory of the state's agricultural resources in a remarkably short time. His name became attached to a formula used to establish farm prices for milk in New York and Chicago in the fall months of 1917 and 1918. He testified in Washington, D.C., before the Senate Committee on Agriculture and Forestry in 1918 on bills concerned with production and prices of grains and meat products. In these years, he became more widely known as a national figure in agricultural economics and the discussion of issues of agricultural policy.

In the last two decades of his life, Warren grew in stature as a leader in his college and the university and as an advisor to New York governors and the state legislature. He was pleased to serve on state commissions advising Alfred E. Smith, Franklin D. Roosevelt, and Herbert H. Lehman during their terms as governor. An important part of this biography details Warren's close association with Henry S. Morgenthau, Jr., who served as chairman of the Commission on Agriculture when Roosevelt became governor. Warren came to know FDR through Morgenthau and the work of this commission. After four years of association with the governor as an advisor to state government, Warren was among those who for a short period served as an active advisor to the new president on monetary policy. This biography seeks to put these interesting years into perspective from Warren's experiences working regularly with and through Morgenthau, who was one of FDR's trusted intimates in Washington.

The intent of this book then is to bring to life Warren's early years and the forces that helped mold him as an effective teacher, first in Nebraska and then at Cornell. People drove extra miles to hear him speak and to gain his perspective on rural issues. Warren's ability to communicate with many different people in language they believed they understood was why they came to hear him. Hopefully this book will give readers a sense of Warren's ability to make his ideas come alive. From the perspective of the twenty-first century, some of what he said in the 1920s and 1930s was oversimplified and naïve given subsequent events. But much of what he sought to teach and say still rings true many decades later.

All in all it is important to encourage those who work and study in Warren Hall, as well as those who travel Warren Road, to know a little more about the man whose name remains a part of the Cornell and Ithaca communities. George F. Warren was one of the many who left a mark on Cornell University and the State of New York through his insights and efforts, and we remain in his debt for his life of work and scholarship.

### Acknowledgements

This book is the result of the encouragement and support of many people from its inception to its final publication. Agricultural leaders who knew George F. Warren personally and members of their families were among those who have sought further documentation of the life of this important figure at Cornell University during the first half of the twentieth century. David L. Call (B.S. '54; M.S. '58; Ph.D. '60), dean of the College of Agriculture from 1978 to 1993, provided funding for the editing of this book. He believes that the story of George F. Warren's life and his many accomplishments should be told. His father was one of the state's agricultural leaders who had great respect for Warren and his efforts to work in support of farmers and rural people in the depression years following World War I. It was because of the support of these agricultural leaders, gained from meetings like the Genesee County annual farm breakfasts during Farm & Home Week, that the college prospered and worked so well with Governors Smith, Roosevelt, and Lehman to the benefit of the citizens of rural New York. Warren had a special place in the hearts of his students. They spoke with great respect about their former mentor. Their appreciation of his forward-thinking and dynamic leadership was passed on to the generations that followed, including the author and my close colleagues and friends on campus.

Robert S. Smith (B.S.' 42; M.S. '49; Ph.D. '52) was the author's colleague and long-time friend on the faculty of agricultural economics. He came to Cornell from New Hampshire for his undergraduate degree in agriculture because of the impact Warren had had on members of his family and the agricultural community in which he grew up. Bob read the rough drafts of the early chapters of this book and encouraged the project from its beginnings before his sudden death in 2004. My faculty colleagues in agricultural economics have also provided steady encouragement as the book was written. Good insights and boosts came from Wayne Knoblauch, Jerry White, George Casler, George Conneman, Nelson Bills, Dick Boisvert, Olan Forker, Brent Gloy, Eddie LaDue, Andy Novakovic, and Loren Tauer. Their backgrounds in production agriculture and their willingness to listen over coffee to the new insights gained after working with the more than 40 boxes of Warren Papers at Cornell University's Carl A. Kroch Library helped the process of writing. They provided an important sounding board over a span of many weeks and months.

Special mention must be made to recognize the assistance and helpful criticism provided by longtime friends and colleagues, Ken and Jean Robinson. They read chapters, made suggestions, and gave helpful criticism when it was most needed as the project was nearing completion and editing was in process. The final copy is the better for their advice and counsel. Bill Tomek, longtime friend and colleague, often provided insights and essential criticisms as we talked over lunch on many days as the manuscript was being written. As an author himself of a successful textbook, now in its fifth edition, and former editor of the *American Journal of Agricultural Economics*, he was a great listener and sounding board. He provided quiet advice without being asked, as well as encouragement. Without friends like these, book projects might never reach completion.

Before starting to work on this biography, I talked with Martha Warren Hertel about writing the life story of her father. She had moved to live at Kendal at Ithaca when it opened at the same time that Lara and I became residents. In her quiet Quaker way she approved and encouraged the idea. She provided me her mimeographed copy of *Letters from Home, 1892–1911*, transcribed by Ruth Warren Gerlach, which included the letters saved by George F. Warren from his mother over that span of 20 years. Ruth, Warren's granddaughter, had started typing the letters so that her father, Stanley W. Warren, could read them in his retirement years. Her efforts made it possible to get a much more complete picture of the early years of George F. Warren's life and the difficult times his parents, brothers, and sisters had experienced as the family homesteaded on the prairie. Sadly only one side of the correspondence between George and his mother, Julia Warren, survives; otherwise it might well have become a publication in its own right.

Ruth, who also transcribed her great-grandmother's letters, carefully read an earlier draft of all the chapters and made critical and important additions and corrections from her own family records. She provided the Warren family genealogy, which is included in this book and helps to make the letters from Warren's mother more meaningful. This book reflects Ruth's scholarship and interest in the larger Warren family, and her efforts have been critical to the overall effort to tell her grandfather's story.

The several libraries of Cornell University encourage scholarship by students, faculty, and the community at large. It is a user-friendly system

where enquiries are welcomed and help is provided regardless of the clarity of the initial question. The collections in the Mann Library were crucial to writing this book. The staff was always helpful in making sure that materials stored in the Library's annex were available one day later.

The staff members in the Division of Rare and Manuscript Collections of the Kroch Library provided access to photos of the university in its early years as well as the contents of the boxes of materials constituting the George F. Warren Papers. These boxes include nearly everything he had saved, including his first personal account book while a student at the University of Nebraska, the correspondence associated with his search for employment as a teacher, and his admission as a student at Cornell. It is a rich collection of correspondence, lecture notes, drafts of bulletins and speeches, and handwritten notes appended to papers and publications. Permission was granted to digitize materials from this collection to include in this book; these materials provide access to Warren's mother's handwriting, snapshots of Warren on his overseas travels, and reviews of his professional writing that he had preserved. The library staff members were most accommodating over the years, helping me to access Warren's materials and supporting the completion of this effort.

Another important source of information cited frequently in the book is Gould P. Colman's Education and Agriculture: A History of the New York State College of Agriculture at Cornell University (1963, Cornell University, Ithaca, NY). This history covers the events leading to the establishment of the College of Agriculture at Cornell and its growth and development through 1960. It provides a continuing picture of those early years when agriculture struggled to find its place as an integral part of the university, followed by its dynamic growth and success as it became an international center for teaching and research. Warren's years at Cornell were a part of that climb to international recognition and acclaim. Colman's scholarship helps to put Warren's work as a faculty member and college leader in perspective in the years when the college was growing rapidly. Colman's history of the college was a constant reference in writing about Warren's years at Cornell and the ways in which agricultural economics grew and developed as a discipline.

Elizabeth Anderson Fontana edited the manuscript and asked the necessary and helpful questions that were essential to completing this project. As a member of another generation, she made sure that professional jargon was explained and full names of major figures around FDR were properly identified. It was a pleasure working with her, and the accuracy of the footnotes and references have been assured insofar as possible by her questions and concerns. It was good to work with someone who sought consistency in expression and respected the direct style of Warren in his writing. She saw the value of quoting Warren directly, rather than paraphrasing his writings. The book is the better for her careful and thorough review and edits.

The excellent design of the book is the result of the efforts of Steve Kern, who integrated the tables, charts, diagrams, pictures, and materials digitized from the Warren Papers at Kroch Library into the edited manuscript. He also did much of the work in arranging for indexing and the details of printing and publishing. His quiet good humor and knowledge of what was required made the whole process much more pleasant for the author. His proximity within Warren Hall made the final efforts in seeing the project through to completion a great advantage. If the book gains some plaudits from readers, some of the credit certainly should go to Steve for his sense of how things fit together for the benefit of readers.

As was true when *Agricultural Economics at Cornell: A History,* 1900–1990 was written and published in 2001, Janelle Tauer provided encouragement, useful advice, and knowledge of what was possible as well as unnecessary. Her experience in other publishing ventures and willingness to consult on short notice helped to make this book a reality. I am particularly indebted to her for reading the final copy of the book before it was sent for publication and finding the little things that improved its accuracy and final design. She was both a consultant and a source of inspiration, someone who made sure that what was sent forward to the printer met professional standards. Her imprint shows in the final product.

Special mention is deservedly given to the encouragement and salutary support of Lara K. Stanton who read all of the initial drafts and listened patiently over the years to the ups and downs that go with writing and searching for more relevant information. Hers was the steadying hand that provided inspiration and balance throughout the whole effort. In many ways, this has been a kind of family project, as our children and grandchildren have wondered when and if the book project would ever be finished. To all of them my thanks for their tolerance and good humor as the book project finally draws to a conclusion.

> B. F. Stanton June 2007

#### Education on the Nebraska Prairie

1874-1902 

George F. Warren was one of the important figures in building and developing the academic discipline that became known in the twentieth century as agricultural economics. He was a major figure in the College of Agriculture at Cornell University for thirty years starting in 1907, and a champion of farmers and rural people throughout his life. He left his imprint in many places and on many people. He spoke and wrote in a direct, clear manner. His books and articles were widely read and discussed, because he made his points in a straightforward, understandable style. His students spoke of him with admiration and great affection. He was a dominant personality, committed to his views, and unafraid to defend them. First and foremost an agriculturist, he came to apply economics to agriculture and farm management as a result of his close contact with farmers and their businesses.

This is a story of the interesting route taken by a Nebraska farm boy to become a leader in his university, a policy advisor to President Franklin D. Roosevelt, and a major figure in his academic discipline. George Warren was a product of his times, the agricultural economy in which he lived, and the challenges rural America encountered during his lifetime. What he did and what he said reflected that background and experience.

#### Family Origins

George Frederick Warren, Jr. was born on February 16, 1874, on a small farm near Harvard, Nebraska, the ninth and last child of George Frederick Warren, his namesake, and Julia Calista Stanley Warren. The route by which his family had come to this initially lonely place on the prairie was an important part of young Warren's heritage and a key influence on his life. He was one of many products of the new West, a land where homesteading on the open prairie lured families from Europe and the eastern United States to start their lives anew. The Warrens were one of many families who settled near the end of the railroad lines that spread west from the Mississippi and Missouri Rivers toward the Rocky Mountains and the Pacific.

George and Julia Warren were both of old New England stock. George was a descendant of Richard Warren, one of the original Pilgrims who arrived on the *Mayflower*. Julia Calista Stanley also was descended from one of the early families who initially settled in Massachusetts, and later moved to Hartford County in Connecticut.

George Warren (the father) was born in Bethany, New Haven County, Connecticut, in 1830, the youngest of seven children. After schooling he was initially apprenticed with a goldsmith learning to make jewelry. Seeking something more exciting, he left home in 1849 and, like so many others, prospected for gold in California after sailing around Cape Horn to get to San Francisco. He managed to survive out there by working as a carpenter, but finally returned home across the Isthmus of Panama and back up the Atlantic Coast, richer in experience but not in gold. He came back to Connecticut, having seen much, in decent health and ready to go on with life. He worked as a farmhand for a time on his return before marrying Julia Stanley in 1853. Both were twenty-three years old.<sup>1</sup>

They set out from Connecticut in 1854 to establish their life on a farm in the recently settled lands west of Chicago, Illinois, in LaSalle County. Family records indicate that Julia Stanley's own family had moved to La Salle County from New Britain, Connecticut, for a period between 1838 and 1845, and returned when she was fourteen. With family help the newly married Warrens bought a farm in an area Julia remembered and amassed a little more than 320 acres in the good years before and immediately following the Civil War. George enlisted in the Union Army in September 1861, leaving his wife behind on the farm with their four children: Arthur born in 1854, William born in 1856, George, known as "Georgie," born in 1858, and Elizabeth May, known as "Lizzie," born in 1860. Julia had the help of some hired men to operate the farm during the war years, but was alone to manage with the family.

George Warren's official records from the War Department indicate that he was enrolled as a private in Company A, 4th Regiment, Illinois Cavalry, and advanced in rank successively to corporal, lieutenant, and first lieutenant. For a period in late 1862 and early 1863 he was furloughed to Illinois to recruit for the U.S. Cavalry. In October 1863 he was honorably discharged from Company A and became a first lieutenant in Company B of the First Mississippi Colored Cavalry. He served in that capacity for eight months and was honorably discharged on June 26, 1864.

In the late fall of 1863, diphtheria struck the family in Illinois, and two sons, William and Georgie, died of the disease. Running the farm and caring for sick children became too much for Julia on her own. Lieutenant Warren tendered his resignation from the U.S. Colored Cavalry at Vicksburg while serving with General Grant. Farm prices during 1864 and 1865 were good, so the Warrens were able to pay their debts and save a little money. The family continued to grow. Henry was born in 1862 while his father was serving in the Union Army. Alice arrived in the summer of 1865, Herbert in September 1868, and Joseph in late summer 1870. Arthur, the oldest son, set out on his own at thirteen because of growing disagreements with his father.

Somewhat discouraged with their future prospects in LaSalle County, the Warrens sold their farm and returned east to the Scranton, Pennsylvania, area in 1871, where they operated a butcher shop and meat market for a time. But George had a strong urge to return to the frontier and stake out a farm—this time in Nebraska, where the railroad companies advertised that individuals could come West and claim their own 160 acres without any charge if they stayed on the land for five years. The Homestead Act of 1862 took effect January 1, 1863. In addition to building a permanent dwelling, digging a well, and living on the land for five years, a homesteader (a citizen of the United States or an immigrant who had filed a declaration of intent to become a citizen) had to break at least 10 acres of sod for crops and provide permanent fencing for part of the property.

#### A New Start in Nebraska

George left the family behind in the early spring of 1872 and set out for the end of one of the lines on the Burlington & Missouri River Railroad. He established a 160-acre homestead six miles northwest of Harvard, Nebraska, in Clay County and filed his claim at the courthouse. The farm was located about a mile south of one of the tributaries to the Little Blue River, which flows east and south into the Kansas River.<sup>2</sup> In a family history book, he wrote these notes: "Came to Nebr. summer 1872 with \$125—stuff for a 1-room home 12 x 16, later had attic. Went to setting trees. Selected farm good for business—north slope & did not want flat farm. Had one in Ill. Look out of window & see nothing except



Maps from: Dorothy Weyer Creigh, *Nebraska* (New York: W. W. Norton & Company, Inc., 1977), viii, 69.

short grass." <sup>3</sup> His desire for a north slope was to get the benefit of more sunshine on the slope for an orchard and a little more protection from north winds.

In 1934 at the request of his nephew Stanley Warren, Herbert F. Warren wrote "Boyhood Memories of Nebraska," which was typed and duplicated for members of the family and preserved among the papers of his younger brother, George F. Warren, Jr. Herbert was not yet four in

1872 when his mother set out with his brothers and sisters for their new home on the prairie. One can only imagine what their mother must have faced in traveling across the country by rail with five small children to establish yet another new home for her family. Herbert vividly describes some of his memories of those initial years:

In the year 1872 about the first of June on the CB&Q Railroad, a construction train moved slowly west from the Missouri River, laden with bridge timber ties and steel rails with other materials for building new railroads. A crew of workmen was on board and a middle-aged mother with five small children.... We were on our way to the new home which Father had gone before to prepare. After dreary days and nights of this travel over miles and miles of trackless prairie, save for the line ahead where in places the bunch grass still waved between the rails, at last came the last tie and the last of the rails; the train stopped and the conductor called, "Harvard."

As we stepped from the car to the prairie sod we beheld the city, consisting of four small homesteaders' shacks—one converted into a saloon, one a store, one a hotel, and memory now fails me as to whether the fourth was a saloon or some other line of business. Father was there to meet us and at the store purchased and treated us with some small, very sweet turnips as one of the first products of the new land. Securing the services of a settler who had a team and wagon we were carried diagonally across the prairie six miles to the northwest; the trail ended a mile further on, where an effort was being made to make bricks.

Arriving at our destination we were deposited in a shack constructed from 12 inch pine boards nailed upright on girths, battens on the cracks, and a shingled roof. Two half windows with four lights each and a deal door, made of three boards cleated together and hinged with pieces of an old cowhide boot-top. The dimensions were 12 x 16 feet and an inch thick wall to keep us sheltered from whatever weather Nebraska had to offer. Mother pasted rags on the cracks inside and then papered the walls with old newspapers.

We lived, at least Mother and we children did, in terror of the Indians, often not seeing a white person save ourselves for a month at a time. Then bobbing into sight over a far away hill would appear a human head, rising and falling with the motion of a loping bronco. Then, the exciting moments of breathless suspense as the approaching figure rose to view, 'til one of us would be able to discern whether it was the tawny figure of an Indian—or if a white man, what a relief; our chances for life hung in the balance.

...Well, there were many homestead experiences: droughts, grasshoppers, hail storms, blizzards. Oh, useless to try to—no one who was not there can realize or believe if we try to tell what it costs to develop a new country. Almost barren of human life, the supplies and other things of civilization miles and miles away, as inaccessible as if they did not exist; the country swept bare by prairie fires, grasshoppers, or hailstorms, or buried in winter snow. See it and you will know—otherwise, no one can know.<sup>4</sup>

These excerpts from Herbert Warren's memoir reflect graphically what pioneer women and children experienced in their first years of homesteading, as they struggled to survive and create their own subsistence world on the prairie. The five children who came west with their mother were twelve, ten, seven, almost four, and nearly two years old when they arrived in Nebraska in the summer of 1872. Herbert's recollections also include brief stories of the family fighting one of the prairie fires by setting a backfire, with each child using whatever he or she could find to beat back the flames and save the house. He also tells of a terrifying blizzard when they could not keep the snow out of the house, as well as times when there was too little to eat. But over the years they managed to acquire a cow, a team of horses, chickens, some pigs, and a flock of sheep so that their diet and family life improved. Young George Frederick, Jr., or "Fred" as he was called by the family (to distinguish him from his father and his older brother Georgie who died in Illinois), was born less than two years after the family arrived in February 1874.

Having lived on a farm and survived in less than ideal conditions in Illinois, Julia Warren was somewhat prepared for life in Nebraska. But starting life on the open prairie with few neighbors or people to call on for help and finding ways to manage with five small children and a new baby was daunting and difficult. In the first years the man of the house sought work for wages whenever he could find it to help provide additional food for his sizable family besides what they could produce on the farm and its substantial garden. There was little shade or protection from the elements on this prairie site, and life for pioneer women, so well described by Willa Cather and others, remains hard to imagine today. Julia managed, like all her neighbors, and from these hardy people the West was won to become what is often called the "Heartland of America." Fred grew up with and learned from his older brothers and sisters. Each child had jobs to do, chores to complete, and a part to play in family life. Frank Pearson, colleague and confidant of George F. Warren, Jr. from 1920 to 1938, wrote about life during Warren's childhood in his short biography, "The Fact Finder":

The staple diet consisted of local game, cornmeal bread, sunflower seeds, sorghum syrup and parched corn. The stove was so small that baking was a daily rather than a weekly chore.... Mush and milk and sunflower seeds provided food well-balanced as to carbohydrates, fats and proteins. Julia learned from the early settlers, who in turn had learned from the Indians, that sunflower seeds were good food. They were easy to raise, being tolerant of drought and resistant to early frosts. Best of all they were cheap, carrying no "high costs of distribution." Roasted or salted or ground, sunflower seeds were an acceptable substitute for peanuts and coffee. Undoubtedly George and the other youngsters observed the clock-like regularity with which the great sunflower blossoms faced first the east, then south, and finally west-but never north. Many years later he taught his students of farm crops that sunflower rotation was the result of hydraulic pressure, water gorging the cells on the shady side of the stem.<sup>5</sup>

Fred attended school at Rural District #37 whenever it had a teacher and walked to get there. When not at school, he had chores and jobs to do at home, including herding sheep and cattle, fixing fences, and looking for strays when they got out. He had his share of pulling weeds and learned to cultivate fledgling trees for shade, fuel, and fruit-all much-desired on the open prairie. Nebraska passed a tree-planting law in January 1861, which exempted land from real estate taxation if the farmer planted "...not less than 100 fruit or ornamental trees or not less than 400 forest trees." One of the important enterprises developed on the Warren farm was the cultivation of fruit trees, berries, and vines. Enough trees were started and cultivated so that they could later be dug and sold to other homesteaders who wanted a source of shade near their house and the opportunity for fruit in the late summer and fall to improve their diet. Young Fred, then fourteen, reported in his 1888 diary about time spent cultivating trees, and mentions his father digging some and taking them to town for sale. Fred and his brothers learned early from experience something about grafting, root-culture, and horticulture as they worked with their father. Later all those hours in the fields and working with his hands would stand Fred in good stead

when he was busy teaching others and writing about agriculture in language that others could easily understand.<sup>6</sup>

Trees on the prairie were also thought to be an important means of helping to protect cultivated soil and crops from windstorms. Legislation encouraging tree-planting and the use of windbreaks on farms was passed in most of the new states on the Great Plains. Nebraska gained fame in 1872 for creating and promoting Arbor Day. J. Sterling Morton of Nebraska City is credited with extending this state law into an annual, national celebration of tree-planting, with each state establishing the spring month best suited for starting a tree. Nebraska officially became the "Tree Planters' State" in 1895 by joint resolution of the state legislature.

The federal government passed the Timber Culture Act in 1873, which encouraged homesteading and the planting of trees in the new lands of the west. This law provided that if a settler planted forty acres of timber (later reduced to ten acres in 1878) and fostered their growth for ten years, the individual was entitled to that quarter section of land. In this manner a homesteader could obtain another quarter section adjacent to the land where he established his home and broke sod for crops and a garden.

Harvard, Nebraska, where the Warrens arrived and where their children went to high school, is about one-third of the way to the state's western border across the southern half of the state. It was on the main line of the CB&Q railroad and ten to fifteen miles east of Hastings (see maps of Nebraska). The Warrens' homestead was just west of that part of Nebraska that is in the "old Corn Belt," where corn and soybeans are the principal crops grown without irrigation. Wheat, corn, oats, sunflowers, barley, and sorghum were the crops planted by the settlers. Trees needed cultivation or some kind of mulch when they were planted if they were to survive the prairie summers, which often saw little or no rainfall. Father Warren made good use of family labor in his tree-planting venture, and was well regarded for the fruit trees he sold in Harvard each spring to neighbors and other settlers in the surrounding area.

Education was clearly important to the Warren family. Julia encouraged all of the children to go forward with their schooling and was described as a "lover of education." Three of Fred's older siblings went to Harvard High School and then completed classes at the Normal School in Peru, on the state's eastern border on the Missouri River. Both Alice and Henry became Fred's teachers in the local district school at one time. Naturally Fred went on to Harvard High. Transport to and from home was on foot most days, except when George (the father) went to town, where he was a Mason and a well-recognized member of the Clay County Agricultural Society. Young Fred did well enough in school that he could think about applying to the University of Nebraska in Lincoln if he could find a way to go and then largely support himself by working for his room and board.

Growing up on the prairie on a homestead surrounded by other settlers from the eastern United States or Europe left its indelible mark on Fred. He knew firsthand the privations felt by families in the years when crops were lost to grasshoppers, rust on the wheat, hail, or lack of rainfall. When there were no crops to sell, people subsisted as best they could. Even when there was a good crop, prices were often low. This was a time when political turmoil grew among farmers. The Warrens were a conservative, solidly Republican family in the tradition of their New England forebears, and George (the father) participated in Republican meetings in Harvard. Clay County settlers in general were Democrats and supported the positions of the Greenbackers in the 1870s, the Farmers' Alliance in the 1880s, and the Populists when they appeared on the political scene in the 1890s. There was plenty of talk about grievances that farm people had accumulated over the years against the railroads, owners of grain elevators, and bankers. The Warrens were frugal and self-reliant. They were not caught up actively in politics, but, like their neighbors, went along to listen to the politicians when they came to town. Things were bad enough in the farm economy in Nebraska through the late nineteenth century that all the Warren men except for Fred voted for Democrat William Jennings Bryan for president in 1896.

#### The University of Nebraska

When Fred left home for Lincoln to study at the university he became "George" there and was known by that name for the rest of his life, except within his immediate family. Young Warren quickly learned that graduation from Harvard High School did not meet fully the standards of the Industrial College to which he applied. A year of study at their preparatory college was required. He worked for his landlady and waited tables to help defray expenses. His academic program the first year emphasized German and Latin in addition to physics, chemistry, and mathematics. He quickly gave evidence that he could master his class materials while working to pay part of his way. This extra year of preparation gave him added confidence in his own abilities to compete, as well as a set of basic skills in writing and science that would serve him well throughout his college days.

While Fred was a student in Lincoln, some 70 miles east of Harvard on the main line of the railroad, his mother and some of his brothers and sisters wrote to him nearly once a week. Amazingly, most of these letters survived and were found in four shoeboxes in an old trunk by his daughter, Martha Warren Hertel, at the Warren Farmstead in Ithaca, New York, when she moved and cleaned out their house in the 1970s. These letters have been transcribed by a granddaughter, Ruth Warren Gerlach, now living in Champaign, Illinois. Ruth initially began typing copies for her father, Stanley Warren (Fred's oldest son), to read in his retirement years. Because of their historic value to the rest of the extended Warren family, she completed this substantial effort, preserving one part of the correspondence between Julia Stanley Warren and her son Fred between 1892 and 1911.

These letters provide an intimate description of the life and times of the Warren family in the depths of the agricultural depression, which gripped the Great Plains states and much of the country for many of the years following the Civil War and through the late 1890s. Chronic low prices for storable farm crops were the norm. Jobs were scarce and cash was hard to come by for nearly everyone on the prairie.

When George F. Warren, Jr. went off to the University in Lincoln, his mother and father were fifty-nine and sixty, respectively. Their oldest son, Arthur, was married and farming in Colorado with two small children. Their second child, Lizzie, who had helped her mother keep the children together on their memorable trip to Nebraska twenty years earlier, was married to Joseph Renie and lived not far away on a farm they rented. In the fourteen years of their marriage, the Renies had six children, of whom four died in their early years. A seventh birth had just occurred, and his mother was with the Renies helping her daughter with the new baby as Fred was leaving for college. Henry, the Warrens' third oldest, had married Rebecca Roby in April and moved west with his new wife to seek a place to farm near his brother Arthur in Colorado.

Alice (Allie), the fourth in age, had married Harry Noyes in the summer of 1891 after teaching for a number of years. They lived in Clay Center, about fifteen miles south of the Warren farm. Their first child, Howard, was born in February 1893, about six months after Fred went to Lincoln. Herbert, the fifth in the Warren line, married Cora Kaylor in March 1892 and was farming not far from his parents. Their first child, Ellen, arrived in the spring of 1893. Joseph, three and a half years older than Fred, helped on the home farm and taught in the local grade school when it was in session.<sup>7</sup>

Growing up in a large family where there were few extras available meant that learning to be frugal with the limited resources he had in Lincoln was quite natural, though no less difficult for Fred. He kept detailed accounts and some of his careful records from those days survive. The details of his weekly expenses include items as small as 5 cents for Sunday School and 10 cents for a shave. More expensive were such things as a telephone call for 45 cents and laundry for 70 cents. Such items as candy or food, beyond what he received where he lived or worked, do not appear in his records of those first two years.<sup>8</sup>

Writing letters was one way by which families could communicate at little cost when they did not see each other regularly. A stamp for a letter was two cents and a penny for a postcard. Julia Warren started writing to her son in Lincoln on September 14, 1892, and missed few weeks when he was not at home. She kept him informed about what his brothers and sisters were doing, the state of the harvest, the weather, and the news of the neighborhood. His father would occasionally send a handwritten letter on his business letterhead when he could spare some money to help his son with college expenses. He sent this note on November 5, 1892, along with a check for \$24.

Dear Fred,

We have not had a chance to get the mail this week until now. Herbert has just gone to town and will be back by noon. I shall go in this afternoon if there is a chance. I expect you will want some money by this time. I am so busy all the time doing chores that it seems impossible to get away and every body is picking corn so it is hard to get a chance to town. I have been plowing furrows between the Ohio strawberries; it was pretty well seeded with Timothy. Allie goes home tomorrow and then we will be alone again, pretty dull business.<sup>9</sup>

A letter from his mother in the early spring, dated March 19, 1893, shows the flavor of their weekly correspondence.

My dear Fred,

Your box will be there before you get this letter, it went from here Friday & I sent you a card yesterday. This has been a chilly day, though it has thawed most the day. We have had a quiet day. Joe drove Frank over to Herb's, one man rode Tuck to Hanson, one walked to town after dinner, the other went away yesterday. He may come back in a few days. They are well at Herb's. Murphy brought a letter from Lizzie, they are all well but her, she has had a sore throat for six months, can't find anything to cure it. The snow is mostly gone, and we hope for spring. It looks like rain tonight.

Joe worked for me part of last week, put in a door opening into the north room, put up some shelves, and made a closet for the girl's room. I shall enjoy having that room to use for a pantry, when we get it cleaned up.

Have you learned how long a vacation you are to have? If it is a week and you are anxious to come home we should be glad to see you, but now there is help enough your father does not need you to help for so short a time.

> Love from all, Your affectionate Mother <sup>10</sup>

The reference to the "box" indicates the family's effort to send food to their son on the train once a week. They sent eggs, fruit, or some baked goods, if they had any to spare, to reduce his costs for meals and upgrade his diet in Lincoln. The year 1892–93 was a relatively good one for the Warrens because there had been a crop to harvest in the fall. Even so, there was little extra cash. A letter from Fred's father on May 13, 1893, is self-explanatory:

Dear Fred. I send you a draft for \$15.... I want you to get a 12 foot step ladder for cherries and ship by freight on B&M. If this is not money enough will raise a little more. It is very hard times to get money. All well. Hope to see you soon.

Father 11

The last letter sent from home for that academic year came from Julia on May 21, 1893. Fred saved a total of fifty different letters and cards from the family in that lonely but successful first year, in which his academic achievement was high and admission to the four-year program was assured.

All male students at the university were required to take part in ROTC (Reserve Officers' Training Corp). Thus, a part of his summer in 1893 was spent at camp with the battalion at Nebraska City on the Missouri River. The rest of the summer Fred helped his father with the nursery, getting wood cut and ready to keep the house warm in the coming winter, as well as helping with the chores and milking.

Fred's freshman year, 1893–94, was another success academically. The number of letters and cards he preserved were largely dated in the winter and spring months of 1894. During that year his father acquired a number of additional dairy cows, from which they hoped to get additional income. An excerpt from his mother's letter dated April 27, 1894, provides a picture of the spring economic situation:

The plum and cherry trees are white with bloom, and the apples and crabs are coming out nicely. If everything is favorable there will be an abundance of fruit. Tomorrow is the last day we are going to sell milk, it is so low it does not pay at all. Shall make butter till it gets to warm weather, and then give the new milk to the calves and hogs. Webster [grocer] will give us 15cts. a pound for butter all summer. Shall dry off some of the farrow cows, and let them fatten for the butcher. I think we can turn into the pasture some time next week. The cows are very uneasy, can see green things & want to get out to eat them.<sup>12</sup>

Fred's older brother, Joe, decided to come to the university in the fall of 1894 as well, and thus gave up teaching in local schools and helping his father on the farm. This decision led to a public sale on the farm on October 3. A letter from home on October 7 reported the results of the sale and who had purchased which animals. It concluded, "The notes will pay our debts for stock, at least. I'll write to Joe and send this with his. Am glad you are getting along so well."<sup>13</sup> Without Joe to help with chores, milking the cows had become too much for the senior Warrens. They could not afford a hired man and his board as well as help their two youngest with their board at the university.

The difficulty of those economic times is clear in a January 25, 1895, letter Fred received from his older brother Henry, who had gone west to Colorado in 1892 with his new wife to start farming there:

Brother Fred,

I am at the school house today without scholars and so will answer your letter. I have no more writing paper here and so use this. You will readily see that my ink does not "flow like the poets." I think you did well to drop some of your studies when you have so much work to do. If there is any one thing that ambitious young men and women need to learn more than others, it is that the world was not made in a day. If I could have learned that years ago, I might have been very much ahead of where I am now in many ways. When I was 21 years old and had no education, I thought I was too old to think of beginning to work my way through college, and there was my first mistake. My next mistake was in beginning business for myself before I had any capital, and so I am where I am, 33 years old and without education or property having neither enjoyed life nor profited by it. If we could only learn in time, to make good use of time and not be in a hurry! I'm getting the blues and so will answer your questions and stop. I would be glad to leave Colo. or the farm but am too much in debt. My limited abilities will not permit me to secure a lucrative position especially in this season of universal depression. If we have no prospect for a crop I will leave in June or July if we do have. I can't foretell my movements. Henry <sup>14</sup>

An excerpt from a letter to Fred from his mother on February 26, 1895, also tells of the economy and progress at the university.

...Herbert is (or was) completely disgusted with Nebraska, thought this spring was going to open the same as last. But I think he feels better now for we had the best rain last night (all night) & this morning we have had for a long, long time. It is very dark and foggy now. Has been a fine mist since noon. Every one feels so much brighter, & more hopeful.

I am glad you passed such a good examination. Am not ashamed of my boys' school record, think they will do, are doing credit to the Warren name. While I think of it you boys had better keep a little watch of the express office, for cousin Alice Stanley wrote to Allie that her brother James said, when he was home last, he had an overcoat that he was going to send to one of her brothers who are in college.<sup>15</sup>

Economic conditions in Clay County had not improved much by the spring of 1895. Fred's sister Lizzie, with her husband Joe Renie and young son, left for Arvada, Wyoming, where Joe had found work. They set out with the Warren's team of horses at the end of April. They arrived there in mid-May and camped initially near the Powder River, outside of Sheridan near the Montana border.

Joe and Fred returned home for the summer of 1895 and worked with their father in the orchard and nursery. There was rain in June so that there was a decent crop of fruit and brother Herbert had work for them as well. Both brothers returned to the university in late September. Fred was promoted to sergeant in ROTC. A letter from his father on October 12, 1895, provided local news about the size of the apple crop and the state of the farm economy: Enclosed find Dft. For \$10.—Sold a load of Oats yesterday, 12 cents—Apples all in cellar, about 300 bushels and 12 barrels of vinegar. Apples are nice, but not much demand for them yet. Farmer has been helping for three weeks and will finish the manure next week and quit. I pay him in groceries and Webster [the grocer] takes apples so I don't pay any money for work. The Editor of the Harvard Journal skipped out last night and I guess that Mills will keep the school. All well.<sup>16</sup>

It was a difficult year in 1895 for the extended Warren family. In her letter to Fred on October 31, his mother wrote,

08.31.195dut Clear A red town and . ma oural and know And mar my hard places s dies there are in this world. That Emerson

...O dear! How nice it would be to have a few hundred just now, to help you boys through school, send Allie to Ashland to see if any thing could be done for her, and help Henry & Herb. Yes and Lizzie too. But it is useless to wish for impossibilities. I hope Henry Ives will let you have money. Spell forty without the 'u' when you write to him. We got an order for \$10 from Webster yesterday. Your father got boots & pants, and I traded out the rest \$4.50. Your father expected Mrs. Gould and Mr. Groff would pay what they owe him before this time...."

On the same sheets with the preceding letter was this additional note:17

rurse a up mane Vesaula

The Warrens' oldest daughter Elizabeth "Lizzie" Renie died in November 1895. His mother's letter on December 5 reported on the extended family as they prepared for winter:

It is half past nine, but you must have a letter before I go to bed. This has been a pleasant day. It seemed good to see the sun after so much cloudy weather. Allie and I were getting ready to go over to Mr. Hartley's this afternoon when Clara Pense and Mrs. Clarence Moor came. Allie enjoyed seeing them and talking over school days. Mrs. M. was Fanny Colvin. It has been too cold to ride lately. Allie feels better since it has cleared off, than she has for several days. The cloudy, frosty weather is bad for her. A letter from Arthur today, says they are all well and growing fat; he weighs 141 lbs, Flora 131.

I'm glad Joe likes his job well enough to keep it. We got a letter from Joe Renie & the boys last Friday. Joe was in a hurry so did not write much. George got home in time for the funeral. They sent for him. Mrs. Renie is there before this time, I suppose. Nellie wrote that she was to start Monday. Joe sent her money to go with. Said he thought she would manage the children better than the girls could. He has a good job now at \$75. a month, is chief engineer in the Electric light works, George said. I do hope he can keep the place. The baby was alive and doing well they think. George says, 'Mamma was buried in a nice place. The coffin was nice, and the hearse too. Mamma did not look a bit as she did when I saw her last alive. The funeral expenses, digging the grave and all were \$60.' Joe did not say a word about his mother. I would send the letters along if Herb had read them.

My new pen helps me ever so much now I have so many letters to write. It is so much easier to write with than a steel pen. I can't take time to make my letters look nice. Thank you for sending Alice's letter. I'm sorry the coat and vest are not what you want. But you may need them next year. I have not written to her about Lizzie yet because you told her of her death, and there are so many to write to and not much time to write. Love from all to you and Joe. Mother<sup>18</sup>

Having just lost one of her daughters far away in Wyoming and with no means to help her son-in-law with her grandchildren, one can sense Julia Warren's great determination, despite the loss, to carry on for the best interests of the living. She was then caring for her other daughter Alice (Allie), who died of consumption just a month later in January 1896, at only thirty-one. Sadly in that time of economic difficulty the Warrens lost both of their daughters within two months, one far away in Sheridan County, Wyoming, and the other in her own home. Alice had one surviving son, Howard, born in February 1893. They lived just fifteen miles away and her husband Harry Noyes was a regular visitor to the Warren home; unfortunately he was not well himself, also fighting consumption.

On January 29, 1896, Julia Warren made time to write to her sons in Lincoln:<sup>19</sup>

vard Mi 29.1896. ar Fren ON. your father wer your letter. day and br ght-out so much good to hear does us ever we should vous. mought Benes certa ly get news from the a re thing sol sent last m waiting to he ndar.d ting to Al thes before ur fa 10 the money I ho e to bay d. so yo n can give m ore tim ool work. How much do you wand, and when? Would you prefer

to have it all at once, and deposite in. a bank there? I am glad the cousi are willing to have it used, Alice does not want interest for hers ed not pay it on this we think you n not 102 any a Therbert took me over to Mor Nove Saturd Sunday afternoon. Mecan monday, got here just as you back 1 as ready to get dinner father! was glad to see us. Harry looked to ter than when he was here, be said she was very much worried about him. I hope he will get better. Howard was glad to see us. Is Nettre says he is a real good a lies house looks deserted. We feld her loss more than ever there Harry dreads to go over to the house. Alie papers home to look brought over. Have selected two that the wrole society to send to you. you need not send them back. Heep them till

The Warren family's determination to carry on and look ahead for better days shines through in Julia Warren's letter of February 13, 1896:

The clock says nine, but lest you should not know how old you are, will remind you that next Sunday is the 16th. You will celebrate the day or evening by leading C. E. [Christian Endeavor]. I trust you will do your best.
How our boys grow old, as well as our selves. I wish now that Arthur is not coming till Henry gets here; he would arrange to be here when you have your spring vacation, and you and Joe come too. Then we could have all the family [that are left] together. How we should miss the sisters if all the boys were here.

Your father says where did Fred get so much money. I'm glad you have enough to last so long. You won't need to borrow very much. I'm sorry Miss Hawes feels so bad. Hope the new man will do well so their boarders will stay. I expect you will have an interesting time tomorrow and next day. Hope you and Joe will take time to enjoy it. Your class has thinned out some I should say. Am glad you could hold out. Good bye for this time.<sup>20</sup>

This letter from Harry Noyes, Allie's husband, dated March 1, was among Warren's carefully saved papers:

Your kind letter was received and it was a pleasure to hear from you. I am getting ready to go to work in the fields soon. Since the weather has changed to a more dry I am feeling a good deal better. I thought one time that this would be my last spring and summer but I think that I am going to keep up to take care of Howard. He is getting along very well, does not call out for Allie at all. I took him home and he did not look for her. But I tell you Fred it don't seem as if it can be that Allie has left for good and still I know that she has. We are trying to sell the farm hard. Women would have bought it but when they come to get money could not do it. I think that this fall if we get crops we shall find some one who will buy it. I should go to the Western States just for the warm dry air. I hope I shall have a good long life for the sake of my boy. I am so glad that Henry is coming to take care of Father and Mother Warren.

I am not going to work as hard this year as I did last. It will pay me better to get up than to get a big crop. I have a hard fight with my self to give up becoming a M.D. I just want to get into practice but I know that I just must take care of my self. It would be a life of work and night driving and would suit me that way. But Howard must come first in every thing and my wishes next. He clings to me and don't want me away from him at all. I hope none of you boys will have to stand what I have had to stand. I know it is just awful to have the love of such a girl as I had and then see her put in the grave. Well Fred don't over work and keep up your hopes for you have a long life ahead of you. Remember me to Joe. Next summer, when you come home to eat peaches, H and I will be there also. Yours, Harry<sup>21</sup>

His mother's letter to Fred on April 1 provides another update on the Warren family in the spring of 1896:

Henry & family arrived at 3:30 yesterday afternoon and your card came in the evening. It was such a bad day, cold, windy and misty, we thought they would have to stop, but they camped a few miles west of Hastings, Monday night, and hurried on in the morning fearing a blizzard. They were none too soon for it began to snow and blow harder about the time they drove up; the storm was the worst one we have had this year, for a few hours. It blew hard all night but stopped snowing in the evening. Henry, Rebecca & Julia have bad colds, but think they will be all right in a few days. Henry unloaded, and got his farming tools set up, looked over the field, and then went to Herb's after his stalk cutter. Has not got back yet at quarter of nine. I suppose the boys had to talk some. It was after four when he went.

We shall live together for a while. Henry has no money to buy anything with so we think it is better to live in one family till we have time to decide what is best to do. Rebecca and I can do our work together. She is not very well. I hope she will feel better when she gets rested. They were on the road 11<sup>1</sup>/<sub>2</sub> days. Stayed in Kansas two days to rest, wash and bake. It's nine and Henry is here. All well at Herb's.<sup>22</sup>

Another letter from Julia dated May 8 tells more of how things were going:

I'm glad you could get some shoes, for you would not look nice going bare foot in the city. How much money do you need to carry you through? One week of May is gone, and if you get off before commencement it will be only a short time before we shall see you. We live in our bedroom now. Hope to get settled before you come. Wish I had you to help contrive and arrange things in the little room. It's too small for the things I want in it. Rebecca and I get along slowly with cleaning. Our chickens and baby chickens take so much time. We have 116, minus 8. I sold my oldest brood the other day for \$1.70, there were eight of them. The folks are all in bed asleep, and I must go there too. Your father has a lot of plants ready to take to town tomorrow. It is growing cooler and raining more. Good night, Mother<sup>23</sup>

These letters provide a striking image of the difficult world in which the Warren family lived during the winter and spring of 1895–96. Henry, with his wife and two children, had concluded that their best chance for a life was back in Nebraska helping to operate the home farm, after trying to homestead in Colorado near his brother Arthur and his family. Losing both daughters in one winter and then having to share her house with her adult son, a daughter-in-law, and two little grandchildren must have been doubly hard for Julia Warren. But the pioneer spirit was strong and her commitment to the living was as determined and vibrant as her letters convey.

Meanwhile, at the university Fred had taken an interest in the Union Literary Society and its weekly meetings, which included readings, talks by members and college faculty, and debates on current issues. He served as its secretary and then as president in his senior year. He was able to continue his studies despite everything, and his family rallied behind their two youngest sons to make it possible for them to go forward with their dreams of completing a university degree.

Joe and Fred spent the summer at home helping with the orchard, the nursery, and the farm. Joe returned to teaching school, but came home a few weekends to help his brother Henry on the farm after Fred went back to Lincoln for his last year at the university.

It was the year of the great debates between presidential candidates Bryan and McKinley over using silver or gold as the basis for the U.S. dollar. Bryan had won the nomination for president on the Democratic ticket, in part by his famous "Cross of Gold" speech. An excerpt from his brother Henry's letter on October 11 reflects some of Fred's response to the political debate:

I wish we had some of those "53 cent dollars." Tho they are dishonest and all that, we can still find a few who will accept them in payment for goods. This campaign is enough to make a bald headed man grow gray. My mind is as fickle as a maiden's when I think just how I ought to vote; along comes some new question or old one in a different light and knocks all together in a windrow. I hope the candidates don't feel any worse than I do. Probably I can vote for your man. "Polly ticks" are warm here. Glad you like your work. Have been quite sedate and sober since you left; Can't get up a scrap with the cows nor the wood-pile. Joe was here today and we went over to Herb's this afternoon. The kids are quiet as usual and render writing quite a simple task. Well, if I don't stop we will overload Uncle Sam, so good night. H.G. Warren.<sup>24</sup>

Clearly these two brothers had a good relationship and had spent the previous summer working together and discussing politics and the local economy and what to do about it. Their father had been a long-time Republican but was thinking about voting for Bryan. Fred remained committed to the hard-money position. His mother closed her letter on October 30:

I wish I could vote to counteract your vote, since you have decided to help the wrong side. I'm sorry. Yours with love,  $Mother^{25}$ 

Julia Warren wrote to her son again after the election on November 6:

The children are both at my elbow, to help me write, so you must make allowance for this scrawl. Election is over and our papers say McKinley is elected by a <u>large</u> majority, so I suppose those poor barefooted children will have to go cold all winter. I hope to live to see how our country prospers under the rule of the corrupt republicans, the next four years.<sup>26</sup>

The continuing concern for finding enough money to keep up with the family's needs is central to this paragraph from Julia's December 13 letter:

If I was rich enough I would send you to buy things for all the children for Christmas, but since my purse is empty shall have to give them mittens and balls that I can make. ...If I only had money so I could pay Henry's debts, and help you and Joe through school, that would be of some use. The big interest he has to pay worries me. He says he has sold corn enough to pay his interest (1500 bushels) but has paid some small debts and used some for food and clothes, so there is not enough to go round. He borrowed of Alice Stanley the \$50 that Joe had and needs more. If he had stayed in Colorado another year, where would he be now? Maybe he would be better off than he is now."<sup>27</sup>

Fred came home for Christmas and returned to the university by New Year's for his last terms there and graduation in June. The winter brought his mother more grandchildren: in January, Herbert and Cora had their third child, a son, and in February a son was born to Henry and Rebecca. Sadly, Arthur's daughter Calista died from pneumonia in Colorado in early February. There was almost too much rain in the spring of 1897, which interfered with plowing and getting crops in the ground, but the prospects for a good harvest provided some cheer in the letters from the Warren household. In a letter from his mother on May 10, Fred learned that no one from the family could afford to come to his graduation in June:

Your father says he would like very much to go to Lincoln but it is out of the question; he cannot leave his work very well, and has not the cash to pay expenses. I wish the money spent for grape vines and trees to set out might have been saved to go with. Think it would have been worth more to us, and the next man that has the place would not have so many trees and vines to grub out. I should be glad if we could go to commencement, but may be I should feel lost in such a crowd of stylish people.<sup>28</sup>

In one of her last letters to Fred in Lincoln, his mother wrote on May 30:

I took a walk about the plantation this afternoon, had not been the rounds since the apple trees were in bloom. Everything is growing wonderfully. The trees are so loaded with foliage, and it is such a rich, dark green, I enjoy looking at them. There are some beautiful seedling peonies in the black walnuts, dark red tipped with white and very double. I wish they would grow and bloom as nice up here. I want to make wreaths of yellow and red roses for our two graves tomorrow and bouquets of peonies. We shall not stay in town to the memorial doings.<sup>29</sup>

The years when George F. Warren, Jr. attended the Industrial College at the University of Nebraska in Lincoln were difficult ones for farmers and everyone living across the sweep of the Great Plains. The national economy was in poor shape. Twelve years earlier, in 1879, the United States had returned to the gold standard. A sound dollar was very much in the interests of the bankers and eastern industrialists. But stocks of gold were not keeping pace with demands from nations and international bankers in a rapidly industrializing world. In 1878 the Bland-Allison Act was passed, providing support for the price of silver in the U.S. by requiring the coinage of \$2 million in silver each month. Between 1872 and 1889 silver production in the United States increased 130 percent. At the same time, all the major railroads were vying with each other to build the best routes across the country to the Pacific Coast. Railroad debt grew at unprecedented rates. The Sherman Silver Purchase Act of 1890 then committed the federal government to purchase 4.5 million ounces of silver per month at world prices. As silver accumulated in Washington, European exporters demanded payment in gold and the dollar came under attack. After a one year reprieve in 1891, when a failed harvest in Russia raised the world price of wheat and helped both Great Plains farmers and the nation's balance of payments, the stage was set for the Panic of 1893.

While some gold had flowed back into America in 1892, concerns for the value of their paper money led banks and citizens to redeem their silver certificates for gold. On April 21, 1893, the U.S. Treasury was in deficit and money markets were in turmoil. The Sherman Silver Purchase Act was repealed. On May 4 the National Cordage Corporation, one of the most widely held stocks, declared bankruptcy and market prices for other popular stocks such as Western Union fell more than 50 percent on the New York Stock Exchange. In the next six months of 1893 the Erie, Northern Pacific, Union Pacific, and Santa Fe Railroads failed one after another. In all, 15,000 companies went under during 1893 and 500 banks were in receivership.

For the next three years the whole country, not just agriculture, was in deep depression. J. Pierpont Morgan and August Belmont, together with international bankers in Europe, formed a syndicate to provide credit for the U.S. Treasury. By 1896 the Treasury had established reserves in gold of \$100 million and a new political climate calling for greater reform and regulation had arrived. Slowly the nation regained some confidence in the value of its paper money. This set the stage for the presidential election of 1896 and the continuing debates about the roles of silver and gold as the basis for U.S. currency.

William Jennings Bryan led the crusade of the Populists and the Democrats for providing an important place for silver as backing for our currency. William McKinley was viewed by the majority of farmers and miners in the West as the candidate of the Eastern Establishment. The debates of the day were an important part of the world in which Fred took his classes at the Industrial College and must have influenced his growing understanding of some of the forces at work in the nation's economy, as well as its substantial problems.

One cannot help but wonder what young Fred was thinking about for his future as he pushed on to obtain his college degree between 1893 and 1897, while the country and agriculture were in depression. While there is no diary with entries about his thoughts about a profession, it seems clear that he was not studying to become a farmer. No doubt the experiences of his older brothers and sister as successful school teachers made him think seriously about this possibility. His program of courses provided the basic background in mathematics and the sciences to qualify him to teach in high school. He probably recognized that the need for more teachers was great, as the state continued to attract settlers and grow in population.

## High School Teacher and Superintendent

After four years of college and with the economy slowly pulling out of the depths of depression, in April 1897 Fred asked a number of his teachers at the Industrial College for letters of recommendation.<sup>30</sup> The faculty members all spoke warmly of George F. Warren, Jr. and his strong performance in their classes. The writers included:

James W. Adams, English Charles E. Bessey, botany D. B. Brace, physics Ellery M. Davis, mathematics Lawrence Fossler, German George E. MacLean, chancellor's office May C. Whiting, English literature H. K. Wolfe, philosophy

Warren was described as a graduate from the "Mathematical– Physical Group" and was regularly cited for his work as an effective tutor in mathematics. Among these letters, the one from Professor Bessey was particularly warm and supportive, reflecting the strong, student-teacher relationship they had established. His search for a teaching position was successful and young Warren in fact had choices. His first appointment was for the summer session in Clay Center in his home county. From there he took the position offered in Minden, two counties further west, a town where two railroads crossed in Kearney County, south of the Platte River, halfway across the southern part of the state and sixty miles from Harvard.

George F. Warren was twenty-three when he graduated from the Industrial College of the University of Nebraska and became assistant principal and teacher of mathematics and science at Minden High School at a salary of \$50 per month. Like most new young teachers, he must have had a few apprehensions about what he would find and how well he would work with the other teachers and the principal. His years of tutoring other college students in mathematics provided both strong preparation and self-confidence that he had the necessary background.

Correspondence continued between Fred and his mother and family as he established himself in a new community. These letters tell something about his experiences and how his parents and family responded to their continuing challenges. Money was still scarce and important to the family as his mother's letter on October 6, 1897, indicates:

Your father says he does not need the money you owe him, and does not care if you do not pay it back at all. As for mine I am not in want of it now, and shall not be for several months, if ever. I am glad you are doing so well. Joe says he hears good reports of you from the Minden boys. I hope you will not be so rushed with work all the time....Your father took six bushels of peaches to town this morning; they are ripening fast now. I was sorry those we sent you were not nicer....The poor peaches keep me busy. I shall be glad when they are gone, and I can have a rest from canning fruit. I need time to sew; your father has just one shirt fit to wear and I can't even get time to cut out new ones.<sup>31</sup>

A letter from his mother on February 14, 1898, reported, "Your father is on the program for a paper on 'Fruit Raising in Nebraska' to be read at the Farmers' Institute in Clay Center tomorrow evening."<sup>32</sup>

His brother Herbert wrote on February 23 in response to a letter he had received from Fred:

Your reminder at hand and I will proceed to remit. The only reason I can give for my delinquency is that I have been so double busy and my eyes hardly ever allow me to read or write. I have been building and moving most of the time since hallow days and have some of both to do yet, with two weeks of husking for vacation. I have not hired any yet and don't want to if I can make it without. We are roosting in a kind of shack that keeps off all the skylight at night and the coarsest part of the wind by day. Our health is good however and will probably hold out, so until my ship comes in or something else to provoke us to an unhealthful diet. Weather is fine and hogs thriving....<sup>33</sup>

Fred had loaned Herbert some money for his hog enterprise and had billed him for the interest due. Family members sought to help each other as they could. Herb was in the process of moving from his rented farm to one he had purchased without a house. His family was living in a barn he had built after putting up a solid building for the hog business.

Joe completed his undergraduate degree in June 1898 and Fred went to Lincoln for his brother's commencement. He also took advantage of this occasion to see the professors who had written letters of recommendation for him, to tell them of his plans and get their advice.

George F. Warren was well liked by both students and the county superintendent who hired him to work that year in the annual Summer Institute for local teachers. To improve himself and obtain a higher salary Warren sought to become a high school principal and accepted the position offered in Fairbury, Nebraska, some four counties east on the Kansas border, a little west of Beatrice. This position paid \$60 per month and was on a direct railroad line to Lincoln. He was a little farther away from the home farm, but could visit on a weekend without difficulty when there was time.

School started in Fairbury in early September 1898. A letter from Fred's mother provided news of his brothers and their families as well as activities in the orchards. It also included this paragraph: "I should like to see your room now you have it fixed up with books and a bird cage. Your father did not know till today that you took your birds. He heard talk about them, but paid no attention to it. Think the place looks pretty bare without them."<sup>34</sup>

On October 30, Fred got this news in a letter from his mother:

Herbert was here Friday on his way to town for lumber. I told him what you said about money. He read your letter, was glad to have the money longer....He is going to dig down three feet in the ground, and put in studding, then board up three feet and bank up to make it warm, put on a board roof covered with cane or earth, and so have a house for the present. Your father is going to send him a card tomorrow telling him he will pay for shingles if he will put them on and have a good roof. His room will be 12' x 26'. I hope they will get the place ready to live in before we have cold storms.<sup>35</sup>

That fall his brother Herbert and his wife Cora had three children and were expecting another baby in the coming spring. Brother Joseph was married to Mary Philpott in Lincoln on December 30, 1898, with Fred on hand to represent the Warren family. Mary Philpott Warren was always known as "May" by her family and the Warrens to distinguish her from her Aunt Mary, with whom she was reared. A letter on January 20, 1899, reported:

Yes, we had quite a visit from Joe and May. I was glad we could have them come and stay so long. They both had time to rest and grow stronger; they were very tired. Joe says in his letter that May is gaining strength all the time, and he is about over the effects of pneumonia. They seem to be very happy in the new home....<sup>36</sup>

Strong and ever positive, nonetheless Julia Warren was sick enough to stop writing letters for nearly one month in 1899. In April she wrote, "I must have been pretty sick, to be so weak. The two weeks I was in bed seem like a terrible dream. I was dressed every day last week, and now sit up most of the time."<sup>37</sup> May came down from Lincoln to help her mother-in-law plant the garden, get meals for the men, plant and dig trees for sale, and manage the household. Mother Warren's letter to her son on May 20 included these lines:

May expects to go next Saturday. We thought Allen [Joe] would come here, but he writes that he is going directly to Fairbury. Please send your <u>wife</u> to us as soon as possible. Perhaps she will want to go to commencement with you. I have enjoyed having May here so much, shall be very lonely when she leaves. She helps about the work more than she is able to, I am afraid. I hope your wife will be as nice as she is, and have good health besides. It will be a long while before we shall see you, but the time goes faster than it seems as we look forward. If you have such a dread of moving to a new place as I have, you will be likely to stay where you are next year.<sup>38</sup> [In a number of her letters, Fred's mother implied that it was time for him to get married, get a farm, and live close by.]

George F. Warren was a success in Fairbury as a teacher and principal. As he had done the year before, he sought to find a better paying position for the next year and followed up opportunities to become a principal at other locations. However, he accepted the school board's offer to stay another year in Fairbury at a salary of \$75 per month, which was considered a substantial increase. Fairbury was a major town on the Little Blue River and the economy was improving in the surrounding area.

The farm economy in eastern Nebraska began to improve generally. Julia Stanley Warren, now sixty-nine, found that she could no longer do all the household work as she wanted. She wrote to Fred on October 29, 1899:

Now the law is laid down that I am to do no more washing or ironing. I did want to do it, and have the clothes here so I could get them mended and ready to wear before Sunday. I know I ought to be thankful to be able to hire it done, but it is so hard to think I can't do the work for us three. There will be more to do soon for Frank Jacobs is going to come to work all winter, as soon as he gets Bert's corn out. I'm glad your father has hired him for he needs help to clean out the dead trees, haul feed, etc.<sup>39</sup>

In a letter written on November 13, his mother commented further:

Herbert had his potatoes all dug before the freeze, and had sold 800 bushels. He finished paying the back interest on the note on the 6th and will have the interest on the mortgage ready when due. Says if his potatoes do not spoil before spring, and he can get 20 cents for them, he can pay one hundred on the place. It has been a hard fall's work to dig and market the crop, but it has paid better than any crop he has raised since he bought the farm. It looks now as if he might get out of debt, and be able to build a better house some time, and have some other things that he needs.<sup>40</sup>

In another letter on April 15, 1900, there was further news about the improving economy:

Henry says if you were to sell your hogs now, you would double your money, but he would not make anything. They were \$4.80 last week. Mr. Hartley took two loads (14 hogs) to Inland for your father and two loads of his own last week. Ours weighed 2710 lbs.; his were heavier and brought \$4.90, I believe your father said. Corn has been up to 32 cents and was 27 yesterday. We are glad it is lower as we have to buy this week.<sup>41</sup>

By late spring Julia and George had saved enough money so that Julia could plan to visit her oldest son and his family in Colorado. Fred also contributed some money to make that trip possible. The trip proved to be a great success, much appreciated by all involved. She was met in Denver by Arthur and his family, and wrote to Fred on July 19: "Your letter came Monday with the draft. Thank you for sending it. I did not expect to go beyond Denver, but since you were so kind to send money to pay for the trip to the springs, I think Flora and I will go tomorrow if the weather is suitable."<sup>42</sup>

In the spring of 1900 Fred sought to gain further experience as a superintendent of schools and sought letters of recommendation to support his application. The superintendent in Kearney County, where he had first worked after graduating from college, wrote, "Prof. G. F. Warren has worked for me for the past two years both in my annual Institute and in my summer schools and has been the <u>most</u> satisfactory instructor it has been my pleasure to employ." W. L. Stephens, superintendent of schools in Fairbury, commented, "Mr. Warren is a strong disciplinarian. He has made out of our high school, which enrolls 150, one of the best disciplined, organized and perfectly working schools that I have ever seen....We can not pay him enough to retain him as we would gladly do." His friend and former professor, Charles E. Bessey, who was then acting chancellor of the University of Nebraska, wrote, "I commend him to any school board looking for a strong man. He has in addition to the foregoing been the holder of a 'prof. st. cert.' for some time."<sup>43</sup>

These strong letters of recommendation led to offers. Fred moved in 1900–01 to accept the position of superintendent of schools in Nelson for \$90 per month. This school system was located in Nuckolls County, two counties to the west of Fairbury and one county south of Clay County, bringing him much closer to his home and family.

Fred must have spent part of the summer helping his parents remodel their bedroom and then provided some of the money, as well as the labor, to get them better facilities in their shared house with Henry and his family. In early September he reported to his mother on finding a place to live in Nelson. She replied:

That is a high price to pay for a room, almost as much as Joe pays for his place. You will have to get married so you can live cheaper. Tomorrow your <u>work</u> will begin in earnest. I hope you will like it and will be a success as a Superintendent....Our room looks very nice, every one says what a pleasant room it is. I think no one will begrudge the trouble, and money it cost to fix it, not even your father; he says it is the nicest room in the house now. It made you so much hard work I was most sorry you undertook the job, but it is so nice, now it is done, or nearly so, I am glad every day and hour that you insisted upon making the change.<sup>44</sup> Another letter came from his mother on September 23, 1900:

Your nice long letter came Tuesday, and one from Arthur. I am glad you are getting along so well with your work....Henry and Mr. Farmer hauled off 13 hogs for your father last Tuesday; they got \$4.70 per hundred. Your father went to town the next day and paid \$300 on the debt; that leaves \$1800. I am glad to have it reduced so much....Herbert is rejoicing now he is so near out of debt....<sup>45</sup>

Clearly, the summer economy of 1900 had been a good one in Clay County. Fred had established small partnerships with his brothers Henry and Herbert, providing the capital for some hogs in one case and cattle in another. His mother wrote on December 16:

Henry came over in the afternoon, didn't stay long. He told your father that your heifer had a calf. Everything here goes on about as usual. Joe comes and cuts wood or hauls posts and wood nearly every day. Herbert was over twice last week after wood, is cutting dead box elders. All are well over there. We expect them home Christmas, also Henry and Joe with their folks. If you can buy our place in 25 years, we will try to live in hope. Your father asked tonight how long it is since he went to the Black Hills, could not realize that it could be 25 years this winter, said it seemed only a little while.<sup>46</sup>

On April 21, 1901, Julia reported again about on life on the farm:

We had four men all last week, Frank Hess came out to see about digging trees, and stayed until this morning. They finished setting the east strip with peach trees yesterday, and reset the north orchard. Now we shall have only two men....There are 135 little pigs, and more to come; the place is alive with them. 60 are running loose with their mothers. I wish Henry had half of them....Do you go to Lincoln to take that examination? I hope you will get a good place if you pass....<sup>47</sup>

After completing his year as superintendent in Nelson, Fred taught in the summer institutes for teachers in Hebron, one county further east. A letter came from his mother on June 15:

While the men are resting and the horses eating their dinner, I'll write a few lines for your father to mail to you. We were very glad to hear that you are having an easy time and are getting good pay. The weeks are slipping away so fast the six will soon be gone so you can come home again. The crops around here look nice; wheat is filling out well. We have frequent showers but no heavy rains or hail. Cherries will be ready to pick next week.<sup>48</sup>

#### On July 1, Julia wrote:

I am glad those books went safe, and that the zoologies were what you wanted. So you have one more week than we thought, and we shall not see you for three weeks. Well! I suppose you will be glad for the seventh week's work. It seems you are to be Professor Warren after all. It certainly is a great compliment to be in such demand as a teacher, or Superintendent. I hope so much honor will not make you proud. I am thankful that our boy succeeds so well and his services are in such demand.<sup>49</sup>

Fred's account book from his years as a teacher, principal, and superintendent survived. On the cover is a handwritten phrase, "Earn a little, spend less." This may have come from Ben Franklin or been written by Warren himself. Regardless of its origin, this maxim would continue to be his credo in his early professional years. Frugality had been a necessity while he grew up and worked hard to obtain a college education. The basic instincts were ingrained. Every year he added up his accounts and established the net gain. He paid off the last debt from his college days, other than to his parents, in 1897–98. By the fall of 1901, all of the Warren family members were in substantially stronger financial positions than they had been while Fred was a student at the university.

After a successful year as superintendent in Nelson, Warren sought another position to better himself. He was offered a position as an assistant in mathematics at the Industrial College in Lincoln at \$500 per year, but finally turned this down. Instead, he accepted the position of superintendent of schools in Kearney County, returning to Minden where he had been assistant principal and served as an instructor in the Summer Institute four years earlier. The pay was good at \$100 per month.

His mother wrote to Fred as usual on his arrival in Minden on September 1, 1901: "We were pleased to hear of your safe arrival in Minden, and that you are so comfortably fixed. I was afraid that long box might not prove so very strong, because the bottom boards went crossways and the bands did not hold them all."<sup>50</sup>

A letter from his mother dated February 28, 1902, tells a bit about some troubles that arose for Fred during the winter in Minden: <sup>51</sup>

Harmard Nebr Heb 28.1902. May Dear Gred, We have rec'd two lettus since I wrote last, the first telling of the disturbance in school. We gloried myour determination to the right thing if the bounty budge was against you. I hope he, his son and this friends have learned a palutary lesson. I am glad to have them learn that is the students conduct, not his fathers position in society that counts in school, and every where. It must be a great satisfaction to you and the teachers to have almost the whole town on your side. I am glad things are remning smoothly again, and that you have survived the ordeal.

Warren's test of authority as superintendent of schools in Minden was substantial. He expelled from school the son of the county judge because of his behavior. A majority of the school board told Warren that he must reinstate the student immediately. He disagreed and stood his ground. The community rallied behind their superintendent with petitions signed by students in the school, teachers, and townspeople. Handling the older boys in many schools was often a challenge to the teachers. It was an unpleasant period for all concerned, and his mother's letter on March 14 commented, "I hope that teacher is well and in school again, and that you will be elected Superintendent again. It will show that the people are your friends, even if you don't want to stay. Our school seems to be running all right. They say Miss Martin has a small buggy whip hanging by the blackboard."<sup>52</sup> On April 26, Julia wrote, "I am glad to hear of your success in your work as a teacher, and that you are making your influence felt in the State, for better qualified teachers in our schools. I hope this new movement will be a success, and that our school boards will be ready to pay for good work. If you go to Minnesota you will not have much rest, but it will be a change of work."<sup>53</sup> In another letter, dated May 3, she said:

I don't know whether it is best for you to stay there if the people succeed in having you elected in spite of the Board, though if such a large majority want you it seems a pity to refuse to comply with their wishes. It is a great satisfaction to know that the people see that the rich pupils are no better than the poor unless they behave better. I am glad you have the good will of so nearly all the patrons of the school. It shows that they appreciate good work if the Board does not.<sup>54</sup>

A letter from his mother on May 28 continued the discussion about his prospects of staying on in Minden:

We were very glad to hear from you and to know that you were well, and not anxious and troubled over school matters as we feared. The paper and card came too. It is a great satisfaction to read the opinion of the people in the matter, if the Board are obstinate. I'm glad you have such a good reputation throughout the state. The Board are injuring the school, or themselves pretty seriously I should think.<sup>55</sup>

There was a Kearney County school board election at the end of May and the four board members who had told Warren to reinstate the county judge's son were replaced. The new board was strongly supportive of his earlier decision and Fred sent copies of the newspaper to his family reporting the election results. His mother responded on June 11, "We were glad to read the papers and see how the people feel, and more glad of the demonstration of their esteem for you at commencement. I should think those four members of the board would want to go off and hide somewhere. I had sent the papers to Henry and asked him to save them for Herb."<sup>56</sup>

### Summer Institutes and Decision to Go to Cornell

As usual, Warren had agreed to teach in the Summer Institutes in 1902 and concentrated on lessons that grade-school teachers could use to give students some active field experience in learning more about how plants grow and some of the fundamental principles of agriculture. He had done some of this as well the previous summer. His mother wrote on June 27 in response to his earlier letters, "Another week of your school is nearly gone, and we may hope to see you in two more weeks. ...I am glad you enjoy your work and getting rested some. You will have quite a job of packing when you get back to Minden...."<sup>57</sup>

In the spring of 1902, Warren had concluded that it was time for him to further his education, if ever he were to do it. Despite the change in membership of the board of education, and although he received serious entreaties from respected members of the community for him to stay, he decided not to return for another year at Minden.

In the spring of 1901 Warren, then twenty-seven, had consulted with his mentor, Professor Bessey at the University in Lincoln, about further study in engineering, botany, or agriculture, and where he might do it. He wanted to better himself and was an active member of the Nebraska State Teachers Association. But he also recognized that he wanted to be more than a high school teacher or superintendent. He had a substantial interest in nature and botany. He had entered the Industrial College at Lincoln with a respectable butterfly collection, and as part of his work in the summer institutes continued to write about what could be learned from observing nature. He had prepared a set of laboratories for elementary botany when he taught in Fairbury. Professor Bessey suggested that he might want to consider further work in horticulture and botany with Liberty Hyde Bailey at Cornell University, who already was recognized as one of the most able teachers and leaders in the plant sciences in the nation.

In the fall of 1901, shortly after his arrival in Minden, Warren contacted Dean Isaac Roberts about admission to Cornell and the study of agriculture and horticulture. Roberts's reply of December 5, 1901, is preserved among Warren's papers. He commented, "…one year of undergraduate work devoted entirely to the technical subjects of agriculture would entitle you to our first degree. Another year of postgraduate work would entitle you to our Master's degree. Tuition is free. I will submit your case to our registrar as soon as he returns."<sup>58</sup>

Additional correspondence followed with respect to which courses completed during his undergraduate degree at Nebraska would count in meeting Cornell's graduation requirements. Professor H. H. Wing, secretary of Cornell's Faculty of Agriculture, responded to Warren in April 1902: "Any work that you have done at the University of Nebraska or elsewhere, that is acceptable to the heads of departments here, will be accepted towards graduation, provided that ½ of your elective work for two years is technically agriculture. You would not be allowed to substitute anything for the requirement in Political Economy except by special consent of the faculty."<sup>59</sup> Warren concluded that he could attain his bachelor of science degree in agriculture in one year at Cornell by completing twenty-two hours in the fall semester and twenty-six in the spring. With encouragement from both Roberts and Bailey he made the decision not to continue as a school superintendent in Nebraska. He would make the long journey east to a new challenge in life, as well as return to the part of the country where many of his parents' relatives still lived.

The big decision for young Warren to leave Nebraska after five successful years as a teacher and school administrator must have been difficult and much discussed among his family. Fred had worked closely with his brothers Herbert and Henry in the years he was teaching, providing money for a hog enterprise with one, and a small cattle feeding project with the other. A record of expenses and income for each project is part of the surviving record. It appears that there was a small profit from the hogs but not much to show from the cattle. His detailed account book covering the period June 1897 to September 1902 provides a summary page for those five years.

S. F. Marren gr. June 1897 to Sept. 1902. Harward, Nebr. Earn a little Spind less. 19.00 123.84 155.95 514.90 \$13.69 3 1. ..... 5: 4.75 14650 943.32 1115.75 1697.35 1940.09 Alla Jr. 316.20 43175 46524 452.39 44.55 202.68 . Reid dits 29.50 \_\_\_\_\_ 29.50 \_\_\_\_\_ 29.50 Five years teaching Jotal salary 4126.40. Jotal other meany 813,69 Paid delets - 29.50 Paid life in ware 66.74 gain 209.55 214.75 477.63 629.82 1313,25 hand 189.15 403.90 881.53 1511.35 2824.00 Expense 2072.68 gain

Summary Page from Warren's Personal Account Book<sup>60</sup>

This neatly summarized page and Warren's account book itself tells quite a bit about the character of the man who made all these entries in the early professional years of his life. He was thrifty, careful, and thoughtfully self-sufficient. This kind of detailed record also suggests a strong sense of order and self-discipline. "Fred," or George as he was then known by everyone outside the family, had reason to have a sense of self-confidence. He had succeeded as an educator in the small towns and cities of Nebraska. By saving and through careful living he now owned 80 acres of farmland, as well as notes for small loans made to his brothers. At twenty-eight years of age, George F. Warren, Jr. believed he was ready for the challenges of a move to the East and a return to college with full expectations of earning additional, more advanced degrees.

### Footnotes

- 1. Frank A. Pearson and W. I. Myers, "The Fact-Finder," *Farm Economics* (1957): 5471.
- 2. Ibid., 5471-3.
- 3. George F. Warren Papers, #21-10-77, Box 1, Division of Rare and Manuscript Collections, Cornell University Library.
- 4. Ibid., 9 pages, mimeo.
- 5. Pearson and Myers, 5473.
- 6. Warren Papers, Box 1.
- 7. *Letters from Home,* transcribed by Ruth Gerlach, May 2003; Warren Papers, Box 38.
- 8. Warren Papers, Box 1.
- 9. Letters from Home, 8.
- 10. Ibid, 20.
- 11. Ibid., 25.
- 12. Ibid., 39.
- 13. Ibid., 41.
- 14. Ibid., 47.
- 15. Ibid., 50.
- 16. Ibid., 57.
- 17. Ibid., 58.
- 18. Ibid., 59.
- 19. Ibid., 60.
- 20. Ibid., 62.

- 21. Ibid., 64.
- 22. Ibid., 67.
- 23. Ibid., 68.
- 24. Ibid., 72.
- 25. Ibid., 74.
- 26. Ibid., 75.
- 27. Ibid., 78.
- 28. Ibid., 90.
- 29. Ibid., 91.
- 30. Warren Papers, Box 24.
- 31. Letters From Home, 94.
- 32. Ibid., 99.
- 33. Ibid., 100.
- 34. Ibid., 105.
- 35. Ibid., 107.
- 36. Ibid., 109.
- 37. Ibid., 112.
- 38. Ibid., 113.
- 39. Ibid., 116.
- 40. Ibid., 117.
- 41. Ibid., 122.
- 42. Ibid., 125.
- 43. Warren Papers, Box 25-3.
- 44. Letters from Home, 131.
- 45. Ibid., 132.
- 46. Ibid., 135.
- 47. Ibid., 141.
- 48. Ibid., 142.
- 49. Ibid., 143.
- 50. Ibid., 145.
- 51. Ibid., 154.
- 52. Ibid., 155.
- 53. Ibid., 156.
- 54. Ibid., 157.
- 55. Ibid., 158.
- 56. Ibid., 159.

- 57. Ibid., 160.
- 58. Warren Papers, Box 25-1.
- 59. Ibid.
- 60. Warren Papers, Box 1.

# Becoming a Cornellian

1903-1906

The trip from Nebraska by train across the prairies, the wide Missouri, and then the mighty Mississippi allowed young Warren to see much more of his great country for the first time. It must have been an aweinspiring experience to see firsthand the farms and towns of the Corn Belt. Changing trains in Chicago provided a new perspective on the urban world and that hub of great midwestern market and industrial activity. Visiting with his relatives in Connecticut and Pennsylvania allowed Warren to rebuild family ties and get a sense of the region from which his parents had come, as well as a new appreciation of his family heritage.

Warren's mother remained a faithful correspondent and sent her first letters to her son out East via her cousin, Alice Stanley, in New Britain, Connecticut. She wrote in early September:

I'm glad you went to see Beth and the Carpenter cousins. Hope the rest of your journey and visits will be pleasant. Your box came Saturday and I fixed a shelf in the case and put the birds in yesterday; they look very pretty now....Henry called on his way to town yesterday and asked if I knew your address. He collected that wheat money last week....He expects now to thresh Thursday. Herbert was over a little while Saturday. I gave him the things you left for him.<sup>1</sup>

Before his arrival in Ithaca, New York, Warren visited the campuses of Yale and Columbia Universities, saw Grant's Tomb, and noted something of the problems of cities; he also observed farmers trying to make a living on the rolling hills and stony soils of New England. The "settled" farming areas of the Northeast had their own real problems, somewhat different from those of the prairie states. The trip to Ithaca via Chicago, Connecticut, and Pennsylvania—was an important part of this new phase in Warren's continuing education.



## **Undergraduate Studies**

Coming to Ithaca, finding lodging, going back to classes, and finally meeting the distinguished Cornell faculty members in agriculture, all of whom were nationally recognized leaders in their fields, must have been exciting as well. When Warren arrived on campus in 1902, there were only 60 regular four-year students in agriculture. In addition there were 51 special students, most taking the same courses in technical agriculture as the four-year students. About 20 more were enrolled in graduate programs; the winter course also enrolled 121 that year.<sup>2</sup>

Despite the relatively small numbers in agriculture, Cornell was a lively place. The Colleges of Engineering, and Arts and Sciences were by then well established, with respected faculties and larger student numbers. The central campus, with its wonderful views of the city, hills, valley, and Cayuga Lake, was nearly complete. With a growing student body, however, there were still too few classrooms and laboratory space was at a premium. Nonetheless, enthusiasm for the university's mission to serve the public and fulfill Ezra Cornell's vision of an educational institution "where any person can find instruction in any study," including agriculture, was strong.

Starting college again at the age of twenty-eight—with five years of successful experience as a high school teacher and superintendent of schools—was substantially different than it would have been coming to Cornell as a new undergraduate. Warren arrived with the hope and expectation of completing a graduate degree and becoming a teacher at the college level. Earning an undergraduate degree in agriculture was a necessary first step as required by faculty legislation. His own self-discipline and commitment to success was clear.

Correspondence between mother and son continued as it had when he was in Lincoln. One of the first hurdles for Warren was an examination and review of his work at the University of Nebraska to determine how much would be accepted for credit at Cornell for his B.S. degree in agriculture. A letter from his mother on November 2, 1902, mentions the examination; it must have gone well because that is the last time it is mentioned in their correspondence: "Your letter came Friday. You must feel relieved to have that examination over with, and get down to your regular work. It is a long time to wait to learn your standing, and what comes of it."<sup>3</sup>

During the fall semester in 1902, Warren received at least two letters per month from home. In January 1903, his mother wrote:

We were very glad to hear that you reached your home safely after a pleasant visit in Washington. You did not say whether you honored the President by shaking hands with him. Doubtless he felt much flattered to see you at his reception! Well, it will be pleasant to remember and to tell your children and grandchildren that you attended a reception at the White House, when you were a young man. Do they charge fancy prices for board at the hotels in Washington?<sup>4</sup>

The reason for Warren's trip to Washington, D.C., a journey he made to and from Ithaca by train, was to start work on the project for his senior thesis.

On January 19, his mother's letter brought news of the weather and family activities as usual, but also included these important comments:

Your father is very much pleased with his picture; it came Friday. It is good to see your cheeks filled out again. I think you are more fleshy than you were in '97, or ever since you grew up. I wish you could keep your flesh after you go to teaching again.

I thought Harry and Herbert would come home yesterday, but the frost stayed on so long, and it was so cold & cloudy, no one came. I wanted to talk with the boys about Arthur and see if we could devise some way to help him get out of the city. A letter came from him Friday telling of his continued poor health; he says the Dr. told him he had bronchitis in a bad form, not his lungs yet, but he must give up his place; there is so much exposure and hard lifting for his strength. The Dr. says a change of climate will do no good; but if he could get onto a garden patch where they could have a cow, and raise chickens and vegetables, this is the best thing he can do; but without money that seems out of the question. His pay will stop after this month; and then, unless he can find some light work, they will soon be destitute. He asked me if I thought it would be hard for Herbert, Joe & Fred to lend him fifty dollars each, to help him get a start. Said if he lived long enough he would pay it back and if not Flora would do so out of insurance....Did he write to you about his prospects.<sup>5</sup>

Her next letter reported on a family meeting to decide what to do to help Arthur in Denver:

They [Henry and Herbert] agreed to borrow money in Hastings if the bank will take their names as security and were going to see about it. Henry was going to take a load of potatoes, they are 30 cents there, cash. Henry expects 50 or 60 dollars from Joe the middle of next month; he intended to use that and hold his corn and oats for higher prices, but he says Arthur can have that money. Joe wrote to Henry that he could spare \$50 a month.<sup>6</sup>

The first letter in February from Nebraska included this news:

Henry and Herbert decided to send Arthur some money right away. Herb had \$100 from the Dunn estate that he wanted drawing interest, so he sent that and they borrowed \$50 at the bank in Hastings and sent it all last Monday. I have not heard from Arthur since, but think they have. I wish they had waited another week, but they thought he might lose a good chance to rent a place if they waited. They thought he would need more anyway, if you or Joe could raise some more.<sup>7</sup>

With the combination of small loans from members of the family Arthur was able to get out of the city of Denver to a small piece of land nearby, but life for him and his family remained precarious.

Another letter that month spoke of quite a different concern, this time about Warren in Ithaca:

We were very glad to get your letter Friday; it did not come Thursday as usual, and we thought perhaps you had the fever. Tuesday's paper said there was an epidemic of typhoid fever in the city [Ithaca] and many of the students had gone to their homes. Friday's paper said over 200 students were sick and 800 had been sent home. You are surely fortunate to escape with a slight attack. I hope you have moved to where they have better water. Should think the city authorities would have to stir themselves and provide better water for the community.<sup>8</sup>

The typhoid situation in Ithaca had been serious. On March 8 Mother Warren wrote:

Yours of February 26 came Monday. We were glad to know you were well, and had changed your boarding place to one where they have pure water. Yesterday some papers came from the University telling about the situation and what it is doing to prevent further trouble. It certainly is to be hoped that the worst is over.<sup>9</sup>

Warren knew he would be busy if he was to complete all of the required courses in technical agriculture within the span of two semesters. Nevertheless, he was ready and eager to find out what was to be covered in his lectures. He was to complete twelve hours of classes with Dean Isaac Roberts, who had done so much to build the College of Agriculture into a strong, respected institution. Roberts had written four books in Bailey's *Rural Science Series*. These were *The Fertility of the Land, The Farmstead, The Horse, and The Farmer's Business Handbook*. Not surprisingly, Roberts covered a substantial part of these subjects in his lectures, but included other topics as well. The course catalog for 1902–03 included four courses offered by Roberts: Wheat Culture; Inspection of Roads, Bridges and Farm Buildings; The Horse; and Judging and Scoring Horses and Sheep.

One of the small treasures among the Warren Papers now housed in the Cornell University Archives is a notebook of some 193 pages in which George Warren summarized Roberts's lectures on many topics beyond the four titles listed in the catalog. His notes are carefully handwritten in ink, complete with excellent drawings that illustrate individual concepts. Roberts started with lectures on soils as the central topic in his course on wheat culture, and then went on to consider the physiology



Warren's hand-drawn wheat plant from page 39 of his notebook from Roberts's lectures.

Handwritten notes in ink (page 40) explaining the drawing and Roberts's lecture on the Hessian fly.

of the plant itself and its root system, fertilization, preparation of the land, weeds, insect pests and diseases, and harvesting the crop. There also was discussion of crop rotation and field layout, much of what was known at that time about crop production.

Roberts was much admired by his students and the faculty. He believed that taking students out on farms to study the fields and their output provided a unique learning opportunity. Thus, those afternoon "laboratories" were an important part of his teaching. With small classes, he could stop and show examples of what he could not bring into the classroom. Roberts was a great role model for his students and knew them all by name. He was a tireless worker who set high standards and showed he cared about their progress. Warren set out to gain as much as he could from this senior figure in the college.

1 Cornell University agriculture Lectures by Prof. J. P. Poberts. Cornell Univ. 1902-3 g. 7. Warren

Title page of the notebook containing Warren's notes from Roberts's lectures on cereal production.

The discipline of recopying his original notes and putting them in good form must have proven an excellent way to prepare for exams and absorb the principal concepts. One cannot help but wonder if Warren was already thinking the possibilities about of gathering ideas and materials for his future textbook, The Elements of Agriculture, which would be published in 1909. He likely recognized the need for such a book from his years as a teacher in Nebraska and his work teaching agriculture in the summer institutes there.

While it is clear that Warren benefited greatly from his



Isaac. P. Roberts (front row, with beard) with his students in the 1890s.

time in the classroom and field with Roberts, he was also impressed by the courses he took with the other leaders of the college: Liberty Hyde Bailey in horticulture, John Comstock in entomology, George Caldwell in agricultural chemistry and soils, and Hiram Wing in animal husbandry. All four, like Roberts, would have buildings named for them on the college's new campus in the next fifteen years.



Agriculture Faculty: 1. James Law. 2. Henry Shaler Williams. 3. Albert N. Prentiss. 4. Isaac P. Roberts. 5. Liberty Hyde Bailey. 6. George C. Caldwell. 7. John H. Comstock '73.

One of the central reasons why Warren chose to come to Cornell was the great respect Charles Bessey, his Nebraska mentor, had for Liberty Hyde Bailey and the Cornell agriculture faculty. Bailey had been the key individual in Warren's decision to study at Cornell. He joined the Agricultural Experimenters' League and other groups that revolved around Bailey's leadership. Bailey was often away from campus that year, as he and Roberts were working closely with the agricultural leadership across New York to advocate for state funding for the college. They were following much the same strategy as Professor James Law had done with horse and livestock leaders in establishing the New York State College of Veterinary Medicine at Cornell in the 1890s.

Like Isaac Roberts, Bailey was an indefatigable worker and could be found in his forcing house, or laboratory, or at his desk whenever he was in Ithaca. He was an exceptional teacher and communicator. Shortly after he arrived at Cornell in 1889, Macmillan published his *Horticulturist's Rule Book*, and the books from his pen then came in a steady stream. By 1900 he had published fourteen more titles with Macmillan, and his *Rural Science* series was launched as a national reality. By 1914 there were thirty-two titles in that series written by twenty-two authors from across the country.<sup>10</sup>

Warren did well academically in his first semester and knew that he would be able to complete his undergraduate degree in two semesters as he had hoped. To pursue graduate study with Bailey during the next academic year, he learned that a fellowship was available and he set about trying to compete with others to obtain it. To support his application, he needed letters of recommendation reflecting on his character and potential for such study. To that end he asked a number of county superintendents of Nebraska schools to write on his behalf, along with his professors at the University of Nebraska. Among his carefully preserved personal records were copies of these letters. Fairly typical was the one from Kearney County superintendent J. R. Baker:

Mr. Warren taught Nature Study and other subjects for three years in the Institutes of this county and I should be pleased to have him work six weeks in this county this summer. Mr. Warren filled the position of city superintendent of schools here last year and I can say that he has given the best of satisfaction as Institute Instructor and Superintendent. I know of no one who has given better satisfaction in this county....I consider Mr. Warren exceptionally strong in the sciences.<sup>11</sup>

Professor Bessey commented, "He was elected instructor in mathematics in 1901, but eventually declined the position. He has been engaged in institute work in this state to the relation of science to agriculture. He is a strong man, and while a student here was looked upon as one of the best of our students, especially in mathematics and science."<sup>12</sup> There were eight different county school superintendents who wrote in support of Warren, largely because of the impact of his work teaching about nature study and its relation to agriculture at their respective summer institutes. Warren had provided teachers attending

these institutes with written materials and examples of how to involve students in studying what was happening in the fields around them as part of their laboratories in the sciences. Together with the additional recommendations of his teachers at Cornell, the fellowship was granted to Warren in the spring of 1903. The letter announcing the grant was another of his prized possessions.

In May his mother's letter reflected on the news that Warren had won his graduate fellowship:

We are glad that you have secured that fellowship; I suppose it will be a stepping stone to something better in the future. Perhaps if we have to wait longer for a visit from you, you [will] have more time to stay at home than if you were going to teach in the normal. I hope the two months work in Ithaca will be easier than that in Oxford would be. Your father is much pleased with your success.<sup>13</sup>

To complete his undergraduate degree, Warren had to write a Bachelor of Science thesis. He chose as his topic "The Mechanical Analysis of Soils."14 Completing the study associated with his topic required spending a week in Washington, D.C., learning the procedures at the Bureau of Soils under the direction of Dr. Lyman J. Briggs. He spent the week working with technicians on soil samples they had collected in Florida. After this training he returned to Ithaca with the necessary equipment for the use of staff and students in the Department of Agronomy. His thesis of forty-three pages included pictures of the equipment required and the soil borings made to a depth of thirtysix inches. He made analyses for soils from fourteen fields in Ithaca, Trumansburg, and Syracuse, along with the samples from Florida he had completed in Washington. In addition to presenting the results for each of the soil samples, he concluded his study with some comments about what the results meant for growing individual crops. The thesis was filed at the college library and bore the date June 1903.

### A Graduate Student at Cornell

Instead of going back to Nebraska in the summer of 1903, Warren started his graduate program with Liberty Hyde Bailey by working on an orchard study in Wayne County, seventy miles north of Ithaca. At the summer meeting of the New York State Fruit-Growers Association in 1902, horticulture professor John Craig suggested that a careful survey of the state's orchard areas be given high priority by the association. Dean Roberts agreed and set aside funds for this project with the following objectives:

- 1. to correlate geologic and soil characters with orchard conditions;
- 2. to compare successes and failures, and ascertain the underlying causes;
- 3. to investigate methods of orchard management and determine the influence of each; and
- 4 ...to collect and tabulate such a mass of data upon practical apple-growing, as will place many moot questions beyond the range of peradventure and furnish indisputable evidence for the assistance of those who are horticultural leaders and teachers.<sup>15</sup>

Bailey, who strongly concurred with the importance of this study, sent Warren off to do the survey work under Craig's general supervision.

Warren began his orchard visits in the town of Walworth, where fruit growing had gained the greatest impetus in Wayne County, centered initially near the nursery of T. G. Yeomans & Sons. As part of his fellowship, Warren worked on this project with another graduate student, W. E. McCourt, a fellow in geology who was pursuing the first objective of the study. Together they visited every farm in Walworth that had one or more acres of apples. They followed this by visiting any farm with ten or more acres of apples in the towns of Ontario and Macedon, which were immediately adjacent to the north and to the south of Walworth. In total they obtained records from 443 farms in Walworth and 131 more from the larger orchards in the other two towns.<sup>16</sup>

Letters from his family were forwarded to Warren while he was out in the field. On June 20 his mother wrote, "We like to hear about your travels and work among the farmers and fruit growers....I should like to be in NY to eat some of those sweet cherries; our strawberries are about gone and there is no other fruit until the early apples are ripe."<sup>17</sup>

The family correspondence continued all summer. Warren found time to write to a nephew, as well as to his mother and, occasionally, to one of his brothers. The letters provided a steady commentary on the fortunes of the family, family events, and news of neighbors. His mother's letter in late August lamented the lack of a summer visit from her son:

This is the fiftieth anniversary of our wedding day. I wish all the children and grandchildren could be here to celebrate the day, but we are just going on with our ordinary work. Nancy is washing, the threshers are at work in the field, and your father is there looking on. I have dressed a young rooster and have him baking for dinner and we shall eat him alone, the four of us. ...I'm sorry you cannot come this summer, but of course you could not afford to do so when it costs so much and you could earn 30 or 35 dollars instead of spending 70. I thought when you went away I should never see you again, but my health has been so much better this summer than it was last it seems as if I might be here a long time yet.<sup>18</sup>

Between June 10 and September 12, 1903, Warren and McCourt examined 3,761 acres of apples and collected short survey records from 574 farmers. Travel from farm to farm was by bicycle. They used a threefoot augur to study the soils in each orchard and took pictures of trees, sites, and problems observed on leaves and branches. Information was obtained on production and sales in 1902, as well as yields in previous years. Data on cultural practices were also gathered, including planting rates, fertilization if any, pruning, tillage, disease and insect problems, and spraying programs and treatments. They made notes about each site, including field drainage and soil conditions.

Bailey wrote to Warren in Walworth on July 20: "I wish you could write me a brief report of what you are doing and accomplishing. I should like to keep a little track of your work. Professor Craig is away so I can not confer with him about it. He told me before he went away that he was well satisfied with your work so far."<sup>19</sup> Warren replied immediately on July 24: "Prof. Craig and I were sorry not to have been able to see you before I started out. An effort is made to get something of a history of each orchard, also the present condition, method of treatment, insects, diseases, etc....I hope to get a chance to talk to you about my work for next year. I would like to make field crops, horticulture, or nature study my future work."<sup>20</sup>

While in Wayne County interviewing farmers and visiting orchards, Warren kept a diary and made comments each day about some of his experiences. A few of his entries provide perspective on the times, the state of the orchards, and the people he interviewed.

June 20—One man said that not being much of a speller, he could not spell his name, but he was a good intelligent farmer.

June 26—One man thought that I was a tramp and his dogs were of a similar opinion.

July 13—Mrs. Clouse did not think it would do to go there when her husband was away. So there was nothing to do but to say that it made no difference to me and go on.

July 27—John Love, who has the most neglected orchard of any yet seen, but who considers it a fine thrifty orchard, told me his autobiography and all his troubles.

August 28—One cannot but feel the force of the saying about teaching old dogs new tricks. The old farmers have drawn so many wrong conclusions and are so thoroughly convinced of their correctness that it is of no use to tell them the truth. True, wonderful things have been done to lifting some of them in the past few years, but the task is too great and the majority are never touched. As I see the quickness with which the boy grasps a thought and the slowness of his father, I cannot help feeling we should have more nature study in public schools and should have agricultural high schools all over the state.<sup>21</sup>

The August 28 note reflects the frustration Warren must have felt when talking with some of the farmers about ways they might improve their yields and the quality of their crops. He saw that young people were generally more willing to listen to new ideas and accept suggestions as he visited with them and their parents. As a former teacher, he viewed public schools as a way to reach and educate more rural people about improved farm practices and the applied science behind them.

Except when their bicycles needed repair or when it rained all day, McCourt and Warren visited farms six days a week. They roomed by the day or week in the small towns close to the farms they were visiting. Rochester was twenty miles to the west by train and Warren's notes indicate only one visit to the city during the summer. Survey records were recopied and edited in the evenings, and general observations were recorded at the bottom of each one-page questionnaire.

The summer's work went well and in the fall the college faculty agreed that Warren should continue to analyze the survey information he had obtained and make this study the subject of an experiment station bulletin. Thus, summary of the survey records and preparation of a report to the farmers in the region fell to Warren under the general direction of Professor Craig. Bailey continued to maintain a strong interest in the project, both as director of the experiment station, which funded the study, and because of his own central interest in pomology and horticulture. When Warren returned to Ithaca from Wayne County, he must have rented an apartment. His mother wrote on September 28, "So you have moved to a new place, and are housekeeping. I hope you will get along nicely with the new arrangement. It will be convenient to be near your work."<sup>22</sup>

## The Cornell Countryman

A new monthly magazine of thirty-six pages, including paid advertising, appeared on the campus in December 1903. The masthead listed an editorial staff of eleven students, and the editor was George F. Warren. The first issue included this statement:

For some years there has been a growing desire to establish an agricultural periodical at Cornell University. Such a publication is necessary in order to keep the former students in touch with each other and with the college and to present advances in agriculture. This is the mission of the *Cornell Countryman*. It is published by students and graduates of the College of Agriculture and meets the hearty approval of the faculty; but the editors are responsible for the policy of the paper.<sup>23</sup>



The 1903–1904 *Cornell Countryman* editorial staff. In the center back row is George Lauman, then an instructor. George F. Warren is second from the left in the second row. Warren served as editor of the magazine.

The initial edition and those that followed contained short articles solicited from faculty of the college, alumni, and agriculturists at other colleges. The contents of the first issue included:

"The Outlook for Agricultural Teaching" —L. H. Bailey
"The Farmers' Institute Movement" —F. E. Dawley
"A Reading Course for Housewives" —Martha Van Rensselaer
"Nature Study at Cornell" —Mary C. Shepperson
"Features of Interest at the Recent Meeting of the American Pomological Society"—John Craig
"Dodder in New York Alfalfa Fields"—J. L. Stone
"The Agricultural Experimenters' League of New York"—John Craig<sup>24</sup>

There were also sections reporting news of faculty activities and recent student events. News stories from other colleges of agriculture were included, along with some comments about a similar college magazine that had been successfully launched at Ohio State. The final section of the new magazine was prepared by the alumni editors and provided short notes from individual alumni organized by classes.<sup>25</sup>

George Warren's role in starting *The Cornell Countryman* is not clear. He was an undergraduate in the year before publication was started. His skills as a writer and his previous experience in Nebraska as teacher and school superintendent must have given him confidence to take on this opportunity to write for and edit a new magazine. He also must have been one of the student leaders who thought this venture would succeed and be of benefit to all who were involved. It was a student enterprise engendering strong faculty and alumni support. For Warren it was another opportunity to learn by doing, which had been a hallmark of his approach to education. Warren's tenure as editor was only for the year 1903–04. His name disappeared from the masthead in the fall of 1904, when he concentrated full-time on completing his M.S. and Ph.D. in the next two years.

His mother's letter on December 20, 1903, commented on his new venture and passed along the muted praise of his father:

Your magazine came Monday and another later. I gave Henry the first one. We think you have done well so far. I imagined the article on Chemistry of the Soil and Crop Production was yours. I supposed the Announcement was and some of the other Editorials. Thank you for the Christmas present. We shall
certainly enjoy having the magazine because you are the head of it, and it will seem like hearing from you every time it comes. Your father says it is all right.<sup>26</sup>

She then continued with a question about the land Warren had purchased in Clay County not far from his father's farm:

Are you going to sell your place? Henry told us a long time ago that the man on Andy's place wanted it. Your father said he wished if you sold, that you would buy our place. If you and Henry could buy it together and Henry came and lived on it, you might manage it, perhaps, if you wanted to make the venture. I told Henry I thought your father wanted 7000 but it is 8000 he told Herb today.<sup>27</sup>

Warren had purchased the eighty acres of land as an investment using the savings he had accumulated in his years as a teacher and school principal. He contracted for the property on August 2, 1901, paid \$620 as a down payment, and had a mortgage for the balance of \$1,600. His accounts showed that he finished paying the mortgage on August 11, 1902. His brother Henry served as his agent and managed the property after Warren moved to Ithaca to start his degree program at Cornell. Part of the land was tillable and rented on a crop-share lease each year. Warren's records from 1906 show sales of corn and wheat as well as rent from hay and grassland. The only expenses shown were for taxes and filing a few papers. It seems likely that Henry was also the renter of the cropland, but that is not specified in the records.

## A New Mentor

Thomas F. Hunt joined the Cornell faculty in 1903, moving to Cornell from his position as dean of agriculture at Ohio State University.<sup>28</sup> Isaac Roberts had retired after thirty years at Cornell, and Bailey needed the help of an established teacher and administrator. Hunt was already widely recognized nationally for his book, *The Cereals of America*, and for his leadership roles in the Association of Agricultural Colleges and Experiment Stations. Hunt immediately became the second in command for the college and served as superintendent of the university farms. He also taught two courses: Field Crops and Farm Management. Warren took Hunt's courses and profited from his suggestions and guidance as he prepared his master's degree project and worked with the survey data he collected that year.

Hunt's Farm Management course was new to the agricultural curriculum at Cornell. In a number of wavs his courses replaced the lectures Roberts had offered each fall and spring. Hunt's course brought together many of the topics Roberts had discussed, but he treated them in a much more systematic fashion. One of the innovations Hunt brought with him to Cornell was the requirement that each student taking farm management must obtain and summarize information in some detail for one year about a specific farm business. This included listing its assets and liabilities, sources of income and expenses, and production of crops and livestock products. Students had to calculate the labor income for the business, reflecting changes in the



Thomas Forsythe Hunt, professor of agronomy; first teacher of farm management at Cornell University, 1903–1907.

inventories of crops, livestock, and machinery. An operating plan for the business in a future year also was required. The concept of labor income that Hunt defined at the turn of the twentieth century has remained in wide use throughout the country.

Professor Hunt's influence on Warren was substantial. Although Bailey was the primary leader at Cornell, he was frequently busy off campus while Warren was completing his master's and Ph.D. programs. These were the years when Bailey was working regularly with the agricultural leaders of the state to gain support in the Senate and Assembly for bills to establish the New York State College of Agriculture at Cornell.

Bailey's efforts to provide funding for new buildings and additional faculty positions constituted a major undertaking. In September 1903, the Committee for the Promotion of Agriculture was organized, which included the leaders of farm organizations of the state, editors of New York's agricultural periodicals, leaders of the N.Y.S. Department of Agriculture, and the directors of the two agricultural experiment stations. Working with Senator Nixon from Chautauqua County, a fruit grower who personally had benefited from working with Bailey, legislation to establish the college was introduced early in the 1904

legislative session. After much debate and compromise with Syracuse University, legislation for the new State College of Agriculture at Cornell was passed and signed by the governor on May 9, 1904.<sup>29</sup>

In this setting, Hunt's arrival on campus was particularly important. One senses that Professor John Craig was a respected and helpful supervisor in considering horticultural issues, but of modest assistance in the analysis and summary of the wealth of data that Warren had collected. In contrast, Hunt had published widely; he was writing a new book, *How to Choose a Farm* (which would be published in 1906), and also was revising his textbook on cereals. He was a mentor both in thinking about the organization of the data set and in deciding what should be included and left out of the summary. Warren's background and training in mathematics, and his own penchant for orderly accounts, set him in good stead for the summary and analyses. Hunt was an excellent consultant as well as an important influence in directing Warren toward an emphasis on looking at the business side of fruit farming, as well as reporting best management practices in apple production.

His mother's letter on December 28, 1903, tells about their family Christmas celebration and of family happenings. Compared with only a decade earlier, economic life in Nebraska had improved substantially for all the Warrens.

Howard [a grandson] rode over on his donkey Saturday to visit here and at Henry's a few days. It will probably be his last visit here before they move. He has gone up to see Earl [Henry's son] today. Henry and Earl were here yesterday, and some after they left, Cora and Ada came with the baby. They brought presents for Henry's family, and a nice cake plate for me and a pen wiper for grandpa. Henry and Joe each gave me a book, Howard a collar, Nancy a pretty platter, Ellen a holder, Earl, Julia and Arthur a card case, Arthur's children a sofa pillow cover....Your father likes his book very much, he read it before Christmas and Henry took it home and read it before he went to bed that night; he enjoyed it too. Thank you for my present, we shall have that for a whole year. I have commenced reading your father's book, but I can't read all day, or all night as they can. I am glad Prof. Bailey's people are so kind to the students, and that you could go there and have a pleasant time the 25th.<sup>30</sup>

In April she responded to a recent letter from her son, "It certainly is a matter of rejoicing that the College of Agriculture is to have money for needed buildings, but I wish you were not going to be so far from home all the time, though if it is best for you, we must not complain."<sup>31</sup> In mid-May she wrote, "Your letter and one from May came Thursday. The Countryman & a letter from Harry Noyes yesterday. …We are glad the Governor signed that bill. I should think \$290,000 would fix up the College of Agriculture in good shape. How did your big celebration go off?"<sup>32</sup> It was a happy time for students and faculty that spring, but the bigger celebration was reserved for a year later when the first soil was turned to break ground for the new buildings on what was to become the agricultural campus.

In the midst of his other commitments as Fellow of Agriculture, Warren completed his M.S. project and thesis, "A Soil Survey of the Cornell University Farms," and was awarded the degree in June 1904.<sup>33</sup> He mapped the soils on the four farms on which the college ran its agricultural experiments and commented on their origins, drainage, and capacities for providing plant nutrients. In many respects this study of sixty-four pages was a continuation of Warren's B.S. thesis project. Only three of the farms had arable lands that were used for crops. In total there were 91.7 acres of cropland and 93 acres of pasture on the four farms he studied and mapped.

Warren's introductory chapter to his M.S. thesis provided some important insights:

The methods by which Professor Roberts produced such large yields of wheat on the Cornell farm would be of great value if they could be placed in the hands of every farmer who has a similar soil....The Cornell experiments on tillage of potatoes have little significance to a man who is trying to raise potatoes on a clay soil. They would be greatly enhanced in value, if we could point out the places in the state where the Dunkirk gravelly loam occurs.<sup>34</sup>

His central conclusion was that there was a great need for the preparation of soil maps and particularly a generalized map of soils for New York State. His project was a direct contribution to the students and staff who would complete future agricultural experiments on these sites, and a reminder that generalizing results from experiments on one site required somewhat similar soil and weather conditions to get similar results. Hunt, along with George Caldwell, professor of agricultural chemistry and soils, must have been the key faculty advisors for Warren's thesis project, although no acknowledgments were included as a part of the bound copy of the thesis itself.



Photo cover of Warren's senior thesis and a photo from the thesis showing a field, which in 1905 became the site for Stone, Roberts, and East Roberts Halls. The tower in the distance was the top of Sage Hall, then used as the women's dormitory.

# The Agricultural Experimenters' League

In March 1903 a mass meeting of the students of the College of Agriculture was held in the Dairy Building (which later was converted from laboratory space to become the north wing of Goldwin Smith Hall). The purpose was to discuss the possibility of establishing a new organization that would encourage agricultural experimentation in the state by former students of the college and farmers with the help of current students. This was one of Bailey's many ideas to get more "experimentation" done across the state under quite different field conditions.

The Agricultural Experimenters' League of New York was organized at the close of the March 1903 meeting. Its charter stated that the League was created "...for the purpose of carrying on cooperative experiments in the various departments of farm husbandry; for the purpose of intercourse among those studying farm problems; for the advancement of agricultural education; for the collection and dissemination of data relating to country life; and for the purpose of supporting legislation favorable to the promotion of these objects."<sup>35</sup> This new organization was set up with two classes of members: active and associate. The active members were to be New York State residents involved in experimentation. Associate members were to include those committed to its purposes and to supporting the enterprise. Students, faculty members, and farmers were the primary active members.



Members of the Agricultural Experimenters' League from the February 1904 issue of The Cornell Countryman.



A set of divisions within the League was established in which experiments were to be classified reported. These included: and Field Crops, Horticulture, Animal Industry, Economic Botany, and Economic Entomology. A committee was established to take charge of the work of organizing and drafting the constitution and bylaws. The members were Theodore Ross. chairman; G. F. Warren, secretary; T. C. Johnson, fellow in agriculture; F. A. Salisbury; and Scott H. Perky.

St. Roberto

A copy of Forbes's painting of I. P. Roberts in the February 1904 issue of The Cornell Countryman.

Officers elected were:

Honorary President	Isaac P. Roberts
President	James E. Rice [1890], Poultry
First Vice President	S. A. Beach, Exp. Sta., Geneva
Second Vice President	Jared van Wagenen [1891], Cobleskill
Secretary-Treasurer	John Craig, Horticulture
Director of Experiments	John L. Stone, Agronomy

The first annual meeting of the League was held at Cornell on June 8–9, 1904, with individuals and college faculty members reporting the results of research and experiments completed on farmers' fields in the state. At the annual meeting held February 16–17, 1905, Warren was elected secretary-treasurer, reflecting his active work in establishing and promoting this new organization.

# New Elementary Agriculture

During the summers of his last two years in Nebraska as a high school principal and superintendent, Warren had been a teacher in the summer institutes sponsored by the Nebraska Department of Public Instruction at three locations around the state. He was an instructor for Nature Study and Elementary Agriculture. The purpose of the institutes was to help teachers get ideas for maintaining students' interest in these topics and to provide new materials for improving their teaching programs. Warren was sought because he had ideas and exercises for bringing plants, insects, and products into the classroom to illustrate basic concepts and to help students better understand what they were seeing and how plants and animals grew and developed.

In the spring of his first year at Cornell, Warren had received a letter from W. K. Fowler, the state superintendent of public instruction in Nebraska, with this request:

Would it be possible for you to prepare the outlines in *Elementary Agriculture* for the Nebraska Course of Study and Teacher's Manual. If you can it will be a great favor to the department, I assure you, and will be highly profitable to the school people of the state. If you can do this, send the outline at your earliest convenience. Under separate cover I send you a copy of the 1902 edition. See pages 151–155....

P.S. All other copy for the Course of Study is ready. In fact the subject of Agriculture is the only one being revised.<sup>36</sup>

Warren was able to fulfill this request while completing his undergraduate degree that spring.

In March 1904, Warren received a letter from George L. Towne, who was the manager of the University Publishing Co. in Lincoln, Nebraska:

We have been figuring on following each of the chapters of our New Elementary Agriculture (Bessey, Bruner & Swezey) with suggestive questions on the text, in the new edition. I was talking the matter over with Supt. Fowler and Mr. Crabtree and both of them suggested that we ask you to prepare questions on part of the book. We sent you a copy, I think, in October....Could you cover the first two parts, including Plants and Insects, the first 99 pages? We will have to have the questions by the first of May as we will have to get out our new edition not later than that.<sup>37</sup>

In his April 5 reply to Warren's letter, Towne wrote, "In regard to the questions you ask we are selling the book as a text and it goes into the hands of pupils. Over 300 schools are using it this spring."<sup>38</sup> A further letter came from Towne on May 21, which stated: "We will call attention to your exercises in the preface and will use your title as Fellow in Agriculture. We are certainly under great obligations to you for your kindness in preparing the questions."<sup>39</sup>

The 1904 edition of *New Elementary Agriculture* was a success and Warren's contributions were a part of it. He also proposed additional pages of exercises for the next edition but Mr. Towne said that it would be too expensive to repaginate the book. In February 1905, however, Towne had another idea:

Now it occurred to me that this plan would be better than adding 10 pages to the book—have a series of articles in the "Teacher", say for 12 issues beginning in August this year and ending with July and I thought of you to write them. You could, of course, follow the general outline of the book but make the articles in the Nebraska Teacher supplementary material. Such a series of articles would be of infinitely more value to you than the preparation of exercises and they would I believe do the teaching of agriculture very much more good.<sup>40</sup>

In November 1905, Warren received another letter from Towne, who commented, "Your articles are just fine, Warren; they are just exactly what we wanted."<sup>41</sup>

Thus, in the midst of his graduate studies Warren was able to maintain strong ties with his contacts at the University in Nebraska.

He recognized the value of publishing to his professional career and made the extra effort to contribute to a book on agriculture that was used increasingly in the school systems in his native state. Writing a series of articles for the *Nebraska Teacher* helped keep these contacts alive. He also must have thought that he could help teachers use the materials presented in the book more effectively by suggesting ways in which students could bring things they saw at home into the classroom. All of this was going on during the year he was editor of *The Cornell Countryman* and in 1904–05 when he was summarizing and analyzing data from the orchard surveys, which would be published as experiment station bulletins and become his Ph.D. thesis.

# Completing Theses and Graduate Degrees

After completing the first summer of orchard surveys in Wayne County in 1903, it was generally understood by John Craig and Liberty Hyde Bailey that a second set of surveys would be conducted as part of the experiment station project. Craig and Warren reviewed the survey form and agreed that some revisions were necessary. The survey blank was reorganized and made simpler to record practices; the new form would provide greater detail on prices received and returns obtained for the crop. In Wayne County much of the crop had gone to a nearby evaporator to be turned into dried fruit or vinegar, or alternatively, processed on the farms. Interest in selling the best apples in barrels for the fresh market had increased rapidly since 1900 so that more than one quarter of the crop in 1903 was sold in that manner. It was decided that the survey in the late summer of 1904 should be made in Orleans County, located between Rochester and Buffalo, where much of the crop was intended to be sold in barrels for urban markets.

Funds were available for obtaining the second set of survey records and it was agreed that Warren and an assistant would carry out the survey work under the general direction of John Craig. Responsibility for summarizing the 1903 data fell largely to George Warren, with assistance from workers in the horticulture department. Bailey continued to have a strong interest in the project and asked penetrating questions about what had been learned so far and what was planned for 1904. By this time Thomas Hunt had taken on most of the responsibility for directing experiment station activities for the college. He became aware of the project, approved expenditures associated with it, and became a consultant to the summary work and analysis in progress. Warren had completed his master's thesis in June 1904. He then planned to go on to complete his doctorate using the orchard surveys as the basic data source for his doctoral thesis. The first order of business, however, was summarizing the data collected in 1903 and moving forward with the surveys in Orleans County in late August. With the concurrence of Professor Craig, Mr. Christian Bues was hired to assist Warren in collecting records in 1904. Bues was a native of the area with practical experience in both nursery and orchard operations. Word from Wayne County fruit growers from the previous summer had been favorable about the practical information and advice that Warren had shared on his farm visits there, and it was quickly evident that most farmers were pleased to share their information with the "experiment station agents."

Bues and Warren collected data from farmers during August, September, and October 1904. This allowed them to observe the quality of the apples while they were being picked and to observe methods of handling the crop. Records were obtained from 564 orchards containing 4,881 acres, about 30 percent of the acreage for the county reported in the census.<sup>42</sup> The orchards studied were all located in the three townships bordering Lake Ontario, which provided favorable locations in terms of climate and soils. The orchards could therefore be considered somewhat above average for the county and region.

Some excerpts from Warren's notes give a flavor of the conditions found during the second set of surveys:

Aug. 27—The tendency always seems to be to watch the fruit but ignore the trees. It would be well for the grower to go out into his orchard occasionally and say, How do you do this morning?—Is there anything you would like?

Sept. 3—Quite a few people got good apples or saw good apples last year that were not sprayed and concluded that spraying did not pay. There can be little doubt about things this year.

Sept. 7—Wages are high here and men are scarce. Mr. Suffler pays \$28 per month and board to an ordinary man.

Sept. 7—There is a tradition that the first apples in the county came from an apple that a sailor gave an Indian woman. She planted the seeds. The trees grew for many years. S. W. Smith, Albion, can give the details.

Sept. 19—Mr. Stroyan is a fairly intelligent man. He has begun to care for his orchard and it in return is caring for him.

Sept. 19—She's not what one would call an optimist, but she can make a tramp saw wood for his dinner. I was not the tramp.

Sept. 24—The demand for men to pick apples and take care of the bean crop is responded to by workmen and tramps. There are hundreds of tramps in the county, some looking for work, some afraid that they will find work.<sup>43</sup>

Not surprisingly, weather conditions in 1904 had differed substantially from those in 1903. As suggested by the first two quotes, the need for using spray materials was much greater. Warren's ability to provide a quick picture of an experience in one or two sentences is clear.

## The Senior Warrens Move into Harvard, Nebraska

The letters from his mother in late August of 1904 brought Warren news of a major set of changes in the life of his parents. On August 21 his mother wrote as usual about the local news and the weather:

Herbert had not decided yet whether to take the Santee work. He thinks they require too much of him, more than one man can do, and he has to sacrifice so much to go there, it is hard to decide. He will settle the matter before he goes back. Our selling out will make some difference, because he can not see us as often after we move. We may move next week; your father has rented a small house to live in while he builds. Henry has hired Vane Farmer to help him till school begins. He is going to gather the fruit, dig potatoes, and have half. Our sale will be September 7th. If the house is vacated by the first we shall have to go then....Shall have to leave everything here that we can get along without till our house is ready. They will commence it right away, or as soon as we decide just what we want. I will get your things packed away as well as I can to leave here till we have room for them or till you come to take charge of them. They will not be in Rebecca's way at present. I am glad your nature study class was a success and hope it will help you in the future.<sup>44</sup>

On August 28 she provided this additional news and enclosed a handbill for the public sale at their farm on September 7:

One more letter before we leave the home where we have seen so much of joy, and sorrow. I wish we could all have gotten

together once more before we left....We all went to Harvard last Wednesday to fix up the papers, and now the farm is Henry's. They intended to move here this week but he has to make hay and thresh, so they will have to wait till next week. We expect to move Thursday, the 1st of September and get settled before the 5th when school begins. Ada goes with us to attend the high school....I think I told you that father has bought the block south of Tom Maters. He has let the contract for the house to Nate Pontius; it is to be finished December 1st anyway and perhaps sooner....Our house will be two stories front and one for kitchen, pantry and an entry way to go into kitchen and cellar. It will be nice and convenient, but not as large and showy as Mr. Hutton's new \$2500 house is to be. Ours will cost \$1410 all finished. Call and see us when we get settled. We expect to keep a horse and buggy, and perhaps a cow when we get a barn built. The carpenters are figuring on the barn and a nice little house to rent on the northwest corner of the block. Ours will be on the N. E.45

On September 4, there was more news: "We decided to stay here till after the sale and save other people the trouble of coming to take care of our stock....Herbert made up his mind to give up going (to Santee) at all, and sent his resignation. After he had time to think things over he decided it was better for his children to stay here, and it is their welfare he has to consider. We all think he has made a wise decision."<sup>46</sup> A week later, Warren's mother wrote:

Here we are in town just across the corner from Adam Herzog's fine house; the one we live in belongs to Mr. Herzog. It has four rooms and a closet. We use one bedroom for a pantry and Ada sleeps on the lounge in the kitchen. Mr. Warner, Frank Farmer, Henry and Herbert helped us move Thursday. ...The sale amounted to over \$1000. About three hundred more than we expected....The men are to commence laying our cellar wall tomorrow. The frame of the house is ready to put up....We shall feel more at home when we get to our own place. This will do very well till then.<sup>47</sup>

Two months later brought this report:

Well! We are in our own home at last. We came here last Wednesday between, and in showers and snow squalls. Mr. Hartley is going out to the farm after a load of our things tomorrow. He will take me out to get the birds, plants, pictures and fruit some warm day after the men get the sitting room finished; all the other rooms are finished but the paper. Ada and I cleaned, and put things in order so it was comfortable over Sunday. I wish you had some of your pictures for your wall. I should like to look in and see how your home looks.<sup>48</sup>

A letter on December 11 indicated that the family was pretty well settled:

Your father had a hot fire in the new [old] heater and all three rooms were warm. I finished varnishing the floor yesterday so it is ready for our new rug when it comes. I wrote to J. Allen [son] to buy the things we need in Lincoln; they will be here soon. We moved the plants, etc. in here just at night. I unpacked the birds, put yours in their case and set ours on your small bookcase till we get a better place....We shall soon be ready to live; the hardest part of the work is over and I am very glad. I have got along better than I expected with only what help Ada could give out of school hours....Ada says she has been waiting for you to straighten out all the crooked places in her algebra, when you come Christmas and now you aren't coming at all.<sup>49</sup>

## **Experiment Station Bulletins**

Warren's background and experience in mathematics and statistics served him well in analyzing the records and data he obtained in each of the orchard surveys. Further, his work as an editor for *The Cornell Countryman* and the articles he had prepared for the *Nebraska Teacher* gave him the confidence and experience to start writing two bulletins based on the Wayne and Orleans County data sets. He had already summarized information on best orchard practices for use by Professor Craig and the staff in horticulture. A manuscript describing the overall project, complete with pictures, charts, and tables, was prepared and accepted for publication.

Cornell Agricultural Experiment Station Bulletin 226, *An Orchard Survey of Wayne County*, was issued in March 1905. The first 122 pages of the bulletin presented the results from the orchard survey in 1903. The next 48 pages presented the findings of W. E. McCourt, Fellow in Geology, who had worked with Warren on the soils part of that study. Warren's excellent photographs were an important part of the bulletin,

showing different cultural practices, the effects on trees from imperfect drainage, the effects of diseases and insects on leaves and fruit, and what might be done to protect the trees and fruit from such damage. The final sections considered markets, yields, and prices, and offered some general suggestions to growers about the management of their orchards.

Bailey and the other members of Warren's doctoral committee agreed that the summarization and analysis of data obtained from the two orchard surveys in Wayne and Orleans Counties provided an appropriate basis for his dissertation. Following the format established for analysis of the data collected in Wayne County, Warren also prepared the second experiment station bulletin that was accepted as a part of his doctoral thesis. In the second bulletin he looked especially at the strategies followed in marketing the crop for sale to consumers as fresh fruit, first packed in barrels to minimize bruising on the way to market.

It was possible to contrast and compare what had been found in the two counties with respect to their similar climates and horticultural practices followed. Data for a span of four years on yields, prices, and cash income received per acre was sought on the survey form and by mail from growers. Farmers had few records of their sales when the survey was taken. Because cash purchases and sales were few in number each year, the interviewers believed that the information they obtained closely approximated what had actually occurred.

A second experiment station bulletin, number 229, was issued in May 1905 entitled, *An Orchard Survey of Orleans County*, by G. F. Warren. A shorter bulletin than the first, it included an initial statement that the two bulletins together should be seen as the report of one major study on the apple industry. The publication summarizing data from Orleans County frequently referred to materials presented in "Bulletin 226." In this manner similar conditions with respect to pruning and controls for insects and diseases were recognized. Differences observed in the two locations were given emphasis, and particular attention was called to cultural practices that led to harvesting apples that could be shipped in barrels to commercial markets. Tilled orchards were shown to produce substantially higher yields than those left in sod. Successful commercial varieties, such as Jonathan and Twenty-Ounce, were pictured, as well as other varieties commonly harvested. Baldwin and Rhode Island Greening apples were the principal varieties found in Orleans County.

The second bulletin's summary spoke to the cultural practices found in use in orchards and what could be learned from the experiences of these growers. The following comments were emphasized:

MAY, 1905	Do Not Remove From Files BULLETIN 229
	CORNELL UNIVERSITY.
AGRI	CULTURAL EXPERIMENT STATION OF
THE C	OLLEGE OF AGRICULTURE.
Dep	artment of Horticulture (Extension Work).
AN API	PLE ORCHARD SURVEY
	ORLEANS COUNTY
	UNIONE THE DIRECTION OF
	By G. F. WARREN.
	ITHACA, N. Y. PUBLISHED BY THE UNIVERSITY
	and deliting the

The second experiment station bulletin written by Warren completed the two publications that were accepted in partial fulfillment of his requirements for the Ph.D. at Cornell. The yields, percent of the crop barreled and the income per acre are all much larger from sprayed than from unsprayed orchards. Those sprayed three times gave 31 percent larger yield per acre and 51 percent larger income than those not sprayed. A part of the difference is doubtless due to other factors, for the unsprayed orchards are likely to be neglected in other ways.

The loamy soils seem to be best suited for apple production, but good apples are grown on quite sandy soils. The clay soils are likely to need drainage in order to fit them for apple growing. A loss of 8 to 10 percent of the apple-trees is due to poor drainage.<sup>50</sup>

# News of Mary Whitson

In the midst of summarizing the orchard data from Orleans County and writing the two experiment station bulletins, the weekly correspondence between Warren and his mother continued. On January 1, 1905, Julia Warren's letter began:

You get my first letter this year and yours was the last one we received last year. It came yesterday and the pictures too. Thank you for them. I think Mary Whitson is nice looking, and of course we shall like her if you do....We have a telephone in our kitchen and can talk with Henry. I have not tried it till Ada rang today to tell me she was going to stay and go to church. I could hear enough to make out what she said.<sup>51</sup>

This was the first mention of Mary Whitson, who was soon to become an important part of Warren's life. The installation of a telephone in Julia Warren's house meant a new convenience was on hand for communicating with her extended family; it was also an easier way for Henry and Herbert to check on their parents.

In mid-February, Warren's mother wrote:

I received a picture from Ithaca last week of a very nice looking girl, Miss Whitson, I suppose. You will have to thank her for me. We think the picture looks very much like Allie. Tell her I will let her have my boy if she is as nice as her picture indicates, [even] if it is hard to let him think more of another than he does of me. It's all right though for the good book says, "A man shall leave Father and Mother, etc." She looks as if we could love her as our own girl.<sup>52</sup>

With the move to town and fewer chores to do every day, the senior Warrens had substantially more time and a somewhat easier life. Mother Warren had more time for writing to her family; her letters to Ithaca became longer and provided substantial amounts of family news nearly every week. The letter Warren received in mid-March started:

Your good long letter is waiting for an answer. I am glad you are in a way to secure a good position when you are ready for it. It does look as if it paid you to go to Cornell. It is a relief to know that Mrs. Whitson is recovering. I should like to know her as well as her daughter.<sup>53</sup>

#### On April 2, she wrote,

I am glad for your sake that you have secured that situation in N.J. and you do not have to go till your work in Cornell is finished for one job, and that in a new place is enough for once. Will you take Mary with you, or do you want to wait till you get a year's pay? Thank her for me for her part in your arrangements. I think you need someone to hold you back so you will not kill yourself with too much hard work. It must be a great satisfaction to you, as it is to us, to get through in three, instead of five years. They did not know how smart the Nebraska farm boys are.<sup>54</sup>

Warren's mother wrote on May 1, "The arbutus came all right. Thank you and Mary for sending it. I hope it will grow. We have it in a box of earth now....Ada and I marked out our flower beds after supper. I hope it will not rain too much to make the beds and sow some of the seeds tomorrow....I am glad you are getting along so well with your work that we may hope to see you soon."<sup>55</sup> On May 7, she opened her letter, "Can it be that we shall see you in a week or two? How glad we shall be to have you come. Henry came in Wednesday and was here to dinner so he read your letter. Herbert was here Tuesday when it came."<sup>56</sup>



Standing: Joseph Allen Warren, Arthur Stanley Warren, Henry Grant Warren, Herbert Franklin Warren Seated: George Frederick Warren (1830-1916), George Frederick Warren (1874-1938), Julia Calista Stanley Warren

The promised visit by young Warren to his family occurred in the second half of May to the satisfaction of all. It was a way to get acquainted with a number of nieces and nephews who had arrived since he left four years earlier. Henry and Rebecca now had three boys and a girl on the home farm; Herbert and Cora had three boys and three girls, and lived about four miles from Harvard. In Lincoln, Joe (J. Allen) and May had two boys and a girl, so there were lots of family members to see as well as old friends. Pictures were taken and exchanged; George Warren, Jr. was an excellent photographer and carried back many memories of his siblings and their families to share with Mary Whitson.

These excerpts from Mother Warren's letters tell quite a bit about what was happening in Ithaca in the winter and spring of 1905, as well as in Nebraska. The romance between George Warren and Mary Whitson had become serious, and both sets of parents expected them to marry. The question that had not been settled in May was the date it would take place.

# Celebration in the Spring of 1905

In March 1905, George Warren received an important letter from the university, which was preserved for posterity in his own file of correspondence. "The Committee on Graduate Work has considered your petition and determined that you would be eligible for a degree at that time in June [1905] after having passed the requisite examinations and handed in a satisfactory thesis."<sup>57</sup> He had already anticipated that his doctoral degree would be granted and had applied for a number of positions, with supporting recommendations from Bailey and Roberts. On March 22, 1905, he accepted the offer of a position as horticulturist at the experiment station at Rutgers University. His Ph.D. was granted by Cornell University in June and announced in *The Cornell Countryman* with his picture and the following statement below it:

Mr. Warren grew up on his father's nursery and fruit farm in Nebraska. He graduated at the University of Nebraska in 1897, and then taught in the public schools of the state for five years, serving as teacher of science, principal of a high school and superintendent of city schools. During the summertime he taught elementary agriculture and nature study in teachers' institutes, which subjects he also taught last summer at Cornell. Last year he was Fellow in Agriculture and Editor of the *Cornell Countryman*.

Immediately after commencement he goes to New Jersey to take up his work as horticulturist at the New Jersey Experiment Station, Rutgers College.<sup>58</sup>

The year 1905 was a special one for the College of Agriculture at Cornell. Legislation had been passed the previous year and signed by Governor Odell on May 9, 1904, which provided state funding for faculty positions and new buildings for the college. An appropriation was made and a site selected on a knoll on the east side of the campus near the Roberts Barn. An architect was chosen and plans were approved for three new buildings to house the college faculty and their work. On May 1, 1905, a great celebration was held as a group of students pulled a plow to turn the soil for the groundbreaking ceremony. Former Cornell president Andrew Dickson White assisted Liberty Hyde Bailey and Isaac Roberts in holding the plow and using a special shovel to mark this great occasion. The buildings that would later be named Stone Hall, Roberts Hall, and East Roberts Hall were constructed on that site.

Warren had been a student at Cornell during one of the most significant periods in the life of the College of Agriculture. Bailey had become a national figure and a recognized champion of farmers and rural people in New York. Warren saw less and less of his mentor after Bailey became dean in 1903 and set to work in earnest to champion state funding for the college and its expansion. Bailey was a dynamo and full of ideas. No doubt he became an example to Warren of what one individual could accomplish when a major commitment of time, energy, and enthusiasm was applied to a worthy plan, strongly supported by the agricultural community. Nonetheless, Bailey found time in the midst of all his endeavors to read Warren's theses and help him find his position as horticulturist in New Jersey. Publication of the two experiment station bulletins reflected Bailey's confidence in Warren as a professional, as well as the importance of his research to the basic mission of the college.



Former President Andrew D. White (with shovel) and Liberty Hyde Bailey (center) at the groundbreaking ceremony for the new agricultural buildings, May 1905.

# New Jersey Agricultural Experiment Station Horticulturist

With the completion of his doctorate in 1905, George F. Warren had accomplished a great deal in his three years at Cornell. He had obtained his undergraduate degree in agriculture in one year and earned his M.S. and Ph.D. in two more. His energy and determination to move forward and succeed in a university setting were readily evident. Moreover, he had made an excellent impression on his mentors and had their solid support in establishing his own career. Warren was thirty-one when he accepted the position of horticulturist at the New Jersey Agricultural Experiment Station at an annual salary of \$1,600. He was an ambitious professional prepared to make his mark in the world.

Warren's new position required that he get acquainted with a new state and its commercial orchards and vegetable businesses. At the invitation of the experiment station's director, Dr. E. B. Voorhees, he first arrived in New Brunswick in May 1905. He traveled for a week visiting asparagus producers and other small fruit and vegetable farmers to get acquainted with their practices and marketing procedures. The Warren Papers in the Cornell archives include twenty-nine pages of handwritten notes covering his visits by trolley to producers in Keyport and South Amboy, east and south from the experiment station. He describes the soils, wage rates, and methods of production he found for a variety of crops. A neatly organized expense account for the week is included as well.<sup>59</sup> One cannot help but respect the discipline and care with which the new horticulturist set about understanding the people and their problems in his new position.

Warren moved to New Brunswick in July 1905. By this time a set of experiment station projects had already been initiated. He set out to visit some of the orchards and farms throughout the state. After visiting eighty peach orchards and thirty-six apple and pear farms, he concluded that farmers could improve their yields and profitability with their present trees by the use of a number of improved orchard practices. Small fruits and berries were also important sources of income to New Jersey growers and they absorbed a part of his interest during those first months in the state.

Warren's weekly correspondence with his mother continued from New Brunswick. She wrote on July 3, 1905: "We are all very glad to hear that you received your Ph.D. degree, and Mary her A.B.," <sup>60</sup> and a week later, "It seems to be quite expensive living in New Brunswick. I hope you will succeed in finding a cheaper boarding place. Rent must be high there too. Do you find agreeable people, that you will enjoy?"<sup>61</sup> On September 11, she responded to a letter from her son:

Your letter came the 6th and was gladly received as your letters always are. Today your father brought me a nice one from Mary. She said she promised "George" she would write to me soon. I don't like to have you called George. Does Mary always call you by that name? I'll write to her before long....Mary tells of the pleasant time you had the week you went camping. I hope you can bring her home before next fall.<sup>62</sup>

On September 18, his mother concluded her letter, "I should like to see your room; it must be mostly filled with book cases I should think. I'm glad it is such a pleasant room. You must wait patiently for your roommate. I hope you will not find 'there is more pleasure in anticipation than in realization.' I'll go to bed now and dream over it."<sup>63</sup>

The correspondence between Warren and his mother makes it clear that he and Mary Whitson were spending as many weekends together as their respective positions allowed. She was teaching in Auburn, New York, but returned by train to visit her mother in Ithaca most weekends. George took the train to Auburn to see her as often as he could. Despite his mother's preference for "Fred" as his family name, "George" would continue to be the familiar name by which Warren would be known in Ithaca, and in Nebraska outside his immediate family. His older brother, Joe, had also become "J. Allen" and his mother sometimes referred to him simply as "Allen" in her letters.

Much of Warren's early work in New Jersey was in consulting with individual growers and studying their fruit operations as he had done in Wayne and Orleans Counties in New York, but without a formal survey instrument. The peach industry was in trouble because of insect and disease problems. He set about observing the trees, collecting materials from farms for analysis by the station's pathologists and entomologists, testing soils and studying cultivation practices. A "Report of the Horticulturist" documenting his initial work was published in the 26th Annual Report of the Experiment Station for the year ending October 31, 1905. In addition, New Jersey Experiment Station Bulletin 197, Suggestions on the Renewal of the Peach Industry in New Jersey, was issued in 1906 and written by George F. Warren.

In retrospect it is clear that Warren went to New Jersey as a horticulturist with the idea that this would be a good interim position but not a permanent one. His personal correspondence from 1905 includes letters to and from Bailey asking about a possible opening at Cornell as a result of news that Professor Fletcher from the faculty in horticulture was leaving for a position in Michigan. In a letter to Bailey dated September 4, 1905, Warren wrote, "I will bother you once more to say that in case an opening does come in which I would fit, it would be more convenient for me to leave after the farmers' institutes than at any time before. I am going at the work here as if I expected to stay forever, but I do expect some day to be in regular college work."<sup>64</sup>

Warren's interest in a position at Cornell was not only related to being closer to Mary Whitson and her family, but also a genuine desire to become part of the Cornell faculty. Mary Whitson grew up in the Quaker tradition and lived with her mother in Ithaca at the home of Frank Albert Fetter, professor of political economy. Fetter's wife was Mary's sister. Mary studied botany at Cornell with Anna Botsford Comstock at the same time that George was studying horticulture with Bailey. They met at one of the Sunday evening open houses Bailey hosted for students in agriculture. The letters and the exchange of pictures and notes in the winter and spring of 1905 provide clear evidence that the two had made strong commitments to each other for their future life together.

One of the contributions Warren made as horticulturist in New Jersey during the year was to establish small experiments with fruit and vegetable growers to help them identify problems on their plants and trees, and then learn how to solve them; or he would tell them where they could go for help. This was before the days of the Cooperative Extension Service. Farmers' institutes held around the state in the late fall and winter were a key method of informing growers about what had been learned in such farm experiments, and what had been found to be successful treatments or practices by the experiment station staff and other growers. Warren was a speaker at these institutes, and his bulletin on peaches and another on spraying (New Jersey Agriculture Experiment Station Bulletin 194) were developed largely from materials and talks presented at the institutes.

By February 1906 Warren had decided to buy a house and get ready to live in New Brunswick with Mary after they were married that summer. Mother Warren wrote on February 26, "I am glad your institute work is done so you can stay at home more. That will be a large peach orchard just to experiment with. Do you expect to stay there till the trees bear?"<sup>65</sup> In early March, she commented, "It looks as if you expected to stay in New Brunswick for some time. You will have to take a picture of your new home and send it to us."<sup>66</sup> A letter in mid-May said, "Should like to see your place and you working around there. Things are growing here and people say you have a beautiful place. When all the new roses are in bloom it will look pretty."<sup>67</sup>

As usual, Warren kept complete records on the transactions associated with buying his house and fixing it up to his liking. He spent some money on paint and on plants and trees for his garden. The house provided more space for the personal library of books and bulletins he was building. During his time in Washington, D.C., he had obtained as many USDA *Farmers' Bulletins* as he could, and also assembled a collection of *Yearbooks of Agriculture* that were issued each year. No doubt his new house and garden provided a place where he could work outside and get acquainted with his immediate neighbors in New Brunswick.

Plans for the wedding of Mary Whitson and George Frederick Warren on June 21, 1906, in Ithaca were in full swing by May. He must have written to his mother about who in the family should receive wedding announcements because she provided some additions to his list in her letter of May 27. The letter she wrote on June 17, 1906, was special:

#### My Dear Fred,

This is the last time I shall write to just Fred alone, and it seems like having one of the girls get married and leave home. Of course you have been gone a long time but this was your home. Now it will be different; you will have a home of your own. I hope and trust it will be a happy Christian home, and you will enjoy it as you deserve to enjoy a good home after waiting so many years. I don't want to spoil your happiness in the least but could not help writing in this strain tonight....I hope you and Mary will have a safe and pleasant journey, and I know we shall all enjoy your visit. I want to go with you to Henry's and Herbert's, and hope they can come here while you are here. Give my love to Mary and accept a large share for yourself.<sup>68</sup>

George and Mary's trip west to meet his parents, his siblings, and their families in Nebraska went ahead as planned after the wedding. Mary met her new brothers- and sisters-in-law and a part of her large number of nieces and nephews. Henry and Herbert were now well established and respected in the Clay County agricultural community. Herbert was a leader in establishing a Sunday school in his area and preached in his local church as a substitute when a minister was not available. George's brothers and their families were close enough to Harvard so that the newlyweds could visit their homes. Many of Warren's old friends came to Harvard to say hello and meet his wife. The couple stayed with George's parents for about ten days, enjoying Warren hospitality to the fullest and getting better acquainted with their nieces and nephews.

George had planned the trip west so that he could also attend the three-week session of the Graduate School of Agriculture, sponsored by the American Association of Agricultural Colleges and Experiment Stations, held at the University of Illinois. This afforded him an excellent opportunity to meet and listen to presentations by the leading national figures in agriculture. It was also a good opportunity for the couple to get some rest and time to themselves after Mary's introduction to the extended Warren family.

Warren attended the program in Illinois in part because he had recently committed himself to become a new faculty member at Cornell. He received a formal letter from Thomas F. Hunt at Cornell, dated June 12, 1906, offering him a position as assistant professor of agronomy at a salary of \$1,800 per year beginning on October 1. Hunt wrote, "What we would desire you to do would be to take charge of the cooperative experiments and in general conduct the extension work which Professor Stone heretofore conducted and also to interest yourself in the extension of agronomy in public schools."<sup>69</sup> This decision meant a shift in Warren's work from horticulture back to crops and soils, which had been one of his primary interests when he came to Cornell. Moreover, his master's thesis had centered on mapping the soils in the Ithaca area used for experiment station trials.

Warren wrote back on June 13 and accepted the offer. It is clear that Warren, Bailey, and Hunt had discussed the possibility of Warren joining the faculty in advance of the formal letter from Hunt. Warren had made a number of trips to Ithaca from New Jersey, not only to see his fiancé, but also to talk informally with both Bailey and Hunt. This was the kind of opportunity he had hoped to obtain from the beginning and was eager to accept when it was offered.

Warren wrote from Harvard, Nebraska, to Director Voorhees at the New Jersey Experiment Station telling him of his decision to resign on July 2, 1906. The letter indicated his desire to finish the things he was doing and reveals something of the nature of his program of work earlier in the year:

There are some things that I think should be finished:

(1) I have been doing some work on copper sulphate and Bordeaux mixture that I think is quite important to farmers and to the Experiment Station as well. I think a solid week of work would finish this. (2) The spraying experiments and the state experiments in dusting peach trees ought to yield some material that is of very immediate use to farmers.

(3) The annual report should include my experiments on fungications and spraying in bloom, etc., besides the other greenhouse and outdoor experiments. I would like to finish these matters before anyone else takes them up.

(4) The work on plant food removed by trees could be closed up for plums, quinces and small fruits in the same manner as I did for peach trees and I think the most complete work done on this question for trees.

(5) If you desired I could write the bulletin on peaches. I have this well outlined in my mind so I am ready to write it at any time. My idea of it is like the bulletin on spraying—a teaching bulletin.<sup>70</sup>

Warren also wrote to Bailey on July 11, 1906, from Urbana, Illinois, while attending the Graduate School of Agriculture. The handwritten copy of this letter in the Warren files was not in Warren's own handwriting, and was probably transcribed by Mary.

I had a talk yesterday with Dr. Voorhees. He feels rather disappointed that I am to leave after being there so short a time, particularly since he offers much more pay than Cornell, but he finally decided to let me go. I am very sorry to leave New Jersey because I have become much interested in the work there, but I feel that it is desirable to locate rather permanently somewhere, and I doubt if I want to remain at New Brunswick always. There are some very great advantages in being at a large university. I look forward with much pleasure to work at Cornell. If my work proves worthy of a full professorship in a few years, I will have no reason to regret the change.<sup>71</sup>

Warren returned to his house in New Brunswick in August and set about finishing his duties as New Jersey horticulturist. The work he had done with growers in the peach industry was turned into an experiment station bulletin as promised. His experiments on spray programs for fruit trees, work in greenhouses, and vegetable crops were summarized and prepared in a form to include in the annual report of the experiment station. He wanted to conclude what he had started in an acceptable manner, even though he was leaving the growers with an expectation of an educational program that would not be continued as before. Warren was anxious to start his new career at Cornell, to work in an environment that he knew and liked, surrounded by faculty he had come to respect. He also wanted to leave New Jersey with a sense of accomplishment, recognizing that Voorhees and his colleagues were disappointed with his decision to leave so soon.

The weekly correspondence between Harvard and New Brunswick continued in August and September. Letters addressed to "Fred and Mary" were the general rule. The one in early August opened, "We were pleased to hear of your safe arrival in New Brunswick. I should like to look in and see how you are fixed in your home. Did you find a house that suits you in Ithaca?"<sup>72</sup> A letter to Mary later that month included this note: "Tell Fred he need not think I shall get tired of his 'long letter' and want you to do all the writing though we do enjoy your letters ever so much. They make it seem as if we could almost see you in your cozy home. I think you can do without a sitting room very well for the little time you will be there."<sup>73</sup> And, in early September, Mother Warren wrote:

Fred's letter came Thursday last week and made us glad as usual when we hear from our children. It will not be long now before you will be in Ithaca again. Will you have room for a garden there? I hope you will visit the cousins in Scranton and Wilkes Barre by all means. If you do, be sure to remember us to each one. Your father speaks once in a while of answering brother Edwin's letter but never gets farther than that.<sup>74</sup>

Julia Warren's final letter to her son and daughter-in-law in New Jersey was written on September 16, 1906:

Your letter of the 9th made our old hearts glad to be remembered again. Mary will be gone before time to write again, but we shall hope to hear from her in Ithaca. I hope you will not have to move again very soon unless it is to a home of your own. We are also very glad you came to see us, so we feel that we know Mary and can love her as our daughter. I hope we shall see you both again some day.<sup>75</sup>

Warren sold his house in New Brunswick in September 1906. He had paid \$1,000 for it in February. He had a complete set of accounts for money spent in making some repairs, as well as what he had spent on roses, shrubs and a few fruit trees. The total of these expenses, taxes, and the like was \$183.75. He sold the house for \$1,100 plus \$3.50 for the necessary papers of transfer. In his journal he noted a loss of \$83.75 on the six-month transaction, but commented: "lived there for six months without paying rent."<sup>76</sup>

#### Footnotes

- 1. Letters from Home, 163.
- Gould P. Colman, Education and Agriculture: A History of the New York State College of Agriculture at Cornell University, Ithaca, NY (Ithaca: Cornell University, 1963), 154.
- 3. Letters from Home, 168.
- 4. Ibid., 173.
- 5. Ibid., 174.
- 6. Ibid., 175.
- 7. Ibid., 176.
- 8. Ibid., 177.
- 9. Ibid., 179.
- 10. Philip Dorf, *Liberty Hyde Bailey, an informal biography* (Ithaca, NY: Cornell University Press, 1956).
- 11. Warren Papers, Box 25-2.
- 12. Ibid.
- 13. Letters From Home, 185.
- 14. Warren Papers, Box 33.
- G. F. Warren and W. E. McCourt, Cornell University Agricultural Experiment Station Bulletin 226, *An Apple Orchard Survey of Orleans County, N.Y.* (March 1905).
- 16. Ibid.
- 17. Letters from Home, 190.
- 18. Ibid., 195.
- 19. Warren Papers, Box 25-2.
- 20. Warren Papers, Box 25-2.
- 21. Ibid., Box 2.
- 22. Letters from Home, 199.
- 23. The Cornell Countryman, vol. 1, no. 1 (December 1903), 14.
- 24. Ibid., 1.
- 25. Ibid.
- 26. Letters from Home, 205.
- 27. Ibid.
- 28. Colman, *Education and Agriculture*, 157. A state law in Ohio limited salaries at its universities to \$2,500, which made Hunt available to consider coming to Cornell.

- 29. Ibid.,159–60. To get the necessary votes and support, Cornell administrators accepted that they could not have a college of forestry as well as agriculture at Cornell that would be supported by the state. The State College of Forestry was established shortly thereafter at Syracuse University, and its privately supported school of agriculture eventually disappeared.
- 30. Letters from Home, 208.
- 31. Ibid., 219.
- 32. Ibid., 222.
- 33. Warren Papers, Box 33.
- 34. George F. Warren, "A Soil Survey of the Cornell University Farms," (M.S. thesis, Cornell University, 1904), 6–7.
- 35. The Cornell Countryman, vol. 1, no. 1 (1903), 12–13.
- 36. Warren Papers, Box 25-2.
- 37. Ibid.
- 38. Ibid.
- 39. Warren Papers, Box 25-6.
- 40. Ibid.
- 41. Ibid.
- 42. G. F. Warren, Cornell University Agriculture Experiment Station Bulletin 229, *An Orchard Survey of Orleans County* (May 1905).
- 43. Warren Papers Box, 25-7.
- 44. Letters from Home, 231.
- 45. Ibid., 232.
- 46. Ibid., 233.
- 47. Ibid., 234.
- 48. Ibid., 241.
- 49. Ibid., 244.
- 50. Bulletin 229, 498–99.
- 51. Letters from Home, 245–46. Ada Dunn, who was mentioned in earlier letters, was the daughter of a neighbor of Herbert Warren. Herbert and Cora Warren took her in as their ward after her father died suddenly. Ada later became an essential part of Julia and George Warren's household when she was in high school and college.
- 52. Ibid., 249.
- 53. Ibid., 250.
- 54. Ibid., 251-52.
- 55. Ibid., 253.

- 56. Ibid., 257.
- 57. Warren Papers, Box 25-7.
- 58. The Cornell Countryman vol. 2, no. 9 (May 1905), 180.
- 59. Warren Papers, Box 25-7.
- 60. Letters from Home, 260.
- 61. Ibid.
- 62. Ibid.
- 63. Ibid., 266.
- 64. Warren Papers, Box 25-7.
- 65. Letters from Home, 283.
- 66. Ibid., 284.
- 67. Ibid., 290.
- 68. Ibid., 293.
- 69. Warren Papers, Box 25-8.
- 70. Ibid.
- 71. Ibid.
- 72. Letters from Home, 296.
- 73. Ibid., 298.
- 74. Ibid., 299.
- 75. Ibid., 301.
- 76. Warren Papers, Box 33.

# From Horticulture to Farm Management

1906–1909

# Return to Cornell in 1906

One might think that the transition from state horticulturist to a new position in agronomy at Cornell would be difficult and challenging. Horticulture had been central to Warren's research for two years before moving to New Jersey. His farm experience in Nebraska with his father had entailed work in a nursery for fruit trees, vines, and small fruit. But field crops and soils had also been central to his Cornell degree programs. He had gained excellent experience working with farmers in western New York as well as in New Jersey. Following the lead of his predecessor, John L. Stone, his appointment was initially directed to working with farmers in the state, speaking at Farmer Institutes, and establishing cooperative experiments in agronomy with members of the Agricultural Experimenters' League. Preserved among the Warren Papers in the Cornell archives are typed notes from two weeks of institutes in which he participated in eastern New York in December 1906. The topics covered crop rotations, fertilizers and manures, testing soils, and cultural practices for field crops and pastures. At each location he made notes about what he had observed on farms, comments made by participants in the institutes, and the attendance at each session.<sup>1</sup>

Mary Warren and her mother found a place for the couple to rent in Ithaca at 108 Brandon Place on East Hill, not far from "Collegetown" and the Cornell campus. The newlyweds had visited relatives in Pennsylvania before leaving New Jersey, and Mother Warren commented:

When brother Edwin wrote he said he was ten years older than your father, that would make him 86, Uncle Eliphalet is 85. Your father wrote to Edwin last Friday. I enjoyed your letter Mary. I like to hear about your house and your preparations for genuine housekeeping....I think you will enjoy having your sister with you. You must make Fred keep still so Olive can study.<sup>2</sup>

In early November she wrote, "I did not think you would be running about the state again so soon. I should think land there would be higher than it is. How large a farm do you think of buying? You speak as though you would live on the farm if you buy it."<sup>3</sup>

Clearly the couple was seriously looking to buy a farm that was reasonably close to campus, with a house where they could live and easily go back and forth to work. During his last years in Nebraska, Warren had acquired a small farm of eighty acres near Harvard, which his brother Henry now managed for him. He had asked his father to find out how much he could borrow from the local bank in Harvard with the farm as security. His father replied on November 26:

I gave your letter to Kenneth [banker] to answer but your mother says he might think that you were still in New Jersey so I will give you the substance of what he said to me. You can get \$2,000 on your farm and he will take your note with my name for \$500, so I think you are safe, whether you sell the farm or not. Interest will be either 5½ or 6%.<sup>4</sup>

During their summer visit, George had given his brother authority to sell the farm for \$4,000. His father had told Henry to get \$55 per acre for the land and take the difference as a commission. Henry found a buyer in December 1906. Warren summarized the transactions he had contracted for on the Nebraska farm in the summer of 1901 and finished paying in 1902. The total cost of the land had been \$2,240. In the succeeding five years he had paid for the cost of breaking an additional ten acres for cropland, which could be added to the initial forty out of the eighty acres he had purchased. Wheat and corn were planted each year and the remaining grassland was rented for pasture. Henry paid the taxes and managed the property, and he was reimbursed regularly, but modestly, for his services.

The Nebraska farm was sold for \$4,000 and Warren received all the payments by March 1, 1907. The net result was a substantial capital gain

on his original investment, as well as the sale of one-third of the crop harvested each year. Perhaps no other investment that Warren made during his lifetime would yield as much per year in percentage terms as this first one in Nebraska prairie land, when the agricultural economy there was improving rapidly. The cash from this sale made possible the purchase of a farm and home not far from Cornell.

Carefully preserved in the correspondence from Mother Warren to her son and his wife was also an envelope of letters addressed to G. F. Warren at 108 Brandon Place in Ithaca from E. H. Preswick, Forest Home, New York, written between November 23 and December 19, 1906. Preswick must have decided that the Warrens were serious potential buyers for his 86-acre farm in Forest Home. They had made a down payment of \$650 on the property on December 1, and then negotiated the final price and a date for possession. Mr. Preswick decided not to accept the university's existing offer to buy the property. He and Warren made counteroffers to each other. The final letter in the envelope agrees that the two should meet in an office in Ithaca to complete arrangements for the sale before January 1, 1907. The final price for the house and the farm land was \$6,500.<sup>5</sup>

The Warrens now set their roots down on a farm located at the top of the hill above Forest Home, a small community along the banks of Fall Creek, which forms the northern border of the Cornell campus. The farm house was a little less than a mile from the new agricultural buildings on the eastern side of the university. In his short biography of Warren, F. A. Pearson describes the house and location:

Their new home was a patchwork of old and new, the northern section being the original plank house with its windows containing small panes of "wavy" glass. Albert Force, Warren's neighbor and Forest Home historian, reports that the house was built by his great, great-uncle, David McKinney, about 1825. Perched on the top was a big cupola with windows on all six sides. From this vantage point Warren could train his glasses on his broad acres, on Forest Home or on the back door to Cornell University, if he were so inclined.<sup>6</sup>

# Another Major Decision

The last three months of 1906 were a rather momentous time for Warren at Cornell. He arrived on the scene to a new job at almost the same time as the man, who had offered him the position, was getting ready to depart. Thomas F. Hunt had been dean of agriculture at Ohio State University before coming to Cornell, so it was not surprising that he was in demand to head agricultural colleges elsewhere. In 1891–92 he had been a professor in the College of Agriculture at Pennsylvania State University before moving to Ohio. Pennsylvania increased funding for its agriculture college in 1906, allowing them to attract Hunt to return as dean. Warren was now one of the candidates to take on some of the work Hunt had been doing in research and teaching at Cornell.

On December 29, 1906, Warren received a written offer from Hunt, now dean at Penn State, for a position on their faculty:

Since returning to State College, the Executive Committee has authorized me to nominate a Professor of Horticulture at a salary of \$2500.00 per year. As explained to you the other day, the plan is to have the Department of Horticulture to include fruit growing and vegetable gardening and to exclude landscape gardening and floriculture....I have talked freely with Director Bailey concerning this connection and you will, of course, do the same.<sup>7</sup>

Having just moved from New Jersey to New York, and out of horticulture to a new assignment in agronomy, this must have been an exciting and attractive offer. Clearly Hunt had a strong and positive opinion of Warren and his capacity to organize and develop a program with only a year and a half of experience since completing his doctorate. Accepting the offer would have allowed him to return to what he had recently been studying and doing. The salary also was substantially more than he was receiving at Cornell.

Naturally Warren and his wife weighed the possibilities carefully. They wanted to establish a permanent base from which to work and build their home and raise a family. The question was where to locate permanently and in what field to work in the immediate future. There are six letters in the Cornell archives documenting the exchanges between Warren and Hunt in the month of January 1907. Bailey was consulted and gave encouragement to Warren to stay in Ithaca where his "future was bright." Warren pointed out in one of his letters to Hunt that it was somewhat unfair of him to leave after only three months in Ithaca. Mary may well have shown her preference for living in the same community with her sister and mother. Warren went to State College in early January and discussed the position in some detail with Hunt and horticultural leaders in the state. He learned what kind of support he could expect for experimental work and for the creation of a new department.

A decision was made on January 19, 1907. Warren wrote to Hunt, "I have decided to ask you to drop consideration of my name for the place in horticulture. As you know, I do not like to ask to be let off after being here so short a time." The strong personal relationship between the two men is evident in a handwritten note added to the end of the letter to Hunt: "I was surprised to see what a hold you have secured on the people in so short a time. If you realize the extent of this, it should be a source of much satisfaction to you."<sup>8</sup>

The Warrens decided to cast their lot with life in Ithaca and a career at Cornell. This was the community that both Mary and George knew and liked. Their experiences here had been good and fruitful. Bailey was busy gathering able people around him. The new college buildings were taking shape on the "East Campus." This must have been an exciting time. Six months into marriage, George could look proudly on his successful first year in New Jersey, where his departure was lamented by the experiment station staff and farmers in the state. After only three months on the faculty at Cornell he had already been offered a full professorship and the opportunity to work with a mentor he clearly respected in establishing a new college department. He must have viewed all of this as a strong vote of confidence about his future and his ability to take a leadership role in a university community.

Having made a set of momentous decisions over the past few months, Warren was in a good position to set out on what he fully expected would be a successful career as a professor in a major college of agriculture at a university with an excellent academic reputation. This was a period when colleges of agriculture across the United States were growing rapidly in enrollment and expanding their staffs. Able and well-prepared individuals were not readily available to take newly created positions like the one Warren was offered at Penn State or the one he had just left in New Jersey. Young men were applying in greater numbers to agriculture colleges across the country. Crop and livestock product prices had improved, and there was a demand for the results of agricultural experiments and materials provided at farmers' institutes. There was much to be done in agricultural education, but there were not enough people adequately prepared with graduate degrees to direct and lead the way.

The years 1906 and 1907 must have been exciting in the lives of the young Warrens. Great decisions had been made. George and Mary agreed to spend their lives together, for better or worse, and chose a community in which to raise their family. The offers of important positions in three different states by their respective leaders in agriculture were satisfying. Warren was secure in his own ability to teach, write, and carry on research. He was ready to make his name in agriculture, and prepared to work with farmers and students in improving the lives of rural people.

# Focusing on Farm Management

As the new assistant professor in agronomy, Warren had arrived at Cornell in October 1906 with the expectation that he would be carrying on work in agronomy extension and cooperative experiments with farmers across the State. This work had been led with great success by J.L. Stone, one of the first faculty members in agronomy, who had become head of farm practice and the university farms. Stone communicated well with farmers and they with him. When the Agricultural Experimenters' League of New York was organized, he became its director for the College of Agriculture. He had established, with his colleagues, a set of "experiments," or farm trials, with directions on how to carry them out on individual farms and a report form to share the results. In 1906 the college had a six-page printed and numbered list of "Demonstrations and Cooperative Experiments," from which farmers could request directions and procedures to carry out such trials. Eight different departments had listings ranging from variety trials and application rates for fertilizers, to alternative spray schedules for orchards and feeding rates for poultry. There were sixteen such proposals from agronomy, nine from poultry, eight from horticulture, seven from dairy industry, six on plant diseases, four from plant breeding, three from entomology, and two from animal husbandry. The college as a whole was fully involved in this program and Liberty Hyde Bailey served as its central cheerleader. Bailey fully believed in his widely quoted statement, "Every farm is an experiment station and every farmer the director thereof."9

Stone was a man of energy and the program of demonstrations and cooperative experiments had grown under his direction. While farm trials and studies run by farmers on their own fields were far from controlled experiments, they were a good way to gain knowledge, both for the participating farmers and the college faculty who reviewed and commented on the results obtained. It was a way to observe what had happened at a variety of locations from those willing and able to carry through on their projects. Results from these experiments were reported at farmers' institutes and were cited to encourage the use of beneficial cultural practices. In some cases, supervision was provided by mail. Following the early lead of Roberts and Bailey, professors were expected to and did respond to many letters from farmers. Warren started in October to pick up part of Stone's responsibilities in farm crops and cooperative experiments. He had been a student leader when the Agricultural Experimenters' League was organized in 1903 and believed in the efficacy of the program. Among his papers is a memo dated January 22, 1908, some fifteen months after he started his work with farmers and these experiments on their fields: "I am enclosing some blank forms for reports on cooperative experiments. Will you kindly fill out as far as possible and return as soon as convenient?" A report form of one page for "Alfalfa 101" followed, requesting information on the details of the experiment, its location, the practices followed, and the results obtained.<sup>10</sup>

Among the experiments and demonstrations available in 1908 was a new one prepared by Warren, "Farm Accounts–No. 119." The introductory paragraphs reflected his views on this project as part of the list from the recently established Department of Farm Crops.

Very few farmers keep any record that indicates on what crop or animals they are losing or making money. It is comparatively easy to keep a record of the most important parts of the business. Suppose a man is raising potatoes, hay and milk for sale; he can easily keep accounts with these three items. It is very desirable that one keep a full set of farm accounts. A good way to make a beginning is to keep accounts with a few items the first year and later take other items if desired.

It is comparatively easy to keep an account with potatoes or cows. The essential things in such a system are that the crop be charged with every item or other expense that it necessitates and be credited with all that it brings in. Below is given a few entries on a potato account. It is best to carry a pocket notebook and put down each day the labor or money expended on the crop.<sup>11</sup>

With this introduction, Warren provided directions for estimating and accounting for the costs of labor, machinery and buildings, manure and fertilizers, seed, etc. A simple summary form was provided, along with an example of a "Potato Account." This included some sample items listed for individual days to illustrate the directions provided for labor, use of machinery, and land and crop sales. The illustration shows a net profit of \$400. The form concludes with this final statement: "The net profit is the difference between the debits and credits. In case this is 0, it means that the crop had furnished a means of employment at the price for labor indicated."<sup>12</sup>
<u>Hanure</u>. A part of the value of manure should be charged to succeeding crops. Frobably half its value should be charged to the crop on which it is applied. This depends on the kind of soils ; light open soils give a larger proportion of the manure to the first crop. Results. We have very little information of the cost of producing crops. Hence, we will be greatly pleased to receive the detailed results from as many men as possible. ACCOUNT WITH POTATOES. John Doe ----- 1908. Date Dr. Cr. Mar. 10 10 loads manufe at 1.00 half to go to succeeding crop. 5 00 " 10 10 hrs, hauling manure at 30\$ 1 50 etc. etc. 150 00 Apr. 29 5 tons fertilizer at \$30 20 hrs. hauling fertilizer from town at 30¢ 6 00 ctc. etc. 5 hrs. cutting potatoes at 15¢ 50 bu, potatoes seed 80¢ 80 May 3 45 00 etc. etf. Oct. 25 Use of \_\_\_\_ acres of land at \_\_\_ 15% of value of potato machinery 40 00 . 19 bu. potatoes at 500 00 100 bu. potatoes retained for seed 60# . = 60 00 -0 10 bu, potatoes for household use at 50¢ 5 00 100 bu. cull potatoes stock food at 10% = () 10 00 etc. 800 00 1200 00 Net profit 400 00 The net profit is the difference between the debits and credits. In case this is 0 it means that the crop has furnished a means of employment at the price for labor indicated.

Mimeographed sheets like this one for project 119 were sent to each participating member of the Experimenters' League with a follow-up letter in the fall encouraging completion of the project and offering assistance, if necessary.

During his first year as an assistant professor at Cornell an important part of Warren's time and energy was invested in continuing the extension programs developed earlier in the decade by Stone and the Department of Agronomy. Bailey saw this effort as a way to get farmers and farm leaders to try some new things and share what they learned. It was a way to help them understand what the college was trying to accomplish and stimulate serious discussions about applied science at farmers' institutes. This program was one of the meaningful efforts that helped the college leaders obtain support from farmers for the college and funding from the state for new buildings and more faculty. Participation in these cooperative experiments proved to be an effective way to teach and maintain farmer interests with programs at the college. The departure of Thomas F. Hunt left a big hole to fill. While Bailey had been out in the state and in Albany getting funding for the expanded college and establishing agreements on the location of the three new buildings that would open in 1907, Hunt had been the second-incommand, running the experiment station and making day-to-day decisions. Bailey and Hunt had both been effective deans and trusted each other fully. They made a great team for the college at a time when extraordinary things were happening rapidly.

When Hunt moved to Penn State, Bailey had no obvious person to fill that role. Always creative, he sometimes resolved problems within departments by establishing one or more new departments with one or two faculty members and their assistants. In 1907 he decided to abolish the Department of Agronomy and divide its faculty and staff into the Department of Farm Crops headed by George Warren, the Department of Farm Practice under John Stone, and the Department of Rural Engineering led by Howard W. Riley. Thomas L. Lyon, who earlier had been hired for the new chair of "experimental agronomy," was made professor of soil investigation in a new Department of Soils.<sup>13</sup>

The logic behind all these moves is not clear. Farm practice, however, probably was established as a separate entity in part as a response to a decision by the college faculty in April 1907 that "No bachelor's or advanced degrees will be awarded unless the candidate had first passed an examination in the practice of agriculture."<sup>14</sup> This requirement was rescinded in June 1908 for students seeking advanced degrees, but remained in effect for all undergraduates.<sup>15</sup> These necessary skills for bachelor's degree candidates could be acquired on farms or through noncredit courses given by the Department of Farm Practice. The university administration was concerned that without the practice requirement, some students would seek a degree in agriculture to avoid having to pay the more expensive endowed tuition.<sup>16</sup> John Stone and his department were assigned responsibility for managing the university farms, which previously had been handled by Hunt.

# Department Head

It was in this new environment that George F. Warren, Jr. became head of the Department of Farm Crops. Its only members besides Warren were Paul J. White and M. C. Burritt. The small group had many responsibilities in teaching, research, and extension. Burritt, already a young leader in the alumni affairs of the college, was the key staff member for extension. He worked effectively with Warren in carrying out the program of cooperative experiments with farmers, studying a variety of practices on farm crops. Hunt had been a national leader in establishing the new field of farm management, and Warren quickly took on responsibility for many of the programs Hunt had initiated.

With Warren's encouragement, Burritt continued a survey program he had started in 1906 under Hunt's leadership. In 1907 Burritt sent the following letter, together with a two-sided questionnaire consisting of twenty-eight questions, to 875 farmers, including those enrolled in cooperative experiments and a large number of others:<sup>17</sup>

I have undertaken some investigation work in farm management with Professor Warren of the Department of Farm Management at the New York State College of Agriculture. This is the proposition, which I am investigating: What income can be reasonably expected from a five to twenty thousand dollar investment in New York State? What kinds or types of farming offer the best investments?

Last year statistics were collected on this subject from 99 farms in the state. Of these 33 were general farms, 27 dairy, 13 fruit, 10 were hay and grain, 7 potato and 9 miscellaneous. The LABOR INCOME (farmer's salary) after deducting 5% interest on the investment was: Fruit farms \$1572, potato farms \$1519, dairy farms \$882, general farms \$575, hay and grain farms \$283.

Very little data has been gathered upon this subject. We are dependent on the interest of farmers of the state in the matter, and on their willingness to contribute the required information.<sup>18</sup>

At the bottom of the survey form was this further definition: "A farm is considered specialized if 40% or more of the income comes from one source."<sup>19</sup>

This questionnaire yielded another set of acceptable responses for receipts and expenses on individual farms during 1907. Out of these questionnaires came the data for the first "farm management" bulletin, Cornell University Experiment Station Bulletin 271, written by M. C. Burritt in December 1909, "The Incomes of 178 New York Farms." Warren wrote a two-page introduction to the publication, which included a map showing where the farms were located across the state:

It is well to have some of the successes in Eastern Agriculture presented. The tendency has been to emphasize every failure in the East and exploit the successes in the newer regions. There are successes and failures in every State. A few years ago the average of success was probably higher in the West than in New York, but with recent changes in land values, the opportunities for making money in agriculture are probably fully as good in New York as in any State.

The following bulletin includes some of the conclusions from a thesis prepared by M. C. Burritt. It represents an effort to determine what a reasonably large investment in farming may be able to pay. It does not represent average farms because average farms have a much smaller capital. The figures are probably not far from correct for the average of those farms with a capital of \$11,000, which is the average of those here given.

The average receipts on these 178 farms were \$2,829 and the average farm expenses (not including household and personal expenses) were \$1,291, leaving an average net income of \$1,538. If we deduct interest at 5 per cent, on the capital invested, we secure the average labor income of one man, which is \$981. This means that the average of these farmers, after making interest at 5 percent, has had the use of a house and such produce as the farm furnished in addition, and has made \$981 above all farm expenses and above the value of farm labor done by members of the family other than himself.<sup>20</sup>



FIG. 4.—Location of the farms from which figures were secured.

The concept of labor income was published for the first time in this Cornell bulletin. The basic construct was brought to Cornell by Thomas F. Hunt in his farm management course. In his 1906 book, *How to Choose A Farm*, Hunt outlined this concept in detail with examples and the procedures for calculating labor income.<sup>21</sup> This legacy was passed on to Warren who adopted it enthusiastically in his teaching. Labor income became widely accepted nationally as a basic measure of business success or failure in farming and was generally understood by the state's agricultural leadership and the farming community.

M. C. Burritt became a major figure in the college and the state's agricultural community. After completing his master's degree, he worked as a field agent for the USDA Office of Farm Management in New York State. After a period as editor of the *Tribune Farmer*, he returned to the college in 1914 as a state leader of county agricultural agents. Extension was established as a separate division of the college in 1917 when Albert R. Mann was both dean and director, and Burritt served as vice-director until 1923. During that period he wrote *The County Agent and the Farm Bureau*, which provides an excellent review of the early years of extension for 1923–24; he then decided to work full-time as a farmer in Hilton, New York, not far from Rochester. He was elected by the alumni of the university to serve as a member of the Board of Trustees for Cornell University from 1934 to 1936.

# A New House and a New Baby

The new head of the Department of Farm Crops also had a new house and farm to start the year 1907. Like most new owners of an old house, George and Mary found there were repairs to be made before they moved in. Letters from Julia Warren provide some insights into what was occurring in the couple's lives. George must have suggested that he was already thinking about buying more land to add to his farm. In a letter on January 28, 1907, his mother concludes, "It's too bad that you can't buy several of those farms that are going so cheap, but I think you have enough on your hands for the present. I'm glad you are going to stay in Ithaca for a while. Mary, what do you find to keep you busy with just the two of you to do for?" <sup>23</sup> Other letters included comments about comparative land prices. On March 10, she wrote:

It does seem strange that land here sells so much higher than it does there. The eighty [acres] Henry bought is right opposite the old Lower Place if you remember that. It is the section north of the one Harvard is on, and the north part of the northeast quarter of the section. Men say it is a "good piece of land." Your father says it is a piece of good land. I hope Henry will have good crops, and that his pigs will do well so he can pay for the land.<sup>24</sup>

On April 14, Mother Warren wrote to her daughter-in-law: "We were a little surprised to hear of your expectations, but don't know as we had any reason to be. It will seem strange to think of Fred having a family. That will make four little Warrens in less than a year. I hope all will be well with you."<sup>25</sup> Her April 21 letter continued, "I am quite interested in the repairs that you propose making in your house. Please send us the plan of the inside arrangement, when you get it finished."<sup>26</sup> On April 28 she wrote, "The picture of your house came today. It is very nice for a farm house, or one in the town. I did not think of it being such a fine house. It looks as if there would be more than ten rooms."<sup>27</sup>

George and Mary Warren's first child, Stanley Whitson Warren, arrived on April 30, 1907. On May 20, this note came from Nebraska: "We were glad to get your letter last week and to hear that Mary and little Stanley were doing so well. I hope Mary is able to be up before this time. I like the baby's name; you know I always did think Stanley one of the nicest names going, and Whitson goes nicely with it and with Warren. You must train him so he will do honor to his name, not otherwise."<sup>28</sup>

On June 17, Julia Warren wrote, "Now we must think of you in a new home. Everyone who sees the picture of your house says, 'I think they will have room enough' and 'it is such a pretty place.' I know about what a time you are having for we have had such an experience several times. In fact we have never moved into a new house that was finished before hand....You are fortunate in finding help both indoors and out."<sup>29</sup>

And on July 21, "Stanley's picture came Wednesday and I thought that was to take the place of a letter for the week. We were glad to get the picture and think it is a nice one for a five-weeks-old baby. He looks so large one would think he was older than that....I should like to see your house when it is all finished. Fred's study must be a very pretty room. I hope he will succeed in keeping his garden cleaner than we do ours."<sup>30</sup>

That spring and summer was a busy time for the Ithaca Warrens. With a new baby and work in process to remodel the house at the same time, they had little extra time on the weekends. Nonetheless, all the evidence from the letters suggests that the new parents prospered, as did the newborn.

# The Tompkins County Study

The year 1907 also was a particularly complicated and busy year for Warren at the college. Managing his small department was not a major problem. Paul J. White was a young faculty member who was qualified to teach the courses in agronomy and field crops that Hunt had taught. He was also busy summarizing the data he had collected the previous summer with Hunt, which would become part of the basis for his Ph.D. thesis presented in 1908. Burritt assisted with the cooperative experiments while working on his own thesis and Bulletin 271.

With the assistance of White and John B. Shepard, in 1906 Hunt had initiated "a general study of all the agricultural conditions" on farms in the townships of Ulysses, Enfield, and Newfield on the western side of Tompkins County.<sup>31</sup> They sought to collect any and all information on the operation and organization of the farm business of every farmer in each of these townships and conducted personal interviews with the help of a group of college students. Funding was available to tabulate these results and continue the study during the summers of 1907 and 1908 in the townships on the eastern side of the lake and county. Warren worked with White in studying the data collected and finally concluded that "...the number of points on which information was collected was so great that it was impossible to do the work well. This first year's work was of little value." <sup>32</sup>

White made revisions to the survey instrument Hunt and his students had used and tested it with a group of farmers. In the summer of 1907 White worked in the townships of Groton and Caroline and concentrated on obtaining as good an estimate as possible of the labor income generated on each farm that year, which required learning the cropping system, establishing livestock numbers, and recording all the cash receipts and expenses. He was assisted by two students in collecting data from 298 farms in Groton and 173 in Caroline.

White used the results obtained from 957 farms in 1906 and 1907 to prepare his doctoral dissertation. His thesis described the survey methodology used initially and the revised survey form used in 1907. He summarized the data collected in the five towns, and defined a farm as "...an area of land, the care of which, requires all the time of at least one person." He divided the farms into groups on the basis of ownership and tenancy. He also classified them into "well-stocked" and "poorly stocked" farms. He noted, "Very few men keep an accurate set of accounts, although most farmers are able to tell off-hand their receipts and expenditures."<sup>33</sup> The data collected for the year ending April 1, 1907, were more complete than the previous year's data, and some of the tables in White's thesis only reported the results for the 471 farms studied in Groton and Caroline.

One cannot help but be impressed by the amount of work summarized in White's thesis. All of the data had to be summarized by hand, classified into groups, and then averages calculated. What White learned helped Warren to work much more effectively with the next survey run in the summer and fall of 1908. In the preface to his thesis White acknowledged the help and support of the farmers who willingly provided their information. He commented that Professor T. F. Hunt's "...interest and aid during the first year of the survey was invaluable." He also expressed thanks "...to Professor G. F. Warren who has given continual assistance and advice during the past year."<sup>34</sup> A Ph.D. was granted by the university in 1908 for his thesis, "An Agricultural Survey of Tompkins County, N.Y."

# The Elements of Agriculture

During the period that Warren was directing the completion of the Tompkins County survey and starting the process of analyzing the data from this major project, he began writing his first book for Bailey's *Rural Science* series. Titled *The Elements of Agriculture*, it was published by the Macmillan Company in 1909. This publisher had contracted with Warren to prepare such a book early in 1907 with Bailey's encouragement and blessing.

The first mention of the new book project in Julia Warren's letters appears in a letter dated December 30, 1906. She wrote, "Fred, I hope your book will pay for the time and expense. I have no doubt but it will be good. I think you will not have much spare time if you do all you plan to do. Don't look for us, for I have no idea your father could be induced to start on such a trip, even if I made up my mind to try it."<sup>35</sup> Warren must have outlined the possibility of writing the book to his parents in an earlier letter. As usual his mother was wondering if there would be time enough and if the project would pay. She was indeed a practical lady. A trip to visit Ithaca must have been proposed as well for the senior Warrens but was quickly dismissed by them. Liberty Hyde Bailey provided a two-page preface for Warren's first book. His final paragraph read:

The purpose of the present book is to make the teaching of agriculture in the existing high-schools comparable in extent and thoroughness with the teaching of physics, mathematics, history and literature. In fact, the chemistry and botany should, if possible, precede the agriculture as given in the book; and the pupil will be all the better prepared for the subject if he comes to it with considerable other high-school training, for much of the value of the work will be conditioned on the student's maturity and his experience with life. The subject is not one that can be memorized, or even acquired in the ordinary method of school study; it must relate itself to the actual work and business of the community in such a way as will develop the student's judgment of conditions and affairs.<sup>36</sup>

Warren followed Bailey's preface with an introductory statement of his own, titled "The Teaching of Agriculture," which includes his reasons for writing the book.

The interest in the teaching of agriculture is but a part of a much larger question, the movement for teaching by all means of things that have come within the student's experience. Laboratory work and all manual work are but part of the same movement. The primary purpose of teaching agriculture is not to make farmers. It is a human-interest subject. The underlying reason why such teaching is desirable is because it brings the schools in touch with home life—the daily life of the community. A large part of our teaching has had no relation whatever to our daily lives.

To those who are not familiar with the nature of agriculture teaching, it may seem like a trade subject. But it is not a trade subject. Only about half of our population is engaged in agricultural work. But the interest in agriculture includes nearly all the population....The number of agricultural inquiries that have come to the Cornell Experiment Station from New York City within the past few years is very remarkable, but no more so than the movement for the ownership and management of farms by city men....We can never wholly separate our interests from the soil on which we walk, and the plants and animals on which our life depends. It is not desirable that a teacher try to make farmers of farmers' sons, or lawyers of lawyers' sons. The thing that distinguishes America from the Old World is the mobility of its society. Each man may do what he likes, and become what his energy will make him. While it is not desirable to try to make farmers, it does seem desirable to stop unmaking them....The practice of agriculture now offers as great a field for scientific study as is offered by the practice of medicine.

The teaching of agriculture will make better farmers, who will make more money. It will lead more boys to choose farming as a profession, because it will open up a field for intellectual life whose existence they never expected. But the great reason for this work is that it is one of the best means of training a student's mind, and it is one of the means because it studies the things that come within his experience—the things with and by which he lives.<sup>37</sup>

These quotes give us a wonderful sense of what Bailey and Warren hoped might result from teaching agriculture as an "applied science" in high schools. They clearly wanted to improve the image of agriculture and farming as a profession. At the same time they wanted to help young people understand what was happening when a seed was planted, when roots were formed, how a plant obtained its food supply, and what occurred when a flower was pollinated to create new seeds and produce a crop. The book was only a means to the end of helping students apply the rudiments of chemistry and biology so they could begin to understand the roles of soils and fertilizers in crop production. Thus, in taking examples from the everyday life of people living in rural America, students could understand more of what they saw occurring in their fields and gardens. Elementary genetics could be related to the plants they knew. Basic biology was applied in understanding how familiar plants and animals were able to reproduce. Exercises and simple projects were suggested to help teachers and students apply these principles so they could see the results for themselves.

Warren had a solid base from which to pursue this enterprise. He had spent five years teaching in central Nebraska and had a sense of how to present information to young people in a direct manner. His skills as a writer and presenter had been recognized ten years earlier by his former college teacher, Charles Bessey. On Bessey's initiative, Warren was invited to provide problem sets to improve the 1903 edition of *New Elementary Agriculture* by Bessey, Burner, and Swezey. As a teacher,

he had used earlier editions of this book in the classes he taught, as well as in training other teachers in summer institutes in Nebraska. He suggested new projects and exercises for teachers and students to complete at the end of each chapter. Bessey's book was intended for use with students who had a grade school education, and served both as an introduction to nature study and a start in learning some botany and zoology. It was one of the early books for general use in its field.

Warren saw the opportunity to go beyond what Bessey and his colleagues had developed. He recognized ways in which the science courses that were required in most high school programs could be integrated and used to help explain applied biology as it related to crop and livestock production. Liberty Hyde Bailey had encouraged this enterprise from its beginning and recommended Warren to the Macmillan publishing company as a possible author for Bailey's *Rural Science* series.

It seems possible that Warren may have been thinking about writing a successor book to Bessey's when he was taking the courses required for his B.S. in agriculture at Cornell. He kept an unusually complete set of notes from Professor Roberts's lectures, which he copied in ink into a bound notebook that was carefully preserved in his files. These included complete drawings of plants and root systems as well as his notes on Roberts's observations and comments. There were 193 pages of carefully transcribed materials, beginning with fifteen pages on soils and ending with Roberts's lectures on the history of agriculture.<sup>38</sup>

Shortly after Warren moved to Cornell from New Jersey, the New York State Education Department asked him to develop a syllabus for the teaching of agriculture, including exercises and projects for teachers and students to use in learning about soils, crops, and livestock. When the department wanted to edit the copy substantially before publication, Warren withdrew the syllabus.<sup>39</sup> Some of these materials undoubtedly became a part of the manuscript for his new book.

### Contents of The Elements of Agriculture

Part of Warren's genius in writing was his ability to reach out to students and communicate with them effectively. He also understood that he needed to provide teachers with questions and projects so that they could make the materials they presented more interesting. The new book was published in July 1909 and its accompanying teachers' manual came out in September. By the time it was revised in 1926 the 434-page book had sold 400,000 copies. It was used throughout the country in normal schools, small colleges, and high schools. The market for the book continued in large part because the first edition had met a real need so well and because the examples had relevance throughout much of the country. In advertising the book Macmillan cited two reviews:

An examination of Warren's *Elements of Agriculture* convinces me that it is a book of uncommon merit for secondary schools as well as for the private student. It is thoroughly scientific in matter, and is written in an attractive style, that cannot fail to please as well as instruct. — Mr. J. E. Blair, Supt. of Schools, Corsicana, Texas

I am very much pleased with Warren's *Elements of Agriculture*. In my opinion it is the only book on the market that presents the work of agriculture suitably for high schools; too many books are too simple and do not give enough work; a book for high schools must be more than a primer. —Supt. E. S. Smith, Whiting, Iowa<sup>40</sup>

After a short introductory chapter (four pages) that defined agriculture and put it into context with other industries, Warren set students to work with the world of applied science in "The Improvement of Plants and Animals" (31 pages). This chapter included:

### Variation in Plants and Animals

No two persons are alike, nor are any two living things alike, be they plants or animals. Two corn plants grown side by side are different in innumerable ways. They differ in height, in diameter, in size of leaves, amount of roots, size of ears, number of kernels, size and shape of kernels, size of embryo, chemical composition of kernel, etc. In fact they differ in every characteristic that can be named. No two cows are alike. They differ in color, size, shape, milk-production, disposition. Some cows produce milk with 2 percent of fat, and others as high as 8 percent. Some can produce three times as much butter-fat as others from the same feed. No matter on what basis we make comparison, we shall always find differences.<sup>41</sup>

He then led students forward with a couple of similar paragraphs for each of these topics: Law of Variation, Similar Produces Similar, Natural Selection, Sports or Mutations, The Development of Weeds by Natural Selection, De Candolle's Law, Artificial Selection, The Seed-Producing Organs of Plants, Sexual and Asexual Reproduction, Artificial Crossing, and Problems of Heredity. All of these topics were discussed briefly over a span of ten pages, which included five illustrations. Presenting the elements of Mendel's Law and some applications took the next seven pages. This was then followed by two major sections: Steps in Breeding and Improving Some Farm Crops. This last section included examples related to familiar national crops, such as corn and wheat, as well as cotton, the major crop in the South.

At the end of this major chapter, Warren provided thirteen questions. These ranged from simple ones such as "What is protoplasm?" to the more complex, "What are the worst ten weeds of the neighborhood? Look them up in the botany manual and see which were introduced from Europe. What are the characters of each that make it able to persist?" Following these questions were ten different laboratory exercises. These were quite inventive, but used materials that were readily available to most teachers. Here is one example:

### Struggle for existence

*Materials*—An ear of corn for each student, also a purslane plant, pigweed, or other weed with many seeds. How many kernels on the ear of corn? Count one row and multiply by the number of rows.

How many seeds on the pigweed, or other plant? Count the seeds on a few branches and multiply by the number of branches.

Begin with one kernel of corn, or one pigweed seed, and suppose that each grew and developed as these have done. How many would there be in three years?<sup>42</sup>

At the end of each chapter there was also a section titled "Collateral Reading." It listed additional sources of information from *Farmers' Bulletins,* which were available free from the USDA, selections from *Yearbooks of Agriculture,* as well as textbooks written by well-known figures in agriculture.

Warren and the publisher recognized that most of the buyers of this book would be teachers and schools or normal school students who were preparing to teach agriculture. Thus, the book was written with the expectation that its primary users would be teachers. The ideas provided through the questions and exercises were included to help them make the information and materials come alive for their students. Providing teachers with a sense of what they could use to illustrate the principles, without spending much additional time or money, was one of the great contributions of this early, and very successful agriculture textbook.

Warren used the same format in the rest of the chapters of *Elements* of *Agriculture*. Plants and crops were considered first, in chapters titled: Propagation of Plants, Plant Food, The Soil, Maintaining the Fertility of the Land, and Some Important Farm Crops. The chapter on farm crops comprised ninety pages. Corn got the most space followed by wheat, oats, meadows and pastures, cotton (written by Charles H. Alvord at Texas A&M), forests and wood, orchards, shade trees, and the farm garden. In addition to the twenty-seven questions provided at the end, there were also four pages of exercises and two pages of USDA *Farmers' Bulletins* listed for each of the crops. Warren encouraged teachers to obtain a library of these bulletins for students to use.



Nothing 2,590 lbs. hay per acre

640 lbs. nitrate soda 320 acid phosphate 80 muriate potash 7,590 lbs. hay per acre

320 lbs. nitrate soda 320 acid phosphate 80 muriate potash 7,110 lbs. hay per acre

#### FIG. 55. Timothy hay responds to fertilizers, particularly nitrate of soda



 20 tons manure
 10 tons manure
 Nothing

 7,420 lbs. hay per acre
 4,350 lbs. hay per acre
 2,230 lbs. per acre

 Frg. 56.
 Timothy hay responds to barnyard manure

Two more chapters followed on crops. The first discussed enemies of crops and the second concerned systems of cropping. The material on controlling weeds, diseases, and insects was necessarily limited and reflected what was commonly known at that time. Systems of cropping, or crop rotations, were among the key methods by which disease and insect problems were controlled successfully.

The last third of the book considered feeds and feeding, and the individual classes of livestock. The horse clearly took precedence; after all, it was the chief source of both power and transportation on most farms in the country. Cattle, sheep, swine, and poultry each rated a chapter. The last three chapters in the book were devoted to farm management, the farm home, and the farm community. While each topic was treated briefly, each was recognized as an integral part of farming and rural life.

The appendix was an important part of the book as well. A page and a half were devoted to the apparatus and equipment needed to carry out demonstrations and laboratory exercises. There was a section on the elements of a good agricultural library, with suggestions on what it should contain and information on how to get copies of *Farmers' Bulletins* and *Yearbooks of Agriculture*. There were also tables of weights and measures, which varied in some cases by state; fertilizer ingredients in a variety of materials, from corn fodder to acid phosphate; feeding standards; and digestible nutrients in various feeds. Some key agricultural statistics for the country were also provided.

All in all, this book was a substantial effort. Warren did much of the writing in the evenings, as well as on Saturdays and Sundays. He had started collecting a personal library of books and bulletins on agriculture while he was teaching in Nebraska. He brought this material to Ithaca and then began adding to it vigorously. One of the reasons why he and Mary wanted a house in Ithaca was to have a place to store his growing collection. Pearson reported that the Warrens built an addition to their house after they had only been in it a couple of years, partly to make room for George's library, which quickly occupied two rooms as well as his desk and study on the first floor.<sup>43</sup>

The last chapters of the book finally went to Macmillan in the spring of 1909 and the book came on the market in time for use in schools and colleges for the 1909–10 school year. Young Warren sent copies to his family, and his mother replied on August 15, "Fred, your letter and book came Thursday. We thank you very much for the book, and think it is fine. Henry got his Saturday."<sup>44</sup>

Viewed from the distance of nearly 100 years, it is easy to underestimate the importance of the success of *Elements of Agriculture* to Warren's early career. It would be another decade before he rose to prominence as an agricultural economist and national figure toward the end of World War I. As a faculty member with only three years at Cornell, this new book marked him as an agriculturist in his own right. Warren was now recognized as a respected author beyond New York and Nebraska, and the book's sales confirmed that he and Bailey had seen a market that was ready to be filled. He was now a contributor to the *Rural Science* series and on his way as an important figure within the college and university.

## Family Life in Ithaca and Nebraska

The weekly correspondence between Warren's mother and her son and daughter-in-law continued on a regular basis, despite Julia Warren's inability to do as much around her house as she would have liked. In the fall of 1904 Ada Dunn had moved into the senior Warrens' new house on the edge of Harvard so that she could go to high school in town and help with the housework. She was the oldest girl in a family that lived next to Herbert Warren. Her father died, leaving his family with a farm and no one to help them make all the necessary adjustments. Herbert and his wife Cora essentially adopted the family in the short run. Ada, who was a bright and able girl, could go to high school while helping the senior Warrens. She came to think of them as part of her own family and called them Grandma and Grandpa.

Ada often joined Mrs. Warren in writing a note to "Fred" at the end of her letters. When newlyweds George and Mary visited his family in Nebraska in the summer of 1906, Ada had already become an integral part of the senior Warrens' household. George had helped her solve some algebra problems by explaining the concepts in a way that helped her understand the problem as well as the answer. He had suggested that if Ada did well in high school she should consider coming East to go to college at Cornell. By the summer of 1907, what may have started as idle conversation became more serious. Ada requested a college announcement and application forms. Her notes to "Fred" and Mary showed her natural hesitance in wondering if she would be adequately prepared to enter Cornell. But she was encouraged to think about it seriously. Having Ada Dunn in the Warren household had made a big difference during the fall and winter of 1907–08 when both senior Warrens had lived through periods of ill health.

#### On November 17, 1907, Ada wrote to George and Mary:

I thank you for your advice on school. It is the hardest problem I have to solve and I suppose I shall not decide what to do till the last minute. If I should go to New York about what would you want for board? I should like very much to see your boy. It doesn't seem possible that he is half a year old. I am taking five studies this year, i.e. taking Latin aside from the regular twelfth grade studies....Because the girls' society could find nobody less capable, it elected me president. Although the meeting is not long, it takes time and study to plan successful meetings. Once a month we discuss domestic science which is very interesting.<sup>45</sup>

#### Warren's mother wrote on December 1:

Herbert brought Ada home tonight. We are glad enough to have her back. I dread to think of the time when she will go away to school and leave us alone. She says, tell Mary if I go to Ithaca I shall be glad to help about the work, and trot Stanley on my knee. But if I find the college work requires all my time I will pay my share as you say.<sup>46</sup>

On May 24, 1908, the weekly letter from Harvard began:

Well commencement is over and we are all alive. Herbert and Ellen came and Charley and Alice Dunn to the graduation exercises. They all stayed here over night. The class did their part well; we all liked Ada's essay best of all, and she gave it as well as any of them....The graduates received so many presents they were a load to carry home, though a great many were given at their homes. Ada had 27 or 28, 17 books and not two alike for a wonder.<sup>47</sup>

This letter tells a great deal about the improvement in the economy of rural Nebraska in 1907–08 as compared with a decade earlier. Ten years earlier it would have been difficult, if not out of the question, for most families to buy presents for high school graduates.

On June 22, Ada wrote:

Fred, I want to go to Cornell and am making plans for going. I sent my note-books last week. I do not believe I received the course lists in Agriculture and Domestic Science and I am not sure which of the two to take up. I think I should like either, but I think Domestic Science takes first place. Can you tell me about how much financial material is necessary to start a student on his career in Cornell?...I have been planning to go a little early that I might become accustomed to some of the features of your eastern country. You don't know how I dread to leave Nebraska. I have had such a good home with Grandpa and Grandma! But the plans when I came were to go on to a higher school. I did not know it would be so hard.<sup>48</sup>

During the summer the final decision was made for Ada to go to Cornell. On September 20, Mother Warren wrote, "I am pleased to know that Ada is growing contented. I think when college opens she will be too busy to be homesick."<sup>49</sup> The first semester of work at Cornell was not easy for Ada. In December Julia Warren wrote to Ada:

You must not get so discouraged, just try to look on the bright side for it is not all dark. We should love to have you here these two weeks, yes and all the time, but you can't be here and in college too; so we must all try to make the best of it, since we can't have it as we like best. Grandpa sent you the paper for next year so you will get the Harvard news fresh every week.<sup>50</sup>

Ada stayed on through the holidays, finished the spring semester, and continued to live with George and Mary on their farm in Ithaca. She spent her days on campus but returned each evening to help with the baby as well as do her studies.

With work on their house in Ithaca finally completed in the fall of 1907, it was time for Warren to think about making more use of the farm itself and providing some of the food for his family. The letters from Nebraska in March 1908 comment about the sale of a lot from the farm in Ithaca to a neighbor and the addition of a cow to provide fresh milk for the family. There was enough to do in fixing up the buildings and getting the farmland back in shape that Warren hired a man to work for him full time. The letter from Mother Warren on March 30 indicates that a small poultry operation was now in place as well: "We were glad to get a letter from you last week Fred. Do you expect to get rich pretty soon from the proceeds of your farm? Or the poultry business? I never got \$0.75 for a hen."<sup>51</sup> In May she commented, "I think you will have all [the chickens] you will want to take care of....It will be nice to have plenty to fry. I should like to raise what we want to eat, only it makes too much work for me."<sup>52</sup>

The farm accounts for 1908 show that the poultry enterprise on the Ithaca Warren farm had become a regular source of weekly income and expense for the family. Warren kept meticulous records in a leatherbound journal he had purchased about the time they bought the farm. Into it were copied all the 1901–1907 transactions associated with his eighty-acre tract of land in Nebraska. All the income and expenses for each year were recorded, as well as the amount of wheat and corn sold and the rent received for the grassland.

For farm operations on the newly acquired farm in Ithaca, Warren recorded receipts on the left and expenses on the right-hand side of each page. Eggs and milk consumed in the house were considered as receipts for the farm. He kept complete records for household expenses as well, although those were recorded in another journal.

Hoping to improve his health, in May 1908 George's oldest brother, Arthur came east from Denver to stay with his parents in Nebraska. He was only fifty-four, but his lungs were damaged and he could not work, especially in that mile-high environment. He had four children; the two oldest were now working enough to support his wife and the two youngest. He hoped the change would help him recover some of his health. Letters from Nebraska reported on his slow progress as the weather got warmer. At the end of May he moved out to stay on the farm with his brother Henry and helped with some of the work in the orchards. He moved back to his parents' place in late July and did some work around the house for his mother. Arthur returned to Colorado in August, discouraged about his lack of greater progress and his inability to help support his family. After trying to work a bit on his own land, it was clear that his health was still a major problem. In January 1909 he left for Los Angeles, where an old friend had offered him a room to stay. Arthur's hope was that he could recover enough to get work in California and send some money back to his family in Denver.

Arthur and George must have had some correspondence during this period, as George's file of letters includes a postcard from his brother dated May 5, 1908:

Dear Brother, I start for home tonight at 8 p.m. and expect to get home at 10 a.m. Saturday. This country does not help me as much as I hoped for, and I think I will feel as well in D during warm weather. I do not think it is as good a place for working people as Denver because wages are less and living is a little higher. Yours with love, Arthur<sup>53</sup>

On April 17, 1909, a new baby girl, Jean, arrived at the Ithaca Warrens, a few days less than two years from Stanley's arrival in 1907. On April 25, Julia Warren wrote, "Fred's letter came Wednesday telling of the arrival of a little girl at your house. We are all glad to hear that Mary is getting along so well, and that the baby is a girl. Ada says Stanley is very fond of his little sister."<sup>54</sup>

From 1907 to 1909, when Warren was writing *The Elements of Agriculture* in most of his spare moments, he continued to make time for a substantial correspondence with members of his family. At the center of the family network was his mother, Julia Warren. She made time to write to the families she did not see most weeks, and sometimes urged George to write to some of his nieces and nephews when they needed help or encouragement to push on with school. Mother Warren kept everyone informed of all the births and deaths, family successes and failures, and the status of crops, weather, and the economy of east-central Nebraska.

In Nebraska, Henry and Herbert, together with their wives and families, kept track of the senior Warrens, providing fresh fruit, milk, and meat when they had it, and ensuring that they were well cared for. George knew that his mother and father were being looked after with respect and love. After the senior Warrens moved from the home farm to the house in Harvard, Father Warren built first one house on his block of land for rent and then another. Earlier letters told of the sale of the first, which then encouraged the building of another. A letter on August 22, 1909, included this paragraph:

I have some news to tell you Fred; your father is having another house built on the west side of our block; it is up and the sheeting is on. There is such a demand for houses, he thinks it will pay him to borrow money to build. I hate to have another house there, but I dread worse, being in debt all the rest of our lives, if renting does pay. He says we are going to have everything we want from now on, but the debts are a worry to me anyway.<sup>55</sup>

#### A week later she wrote:

The new house is getting along fast. It is ready to paint outside and to lath; will be plastered next week, I think. A widow woman with six children has rented it....We are going to have a well. Charley Wyckoff started it yesterday. I am in a hurry to have it finished so we can have a drink of good well water. Your father says what he pays a year for city water for all of the houses will nearly pay for the well and windmill in two years, and the water will be so much better....Last Tuesday was our 56th wedding anniversary. I celebrated it by going downtown to sign some papers, and went alone and had a dish of ice cream. I did not think of the date until the next day.<sup>56</sup> As Warren kept his parents informed about his life and work in Ithaca, it is clear that he also took time now and then to let them know that he appreciated their support. In response to a letter from her son, Julia Warren wrote in November 1909:

Fred it did your father a lot of good to have you say what you did about letting you go to school. I am thankful that we have lived to see the children settled in life, and that they are all good, honest, upright men, whom we are proud to own as boys, and that they have such dear good wives and children. I think sometimes I should like to live to see the grandchildren grow up, but that is too much to ask. I hope and trust they will be trained up in the way they should go, and you know the promise regarding such training.<sup>57</sup>

### Warren's Commitment to Farm Management

Once the manuscript for his new book was completed, Warren was fully engaged with something that excited him even more: the completion of what was to become Cornell University Agricultural Experiment Station Bulletin 295. The writing of that major bulletin was much more than the completion of a project. It reflected Warren's immersion in the field of farm management. Having written one book successfully and met his commitment to the Macmillan Company, he could now think about the possibilities of writing another in an emerging field—one in which he was soon to become a nationally recognized leader.

Warren wrote the manuscript for Bulletin 295 during the years 1909 and 1910, a period when he and Paul White were both more interested in the results of the agricultural surveys in Tompkins County than they were in carrying on further experiments with farm crops at the experiment station. White had used the results of the 1906 and 1907 surveys in writing his Ph.D. thesis. White's work set the stage for the successful studies Warren made in 1908 while White was completing his own thesis and carrying on the other work of the Department of Farm Crops.

### The 1908 Survey

Additional revisions in the survey form were made, based on the records obtained in the summer 1907 for the 1906–07 business year. Warren's experiences in 1903 and 1904 gathering data about practices on fruit

farms in Wayne and Orleans Counties gave him confidence in the accuracy of the information he gathered from farmers about what had happened on their farms the year before. In the summer of 1908, labor income records were obtained using the revised survey forms from all the farmers in the townships of Ithaca, Dryden, Danby and Lansing for the business year April 1, 1907, to March 31, 1908. This time period was selected to approximate the results for a full crop year and ended at a point when inventories of feed and crops were likely to be small.

The three-year study (1905–06 through 1907–08) was a major undertaking in the college's home county. As director of the college, Liberty Hyde Bailey was a strong supporter of this continuing project and wrote a letter to farmers in the townships where the survey crews were working in 1908, explaining the study and its purposes. He concluded the letter:

Your replies will be considered as strictly confidential. The information that you and others give will be used in making up the final report on the general condition of farming in these towns, but the replies of individuals will not be published without their consent. This work has *nothing to do with assessments or taxes*, so you may give actual cash values. It is for the purpose of agricultural study only that these figures are collected.

I shall be glad if the farmers will aid these representatives of the college to secure the information we desire; and I hope that in return we may be able to give advice to those who wish it.<sup>58</sup>



Early farm management survey party (left to right): K. C. Livermore, professor of farm management; G. P. Scoville; Louis E. Johnson; Harold Kutschback; unidentified son of hotel proprietor; Walter Fiske, professor of dairy industry.

Warren recognized that he was at the center of a major undertaking by the college. He was as anxious as Bailey that this study be deemed a success by the farmers who had provided the records and by the rest of the faculty in the college. He had now cast his lot with the emerging field of farm management, rather than horticulture or field crops. He saw the business side of farming as a place where he could make a contribution and set about following Hunt's initiative by working hard to complete a worthy and useful study. Bailey recognized his potential and provided the necessary resources; the rest was left to Warren and his colleagues.

Some of the results from the first surveys completed in 1906 undoubtedly were shared at the farmers' institutes that winter. After additional work was done in Groton and Enfield with the revised study in 1907, initial reports probably were given at extension meetings or institutes about the averages obtained and the impact of such factors as distance to market, size of business, and yields on labor income. Bailey, Warren, and the survey crews worked hard to ensure that the individual records remained confidential. The excellent cooperation they obtained indicates that they had been careful to respect the farmers' trust.

The labor income survey made in the summer of 1908 for the crop year of 1907–08 met Warren's high standards. The men collecting the survey records had been carefully supervised by Warren and K. C. Livermore, a senior student at the college who had worked on the study the previous summer. Data were recorded on a standard labor income form; calculations were made the night after each survey was completed and checked by another student. Questions raised and key omissions in a record were discussed and answered the following day with the farmer. Permanent copies of the field records were made at the college, from which tabulations and the subsequent analyses were completed. These historic survey records have been preserved and remain in the college and university archives.

K. C. Livermore received his B.S. in agriculture in 1909. He received a full-time appointment, first as an assistant and then as an instructor at the college, and supervised much of the survey work for a similar study made among five townships in Livingston County during the summer of 1909. Livermore was appointed to the faculty as an assistant professor in the Department of Farm Management when it was made a separate department in 1911. Like a number of faculty members in the early years of the college, he never completed an advanced degree, although he took graduate courses. He served on the graduate faculty for seven years (1914–21) before he left Cornell to own and operate a farm in Honeoye Falls, New York, southeast of Rochester. He was a member of the doctoral committees of five students, including two future deans of the college, Carl E. Ladd and William I. Myers. Livermore must have had an important role in organizing the data and carrying out the analyses for Bulletin 295 as he is listed as one of its principal authors. The writing, however, sounds and reads much like Warren's earlier writings.

# Bulletin 295

From the late fall of 1908 until 1910, Warren worked with his staff and graduate students in preparing and analyzing the results of this study. He and Bailey recognized that the study results had major importance beyond Tompkins County. This historic farm management study was published in March 1911 as Bulletin 295 in the college's experiment station series: *An Agricultural Survey, Townships of Ithaca, Dryden, Danby, and Lansing, Tompkins County, New York.* The bulletin cover announced that the authors were G. F. Warren and K. C. Livermore, assisted by C. M. Bennett, H. N. Kutschbach, E. H. Thompson, F. E. Robertson, and E. L. Baker. Three of those assistants became graduate students in farm management and completed M.S. or Ph.D. programs at Cornell.

Warren wisely set aside an opening page in the bulletin for acknowledgements:

But for the hearty cooperation of hundreds of farmers, this bulletin would not be possible. To mention all the persons who have helped in the work would be to give a list of some two thousand names. The writers wish to express their appreciation of the good will of the farmers of Tompkins County as shown by their willingness to give so much time and trouble to help in this work.<sup>59</sup>

One of the reasons why Warren was always so well received by the agricultural community was his public recognition and appreciation of the time and effort of farmers, who provided the data from which he had prepared his research and drawn his conclusions.

Bulletin 295 was in essence a small textbook of 194 pages and Warren's first book on farm management. It was distributed free of charge to farmers and anyone else who asked for it. Thus, it was widely distributed locally and across the state and nation. In terms of its impact on people and its critical reception by agriculturists in the first two decades of the twentieth century, it may well have been the most important piece of writing in Warren's professional career. Warren and Livermore used the first ten pages of their bulletin to explain "the possibilities of survey work," to describe the procedures they used in collecting the information from farmers, and to describe Tompkins County and the farming region from which their analyses were made. The first page included a picture of an attractive farmstead, the title, and these initial paragraphs, which provide a sense of the authors' vision and concepts:

Every farm is an experiment station and every farmer the director thereof. If we can collect and properly correlate the results of all the more or less accurate experiences and experiments, we shall have a body of most valuable agricultural knowledge.

If such results are secured from a few farmers or from general observations, the conclusions are not likely to be accurate; but if large numbers of experiences are studied by statistical methods, reliable results may be obtained. A farmer is quite likely to attribute success or failure to the wrong cause. This is to be expected since there are so many factors that go to make up success. Success may be attributed to the manner of feeding the cows, when as a matter of fact the cows are not paying at all, and it may be that the hay crop is keeping both the farmer and his cows. The farmer may attribute success with an apple orchard to some peculiar method of pruning when success is really secured in spite of the method. Failure may be laid to the soil when the real difficulty is that the wrong type of farming is being attempted. By studying large numbers of farms the real reasons and their relative importance usually stand out clearly.<sup>60</sup>

Warren and Livermore continued with some additional examples and concluded, "The agricultural survey work in its various phases is a recognition of the immense fund of information that has been secured as a result of experience and experiments on farms. It is an attempt to make use of this knowledge and to separate out the truths from the superstitions."<sup>61</sup>

Next, they provided a short history of agricultural survey work at Cornell, starting with Bailey's initial observations of farms and field conditions, and followed by Warren's surveys of apple farms in Wayne and Orleans Counties. The initial work on the Tompkins County survey in 1906 and 1907 was reviewed and its shortcomings recognized. From this experience a successful system for collecting the necessary information was developed and tested for use in this study. They described the procedures used to obtain information in the field, and almost two pages were devoted to "Accuracy of the Results." A summary observation on methodology stated, "We have found that when we have about twenty farms in a group, the addition of more farms does not often materially change the result. We do not often draw conclusions from a group containing less than this number."<sup>62</sup>



The introductory part of the bulletin concluded with a description of Tompkins County, its farm economy, and its location relative to New York City and the railroads serving the area. The principal crops were listed, a topographic map of the towns was provided, and climatic conditions outlined:

Most of the agriculture is general farming. The most important products are hay, milk, oats, potatoes, eggs, corn, wheat, and buckwheat. The crop yields average a little above the average of the State and considerably above the average for the United States. The milk production per cow, and egg production per hen, are a little above the State average. On the whole, the county may be said to represent about the average of the State. The northern part of the county is better and the southern part poorer than the average.<sup>63</sup>

The authors recognized that the results of their survey needed to be put into perspective with farms in the rest of the state. The introductory chapter and its definitions were a necessary base from which everything else followed. They were now ready to tell their story.

# The Survey Results

The initial table in the bulletin provided summary information for 749 farms. Average capital and profits were divided into two groups in Table 1. The 615 farms operated by owners were the larger group. Averages for tenants and landlords were presented as well. The second table in the bulletin emphasized the variation in labor incomes and the authors commented on the substantial differences observed. One of the central interests of the study and of the emerging field of farm management was made clear as Table 2 was discussed.

The average owner received \$423 as pay for his personal labor and management for a year, but there were wide variations from this amount. The common wages for a hired man in this region at the present time are \$300 to \$350, with house rent, garden, wood, and milk. Some of the better men receive more. Roughly speaking, we may say that one-third of the owners made less than hired-men, one third made about the same as hired-men, and one-third made more than hired men (table 2)....It will be seen that 57 owners and 6 tenants made a labor income of over \$1,000, and that 25 owners and 3 tenants made over \$1,500. The highest labor income was \$3,668 made by a man who operated his own farm.

It is evident that farmers did not receive more than their share of the prosperity of the country. The years when these figures were taken were periods of good prices and good crops. There is no question but that farmers in the past received less than their share of the prosperity of the country—a fact that found its emphatic expression in the great movement from country to city. However, the one-third of the farmers who are making more money than hired-men are a hopeful sign for the future. It is now possible to make a good living on the farm. To learn how these men were able to do so much better than their neighbors is the chief aim of this study. As we proceed, we shall see that a number of conditions seem to be necessary for success.<sup>64</sup>

	Operated by Owners.		Operated by Tenants.	
LABOR INCOME.	Number of farmers.	Per cent of the total number.	Number of farmers.	Per cent of the total number.
<b>6</b> 1	-0	07		- 01
-\$200 or less	18	3%	I	1%
- 199- 0	62	10	3	2
1- 200	132	22 '	42	31
101- 600	140	24	44	33
401- 000	. 110	10	23	17
801-1 000	50	9	9	/ 
L 001-1,500	. 32	5	2	2
1,001 1,500	32	5	3	0
2 001-2 000	19		2	2
Over 3,000	3	$\frac{1}{2}$	0	0

TABLE 2. VARIATION IN LABOR INCOMES ON 749 FARMS.

The authors' own words explain what they sought to do and how they set about presenting what they had learned. Clearly, they already had many of these ideas based on what they had observed as professionals. These were topics for discussion at farmers' institutes and in farm papers and meetings. Now they had more solid information, collected directly from farmers themselves, that they could now use to interpret their own observations, as well as the facts obtained from these records.

Warren and Livermore set about examining relationships to explain differences observed in labor income. Table 7 presented the relationship between average capital and labor income, sorting farms into seven groups on the basis of increasing increments of capital and showing the average labor incomes for each group. A graph (Figure 152) presenting the results was captioned, "The labor income increases with the capital." A more complex two-way table (Table 8) was also presented showing the variation in labor incomes within each of the seven classes of capital chosen. Warren's undergraduate training in mathematics at Nebraska may well have helped him see the importance of emphasizing this variability, as well as the central tendency for each of the classes of capital.

CAPITAL.	Number of farms.	Average labor income.
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[영상] - 프럼프 알 등 전 - 이번 전 전 전 이는 것 등 방법 것 같은 것 같		
\$2,000 or less	36	\$192
2,001-4,000	200	240
4,001-6,000	183	399
6,001-8,000	94	530
8,001-10,000	45	639
10,001–15,000	44	870
Over 15,000	13	<b>I</b> ,164

TABLE 7. RELATION OF CAPITAL TO PROFITS. 615 FARMS OPERATED BY OWNERS.



FIG. 152.—The labor income increases with the capital.

In addition to capital, many other factors were at work in determining labor income. The relationship of capital to labor income was examined separately for owners and tenants, as well as for individual townships. All showed the same positive relationship between capital and labor income. It was clearly an important variable in determining success. Information was then presented on receipts and expenses and their relationships to profits. As was the case for capital, there was substantial variation from farm to farm. The major sources of receipts were presented, as well as the ways in which cash was spent to carry on farm operations.

**Size of Farms.** Substantial space was given to examining the effects of farm size on labor income, labor use, and crop yields. Nearly everyone already recognized that, in general, large farms generated greater labor



larger farms.

incomes than small farms. The discussion in the bulletin centered on such questions as: When is a farm too small to provide a decent living? or conversely, When is it too large to be operated efficiently? More simply put, What is the best size of farm?

Warren and Livermore set out to try to answer these questions and presented the analyses that supported their conclusions. Nearly 10 percent of the bulletin was devoted to looking at the data gathered on farm size. Size was considered in terms of total acreage, tillable acres, number of horses (power), machinery, and capital, as well as crop yields obtained. The authors showed that crop yields on these farms were not related to farm size. More importantly, they demonstrated that increased size allowed the more efficient use of horses and farm labor. After a certain point, increased size did not increase efficiency in the use of labor.<sup>66</sup> The final paragraphs in the section on size of farm provided the authors' summary judgments:

<u>Best size of farm</u>. For greatest efficiency, a farm should be large enough to fully employ at least two men the entire year. One man is at a great disadvantage in many farm operations, and in case of sickness or other emergencies the disadvantage is still greater. For general farming these figures show that a farm should contain at least 150 acres. The upper limit of area is determined chiefly by the layout. With ideal conditions, with the buildings in the center of the farm, and with a public road running past the buildings, as high as 600 acres may be run from one center. With more than this area the distance of the fields from the buildings is usually too great. It is not often that one can secure so large an area well located with respect to buildings. The most profitable farms in Tompkins and Livingston counties contain about 200 to 300 acres of good land.<sup>67</sup>

Following the discussion on size of farm, Warren and Livermore examined the relationship between value per acre of farmland and labor income. They divided the farms into four groups based on value per acre and reported, "Good land but not the highest priced land pays best."<sup>68</sup> Likewise, they concluded, "The crop yields increase with the value per acre, but at a much slower rate than the increase in value (Table 44)."<sup>69</sup> They also presented data on the primary soil types found on farms and examined crop yields in relation to them. They asked farmers, "Are the soils running out?", which was a widely discussed public issue especially about farms located on the steeper slopes. The authors' summary conclusion was, "It is probable that the soils are not quite so rich as formerly, but the better methods of farming appear to be giving better crops."<sup>70</sup>

The impact of distance from market on labor income was studied for individual farms. These analyses combined new factual data on profits and distance from market.

The average owner who is within 3 miles of market makes about four times as large a labor income as that made by those who are over 7 miles from market. It appears that one can pay five per cent interest on the larger value per acre of the land near market and yet make much more for his labor....The differences are increased by several correlated facts. The farmers far from market not only have a greater distance to travel but in many parts of the county, have steep hills to drive over. The soils farther from the railroads are also poorer because the railroads run through the valleys....Milk selling combined with general farming seems to be the most profitable type of farming."<sup>71</sup>

**Crops.** An important part of the central sections of Bulletin 295 reported on the crops grown, average yields, and the variability observed. The authors included photographs to illustrate successful practices in



**Figure 170:** The Roberts pasture at Cornell University. This field has been in permanent pasture for more than thirty years. The pasture contains a heavy stand of grasses of various kinds. Kentucky blue-grass and white clover are prominent.



**Figure 171:** The other side of the hill on which the Roberts pasture is located. These two pastures represent the difference between care and neglect.

using livestock manure and fertilizers. There were also photographs of "unprofitable ways of handling manure" and "a side hill that should be kept in permanent pasture or woods." Two pictures from Ithaca told an important visual story.<sup>72</sup>

Even without seeing the photographs it is clear from the text that Warren and Livermore were teaching about crops and farm management, while at the same time reporting what they found on farms in the county. On the next two pages there were photographs taken by field enumerators with these captions: "A good field of corn" and "A good crop of winter wheat."<sup>73</sup> The following excerpt from the text about wheat is a good example of some of the writing; the paragraph combines some information obtained from the study together with practical management advice. This was characteristic of much of the writing throughout the bulletin and one of the reasons why it became so widely distributed and read by farmers, well beyond the borders of Tompkins County.

Wheat is a profitable crop on the better soils, particularly on the clays or clay loams. It is not only a good crop for its own product but it is one of the best crops in which to seed grass and clover. This crop is particularly desirable as a chicken feed and can usually be raised much cheaper than it can be bought. This is nearly all fed to chickens. The straw is also needed for bedding. It is not often sold but usually brings \$5 to \$7 per ton.<sup>74</sup>

**The Farm Woodlot.** About halfway through the bulletin ten pages were devoted to the farm woodlot and its management. A footnote indicates that this was a summary of a senior thesis prepared by F. E. Robertson, one of the assistants on the survey. The authors clearly saw this as an opportunity to provide farmers with management information about one of the more neglected parts of many farms. On the first two pages in this section there were two photographs of fields and hillsides with these captions: "Fig. 177. The rough land and hill tops should be left in woods." and "Fig. 178. A stony hillside. This land has never been plowed and should never have been cleared. It will grow trees better than anything else."<sup>75</sup> The following comments were given pride of place in this section:

A little over a hundred years ago Tompkins County was covered with a dense stand of excellent virgin timber. This consisted of white pine, oaks, hemlock, maples, beech, elm, basswood and many other species. In the early days, there was little market for lumber and in the haste to get the land cleared for farm purposes much of the finest timber was burned. It is estimated by men

whose fathers settled the county that fully 60 per cent of the virgin forest was cut and burned in order to clear the land. Unfortunately, neither the early or later clearing had much reference to the character of the soil. Woodlots are still common on some of the level rich land; and poor barren hillsides that are too steep for tilled crops or even good pastures were cleared. There seemed to be no plan or system in clearing land....The present conditions of the farm woodlots in Tompkins County are representative of the conditions of the woodlots in many other counties in New York State....It is a deplorable yet self-evident fact that only a few of the farmers in Tompkins County have done anything toward improving their woodlots. When a piece of land is cut over, little attention is given to saving the young growth. Probably one-third of the woodlots of the county are being pastured. Such land is rarely worth much as a pasture, and the stock greatly injure the woods.<sup>76</sup>

The authors gave examples of farm situations where farmers profited by selling logs for lumber and discussed how to make plans for the longrun use of farm woodlots. Most farmers heated their homes with fuel taken from their woodlots. Some sold wood by the cord as a cash crop to people living in nearby towns. This part of the bulletin concluded with two sections: "Suggestions on the Care of Woodlots" and "Some Suggestions as to Public Policy in Relation to Forests." Part of that text presages Warren's interest and active role in the formation of public policy, first within New York State in the same decade, and then later at the national level:

The question of forest taxation is important. It would seem more reasonable if some plan could be devised that would exempt all forest land from taxation until the trees are cut. Such a law would unquestionably result in the planting of large areas of land to trees. If such a law is made, the minimum acreage to which it is to apply should be small enough so that a farmer might receive this encouragement to set trees. Forests on farms are worth more than forests off some where, because when grown the lumber is near where it is to be used.<sup>77</sup>

**Livestock.** Appropriately enough, an important part of the bulletin was devoted to the numbers of livestock found on farms, production levels obtained, and products sold and used at home. There was substantial diversity and photographs were used again to illustrate good management practices. Farm animals, poultry, and eggs were often

sources of a small amount of cash income, besides providing food for the family and hired labor. Sales of milk and cream were major sources of income for many farmers.<sup>78</sup>

**Systems of Farming and the Most Profitable Farms.** Having summarized and analyzed the basic data from all the farms studied for the 1907–08 business year, the authors considered reasons why some farms were more successful than others. They started by looking at the ways farms were organized.

There are three general types of farming in the county: general crop farming, general farming combined with dairying, and dairy farming. Thirty-one percent of the farmers derive more of their income from crops than from stock. Hay and potatoes are the most important cash crops.<sup>79</sup>

The authors carefully examined the effect that the proportion of receipts coming from crops had on labor income. Their conclusion was, "The farms pay best that derive one-fourth or more of their receipts from crops."<sup>80</sup> They posed the question, "Why do diversified farms pay better than intensive market milk farms?" and concluded, "Those farmers who sell crops are increasing their receipts from 25 to 100 percent by raising crops to sell, with practically the same labor force that is required to take care of the cows....The production of market milk together with crops for sale is one of the most profitable kinds of farming in this county."<sup>81</sup>

Without identifying their locations or names, records for twelve farms were presented for which labor incomes of more than \$2,000 had been achieved. In each case a discussion of the reasons for their success followed. Farms of different sizes in terms of crop acres and livestock numbers were included. Ten of the farms were owner-operators and two were managed by successful tenants.<sup>82</sup>

The authors then sought to summarize what they had learned from studying these individual businesses in detail. Some of their observations were:

- The most profitable farms average 108 percent larger and have an average of 147 percent more capital than the average farm, and have 94 percent more cows than the average.
- One of the most striking characteristics of these successful farms is the diversity of products. On each farm there are two to four leading products.
- The quality of the business [yields] has been increased, but not nearly so much as the size.

- The concentrated feed purchased per animal unit is 89 percent above the average.
- The large profits on these farms are not due to the small expenses. The farmers spend more for feed per animal and spend more per acre of land.<sup>83</sup>

Warren and Livermore's intent was to help illustrate the variety of ways in which a profitable business could be organized on farms with different resources and by farmers with different interests in crops and livestock. Success could be accomplished in different ways and these individual records provided examples of what was possible.

Following the review of successful large farms, there was a brief review and analysis of the most successful small farms: "While the largest profits cannot be made with a small business, yet some men with little land were doing fairly well. In the four townships seven farmers who had farms of fifty acres or less made labor incomes of over \$600."<sup>84</sup> Brief descriptions were provided of each of the small farms studied. Similar kinds of analyses were provided for the successful farmers with small amounts of capital and those working as tenants. There was also a discussion of unprofitable farms with large amounts of capital and the relation of soils to types of farming. The authors' central conclusions were:

Apparently the most profitable types of farming for small farms are:

- 1. General farming with potatoes, eggs, and retail or market milk as the leading items. Sheep may replace the cows.
- 2. Fruit growing or truck-growing, or both....Many of the farmers with small farms hire out a considerable part of the time.<sup>85</sup>

**Important Additional Topics.** Before providing their final recommendations to conclude the bulletin, the authors dealt with a number of other topics that had seldom been included in experiment station bulletins. The first of these was forms of tenure. They reported the numbers of farms using cash rent, crop share, and share of receipts as rental arrangements. Although there were many variations around this general pattern, the most common system was for the landlord to get half of the cash receipts and then pay the taxes, repairs on buildings, and half of the cash expenses (except for horses and machinery). In general, tenants who had cash-rental arrangements had the highest labor incomes. Crop yields on rented farms were similar to those on
owner-operated farms. Landlords who were farmers or retired farmers commonly made higher returns on their capital than landlords from town.<sup>86</sup>

In a section on Women as Farmers, they wrote: "It was not their choice to be farmers. Nearly all were wives or daughters of farmers and inherited their farms. About half of those who own farms continue to make the farm their home rather than rent it. A few of these women have taken up the business of farming and engaged in it actively."<sup>87</sup> Results obtained on three of the successful farms operated by women were presented and discussed. The authors showed that some of the women who had chosen to farm as active managers and contributed some of the labor were doing well.<sup>88</sup>

Basic data on the ages of farmers and the variation found by township and ownership status were presented. In the same manner, the education of farmers was tabulated by location. Efforts were made to relate levels of education to labor income and capital investment. Farmers with more years of schooling and more capital had the higher labor incomes, on average. Sizes of families on these farms were also reported

There were also short sections on Abandoned Farms, Farm Buildings, Roads, Rural Free Delivery of Mail, and The Farm as a Home for Persons Otherwise Employed.<sup>89</sup> These were matters of concern and interest to Bailey and the college faculty. It gave Warren and Livermore an opportunity to make some important observations that went beyond the data they had collected and their analyses. It provided an opportunity to speak briefly to public policy issues of concern in the county and the state:

The southern half of Tompkins County is in the region of socalled abandoned farms. There are no abandoned farms in the sense of abandonment of title. There are very few farms that are not partly worked. In this region many fields were unwisely cleared that should have been kept in permanent forests. Some fields that are not adapted to machine farming are left to grow up in weeds and later to trees. Many other fields are being farmed that should be abandoned.<sup>90</sup>

One of the greatest needs of the farmers is to have new roads laid out that will reach the hills with reasonable grades....We need to have a road system laid out in each county that will connect the farms with the towns, rather than connect cities with cities.... Such roads would be good dirt roads with easy grades....When new grades can often be established at so small a cost, it is poor economy for generation after generation to continue going straight up the hills rather than around them.<sup>91</sup>

The farm evidently offers an excellent opportunity for persons who are otherwise employed but who can arrange to live on a farm. The living expenses are much reduced and the farm may frequently be a source of revenue besides.<sup>92</sup>

**Summary of Recommendations.** In the final five pages, the authors summarized their research and observations. Their central conclusions were captured in a few paragraphs:

A farm home or country estate may be a success when it gives pleasure to the owner. But a farm cannot be said to be a business success unless it pays all the farm expenses, pays interest on the capital invested, and pays well for the farm work done by the farmer and his family. A good hired man gets about \$360 a year with house, garden, etc. If a farmer does not get a labor income of over \$360, he is not making a business success. A labor income of \$500 to \$1000 is fairly good. Over \$1000 is good....

The figures in this bulletin show that the farmers that are successful according to the above definition are also contributing most to the national wealth and are nearly always the ones that are best conserving the fertility of the land.

From the figures here given, it is evident that the three most important points for the improvement of agriculture in Tompkins County are larger farms, better cows, and a system of farming that combines stock with cash crops. Modern agricultural machinery has made it necessary that the farms be larger, if men, horses, and machinery are to be used effectively.<sup>93</sup>

# A Landmark Bulletin

This was the first successful study made in the field of farm management using the survey method to collect data from farmers who provided sufficient information to determine their labor incomes. Following Hunt's lead, Warren refined the procedures and the survey instrument used in the two previous summers in Tompkins County to collect this valuable information. The methodology was developed to allow students with farm backgrounds and experience to gain the confidence of the people they interviewed, and to obtain receipts and expenses for farm operations for a year. Moreover, this survey methodology could be used with all farmers, large or small, regardless of their schooling.

Warren demonstrated that a large number of farmers would willingly share their business information, as long as their individual records were treated as confidential. Because the number of purchases and sales for their businesses were relatively few, their recall was reasonably accurate. With large numbers of records, overestimates were thought to balance underestimates. Variability within groups was emphasized along with averages. The results obtained made sense to the farmers who provided the data; the first people to see and discuss the averages were the farmers who provided the records. The logic of the generalizations and supporting data were quickly accepted by the agricultural community and college faculty members. Bulletin 295 and Warren's labor income survey schedule provided the base upon which other farm management researchers were to establish similar studies in their own states.

### The Tompkins County Survey and Warren's Career

The years 1908–11, when the labor income surveys were completed in Tompkins County and Bulletin 295 was published, were the ones which established Warren as a major figure at Cornell and nationally in farm management. Fortuitously, during the summer of 1908, the American Association of Agricultural Colleges and Experiment Stations held its third Graduate School of Agriculture at Cornell. Economic aspects of agriculture were given space on the four-week program. Among the lecturers were Henry C. Taylor from Wisconsin and George N. Lauman and George F. Warren from Cornell.

This program provided an excellent opportunity for Warren to present his successful survey methodology and labor income schedule to a group of national leaders. He talked about the procedures used concurrently in collecting records from farmers. He was able to draw upon the preliminary results they had obtained during the summer of 1907 and explain why they had needed to make revisions. He renewed and built upon the solid contacts he had made with W. J. Spillman and H. C. Taylor at Illinois in 1906 at the second Graduate School of Agriculture. Moreover, Spillman was so impressed with the possibilities of the survey methodology that he hired E. H. Thomson, who had worked on the Tompkins County survey with Warren, to come to Washington, D.C., in 1909 to head survey work at the Office of Farm Management.<sup>94</sup>

The Graduate School of Agriculture brought together the leading figures from colleges around the country to exchange the latest information from research in their respective fields and the newest teaching materials. This provided an excellent stage upon which Warren could talk about the work he was doing and some of his ideas, and obtain comment and criticism from his colleagues. No doubt he benefited substantially from the questions posed by the quick-tongued Taylor and the thought-provoking ones from Spillman. Agriculturists and agronomists naturally had substantial interest in these topics and the bulletin once it was published. All in all, this fortunate combination of circumstances enabled Warren to present himself and his ideas to a national audience and take a major step forward in his professional development.

#### Footnotes

- 1. Warren Papers, Box 25-8.
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- 3. Ibid., 304.
- 4. Ibid., 306.
- 5. Ibid., 308-10.
- 6. F. A. Pearson, "The Fact Finder," Farm Economics (February 1957), 5479.
- 7. Warren Papers, Box 25-8.
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- 9. Cornell University Agricultural Experiment Station Bulletin 295, An Agricultural Survey, Townships of Ithaca, Dryden, Danby, and Lansing, Tompkins County, New York (March 1911), 385.
- 10. Warren Papers, Box 2.
- 11. Ibid.
- 12. Ibid.
- Gould P. Colman, *Education and Agriculture* (Ithaca, NY: Cornell University, 1963), 186–87.
- 14. College of Agriculture, Cornell University, Faculty Minutes I (June 1907), 211.
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- 17. Cornell University Agricultural Experiment Station Bulletin 271, *The Incomes of 178 New York Farms* (December 1909), 17–18.

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- 21. Thomas F. Hunt, How to Choose a Farm (Macmillan, 1906), 111-27.
- 22. M. C. Burritt, *The County Agent and the Farm Bureau* (New York: Harcourt, Brace & Co., 1922).
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- 26. Ibid.
- 27. Ibid., 323.
- 28. Ibid., 326.
- 29. Ibid., 328.
- 30. Ibid., 332.
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- 32. Bulletin 295, 386.
- Paul J. White, "An Agricultural Survey of Tompkins County, N.Y." (Ph.D. thesis, Cornell University, 1908), 55.
- 34. Ibid., 2.
- 35. Letters from Home, 313.
- 36. George F. Warren, *The Elements of Agriculture* (New York: Macmillan, 1909), vi.
- 37. Ibid., vii, viii.
- 38. Warren Papers, Box 29.
- 39. Ibid., Box 30.
- 40. Ibid.
- 41. Warren, Elements of Agriculture, 5.
- 42. Ibid., 33.
- 43. Pearson, "The Fact Finder," 5480.
- 44. Letters from Home, 398.
- 45. Ibid., 343.
- 46. Ibid., 344.
- 47. Ibid., 360.
- 48. Ibid., 363-64.
- 49. Ibid., 372.

- 50. Ibid., 377.
- 51. Ibid., 355.
- 52. Ibid., 359.
- 53. Ibid., 390
- 54. Ibid., 389.
- 55. Ibid., 398
- 56. Ibid., 399.
- 57. Ibid., 376.
- 58. Bulletin 295, 387.
- 59. Ibid., 378.
- 60. Ibid., 385.
- 61. Ibid., 386.
- 62. Ibid., 389–90.
- 63. Ibid., 394.
- 64. Ibid., 396-97.
- 65. Ibid., 401.
- 66. Ibid., 424; Figure 15.
- Ibid., 427–28; observations were included from the 1909 study in Livingston County.
- 68. Ibid., 429; Table 42, Figure 158.
- 69. Ibid., 430; Table 44.
- 70. Ibid., 430.
- 71. Ibid., 438.
- 72. Ibid., 458-59.
- 73. Ibid., 460-61.
- 74. Ibid., 461-62.
- 75. Ibid., 464–65.
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- 78. Ibid., 473–503.
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- 82. Ibid., 510-24.
- 83. Ibid., 524-27.
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- 85. Ibid., 533-35.
- 86. Ibid., 539-44.
- 87. Ibid., 544.
- 88. Ibid., 544-48.
- 89. Ibid., 556-63.
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- 91. Ibid., 560-61.
- 92. Ibid., 563.
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# Professor and Head of Department

1910–1914

The continuing correspondence between Julia Warren in Nebraska and her son in Ithaca provides insight into important happenings in the lives of the extended Warren family. Most weeks either George or Mary wrote to his mother, whether George was at home or somewhere else attending meetings or giving a lecture. Between September 1908 and December 1911, Mother Warren often addressed part of her letters to Ada Dunn, who lived with the Warrens and continued to help with their children while completing her four-year degree at Cornell.

Warren was busy completing the manuscript for his book and doing the analysis for Bulletin 295 in 1908 and the spring of 1909. But establishing his farm in Ithaca as an operating business and helping his young family were also important. On October 3, 1909, his mother wrote:

I think it is more of an undertaking to make a well in New York than it is here, and it costs so much more. Do you have to drill through solid rock all the way? Three acres of wheat does sound rather small to us western folks, but if your hens eat all that grows on it they ought to lay a lot of eggs....Fred used to have to get up and help with the chores when he was a boy. He has learned to sit up late nights and sleep in the morning since he left home.<sup>1</sup>

That fall Warren sent his mother a set of papers to fill out to provide background information about his family—the Warrens on his father's side and the Stanleys on his mother's. His brother Herbert helped her complete the forms, and she had returned them to Ithaca in October. In her November 29 letter, his mother commented, "You did not say whether we did that work all right or not. It was a lot of work to find what I did on the Warren side looking over old letters and such. So many of them gave the day of the month, but not the year, and the postmarks are so indistinct we can hardly make them out. What are the records for anyway? Several have asked that question."<sup>2</sup> Among the correspondence Warren saved was a card from his brother Herbert with his picture on one side. Herbert was continuing his ministry while also running his farm to feed his family, which by then included eight children:

Merry Christmas! Your letter a while ago asked what my plans are. They are this—take care of my family, win souls to Christ and trust God to take care of the future. I believe I'm doing what he wants me to do; am pastor of a weak little flock northwest of Kearney. Maybe, I'll find time to write again. I am double busy now and happier than in all my life before.<sup>3</sup>

As usual, Mother Warren wrote to George close to his birthday in February 1910:

Your birthday is so near I will address my letter to you instead of to Mary, even if she is the only one who had time to write to us last week....I know you were all very busy of course and are quite excusable. I should like to hear your lectures [at Farmers' Week]. Did I tell you the teachers here are using your book in the agriculture class?... A card from Flora Saturday says Arthur is gaining slowly; he can be up in a chair three or four hours a day.... Mary, thank you for remembering us last week in the midst of the rush of preparations for Farmers' Week and for the programme. Thanks to Stanley and Jean [her grandchildren] for the pretty valentine.<sup>4</sup>

A letter on February 27, 1910, continued, "We were glad to hear again from you last week and to know you are all well; also to hear that your book is selling so readily. I like to hear how well your hens and cows are doing. I think you will enjoy having homemade butter. I was going to ask you if you sold your cream."<sup>5</sup>

### The Warren Farm

The farm Warren bought in Ithaca in 1907 had eighty-seven acres of land, which included a good-sized garden area and a small orchard near the house. There was much work to be done inside the house, as well as outside with the farm buildings, the hay and cropland, and renovating the pastures. The first farm enterprise the young couple established was a flock of chickens. This provided work for a hired man who also helped in remodeling the barns and doing chores. A family cow was acquired in 1908, along with a team of horses. Warren hired college students to help with summer work and to get the hayfields and fences in shape. The farm was reduced by one acre in 1908 when the Warrens sold a building lot on the southwest corner of their property to the Boothroyds for \$500. With this sale they gained a good neighbor as well as some cash.

On April 10, a letter from Nebraska brought this comment, "Your father was surprised to see that your letter was addressed to him, Fred. I think he was pleased too, but I can't get him to write to you. He says, 'tell him I am most 80 years old.' His hand trembles so it is hard for him to write."<sup>6</sup> On May 1, Julia Warren wrote, "Those large fields of wheat and oats too; how will you manage to harvest such crops? It sounds like old times back east where the farmers had only a few acres of grain and threshed it with a flail on the barn floor,"<sup>7</sup> and on May 23 she noted, "We were surprised to hear that you had bought another farm. I hope you will be able to pay for it in less than twenty years. You know I don't like debts very well."<sup>8</sup>

In the winter and spring of 1910 Warren appraised and then sold \$2,500 of timber from the woodlots on his property. He decided to use this cash to make a down payment on the 100-acre Brown farm, which was immediately adjacent to his farm on the north, most of it on the east side of the road. He negotiated a purchase price of \$9,500 and the sale was finalized in December 1910 and January 1911. It seems that Warren was following the implicit advice he had given in Bulletin 295. Successful farms were larger than average and sold crops as well as livestock products. His earlier experience buying a farm in Nebraska and then selling it at a profit a few years later must have encouraged him to take on this new debt and mortgage, despite his mother's lifelong concern about staying out of debt.

In 1911 Warren completed two more real estate transactions. He acquired the thirteen-acre Calkins property on the east side of the road, just to the north of the Brown farm, for \$2,500. Money for this purchase came from the sale of two and a half acres of land and a house located along the road on the Brown property for \$2,500.

Warren's detailed records neatly were summarized each year for the farm business. All the family's financial assets were included, as well as any debts, notes, or mortgages. Warren then calculated his family's net worth. Before his marriage in June 1906 he had calculated his net worth to be \$5,153, which included his farm in Nebraska and the house in New Jersey, on which he owed \$615. At the close of 1910 his summary showed assets of \$12,485, liabilities of \$4,943, and a net worth of \$7,543. After completing the real estate transactions in 1911, including final settlement of the Brown property transfer, he listed assets of \$22,871, liabilities of \$12,453, and a net worth of \$10,418.

The poultry enterprise on the farm provided a regular source of cash income through steady sales of eggs, young cockerels, and old hens. Although Warren's mother had made fun of the small acreages he planted to wheat and oats, these provided feed for the poultry enterprise. Getting the cropland back into production was one of Warren's priorities, following the laying of tile to improve drainage on the cropland. Hay was harvested each year, and after feeding the horses and the small dairy herd, he sold the surplus. The net farm income recorded for 1910 was \$699 and in 1911 it was \$919. Warren also recorded the interest charged for the use of capital each year: \$975 and \$1,215, respectively. He had paid interest on his debts of \$277 and \$695 those two years. Thus there was also a net return to the Warrens for the use of their capital.

From the early days on his new farm in 1907 and 1908, Warren set about keeping cost accounts for each of his farm enterprises. Not only did he keep separate records of the cash outlays and receipts for each enterprise, he also kept track of the time spent by workers and horses on each enterprise. Thus, anyone who worked for Warren was expected to keep a log of his time spent on various jobs in thirty-minute increments. This was part of his effort to experiment with practical ways to allocate all expenditures of time and resources to farm-related activities. He tried having each worker keep his own daybook, but evidently that was not very successful. The entries in the separate journals for each enterprise, such as poultry, were mostly made in the same handwriting year after year. Warren must have recorded most of the entries each week, at least in the beginning. Many of the workers on his farm were college students. Warren himself was the manager and seldom took a turn in the fields or doing chores except in an emergency. In a sense, his farm was a kind of experimental laboratory where he sought to practice the principles and procedures he was talking about in his classes.

### The Last Years of the Senior Warrens

Ada Dunn returned to Nebraska for the summer at the end of her second year at Cornell. Mother Warren wrote on June 15, 1910: "Another month half gone, and it is only a week before we expect to see Ada. How glad we shall be to have her back home for a while. I wish she was going to stay all the time. I hope we shall see Fred in a month from today."<sup>9</sup> On August 7 she wrote to Mary:

Your dear letter came yesterday while Fred was still with us. He was glad to hear once more before he started for Denver. I can't begin to tell how much we enjoyed his visit. It seemed so good to have him here if I was not able to do anything but lie around. Ada has been so good to me and so have they all. I did not know how many friends we had till I was sick....Fred went last evening and is visiting Arthur and family today. I think he feels as if he had been away from home about long enough. He is anxious to see his wife and children....Those pictures that you sent are as cute as can be. I love to see the children as they are playing around.<sup>10</sup>

Warren's trip to Nebraska in 1910 gave him a chance to see firsthand how his parents were faring and how his brothers and their families were caring for them in their later years. It also gave him a chance to see his older brother, Arthur, in Colorado before he died from consumption the next summer. Julia Warren's health improved as the summer heat ended, and life returned to a routine in the fall months. Ellen, Herbert, and Cora's oldest child stayed with the senior Warrens and continued high school in Harvard, Nebraska.

Warren was back in the classroom at Cornell teaching farm management to a class of seniors when his mother wrote on October 16, "Your letter came the 13th telling us of your college work and of that class of 80 pupils that you have charge of. I hope they are not as full of pranks as some young people are. It is nice that you can take them out in the fields so much."<sup>11</sup>

On April 30, 1911, her letter included news about Henry's family, Warren's father, and a small note about her own improved health:

I went home with him [to Henry's house] after the game, and came back yesterday. The roads were fine and it seemed good to get out in the country. I enjoyed the ride and a good visit with the folks. It did not make me sick so I may venture to go out to Herbert's when they get the new house done if it is not too cold weather before it is finished. They have plenty of room at Henry's, 5 rooms below and 4 rooms upstairs; all large rooms except for Rebecca's bedroom and a small room that they use for a pantry. There is not a closet in the house. There are so many barns and out buildings it looks like a little village....Your father finished up the tree business Thursday. He had a few cherry trees left so will have some to start with next year. He says he has done well enough this year.<sup>12</sup>

But the stark reality of failing health soon returned, and Mother Warren's letter of May 21 began:

You will probably read in the *Currier* that I am seriously ill, so I must write this afternoon to set your minds at rest as soon

as possible. I was pretty bad three or four days last week, but am much better now....I asked the doctor what is the cause of my sick spells. He says as near as he can judge it is chronic catarrhal inflammation of the bowels. He says it is not anything that I do that brings them on; they will come on anyway....Fred's nice long letter came the 17th and Ada's the 18th. We were glad to hear so much about the farm and what you are doing."<sup>13</sup>

Whatever else happened, Mother Warren found the strength to write to her family. The news she received in return of her children, grandchildren, and their activities, surely sustained her life in her declining years. On July 17 she commented:

How fortunate you are to have two such good men as Will and Frank for the summer; men that are so good to the children. It is nice for Stanley [Warren's son] to go with them to the field. I remember how we used to enjoy going with my uncles in haying time (my cousin and I). We rode out in the cart and walked back when we were tired of "helping" rake up the hay. Yes, Mrs. Wetherald came when I was sick; she did not stay all the time after the first two or three days, but was in several times a day till I was able to be dressed and out on the couch....Please remember me to Will [Ada's boyfriend]....No, Mary you had not told me of your expectations. I hope the weather will not be so hot next month as it has been the last few weeks.<sup>14</sup>

The Warren's third child, Richard, was born on August 6, 1911. Mary's mother had come to help with the new baby, and Mother Warren wrote on August 13th:

We did not expect to hear of the arrival of a new grandson before this week, but were glad to hear the news, and that all were doing well....How do Stanley and Jean like the Baby? Is he named Richard for some relative, or just because you like the name? We have 29 grandchildren now. I should like to see them all together....Fred I should think you would get tired of fixing over barns and hen houses. I suppose you will have them all in fine shape after a while.<sup>15</sup>

Henry's sixteen-year old daughter, Julia, came in September to live with her grandparents and go to high school in Harvard. Herbert's daughter Ellen, who stayed with them the year before, was now renting a room in town so she could concentrate on her studies and graduate with her class. Mother Warren wrote to Ithaca on September 3: Mary, I was glad to hear from you again, and to know you are getting along so well, and that little Richard is so good. Fred says you and he took a long ride last Sunday. I know you enjoyed that after being shut up so long....Yes, we have been married 58 years. The three cousins were here to help us celebrate the anniversary, and the two boys and some of the children came the next day. Perhaps, we shall fill out 60 years of married life; if so, you children should all come to honor the occasion and as many of the grandchildren as can.<sup>16</sup>

Warren had written to his mother about the farm and what had been accomplished over the summer. She replied on September 10:

I like to hear of your plans for farm crops in the future and hope they may prove successful. It would do us Nebraska people good to see such a nice orchard loaded with fruit this year. We might go some night and borrow some of the apples when the owner is asleep. Now I must tell you about your father before you read it in the newspaper. He had a slight paralysis Thursday morning....He can use his hand more and the feeling has come back into his foot and legs. He gets up and walks around the house and to the barn with the help of a cane.<sup>17</sup>

On October 22, her letter opened, "This has been a day of excitement, or an afternoon. A message came from Flora about three o'clock saying, 'Arthur died this morning. No arrangements have been made for the funeral.' Henry and Herbert have just gone to take the eight o'clock train for Denver. I am glad they could go....Your father is about the same as he has been for a month."<sup>18</sup> On October 18, 1911, Herbert wrote in response to his brother's letter from Ithaca:

About Father and Mother. Well they are getting old pretty fast, faster, every year. Mother has poor spells quite often, had one in July when I was threshing and they thought it would be the last one, phoned for me but was better when I got there. She has had several since and any one is liable to take her away. She is around and at work a good part, really most of the time. The spells take her suddenly and leave off suddenly. Father has aged more in the last year than in the three previous ones....Finally, considering their age, both are strong but are too old to be well and I often think with dread that either is apt to go any day. Both have trouble that is likely to do its work in a few minutes when it gets ready, yet it may be several years before that time comes.<sup>19</sup>

On November 19, Mother Warren wrote to Ada, "Thank you for your kind wishes for my birthday. I want to be worthy of so much love and such praise but fear I am not. It is nice to have so many dear friends. Henry and Herbert have been so good to us in our trouble and are ready to do more. Herbert came today to stay if he was needed but Grandpa is so much better we get along nicely....Grandpa has just walked out to the barn and back."<sup>20</sup>

The last letters to the Ithaca Warrens that survive were written on December 24 and 31, 1911. After providing them with news of the family, their health, and activities in town, Mother Warren wrote, "Fred you must not get spoiled with folks making so much of you all over the country, giving you such fine dinners, etc. We read an article in the *Omaha Bee* last week about your survey of Tompkins County, New York and complimenting Dr. Warren for the good work that he did." The next day she added, "Our Christmas has been a very quiet day, just Grandpa, Julia and me," and described the gifts she had received from all of the family members in Nebraska, Colorado, Wyoming, and New York.<sup>21</sup> The final letter, written on the last day of 1911, began:<sup>22</sup>

page 1 of a 4-page letter

Home Der. 31. 1911. My dear Fred and Mary. you must have one more letter this year. I hope you are not having as cold weather as we are. It was eleven below this morning, clear and still. It warmed up by noon & was & above. Henry, Julia and Arthur came in the sleigh to S.S. & Church . I wanted to go but thought it was too cold, Henry would have taken over in the sleigh if I had been ready. Fred your Christmas letter came the 2's and Mary's come to day. We were glad to hear from you both times. There was a short letter from May to day too. They had sent Christmas cards & presents but

no letters. Joe had been sick with coldy chills & fever, was around again when she wrote the 26th. I am glad Stanley likes his mittens so well. I wanted to knit some warm ones for year but did not have,

page 4 of a four-page letter

Achool in town. Esma has come from Church and it is time for me to go to bed. I can hear your father sleeping out here in the kitchen. I gave him his bath and put him to bed with all clean clothes soon after sig. I antend fix his shirts so it will be easier to get them off and on before I have to change them again. I'll cut them open down the front and have them button Mp. Cousin Catie Stanley sent me 550. for Christmas & Alice five. I have sent for for a Morris chair for your father, & am thinking of getting a base burner so we can keep a fire nights without having to get up to put in coal so many times. Good night with love to all from Mother. We have not heard from Ada this week.

The tone of this letter was like that of most others. Julia Warren always was interested in what the family in Ithaca was doing. She provided some advice to her son and reported on family events in Nebraska. She told about her efforts to use the resources that she and her husband had to make their life together as agreeable as possible. Clearly she wanted to continue to manage as they had recently, accepting the help of one of their grandchildren so that they could remain in their own home.

Julia Stanley Warren lived at home for another five months and a few days and died on June 6, 1912, no doubt in a manner similar to that suggested by son Herbert in his October 1911 letter. George Frederick Warren, Sr. lived another four years, until July 24, 1916. He was a strongwilled individual and no doubt lived by himself as long as he could. Each of his sons received a copy of a testimonial letter from Harvard Lodge No. 44, A.F.&A.M., dated July 31, 1916:

Brother WARREN had for more than four years been bedfast, requiring for more than three years the constant attendance of a nurse, and during that period had not been able to feed himself nor turn alone in bed: he therefore is at rest from his physical troubles and leaves a record of patience and forbearance rarely equaled, and gives us each a lesson that we may well remember.<sup>23</sup>

### Julia Stanley Warren's Impact

Anyone reading the letters Julia Stanley Warren wrote to her son and his family cannot help but admire and respect her. She was the glue that often held the extended Warren family together, and family was the most important part of her life. The impact she had on her children, her grandchildren, and even the families of her late daughters' husbands, who subsequently remarried and had additional children, is clear. They continued to visit her, write to her, and were a part of her weekly correspondence with "Fred," wherever he was.

Family, church, community, and school were the institutions that were important to Julia Warren. The welfare of her family was the center of her life. Her letters reflect an abiding desire to bring people together, help others in need, and provide each child as much education as possible. She had a solid grasp of the English language and occasionally encouraged her youngest son to improve his spelling and grammar. As in most families, the patterns established by the parents were reflected later in the actions of their children, the standards they set, and the expectations they had for their own children. Mother Warren often wrote expressing her concerns about taking on debt and the joy she felt at no longer having the onus of debt hanging over her head. She lamented the problems faced by some of her children, when finding ways to feed their families and pay their debts became a burden in the depressed economy of the 1890s. Her discomfort with debt was clear to all her family, but nonetheless George Warren, Jr. successfully used debt to help him finance his own farm business and the purchase of his home. Later he would become a leader in studying farm finance and the wise use of debt as an integral part of managing any farm-related business. His parents' and brothers' experiences were a permanent reminder of the importance of this issue in rural America.

Both of the senior Warrens had a strong commitment to education for their family members. They found the extra money to send Alice and Henry to normal school to obtain their teaching certifications. Joe graduated from the University of Nebraska the year after his brother George, and then worked for the U.S. Department of Agriculture in Nebraska and in Washington, as well as for commercial businesses. In the particularly tough years between 1893 and 1897, the family found a way to help their youngest son to stay on in Lincoln and complete his degree.

Father Warren was a strong-willed, but often silent man, filled with determination once he made up his mind on what he wanted to do. Mother Warren was no less strong in her determination to nurture her family and extend her caring concern to each and every one of them. She was strongly interested in the church and attended services whenever she could. Among her surviving sons, Herbert continued in this tradition, as his own letters and those from her clearly convey. George also participated in church-related activities while in college, both in Lincoln and Ithaca. He acquired many of the moral values of his parents but did not attend church on a regular basis in his later years. His wife was a Quaker and passed on many of the values of that society to their children.

Julia Stanley Warren was a strong and constant role model for all of her family. Her children, their spouses, and the grandchildren all loved and respected her, and sought to live up to her expectations. An inspiration for all, her spirit lived on through her extended family.

### The American Farm Management Association

Warren had attended the second meeting of the Graduate School of Agriculture at the University of Illinois in 1906 during the same summer he and his new wife visited his family in Nebraska after their wedding. He participated in the third meeting of the Graduate School when it was held at Cornell in July 1908 and had a spot on the program to talk about teaching farm management and to present the methodology used as well as preliminary results from the Tompkins County survey.<sup>24</sup>

The fourth Graduate School of Agriculture was held at Iowa State College in July 1910. A course on rural economics and sociology was given for the first time over a four-week period. The lecturers were K. L. Butterfield (Massachusetts), W. J. Spillman (USDA), Henry C. Taylor (U.S. Census of Agriculture), and B. H. Hibbard (Wisconsin). During the closing days of the program, the participants who were interested in the emerging field of farm management decided to create the American Farm Management Association (AFMA). Among those actively promoting the new organization were George Lauman and Warren from Cornell. A meeting of interested persons was held on July 26, 1910, and committees were appointed. The



George F. Warren, early years on the faculty

next day they prepared and adopted a constitution and elected officers. The first meeting of the AFMA was held on July 28, and plans were made to meet the following year. Spillman was elected president; D. H. Otis from Wisconsin became vice president; and George F. Warren was elected secretary-treasurer.<sup>25</sup>

Before the group adjourned their first meeting, the Committee on Scope and Cleavage, consisting of Spillman, Otis, and Hayward (Delaware), presented their report, which defined the field "covered by Farm Management" as:

- 1. The organization of the farm, in which we deal with such questions as types of farming, equipment, labor, etc.
- 2. Farm operation, in which we deal with the various types of farming as they are conducted in the various regions where they occur. The general study of farm practice is an essential prerequisite to the study of farm management questions.

Farm management deals with the rural problem from the individual or private point of view. It differs from agricultural

economics or rural economy and from rural sociology in that these subjects view the rural problem from the national or public point of view.<sup>26</sup>

This report was presented and discussed briefly but not adopted. It was subsequently published in the meeting's proceedings as a committee report. As one might expect, there was substantial difference of opinion among the members in terms of what was and was not included in the field of farm management. In the year between the AFMA's initial meeting and the next, held at Ohio State in November 1911, a substantial correspondence developed among participants at the first meeting and others. Taylor, who had returned to Washington, D.C., because of his work with the Census of Agriculture, disagreed with the "narrowness" of the statement. He strongly believed that farm management was an important part of agricultural economics, not separate from it. He and Warren carried on a lively exchange, which Taylor believed so important that he quoted large sections of their letters in his book about the early years of agricultural economics.<sup>27</sup>

At the Ohio State meeting, the new association had adopted as its objective: "To Promote the Investigation and Teaching of Farm Management." Two standing committees were established: the Committee on Investigation had five members and was chaired by Andrew Boss from the University of Minnesota; the Committee on Teaching was chaired by C. W. Pugsley from the University of Nebraska, with G. F. Warren as one of its five members. On January 1, 1912, the new organization had seventy-one dues-paying members from thirty-two states and Washington, D.C. The third annual meeting was held in Washington, D.C., and the program was largely structured around reports from its two standing committees and discussion about successful research and teaching programs then in progress.

Warren served as secretary-treasurer of the AFMA from 1910 to 1912 and was elected president in 1913. Interest in the field of farm management and the national organization continued to grow, and it was agreed that the proceedings of the fourth annual meeting, held in Washington, D.C., in November 1913, would be published. The twoday meeting included not only committee reports, but also formal papers presented, followed by discussants. Warren gave his presidential address the evening of the first day and discussed what he had learned using the survey method to obtain and analyze farm management data from farmers. He began his speech with this statement:

We are dealing with a new subject. Six years ago, only three colleges taught any thing that might be called farm management.

Only two institutions were doing investigation work on the subject. Our subject is growing fast. How successful we are will depend on our good judgment in being able to discount our own popularity. As I see it, we face two serious problems. City businessmen are among the first to see the importance of farm management. Hence, these men with their country homes and "folly farms" call for much help....A more serious menace to our work is that all our energies will be absorbed in teaching and extension work. In every institution, at least a part of the time and money should be spent on investigation. This must precede any teaching or extension work that is worth while. Thus far, farm management investigations have been conducted by two means, cost accounts and agricultural surveys. Both of these should be used.<sup>28</sup>

Most of the rest of his address summarized the experiences he and his coworkers had gained in conducting agricultural surveys, training those who asked and recorded answers to the questions, and analyzing the data obtained. He included examples of mistakes they had made as well as things that had worked well. One of his final conclusions was particularly relevant: "In every case the variation as well as the average must be studied if we are to fully understand the facts."<sup>29</sup>

The published *Proceedings* for the 1913 meeting contained 115 pages. There were sixteen reports from committees and papers presented by participants. It was the first "journal" of the new association. A list of 138 members as of July 1, 1914, also was included; they came from thirty-nine states as well as Canada and Japan. The AFMA was now on a solid footing with a plan to meet each year in a major city.

All members received the printed *Proceedings* annually. Farm management was now recognized nationally as one of the fields for study in agriculture. As the first secretary-treasurer of the AFMA, Warren had a central role in launching the organization and keeping it alive and well. While serving as president, he organized AFMA's first professional program with paper presentations and insured that its report would be published annually.<sup>30</sup>

# From a Department of Farm Crops to Farm Management

Once Warren saw that the field of farm management was emerging nationally and that his research efforts with agricultural surveys were yielding positive results, he worked vigorously to be identified with the new field. He picked up the course that Thomas F. Hunt had taught so successfully and followed his syllabus. For the academic year 1907–08 Warren provided this summary statement for the Department of Farm Crops for the Dean's Annual Report:

This department gave instruction to 203 registered students; staff devoted about one-fourth of its time answering farmers' letters in addition to giving numerous lectures at farmers' meetings....Probably the greatest immediate returns for the money invested in this department are secured from the survey work directed (1) to the study of specific crops, and (2) to the study of farming as a business.<sup>31</sup>

In 1909–10, Warren's department officially became the Department of Farm Management and Farm Crops. He was promoted to full professor, and Paul White became an assistant professor. The department's 1909–10 annual report noted that instruction grew to 828 hours for the year. Eleven students were pursuing graduate degrees, all in farm management, and Warren had more graduate students than anyone else in the college at that time.<sup>32</sup>

With fieldwork on the Tompkins County agricultural survey complete and a second survey by K. C. Livermore of northern Livingston County finished and ready for analysis, an instructor's position was allocated to the department for Livermore in 1910–11. Cornell Univ. Agr. Exp. Sta. Bull. 295 was issued in March 1911, followed by a six-page summary statement issued in June 1911 (Agr. Exp. Sta. Bull. 302) "Notes from the Agricultural Survey in Tompkins County." The shorter publication provided an effective summary of the central lessons learned from the study, omitting the supporting documentation for many of the conclusions drawn.

In 1911, Warren was granted his wish by Dean Liberty Hyde Bailey when responsibility for farm crops was moved to the Department of Farm Practice and the Department of Farm Management came into being. White resigned to accept a position as professor of agronomy at Washington State University, and Livermore was appointed as an assistant professor in farm management. Two new instructors of farm management, Arthur Thompson and Carl E. Ladd, were listed in the annual report for 1911–12. The following paragraph was included in Warren's annual report to the dean for the department:

The writer [Warren] spent six years in keeping cost accounts and each year simplified the methods, until we have a system that can be used by farmers. In 1910–11, five farmers cooperated in this work. This year we have 26 cooperators. Ladd is in charge of this project which is funded by the USDA....Perhaps the greatest need in the Department at the present time is for one man to devote his entire time to extension work.<sup>33</sup>

Year	Regular	Special	Graduate	Winter <sup>34</sup>	
1906–07	145	133	36	244	
1907–08	206	142	43	270	
1908–09	268	145	58	364	
1909–10	419	120	57	371	
1910–11	597	169	80	477	

These were years of rapid growth for the College of Agriculture. The increase in student enrollment tells the story.

Most special students took the same courses in the agricultural sciences as regular students. They did not meet the admission requirements for the four-year degree program, usually because of deficiencies in their preparation in mathematics and basic sciences. The winter students took a set of specialized courses over a period of thirteen weeks on such topics as animal nutrition, crop husbandry, soils and fertility, horticulture, and control of insects and diseases. Young men with modest academic backgrounds came in from their farms for these courses and became strong backers of the college and its programs. Bailey felt strongly that it was "the people's college," and valued and supported this range of courses.

Warren had grown in stature along with the college. Summarizing the period 1901–1910 in his history of the college, Colman writes,

Warren's ambition and talent for administration made Bailey wonder how long it would be possible to keep him at Cornell. In 1908, when Warren held two offers from other institutions, Bailey agreed to promote him to full professor and assign him to the work in farm management....Bailey attached great importance to the unifying function of the Departments of Farm Management and Rural Economy. The former he expected to tie together the business organization of the farm, while the latter integrated information relating to rural citizenship. By developing the survey method into an instrument for determining what factors were related to success in agriculture, Warren filled a gap in agricultural education, which Bailey had long stressed. The agricultural survey of Tompkins County, which Warren took over from Professor Hunt in 1907, was, in Bailey's opinion, one of the great contributions of the College.<sup>35</sup>

# Bailey's Discontent

Central to everything that was going on at the college was Bailey's decision to resign as director of the experiment station and dean of the college. Jacob Gould Schurman served as president of Cornell from 1892 to 1920. He was a powerful personality and tried to keep a hand in all activities associated with the various parts of the university. When Roberts retired as director of the experiment station and dean of the college in 1903, Schurman persuaded Bailey to accept these positions. Bailey was a human dynamo and set about with Schurman's agreement and assistance to get state funding for the College of Agriculture. Once this was accomplished, Bailey wanted to operate the college as he wished and to seek additional funding to make it as strong an institution as possible.

The seeds for conflict between Schurman and Bailey were quickly sown. There were disagreements about the locations of new buildings and the use of funds. Schurman sought to be the sole spokesman for the university in all matters, including the College of Agriculture. Bailey had been the key figure in obtaining state funding and support for the college and therefore expected considerable independence in its administration. In May 1909, Bailey formally resigned, arguing quite correctly that he had never had a true vacation since his arrival at Cornell. The university trustees persuaded him to take a sabbatical leave instead, and Bailey reluctantly agreed to return afterward as dean and director.

Warren was among the faculty members who wrote letters to Schurman urging that Bailey be retained, and was given the opportunity to make his case in a personal meeting with Schurman. One of the direct results of this period of discord was the addition of five members to the university's Board of Trustees to be appointed by the state governor. A new standing committee of the board was created to oversee matters pertaining to the statutory colleges. It consisted of the members appointed by the governor, the commissioner of agriculture, and the trustee elected by the State Grange, as well as the president, treasurer, and one other trustee.<sup>36</sup>

Herbert J. Webber, plant breeding, was appointed as acting dean and director in Bailey's absence. He pushed forward with the

faculty's plans for needed expansion and the new trustee committee presented them to the state legislature. They also had the support of the new Association for the Promotion of Agricultural Education and Research, which represented eighteen agricultural organizations across the state. New funding for three additional buildings and increases in the basic appropriations resulted. Bailey returned to campus but soon began talking again about retiring as dean and director. In July 1911, President Schurman asked each member of the faculty to give him recommendations for a new dean and director of the experiment station. All strongly favored retaining Bailey, many claiming he could not be replaced.<sup>37</sup>

Bailey wanted the state colleges to maintain their independence within the university so they could handle their own affairs and continue to seek additional support from the state. Between 1910 and 1913 the faculty in agriculture had doubled and the number of full professors tripled. This same phenomenon was occurring simultaneously across the nation at most land grant universities that had an agricultural college. Able faculty members had abundant opportunities to go elsewhere, so promotions and increases in salary had to be made to hold key scientists in individual departments.

# Annual Reports for the Department

During this period of expansion Warren had succeeded in his desire to establish a separate department of farm management. He had obtained an assistant professorship for Livermore and the two instructorships held by Thompson and Ladd. The teaching load continued to grow. In 1912–13, farm management was taught in both the fall and spring semesters, with 204 students in the fall and 154 in the spring. There were 18 graduate students enrolled in spring 1913. Two winter courses were offered, serving a total of 149 students. Ladd was working with fifty farmers on the cost-accounting project funded by the USDA. A new study on the costs of producing potatoes was under way with 335 surveys completed on Long Island and 362 records collected in Steuben County. In the conclusion of his 1912–13 report Warren stated, "The most important need at present is for additional teaching force and one or two professors to devote their entire time to extension work."<sup>38</sup>

One of the lead paragraphs in the 1913–14 annual report for the college and experiment station stated:

It was on May 12, 1904, that Governor Odell approved an act appropriating \$250,000 for the erection of buildings for a College

of Agriculture at Cornell University and establishing the College as a State institution with L. H. Bailey as Director. The present year completes the first decade in the history of the College as a State institution. At the beginning of the decade 25 courses of instruction were offered in agriculture. There were 6 full professors, one assistant professor and two instructors. During the year 1913–14 there have been 224 courses of instruction offered in the College and the faculty consisted of 46 full professors, 26 assistant professors and 57 instructors.<sup>39</sup>

Enrollment figures for that year reflected the college's continued growth as well.<sup>40</sup>

Freshmen	456	Seniors	209
Sophomores	363	Graduate students	151
Juniors	300		

In its first decade the College of Agriculture had become a significant part of the university in terms of student numbers, research and publications, as well as public service. "By 1912 the College [of Agriculture] had the largest registration of any unit of the University, thereby bearing out a prediction Roberts had made many years before."<sup>41</sup>

Warren's statement for the Department of Farm Management listed five courses, two of which were taught both semesters. Two winter courses were offered as well. A total of 2,408 credit hours of instruction were provided. His final paragraph concluded, "A further extension of cost accounting and survey work should be made. This might now be of a much broader nature than that thus far conducted. An extensive investigation of marketing of farm products should be begun."<sup>42</sup>

One of his graduate students, H. B. Knapp, had completed his master's thesis, which was published as College Circular 22, "Wholesale Prices of Apples and Receipts of Apples in New York City." Warren's perspective on the scope of work for his academic department was widening beyond the bounds of farm management to marketing and the larger economic forces that determined the prices farmers received for their products and the markets and economic environment in which they operated.

### Extension Work and Farm Bureaus

From its founding, Isaac Roberts and Liberty Hyde Bailey had viewed extension services as a key part of the mission of the College of Agriculture; whatever the faculty learned through study and research should be passed on to the farmers and people of New York State. The commitment of faculty time to answering letters and making presentations at farmers' institutes was part of that effort. The first Farmers' Week in Ithaca was held in 1908. It was an outgrowth of the annual meeting of the Agricultural Experimenters' League, which had been organized in 1903 with Warren as a key participant. The 1909 Farmers' Week was organized to combine lectures, demonstrations, and exhibits on the work of each college department. Students and faculty members prepared long in advance for their roles in the program. Held for a week in February, it attracted 1,200 people. Agricultural organizations planned to hold their annual meetings in connection with Farmers' Week, and as it became a regular event on the college calendar, the city of Ithaca also prepared accordingly for this influx of winter visitors.<sup>43</sup>

Warren took an active role in Farmers' Week from its beginnings. The occasion provided an excellent opportunity for him to talk about the results from the Tompkins County survey and the advantages of using the survey method in obtaining useful information from a cross section of active farmers. He communicated well with farm people and this gave him a good forum to explain what he had learned about farm management. With his new book on the market in 1909 and the widely praised Bulletin 295 published in 1911, his talks and sessions were popular and well attended.

The first "farm bureau" in New York was established in Binghamton by the local Chamber of Commerce with financial support from the Delaware, Lackawanna and Western Railroad. They saw the value to the community of a local agricultural advisory service and correctly guessed that funding in the future for such efforts might well come from the USDA or the state. The first agent hired in 1912 was John Barron, an alumnus of Cornell's College of Agriculture. Bailey was not enthusiastic about such county organizations, but Professor Charles H. Tuck in the extension department was a strong supporter. By May 1912, ten such special agents had been appointed in New York counties with funding from W. J. Spillman's Office of Farm Management in Washington. Spillman came to Ithaca and met with Bailey; they worked out an understanding in which the college would appoint a state leader to coordinate and supervise the work of these agents. Moreover, the role of the railroad and other private businesses in sponsoring the farm bureau movement was greatly reduced. These agents were to serve as farm educators, bringing current information from the college to the people.<sup>44</sup>

The opportunities presented by this new teaching environment at the county level spurred Warren to ask for additional faculty members to work with the new county farm bureau agents. He saw the farm bureau movement as an excellent opportunity to get more farm surveys taken in the counties and to start more farm accounting projects. Many of the new agents had been students in his farm management courses and some had even worked on his survey teams, so the potential for building on the county agents' work was substantial.

# A Second Book—Farm Management

With *The Elements of Agriculture* established as a best seller, it is not surprising that the Macmillan Company was anxious to have Warren write another textbook. He had been teaching a course in farm management since 1908, so a new book on that subject was a logical next effort. Warren followed the excellent curriculum developed by Hunt, which emphasized field trips to farms and a term project in which students took a labor income record for a farm business and then developed a possible reorganization plan for the business. He had just written Bulletin 295 with K. C. Livermore, and it was a good time to summarize

what he had learned over the past decade in working with farmers and the management of their businesses.

Bailey gave his blessing and support to this project, as *Farm Management* was to be a part of his *Rural Science* series, and Warren paid his respects to his mentor by quoting Bailey on the title page of the new book seen to the right.

Warren developed an outline for the book and used the large body of materials he had collected in his studies at Cornell and from his substantial home library to prepare the manuscript. The preface provides his definition



of farm management and the basic concept behind the book:

Farm Management is the study of the business principles in farming. It may be defined as the science of the organization and management of a farm enterprise for the purpose of securing the greatest continuous profit. Successful farming requires good judgment in choosing a farm and in deciding on a type of farming. It demands clear business organization and management for the efficient use of capital, labor, horses, and machinery. It requires good judgment in buying and selling.

The change from cheap land, hand tools, and farming to raise one's own food and clothing, to farming as a commercial undertaking has come upon us so suddenly that business principles are not always understood by farmers. Nor do those who understand the applications of such principles to city conditions often know how to apply them on the farm.<sup>46</sup>

Warren's personal experiences in Nebraska and those of his parents and brothers are reflected in the preceding paragraphs. The change from subsistence to a market economy for farmers was now in full flower and was one of the primary motivations for Warren to write his new book. The preface continues:

Long ages of experience and a generation of scientific research have resulted in a fund of popular knowledge on how to raise crops and animals. But there is less background of tradition concerning business methods on the farm, and colleges have given little attention to this kind of problem. The success of the individual farmer is as much dependent on the application of business principles as it is on crop yields and production of animals.

The best way to find out what methods of farm organization and management are most successful is to study the methods now used and the profits secured on large numbers of farms, and determine how the more successful ones differ from the less successful, and find to which of the differences the success is due. After such principles are found, they need to be tested by use in reorganizing farms.

The conclusions in this book are based on investigations of the kind given above, and on cost accounts, census data, travel and

study in different parts of the United States, and experience in farming. It is hoped that the conclusions may be of use to farmers and students.<sup>47</sup>

The published book consisted of twenty chapters. The first four chapters—Shall I Be a Farmer?; Types of Farming; Diversified and Specialized Farming; and Intensive and Extensive Farming—comprise one-third of the book and were designed to give an overview of farming. Included with the text in this first part of the book are fifty-two figures, mostly pictures of farms, graphs of such phenomena as rainfall, and charts showing distributions of labor by months of the year. There are also twenty-nine tables of data to help explain such topics as the difference between intensive land use and extensive operations.

### Shall I Be a Farmer?

The first chapter provides an interesting review of the many tasks a farmer performs. First, there is a section on the farmer as a *business man*, followed by the farmer as a *mechanic*. The next sections emphasized the farmer's roles as a *naturalist* and a *skilled laborer*. The following four sections are titled: Experience Necessary for Success; The Farm a Home Enterprise; The Farm is Not the Place for the Inefficient; and Summary of Personal Traits of Successful Farmers.

Warren set out to provide readers with a realistic view of what farming was all about and a picture of what one might expect from this choice as a career. He devotes an important part of the first chapter to "Profits to be Expected in Farming." He gives a definition of labor income and then points out that making direct comparisons with city salaries is not appropriate. After all, labor income is the return to the business and the operator's labor, after a return of 5 percent has been paid to him for the use of his capital. In addition, he has had the use of his house for the year and paid no rent, and the family has consumed farm products (e.g., meat, milk, eggs, vegetables, and fruit) without incurring additional expense.

Warren provides a summary of labor incomes attained by farmers in Tompkins, Livingston, and Jefferson Counties in New York. His summary comments about the Tompkins County results emphasize the variability found:

Some of the farmers made much less than hired-men receive; some received nothing for their year's work and lost money besides. Others made very good profits. Nine percent of the farmers in this county made labor incomes of over \$1,000, and one per cent made over \$2,000. This is a general farming region that is about as prosperous as most of the North Atlantic States.<sup>48</sup>

Warren wanted readers to have a realistic view of farming, but also a positive one. He wrote:

When comparing farming with city work, the mistake is often made of comparing farmers who have \$5,000 to \$40,000 capital with teamsters and day-laborers in cities. Farmers cannot be compared with any class in cities, because the farm does not sort men so closely as does the city. Among the farmers there are some who may be compared with teamsters, but a larger number are the fathers and brothers of bankers, lawyers, doctors, engineers, business men, and "captains of industry," and have quite as much ability as these men. Neither should we make the mistake of comparing the city man who rents his house with the farmer who owns both his house and his business.<sup>49</sup>

A strong commitment by Warren to the "country life" movement, for which Bailey was a national leader, was also evident in the concluding sections of this first chapter. Here he quotes Bailey:

It seems to me that what is really needed is a back-to-the-village movement. This should be more than a mere suburban movement. The suburban development enlarges the boundaries of the city. It is perfectly feasible, however, to establish manufacturing and other concentrated enterprises in villages in many parts of the country. Persons connected with these enterprises could own small pieces of land, and by working these areas could add something to their means of support and also satisfy their desire for a nature-connection. In many of the villages there are vacant houses and comparatively unoccupied land in sufficient number and amount to house and establish many enterprises; and there would be room for growth. If the rural village, freed from urban influences, could then become a real integrating part of the open country surrounding it, all parties ought to be better served than now, and the social condition of both cities and country ought to be improved. We have overbuilt our cities at the expense of the hamlets and towns. I look for a great development of the village and small community in the next generation; but this involves a re-study of freight rates.<sup>50</sup>

Bailey had been appointed chairman of President Theodore Roosevelt's Commission on Country Life. In addition to Bailey, the commission included Henry C. Wallace from Iowa, who would become U.S. secretary of agriculture in the 1920s; Kenyon Butterfield, president of the University of Massachusetts; and Gifford Pinchot, C. S. Barrett, Walter Page, and W. A. Beard, each of whom was a distinguished citizen in his own right. Their report to Congress was published in March 1911 and was largely written by Bailey. Earlier in 1908 Bailey had published The State and the Farmer, which expanded upon the views he first presented in May 1907 as part of his presidential address to the Association of American Agricultural Colleges and Experiment Stations in Lansing, Michigan. This speech was widely heralded by those who heard it, and many of these leaders strongly encouraged him to rewrite it as a book. Bailey made a clear call for state and federal governments to invest in rural America through education, roads, and greater assistance to preserve the qualities of country life as the bulwark of the nation. Bailey followed with another book, The Country Life Movement in the United States (1911), which also reflected his visions of rural industrialization and community growth, and their potential contributions to the nation.<sup>51</sup>

# **Types of Farming**

The second chapter of *Farm Management* provided an overview of agriculture in the United States using data from the 1909 U.S. Census of Agriculture. Warren emphasized:

The chief factors that determine the type of farming in any region are: climate, soil, topography, transportation, distance to market or shipping point, market demand and supply, relation of the type to other competing types in the region, price of land, capital, labor supply, custom, insects, diseases or other pests, and personal desires of the farmer.<sup>52</sup>

This is a rather long list of factors, but each has some role in establishing the principal crops and livestock found across the country. Warren started by examining the influence of climate, soils, and topography on the choice of the principal crop grown in a region of the country and presented corn as his first example.

For corn-production, there is no other large area of land in the world that has such a favorable combination of soil, climate, and topography as is found in the corn-belt of the United States. Corn requires a mellow soil well supplied with vegetable matter, heavy rainfall in the summer months, hot days and hot nights. In addition if it is to be raised economically, the land must be fairly level....We may expect that corn will always be the leading crop in the Middle West.<sup>53</sup>

He followed this with a paragraph on cotton:

For cotton, there is no other large area in the world that has such a favorable combination of climate and soil as is found in southern United States. We may expect that cotton will remain the leading crop of the South. Thus far, it has been grown too exclusively, just as corn has been grown with too little rotation in the corn-belt. In both regions, rotations and types of farming are developing that center around the important crop without making it the only crop.<sup>54</sup>



Distribution of the cotton crop in 1909. One dot represents 8,000 bales.

The next sections considered other major crops with respect to climate and soils, including oats, potatoes, grass, apples, and truck crops. There also was a special paragraph on topography and the dangers of erosion. He commented,

Steep hillsides may prevent the use of machinery. When the work was done with hand tools, the side hills were not at so great a disadvantage. Many side hills have been turned into hay, pasture or forest, or have been abandoned because machinery could not be used on them to good advantage. Every new machine that is invented makes the earning of a living more difficult for the man who cannot use the machine. If he must compete with a machine with hand labor, he must reduce his standard of living or change his type of farming.<sup>55</sup>

The next twenty-five pages of this key chapter examined the relation of transportation to type of farming. (One must remember that horses were still the primary means of transport and draft power on farms when the book was written.)

The fundamental principle is that products that are easily and cheaply shipped and that will stand shipment will usually be produced far from the centers of population, because near market they cannot compete with bulky and perishable products. Perishable products or products that are bulky for their value will usually pay best when grown near the consumers. All other factors limiting the type of farming affect the result, but next to soil and climatic limitations the freight and express rates and cost of handling produce are the most important factors in determining the type of farming. The problem seems to be little understood by farmers, agricultural colleges, or city businessmen. Experience forces farmers to abandon types that are too far out of adjustment, but frequently the wrong cause is assigned.<sup>56</sup>

The exposition that followed emphasized these points using specific examples that would be readily familiar to readers. Warren presented the average farm prices for five crops for the period 1907–1911 in seven states, from Colorado in the West to Massachusetts in the East. He noted:

A ton of hay in Massachusetts will buy 25 bushels of corn. In Iowa it would buy only 18 bushels. The same ton would buy 33 bushels of oats in Massachusetts, but would buy only 23 in Iowa. It is easy to see why the New England farmer comes so near to a one-crop system. There are whole townships in New England where there are no threshing machines....In 1909 the area of hay grown in New England was five times the total area of all other crops combined.<sup>57</sup>

Warren illustrated the same concepts with hog production in Iowa, as well as beef, sheep, and horse production. In general, the lower costs of feed on farms located a great distance from markets more than made up for the costs of assembling and transporting large quantities of the high-value finished products in the form of pork, beef, and wool. For perishable products like milk and eggs the comparative advantage was to producers closer to market.

In this chapter, Warren was exploring political economy and elementary concepts of market supply and demand. His only formal training in economics was the one undergraduate course he took in political economy, which was a requirement to obtain a degree in agriculture at Cornell in 1903. He was first and foremost an agriculturist by training and experience. Yet his thesis work with apples, his close association with Hunt in farm management, and the farm survey analysis he conducted had brought his full attention to bear on some of the basic principles of economics.

# Diversified and Specialized Farming

After explaining why different types of farming had developed in various locations across the country, Warren set out to clarify the meaning of "diversified" and "specialized" farming:

Much of the discussion of this subject is confused because of lack of clearness in definition. It is usually assumed that diversified farming means a little of everything and not much of anything. It follows at once that such farming cannot pay very well, because there is not enough of it. It is likewise frequently assumed that specialized farming means a very large amount of one or two things. As a matter of fact, the size of the business may be large or small in either case. In making comparisons, we should compare the large diversified enterprises with large specialized businesses and small businesses with small businesses....If a farmer's only important sale is potatoes, his farm is specialized, whether he grows five acres or fifty. Another farmer may grow just as many potatoes, run a dairy, and have hay to sell, and he will have a diversified farm. General farming usually means that one grows the usual animals and field crops of the region. It is one kind of diversified farming....A farmer who sells only one important crop has a highly specialized farm....A farm that gets only 40 percent of its income from its chief source cannot be said to be specialized.58

Much of the rest of this chapter discussed the reasons why farms are specialized or diversified and the advantages and potential problems for each kind of business organization. Warren argued: There are several considerations that so far outweigh all others that the vast majority of farmers find that it pays better to have several important products. Diversified farming provides for crop rotation. It usually provides against total failure. It usually distributes the income over the year and provides work for men, horses, and machinery for a large proportion of the time. Persons who have never farmed fail to appreciate the importance of these considerations. Very naturally, they compare farming with city work, but such a comparison is misleading. They are usually attracted by the idea of extreme specialization and are likely to prefer some fad rather than a staple product.<sup>59</sup>

Having declared that diversified farming pays best for most farming situations, Warren then offered the evidence he had amassed in support of his general conclusion. Central to his argument were these statements, which were printed in boldface type as headings for paragraphs: "Diversified farming lessens the risk of total failure....Diversified farming may distribute the income throughout the year....Diversified farming may distribute the labor throughout the year."<sup>60</sup>

Warren presented a substantial amount of information on labor use by months throughout the year for a group of farms where cost-account records had been kept for their businesses. The diagrams showed labor flows for both men and horses for individual crop and livestock enterprises. Much of the data were from New York areas where dairy farming was common. After reviewing survey data for farms in Tompkins and Livingston Counties where the dairy enterprise was important, he concluded, "Those farmers who sell crops are increasing their receipts from 25 to 100 percent by raising crops to sell, with practically the same man and horse labor that is required to take care of the cows."<sup>61</sup>

Warren concluded this chapter by providing a tabulation of the results from fifty successful farm businesses out of the 2,743 records secured through the surveys. All obtained labor incomes of \$2,500 or more; the highest labor income was \$9,490 on a specialized dairy farm selling milk and purebred Holstein cattle. There were three other specialized dairy farms in this list and one that specialized in selling apples. Six of the group rented their farms and were diversified in fruit crops, vegetables, field crops, or some combination of that group, and sometimes a dairy enterprise. This tabulation provided information on acres farmed, capital invested by the operator, the chief products sold of \$500 or more in value, other sales, and acres of crops grown for feed. It was an interesting tabulation, one that could provide a fine basis for considerable debate and discussion in a classroom or a meeting of farmers.<sup>62</sup>
### Intensive and Extensive Farming

Before moving on to the remaining sixteen chapters, which centered on business management for farming, Warren deemed it important to discuss the concepts associated with "intensive" and "extensive" production methods. He stated:

Some crops require much more work than others, and when successful bring high returns for the area grown. Green house vegetables and fruits are typical examples. Farming with such crops is called intensive farming. There are intensive and extensive methods with any product. One may strive for very high production at the cost of much extra time and money, or may be contented with smaller production at less cost.<sup>63</sup>

One of the reasons for writing this chapter was his desire to educate his fellow teachers in colleges of agriculture, and to change the way they talked about the results of some of their experiments and studies. He commented:

Nearly all agricultural colleges call the difference between the value of the milk and the value of the feed of dairy cows, profit. The feed is usually about half of the cost. With very extensive methods of dairying in Minnesota, the average costs for six years on many farms were feed per cow \$23.13; other costs \$28.61. With more intensive methods of dairying, and higher priced feed in Connecticut, the average costs per cow for five years were \$84 for feed and \$65 for other costs....Nearly all colleges, as well as farmers, speak of the difference between the cost of fertilizer or any other treatment and the value of the increased crop as profit from the treatment. How far the cash cost of fertilizer may be from the total cost of the increased crop is shown on page 164. Profit per acre is usually considered rather than profit per farmer. All these and many other errors in arithmetic and business judgment often lead to the recommendation of methods that are entirely too intensive for present conditions.64

The following is another of his major points:

Land is a small part of the cost of crop production....Labor is in nearly all cases the most important item in cost of production. Highest profits can only be secured when proper attention is given to all the factors of cost. But if only one factor is singled out as the important one it should be labor and not land. Under conditions of very extensive farming in Minnesota on new land that is not fertilized, the use of land varied from 11 to 51 percent of the total cost. As land becomes more valuable, the usual assumption is that rent will constitute a larger proportion of the cost. The opposite is more likely to be true, because more intensive methods are then used.<sup>65</sup>

Warren made his case through pictures and tables, presenting data from cost-account projects in Minnesota and New York. He contrasted a winter vegetable enterprise under glass near an urban market with the production of timothy hay. He commented on the weather and market risks with intensive crops and showed how intensive and extensive systems for dairying each had their place. Warren concluded:

It requires experience and good judgment to keep somewhere near to the proper adjustment of all the factors of production. No farmer ever keeps all these factors just right. Figure 52 illustrates this point. The profits cannot rise above the limiting factor. Methods should be intensified with uniformity in attention to all the limiting factors. Whenever one point is improved, it is likely to call for improvement in the other lines. In most regions it pays to spray apple trees. But after going to the expense of spraying, one cannot afford to neglect some other point—as tillage or pruning. After one has fed his cows more, he needs to be sure that he gives the care that should go with the larger feed.<sup>66</sup>

Figure 52 was used repeatedly for the next thirty years in farm management lectures throughout the country.

### Applying Management Principles in Farming

With this substantial introduction to the nature of farming as a commercial business in the United States, Warren turned his full attention to management principles in the business of farming. He had already introduced business management concepts in the first four chapters of the book and provided a number of key definitions. The succeeding chapters presented information about what he and his colleagues had learned from their studies on more specific management issues. The chapter headings were: Maintaining the Fertility of the Land; Management of Some Livestock Problems; Size of Farms; Size of Farms



FIG. 52. — Profits depend on many factors. They cannot rise above the limits set by the weakest point in the system.

in Different Regions of the United States; Capital; Methods of Renting Land; Farm Labor; Farm Equipment; Farm Layout; Cropping Systems; Marketing Farm Products; Farm Records and Accounts; A Complete Set of Cost Accounts; Choice of a Region; and Choosing and Buying a Farm.

Each chapter discussed the management choices and decisions that farmers had to make on a widely discussed topic of general interest. Even without reviewing the content of each chapter one can sense some of the concerns at the turn of the twentieth century. For example, the first question considered in the chapter titled "Maintaining the Fertility of the Land" was, "Are our crop yields decreasing?" In a graph showing average yields per acre for ten leading crops annually from 1866 to 1910, the year-to-year variability stood out sharply. Warren then suggested seven different reasons why productivity might have decreased and ways in which organic matter and key nutrients could be increased by management practices on the farm.

The content of these chapters sought to provide answers to common questions and to make points about "least-cost" solutions to problems, or ways to think about the profitability of specific practices. The lead point in the livestock chapter was: "Livestock are largely produced by cheap feed." This was followed by paragraphs with these headings: "Livestock is produced on cheap time," and "Livestock is produced on a low margin of profit." Illustrations and examples to support these generalizations followed.<sup>67</sup>

In the chapter on size of farm he stated: "The typical American farm is a family farm; one of such a size that the family does most of the farm work, with some hired help. In 1909, only 46 percent of the farms had any hired labor....There is no large section of the United States where there is an average of a hired-man for each farm."<sup>68</sup> After reviewing the data he had analyzed on the relation of farm size to profits, efficiency in the use of labor, machinery and power, and economy in buying and selling, Warren did not offer a simple answer as to the best size of farm. He recognized that many other factors are also important, such as location relative to market, the operator's abilities, and the topography of the land. He concluded that chapter by stating: "In order to use machinery and horses effectively a farm ought to be large enough to use five horses. It must be large enough to use at least one man, or grown boy, besides the operator, if it is to be run economically."<sup>69</sup>

Warren did everything he could to encourage farmers to keep records—from simple cash accounts to milk production records on individual cows. The two chapters that outlined recordkeeping systems were a necessary and useful part of the book. Based on his experiences working with farmers, Warren believed that most needed assistance and encouragement if recordkeeping was to be a source of farm management data. One of the first efforts of farm management extension programs was to show farmers how to maintain simple and consistent record systems, including annual inventories of the capital items that were parts of their business. Summaries of these records gave farmers a basis for comparing their experiences with others. These summaries provided an important new source of farm management data for teaching, both in the classroom and at farmer meetings.

The last three chapters of *Farm Management* considered the questions of where to farm, how to choose and buy a farm, and what makes some farms so successful. Warren pointed out some regions of the country where the combination of soils, climate, and location led to prosperity for farmers in most years. He stressed the importance of climate and rainfall, the value of soil maps, and land prices as factors to consider in determining a region in which to locate. In choosing and buying a specific farm, he pointed out the need to consider the farm layout, the lay of the land, soil fertility, and many other specifics, such as water supply, the neighbors, taxes, schools, and community. He even included a relatively long quote from Cato translated from the Latin by "A Virginia Farmer" and another from Xenophon.<sup>70</sup> Until the 1930s

other texts on farm management commonly included these quotes from the Latin classics, but this acknowledgement of past scholarship has been dropped by most authors in the late twentieth century.

In the final chapter, "Some Successful Farms," Warren provided summary records in some detail for four different types of business, all located in New York State. They illustrate good recordkeeping systems and some of the key factors that led to success in different kinds of operations: dairy-crop, poultry, crop, and general farms. The lead paragraph for the chapter provides a good summary statement: "No farm can be called successful that does not maintain its productivity, pay all expenses, interest on the capital, pay for work done by members of the family, and, in addition leave the operator good pay for his year's work; that is a good labor income."<sup>71</sup>

In this textbook, Warren brought together what he had learned from his work with farmers as a graduate student and faculty member at Cornell. Most of the tables and charts used to illustrate each of the chapters reflect data collected from the Cornell farm surveys in New York State between 1907 and 1912. He had great respect for the costaccount data collected from farmers in Minnesota by Andrew Boss and his colleagues at the University of Minnesota. To support his basic points, he included tables showing the Minnesota results in a number of chapters, as well as survey results from other states and data from the most recent agricultural census to provide a national perspective.

All in all, Warren's book presents a concise picture of farm business management as it was taught to students and farmers quite widely across the United States throughout the 1910s and the first half of the 1920s. Concepts from production economics began to become a part of most farm management courses toward the end of the 1920s and into the 1930s. Although *Elements of Agriculture* sold more copies, *Farm Management* was a bestseller in its smaller market. Its buyers and users were farmers, extension workers, and farm management teachers in agricultural colleges. Few students were assigned the book to buy, however, as most college courses emphasized local situations and farm management data obtained within their respective states. Field trips to farms were important and students were commonly assigned some kind of term problem that required interaction with an active farmer and a reorganization proposal for at least a part of that business.

Macmillan had reprinted *Farm Management* eight times by 1918, reflecting its initial importance and wide use. Despite the continuing market, however, Warren never prepared a revised edition. By the 1920s he was already fully engaged in studies of prices and product supply. Moreover, a number of new texts in farm management became available

with examples and supporting data that were applicable to the state or region where they were published. In retrospect, Warren must have concluded that there were other places where he should concentrate his scholarly efforts.

### The Expanding Warren Farm

While Warren was writing his textbook on farm management, he also was busy making decisions on his own farm. Before the end of 1911 he had almost 200 contiguous acres of farmland on a well-traveled county road above Forest Home. During 1912 and 1913 he bought another 164 acres adjoining his property to the east and north. In 1912 he acquired the Emmens's property of 110 acres for \$8,000. In 1913 he added 50 acres from the Behrendt family, which bordered on the north the land he had acquired earlier from Calkins and Emmens. Most of this was pasture and hay land, as well as a sizable woodlot. All of this expansion must have resulted from his decision to use the barn on the Emmens farm to go into dairying in a larger way. To complete control over a contiguous block of land, he purchased another 4-acre property with a house from the Morris family.

These acquisitions of farm real estate meant taking on new mortgages and more debt. At the close of the farm business year in 1912 Warren's accounts showed a labor income of \$534. There was also a net gain in the interest account of \$922, the difference between a charge of 5 percent on capital invested in the farm business and the amount of cash he had paid as interest on his debt. In 1913, the equivalent year-end figures were \$1,512 and \$1,073. Warren was taking any surplus from his farming operations and investing it in real estate. His net worth statement in 1913 showed family assets totaling \$36,529, most of which was in the farm business. Their total liabilities were \$15,901, so the family net worth had increased to \$20,627. All of this assumed, of course, that a willing buyer for these properties might be available. The real estate was all listed on the books at the purchase prices plus the amounts Warren had spent for repairs, tiling, fences, and the like. This was a period of rising farm prices, and since Cornell was attracting more students, land values were rising accordingly when the properties bordered on well-traveled roads.

### Research on Accounting Systems

One of Warren's graduate students, Carl E. Ladd, worked on a project with a group of cooperating farmers to further refine and adapt cost accounting to farm family situations and recordkeeping abilities. Warren had developed such a system for his own small farming operation. He also studied and carefully followed the progress of the pioneering system developed with USDA support by Hays and Boss in Minnesota from 1906 to 1911.<sup>72</sup> The objective of Ladd's project was to develop and test a practical cost-accounting system that cooperating farmers could follow with modest assistance from a field man. He worked with twelve farmers in 1912 and thirty-one in 1913 on what became the basis for his Ph.D. thesis. Partial support for this project came from USDA's Office of Farm Management.

Cost-account work in Minnesota had initially relied on a "route-man" who made weekly visits to farmers to ensure that records were entered correctly and that labor for horses, men, and machines was properly allocated to each of the crop and livestock enterprises. The discipline of keeping track of all the work for each farm activity was critical if the final results were to be reasonably accurate. The cooperating farmers saw the value of the project, even if the bookwork was difficult in the beginning. Ladd and Warren set out to see if interested farmers could keep these detailed accounts with limited supervision—several visits each month at the outset, but fewer later on as the farmer became accustomed to the cost-accounting system. The basic accounting system they used and tested was the one Warren outlined in the seventeenth chapter of *Farm Management*.<sup>73</sup>

Ladd was a native of McLean in the township of Dryden, Tompkins County. He had entered Cornell as a student in agriculture the same year the historic survey reported in Bulletin 295 was completed. Ladd was an outstanding student and Warren quickly enlisted him as an undergraduate to assist in summarizing survey records. Ladd committed himself to a graduate program on the cost-account project as soon as he finished his senior year. It was a fortunate choice for both him and Warren; Ladd worked well with people and was a native of the local area. He was familiar with farming in the region and also knew what Warren was teaching and doing with cost accounts. The two communicated easily and Ladd's suggestions were well received by farmers and Warren. Because of USDA funding for this project and the high quality of Ladd's work, he prepared USDA Farmers' Bulletin 572, A System of Farm Accounting, published in 1914. Ladd completed his doctorate in 1915 and the results of his work in New York were published by Cornell in June 1916 as Bulletin 377, Cost Accounts on Some New York Farms.

Another major project investigating costs was launched in Delaware County, New York, for the two-year period August 1911–July 1913. Surveys were obtained from 210 farms initially, but only 174 records were completed for the two years. The purpose of this investigation was to find out as nearly as possible what it costs the average farmer to produce milk in the hill regions of New York. It was a study of the different costs



From: C. E. Ladd, June 1916, *Cost Accounts on Some New York Farms*, C. U. Agr. Exp. Sta. Bull. 377, p. 814.

of the dairy business, not an attempt to prove that dairying is either a profitable or an unprofitable enterprise. All of the data for the investigation were collected by the survey method."<sup>74</sup>

This project became the doctoral dissertation for A. L. Thompson, who joined the faculty immediately upon completing the research. The importance of the project is suggested by the opening paragraph of Cornell Bulletin 364, which summarized the results:

In 1910 New York led all other states in number of dairy cows within its borders and in amount and value of dairy products. There were on farms in the State 1,509,594 dairy cows. The value of the products from these animals, exclusive of milk and cream used on the farm, was \$77,807,000, an amount exceeding the value of any other agricultural product of the State. About seveneighths of the milk produced is sold from the farm in the form of milk. Some of the milk produced is afterwards made into butter, condensed milk, cheese and other products.

Thompson found that the average cost of producing 100 pounds of milk was \$2.35 for the year ending in July 1912 and \$2.03 for the year

ending in July 1913. This was a surprising difference in average costs for two consecutive years. Given that the study encompassed such a large number of farms in a major producing area less than 100 miles from New York City, it was an important finding. Hay and grain prices had been high in 1911–12 because of unfavorable weather conditions. A second year of information from the same 174 farms yielded lower costs when production conditions for crops were more favorable. Nevertheless, Thompson concluded that for 1913:

Under these favorable conditions the average cow was kept at a loss of \$12.50. This year the cows were able to pay all costs except hay and forage raised on the farm, and they paid 66 percent of the farm value for this. If the cows paid full value for the feed there would remain but 4 cents per hour to pay for the labor. In order to show a profit, either feed or labor must be charged below its value, or manure must be credited at too high a rate.<sup>76</sup>

The question might be asked, how do these farmers live when they lose from \$12.50 to \$32.14 per cow each year?...The adaptability of hay and grass to Delaware County is one of its greatest resources. With average New York conditions it is possible to make money growing hay....The average cost for producing hay on thirteen New York farms that kept cost accounts in 1912 was \$7.82 per ton. Hay in Delaware County during that year was valued at \$18.49 per ton. Assuming this hay to cost the same as it did on the thirteen farms, there would be a profit of \$10.67 on every ton that was fed to the cows.<sup>77</sup>

By assigning the same price to hay produced on the farm as one would have to pay to buy it in the marketplace, much of the profitability of farming in Delaware County was assigned to the hay and grass enterprises. Thus, a combination of family labor and hay and grass crops were being marketed through the sale of milk. In fact, producing milk was the most effective way to market the grass from the pastures, the hay on the hillsides, and family labor.

A section titled "Recommendations" included these telling comments:

The real difficulty with the dairy industry is not low production, following a wrong system of farming, nor using poor methods. Every one of these could and should be improved, but the fault is somewhere else....In the opinion of the writer the farmer does not receive enough for his milk.<sup>78</sup>

These two studies, which looked at two different ways of collecting information from farmers on their costs of production for individual enterprises, provided important factual data to farmers and the public. Warren was able to successfully test the feasibility of these methodologies and demonstrate their effectiveness under field conditions. At the same time, Ladd and Thompson were establishing themselves as strong new professionals who would later become important figures in agriculture in their own right.

#### Footnotes

- 1. Letters from Home, 400.
- 2. Ibid., 402.
- 3. Ibid., 404.
- 4. Ibid., 405.
- 5. Ibid., 406.
- 6. Ibid., 410.
- 7. Ibid., 413
- 8. Ibid., 415.
- 9. Ibid., 417.
- 10. Ibid., 419.
- 11. Ibid., 426.
- 12. Ibid., 437.
- 13. Ibid., 439.
- 14. Ibid., 443.
- 15. Ibid., 444.
- 16. Ibid., 448.
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- 18. Ibid., 450.
- 19. Ibid., 450.
- 20. Ibid., 451.
- 21. Ibid., 455.
- 22. Ibid., 456.
- 23. Information provided by Ruth Warren Gerlach, a granddaughter of Warren and holder of a notebook of Warren's containing this citation.

- Henry C. and Anne Dewees Taylor, *The Story of Agricultural Economics* in the United States, 1840–1932 (Ames, IA: Iowa State College Press, 1952), 83.
- 25. American Farm Management Association [AFMA], "Proceedings, Report of First Annual Meeting," July 1910, 3.
- 26. Ibid., 4.
- 27. Taylor and Taylor, 87-89.
- 28. AFMA, "Proceedings," Fourth Annual Meeting, November 1913, 9.
- 29. Ibid., 26.
- 30. Ibid., 120.
- Dean's Annual Report of the College of Agriculture, Cornell University, 1907–08, v–vi.
- 32. Gould P. Colman, *Education and Agriculture* (Ithaca, NY: Cornell University, 1963), 224.
- Dean's Annual Report of the College of Agriculture, Cornell University, 1911–12, 2–3.
- 34. Colman, 212.
- 35. Ibid., 225-26.
- 36. Ibid., 200-03.
- 37. Ibid., 228-31.
- Dean's Annual Report of the College of Agriculture, Cornell University, 1912–13.
- 39. Ibid., xix.
- 40. Ibid., xix.
- 41. Colman, 294.
- 42. Dean's Annual Report of the College of Agriculture, Cornell University, 1913–14, 20.
- 43. Colman, 206–11.
- 44. Ibid., 240-43.
- 45. George F. Warren, *Farm Management* (New York: Macmillan Co., 1913), iii.
- 46. Ibid., v.
- 47. Ibid., v-vi.
- 48. Ibid., 16.
- 49. Ibid., 20.
- 50. Ibid., 35-36.

- Liberty Hyde Bailey, *The State and the Farmer* (New York: Macmillan Co., 1908) and *The Country Life Movement in the United States* (New York: Macmillan Co., 1911).
- 52. Warren, Farm Management, 43-44.
- 53. Ibid., 44-45.
- 54. Ibid., 45. One century later, cotton no longer is a dominant crop in the South, as other major production areas in the U.S. and overseas have been developed.
- 55. Ibid., 50.
- 56. Ibid., 51–52.
- 57. Ibid., 53.
- 58. Ibid., 104-05.
- 59. Ibid., 107.
- 60. Ibid., 108-09.
- 61. Ibid., 130.
- 62. Ibid., 133-42.
- 63. Ibid., 143.
- 64. Ibid., 143-44.
- 65. Ibid., 146.
- 66. Ibid., 182.
- 67. Ibid., 203–38.
- 68. Ibid., 239.
- 69. Ibid., 266.
- 70. Ibid., 530-31.
- 71. Ibid., 535.
- 72. Andrew Boss, "Forty Years of Farm Cost Account Records," *Journal of Farm Economics* 27, no. 10 (February 1945).
- 73. Warren, Farm Management, 440-93.
- Cornell University Agricultural Experiment Station Bulletin 364, October 1915, 115.
- 75. Ibid.
- 76. Ibid., 141.
- 77. Ibid., 142.
- 78. Ibid., 145.

# From Farm Management to Prices and Public Policy

## 1914–1918

After the Civil War and the opening of the West beyond the Mississippi River, the number of farms in America continued to grow. European immigrants and young families from the eastern half of the United States came to establish farms and new communities on the prairies and open lands of the West. Settlements followed the railroads across the western plains to the mountains and beyond.

Census statistics provide an overview of the rapid changes that occurred in the years following the Civil War (see Table 5-1). As the population of the country doubled between 1870 and 1900, the number of farms as well as the acreage devoted to farming more than doubled during the same time span. People living on farms made up more than 40 percent of the nation's population in the 1880s and 1890s. At the turn of the century, nearly 40 percent of Americans still lived on farms. By 1910 the farm population had dropped to 35 percent of the national total, as the growth of cities and industrialization provided employment and new opportunities for work. In 1920, farm population held steady but now was only 30 percent of the total. Even in 1940 the farm population was a significant part of the total at 23 percent, but in the next half century the number of Americans living on farms would drop to less than 2 percent of the total population.

By 1910 there were more than 6 million farms and the rate of growth in land devoted to farming had slowed. The average farm size of 139 acres included many that were "quarter sections" of 160 acres. Most of the new land that was settled west of the Alleghenies after 1840 was laid out in sections of 640 acres. For most farmers, 160 acres was enough land to provide food for their family, some surplus crops to sell,

			Number of	Land in	Average
Year	Population	Farm Population	Farms	Farms	Acreage
	(millions)	(millions)	(millions)	(mil. acres)	(per farm)
1850	23.2		1.45	293.6	203
1860	31.4		2.04	407.2	199
1870	39.8		2.66	407.7	153
1880	50.2	21.9	4.01	536.1	134
1890	62.9	24.8	4.57	623.2	137
1900	76.0	29.9	5.74	841.2	147
1910	92.0	32.1	6.37	881.4	139
1920	105.7	32.0	6.45	958.7	149
1930	122.8	30.5	6.30	990.1	157
1940	131.7	30.5	6.10	1065.1	175
1950	150.7	23.0	5.39	1161.4	216

Table 5-1. Growth in Population and Farming, United States, 1850–1950

Source: "Historical Statistics of the United States, Colonial Times to 1970," part I, Bureau of Census, U.S. Department of Commerce, 1975.

and full-time work for a team of horses or oxen. With the availability of new farm machinery and tractor power in the succeeding years, the average farm grew larger and the number of farms increased to nearly 6.5 million in the 1920s. After World War II, the numbers fell rapidly as mechanization and new technology enabled one worker to accomplish much more with less physical effort than a century earlier.

As more land was brought under the plow in North America, farm production outpaced effective demand within the United States. There was a steady downward trend in the wholesale prices of farm products and commodities in the span of thirty years between 1868 and 1897. The economic corner turned before 1900 and a slow upward trend occurred in prices for all commodities, including farm products, until 1914 when war broke out in Europe.

This combination of events in the national and farm economies led to many changes for farmers and for the faculty and staff members in colleges of agriculture. In the late 1910s George Warren's attention began to turn away from farm management to other key problems facing farmers, and his interest grew in the discipline that came to be known as agricultural economics.



New Experiment Station Bulletins

Warren wrote three new experiment station bulletins in 1914. The first, *Crop Yields and Prices, and Our Future Food Supply* was published in February. As the title suggests, it was quite a departure from his earlier publications. This bulletin responded to a set of current questions and concerns about food prices and the ability of farms and farmers to meet the country's needs. Warren's lead paragraph explains his motivation:

The questions, whether our soil is exhausted and how we are to be fed in the future, are constantly being discussed in newspapers and magazines. The wildest sorts of statements are being made. Statistics are so persistently misquoted and misused that wrong impressions or absolute untruths are often accepted. The farmer is blamed for not selling enough food, and in the next breath is condemned for allowing any plant food to leave his farm. Many public citizens are planning all manner of solutions for existing conditions, sometimes with an entire misconception of what such conditions are. In the midst of all the excited discussion, it is well to stop long enough to examine available facts and find out where we stand. There are two, and only two, sources of information on crop yields, the United States Census Reports and the reports of the Bureau of Statistics of the United States Department of Agriculture.<sup>1</sup>

Following this introduction, Warren presented a table of crop yields in the United States for major and minor crops in the census years of 1879, 1889, 1899, and 1909. The table shows that yields had remained stable for wheat, corn, and oats, whereas they trended upward for potatoes, hay, tobacco, rice, sweet potatoes, and hops. Warren commented about the strong influence on national yield averages that resulted from the increased acreage of major crops produced in states west of the Mississippi in the 1880s and 1890s. Rainfall is often a limiting factor to yields in these states, which were usually below national averages. In a separate table presenting yields for all states east of the Mississippi, he showed that an upward trend occurred in yields for corn, wheat, potatoes, and hay. He provided greater detail of crop yields by groups of states for the four census years. Another table showed index numbers of crop yields for individual years from 1866 to 1912 for the entire United States and for states east of the Mississippi. Similar tables were also provided for New York.

Warren posed the question, "Why are crop yields increasing?" as he showed yields had increased in New York, particularly between 1899 and 1909. He answered, "The striking increase is due to the better returns that crops now bring. Every farmer knows many ways of increasing his crops. Whenever prices rise, more fertilizers and better methods are used. In the states east of the Mississippi River in 1899, the average expenditure for fertilizer was 36 cents per acre of crops. In 1909 it was 78 cents."<sup>2</sup>

He then went on to examine the wholesale prices in major market centers for corn, wheat, cotton, potatoes, oats, hogs, beef, sheep, butter, and eggs from 1842 through 1912. He also showed tables of farm prices in New York for eight major crops. He discussed the low farm prices received during the 1880s and 1890s and commented:

...there was a period of such serious overproduction of farm products that farmers received almost nothing for their work. The Yearbook of the Department of Agriculture gave the average price of corn in 1896 as 21.5 cents per bushel of shelled corn. The average price in Nebraska that year was 13 cents and in 1897 it was 17 cents. The corn from a farm that the writer helped to operate, in eastern Nebraska, sold in 1896 for 8 cents per bushel of shelled corn, so that the above prices appear sufficiently high.

If efficient methods of farming are used, an acre of corn in the Corn Belt can be grown, harvested and marketed with 20 to 25 hours of man labor and 40 to 50 hours of horse labor. The Yearbook reports the average yield of corn in Nebraska in 1896 was 37.5 bushels of shelled corn per acre. At 13 cents per bushel this was worth \$4.88. This is the amount of money that the farmer



FIG. 23.—Average wholesale prices in cities of five important jarm crops and five important animal products. The average for 73 years equals 100 per cent. Present prices are only a little higher than the 73-years average

received for two days of work for himself and his team, use of an acre of land, use of machinery, use of corn crib, and to pay the corn-shelling bill. This amount of money left the farmer less than no pay for his own labor. He paid for the privilege of working.

The prices of farm products in 1896 were the lowest for the past 73 years. Yet it is that year, with which present prices are almost invariably compared to show how high prices are now. Why not take 1846, 1856, 1866, 1876 or 1886? Or better yet, why not use a long enough period to tell whether we are on a "hill" of high prices or whether we have just passed through a "valley of low prices"?<sup>3</sup>

#### Warren went on to say,

The city dweller who compares prices with 1896, and perhaps remembers his boyhood days on the farm, thinks that the farmer of today must be getting rich....The average farmer is making interest on his capital and farm wages for his labor. The interest is not high enough to attract any large amount of money out of the cities. The wages are not high enough to cause any large number of men to move from city to country, but they are high enough to keep most boys on the farm. Probably enough of them are now staying, but the effect of this will not be felt for a few years. Just now we are feeling the effect of the great exodus of boys during the nineties. Now boys are studying agriculture and are staying on the farms. They are responding to the increased prices by becoming farmers, as their fathers are responding with increased crops.<sup>4</sup> In this publication, Warren was responding to the concerns urban consumers had about rising retail prices of food products and examining the various explanations given for these increases. His approach was to go back in history and look at the facts over a substantial span of years. His presentation of index numbers for the wholesale prices of ten different widely used farm products for the years 1840–1912 provided an effective way to help readers look at the more recent price changes. The graphics provided perspective to help them visualize what was happening. He had used charts and index numbers for the same purposes in a few earlier bulletins and in his book, *Farm Management*, and believed it was an effective way to show trends so that his readers could understand them.

This bulletin was the first in what would be a large number of Warren's publications that focused on a current issue of public policy related to agriculture. In this case, he served as a spokesman for the farm community and explained its point of view. He cited his own experiences as a farm boy and a student in the depths of the economic depression, when money to buy coal could not be found.<sup>5</sup> His words reflected how strongly he felt about the unfairness of comparing prices at the bottom of the farm depression in 1896 with those in 1914.

In April 1914 the Experiment Station issued Bulletin 344, *Agricultural Surveys.* This sixteen-page statement summarized what Warren had learned about how to conduct successful agricultural surveys. Some of the paragraph headings in boldface type give a good sense of its contents: "First find out the facts," "Importance of knowing the normal," "Some facts can be determined only by studying farms," "Survey methods often the cheapest," "Limitations of survey work," and "Order for making surveys."<sup>6</sup>

The second half of the bulletin spoke to a set of practical issues: "Definite object necessary," "Too much should not be attempted," "Every record should be completely filled," "Supervision of the work," "Typical region and year," "Number of records necessary," "How to ask questions," and "The field party."<sup>7</sup> This bulletin was largely a revision of Warren's presidential address at the AFMA annual meeting in 1913 and was written in response to requests from that audience to make the information more widely available to those using survey methodology in extension and research.

Some fifty years later in 1964, on the anniversary date of this bulletin's publication, it was reproduced again for the use of students and faculty at Cornell. While its examples were dated, such as using horses and bicycles when visiting farmers to conduct personal interviews, the concepts and ideas were just as valid as when it was published. In that

sense, this 1914 bulletin was one of Warren's most timeless and useful publications.

Warren's third 1914 bulletin, *Some Important Factors for Success in General Farming and in Dairy Farming,* was published in July. This was his summary statement on the key factors leading to success in farm management based on what had been learned from the agricultural surveys conducted in three New York counties that had quite different soils and farming systems. The Tompkins County study for the business year 1907–08 had provided a test of the basic survey methodology with a group of general farms where dairy cows were typically the most important livestock enterprise. The 1908–09 Livingston County study was conducted in the northern towns of the Genesee River Valley, where some of the most productive soils in the state are located and crop sales were commonly the major source of farm income. The Jefferson County study in 1910–11 was completed in a specialized dairy farming region where the principal crops were hay and pasture.

Warren summarized the body of work that he was using to establish the general principles of farm management. He began, "For eight years the Department of Farm Management has been studying farms in order to learn why some farms pay better than others....Records have been obtained for a considerable number of farms in different parts of the State, in all 2,743 farms....Similar work has been done in fourteen other States. So far as the work in other States has been published and so far as the writer has heard it discussed in lectures, the same principles are shown to apply."<sup>8</sup>

Following this preamble, he emphasized the importance of labor income as a way to measure the profitability and success of a farm business. In a key paragraph titled "Factors affecting profits," he wrote:

There are hundreds of things that have some effect on profits, but many of these can make only a slight difference. There are many other factors that set absolute limits to the profits. Of these factors, a few stand out as the prominent ones on the vast majority of farms. From a long study of this question, it is found that the factors that most frequently determine whether the profits are poor, good or excellent are the size of the business, the diversity of the business, the crop yields, and the production per animal.<sup>9</sup>

Much of the rest of the bulletin is devoted to showing how to measure these factors and demonstrating their importance by using data from the farm studies in Livingston and Jefferson Counties. Most of these results had not been presented in earlier experiment station bulletins, although they had been widely discussed in farm meetings. This bulletin was the first to publish scatter diagrams to emphasize the variability among the averages obtained when studying the effects of size of farm on labor income or crop yields on labor income.<sup>10</sup> These diagrams made it clear that a number of other factors were at work besides the two being studied. Most of all they reminded readers that any average could only portray central tendency; it was also important to recognize the spread and variability around that average.

Diagrams such as Figure 102 helped readers see the amount of variability that existed from farm to farm in two different size groups. Warren explained:

The chances for profit or loss on the small farms are very closely limited, as is shown by the close grouping in the figure. Nearly all the farms of less than 50 acres made labor incomes from a loss of \$200 to a gain of \$400. It is very difficult to make a large profit and there is very little danger of a large loss on a small place. The farms of over 200 acres bring opportunities for both success and failure. The great majority of the farmers on these farms make more than the average of the small farms. But a few lost much more than it is possible on a small place.<sup>11</sup>



FIG. 102.— Labor incomes on 215 individual farms of 50 acres or less and on 281 farms of over 200 acres. The large X indicates the average for each group as given in Table 6. Each small cross indicates one farm and its position indicates the labor income.

Warren summarized what had been learned in these three studies and presented a table of general averages for each location, against which a farmer could compare his own business results. A fourth set of averages was created from the results obtained by the twenty-three most successful dairy farms in the three counties.<sup>12</sup> TABLE 28. Efficiency Factors. Averages for Tompkins, Livingston, and Jefferson Counties, and for 23 Most Successful Farms Selling Milk at Wholesale

			and the second se	
	Tompkins county	Livingston county	Jefferson county	23 most successful wholesale* milk farms
Labor income	\$445	\$666	\$609	\$2,658
Capital. Area (in acres). Acres in crops. Number of work horses and mules. Number of cows. Number of other animal units	\$5,712 108 57 3.1 8	\$12,037 149 93 5.6 9	\$9,006 143 73 3.4 15 6	\$19,728 257 154 7.4 32 8
Total animal units Number of men including operator <sup>†</sup> Productive units of man work Production Production	16 1.5 301 177	23 2.2 479 337	24 1.7 421 219	47 3.2 942 550
Crop yields compared with average (per cent) Corn (bushels per acre) Oats (bushels) Wheat (bushels) Buckwheat (bushels) Timothy and clover hay (tons) Potatoes (bushels) Beans (bushels) Cabbage (tons) Pounds of milk sold per cow	100 29.5  20.9 16.6 1.3 122	100 39.6 9.8 41.1 18.5 1.42 106 15.9 6.18	100 36.4 9.9 30 8 19.8 1.44 124 18.0 8.34	119 48.0 11.8 43.0 23.5 21.4 1.59 153 21.6 10.3 ‡6,470
Receipts per cow from milk and its products Receipts per cattle unit Receipts per sheep Receipts per animal unit excent	\$53 \$52 \$5.18	\$57 \$52 \$4.87	\$59 \$57 \$8.91	\$98 \$92 \$5.33
work animals Percentage of receipts from crops Efficiency in use of labor	\$52 40	\$50 58	\$61 22	\$90 34
Crop acres per man Animal units per man Productive work units per man Crop acres per horse Productive work units per horse	38 11 201 18 57	42 10 218 17 60	43 14 248 21 64	48 15 294 21 74
Value of houses of capital Percentage of area in crops Percentage of area in crops Percentage of capital in houses Value of barns Percentage of capital in barns Value of barns per animal unit Percentage of capital in all buildings Value of machinery Value of machinery per acre of crops Fertility	\$43 53  45 \$407 \$7.14	\$72 62 \$1,658 14 \$1,603 13 \$70 27 \$583 \$6.27	\$51 51  \$482 \$6.60	\$62 60 §\$2,238 11 §\$2,663 14 \$57 25 \$968 \$6.29
Crop acres per animal unit Amount spent for fertilizers Cost of fertilizers per acre of crops	3.6 \$15 \$0.26	4.0 \$51 \$0.55	3.0 \$10 \$0.14	3·3 \$39 \$0.25

§ Values of houses and barns for 16 of the 23 farms.

<sup>\*</sup> Three other dairy farms that sold milk at wholesale and that made over \$2000 labor income were omitted. One derived nearly all its income from buying and selling cattle. One made most of the income from pure-bred stock. One was really a crop farm. † Work of women and children is included on the basis of the time that it would take a man to do the

This is in addition to milk used in raising calves and milk used in the house. The total production probably averages nearly 7000 pounds.

One can see some of Warren's philosophy of life in this concluding statement:

Every farmer will do well to compare his farm with the averages for Tompkins, Jefferson and Livingston Counties. He should strive to have his farm better than the average in every point. Particular attention should be given to anything in which his farm falls below the average. A careful farmer may hope for crop yields a fifth better than the average and production per animal a half better than the average. With these conditions and a good sized farm, he may hope for a labor income of two to five times the average after he gets his business established....The success of a farm is primarily dependent on the factors emphasized in this bulletin. But success of an individual is primarily dependent on the relation of his income to his family expenses. The highest financial success comes when a well-balanced, successful farm is combined with reasonable economy in living.<sup>13</sup>

Bulletin 349 was one of the last experiment station publications for which Warren was the single author. It summarized three major studies that used agricultural surveys to obtain reliable information from farmers about their businesses. His success with this methodology had led others across the country to follow the same or similar procedures to collect useful data from farmers. Most of the subsequent experiment station bulletins prepared by authors in his department bore the names of the graduate students or principal researcher assigned to the project. Warren had already gained enough respect within the college and across the country that he supported giving primary author's credit to the individual who had been central to completing the project. Acknowledgement of his supporting role in a footnote at the beginning of the publication was enough. This had been Liberty Hyde Bailey's preference when Warren's own thesis was published as two bulletins, and Thomas Hunt had followed the same pattern. The two experiment station bulletins that summarized doctoral theses by A. L. Thompson (1915) and C. E. Ladd (1916) were early examples of this important means of recognizing highly capable professionals and their work. This practice became a tradition followed in the Department of Agricultural Economics at Cornell for the rest of the century.

### A New Dean and Director

After ten years as dean and director of the College of Agriculture, Bailey would not consider serving any longer and resigned in 1913. William A. Stocking, dairy industry, was appointed acting director while the university set about finding a replacement. Bailey left behind a great reservoir of goodwill for the college among farmers and rural people throughout the state, many of whom viewed him as their champion during his years at Cornell. He had led the college through a period when the state's economy was prospering and agricultural prices were recovering from the depression of the previous decades. New buildings and funding for the college had come about because of his leadership. His national stature and success in working with the state legislature allowed him to gain substantial independence in decision making for the college, which the faculty greatly appreciated and had come to take for granted. President Schurman and the board of trustees, however, were prepared to wrest back control over the college, and they made sure that they did.

In seeking candidates for the next dean and director, Schurman sought advice from a number of sources outside Cornell. President Van Hise at the University of Wisconsin suggested that Beverly T. Galloway, who was then assistant U.S. secretary of agriculture, was particularly well qualified. Under his leadership the Bureau of Plant Industry in Washington, D.C., had become a major center of research and extension for the nation. Some Cornell alumni who had worked under Galloway were enthusiastic about his promise and abilities as an administrator, but when Schurman first approached him about coming to Cornell, Galloway expressed little interest. Schurman persisted and finally he agreed to come to Cornell to be considered for the deanship. On April 14, 1914, Galloway's name was presented to a joint meeting of the college faculty and the Agricultural College Council.

At this meeting, seven members of the faculty, speaking for the larger group, opposed the appointment and spoke in favor of continuing Stocking's appointment or urging the university to appoint H. L. Russell, who was then dean of the College of Agriculture at the University of Wisconsin. President Schurman disagreed and at a meeting of the trustees in May 1914, Galloway was appointed dean of the college and director of the experiment station. Schurman added these handwritten notes on the minutes of the meeting: "He will direct the College and cooperate with the University. Solution to our problem. Never more confident of nomination."<sup>14</sup>

While the president and trustees had confidence in Galloway, he began his new position with part of the college alumni association in active opposition and a faculty that was accustomed to a far different relationship with his predecessor. Bailey had independently sought funding and other means to support individual faculty members in carrying out their projects and research, rather than following the university's formal administrative structure for decision making. He also had been their leader during a period of rapid growth, bringing in money for new buildings and substantial increases in student numbers. Most of the college faculty were not ready for the very different style of leadership their new, distinguished administrator brought with him from Washington, D.C.



The buildings of the New York State College of Agriculture about 1915–16. The building at the far left in the back is Comstock Hall (Home Economics and Entomology). Stone Hall, in front on the left, housed Agronomy, Plant Sciences, and the Library. Roberts Hall in the center was home to the College administration, farm practice, and extension. East Roberts on the right was the dairy building. A judging pavilion was behind it, later to house part of agricultural economics.

Galloway started well in his meetings with farmers and farm organizations. He too wanted a strong college that would work for the best interests of rural people, produce solid research results, and inspire students to ever-higher goals. But it was difficult for the faculty to meet and talk with him without an appointment. His door was not open; there was a private secretary who received questions and provided answers later. The college's relationship with New York State deteriorated for a variety of reasons, and for the first time in a decade its budget was reduced and new controls were put in place by the governor and state legislature. When Galloway proposed that a number of academic departments be consolidated and eight service departments created through which all college business be done, most of the college faculty saw this as an abridgement of their academic freedom. At a faculty meeting in February 1916, Galloway ruled a joint report of the committees on extension programs and experiment station research out of order, stating that it dealt with administrative matters that were not within the jurisdiction of the faculty. A substantial number of faculty members demanded that Galloway recognized that his leadership was not successful and tendered his resignation to Schurman.<sup>15</sup>

No doubt nearly any outsider put in the position of following Liberty Hyde Bailey would have had difficulty. Bailey's charismatic leadership and his great success in working with the legislature and governors were legendary. It is likely that many of the reforms Galloway sought to put in place in the administration of the college were necessary. But the faculty was not yet ready for a change in leadership style, whether or not he had the strong support of the university administration. Warren was a great supporter of Bailey. His own rapid rise to become a department head and leader in the faculty reflected Bailey's confidence in Warren's ability and judgment. While he had been among those who initially opposed Galloway's appointment, Warren was not one of the leaders calling for his resignation. In this case, he was a figure behind the scenes rather than one of those out in front, particularly since he had taken a sabbatical leave in 1914–15, during the period of greatest acrimony.

Albert Mann, who had been secretary of the college since 1909 and director of student affairs, was appointed acting dean and director after the trustees accepted Galloway's resignation. A long-time member of the faculty, he had the confidence of nearly all the leading figures among that group. He accepted a somewhat narrower frame of reference within which to take actions on behalf of the college than Bailey had. Initially all of the departments remained as before, but within a few years a number were combined with the full cooperation of the individual faculty members involved. Mann moved forward without further incident and worked well with both President Schurman and the college faculty.<sup>16</sup>

Mann was a healer, and after being confirmed as dean and director, he built the necessary bridges between the College of Agriculture, the university administration, and other colleges at Cornell, and in Washington with Galloway and the USDA. He was a man of his word and kept his promises. With this kind of leadership and support from the State of New York, the College of Agriculture was in good hands and prospered accordingly. In his history of the college, Gould Colman wrote:

Part of Mann's efficiency as an administrator resulted from a marvelous sense of timing. Well aware that considerable energy could be dissipated to little effect, he awaited the opportune moment to introduce changes. He seems to have calculated, in every major decision where a variation in timing was possible, the intensity and direction of the relevant social forces....The most significant example, however was the preparation of the campaign for the expansion of the College of Agriculture and the follow-up in the legislature. The faculty called the legislature's approval of the building program and the substantial salary increases "a brilliant achievement"; Stocking who had some experience with the legislature, called Mann's success in Albany "nothing short of phenomenal"; and President Pearson of Iowa State considered it "a new record, not only for Cornell, but in the United States."<sup>17</sup>

### Warren's Farm and Family

Between 1911 and 1913, Warren had aggressively expanded his farm, acquiring contiguous fields to the north of the property that he had bought originally at the top of the hill overlooking Forest Home. At the beginning of 1914 he held title to about 360 acres. That year he added 50 more acres, absorbing the Raub property with fields bordering Hanshaw Road on the north and his own fields on the south. In 1915 he and Mary gained title to the Ashlin property of 80 acres, which bordered Hanshaw Road on the north and the fields he had purchased in 1913 on the south. In addition, they also gained title to one field of about 30 acres to the north of Hanshaw Road bordering Sapsucker Woods Road on the east. Altogether Warren put together a nearly contiguous block of 478 acres of relatively level, but imperfectly drained, farmland in close proximity to Cornell.

In addition to their poultry enterprise, which initially had been the primary source of farm income, the Warrens planned to enlarge the dairy enterprise and sell milk as well as eggs. The best use of much of this acreage was for hay and pasture. Tile drains were installed on a few fields so that grains could be harvested and legumes planted, with oats and barley as nurse crops. This was a time of rising agricultural prices and relative prosperity for farmers. It seems clear that Warren was putting together a fairly large area of land not only to support his dairy and poultry farm, but as an investment as well. With the university growing rapidly and the proximity of the lands he acquired adjacent to two important roads, he was prepared to take on mortgages and notes to build up his farm as a business venture and as a site for future development. His success in increasing his net worth by buying land in Nebraska nearly twenty years earlier continued to encourage these additional purchases.

Warren's careful records for his farm and the real estate associated with it provide a picture of some of the changes that occurred in the four years between 1914 and 1918, when he acquired the additional 130 acres south of Hanshaw Road and expanded the dairy cattle enterprise. In 1914 his records showed total assets of \$45,508, of which \$31,361 was in real estate. In 1918 his total assets were listed as \$87,255, with \$61,141 in real estate. Part of the increased value in real estate came from the two new properties purchased; additions and improvements to the barn and other buildings for the expanding dairy also contributed to his family's rising net worth. The value of livestock, machinery, and other farm assets in 1918 was \$24,137, a substantial increase from the \$9,654 Warren recorded just four years earlier. Part of the increase in assets was also the increased value assigned to the farmland by the tax assessor. Warren's net worth statement in 1914 showed a year-end balance of \$27,732; in 1918 his net worth was \$58,604. Although their debt had increased from \$17,777 to \$28,650, this was a time of rising prices and economic growth in Ithaca. The Warrens' financial position must have looked quite acceptable to their mortgage holders and the bank.

George Warren spent little time on the farm during these years, except for walking the fields, checking all the barns, and serving as the overall manager of operations. Students helped with the poultry and the dairy herd. He had a hired farm manager and regular workers at the house and in the barns. Labor efficiency at his own farm would not have met the standards Warren wrote about for most commercial farms of comparable size, where the owner was also one of the key workers as well as manager. His farm provided Warren a place to get away from teaching and the affairs of the college, and spend productive time with his growing family. While the labor incomes from the farm were relatively small during these years, the 5 percent return on capital invested in the business more than covered the interest on real estate debt. Thus their farm business contributed to the Warren family's regular increases in net worth during these years of rising prices. A fifth child, Martha, was born to the Warrens on October 8, 1915, joining their daughter Jean and her three brothers, Stanley, Richard, and Fred (George Frederick, who was born September 23, 1913). A little over two years later, another new baby arrived on December 28, 1917, and was named Mary after her mother. The Warrens had had a new child every two years, and Mary proved to be the last addition to their family. With three boys and three girls on hand, the house and farm were always full of activity. Mother Mary was a good manager, as her husband was frequently away from Ithaca on trips to meetings and speaking engagements. The farm provided lots of things for everyone to do and offered good places for the children to play; they each had chores to do as soon as they were able. Some eighty-five years later, daughters Martha and Mary remembered a happy, lively, and well-ordered household, with their father always finding time to do things with them on weekends.

### Leaves and Travel in the United States

Having worked steadily and successfully on the faculty for seven years, Warren sought time for a sabbatical leave to travel and see farms and farming conditions firsthand outside the Northeast. He wanted to visit parts of the country he had heard about from professional colleagues at meetings and places he read about in his personal library of bulletins and reports. He was granted a study leave and he made two trips: one to the Southeast in 1914 and the other across the country to California in 1915.

Warren's papers contain handwritten notes taken during these travels; later some of these notes were typed by a secretary. His approach was to contact people he had met at an AFMA or other national meeting and ask for their help in arranging some farm visits. On his trip to Georgia, Alabama, and Tennessee in the spring of 1914, he traveled by train to planned destinations and then went with his contacts to talk to farmers and townspeople. In Georgia he went south to Americus and then made his way north and east, visiting farms and small towns along the way to the university and experiment station in Athens. From there he went by train to Alabama, where he first visited farms near Birmingham and then went on to others near Montgomery, Selma, and Uniontown.

He talked to white farmers and black farmers. He learned about cotton and peanuts and how those crops were cultivated, harvested, and brought to market. He made notes about the levels of education of the farmers he met, their sources of credit, their farm buildings, and the houses in which they lived. He was struck by the number of impoverished people he talked to, as well as the general friendliness of nearly everyone he met. He saw his first plantations and observed firsthand the difficulties that sharecroppers, both black and white, faced in trying to make a living. In his notes he underlined the importance of improving schools as a necessary step in making progress for many of these farmers. Seeing the living conditions in the countryside and talking with local people gave him a perspective on farm and rural conditions that he believed could not be obtained in any other way.

Warren also spent two months in the summer of 1915 on a much longer trip across the country to Utah, Oregon, and California, stopping to visit family in Nebraska and Colorado along the way. Thomas F. Hunt, who was now dean of the College of Agriculture at the University of California-Berkeley, invited Warren to come west to visit farms in California and see the Panama Pacific International Exposition, which was held that summer in San Francisco. After classes and graduation were over at Cornell, Warren set out by train for the West Coast. He preserved a 55-page summary of this trip, as well as a number of brochures and memorabilia he collected along the way.<sup>18</sup> He made careful notes about what he saw of farms and crops as the train took him across Ohio, Indiana, Illinois, and Iowa to his native Nebraska. He spent four days with his brothers in Harvard and Trumbull, and encouraged Herbert to send one or more of his children to attend college at Cornell. (Warren offered to provide them room and board at his home, but none of his nieces or nephews decided to come East to accept his offer.)

Warren spent some time as well in Minden, Nebraska, the town where he first taught for a year and then returned to serve as school superintendent. This trip made it possible to rebuild good contacts in that friendly community. Before he left Ithaca he corresponded with some of the people there who had supported his decision as superintendent in 1902 to expel the judge's son from school. Among his papers is a letter he received in January 1915 from C. P. Anderbury, a Minden attorney:

Your letter of the 3rd inst. with enclosure for P. H. Thomsen received. Yesterday we presented Mr. Thomsen with a Victrola. He was very much pleased. Mr. Thomsen is doomed for life in a chair having been and is now suffering from a disease or sickness called Arthritis Deformans, which is a species of rheumatism. The patient almost imperceptibly becomes helpless....I am pleased to note that western men are progressing so well that they are asked to come to the educational east to help them there. R. A. Emerson, formerly Professor of Agriculture in Nebraska, recently transferred to Cornell. He is from Norman, Kearney County. Kearney County is proud of the fact that it can furnish a professor to Cornell University. Professor Emerson is a classmate and graduate with Mr. Thomsen out of the class of 1892 from the Minden High School. I wish you would look him up and tell him I called your attention that he was from Kearney County.<sup>19</sup>

Emerson, who was a colleague of Warren's on the faculty, later became an international leader in plant breeding; there is now a building named for him on the Cornell campus.

After a few pleasant summer days with family and friends, Warren took the train west through Colorado up to Cheyenne, and then across the high plateau and mountains of Wyoming to Utah. He traveled the route of the first transcontinental railroad and could appreciate firsthand why this route had been chosen instead of one further south across the higher mountains. He spent a week at Utah State Agricultural College in Logan, giving seminars and getting acquainted with their faculty. From there he went on to Boise, Idaho, and visited farms where irrigation was essential to crop production. He got off the train in Pendleton, Oregon, to visit a ranch and again at Hood River to see the fruit farms in that valley. After a day in Portland he took the train south to San Francisco via the Sacramento Valley. His hosts at U.C.-Berkeley took him to the great exposition, but he made relatively few notes about that experience. He went back to Sacramento and Davis to visit vegetable and grain farms in the Central Valley, then traveled south to Fresno to the vineyard, citrus production, and developing irrigation areas along the tributaries of the San Joaquin River.

Warren was greatly impressed by what he saw in California and particularly by the productivity of the farms he visited. The strength of the programs at the experiment station in Davis was readily evident. This was further reinforced by his visits to the bountiful farms near Los Angeles, and the work he observed at the Riverside experiment station. His trip back east by trains via Provo, Utah, and across the Rockies to Denver was a time for seeing the vast open areas of the West and the grandeur of the landscape. He stopped in Yuma, Colorado, to visit the family of his deceased brother, Arthur, and then traveled back to Ithaca as rapidly as possible.

Warren's trips to the West Coast and the Southeast gave him a much better sense of both the size of the nation and the complexity of its different agricultural regions. He learned that farms and the crops grown on them were wonderfully diverse. Different sets of knowledge and experience were required to succeed in producing and marketing the crops and livestock he observed in varied locations. But many of the basic farm management principles he had been writing about could be applied to what he saw. Seeing how farming worked in different regions gave him a better understanding of his farm management colleagues across the country and the orientation of their work. Although he missed his family while away for these extended periods, he believed such trips to be as worthwhile as his mentor Bailey told him they would be.

### The Publication of Dairy Farming

With the commercial success of *Elements of Agriculture* and the positive reviews Farm Management had received, it is not surprising that Macmillan was willing to consider Warren's proposal for a new book, to be co-authored with Clarence H. Eckles, professor of dairy husbandry at the University of Nebraska. Eckles was the author of a bestselling textbook, Principles of Dairy Husbandry, which was published by Macmillan in 1911. The two authors thought there would be buyers for a book aimed at the same market in which *Elements of Agriculture* had found a large number of purchasers for a number of printings. Thus, they agreed to prepare the manuscript together for Dairy Farming. Warren would write the introductory chapter and the final ones on management, while Eckles would write the other two-thirds of the book presenting the basic principles of dairy husbandry in a nontechnical manner. They agreed that each chapter would conclude with a set of exercises or problem sets that would aid students and teachers in expanding their knowledge of the materials presented.

Despite some initial editorial concerns at Macmillan about the manuscript they submitted, the new book of 309 pages was published in April 1916. Eckles was listed as the senior author, but the appropriate writer was credited at the beginning of each of its thirteen chapters. Most of Warren's work on the manuscript must have occurred in 1914 and 1915, some during or prior to his trips to the Southeast and the West Coast.

Warren and Eckles's hopes for this book are suggested in their introductory statement:

It is fitting that the first book of the series should deal with what is probably the most important source of income of American farmers—dairy farming. As population increases we must of necessity depend more on dairy products and less on beef cattle. The best methods of producing beef are very different from the best methods of producing milk. Many farmers who once kept beef cattle are changing to dairying. For such farmers a study of dairying is of particular importance because it will bring them information that has been worked out by long experience in dairy regions. Even in the old fashioned dairy regions the changes in prices of land, feed, labor, and dairy products and the increasing importance of manure for growing cash crops, make a study of the principles of dairy farming of prime importance.

This book is adapted for use in schools and colleges that wish to devote some time to the study of dairy farming. Three to five recitations per week and two laboratory periods per week will usually be desirable....It is hoped that the book will also be useful to farmers who wish a better understanding of the principles involved in the successful operation of a dairy farm.<sup>20</sup>

Warren's introductory chapter, "Importance of the Dairy Industry," provides some background on milk, the dairy cow, and the size of the dairy industry. The following excerpts also provide insight into the authors' expectations regarding the background of their readers:

#### Milk: A Universal Food

Milk is the one universal food of mankind. All civilized people use milk from farm animals. The more highly civilized and prosperous the population, the greater the amount of milk consumed. In regions so far north, that cows cannot be kept, reindeer milk is used. In regions like India and the Philippines, which are too hot for our common cattle, the water buffaloes are the dairy animals and beasts of burden. In the deserts the milk of mares and camels serves as food. In regions where people are very poor, goats and sheep are used as milk animals. In parts of South America llamas are so used. Everywhere man keeps some milk animal.

#### Value of Milk as Food

The value of milk as food is beginning to be better appreciated, but even now its full value is not always realized. Most liquids have very little food value; for this reason all liquids are sometimes looked upon as luxuries. But average milk contains 12 to 13 percent of dry matter. This dry matter is readily digestible and contains necessary foods in good proportions. The edible portion of an average beef animal is only 38 percent dry matter. The remaining 62 percent is water.

#### The Dairy Cow: An Efficient Machine

From a given quantity of feed the dairy cow produces more human food than does any other animal. According to Armsby's standards, the amount of feed required to grow and fatten a 1200-pound steer would, if fed to dairy cows produce about three times as much human food.

#### Cows Help to Provide a Full Year's Work

A farm is primarily a place to work. The carpenter who works only half the year is not likely to accumulate much property, nor is the farmer who works only half the year likely to pay for a farm. A limited number of cows on the farm give employment in the morning and evening when field work cannot be done. In the North where cows are most numerous, the days are so short during much of the year that a full day's work cannot be done, unless there are chores to do. Cattle also provide work for stormy days and cold days in winter....While helping with the chores the children are learning and at the same time helping to increase the family income.

#### **Receipts from Dairy Products**

Corn is the most valuable product of American farms but most of it is fed on the farm. Dairy products are probably the largest source of income of American farmers. The dairy products sold from farms in 1909 amounted to nearly \$500,000,000. The value of cotton and wheat sold exceeded this. But if the cattle and calves that are also a product of the dairy were combined with the milk, the receipts from these sales would probably exceed the sales of any other product.<sup>21</sup>

Warren used a simple, direct style to show that dairy farming was a major enterprise in American agriculture, a significant source of food and income, and a fine way to provide year-round productive work for a farm family. Anyone with an eighth-grade education could read and understand this part of the text, with or without guidance from a teacher. The next eight chapters, prepared by Eckles, followed the same direct style in presenting the elements of dairy science as it was understood in 1911 when his college-level text was published. Both authors must have read and edited each other's manuscripts. The flow of language, the ease of reading the material, and the use of tables, diagrams, and photographs to illustrate key points were quite similar.

Warren followed Eckles's more technical chapters with five that concerned economic issues and the overall management of the dairy farm for continuing profitability. In the chapter on "Conditions Affecting the Development of Dairying," he pointed out some of the key reasons why dairy farming predominated in specific areas of the country. Some of his major points follow:

Cattle raising goes with the raising of hay and forage crops.... As has already been indicated cool regions are more favorable than hot ones for the dairy cow and for the manufacture of dairy products. Most of the cattle of the world are grown on pastures on land that is too dry, too wet, too steep, too stony, or otherwise not adapted for the growth of crops. All regions that have such pastures keep cattle or sheep. In regions where all the land is well adapted to crops, cattle production is usually but not always a minor business. But cattle are often fattened in such regions. Very frequently, the final factor in determining whether cattle should be kept is the presence or absence of land that is good for pasture, but not good for crop production. For instance, in the corn-belt there is so little rough pastureland that fewer cows are kept than otherwise would be. Most of the milk supply for Chicago and New York comes from north of these cities, partly because of the presence of pastures and partly because of the cooler climate....The relative weight and bulk of the feed and of the human food made from it, the perishability of the product, and the cost of feed are the primary factors that determine where different animal products shall be raised. When a liberal use of corn silage and pasture is made, and if we include the feed for young stock as well as for the mature animals, a pound of butter represents approximately 100 pounds of feed. A pound of cheese or dressed beef represents about 50 pounds of feed, and a pound of milk 5 pounds of feed.<sup>22</sup>

In his earlier book, *Farm Management*, Warren had devoted a section to the definition of an "animal unit." He pushed this idea forward as a way to compare the relative sizes of different kinds of farms with different combinations of livestock on hand. He included a paragraph in

*Dairy Farming* that presented the same concept in a direct and readily understandable manner:

In order to compare the amount of livestock on different farms, it is necessary to reduce all kinds of animals to some common basis. One cow, bull or horse is an animal unit. Two head of young stock are counted as one unit. Seven sheep, fourteen lambs, five hogs, ten pigs, one hundred hens, are counted as one animal unit. In each case the number represents a group that eats approximately as much food as a cow or horse, and produces manure worth as much as that produced by a cow or horse. Similarly, the number of cattle units on a farm are their approximate equivalent in grown cattle.<sup>23</sup>

The final chapter, "Other Important Factors for Success in Dairy Farming," required thirty pages. Warren illustrated his comments with data obtained from a number of his farm management studies. His lead paragraph summarized much of what was to follow:

#### The Most Important Factors for Success

In a dairy region the most important factors have been shown to be the size of the business, the returns per cow, the crop yields, and the diversity of the business. Many other factors have to do with financial success, but on careful examination, it will be found that most of them are covered by the above. For instance, nothing is said about the effective use of labor, but the most important single factor controlling such use is the size of the business. The following are some of the many factors that cause minor variations in profit on many farms and that sometimes become the most important factors. Too much or too little capital may be invested in buildings or stock. Too many or too few horses may be kept. The region or the farm may not be adapted to dairying. The wrong kind of product for the region may be sold. The barns and fields may be so arranged as to aid in the work or they may cause a loss of time. Other things being equal, large cows pay better than small ones.<sup>24</sup>

The writing and presentation of the material in this book followed the same lucid style Warren had used in his first two books. Eckles was already on his way to becoming a nationally recognized author in the field of dairy science. Subsequently, he moved from Nebraska to the Michigan Agricultural College (today's Michigan State University), where his basic text on dairy science was successively revised each
decade and widely used into the 1950s. Every chapter of his and Warren's jointly authored book provided good supporting materials to illustrate the ideas they presented. Nevertheless, *Dairy Farming* proved to have a much smaller market than the authors and publishers expected. One can only speculate about the reasons for the shortage of sales. Dairymen may have concluded that if they were to buy a book by Eckles, they might as well buy the longer, more complete text. Warren's earlier book, *Elements of Agriculture*, may have been sufficient to meet the needs of high school and two-year college teachers and students. Bringing out a new book in 1916, during World War I, may have had a negative impact on its sales. Warren himself appears not to have left any evidence as to his thoughts on the matter, as no further correspondence about the book or its use around the country was found among his papers.<sup>25</sup>

Included among the Warren Papers from 1915–16 are more than 150 pages of another manuscript, along with diagrams and photographs on the production and harvest of wheat and a number of other cereal crops. Dr. W. M. Jardine, then director of the Kansas Agricultural Experiment Station, provided many of the illustrations and had agreed to comment on parts of the manuscript. It appears that Warren and Jardine must have started putting together materials for a second book on cereal crops to go in the projected series that was mentioned in the introduction to *Dairy Farming*. The small sales figures of that book may have dampened Warren's enthusiasm for another volume aimed at a similar potential audience. He was involved in many other more pressing projects during those years and nothing more about a book on cereals or further correspondence with Jardine exists among his papers.<sup>26</sup>

#### Growth of the Department of Farm Management

Warren's 1914–15 summary report to the college for his department evidenced a larger professional staff than the previous year. He and Livermore held professorships; there were also two assistant professors and three instructors. One of the assistant professors was A. L. Thompson, whose thesis was published as Bulletin 364 in October 1915. The other assistant professor was Gad Scoville, who was working full time in extension. He assisted sixteen county agents in preparing extension bulletins that summarized the farm management records they had obtained and returned to cooperating farmers during that year. The instructors were C. E. Ladd, E. G. Misner, and D. S. Fox. Ladd was working with forty-eight different farmers on the department's cost-accounting project. During 1914, Ladd also completed Farmers' Bulletin 572 for the USDA, titled *A System of Farm Accounting*, which described the procedures used in the cost-accounting project he was conducting.<sup>27</sup>

The 1915–16 report for the department included three new assistants in the list of professional staff: W. I. Myers, Lew Ellsworth, and P. J. Harvey. Warren noted that 2,554 records had been collected and summarized in extension projects in seventeen counties that year and praised Scoville's efforts and energies in building these county programs.<sup>28</sup>

By 1916–17 the professional staff had grown to eleven. After finishing his Ph.D., Ladd was appointed director of the New York State School of Agriculture in Delhi, New York, where he served for a year before being called to Albany as a specialist in agricultural education for the State Department of Education. The new instructors were L. J. Norton, Clarence V. Noble, Charles P. Clark, and Roy L Gillett. Myers and Harvey, who had been assistants the year before, were now instructors as well.<sup>29</sup>

In 1918 the professional staff in farm management remained the same as in 1917. During 1916–18 Warren was away from Ithaca for extended periods in Albany, Washington, and New York City. This was a time when milk strikes were occurring, and providing information to various groups on the cost of milk production was one of his high-priority activities. While Warren was away, the instructors took on much of his responsibility for teaching classes.

## Impact of the War in Europe

When war broke out in Europe in 1914, most people in rural America read about these events in the newspapers but did not feel directly involved in the conflict. Quite a few still had relatives or some family connections abroad, but the center of their world was on this side of the Atlantic. As the war continued into 1915 and 1916, Americans became more involved in one way or another. American ships were sunk in the Atlantic, the horrors of trench warfare filled newspapers, and shortages of some key commodities began to occur. When the United States joined the Allies and entered the conflict in 1917, "their" war became "our" war.

During the first two years of the war in Europe, American farmers did not see any recognizable differences in the prices they received for their products. In the fall of 1916, however, prices for wheat and milk began to move upward, and national concerns about the worldwide supply of wheat became an issue. Some perspective on the prices received for four key farm products in New York is provided in Table 5-2, drawn from an article by Warren published in a 1923 bulletin.

Year	Milk	Corn	Wheat	Hay
	\$/cwt.	cents/bu.	cents/bu	\$/ton
1910	\$1.67	72	108	\$15.04
1911	1.60	68	90	14.93
1912	1.57	81	101	17.98
1913	1.52	71	97	14.17
1914	1.58	82	99	14.87
1915	1.60	85	119	15.42
1916	1.76	91	124	14.60
1917	2.60	168	211	12.40
1918	3.24	195	209	17.89
1919	3.51	177	219	21.96
1920	3.50	174	236	25.05
1921	2.46	84	133	18.78
1922	2.12	76	113	16.43

**Table 5-2:** Average Prices Received by Farmers in New York State, Milk at Utica, Corn, Wheat, and Hay, 1910–22

Source: G. F. Warren, *Prices of Farm Products in New York*, Cornell University Agricultural Experiment Station Bulletin 416, January 1923, Table 16, 49–51.

In many respects the average prices received for these four basic commodities in 1916 were quite similar to those for the previous six years. Clearly prices leaped forward for everything except hay in 1917. When one looks at monthly prices, the surge became evident in September 1916 for corn and wheat. In October that year farmers started receiving more than \$2.00 per hundredweight (cwt.) for milk for the first time as well. The impact of the wartime economy had arrived on New York farms and in urban households. The doubling in average prices for milk, corn, and wheat in 1917 and 1918 (compared with 1915 and the years before) got the attention of the public and government.

#### College Response to Changing Prices and Unrest

Dairy farmers in New York had been seeking new ways to bargain with buyers for better prices and access to markets, and created the Dairymen's League, Inc., as a cooperative to accomplish these objectives. Farm leaders thought that the prices offered by major buyers did not cover enough of their production costs. Following a successful milk strike in the early fall of 1916, the Dairymen's League initiated a system of establishing prices with distributors through collective bargaining.

Albert Mann, who was then acting dean of Cornell's College of Agriculture, saw the need to ensure that the college, its faculty, and cooperative extension agents served first and foremost as educators; he believed they should not become tied too closely to the Dairymen's League. In a time of rising prices and political ferment he wanted to avoid direct advocacy positions, but also expressed concern for the well-being of the state's dairy farmers. It was in this environment that Mann sent the following letter to college department heads and extension workers on October 16, 1916:

In the present unrest concerning the price of milk and the means that should be taken to increase the returns to the producer, it is of the greatest importance that clear thinking and calm judgment shall prevail. The causes out of which the difficulty has arisen are neither temporary nor simple, and the solution is not a matter of a moment, but of sustained and intelligent effort in the direction of education and organization. A temporary gain for the dairyman, while most desirable, is only a beginning. The larger question of a permanent remunerative price is the real problem.

It seems that the attitude which members of the staff of the College of Agriculture, particularly the extension workers, should take should be clearly defined. It is a known fact that the cost of milk production, even with reasonably efficient methods, is generally greater than the selling price and that an increase in price is essential to the welfare if not to the continuance of the business. It is also apparent that in fixing prices advantage has been on the side of the organized milk buying and milk distributing agencies as over against the unorganized milk producers. Farmers are justified in seeking to increase the price of milk as sold by them and in employing the recognized means of collective bargaining. At the same time it is of the greatest importance that the stress of the hour shall not obscure the larger issues involved.

In the movement for the betterment of agriculture the place of the College of Agriculture, as a state-maintained institution, would seem to be:

- 1. To aid by means of education in a state-wide movement for the removal from the market of the unfair and unnecessary competition of milk produced at a loss. This means more intelligent feeding and the elimination of low-producing cows.
- 2. To give reliable information on the forms of cooperative organization, including the organization of cooperative milk shipping stations, creameries, and cheese factories. The ways in which these enterprises have succeeded and the difficulties to be encountered need to be clearly made known.
- 3. To promote the cooperative advertising of milk as a food in order to increase consumption and to maintain and increase demand.

Members of the staff of the college should give farmers every aid in these directions, which are fundamentally sound and permanent. As representatives of a state institution it is not considered advisable for our members to act as organizers for farmers, nor should they seek to ally farmers with any particular organization. They may legitimately attend such meetings in an advisory capacity to furnish information and assistance as above indicated.<sup>30</sup>

Cornell Extension Bulletin 12, *Some Suggestions in Connection with the Milk Problem,* was issued in January 1917. Indirectly, this publication argued that milk prices should at least cover the average costs dairymen incurred producing their milk. It included a table of production costs in New York and four nearby states to provide evidence of the structure of costs and the basis for calculating them. This table, along with others put together by Warren and Thompson, was widely used in the sometimes heated discussions over establishing "equitable" prices to be paid to dairymen for their milk products.

#### January, 1917

Extension Bulletin 12

# Cornell Extension Bul

Published by the New York State College of Agriculture at Cornell University, Ithaca, New York

A. R. Mann, Acting Director of Extension Service

Published and distributed in furtherance of the purposes provided for in the Act of Congress of May 8, 1914

#### SOME SUGGESTIONS IN CONNECTION WITH THE MILK PROBLEM

#### THE COST OF PRODUCING MILK

Records of the cost of producing milk should be common in every milkproducing center, for they serve as the only secure basis of action in solving the problem of the price of milk. A general idea of these costs is given in the following table, compiled from the sources shown:

	New Hamp- shire (1)*	Massa- chusetts (2)*	Connect- icut	New Jersey (4)*	Delaware County, New York, 1912 (5)*	Delaware County, New York, 1913 (5)*	Jefferson County, New York, 1913–14 (6)*
Costs Feed and bedding Labor. Hauling milk. Buildings. Equipment. Interest. depreciation, and	\$77.03 32.33 7.18 9.05 0.53	\$90.04 35.00  7.50 1.15	\$90.05 33.60  3.95	\$126.92 42.97  5.00	\$82.50 22.45 5.90 5.31 0.49	\$76.13 18.11 6.15 5.66 0.40	\$87.22
the like Miscellaneous Keep of bull Total cost	13.38 4.44 3.79 \$147.73	16.50 9.00 4.00 \$163.19	17.45 2.00 3.00	15.00  1.93 \$191.82	1.00 1.19 \$	I.22 	\$98.47
Returns Manure. Calf Other returns, except milk sold	15:00 3.00	\$15.00 2.00	\$10.00 5.00	\$20.00 6.00	\$9.03	\$9.82 	
Total returns	\$18.00	\$17.00	\$15.00	\$26.00	\$11.21	\$14.21	\$18.23
Net cost. Average production (pounds). Cost per 100 pounds. Cost per quart.	\$129.73 6,710 \$1.93 \$0.042	\$146.19 6,036 \$2.42 †\$0.052	\$135.05 6,379 \$2.12 \$0.046	\$165.82 8,561 \$1.94 \$0.042	\$107.63 4,575 \$2.35 \$0.051	\$93.46 4,600 \$2.03 \$0.044	\$80.24 6,621 \$1.21 \$0.026

\*(1) Extension Bulletin 2, New Hampshire Agricultural Experiment Station, Durham, New Hampshire.
(2) Bulletin 145, Massachusetts Agricultural Experiment Station, Amherst, Massachusetts.
(3) Bulletin 73, Connecticut Agricultural Experiment Station, Storrs, Connecticut.

(3) Bulletin 364, Cornell University Agricultural Experiment Station, New Brunswick, New Jersey.
(3) Bulletin 364, Cornell University Agricultural Experiment Station, Ithaca, New York.
(6) Bulletin 357, Cornell University Agricultural Experiment Station, Ithaca, New York.

'Figured on the basis of I quart weighing 2.15 pounds.

Governor Whitman and the state legislature created the New York State Food Supply Commission in April 1917. In Washington, President Woodrow Wilson appointed Herbert Hoover as head of the U.S. Food Administration in May 1917, giving him sweeping powers over national production and prices because of the war emergency. Supplies and prices of wheat and milk were central issues of public discussion until the war ended in November 1918. Warren and other college faculty members gave priority during the war years to meeting with government officials in Albany and Washington to provide information on questions of both production and farm prices using data from studies at Cornell and other institutions.

#### State Census of Agricultural Resources

One of the more impressive efforts of cooperative activity undertaken in New York in response to the war effort was the special Census of Agricultural Resources, ordered by the new State Food Supply Commission shortly after it was organized. Commissioner M. C. Burritt, who was associate director of extension at the college, led the project. The *New York State Food Supply Commission Bulletin 2* was issued on May 22, 1917, and described how the census was organized and completed in a span of five weeks:

A state-wide conference of all county agents, the presidents of farm bureau associations in the 41 organized counties, and delegates from other agricultural counties of the State was called at the State College of Agriculture at Ithaca on April 16. At this conference, details of the general plan for taking the census were worked out and the instructions given. On the 19th and 20th, county-wide conferences were held. In accordance with the proclamation of Governor Whitman community meetings were held in 1,089 communities of the State on April 21, attended by 85,075 persons....By utilizing the established school and farm bureau systems and other organizations, the Commission was able to secure the facts immediately in just ten days after the copy of the census blank was made.

The actual work of taking the census was begun in most counties on Monday, April 23, the records being practically all obtained by Wednesday the 25th. Tabulations were made in the counties on the 26th and 27th, and on the 28th the complete tabulations from 34 counties had been sent to the central census office. The teachers and pupils in each district, assisted by other persons where necessary, obtained the original facts from farmers and made out summaries for their school districts. The county enumerators, with their assistants, and district superintendents made the summaries for the counties.

Dr. G. F. Warren, of the State College of Agriculture, had charge of the summarizing and tabulating of the records for the entire state, and prepared this report....The present report gives primary results for 56 counties. No census was taken for the counties of Hamilton, Kings, Queens, Richmond and New York. Estimates by county enumerators indicate that approximately 98 percent of the real farms are included. Many small places that can scarcely be called farms were omitted....The total area of crops here reported is 8,701,964 acres. The last U.S. Census reported 8,719,454 acres in the same counties....

IMPORTANT FACTS SHOWN BY THE CENSUS

- 1. A shortage of labor.
- 2. A poor distribution of seed and a state shortage of potatoes, corn and buckwheat.
- 3. Difficulty in getting delivery by the railroads of seed, fertilizer, and machinery.
- 4. An excess of 8,000 horses above the needs of farmers.
- 5. An increase in the number of dairy cows over last year, but a decrease in the number of heifer calves being raised.
- 6. A decrease in the number of sheep and hogs, and in the number of eggs being incubated.
- 7. A very striking increase in the area of fruit, wheat, beans, vegetables, alfalfa, and corn for the silo, with consequent decreases in the area of land in grass.
- 8. In the past eight years there has been a shift of more than 770,000 acres from grass to the above crops.
- 9. The combined area of fruits, vegetables and beans is a third more than it was eight years ago.<sup>31</sup>

This rather lengthy set of excerpts from a twenty-page report tells a great deal about the commitment of the state and the governor to the war effort, and the speed by which this special census was completed with the aid of the individual school districts and teachers. A printed report produced in less than six weeks suggests a priority that is hard to comprehend, given the resources available to everyone involved. Warren's summary of what had been learned reflected his intimate knowledge of U.S. Census data for New York and his ability to pull out key information from the mass of data assembled. He saw that farmers had already been shifting cropland into cash crops in response to rising prices and expected market demand. Much of the mobilization of agricultural resources for the war effort was already in process.

## Increasing New York State Wheat Production and National Grain Production

One of the interesting agricultural initiatives associated with World War I was the effort to produce more wheat in New York as part of the national initiative to increase production. Warren made frequent trips to Albany in the spring of 1917 to work with the Food Supply Commission. Governor Whitman was enthusiastic about the state becoming a leading wheat producer once again. A newspaper article dated June 22, 1917, found in Warren's files, stated:

"One Million Acres of Winter Wheat in New York State" is the slogan of a campaign started in Utica this week under the auspices of the New York State Agricultural Society....The Governor is giving his hearty support to the movement and is enthusiastic over the possibility of the Empire State's growing her own bread stuff....It is the purpose of this campaign to place New York once more in the front rank as a great wheat producing state. In 1879, New York devoted 736,000 acres to wheat production, in 1909 but 30 years later the wheat acreage had shrunk to 289,000 acres....It pays our farmers to grow wheat....Clearly we will enter next year, 1918 with an enormous wheat shortage, so that there is no danger of overproduction.<sup>32</sup>

This campaign, started in June 1917 with the hope of increasing the acreage to be planted to winter wheat that fall, was modestly successful. Acres planted to wheat in New York had dropped between 1879 and 1909 because production from the Great Plains had increased so dramatically. This well-intentioned campaign for a million acres of wheat in New York reflected its citizens' great desire to help the war effort. Even getting 500,000 acres of wheat planted would have been outside the bounds of reality given the reduced farm labor force since so many young men had enlisted or were drafted. Shortly after the United States entered the war, a flyer calling on farmers to increase production was widely distributed in agricultural communities across the nation.

THE PRESIDENT OF THE UNITED STATES APPEALS TO YOU AND TO THE MEN, WOMEN AND CHILDREN OF THE FARMS

We must supply abundant food for our selves and for our armies and our seamen not only, but also for a large part of the nations with whom we have now made common cause, in whose support and by whose side we shall be fighting....The importance of an adequate food supply, especially for the present year, is superlative. Without abundant food, alike for armies and the peoples now at war, the whole great enterprise upon which we have embarked will break down and fail. The world's food reserves are low....Upon the farmers of this country, therefore, in large measure rests the fate of the war and the fate of the nations.<sup>33</sup>

Warren's support for the war effort was unequivocal. He had numerous opportunities to speak at farmers' meetings in the state and in Washington, D.C., and at national agricultural meetings. His speech, "How to Obtain an Adequate Food Supply," made in October 1917 to the State Farm Bureau Society, gives a sense of his commitment to help find ways to accomplish this basic objective:

We are at war. For a time it seemed far away, but certainly the recent events show that the war is very much our war. We do not know how many men may have to go. It was, perhaps, a mistake to take farm labor in the first draft, but that is over, and the new regulations promise an improvement. One thing is sure, the first American Army is probably the best army ever raised, probably the best we will raise no matter how long the war lasts....Mr. Burden has told you how bad the situation is in Europe. The food situation is much worse than he says. The big corn crop that furnishes a basis for so many editorials includes a vast amount of unmarketable soft corn, much of which has little value for feed. The big potato crop includes many potatoes that are today frozen in the field where they grew. But to get labor back to the farms, the farmer must pay wages that are as good as wages in the city. There is no other way to maintain agricultural production. There is no way for farmers to do this if the prices of farm products are held down....The control of farm prices means the holding down of the farmer's wage for the immediate benefit of the city. It reduces farm wages and lowers the cost of living in cities and so sends farm labor to the cities at an increasing rate.

Since there is so little likelihood of being able to get the public to see that this year's price sets next year's supply, it is all the more important that every farmer do all he can to increase the food supply. The public that is putting obstacles in the way of increased production call the farmer unpatriotic when he objects. It takes real patriotism to go ahead and try to produce an increased food supply to protect from his own folly, the man who places obstacles in your way.<sup>34</sup>

Warren's rhetoric appealed to farmers and rural people. They viewed him as their champion when he argued that the U.S. Food Administration under Hoover was seeking to keep urban families happy by holding down the prices paid to farmers for wheat and milk, instead of allowing farm prices to increase enough to encourage greater production. This was his continuing view whenever he spoke in the summer and fall of 1917.

A killing frost that spread across much of the northern half of the country in September 1917 had a devastating effect on the nation's corn crop and a number of vegetable crops as well. Warren sent letters to trusted friends across the affected regions of the Corn Belt to get a direct appraisal of the situation. He wrote to his brother, Henry, in Nebraska and received the disturbing news that their corn would be harvested, but almost all of it would not meet market grade. It was too soft to withstand shipping to market or storage in elevators. This same kind of report was substantiated in letters from Warren's contacts in Iowa and Indiana. The soft corn could be fed to livestock on the farms where it was produced but could not be marketed through normal commercial channels. This put even more pressure on the other cereal grains to take up the slack. Warren saw the U.S. Food Administration's decision to set the price of wheat at \$2.20 per bushel as contrary to the fact that the nation needed to increase grain production. Holding down the price that farmers could receive would not encourage increased production, and Warren made this point repeatedly in his written statements and public presentations.

In March 1918 the U.S. Senate Committee on Agriculture and Forestry held hearings in Washington on a bill titled "Increased Production of Grain and Meat Products," which had been introduced in both houses of Congress. Warren was invited to testify before the committee, where he answered questions posed by the senators and made a statement providing his views on the proposed legislation. The hearings were published; Warren's dialogues with these friendly senators from agricultural states comprised twenty-four pages. On the cover of a copy of the published hearings, Warren wrote, "This bill failed to pass. I hope I helped in its failure."<sup>35</sup> Near the end of his session with the committee he made this statement:

The most effective thing that could be done to stimulate production is to have the Government definitely announce that it will allow the farmer to sell his products on a free market without price control. If price control is to be continued, I believe we should first pay much higher prices for products, the production of which we desire to have increased, than competing products sell for.



Warren's comments appear on the cover of the summary of the Senate hearings where he testified in March 1918. Second, control prices in the open rather than through private agreements with dealers. Third, give the farmers who produce the product a chance to be heard before the prices are fixed. Fourth, we should not boycott any product if we wish its production to be increased, unless the Government has previously guaranteed its prices or otherwise assured its future supply. Fifth, control distribution and consumption of all products for which prices are fixed; otherwise, I believe that the further we go the worse off we will be.

Private agreements in the control of prices have shaken the confidence of farmers. They have given rise to all manner of rumors, many of which are utterly untrue, but are believed because other rumors much like them on investigation were found to be true.<sup>36</sup>

At Cornell's Farm and Home Week in February 1918, Warren spoke on "Farming During and After the War." One section of his talk was reproduced and printed for general distribution. He included a statement on "How to increase the production of food," which echoed his concerns about increasing the farm labor supply and involving farmers or their representatives in reviewing proposed regulations. He suggested these actions be taken:

- 1. A garden for every home where possible.
- 2. One pig and 5–15 chickens where possible.
- 3. More work by children on farms and in industry.
- 4. More work by women on farms.
- 5. More work by city women in industry.
- 6. Movement of some skilled labor back to farms.
- 7. Do not reduce prices of farm products when the desire is to increase production.
- 8. Suggest the submission of regulations for controls on farm products for criticism before they are made into law.<sup>37</sup>

## Establishing Prices for Milk at the Farm

The successful milk strike by the Dairymen's League in the fall of 1916 led to substantial animosity with metropolitan New York milk buyers

and distributors. About 80 percent of the dairymen shipping milk to New York City were members of the League. Collective bargaining was initiated as a legitimate means of establishing prices. When a set of farm prices had been agreed upon for the winter and spring months of 1916– 17, Borden's farm products division, a major buyer and distributor in the market, took out a two-page advertisement in the *New York Sun* on October 22, 1916, with the following headline and lead paragraph:

#### The Milk Strike is Settled But the Milk Question is Not

Public interest in the milk controversy, as recently evidenced by headlines taking precedence over war news and the Presidential election, is now rapidly waning with the resumption of normal supply. Any advances in the retail price to the Consumer may be resented, and this may give occasion for further popular abuse of the distributors, but any real public interest in ascertaining the causes behind the recent and costly milk war, the nature of the issues involved and the discovery of remedies which are calculated to prevent its recurrence is rapidly diminishing.<sup>38</sup>

Borden continued its side of the story with a lengthy statement reviewing the strike, the case presented by farmers and the Dairymen's League, and the company's own rising costs for processing and distribution. They also argued that all segments need to cover their average costs and that owners have a right to expect a 6 percent return on their capital if money is to be invested in their businesses. Their concluding paragraph, in boldface type, spoke toward building greater understanding in a time of rapid change:

In conclusion we urge the elimination from the "Milk Question" of ignorance, partial or complete, of false and bogey issues, of politics and personal ambitions and the substitution therefore of continued public attention to the real issues; fair newspaper treatment of both producer and distributor; the adoption of laws for the benefit of consumer and the industry as a whole, requiring the public recording of costs and profits or losses of producers and distributors; the establishing of the plan of monthly prices for both buying and selling; the interchange between producers and distributors of information embracing all the factors of the business, so that the industry may be stabilized, the consumption of milk increased and better relations established between producer, distributor, and consumer.<sup>39</sup>

As a major buyer, processor, and distributor, the Borden company was one of the leaders of the group who bargained with farmers. They sought to establish an improved environment for future bargaining sessions as well as to communicate with consumers and the media. With farm prices established for the traditional six months of short supply, it was an ideal time for both sides in bargaining to get more information together to share with each other and the general public.

Warren and his colleagues recognized that there was a substantial demand for more information about the monthly costs of milk production, in addition to the annual data they provided. The one source of detailed information available to him and a few other experiment stations was cost-account data. Ladd began the cost-account program in New York as part of his doctoral studies and it had continued, albeit with a relatively small number of farmers. While these dairymen were certainly above-average managers, they also were interested in the data and their analysis, and therefore willing to keep detailed weekly records on such items as feed and labor used in producing milk. Warren proposed to use these cost-account records to generate "average" monthly milk production cost figures adjusted by annual survey data collected from a broader base of farmers.

At the outset, nearly everyone agreed that milk production expenses were lower in the spring and summer, when cows were on pasture. Feed and labor costs rose during fall and winter when the cows were in the barn and consuming stored hay and silage. Relying on their costaccount data to reflect month-to-month differences in labor use and the amounts of grain, hay, and silage used, Warren and his colleagues at Cornell established baseline milk production cost estimates for New York's dairy leaders and industry personnel to review.

By the spring of 1917, the United States had entered the Great War and the U.S. Food Administration, led by Herbert Hoover, was exercising its powers to control food prices and production. These factors contributed to the sense of urgency to obtain acceptable national estimates of average production costs on dairy farms so monthly milk prices could be established. The leaders of New York's Dairymen's League and other cooperatives asked the USDA Office of Farm Management (OFM) for assistance in obtaining the best data available. The OFM in turn called for a series of workshops to bring together agricultural college faculty from Pennsylvania, Michigan, Ohio, Illinois, and New York to share their data and the methodology they used in making such monthly estimates. In August 1917, Herbert Hoover also appointed a study committee to assemble "pertinent information on the production and distribution of milk and the importance of milk in the diet." Dr. Clyde King, professor of economics at the University of Pennsylvania, chaired the committee; the other members included Mrs. A. W. Smith, J. W. Sullivan, Gifford Pinchot of Pennsylvania, F. A. Pearson from the University of Illinois, and George Warren from Cornell.<sup>40</sup>

The report of the King Committee's findings was published in January 1918. Pearson and Warren provided much of the data assembled by the OFM; Pearson's information was based on the Chicago market and Warren's on the New York City area. Along with faculty in farm management or agricultural economics at a number of colleges of agriculture in the eastern U.S., they developed methodologies to estimate monthly costs that reflected the substantial seasonal differences in quantities of feed and labor required.<sup>41</sup> This process relied heavily on ratios and percentages obtained from the relatively small numbers of farms participating in cost-account studies. Not surprisingly, there were many questions about the assumptions made and the basis for producing the monthly numbers. Warren sought to explain his general procedures widely, and as collective bargaining resumed in the fall of 1917, there was soon considerable discussion of the "Warren Formula" in newspapers.

Despite all of the assumptions required, this methodology was deemed the best system available for pricing milk at farms each month and it was used until the end of 1918 within the New York market. The Warren Formula was rooted in real numbers collected on dairy farms and was tested repeatedly by comparing present cost estimates to actual prices in the same months during previous years (before the USDA began regulating milk prices). Nevertheless, it was easy to argue about the costs of feed and labor, rates of feeding, percentages by months, and nearly any of the other figures when prices were rising rapidly in the fall and winter months of 1917 and 1918.

Warren responded to questions from the leaders of farm cooperatives, the USDA, the federal Milk Commission, and the New York State Food Supply Commission in much the same manner. He brought to the table the best information he and his staff could develop for discussion and review, and then defended the data, their analysis, and the basis for their estimates with vigor. He seemed to enjoy the opportunities to spar with lawyers and others who questioned his facts and methodology, and compiled files of newspaper articles covering the meetings where he talked about this issue.

Clyde King summarized the work of the OFM study committee and the resulting public discussions in his 1920 book, *The Price of Milk*.<sup>42</sup> Two of the tables from his book are reproduced here, showing some of the basic information used to establish the numbers that were finally

accepted by the committee and designated as "Hoover" in the tables below:

Cost of Producing 100 Pounds of Milk According to Certain Fixed Prices as Applied to Different Formulae

Factors in Formula.	Pearson	Modified Pearson.	Warren.	Hoover.	Indiana.	Michigan.
Grain	\$1.10	\$1.100	\$0.845	\$0.838	\$0.723	\$0.588
Hay	.500	1.100	.433	.453	.381	.349
Silage	.564		.301	.308	.314	.331
Roughage	.078		.023	.023	.020	.031
Labor	.605	.750	.755	.720	.600	. 523
Total feed and labor	\$2.847	\$2.950	\$2.357	\$2.342	\$2.038	\$1.822
Correction	0	0	. 589	.555	?	.834
Total cost	\$2.847	\$2.950	\$2.946	\$2.887	?	\$2.656

(Feed and Labor Costs those of Autumn of 1918)

Comparison of Several Surveys Showing the Items Entering into the Cost of Producing 100 Pounds of Milk

Factors in Formula.	Pearson.	Modified Pearson.	Warren.	Hoover.	Indiana.	Michigan.
Grain (pounds) Hay (pounds) Silage (pounds) Roughage (pounds) Labor (hours) Corrective factor (per cent)	44.00 50.00 118.00 39.00 2.42 0	44.00 110.00  3.00 0	33.80 43.30 100.50 10.80 3.02 25	33.50 45.30 102.60 11.50 2.88 23.7	28.9 38.1 104.8 9.9 2.4	23.50 34.90 110.40 15.20 2.11 45.8

Percent of Average Cost of Producing 100 pounds of Milk in New York for Individual Months (Warren Formula, 1918)

1	Per Cent.	Pe	er Cent.
January	119	July	81.0
February	114.7	August	90.8
March	106.1	September	96.9
April	93.9	October	110.4
May	79.1	November	119.0
June	70.6	December	120.2

King concluded that the Federal Milk Commission typically used the Pearson and Warren formulas whenever there was controversy about determining milk prices in the New York and Chicago markets. Their methodology was accepted as approximating reality as closely as any such formula might. At that time Pearson, who had been one of Warren's undergraduate students at Cornell, had not yet obtained his doctorate and was working as the dairy farm management specialist at the University of Illinois. The two men formed close ties in the many meetings they attended together in Washington and Chicago. Their similar approach to obtaining monthly milk production cost estimates was a precursor of their lifelong association in studying prices and business cycles.

After the war ended, Warren and his colleagues had little time or need to maintain and defend the cost data used in estimating monthly prices. Dean Mann, however, viewed work on milk marketing as a necessary part of the college's work and provided budget support for a graduate student and a faculty member in the farm management department to continue studying the marketing of milk and the industry beyond the farm.

## A Separate National Census of Agriculture

From the spring of 1917 until the end of the war in 1918, Warren spent substantial time in Washington working on reports of the King Committee and meeting with a special committee on the Census of Agriculture to propose revisions in the forms and improve the coverage of land use and livestock in the fourteenth decennial census to be held in 1920. For this effort he was made a special agent of the Bureau of the Census so that he and Henry C. Taylor (University of Wisconsin) could examine past problems on individual census forms and suggest informed revisions. Working with the USDA Office of Farm Management and the American Farm Management Association, they were successful in convincing the Census Bureau to establish a Division of Agriculture to oversee the preparation, summary, and analysis of the data covering the 1919 agricultural year that would be collected in the 1920 census. A separate Census of Agriculture, conducted every five years, was established as a result of these efforts to improve the quality of agricultural statistics for all to use.

During this period, Warren also made a number of trips to New York City to meet with the mayor's committee and to present information on dairying and the associated costs of milk production. The Warren Papers include photographs of displays prepared for a week-long dairy show held in Manhattan in 1918 and 1919, which aimed to help consumers and newspaper journalists learn more about what was involved in bringing a quart of milk to the consumer. In these efforts there were clear signs of close cooperation among the college, the Dairymen's League, and major buyer/processors like the Borden Company. Nevertheless, bargaining for prices in the fall of 1918 was particularly difficult, and the U. S. Food Administration finally stepped in to set prices for October, November, and December. The U.S. Food Administration was dissolved at the end of World War I and milk pricing returned to collective bargaining, which went reasonably well after 1918 as there was less public interest in the process and adequate supplies were available once again in the market place.



Photo of the display, "What It Costs to Produce Milk," at the New York Dairy Show, 1918.

#### Events at the American Farm Management Association

Warren was one of the featured speakers at the eighth annual meeting of the AFMA, held in Philadelphia in December 1917. The title of his talk was "The Food Supply," which gave him the opportunity to put recent changes in agriculture into the larger context of changes that had occurred since the Civil War. He used statistics on the national output of grains since 1866, talked about the great concern at the current time about supplies of wheat and feed grains, and reminded everyone of the reality of unpredictable yields in 1918. In this presentation he spoke as much to the newspaper reporters who were covering the event as he did to his farm management colleagues: "A yield per acre of 10 percent below this year's production is so common that we should make plans for a year at least this unfavorable [in 1918]....It is desirable that considerable of this year's wheat crop be held on farms till the new wheat crop is assured. We would like to eat it all today, but we may really need it later."<sup>43</sup>

Warren concluded his address with some comments (which were by then familiar to many of his colleagues) about the problems of wartime price controls and the need to use higher prices to encourage greater production:

There is no solution to the food problem except for more food, and the only way to get more food is either to get out of the way and let it be produced, or else do things that will cause it to be produced. We can not get it by wishing, or by editorials, or by reducing prices.<sup>44</sup>

Many minor things will help, but I see only two ways of obtaining an adequate food supply:

- 1. By having an unusually favorable season such as occurs once in five to ten years. Having lived for 29 years in the western part of the corn-belt, I hesitate to place too much dependence on the weather.
- 2. By having an increased supply of labor large enough to meet the needs—more labor by women and the lessening of work in non-essential industries. In order that some of the farm-trained men thus released will go back to farms, the prices of farm products must be high enough so that the farms can compete with city industries in the employment of labor and purchase of materials.<sup>45</sup>

While Warren's speech received substantial coverage and comment in the newspapers, actions taken in the association's business meeting proved to be more significant in terms of the future of the profession, which soon came to be known as "agricultural economics." A small group of agriculture college faculty who had graduate degrees in economics had been meeting regularly with members of the American Economics Association (AEA). Many of the agriculturists were also members of AFMA. In 1917 the two professional associations were meeting at the same time in Philadelphia and the following resolution was proposed at the AFMA meeting:

In view of the fact that the American Farm Management Association, since its organization, has dealt with problems in the field of economics as related to agricultural production, the committee [on resolutions] recommends that the word "**management**" be changed to the word "**economics**" so as to read, American Farm Economics Association (AFEA).<sup>46</sup>

As might be expected, many AFMA members wanted to continue their association's name without change and the resolution was not approved. The motion was tabled for a year and a committee was appointed and charged to meet with the "farm economics" group, who were now members of the AEA, and report at the next annual meeting. Warren, with his Ph.D. in agricultural sciences, and Taylor with his Ph.D. in economics, worked effectively together to garner support for this merger among their respective colleagues. A year later in January 1919, the name was changed officially and AFMA became the American Farm Economics Association (AFEA).

## Warren Recognizes Agricultural Economics as His Field of Study

Throughout his life Warren's professional and educational base was in agriculture. The transition from agriculturist to professor of farm management and then to agricultural economist was a rather slow, but steady and natural process. He was a true "son of the soil," and in his speeches and writing he often mentioned his youth on the Great Plains and what he had learned during those years. His first degree at Nebraska had emphasized mathematics and science. His professional life began as a teacher and administrator in the public schools. His first degree at Cornell was in agriculture and his doctorate centered on horticulture. Nearly all of his early research was based on information obtained from farmers—first from fruit growers in New York and then from a broad range of New York farmers—all of whom were seeking to make a living from the land. He was born into agriculture and in the early years thought of himself as an agriculturist in the language of the day.

Warren followed Thomas F. Hunt, one of his early mentors, in teaching farm management at Cornell. After completing the farm management surveys for Tompkins and Livingston Counties he sought to be known as a professor of farm management. Dean Bailey changed the name of his department to Farm Crops and Farm Management and then created a separate Department of Farm Management at Warren's insistence. Writing his book, *Farm Management*, allowed Warren to summarize what he and his coworkers had learned in a decade of working closely with farmers and collecting farm management data from them. He gained stature in New York State and nationally as a leader in the field of farm management, which he had helped to establish.

Warren's sabbatical leave in 1914–15 allowed him the opportunity to gain a wider perspective on American agriculture through his travels in the Southeast and to the West Coast. He visited a number of college campuses, gave seminars, and met with other faculty members in quite different settings from Cornell. Beyond his direct experience in Nebraska and New York, he now had a fuller appreciation of different kinds of farming and the difficulties faced by U.S. farmers and rural businesses. He was spending his time and energy increasingly on policy issues that dealt with economics and management. Warren was essentially learning more about the rudiments of economics through his own studies and reading, and through his work with faculty colleagues like Henry C. Taylor, who had earned a doctorate in economics at the University of Berlin. Taylor's 1905 book, An Introduction to the Study of Agricultural Economics, was undoubtedly on Warren's bookshelf. But his formal training in economics was limited to the one course in political economy required of all undergraduates to obtain a bachelor's degree in agriculture at Cornell.

Warren found himself using the language of economics more and more during the years of the Great War in Europe. He came to this from the perspective of the rural businessman and farmer. He had taken on substantial debt in the process of building his own farm. He kept careful accounts for his own business and encouraged farmers to keep more complete records as an important step in managing their own businesses. He expected that invested capital should make some net return each year, whether invested in a farm business or a cheese factory. He emphasized that, over time, farmers had to obtain net returns above the average of their production costs if they were to stay in business. He used language that incorporated the "commonsense" terms of the small businessman, understandable by most people in both rural and urban America.

Rapidly rising prices in late 1916 and 1917 brought Warren into state and national discussions on price policy and its impacts on farmers, processors, distributors, and consumers. He championed the needs of dairy farmers in New York and grain producers across the country. He naturally understood their situations because he had been closely associated with their businesses throughout his life, and became a respected source for information and data about costs and net returns in producing milk and wheat. The laws of supply and demand received more than passing mention in Warren's speeches and writing as he tried to help people understand that fixing farm prices at past levels meant that the farmers' average production costs were not being met, and therefore they had little incentive to produce. Warren used tables and charts, including index numbers, to make his points about conditions on farms and the business side of agriculture. He was not one to draw graphs including demand and supply curves to make his points, but typically he appealed to the common sense of his listeners. If there was only a limited supply, the natural way to reduce consumption was by raising prices to ration supplies. Fixing prices at some level by government directive did not appeal to his sense of how the economic world worked. His standard argument was that the market should be allowed to work. Governmentmandated prices would eventually lead to either too much or too little product somewhere in the system.

His listeners liked his direct approach to issues and the plain, nonprofessorial language he used. In many respects, his critics were correct in saying he oversimplified the issues. His was not a sophisticated treatment of economics, but most of his general conclusions made sense to farm and public audiences alike. He was increasingly in demand to speak about issues that dealt with prices and production. Here his counsel was treated with respect because of the data he presented to support his positions and the basic logic of his arguments.

In 1919 Henry C. Taylor revised the textbook he had first issued in 1905, giving it the new title of *Agricultural Economics*. He dedicated it to his colleague at Wisconsin, Richard T. Ely. Among those he acknowledged in the preface were four people who had influenced the book's contents: "The author wishes especially to thank Richard T. Ely, T. N. Carver, W. J. Spillman, and G. F. Warren, who have been of great help to him from time to time, in conferences, and through correspondence, in clearing up many of the difficult problems in this field."<sup>47</sup> In a way, Taylor's acknowledgement reflects Warren's acceptance into the larger, more inclusive field of agricultural economics, where he was to work for the rest of his life.

#### Footnotes

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- 15. Ibid., 254-57.
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- 42. Ibid.
- 43. AFMA, "Proceedings," 1918, 89-92.
- 44. Ibid., 101.
- 45. Ibid., 103-04.
- 46. Taylor and Taylor, *The Story of Agricultural Economics*, 97–98.
- 47. Henry C. Taylor, *Agricultural Economics* (New York: Macmillan, 1919), viii.

<sup>33.</sup> Ibid.

## The Postwar Years and an Expanded Mission

1919–1922

The transition years after World War I were necessarily complex. All sectors of the nation were producing at or near capacity and when the war ended in November 1918, the changeover to postwar markets and conditions required rapid adjustments, some big and some small. The demand for grains and food products that could be shipped to Europe remained high for a time, so that most sectors of agriculture did not recognize a need to cut back on production. Nevertheless, there were significant uncertainties about the future in rural America. Without question, these issues deserved more attention than they were to receive in the difficult postwar years.

## The Call for Improved Living Conditions in Rural America

By the end of the summer in 1918 it was clear that the Great War in Europe was going to end with a victory by the Allies in the coming months. Warren continued to make speeches to farm groups in New York about how monthly costs of milk production were calculated. He also encouraged farmers to take a more active interest in their local cooperatives. In September 1918 he chose as his title for one of these talks, "Adjusting Farming to After-the-War Conditions." His introductory paragraph gives a sense of the content of the rest of his speech: "The after-thewar problems promise to be more complicated than the war problems. An agricultural program for meeting these great problems should be prepared. Such a program should include plans that will aid returning soldiers and other young men to get started in farming. And it should include plans to make the farm a better place on which to live."<sup>1</sup> Warren recognized that able young men were not going to return to farms and rural communities unless they had some promise or expectation of some of the social benefits that people living in villages and small cities took for granted. This concern was to become an increasingly important part of Warren's interests and the work of his academic department during the 1920s.

Warren further developed his thoughts on these issues for an address titled "Some After-the-War Problems in Agriculture," which he gave at the annual meeting of the American Farm Management Association in January 1919. He used much the same speech for a number of subsequent talks during Farmer's Week and at meetings of the State Horticultural Society and county farm bureaus. After a short introductory statement, he made the central point upon which all the rest of his comments were based:

#### **The Fundamental Rural Problem**

The fundamental problem in agriculture is to make and keep conditions of farm life such that a fair proportion of the intelligent and able citizens of the nation will continue to live on farms. Farm families are larger than city families. It therefore follows that whatever the farm population is the nation will become. The strongest safeguard that the nation can have is an independent, forward-looking, and self respecting farm population.

...There are two theories as to the best way to solve the farm problem. One method is to search the world for persons who will be content with farm conditions as they are. This method has many powerful advocates. Some would bring Chinese. Considerable agitation for this procedure is constantly going on. Others would bring in the backward races of Europe and Asia to work our farms—people so backward that to them our worst farm conditions would seem like luxury. The same idea often takes the form of complaint against the desire of the American farmer to share in the American standard of living....Shall we make farm conditions such as to keep intelligence on the farm, or search the world for a civilization so backward that it will be satisfied with conditions as they are?

In the past generation the conditions of living in cities have been greatly improved. It is evident, therefore, that unless corresponding improvements are made in farm conditions the intelligent portion of the farm population will be more strongly drawn to the cities than ever before. Let us see what these improvements are. Some of the more important changes may be classed under the headings of education, health, and recreation. The most powerful force that leads persons to leave farms is the expectation of greater remuneration. The majority of persons who go from the farm to the city go at one of three periods in their life; when the children enter high school, when the farmer wishes to retire, or when young men and young women are old enough to start work for themselves.<sup>2</sup>

With these initial comments, Warren went on to speak about improvements needed for those living on farms and in the countryside, which often were not appreciated or understood by community leaders and the press in urban centers. He argued strongly that, "Free education in every subject from the primary grades through the university is the only sound basis for democratic citizenship."<sup>3</sup> He opened his discussion on health issues by saying:

Much has been done to improve the health conditions in cities, but little has been done in the country....Hospitals, nurses and doctors must be available for farmers if rural health is to keep up with city progress. More important than the cure of disease is its prevention. Sanitary conditions on farms are none too good. Part of this can be remedied by education and part by allowing more money to reach the farm.<sup>4</sup>

He went on to comment on conditions for farm laborers, the need for changes in land-ownership patterns, and the availability of credit to farmers. He reminded listeners of the need for middlemen and cooperative enterprise, and the potential for more manufacturing in rural areas. His final statement was, "Farmers should be fully organized so that they may see to it that these and other national problems are solved in an American manner, rather than be solved by imported ideas brought over by backward nations."<sup>5</sup>

This speech reflected the strong influence Liberty Hyde Bailey and the Country Life Movement had on Warren's advocacy efforts for improving the life of rural people. He believed that government, at the state and county levels, should make major efforts to invest in education, health facilities, roads, and other amenities so that the conditions in rural America would more closely match those in urban areas. Warren was an agriculturist, and in his remarks one could hear echoes of the Populist movements of thirty years earlier, when he was a student in Nebraska. Such calls for better schools, access to hospitals and health care, and improved transportation were sure to receive strong support from most of his listeners. The challenge was to find mechanisms to begin to make these improvements a reality in the years ahead.

In this speech Warren was clearly concerned about immigrants coming into farming areas from regions other than northern Europe, where most had originated in the nineteenth century. He seemed to fear that immigrants from other areas might somehow slow down progress made by those now living on America's farms. He was almost xenophobic in some of his statements about the inability of newcomers to adapt to necessary change in America and make contributions to rural life. In his zeal for improving the lot of those now living on the land, he seemed less willing to believe that newcomers from regions unfamiliar to him could adapt as well as his own forbears.

In an effort to communicate more effectively with urban leaders, Warren spoke to the City Club of Rochester in March 1919 on "The Food Problem." In reading the news story from the *Rochester Times Union*, it is evident that Warren brought printed copies of his speech to hand to reporters, as the quotes from his talk were lengthy and accurate. He had learned that this was an effective way to pass on his message to a larger audience. The reporter introduced Warren as "...the man who developed the 'Warren formula' which is the one used by milk producers throughout the United States as a basis for figuring the cost of milk production."<sup>6</sup>

Warren's lead sentences set the tone for much of what followed in the speech:

We have a food problem not only for today but for years to come. The population of Europe, Russia, and the United States increased from 170 to 500 million in the past 100 years, a threefold increase. The percentage of increase also has been increasing rapidly....These enormous increases in population were primarily due to an increasing ease of obtaining a food supply, because of invention of machinery and the openings of vast areas of new fertile land. During all this period food has become cheaper in terms of human labor. But in the last 15 years food has become increasingly expensive in terms of human labor. We have no doubt, passed the point of maximum food production per hour of human labor. New inventions help, but in spite of them every additional bushel is now a more expensive bushel. A machine that saves labor on the farm does not save as much human time as is often assumed, for someone must make the machine.<sup>7</sup> Warren commented further about the impacts of weather on agricultural production, reminding his audience of the changes in national wheat production from 1916 to 1917, when production fell by more than 20 percent and then rebounded with favorable weather in 1918. He converted wheat production into the cost of a bushel in manhours on the farm to provide perspective on the process. He discussed the problems of feeding Europeans in the short run where horses, cattle, and hogs had been slaughtered in large numbers in the havoc of war. His final comments spoke to the uncertainty that the nation's farmers and consumers faced with unknown levels of prices and unpredictable weather for crops in the Midwest for the spring and summer months of the coming year.

ROCHESTER TIMES UNIC

## Food Problem Discussed By Prof. Warren Of Cornell

Rapid Increase of Population and Conditions Affecting Labor Are Important Factors That Will Affect the Situation for Years to Come, Agricultural Expert Tells the City Club.

Warren must have been happy to see this quote in the resulting news story:

The problem of keeping the right number of persons on farms is not only a problem of the pay that the workers receive but is also a problem of the opportunity to live. One of the greatest single forces that leads farmers to go to the cities is to obtain high school facilities. The way to solve this problem is to have such a combination of local, state, and national support for education as will give every child an opportunity for free high school education within his reach, regardless of where he happens to be born. We need more high schools in the small towns. Extension of telephones and mail facilities will help, as will good roads on which we have scarce to make a beginning."<sup>8</sup>

As a key representative of the college, Warren was reaching out to urban leaders and trying to help them understand more about agriculture and its problems. At the same time he was campaigning for support for increased government spending to improve schools, roads, and living conditions in rural areas. While such support could not be garnered from just a few speeches, he saw this as an opportunity to help gain public understanding of the need for greater equality in living conditions.

## Increasing Interest and Research Effort on Prices and Their Role in the Economy

Warren was increasingly drawn to studying farm prices generally and the forces determining them. Over the past three years he had spent substantial time on getting careful estimates of the costs of producing milk as an important determinant in establishing the prices paid to dairy producers for their product. He had spoken strongly and often on behalf of the farmers, arguing that they had to receive a price that was high enough to at least cover their average production costs over time. He took an active interest in the history of these prices and argued that past prices were an important determinant of future production. He now saw the need to learn more about the forces that affected farm and wholesale prices and the general price level itself, and what the general price structure meant for farm prices as well. After working on committees trying to establish "fair" prices during wartime conditions, he set out to learn more about the historical evidence concerning farm prices, both in New York and nationally.

Warren was invited to give an important address to his professional colleagues at the American Economics Association (AEA) in Richmond, Virginia, on December 27, 1918. The title assigned was "Some Purposes of Price Fixing and its Results." No doubt the invitation came because of his vigorous statements arguing against the national ceiling imposed on the price of wheat to farmers by the U. S. Food Administration in 1918 and his support of higher farm prices for milk in Chicago and New York. Some direct quotes from this speech reflect his rather consistent views:

The popular demand for price fixing comes very largely from a desire to avoid the necessity of economy. The ordinary consumer believes that if prices are fixed, he can have more of the product, not realizing that, whatever the price, we can only eat as much as there is, and that a reduced price reduces the production of the product that was already short. ...The ideally just price is one which will secure a balance between production and consumption. It should be high enough to induce producers to produce as much as consumers are willing to buy at that price. Stated otherwise, it should be low enough to induce consumers to buy as much as producers are willing to produce at that price. To fix a price higher than this is to induce producers to produce more than consumers are willing to buy, leaving unsold and unused a part of the produce of industry. To fix a price lower than the equilibrium price is to induce consumers to try to buy more than is produced, leaving some of them with none at all, or offering a price for something which they can not get at any price. An equilibrium price is the price which a pricefixing board would be compelled to seek.

...A fundamental objection to price-fixing is that for every product there are more consumers than producers. Majority opinion on prices is therefore in grave danger of strangling any industry to which a price-fixing policy is applied.<sup>9</sup>

#### One of Warren's key points followed:

Most of the arguments for price-fixing of foods in this country were based on a desire to overcome the effect of inflation, or to keep prices of food from going up along with general prices. If the dollar were stabilized, most of the clamor for price-fixing in this country could have been avoided. Most of the popular arguments for price-fixing were efforts to bring everything back to the old dollar.<sup>10</sup>

Warren's place on the AEA program was in a session with two other speakers. One was Thomas Nixon Carver, an economics professor from Harvard University who was studying the political economy of agriculture and communicated regularly with Warren. Speaking in similar terms, Carver commented:

A price-fixing board must either fix the same price as would be established by the forces of the market, in which case its work would be superfluous, or it must fix a different price. If it fixes a different price it will be wrong unless it can show that the market is not free and open and therefore the equilibrium price could not be established without its intervention....No price-fixing board, even if endowed with omniscience, could possibly improve on this. There is danger that it may think it can, in which case it is absolutely certain to make a nuisance of itself.<sup>11</sup>

The third speaker on the program was Lewis E. Gray from the George Peabody College for Teachers in Tennessee (now part of Vanderbilt University). He made a lengthy case for the need to protect consumers from the major risk of price fixing—that producers and manufacturers might artificially control output at the expense of the public and the country as a whole.

Warren's paper was published in the *American Economic Review* in March 1919 and discussed in the same issue by E. G. Nourse, an agricultural economist with a Ph.D. in economics. In most respects the two were in agreement about the problems of operating a price-fixing board successfully. But they differed sharply about Warren's statement near the end of his remarks about the efficacy of a program to stabilize the dollar and thus stabilize prices. In his article Nourse argued:

The price-fixing movement in this country has derived its chief and permanent emphasis from the desire to lower the urban cost of living, and this in turn, has been more than anything else, an effort to counteract the rise in the values of farm products. Even if the dollar could be stabilized, we would not have solved this problem—a fact which is readily demonstrated by a graph of the prices of farm products stated in terms of a theoretically stabilized dollar.<sup>12</sup>

Nourse then presented a graph of farm prices from 1890 to 1918 deflated by an index of wholesale prices for all goods and services. It showed that farm product prices had risen relative to other prices, especially since 1909. Nourse concluded his remarks by agreeing that any price-fixing board could not effectively serve for long in the public interest. Market forces must be allowed to operate.

Speaking at the AEA conference and engaging in professional dialogue with the economists was an important opportunity and experience for Warren. He gained additional exposure in the general economics profession and received effective criticism on one of the key points in his paper. A few years younger than Warren, Nourse had recently earned a Ph.D. in economics and was soon to become a major figure in the field of agricultural economics. He became president of the newly created American Farm Economics Association in 1924 and served as editor of the *Journal of Farm Economics* in 1925 and 1926.

Exchanges such as these were an important part of Warren's continuing education in the field of agricultural economics. He was learning from his peers in the classroom of public debate, but it was a fine way to gain the informed criticism he did not receive at Cornell, either within his own department or from others at the college.

Warren's papers include reprints of articles and papers published in a number of the major journals of the economics profession. From the *Journal of Political Economy* are papers by C. S. Duncan, including "Mercantile and Agricultural Economics" (October 1918), and E. G. Nourse, "What is Agricultural Economics?" (April 1916). Another article he saved was H. J. Davenport's "Farm Products and Cost Accounting" (May 1919), which took issue with some of Warren's points with respect to including costs for the use of a farmer's own resources in calculating costs of production. Warren was now working more seriously to become familiar with the professional literature of agricultural economics, and his department became a subscriber to the *American Economic Review* from 1918 forward.

In November 1919, Warren was invited to speak to the National Association of Commissioners and Departments of Agriculture at its annual meeting in Chicago. The topic he was assigned was "Cost of Production as a Factor in Marketing." Warren began his remarks by saying, "I presume that you are interested in cost as related to price," and then went on to provide his own subtitle, "The Use of Cost of Production in the Estimation of Necessary Price." His opening paragraphs established the position that he hoped would help these commissioners make the case in their respective states for monitoring both costs and prices in the best interests of the agricultural community:

No producer who does not have a monopoly can always sell at cost of production, or cost of production plus a profit. Even a monopoly cannot expand its business indefinitely and continue to sell at cost of production. Every industry must at times accept a loss, and if the industry is to continue it must at times have a compensating profit. Because of these facts it has been contended that cost of production need not be considered when prices are being fixed. Cost of production may at times be temporarily ignored but cost of production is the sea level about which the tides of prices must fluctuate....The real question is, does knowledge of cost of production aid in estimating "necessary" price? It certainly does. It enables one to estimate whether or not a given price is likely to result in increased production accompanied by all the chain of circumstances that follow a favorable price, or will result in a decreased production accompanied by all the circumstances that accompany an unfavorable price.

With governmental regulation or manipulation of transportation, storage, and exports, great power has developed for making and breaking prices. When the rate of exchange becomes the dominant factor in exports the encouragement or discouragement of foreign loans can easily affect prices. We cannot continue to sell to a customer who has no produce to bring in exchange unless we lend him money. With the coming of peace, we may hope for more regulation of prices by supply and demand and less regulation by politics, but commerce has become so complicated, and the consumers have come so fully to believe that food can be made available by legislation, that continuous efforts will doubtless be made to control food prices.<sup>13</sup>

Warren focused most of the paper on explaining the components of cost-of-production studies and the importance of the concepts used in farm cost-accounting. He stressed the need to include the value of family labor and capital as part of the costs in any estimates for particular crops or farm products. He essentially gave a condensed review of the principles used in farm cost-accounting. His summary message was:

Many farm products have come under more or less monopolistic control. In order to meet such [a] monopoly farmers are forced to organize for collective sales. Whenever farmers sell collectively, no matter how low the price, they are subject to challenge by consumers, politicians, and yellow journals. To meet such contentions it is increasingly necessary that costs be determined and that much other data be available concerning the status of farming.<sup>14</sup>

This presentation by Warren is particularly interesting, not so much for its content, but for the fact that it indicates he was nationally recognized as a spokesman for agriculture. He was known and respected for his increasing involvement in studying agricultural prices and their role in directing production. It also highlighted the importance of marketing to the welfare of the agricultural sector. In this presentation to many political leaders in agriculture, Warren more clearly stated his awareness of international markets as a major force in establishing domestic prices. He was still primarily an agriculturalist with a growing understanding of economics and was far from sophisticated in the language and thinking of his economics-trained colleagues in agricultural economics. He was, however, still speaking primarily as an established figure in the field of farm management.

#### Rural Economy Combined into Agricultural Economics

It was at this time that Warren began to think of himself as an "agricultural economist." In 1917, he was one of the leaders in farm management who proposed that the American Farm Management Association (AFMA) change its name to American Farm Economics Association (AFEA), which was accomplished in January 1919. His department officially became the Department of Agricultural Economics and Farm Management in 1919, when Dean Mann decided that the two faculty members in rural economy should join Warren's farm management department. One of them, Professor George Lauman, was not pleased with the decision and the loss of his independent status in a separate department. The transition was relatively smooth, although Lauman and Warren continued to go their separate ways. The second professor of rural economy , James E. Boyle, went on with his work and became an active contributor and collaborator in many programs in his new department.

In December 1919, Warren addressed the members of AFEA in Chicago on the topic, "Prices of Farm Products." As was his general rule, the opening paragraph summarized an important part of the content of his speech:

There are two distinct questions concerning prices: 1) Why are prices in general high? 2) Why has the price of a particular commodity followed the course that it has? The primary reasons for the general high price level are financial inflation and shortage of goods. The price of a particular commodity is affected by inflation and by other factors that vary with the commodity in question. Some products such as horses are lower in price than they were before the war. Other things are much higher than the general price level.<sup>15</sup>

Warren then went on to discuss inflation and shortages of goods, and cited ways in which both were reasons for higher prices. To provide perspective on changes between 1910 and 1919, he used the "Index of Wholesale Prices of All Commodities" from the Bureau of Labor
Statistics (BLS) as the primary means to measure the general price level and compared it to index numbers for prices of food and those for farm products. He briefly considered other explanations for "high" prices, but then turned to the questions of "How long will prices be high?" and "How soon will deflation occur?" He did not try to forecast late in 1919 the rapid changes that were to come in the next two years. However, he did recognize in the speech that deflation could put many in distress, particularly if they bought land at current prices and then had to pay debts with deflated dollars.

Warren concluded his paper with a detailed history of the prices for each of thirty farm products for each month since the war began. He also made comparisons with farm prices during the Civil War period and the years immediately following, when prices had risen rapidly and then fallen precipitously. Clearly he expected another downward spiral of farm prices was likely to come soon, but made no prediction of its timing.

## The USDA Bulletin on Prices of Farm Products

Because of his considerable interest in farm prices and the research he had already done in bringing together farm price data for his presentation at the AFEA meetings, Warren received a grant from the USDA to prepare a more comprehensive study of the prices of farm products in the United States. His department now included a group of clerks and analysts who were adept at accurately summarizing large quantities of data in relatively short periods of time. Their efforts in summarizing the New York State Census of Agricultural Resources so rapidly in 1917 were widely heralded as a fine achievement.

With access to the files of the Bureau of Labor Statistics and the Department of Agriculture, a comprehensive review of changes in the monthly prices of farm products was undertaken in relation to the general price level as measured by the BLS index of wholesale prices of all commodities. The results of this effort were published in August 1921 as USDA Bulletin 999, *Prices of Farm Products in the United States*. The bulletin provides twenty-five pages of text, tables, and figures, followed by another forty-seven pages of tables and charts providing the basic monthly data for thirty-one major agricultural commodities.

The lead paragraphs of the bulletin provide the context for the work presented:

No price is high or low except by comparison. If the price of a product has been cut in half it does not mean that the product is necessarily cheap. One must know the general price level in order to make comparisons. The Bureau of Labor Statistics of the Department of Labor publishes an index number of wholesale prices each month. Prices of 328 commodities are obtained and by comparison with previous prices an index number showing the general price level is prepared. Index numbers of wholesale prices since 1791 are shown in Table 1.

By comparing prices with the general price level one can judge them fairly accurately. Compared with the five-year average before the war, wholesale prices in 1918 had doubled, or were represented by 200. Many commodities were higher and many were lower than this figure would indicate. Any product that had not doubled in price was then relatively cheap. Any product that had more than doubled was relatively high priced.<sup>16</sup>



Warren then went on to look at wholesale prices from 1791 through 1920 indexed to the period 1909-1914 = 100. The index numbers for each year were presented in tabular form and as a graph. Three striking peaks in wholesale prices stood out as clearly related to the War of 1812, the

Civil War, and World War I, when the respective index numbers reached 200 or more. Warren superimposed the graphics for World War I on those for the Civil War and by implication suggested what could be ahead for the nation. Prices had fallen recently from a monthly peak of 276 in May 1920 to 151 in June 1921, the most recent index number included in the bulletin. He commented, "After each of the previous wars a very violent drop in prices occurred, followed by a partial recovery and somewhat stable prices for a year or more, then again followed by a longer less violent drop and again followed by a period of somewhat stable prices."<sup>17</sup>

A graph of the index of wholesale prices was compared with index numbers of U.S. bank deposits and money in circulation, showing that they had somewhat similar movements between 1910 and 1920, but with little additional comment. Production levels of six major cereals were summarized from 1866 to 1920 and related to weather conditions to emphasize this source of variability in the prices of farm commodities over and above the influence of the general price level.

A major theme of the USDA bulletin was the purchasing power of farm commodities when the price of the commodity was divided by the index number of wholesale prices on January 1 for that year. The declining purchasing power of hogs and horses during the period 1916–20 was emphasized in Table V. In a similar manner, index numbers of wages and wholesale prices were compared for the periods of the Civil War and World War I. Wages were shown to be more stable in both periods, with wages holding their gains after the Civil War. Warren commented, "When prices rise rapidly, wages lag behind, but there is full employment, so that wage earners are not in as serious a condition as the wages indicate. When prices fall rapidly, wages lag behind and remain high, but there is likely to be unemployment, so that buying power is not as high as the wages suggest."<sup>18</sup>

Wholesale prices of corn, winter wheat, wool, butter, cheese, and eggs in index form were graphed for the period 1861–78 and compared with similar numbers for 1914–20, and the index of wholesale prices for the longer period. There was also a short discussion of farm prices compared with other basic commodities, such as pig iron and crude oil, as well as freight rates for wheat, corn, and dressed hogs. The final diagrams, supported by some commentary, were graphs of the purchasing power of winter wheat, corn, and cotton in terms of alternative index numbers based on figures calculated per bushel, per acre sown, and per acre harvested. Here Warren emphasized that the choice of the base to which the price was applied also could make a difference in the conclusions drawn. He argued that acres planted was the correct base from which to draw conclusions, because in most cases farmers had little alternative for the acreage after it was planted if there was no crop to harvest. The reasons for these differences were easily explained and understood by farmers, but were more difficult for the public and some analysts to grasp because of their lack of knowledge of farming practices.

Some of Warren's comments following the tables and charts in the main body of text are notable:

The Nation is not only confronted with the most violent drop in prices that it has ever experienced, but agricultural prices have dropped so much more than other prices that we have a severe agricultural panic on top of a severe general depression.

...Even allowing for the drop in wholesale prices, farmers can now (1921) buy only about two-thirds their usual amount. In very large areas at centers of production their buying power is not half of the normal. If farmers can not buy, cities can not sell, and unemployment results.<sup>19</sup>

Warren concluded the publication on a somewhat pessimistic, but realistic note, stating:

The agriculture of America will recover. But in the meantime many individual farmers have lost all their savings. The injury is most serious for young men who began farming as tenants or owners in the past few years. When prices are high, it is difficult to avoid becoming too optimistic. When prices are low, it is equally difficult to avoid becoming too much discouraged. Many business failures are primarily failures of courage. Many farmers can not avoid failure, but courage and perseverance will carry many others through seemingly impossible conditions and will do much to bring back normal times.<sup>20</sup>

These paragraphs from the summary statements at the end of the bulletin reflect the author's substantial concerns for farmers and rural people. This was a time of rapidly falling prices, and the lack of economic stability in rural communities was coincident with that fall. Even though there had been warnings and public discussions about the likelihood of drops in agricultural prices, the size of the decreases and the speed of their fall was difficult for farmers to accept. Warren's efforts to sound a note of encouragement in this relatively technical publication did not reach many farmers directly. But it is a good indicator of the kind of comments he was making at farm meetings in New York and at public gatherings elsewhere.

In many respects USDA Bulletin 999 was one of Warren's more significant publications. He studied the national series of agricultural prices that was available from the earliest years of this country. He set about trying to measure the purchasing power of agricultural commodities, using index numbers as a way of consistently expressing this concept. He gained knowledge and greater confidence in his understanding of the "general price level" and the complexity of trying to measure it using any single set of index numbers. The research project also established his strong interest in and commitment to learning more about the key forces that establish prices in the marketplace.

## Trip to Europe in 1921

Shortly after USDA Bulletin 999 was issued, Warren sailed for England on September 12, 1921, at the request of the secretary of agriculture. He was sent to learn more about crop conditions and market situations in the countries of western and central Europe, and was asked to make recommendations to the USDA about its programs with respect to markets in foreign countries.<sup>21</sup> He traveled with W. F. Callander from the USDA; on their return in early 1922, they both wrote reports based on their visits to England, Denmark, Hungary, and the newly established country of Czechoslovakia.

This trip provided a firsthand view of the terrible impacts of the war on agriculture throughout Europe, regardless of whether battles had been fought on farmers' fields or in the surrounding towns and cities. Warren also gained personal contacts with European leaders in farm management and agricultural economics, and established a number of professional relationships on which he would build in the years ahead. He published one set of summary comments on his trip, "Notes on Farm Accounting in Some European Countries," in the *Journal of Farm Economics* in October 1922. His insights in the article's lead paragraphs tell much about his own views and his general perceptions regarding the importance of farm accounting:

It has been said that war ends by the exhaustion of agriculture. Our own formula for it was: "Food will win the war." Probably the lack of it was the weakest point in all of the warring countries. Nothing is more depressing to patriotism than an empty stomach.

The soldiers may have food, but if the people back home lack food, there is trouble. When sudden economic changes occur the consumer is unwilling to wait for supply and demand to find an equilibrium. He calls for the price-fixer with his magic two-edged sword—one edge of which slashes the price to suit the consumer while the other slashes production to suit nobody. In the backward countries agriculture declined peacefully as it should in a well-regulated monarchy. In the countries where the farmers were better educated and more up-standing they resisted the city-made policies that would give cheap food today and nothing tomorrow. By vigorously opposing the apparent patriotic movements of the Government, farmers kept agriculture alive. By serving their selfish interests they proved to be the best servants of public welfare. How could they meet the attacks of the pricefixers? One means was by cost accounting. Hence, in the United States and in the progressive countries of Europe a great stimulus was given to cost accounting. There are better measures for comparing the status of city and country than cost accounting, but with the general ignorance of economic and agricultural questions, cost accounts seem to be the most generally accepted measure. The rate of movement of workers from farms to factories and from factories to farms, index numbers of agricultural prices compared with other prices, increase or decrease in efforts at food production, such as the raising of heifers, are often more significant than cost of production.

Another factor in the development of cost accounting in Europe has been the question of taxation. The results of accounts are used to indicate the status of agriculture, as well as to protect the individual. The primary service that cost accounts can render is in business analysis of agricultural production, not in making comparisons of agriculture with cities in order to see who is getting more than his share of the good things in life. Cost accounts furnish a basis for studying ways of reducing costs and for finding ways of increasing profits. Whatever the motive for starting cost accounts, the large amount of data gathered will be of great service in making analyses of agricultural production.<sup>22</sup>

Much of the rest of this short article reported on the cost-accounting work in progress in England, Denmark, and Czechoslovakia, and the key individuals who were leading these efforts. Warren was most impressed by the work in Denmark. A fine system was developed there under the strong leadership of Professor O. H. Larsen, who provided field men to help farmers keep up-to-date with their records. In 1920 and 1921 the central office for this program had summarized, analyzed, and published the results for accounts on 466 farms.

Although most of Warren's attention in later years was no longer primarily concerned with farm management, he continued to support the ideas he presented in this article. Good accounts were a central requirement for good management decisions. He strongly believed that price-fixing by any government was almost certain to lead to uneconomic allocations of resources and reduced production.

## **Department Activities**

When Dean Mann combined the existing departments of farm management and rural economy in 1919 and appointed George F. Warren as its head, he named it the Department of Agricultural Economics and Farm Management with Warren's blessing. This widened the scope of the work open to the new department and attracted additional funding and students. Graduate students were fundamental to carrying out this research. E. G. Misner received his Ph.D. in 1918 and was immediately made an assistant professor in farm management. He helped in teaching but his primary focus for much of his career was in farm management research centered on the dairy industry and vegetables for processing. W. I. Myers completed his Ph.D. in 1919 and quickly became one of the leaders of the department's teaching effort, as well as Warren's secondin-command for administrative duties. Myers wrote a summary report of the department's activities for the Journal of Farm Economics in October 1921, which provided a comprehensive review of the department's lines of work currently in progress, or recently completed:

- 1. Farm cost accounting—cited the farms now keeping records which the department was summarizing, 32 most recently, and Myers own doctoral thesis, "An Economic Study of Farm Layout," published in June 1920 as *Cornell Memoir 34*.
- 2. Farm management surveys—ten years after the first Tompkins and Livingston County surveys were completed, a second set were conducted in 1918 and 1919 and were in the process of analysis. Another project was the continuing survey of fruit farms in Niagara County started in 1913 and

with a total of 986 records from eight years of visits to the same farms under the direction of Gad P. Scoville.

- 3. Economic survey of dairying in Broome and Herkimer Counties under the direction of E. G. Misner, which was a continuation of the cost of milk production studies started in Delaware County in 1912–13 by A. L. Thompson.
- 4. Economic studies of vegetables for canning in western New York including peas, tomatoes, sweet corn, string beans and limas by L. J. Norton; soon to be published in December 1922 as Experiment Station Bulletin 412.
- 5. Economic study of tractors and their costs in progress under Myers' direction.
- 6. Price studies—USDA Bulletin 999 by G. F. Warren.
- 7. Transportation Problems—field work begun on costs of operating motor trucks and their effects on farming; study started on freight rates and their effects.
- 8. Movement of Farm Population—using data from surveys for the years 1907–8 and 1917–18 in Tompkins and Livingston Counties.
- 9. Farm Labor—survey of costs and hours for each person employed on farms in Seneca County; personal history and financial conditions for workers also studied.
- 10. Marketing—cooperatives and their organization.
- 11. Farm Finance—study on farm credit situation in the state and the availability of and costs associated with loans to farmers.
- 12. Cost of living in a small factory town—a survey of the village of Groton and its workers in businesses located there; published in September 1924 by Clarence V. Noble as Experiment Station Bulletin 431.<sup>23</sup>

Under the heading of Extension, Myers noted that there were three staff members in the department working full time on extension projects. He listed the following types of programs underway: 1) demonstration schools; 2) single commodity meetings; 3) farm management tours; 4) farm accounting; 5) farm management reading course using Warren's book; 6) newspaper and magazine articles; 7) correspondence to answer questions from farmers and others; 8) an experiment in a county with a farm management service; 9) organizing cooperatives and teaching cooperative principles; and 10) retail merchant conferences.

This summary report in the *Journal of Farm Economics* reflected the department's expanded scope of work in terms of the wide range of projects in which students, staff, and faculty members were engaged. The number and quality of graduate students who were seeking advanced degrees provided a clear indication of the reputation of the college and the department, as well as that of Warren and his colleagues.

### H. E. Babcock and the GLF

In October 1920 Warren was able to get Professor Howard E. Babcock to join the department to take leadership for work in cooperative marketing. He held this position for only two years, but they were significant because of the work he initiated and his leadership roles in New York State agriculture in succeeding years. Babcock grew up on a farm in Chenango County and obtained his bachelor's degree from Syracuse University in 1911. After completing a summer school program in agricultural education at Cornell, he was certified to teach vocational agriculture in high schools and taught in Albion and then Elmira for two years. In 1914 he was recruited to serve as a county extension agent and worked in Cattaraugus and Tompkins Counties, each for a year. He was quickly recognized as an unusually effective organizer and teacher, and in 1916 the college appointed him state leader of county extension agents. Babcock and Warren became well acquainted, working together on the special census of agricultural resources and another project for the New York State Food Commission in 1916-18.

As state leader of county agents, Babcock helped to organize the New York State Federation of County Farm Bureaus, which later became the New York Farm Bureau Federation. Extension agents in the counties became known as the "farm bureau agents" because they provided the educational programs of these bureaus. At this time, the Farm Bureau was not a politically active organization; its goals and interests were essentially the same as Cornell's extension program—improving the education and ability of farmers to manage their businesses profitably. In 1919–20 Babcock also served as secretary of the New York State Agricultural Conference Board. He and Ed Eastman, then editor of the *Dairymen's League News*, had sparked the formation of the conference board, which came to act as a spokesman for New York agriculture with the state legislature.<sup>24</sup>

Babcock had gained a solid understanding of the Rochdale principles and encouraged county agents to help farmers in organizing local cooperatives.<sup>25</sup> It was appropriate that he became a professor in

Warren's department when the Department of Rural Economy was absorbed in 1919 and teaching and research about cooperatives became one of its mandates.

Babcock was something of a human dynamo, creating goodwill and leading by example while teaching and practicing good management principles. In the spring of 1920, while still state leader, he had helped to foster the creation of the Cooperative Grange League Federation Exchange, Inc., a statewide cooperative purchasing organization. The name of the cooperative, popularly known as GLF, was an amalgamation of the names of its sponsoring organizations: the New York State Grange, the Dairymen's League, and the Farm Bureau Federation. Babcock and Warren worked closely together with representatives of these three groups in establishing the new cooperative. Its purpose was to maximize buying power in obtaining feed, seed, and fertilizer for its farmer members at a reasonable price and to provide accurate information about the products for sale. Feeds were to be open formula; fertilizers were to list the analysis of key elements on the bag.

Both the Dairymen's League and the NYS Grange had established fledgling organizations with the same mission, but the new cooperative was to be a statewide organization owned by and serving all the farmer members of the three organizations. Babcock became one of GLF's directors, representing the farm bureaus and the college's extension program, and was elected secretary of its executive committee.

To make the new organization work, it needed farmers' capital. Babcock led a "million dollar stock selling drive." Shortly after his appointment as professor of marketing in the department, he took a leave of absence in October 1920 and began traveling the state. He promoted the idea of the new cooperative and asked farmers to buy shares to provide the necessary capital that would make this important new organization into a healthy business reality. He believed one of the first priorities of the GLF should be to establish a solid membership base so that each farmer would have a small stake in its success because of his own investment. He set about selling that concept and succeeded by securing the aid of the state's agricultural magazines and rural newspapers, and his friends among the county agents. In total, the drive for capital stock yielded \$775,000, enough to start operations. In many respects the college indirectly was also one of GLF's sponsors, even though private-industry suppliers were clearly opposed to having a new competitor.

Like most new organizations, GLF had many problems assembling a team of individuals to run the business efficiently. Gaining sources of supply and delivering the products in a timely manner was critical. Finding the right person to manage the new cooperative was not easy. The new enterprise began in 1920 when farm prices were still high, and had its central office in Syracuse. By the fall and winter of 1921 prices had fallen dramatically and the growing pains of the new business were substantial. By 1922, GLF had an operating deficit of \$150,000 and cash for operations was in short supply.

Babcock had bought a farm south of Ithaca in 1920 so he knew firsthand the pain involved in managing with debt taken on when prices were high and trying to operate a successful business as prices for its products were falling. As a member of the GLF executive committee, Babcock recognized in 1922 that something had to be done to turn the deficit around if the new cooperative was to survive. He was persuaded to resign his professorship at Cornell and become the new general manager of the fledgling cooperative. By dint of his management skills, strong personality, and the business opportunities the new organization provided, he and the GLF cooperative became a great success story for agriculture in New York State. He moved the central office from Syracuse to Ithaca and reduced its staff. By 1925 the deficit of \$150,000 was erased. At the bottom of the farm depression in July 1931, GLF had \$1.75 million of capital stock and a retained surplus of \$900,000. Sales for the cooperative that year were \$25 million.<sup>26</sup>



H. E. Babcock, CEO of the Grange League Federation Exchange and chairman of the Cornell Board of Trustees, 1940–47.

Babcock was the general manager of GLF from 1922 to 1932 and again from 1935 to 1937. The cooperative's central office was located on Terrace Hill, close to downtown Ithaca. Communication was fostered between GLF staff and Cornell faculty, but business operations were the province of the cooperative and policy was established by its board of directors elected by its farmer members. Babcock maintained a strong relationship with Cornell throughout his years at GLF. He talked with Warren on a regular basis and was a strong and vocal supporter of the college's research program in agricultural economics. As a farmer, he was also a successful innovator and wrote and talked about what worked and did not succeed on his farm.

Babcock became a member of the Cornell Board of Trustees in 1930 and served as its chair from 1940 to 1947. He was a trustee for twenty years and strongly supported the creation of the Graduate Schools of Nutrition and Business and Public Administration, as well as the New York State School of Industrial and Labor Relations. His death at age sixty-one in 1950 was a substantial loss for the Ithaca community, the university, and the cooperative he had so vigorously headed in its early turbulent years.

### F. A. Pearson Joins the Department

An increasing number of students enrolled at Cornell for graduate work in agricultural economics and farm management in the years following World War I. Students were attracted to the programs by the combined reputation of the College of Agriculture, the university, and Warren himself as a leader in the field. While this growth was certainly worthy of note, the quality of the students proved to be even more impressive in terms of their later accomplishments.

Among the new instructors in agricultural economics in October 1920 was Frank A. Pearson, who was also one of Warren's doctoral students. Pearson had completed his B.S. in agriculture at Cornell in 1912 with a focus on farm management. After graduation he went to the University of Illinois to a position in their extension program. In those years enrollment was increasing rapidly at colleges of agriculture and there were not enough advanced degree holders available to meet the needs for faculty positions or the demand for extension staff. Because of the quality of Cornell's undergraduate training in farm management, during this period a number of Cornell graduates were hired to teach or work in extension programs at colleges in the East and Midwest, even though they had not completed any graduate study. Pearson did well during his first two years at Illinois and was offered an extension position at Cornell in 1914. However, he decided to stay on at Illinois, where he had started work on his master's degree while still carrying his full workload.

Warren and Pearson spent substantial time together in 1917 as members of the U.S. Food Commission's King Committee on dairy pricing issues. Pearson worked with dairymen who were selling milk in the Chicago area and established cost-of-production data for that major market in much the same manner as Warren did in New York. Although he was not a professor at the University of Illinois, the Chicago newspapers gave him that title in reporting on his work and meetings with the Chicago Milk Price Commission. At Pearson's encouragement, Warren also addressed a group in Chicago about how the "Warren Formula" was constructed to establish monthly production cost estimates from cost-account data for milk under New York farm conditions.

After he was appointed an instructor at Cornell, Pearson was an active participant in helping to organize and analyze the price data that Warren published as USDA Bulletin 999 in 1921. He spent the fall semester of 1921 at Harvard University, studying economics and statistics as part of his Cornell graduate program. Pearson was awarded a Ph.D. in June 1922; the title of his doctoral thesis was "Agricultural Prices." This rapid progress through his graduate studies reflected the amount of graduate study he had done at the University of Illinois before coming to Cornell, particularly in mathematics and statistics.

Pearson's doctoral thesis focused on statistical methods as they related to the study of agricultural prices. He introduced his dissertation with these comments:

Serious consideration of some of the more fundamental problems of economic and agricultural statistics have appeared from time to time. In the field of economic statistics the work of Professors W. C. Mitchell, W. M. Persons, and E. E. Day stand out most brilliantly. In the field of agricultural statistics, the work of Professors G. F. Warren and H. L. Moore and Mr. H. A. Wallace have probably commanded the most attention.

The purpose of the present study is to attempt to interrelate the work of the economic and agricultural scientists by finding

- a. the general tendencies or secular trend,
- b. the seasonal variation,

- c. the cyclical activity of the phenomena under question, and
- d. the degree of correspondence between agricultural products, and between agriculture and urban activities.<sup>27</sup>

Pearson then followed with a chapter in which he investigated secular trend using graphics and regression analysis for a large number of agricultural and industrial commodities in the United States and in Europe for the years between 1896 and 1916. He sought average trends, or average percentage increases in prices, using different time periods. He settled on the period 1897–1913 for much of this work.

A major section of Pearson's thesis was committed to measuring the regularity of seasonal variation in agricultural prices and effective ways of separating out secular trend over time from the true seasonal component of price series. He used graphics to demonstrate that seasonal variations in agricultural commodity prices were inversely related to changes in production and supply, and recognized that stocks of storable commodities also influenced seasonal price shifts. In this

section much of the data studied were for the period 1903–16 for commodities coming to market in New York City and Chicago, two regions for which he had access to excellent monthly data.

The third major section of his research was committed to studying cycles in the monthly prices of livestock and livestock products in the New York and Chicago markets for the period 1903–1916. Pearson set about trying to remove the effects of secular trend and "regular" seasonal variation from his timeseries data in order to draw attention to the remaining cycles and all the other random variation caused by such factors as strikes and weather. Given the statistical



Frank Pearson

tools then available and the magnitude of the calculations involved, this was an ambitious undertaking. Working first with data on prices and supplies of hogs and cattle, where acknowledged cycles were known to exist, Pearson graphed the monthly data. He showed correspondence in the behavior of prices across markets graphically and calculated correlation coefficients for variation in price series with production. He found coefficients of the expected signs, but much variability was left unexplained after his statistical manipulations.

Pearson's application of statistics to the study of agricultural prices brought an additional dimension to the work Warren already had in progress at Cornell. Measuring secular trend and capturing the regularity in seasonal movement of monthly prices was to become a consistent part of the department's analyses of commodities in the future. During their work together in 1917–18, Warren had recognized Pearson's statistical interests and abilities in evaluating the seasonal component in prices paid to farmers for milk in the Chicago market. Upon completion of his doctorate Pearson was appointed a professor of prices at Cornell, where he became a close collaborator with Warren on economic studies for the rest of Warren's life.

## Expanding the Horizons of Work and Study in the Department

The letterhead for the Department of Agricultural Economics and Farm Management in 1920 listed thirteen faculty members. The seven professors were listed in order of seniority: Warren, Lauman, Livermore, Boyle, Scoville, Misner, and Myers. Lauman, Livermore, and Scoville only had bachelor's degrees. Boyle, who was hired by Lauman after a national search, completed his doctorate at the University of Wisconsin. C. V. Noble was listed as an assistant professor; he completed his Ph.D. at Cornell in 1920. The instructors were R. L. Gillett, L. J. Norton, E. C. Young, H. P. Young, and V. B. Hart —all of whom completed doctoral degrees at Cornell within the next two years.

C. V. Noble's doctoral thesis, "The Cost of Living in a Small Factory Town," was a substantial departure from most of the previous studies that had been completed in the department. Noble obtained the cooperation of the Corona Typewriter Company, which was the principal employer in Groton, New York:

The purpose of the investigation herein reported is threefold: (1) to study living conditions and living costs of persons employed

in a factory located in a small town; (2) to make a comprehensive study of living conditions and living costs of persons employed in a factory and (a) living on farms, (b) living in town and cultivating gardens or keeping livestock, (c) living in town with no gardens nor livestock; and (3) to formulate some of the advantages and disadvantages of the small town as a factory site.<sup>28</sup>

Noble's research was completed under Warren's direction and followed up on Liberty Hyde Bailey's idea and the Country Life Movement's contention that small towns should be chosen more often as sites for factories and businesses because of the quality of life they afforded workers and the opportunities they offered rural people. Warren was a firm believer in this concept. The Corona Company provided a list of 113 employees; personal interview records were obtained from 86 of them, plus 6 people who were working for other businesses in Groton, for the period September 1, 1918, through August 31, 1919. This project was initiated and the record-keeping forms prepared when the department was still called the Department of Farm Management. Records of all family income and expenses were obtained by personal interview, often requiring more than one visit by Noble and his coworker, Dana Card, who later obtained an M.S. in 1925.

This pioneering study was made at a favorable time over the twelve months at the close of the war and during the period when prices were still rising in 1919. Cooperation was good in getting estimates of not only the costs of food, clothing, housing, fuel, and transportation, but also recreation, church and charitable giving, and expenditures for books, magazines, interest on debt, medicine and doctor visits, insurance, etc. The survey forms were quite complete, and most of those interviewed were as helpful as the farmers had been in other studies made in Tompkins County—a testimonial to the respect that most area residents had for the college and the work it was doing.

Efforts were made to compare the findings from Groton with other "cost of living" studies, including one made in 1796 by Sir Frederick Eden in England with seventy-three poor working families, and those of Dr. Ernest Engel (1895) using family accounts in Belgium. One of Noble's tables compared the Groton results with five other studies considering the percent of family expenditures for food, rent, clothing, fuel and light, and all other. Two of these were U.S. Department of Labor Studies, one for 1890–91 and the other for 1918–19. The percentages spent on the five major categories for these three studies in the U.S. were quite similar, whereas those made in the eighteenth and nineteenth centuries in Europe showed much higher percentages spent on food. The

September, 1924

Bulletin 431

## The Cost of Living in a Small Factory Town

Clarence Vernon Noble



Groton and U.S. labor department studies made in 1918–19 had very similar results, although the Groton workers reported spending less on clothing and a little more on food and all other.

Noble's study concluded with a section on the advantages and disadvantages of the small town as a factory site. The opportunities for employees to own their own homes were greater in a small town, in part because there were fewer houses for rent. The social environment was seen by workers as an advantage, as was the opportunity to produce part of their own food supply. A continuing concern of workers was the potential for the factory to be shut down, even though the company was adding employees at that time. Freight rates for the Groton factory were higher, but taxes and costs of labor were lower than for their competitors.<sup>29</sup>

### **Population Movement**

Another initiative in graduate research was taken in studying population movements: of farm family members out of farming, of people from other industries into farming, and of populations within farming communities from farm to farm. This study became the doctoral dissertation of Ernest C. Young, "A Study of the Movement of Farm Population," in 1921. Young cited C. J. Galpin at the University of Wisconsin for his pioneering efforts to obtain data about the shifts in population that were much talked about, but for which little specific information had been collected and analyzed. In his study, Young used census reports, mortality and birth statistics for individual counties in the state, and estimates on movements of farm populations made by the Bureau of Crop Estimates, the USDA, and the College of Agriculture for the period 1920–23. Data from successive farm management surveys in New York State were incorporated into the study as well.

Young brought together an impressive body of secondary data from these sources in examining the movement of people from farms to other occupations over a long period of history. In his summary, published in Experiment Station Bulletin 426, Young brought together what he had learned with considerable insight:

The proportion of the persons gainfully employed in the United States who were engaged in agriculture changed from 87 percent in 1820 to 35 percent in 1900 to 26 percent in 1920. This change is greater than any that has taken place in any other important country. In France the change was from 40 percent in 1872 to 42 percent in 1906.

The increased movement from farms has been made possible largely through the increased efficiency of farm labor. A calculation from census data shows that farm labor in the United States increased in efficiency 88 percent from 1870 to 1920. In New York the increase was 59 percent from 1865 to 1917.

The movement of population from farms increases rapidly when city industries are prosperous and expanding. A study of the movement of farm population from farms in New York from 1917 to 1920 showed that men and boys were leaving New York farms during that period at about two and one-half times the rate at which they were being produced....The important factors determining the element of the farm population that will leave the farm are: opportunity, education, distance, age of individuals, and capital.

...Persons who have remained on farms long enough to have become farm operators are not likely to go into occupations other

than farming, and, if they do, they are at a disadvantage. The more deeply a person becomes involved financially in agriculture, the less likely he is to leave the farm. The following list shows the order in which persons are most likely to leave the farm: 1) hired man, 2) farmer's son, 3) share tenant, 4) cash tenant, and 5) owner. The movement of population to farms is not so large as the movement from farms, and increases and decreases inversely to the movement away from farms.<sup>30</sup>

This excerpt from the summary of Young's report reflects some of the substantial efforts made to document the much discussed exodus of able young people from rural communities and common reasons for their leaving. The Country Life Movement was seeking better information to make its case for greater investments by New York State in improving rural life, and although Young did not provide any policy recommendations in his thesis or the bulletin, this was one of the useful contributions to that effort from the Department of Agricultural Economics and Farm Management at Cornell.

## Continuing Farm Management Studies

The primary work of Warren's department in the years immediately following the war was still in farm management. One of its major publications was Experiment Station Bulletin 414, *Cost Accounts for Six Years on Some Successful New York Farms*, published in February 1923. The authors of the 140-page report included Warren, Hart, Myers, Gillett, Noble, and others reflecting the many faculty and staff members, as well as students, who had worked on this project from 1914 to 1920. An eight-line footnote listed nine women on the staff who had worked in tabulating and summarizing the data. Warren noted that he had written the text for the bulletin with the help of Hart, who prepared all the charts and tables for it. This was the last major bulletin in farm management that Warren helped prepare, as his attention was shifting to focus primarily on prices and public policy.

Bulletin 414 provided a history of cost-accounting work at Cornell and even listed the names of all the cooperating farmers during that period. The first sections reviewed the methods used in carrying out the detailed record keeping and illustrated the methodology with summary information from the cooperating farms. Special emphasis was given to the use of human labor and its allocation to productive enterprises. Similar analyses were presented for the use of horses, tractors, and principal pieces of farm machinery. The second half of the bulletin discussed the cost-account results for individual crops and livestock products for each year, and an average over seven years. All in all it provided the basis for statements about physical estimates of feed per animal, fertilizer per acre, and labor "requirements" for individual enterprises. These averages were widely used in the eastern half of the country because they were the best sources available, particularly at a time when no other equivalent data from local sources were being produced.

Another important publication from the postwar years was L. J. Norton's study on vegetable crops grown for canning in six western New York counties in 1920. Estimates of the costs of production for peas, tomatoes, and sweet corn were obtained by farm surveys. These crops were all grown under contract, and cooperation by the canning companies and the New York Canning Crops Cooperative Association was a necessary requirement for this project to succeed. Survey records were obtained from 262 pea enterprises, 133 tomato operations, and 34 farms with sweet corn contracts.

An introduction to the canning industry and consumption of the crops studied in the Northeast was presented. In those years most of what was consumed in the region was also produced somewhere in those states. Peas were the crop for which the results were presented first. Average costs of production were shown, along with averages of the amount of labor and resources required to grow peas up to harvest. Norton emphasized the variation around these averages and considered some of the reasons for differences in yields and inputs. County averages were displayed, with surprisingly large differences noted in rates of fertilization. Similar summaries and commentaries were presented for tomatoes and sweet corn. Norton's results were compared with costs obtained on farms keeping cost-account records for peas and sweet corn in New York and with published results of surveys in New Jersey and Ohio for tomatoes.

One other farm management study of particular note was published in Experiment Station Bulletin 409 (April 1922) by E. G. Misner, who summarized the basic data obtained from 149 dairy farms in Broome County in 1914–15. In commenting about the study area and the suitability of these farms, Misner noted that, "Fifty were in the Susquehanna, Chenango, and Otselic Valleys, and ninety-nine were on the hills and upland."<sup>31</sup> Only farms with six or more cows were included in the study. Data were collected by the survey method, and cooperation also was obtained from the receiving stations where milk was sold. In this manner monthly prices and receipts were made available for each farm. Special attention was given to the use of labor, feed production on the farm, and feed purchases and sales. Working with Professor E. S. Savage in animal husbandry, all feeds in the form of hay, silage, and home-produced grains were converted to total digestible nutrients and digestible protein, and related to the amount of milk sold. The importance of pasture in the cows' rations was estimated as well. Several visits to each farm were required to obtain all the detailed information required in this study.

Warren was quoting and presenting some of the results from this study in his meetings with dairy leaders and farmers in 1916. By the following year he was regularly using the data from this study—together with monthly information from dairy cost-account farms—in testimony before the U. S. Food Commission, the King Committee, and the New York Milk Commission. This study was also the basis for Misner's thesis for his doctoral degree, which was awarded in 1918. The bulletin was expanded to consider alternative feeding standards in use at that time for the cows included in the study and the deviations found from these standards. Some farms concentrated on getting peak production during the pasture season and less during the winter months. Others sought to get year-round production by using stored feed in the winter months when milk prices were highest. These different systems of management were carefully evaluated and related to the kind of soil resources available to the respective producers.

This large experiment station bulletin (176 pages) reflected the important contributions made to the study by Professor Savage and the staff in the Department of Animal Husbandry, as well as the group in farm management. The emphasis in this publication was on physical quantities of feed and labor used in producing milk. The final summary table provided averages for farms considered in three different groupings:

- those that sold less than 33 percent of their milk in May, June and July
- average for all farms
- those that sold more than 40 percent of their milk in May, June and July

As might be expected, the summer dairies (the third group) sold less milk per cow, fed less concentrates, and used less labor. In many of the tables throughout the bulletin, estimates of costs and returns with 1920 prices were included for comparison.

There was healthy cooperation between the two departments in completing this major study, something which Dean Mann and Warren supported vigorously. During the 1917–18 price-setting controversy,



many questions were raised about the quality of the data Warren presented to back up his estimates of monthly milk production costs, so it was particularly helpful that the faculty in these two departments were in general agreement about what farmers were doing and the factual basis for these estimates.

#### The Warren Farm and Family

Warren did not make any major changes in the land area of the family farm during the war years. Essentially it was a time for consolidating the separate units and fields he acquired between 1911 and 1915 into a unified functioning farm. The dairy operation was enlarged and some purebred Holstein cattle were purchased. Milk and eggs were the chief products sold. With rising prices during the war years and a steady market for all that was produced, the farm operated successfully. Students provided a regular source of day labor whenever needed.

Warren was frequently away from Ithaca, and his wife was often called upon to make decisions about the business when the farm manager was not sure what her husband wanted done. Mary Warren was a busy woman with a family of six children (the youngest born in 1917), but she managed well with her husband's full confidence.



This family picture was taken during the summer of 1919. One can assume that it was taken by George Warren, perhaps on a Sunday or at mother Mary's birthday celebration in July. The pump at the well is visible in the background next to Stanley, who was probably less than happy to be wearing a tie and knickers. At ten years old, Jean (in pigtails) was already a help to her father in his library. Dick and Fred, soon to be eight and six, seem not very interested in this family activity. Martha and Mary were close to their mother and seemed happy to cooperate. Warren was a fine photographer in his student days and took excellent pictures to illustrate his early bulletins.

The last expansion of the farm occurred in 1920 when Warren bought 200 more acres of land from the Snyder family. This area was immediately to the east and contiguous to their current holdings. The Warren Farm was now a large block of land bordered on the west by Warren Road, to the north by Hanshaw Road, and to the east by Freese Road, with some fields still farther east across Freese Road. The total land area amounted now to a little less than 700 acres, of which the largest parts were used for hay, pasture, or woodlots. Over the time that Warren had been owner of these various blocks of land, some fields had been improved with tile drains and ditching. The principal crops were hay, oats, and some corn for silage. Most of the concentrate feed for the poultry and the dairy herd was purchased from the newly established GLF cooperative.

As prices fell in 1921, Warren met with a banker from the Ithaca Trust Company on February 25 and developed a net worth statement for the farm and his family, which was acceptable and agreed upon by both parties. This carefully prepared statement provides a realistic picture of the status of the Warren Farm and its financing before the major drops in farm prices that were to continue through much of the 1920s. Because of the proximity of the Warren lands to the university, the bank may well have accepted the purchase prices of the land and buildings as an acceptable estimate of their present value. The sales value of the property certainly fell during the 1920s, but the family did not have any problems meeting their debt payments. Although Warren's salary was not included in this net worth statement, it was a known, reliable source of family income, which the lenders no doubt recognized as another important asset.

Assets		Liabilities	
Land and buildings (cost)	\$95,343.00	Mortgage, Trust Co.	\$8,000.00
Machinery, equipment	4,063.00	Ashlin	3,900.00
16 horses	2,563.00	Berendt	1,800.00
98 dairy cattle	22,705.00	Notes	2,250.00
2,437 chickens	2,020.00	Other notes	2,000.00
10 hogs	86.00	Other mortgages	46,087.00
Feed and supplies	8,892.00		
Copyrights	8,400.00	<b>Total Liabilities</b>	\$64,037.00
Notes	471.00		
Stocks and bonds	2,502.00		
Cash	208.00		
Total Assets	\$147,254.00		
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## Warren Farm and Family Net Worth, February 25, 1921<sup>32</sup>

#### NET WORTH: \$83,217.00

The Warren farm was larger than most farms in the immediate area. It seems likely that they did not need all of that potential cropland and pasture for the dairy herd, even though their dairy enterprise was larger than most in the county. Warren must have viewed some of the land gained in the most recent purchase from the Snyders as an investment, in contrast to other alternatives such as stocks or bonds. Noted on the bank's statement was fire insurance coverage of \$51,000 on buildings and a life insurance policy of \$20,000 on the owner.

By 1922, Stanley and Jean, respectively fifteen and thirteen, were active teenagers with minds of their own. Both had responsibilities assigned at home on a regular basis. Stanley had a role in farm operations and worked wherever needed, but he was particularly important in running the poultry enterprise and caring for livestock other than the dairy. Jean became her father's librarian and managed much of the organization of his books, bulletins, and other resources. The children attended school in Forest Home; the schoolhouse was then located near the corner of Forest Home Drive and Judd Falls Road on the southeast side of the road. After eighth grade, they went to the high school downtown on Buffalo Street. Studies came easily for the two oldest children, and while the other four always did well, their lively predecessors sometimes created heightened expectations for them.

## Four Years After the War

Warren had been a busy man during the war years, working doubly hard to do his share in an effort he believed was important on behalf of farmers, the college, and the nation. He was a true patriot; he spoke regularly and often as an advocate for farmers and their wellbeing, reminding others that farmers were important contributors to the national war effort. In contrast, the years after the war were more difficult. The inevitable fall in farm prices was difficult for everyone, but especially for those farm families who had to continue to scratch out a modest living on steep hillsides with shallow, stony soils. Warren saw what was ahead for many families and their crossroads hamlets settled and maintained in the era of the horse and wagon. Faced with a society that was becoming increasingly dependent on automobiles, trucks, and tractors, they would find it harder to keep their customers, who now had the ability to travel farther to get their groceries and other needed supplies.

Warren was a key figure in the college who worked well with Dean Mann. In the annual report of the college in 1920, Mann included a section on the "Increasing Importance of Economics," and commented:

Now that agriculture is more of a business and less of a selfsufficient home industry, the problems of business organization and management of farms are of utmost importance....All this work is now centered in the Department of Agricultural Economics and Farm Management, a combination of the former Departments of Farm Management and Rural Economy effected by the Trustees on September 20, 1919....As an indication of the importance attached to the work it may be pointed out that 31 graduate students from this and other countries are now registered for special study in this newly combined Department.<sup>33</sup> In his history of the College of Agriculture, Gould Colman included a few paragraphs about Albert R. Mann and George F. Warren to conclude the chapter titled "Expansion and Consolidation, 1911–1920."

Another factor basic to Mann's success as an administrator was that he headed an institution which was considered by farmers to be rendering substantial services to the agriculture of the state. Probably no man played a more important part in establishing this situation than Professor Warren. He was, said Babcock in 1922, "the leading agricultural economist in the United States. His word on agricultural matters carries more weight with New York State farmers than any other man." Warren's rise to prominence during the decade was related both to the help he gave to farmers in applying business principles to their operations and constructive but cautious support of the movement for agricultural cooperatives. More than anyone else, Warren was responsible for elevating the study of farm management to the level of a highly respected discipline.

...Perhaps, Warren's most significant success resulted from the relationship he maintained with his colleagues and graduate students. Among the latter, during the decade 1911–21, were two future deans of the College. Both later recalled Warren's unfailing courtesy and the encouragement they received from him as graduate students and later as colleagues in the department.<sup>34</sup>

Warren served on the senior faculty committee established by Mann in 1920 to establish priorities for the physical development of the college. Although they worked with the state architect to put together a detailed plan for a set of new buildings, Governor Miller (1921–23) favored strict cost-cutting measures and slashed expenditures for public services. Not only was most new construction in the plan postponed, but the college's annual appropriation for operations and maintenance was reduced. Only the new dairy industry building was built and opened for use in 1923. In the governor's view it was not a time for expansive new plans.<sup>35</sup>

One of the bright spots for Warren was the quality of the young men who came to Cornell for graduate study in his department and the expanded scope of work in which they could study and do research. His trip to Europe provided a wider perspective on what was being done elsewhere and the need to branch out and learn more about the business of agriculture, not only at the farm but in bringing products to market in an efficient manner. His vision was broadened not only by his travels, but also by the national and international contacts he had made. Despite the difficult times that seemed to lie ahead for farmers, Warren saw that there was much to do and believed he had excellent colleagues and graduate students who were ready to move forward with him in trying to solve important agricultural problems.

## Footnotes

- 1. Warren Papers, Box 25-21.
- 2. G. F. Warren, "Some After-the-War Problems in Agriculture," *Journal of Farm Economics* I, no. 1 (June 1919): 1–23. Warren's was the lead article in the first issue of this new journal.
- 3. Ibid., 11.
- 4. Ibid., 13.
- 5. Ibid., 21.
- 6. "The Food Problem," *Rochester Times Union*, March 8, 1919. Clipping in Warren Papers, Box 25-23.
- 7. Ibid. Warren was not alone in being unable to grasp how important the impact of new technology would be on agriculture in continuing to reduce the amount of labor required to produce 100 bushels of corn or wheat, or 100 pounds of milk.
- 8. Ibid.
- 9. G. F. Warren, "Some Purposes of Price Fixing and Its Results," *American Economic Review* 9, no. 1(March 1919): 233–45.
- 10. Ibid., 237.
- 11. Ibid., 251.
- 12. Ibid., 272.
- 13. Warren Papers, Box 25-25.
- 14. Ibid.
- 15. G. F. Warren, "Prices of Farm Products," *Journal of Farm Economics*, II, no.2 (April 1920): 61–69.
- 16. USDA Bulletin 999, *Prices of Farm Products in the United States*, (August 1921), 1.
- 17. Ibid., 2–3.
- 18. Ibid., 12.
- 19. Ibid., 22.
- 20. Ibid., 25.

- G. F. Warren, "Notes on Farm Accounting in Some European Countries," *Journal of Farm Economics* III, no. 4 (October 1922): 195.
- 22. Ibid., 209–10.
- 23. W. I. Myers, "Department Activities, Cornell University," *Journal of Farm Economics* III, no. 3 (October 1921): 183–87.
- 24. Colman, Education and Agriculture, 279.
- 25. Named for Rochdale, United Kingdom, where one of the first successful consumer cooperatives was established, these fundamental principles were widely accepted as the basis for forming a successful cooperative business.
- 26. Babcock Family Papers, Division of Rare and Manuscript Collections, Cornell University Library, Box 2.
- 27. Frank A. Pearson, "Agricultural Prices" (Ph.D. thesis, Cornell University, June 1922), 2.
- Charles Vernon Noble, *The Cost of Living in a Small Factory Town*, Cornell University Agricultural Experiment Station Bulletin 431 (September 1924), 5.
- 29. Ibid.
- 30. Ernest C. Young, *The Movement of Farm Population*, Cornell University Agricultural Experiment Station Bulletin 426 (March 1924), 87–88.
- E. G. Misner, An Economic Study of Dairying on 149 Farms in Broome County, New York, Cornell University Agricultural Experiment Station Bulletin 409 (April 1922), 278.
- 32. Warren Papers, Box 36.
- 33. *Dean's Annual Report of the College of Agriculture 1920–21*, Cornell University, 20–21.
- 34. Colman, Education and Agriculture, 327–29.
- 35. Ibid., 367-70.

# Marketing and Farm Economics

1923–1926

An important part of the necessary postwar adjustments in national markets had occurred by 1923. Farm prices were far from stable, but the wartime needs for grains and food had diminished. Helping European nations feed their citizens was not fully accomplished, but their demand for grains from overseas was limited and most nations were setting up trade barriers to protect and encourage their own agricultural producers. It was a time when the United States agricultural sector was in a depression, while the industrial sector was competing effectively in international markets. The standard of living in rural America was considerably reduced from the war years; in contrast, urban Americans were living at least as well, if not better, than before the war, especially in the industrial Northeast.

## Bulletin on New York State Prices

In January 1923, Cornell University Experiment Station Bulletin 416, *Prices of Farm Products in New York*, was released. Warren was listed as the sole author but a footnote indicated, "…some parts of it, particularly those parts dealing with seasonal variations, cycles, and correlations, are the joint work of the author and F. A. Pearson."<sup>1</sup> This was the first of their many written collaborations over the next fifteen years at Cornell.

The first paragraph of the 64-page bulletin was a typical initial statement by Warren, summarizing in part what was to follow:

Prices are a guide to production. There is a fundamental relationship between the cost of producing wheat and the cost of producing corn, lettuce, iron, or milk. Therefore, if the price of any of these is high relative to the others, the profits from producing it are relatively good. There will be a tendency to increase the quantity of that product. If the price is relatively low, there is a tendency to decrease production. In 1850, New York had about six times as many sheep as at present, but only a fraction of the present number of hens. The wheat acreage decreased to onethird of what it was in 1844, but it increased again in the World War period. A constant adjustment of production to price is being made.<sup>2</sup>

The balance of this publication provided readers with an excellent review of the economic history of agricultural prices in New York and the U.S. The time periods covered were from 1791 to 1922, whenever consistent data were available. The authors set out to establish the general price level over this period, first as a basis for considering what had happened to agricultural prices and production. The basic standard for comparison used was the Index of Wholesale Prices as published by the U.S. Bureau of Labor Statistics, using average prices indexed to the period 1910–1914 = 100.

This was also the first publication in which Warren devoted a significant amount of space to a discussion of gold and gold reserves as a determinant of price levels. They were included because nations throughout the western world used gold reserves as the base for issuing paper currencies. He included two figures: the first on gold reserves in central banks and gold production (1913 = 100); the second on world gold production from 1860 to 1922.<sup>3</sup> Warren went on to show that the physical volume of output in the United States from 1880 to 1896 had increased more rapidly than the production of gold or the amount of money in circulation. He then showed that this had occurred at the same time that commodity prices had fallen. He also noted that gold production increased rapidly late in the nineteenth century at the same time that price levels rose.

Warren's introductory paragraphs for a section of Bulletin 416 on "Money and Prices" are of special interest in showing his thinking at that time:

Gold is a commodity like any other thing that men buy and sell. If large new quantities of it are found, or if some new method of production is invented so that large amounts can be produced, it becomes cheap. If new quantities are hard to find or if there is an increased demand, it becomes expensive, and many horses or potatoes must be exchanged to get a little of it, just as many horses or potatoes must be exchanged for a car of wheat if the supply of wheat is low. The fluctuations in the value of gold, year by year, are not so great as with wheat because the year's production of gold is small in proportion to the stocks on hand. Over a long series of years wheat is more stable in value than gold.

If no changes were made in the methods of handling and using money and if the amount of business to be done did not change, a doubling of the quantity of money would double the general price level and a halving of the quantity of money would halve the price level. The usual relationship between money and prices is expressed by the formula MV = PT, in which M is the quantity of money, V the velocity of circulation of money, P prices, and T the amount of business to be done, or volume of trade.

From 1880 to 1896 the physical volume of goods increased 4.46 percent per year, based on the figure for 1888. This indicates that the amount of business being done was increasing at the rate of about 4.46 percent per year. The monetary circulation in the United States increased only 2.68 percent. The need for money, as measured by the amount of production, increased faster than did the money. Apparently prices might be expected to fall. They did fall 1.98 percent per year.<sup>4</sup>

After these introductory statements, Warren went on to present the relationships between bank deposits in the United States, money in circulation, the physical volume of production, and prices between 1897 and 1913, when all were rising together, but at different rates. Bank deposits rose most rapidly with prices rising more slowly. He then looked at the same or similar kinds of data for the United States, England, and Germany between 1914 and 1920, when prices rose much more rapidly than money in circulation in the U.S., while the reverse occurred in Germany.

This overview of the general price level and some of the forces that were important in determining it was presented as background to the primary concern of the bulletin, which was the changing structure of prices for farm products in New York. Warren's graphics on bank deposits, money in circulation, and gold reserves were his first published foray into the world of money and banking, an area of study he was to pursue in greater depth in the years to come. At this time, however, he did not make any bold assertions; rather this information was presented as "useful background" for studying the interrelationships among prices of different agricultural products in New York.

Long-time trends in prices were considered first. Between 1897 and 1913 wholesale prices had increased 2.21 percent per year. Warren listed

both agricultural and other products that had increased more rapidly than this average and included a list of those that rose more slowly or actually declined. Corn, heavy hogs, eggs, and fancy cheeses had trends above average; mutton, apples, and wool were below. He commented:

At the present time a number of long-time readjustments are taking place in agriculture. The city demand for hay is decreasing. Horses in cities decreased 53 percent from 1910 to 1920. The demand for hay to feed dairy cows in neighboring states is increasing, but apparently not rapidly enough to make up for the decrease in cities....Considerable land is being farmed on which the total production of the farm will not pay ordinary wages to the farmer. Some of this land is being allowed to go back to forests....More of it will be abandoned, since the cities prefer gasoline to hay.<sup>5</sup>

Index numbers of seasonal variation in the prices of fourteen major agricultural products in the New York and Chicago markets were presented, along with a large number of business items, including unemployment levels, building permits, bank clearings, and grain movements. The intent was to demonstrate that seasonal variation in prices was quite regular and predictable, not only for a number of agricultural commodities but also for many other economic phenomena. Knowing that such monthly variation was regular should be useful to both sellers and buyers of products.

Following up on Pearson's work for his doctoral thesis, an important part of the bulletin was devoted to examining price and production data for cycles that might be identified in addition to secular trend and seasonal variation. One of the more interesting graphics in the bulletin was a chart showing the purchasing power of hogs and horses between 1866 and 1922. These were two rather well-documented cases of production cycles associated with rises and falls in the prices of these basic commodities. The associated somewhat regular rises and falls in their relative value were shown as well, but other examples of such regularly recurring cycles were not presented.

The final sections of the bulletin were devoted to examining important economic forces and their impact on farm prices in the United States and specifically in New York. The impact of weather on prices for annual crops was discussed particularly for the years 1913–22. A section on wages and prices pointed out the relative stability of wage rates as prices both rose and fell. The impact of industrial conditions on farm prices was considered using correlation analysis, with only modest



Periods of high and low prices of hogs come at frequent intervals. Horses have longer and more violent periods of over- and under-production

association found between the two. Freight rates were also considered as they affected the prices of storable crops in New York.

Warren summarized the bulletin with these statements about the most probable future trends in prices:

- 1. Prices will be more erratic than formerly, and more unforeseen changes will occur.
- 2. The up-and-down swings will be much more violent than before the war, but will, in general, decrease in violence as the years go by.
- 3. The long-time tendency of prices will probably be downward, and is likely to approach or reach the prewar level in from ten to fifteen years. This conclusion is not accepted as probable by all students of prices.
- 4. If the general tendency is downward, the cycles of high and low will swing about a declining base. Each major rise will probably fall short of the high point. Each important decline will probably go lower than the previous low point.
- 5. Prices of each individual commodity will continue to swing about the general price level. Unless some permanent change has taken place, those things that are below the general price level may be expected to rise and those that are above the general price level may be expected to fall.

- 6. Wages may be expected to lag behind prices. Serious periods of unemployment may be expected at times.
- Industrial conditions will continue to affect farm prices. The prices of industrial stocks or interest rates may be expected to give warning of probable changes in the demand for farm products.<sup>6</sup>

The last third of the bulletin provided tables of monthly prices paid to New York producers for thirty different farm products from 1910 to 1922. Similar price series were shown for two key feed ingredients purchased by New York farmers. A second set of tables converted all of these prices into index numbers using the period 1910–14 as the base. These basic series and the methodology used in the bulletin were the underpinning for much of the statistical work that Warren and Pearson were to carry out in the next fifteen years.

Warren's summary predictions proved to be reasonably accurate, although he clearly did not see how deep the agricultural depression of the late 1920s would become. The size of the national and world depression into the 1930s was certainly beyond the bounds of this set of comments, although his summary was far from glowing about what might be expected in the near future.

### Farm Economics

In 1923 the Department of Agricultural Economics and Farm Management created Farm Economics, an innovative new extension publication to provide economic information about agriculture on a regular basis to interested readers throughout New York. The first issue was distributed in late March 1923 and comprised six mimeographed pages. The cover sheet showed the current data on the general price level in index number form using 1910-14 as a base period. Four different sets of index numbers were shown on an annual basis from 1913 forward, with monthly data from January 1922 through March 1923. A second table on business conditions over the same time span (1913–23) looked at changes in five other sets of index numbers: twenty industrial stocks, interest rates, pig iron production, unfilled orders of the U.S. Steel Co., and earnings of New York State factory workers. This was followed by commentary on possible reasons for these changes and their significance. Also included was a table of current monthly prices of important farm commodities for New York and the U.S., and equivalent index numbers on a 1910-14 base.

The second issue was published in April and the third in May, using much the same format: index numbers of the general price level on the cover, followed by commentary on recent changes in the four series during the last month and why and how they differed. Succeeding issues followed the same design. By August 1923 this monthly mimeograph had expanded to twelve pages with the same format of tables and brief comments on wholesale prices (general price level), business conditions, and farm and city prices. In addition there were brief articles on individual crops—basically a "situation and outlook" report. Under the heading "Hay and Feed," the authors stated, "The poor hay and corn crop will also have a bearing on hay and feed prices. The cows will eat all the silage there is and all the hay they want, the variable factor is the amount of grain that farmers will feel warranted in buying. This is primarily a question of the relative prices of milk and feed grains."7 Similar comments were made for potatoes, cabbage, and buckwheat. Finally there was a three-page article by G. F. Warren and F. A. Pearson entitled, "Profits and Losses from Holding Wheat."

By November 1923, issue no. 9 of *Farm Economics* was set in type with twice as much material per page as the first edition and included a number of short articles immediately after the first set of tables. The table of index numbers had become a standard feature on the cover. Response to the first editions was so positive that Dean Mann found the resources to make this publication available to anyone in New York who asked to be on the mailing list. In this manner *Farm Economics* became an important outlet to report on the department's research, as well as a welcome source of current information and commentary on what was occurring in the state and national economy. Pearson served as the editor and was responsible for producing the monthly editions. Some were shorter, others longer, but all had an easily recognized cover page.

The timing of the Cornell publication of *Farm Economics* was closely related to a new activity of the USDA. In April 1923, Secretary of Agriculture Henry C. Wallace held the first national agricultural outlook conference in Washington, D.C., which was planned and led by the USDA's Bureau of Agricultural Economics. Fifteen nongovernmental agencies and individuals participated: four from major banks in New York City, five from agricultural businesses or associations, two from private foundations, and four from universities, including one each from Harvard and Yale, and two from Cornell—Warren and Pearson. This conference was a success and outlook efforts became an important component of the USDA's work from 1924 forward. There was substantial national interest in providing an unbiased source of information and commentary directed toward farmers, agricultural
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1919	210	196	207	226		1929	139	157	144	151	174	198	172	242	119
1920	231	218	209	256		1930	120	142	120	129	109	190	107	232	73
1921	150	134	126	125		Nov. rose	107	103	02		135	170	151	213	53
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Mar.	142	142	129	125		March	III	108	93	99	145	102	153	225	58
Apr.	140	140	120	123		April	109	112	93	100	144	192	151	221	54
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Nov.	159	153	148	170		Nov	103	92	70	80	131	180	148	204	53
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The cover of the February 1932 issue of *Farm Economics* (right) follows the original design concept (left) established with the inaugural issue in March 1923.

businesses, and the public on a continuing basis. The new publication from Cornell was another such source and was widely read, not only in New York but throughout the country, especially at universities and national agricultural organizations and businesses. Warren and Pearson's comments on the agricultural economy were a recognized part of the "outlook" process, which was an innovation for agriculture and business in the 1920s.

By March 1925, two years after the first mimeographed edition of *Farm Economics* was distributed, a nearly standard pattern of publication had evolved. Generally the college distributed a new issue every two months or whenever there was something to report to the public in addition to current outlook materials. The first page always reported index numbers of business conditions and the most recent monthly changes in those numbers. Warren and Pearson provided signed commentary on the general economy, farm prices, and some facet of agriculture; in March 1925 it was on stocks of hay and grain on farms in the U.S. and New York. This was followed by short articles by other faculty members, who reported on the outlook for individual commodities or results of their research. The length of each edition depended on what was topical and ready to report. The June 1925 edition consisted of thirty-four printed pages. The first ten pages were the work of Warren and Pearson, including their usual commentary on business conditions and prices, and an article on wages of farm workers and those in other industries. The other short articles included one on costs of packing apples, another on freight rates for milk, a study on prices of evaporated and condensed milk, and two reports on the relationship of temperature to milk consumption and production for the Chicago and New York markets.

*Farm Economics* was sent to most high schools in the state and all county extension offices. Many members of the business community were subscribers, not only in New York but in many other states as well. Warren was well known by the national leadership of the Farm Bureau and his comments were of interest to many of them around the country. This publication, growing out of the national efforts to provide farmers and agricultural businesses with timely outlook information, became the department's outreach vehicle. College leaders actively supported *Farm Economics* and it soon became an effective voice in seeking change for the well-being of rural people.

## Carl E. Ladd Becomes Director of Extension

One of the key figures in the history of the College of Agriculture was Carl E. Ladd. Born on a farm in McLean, not far from Ithaca, he earned a first degree at Cortland Normal and Training School in 1907. He taught for a while and then completed his bachelor's degree in agriculture at Cornell in 1912. Ladd was one of Warren's doctoral students and earned a Ph.D. in farm management in 1915. He was immediately appointed director of the two-year School of Agriculture in Delhi, New York, and served there for two years. He was called to Albany in 1917 by the State Education Department as a specialist in agricultural education and organized teaching programs and materials for the recently established high school programs in vocational agriculture. After two years in Albany, he accepted the position of director of the School of Agriculture in Alfred, New York.

In 1921 Warren hired Ladd to manage the department's efforts in extension education in farm management. A dynamic teacher, he was already well known in the state as a leader in agricultural education. When Maurice C. Burritt resigned his position as director of extension in 1924, Dean Mann quickly appointed Ladd to fill that position. Ladd and Mann worked well together and his appointment was well received by the college faculty, as well as the county extension agents. Ladd liked to tell stories and was an effective public speaker and advocate for the welfare of farmers and rural people.

While he was working at Delhi, Ladd wrote *Dairy Farming Projects*, a book intended for teachers in high schools and two-year college programs. It was a timely addition to the teaching materials available at that time and was used widely throughout the Northeast in the 1920s. Its twenty-seven chapters provided practical information on topics such as "Milking and Bedding the Cow," "Producing Clean Milk," "Improving the Dairy Herd Through Breeding," and "Financing the Dairy Farm

Business." The book was replete with pictures, charts, and diagrams, and each chapter concluded with a suggested set of questions designed to help both students and teachers.

Ladd directed the department's extension efforts in farm management and agricultural economics for only a little more than two years, but his work was well received. He was a strong supporter of Babcock's work in cooperatives. Ladd put in long hours and led by example, bringing people together through his energy and interest in their work.

He had been an enthusiast for the initial editions of *Farm Economics*, and it is likely that he strongly supported





funding the initial issues in 1923. As director of extension, he always found the resources to continue publishing the popular publication, even in the years when the college budgets were especially tight.

## Increasing Public Awareness of the Agricultural Depression

In February 1924, Warren published a major article in the *Quarterly Journal of Economics*, titled "The Agricultural Depression," at the invitation of Thomas Nixon Carver, one of its editors at Harvard. He sought to bring to the attention of economists across the country the seriousness of the problems farmers were facing in this basic sector of the national economy.

Although we have had the most serious agricultural panic ever experienced in the United States, and are still in a period of severe depression, the situation is so little understood that there is some doubt whether a real depression exists. If one goes to enough farms in different parts of the country and learns of the private settlements with creditors by means of which great numbers of young men have lost their entire savings; learns also of the greater number whose debts are larger than their resources, but who are struggling along hoping for a way out—one will have no doubt concerning the grim reality of the situation. Since most persons must form their conclusions from the readily available statistics, and since it requires many years for the statistics to be collected and fully analyzed, it is not surprising that a long time is necessary before agreement is reached concerning the facts.<sup>8</sup>

Following this relatively long opening statement, Warren plunged forward providing index numbers of prices received by farmers for key farm products in national markets for the period 1915–23 and their relative purchasing power when adjusted by the BLS index of wholesale prices. He then contrasted these farm prices with union wage rates as well as the retail and wholesale prices for food. A graph effectively told the story of the important differences that occurred in these series after 1919. Warren followed this with monthly index numbers for the different series and a discussion of how the index numbers were developed.



Source: G. F. Warren, "The Agricultural Depression," *Quarterly Journal of Political Economy* (February 1924): 186.

An important part of this article was devoted to detailing the differences in the severity of the agricultural depression depending on the geographic region, the principal commodity produced, and the age and indebtedness of the farmers involved. Warren contrasted the relatively high purchasing power of cotton with the relatively low purchasing power of farm products for food. The effect of a declining general price level on most farmers had been much more difficult than for most other small businesses, except for those that were dependent on their sales to farmers.

Warren concluded his 32-page article:

The writer's guess is that the tendency of the general price level will be downward for some years, and that the pre-war level will be approximately reached in about a decade. If this is correct, agricultural depression will continue until prices rise, or until they have been stable for a number of years, so that capital investments are on a basis no higher than the price level at which produce is sold. This does not mean that every year will be unfavorable. Some farm products even now are in a very good position. It means that the bad years will be more numerous than the good ones.

If the general price level turns upward and remains high, agricultural prices will be adjusted, and the depression will be over in a few years. For real prosperity on farms three things are necessary:

- 1. A price level as high as the general range of prices at which the bulk of indebtedness was incurred.
- 2. Adjustment between farm prices and prices of other commodities.
- Reasonable stability of the general price level. (A moderate increase in prices such as occurred from 1897 to 1914 stimulates agricultural development.)<sup>9</sup>

This statement emphasized to the larger community of economists that the majority of American farmers were in the midst of difficult times. For most farmers, it was beyond their ability to pay the interest on debts along with a part of what was due on their mortgages. The depression was both financial and emotional. Warren emphasized his belief that the general price level was crucial to farmers' welfare, and concluded with a reminder that agricultural progress between 1897 and 1914 had occurred when most prices were rising. Implicit in this statement was the fact that farm prices during that period rose a bit faster that the general price level itself. However, no comments were made on the impacts of international markets for farm products on U.S. farm prices.

During the spring of 1924 Warren sought and gained opportunities to explain that, while the nation's overall economy was quite healthy, agriculture was generally lagging far behind. He had many invitations to speak to both rural and urban audiences. One of his short talks in May 1924 was titled, "The Agricultural Depression—Its Causes and Remedies." The first paragraph of this speech summarized his point of view:

In all the regions where staple foods are the main feature of farming, the agricultural depression has lasted for three years and there is as yet little sign of improvement. The grim reality cannot be explained away, or figured away. It cannot be solved by saying that it is "getting better day by day in every way." It must be solved by the efforts of individuals and by government action, or else left to be solved by the slow processes of time. It is better individually and collectively to meet the situation squarely and solve it rather than attempt to ignore it.<sup>10</sup>

Warren then went on to present key statistics that showed the reductions in purchasing power of farm products. He continued:

The farmer who is out of debt is generally getting along by reducing his expenses for machinery, farm improvements, and living. He often picks up bargains in land and stock from his insolvent neighbors. The young man who bought his farm in recent years and who is heavily in debt is little concerned with the exchange value of his products except for the payment of interest and taxes....Deflation, therefore, is worse for agriculture than for manufacturing industries. A corporation goes on year after year. Reserves are usually built up to meet hard times but in a personal industry like agriculture, inflation means new owners with heavy debts. Deflation means ruin for many of these....<sup>11</sup>

He spoke about the substantial difference between a manufacturing plant, which can cut back production or shut down for a period, and a farm, where production of some kind must continue or the land will return to nature:

Agriculture cannot be checked quickly, but it can be checked. Crops are now being raised, but tile drains, fences, equipment, buildings and soils are all being neglected. Young men are becoming disgusted with the occupation. When once checked, it again requires years to get it going again. The inevitable result of a long period of agricultural depression is a long period when the high cost of living will be the great problem....Credit legislation has helped many farmers to delay payment of their debts, but many cannot be helped in this way. Cooperative marketing has helped but the savings that can be made in this way are very small in comparison with the tremendous decline in prices that has occurred....Apparently the only possible solutions to the agricultural depression are either a long period of distress, or a price level that provides reasonable equity between taxpayer and bond-holder; between debtor and creditor. Inflation is a serious economic disease, deflation is equally bad. Neither one is a cure for the other. Price stability is the remedy for both. The level at which prices should be stabilized is the level at which public and private debts, wages and public service charges are most nearly adjusted.12

As was now his pattern, Warren brought along mimeographed copies of his speech for the press and anyone else who wanted a copy. This presentation was intended for the general public and non-farm audiences. He was also ready to seek government assistance in finding a way out of the agricultural depression across the country. In this case he did not expect the marketplace to find the solution. The laws of supply and demand were at work, with unhappy results for most rural people. During World War I the nation's leaders encouraged all-out production from farmers across the country; they had answered with large crops and continuing supplies. With the war years behind them, European farmers were again producing crops and their nations erected tariff barriers to protect them from American producers and other foreign competition. Downsizing American productive capacity was proving to be a slow and difficult process. With new agricultural technology now coming into use, tractors and trucks were replacing horses to provide power on farms and the market for hay in urban areas was disappearing. Finding a way to ease the problems of farmers during this agricultural depression was an intractable problem, despite the legislative efforts to provide assistance that came later in the next decade.

A private organization, the National Bureau of Economic Research (NBER), examined the impact of changing price ratios that were unfavorable to farmers in the years following World War I.

A	В	C	D		
Calendar year	Total ''current income'' of people of United States*	Net income of agriculture	Percentages of total "current income" of people of United States received by agriculture C ÷ B		
1909         1910         1911         1912         1913         1914         1915         1916         1917         1918         1919         1920         1921         1922         1923         1924         1925	$\begin{array}{c} \mbox{millions}\\ 27,100\\ 28,400\\ 29,000\\ 30,600\\ 32,000\\ 31,600\\ 32,700\\ 39,200\\ 48,500\\ 56,000\\ 67,254\\ 74,158\\ 62,736\\ 65,567\\ 76,769\\ 79,365\\ 86,461 \end{array}$	millions 5,578 6,155 5,856 6,317 6,603 6,771 7,153 8,491 11,451 13,386 13,980 10,549 6,696 6,976 8,070 8,390 8,839	$\begin{array}{c} 20.6\\ 21.7\\ 20.2\\ 20.6\\ 20.6\\ 21.4\\ 21.9\\ 21.7\\ 23.6\\ 23.9\\ 20.8\\ 14.2\\ 10.7\\ 10.6\\ 10.5\\ 10.6\\ 10.2\\ \end{array}$		

TABLE VII. Share of Agriculture in Total "Current Income" of People of United States, by Years, 1909–1925

\* Estimates of W. I. King of National Bureau of Economic Research in Ibid.

Source: Taylor and Taylor, The Story of Agricultural Economics, 508.

They published a report in 1927 that estimated the share of U.S. national income that was received by people in agriculture between 1909 and 1925. This table, prepared by W. I. King of NBER, helps explain how large the agricultural depression had become in a small number of years.

The continuing growth in the national economy following the war is readily evident in the NBER study. In contrast, the agricultural sector of the economy reverted to its prewar position in terms of the "net income of agriculture." Before the war the agricultural sector had regularly produced more than 20 percent of the nation's income; now agriculture was barely producing 10 percent. In terms of net income, agriculture in the aggregate was standing still while the rest of the economy was growing. Those who were forced to leave their farms often had an alternative job to which they might turn, and in states like New York, this usually meant working in a nearby factory. In many other states, however, those who lost their farms were forced to move to another location and start over with almost no capital or resources.

## The Agricultural Situation

In August 1924, Warren and Pearson published a new book titled *The Agricultural Situation*. In the preface to this volume of 306 pages the authors explained why they wrote the book:

The far-reaching effects of agricultural depression on individuals and on the Nation are little understood. The opinions as to the causes and possible remedies are exceedingly diverse. In order that individuals and the Nation may make adjustments to meet the situation the basic data must be available and widely studied. It is the aim of this book to present the fundamental facts in such a way as to aid the farmer, the business man, the legislator, and the student in obtaining a better understanding of the problems which each must meet.<sup>13</sup>

The book comprised twenty-eight chapters filled with graphs and tables of supporting data, primarily obtained from reports of the USDA and the Bureau of Labor Statistics. It was an outlook and situation report for agriculture, with commentary from the authors on their review of data for the years following the Civil War to the early 1920s. This was a massive compilation of information, with excellent graphics to emphasize changes that would not be readily understood just by studying the tables filled with numbers.

The first ten chapters reviewed the agricultural situation in broad terms, looking at U.S. trade and economic policy and other national issues related to the agricultural depression. Special consideration was given to taxes, debts, freight rates, and trends in the prices of farm, wholesale, and retail products. Warren and Pearson examined differences in the impact of the agricultural depression by region across the country. This was followed by separate chapters for major crops and livestock products, such as corn, wheat, and cotton, and dairy, beef, and poultry. The concluding chapters looked at farm wages, changing property values of agricultural land, and the impacts of the agricultural depression on farm people and rural communities.

Like most of the chapters, the final one on remedies to the depression was short, a little more than ten full pages. The authors spoke to a number of proposals that had been made. They pointed to the need for a way to eliminate deflation in the farm sector, where debts and interest continued at a higher level than the prices for which farmers sold most of their products (with the exception of cotton). They commented on the substantial benefits that would accrue to farmers if demand for farm products increased within the U.S. or from overseas, but could provide no easy solutions or suggestions on how this might occur. They discussed both wage rates and reductions in farm production rates as potentially helpful, but saw changes in these as long-term and slow, market-driven events.

They chose to italicize the following statements in their concluding chapter:

...whenever retail prices are higher than the level of wages and handling charges, prices paid to farmers rise by a greater percentage than do retail prices. Whenever retail prices are low in relation to wages and handling charges, prices paid to farmers fall by a greater percentage than do retail prices....It is future prices, not present prices, that determine the profits from future production.<sup>14</sup>

Warren and Pearson summarized the book with this paragraph:

The solution of the farm depression calls for:

- 1. Adjustment between the prices of the things the farmer sells and the prices of the things he buys;
- 2. Adjustment between the prices of the things the farmer sells and taxes;
- 3. Adjustment between the prices of the things the farmer sells and public debts;
- 4. Adjustment between the prices of the things the farmer sells and private debts.<sup>15</sup>

Although *The Agricultural Situation* was not a bestseller, it was widely cited by agricultural economists and was on the desks of agricultural leaders and Congressmen. It brought together in one resource a great deal of useful information about the economic situation of farmers across the U.S. The authors emphasized the factual evidence that showed the real difficulties most farmers faced. The authors' special concern was for those who could not meet their debt and interest payments and still provide adequately for their families. The book painted a picture of serious problems in commercial agriculture, with no easy solutions if the marketplace was left to operate as it was. The last chapter on potential remedies did not provide answers to the basic problems. Rather, it suggested what had to happen with respect to farm price relationships if the agricultural depression were to be turned around toward recovery.

## Increased Emphasis on Agricultural Markets

During the years Henry Canfield Wallace was secretary of agriculture, the first National Agricultural Conference on the economic problems of agriculture was held. Henry C. Taylor, the new head of USDA's Bureau of Agricultural Economics, was given responsibility for organizing the program in January 1922. Prices and marketing were major topics of discussion. Committees were formed to make recommendations to the secretary of agriculture and Congress on actions or areas of study that should be pursued. The committee on marketing of farm products focused its report on four topics: cooperative marketing, price fixing, price adjustment, and orderly marketing. Under the heading of cooperative marketing, the final report came out with strong support for legislation that would:

...permit farmers to act together in associations, corporate or otherwise, with or without capital stock, for purposes connected with the production, processing, preparing for market, handling and marketing in interstate commerce such products of persons so engaged with specific statements of their rights, powers, remedies, and limitations, which will permit such associations to have marketing agencies in common and to make such contracts and agreements as are necessary to effect such purposes.<sup>16</sup>

Under the heading of price fixing, the committee recommended conducting studies of the role of government in providing price guarantees and urging Congress to authorize such investigations as soon as practicable. The recommendation on price adjustment gives a sense of the times and the basic concerns about commercial agriculture:

Agriculture is necessary to the life of the Nation; and, whereas the prices of agricultural products are far below the cost of production, so far below that relatively they are the lowest in the history of our country; therefore, it is the sense of this committee that the Congress and the President of the United States should take such steps as will immediately reestablish a fair exchange value for all farm products with that of all other commodities.<sup>17</sup>

The recommendation on orderly marketing concluded with a statement urging the formation of strongly organized cooperative associations of farmers on a commodity basis to bring about this important objective. One of the immediate results of the 1922 National Agricultural Conference was the appropriation of additional money for research in the Bureau of Agricultural Economics, which in turn made funds available to universities to help initiate more research on agricultural marketing. It also laid the groundwork for the passage of the Purnell Act in 1925, which provided federal funds on an annual basis for research in marketing and farmer cooperatives.

At Cornell, James E. Boyle, who was teaching courses in marketing and cooperatives, saw the potential for a textbook on marketing and McGraw-Hill published his *Marketing of Agricultural Products* in 1925. This 480-page volume met the need for a textbook on this subject at a time when farm product prices were low in terms of purchasing power and interest in cooperatives and marketing was rising rapidly. In his book, Boyle cited the work of Pearson in Chicago and Warren in New York, and their efforts with the major bargaining cooperatives in establishing milk prices during and after the war. The book was generally well received across the country and widely used as a reference in courses on commodity marketing.

Warren recognized the importance of learning more about the functioning of commodity markets for the principal crops grown by New York farmers. Starting in 1921 he directed a number of doctoral studies with this interest, and Boyle served on most of these graduate committees as well. One of the first marketing studies was conducted by Marius P. Rasmussen on New York potatoes. C. E. Ladd, who had



Department faculty, 1924. Back row (left to right): Pearson, Hart, Scoville, and Ladd. Front row: Misner, King, Warren, Myers, and Boyle.

recently been promoted to the rank of professor, was a key advisor on this project. Rasmussen set about trying to obtain a representative sample of potato marketing agencies to compile information about their operations from assembly of the crop to its final destination. He began the study for the year 1921–22 with the cooperation of twenty-four groups: seven cooperatives, eight single-station dealers, and nine many-station dealers. The following year he obtained records from thirty-four such sources. These records covered about 41 percent of the potatoes shipped in carload lots from upstate New York in 1921-22 and 38 percent in 1922–23.



M. P. Rasmussen

The primary purpose of Rasmussen's study was to learn more about the process of moving potatoes to markets—the middlemen in the potato business, their costs and risks, and the relative efficiency of the three different types of organizations that handled potatoes for farmers. The results were published in June 1925 as Cornell Agricultural Experiment Station Bulletin 440, *An Economic Study of the Marketing of New York Potatoes*, which included copies of the forms used in collecting the data at the point of assembly and shipping, and the instructions to those obtaining and recording the data. Not surprisingly many of these shippers handled a number of other products besides potatoes. Grains and feed were often important parts of their businesses, but potatoes and their storage were basic to their operations.

This study yielded a great deal of useful information about how crops were assembled, graded, and shipped; how prices in these markets were established; where the potatoes went; and the nature of competition from other states for these markets. Rasmussen concluded:

It would be difficult to state which of the three types of agencies here discussed performed most efficiently and economically the necessary services incident to receiving and shipping potatoes. Each type had outstanding individual representatives who operated efficiently; each likewise had inefficient representatives. The type of agency is probably not the most important factor.... Lack of proper accounting is one of the weak features of the potato shipping business....Dealers and cooperatives alike are often asked to extend loans on potatoes which are as yet unharvested



FIGURE 45. NET WHOLESALE PRICES PER BUSHEL RECEIVED F. O. B. SHIPPING POINT, 24 SHIPPING AGENCIES, SEASON 1921-22

or are stored in the growers' cellars. Growers who ask loans of shipping agencies should recognize the fact that the shipping agency is not a bank and is not adapted for carrying on the credit function.<sup>18</sup>

This bulletin provided substantial insight into the potato business in New York and the Northeast. Well-organized cooperatives could compete in this market, but cooperatives also were some of the weakest operations in terms of efficiency each year. The study provided all the participants greater understanding of their competition as well as their own cost structures. The bulletin was replete with pictures of dealers' locations along rail lines, and included approximately ninety tables and graphs. It was a welcome study in an area where few facts were known or shared. Marketing research on New York products other than milk was now an important part of the department's work.

Another study of a storable crop was conducted by E. G. Misner in 1923 and reported in Experiment Station Bulletin 443, *The Marketing of Cabbage* (October 1925). As the author suggested:

Cabbage is a cheap, bulky, perishable vegetable. In the fall it is shipped from New York into the southern States. In late winter it is shipped from Florida to New York. Until a few years ago, the marketing of the crop was accomplished without wide dissemination of reports on the condition of the growing crop, storage holdings or the crop movement. Efficient production and marketing require information on all of these questions, so that the producer and merchant may each obtain his fair share of the reward for such services and so that the price paid by the consumer may be adjusted to the service.<sup>19</sup>

Misner began his report by presenting information for the period 1915–23 on the U.S. locations where cabbage was grown and the quantities produced in each year by state, as well as shipments made in carload lots (12.5 tons). In most of those years New York was the national leader in shipments and Wisconsin was the major competitor in production and trade. New York was also a major producer and manufacturer of sauerkraut. Because of the bulkiness of cabbage, freight rates were an important issue for study, as well as the costs of production, assembly, storage, and shipping.

Misner identified all the shipping points of cabbage in New York, a surprisingly long list that included a number of points in forty-two of the state's sixty-two counties. The bulk of production was in western and central New York. Some of the shipments were sent to sauerkraut factories, but a much larger share went to urban markets in the eastern United States. October, November, December, and January were the key months for shipments of fresh cabbage, while shipments for kraut were commonly made from storage later in the season.

An important component of Bulletin 443 was devoted to following the shipping and storage operations of a business in Little York, Cortland County. The owner of this business had been a pioneer in organizing carload shipments for farmers in that county and maintained detailed records dating back to the 1894–95 season. Using these data, Misner was able to provide details on such items as the costs of operating a cabbage storage business—including agents' commissions, interest, taxes, insurance, and labor—as well as product shrinkage and loss from the point of entry into storage to packing for market. As might be expected, shrinkage and loss while in storage was the single largest item of cost most years. While these data were for only one large, successful operation, they did provide a detailed picture of costs for such businesses and the many functions performed from the time cabbage went into storage until heads were trimmed, packaged, and shipped to a major urban market.

Of special interest were the data for a span of thirty years on prices received per ton during the seven months when cabbage was sold out of storage. Major swings in prices within a year and between years were the norm. The peak years for prices were between 1916 and 1920; in March 1920 they reached a top average of \$89 per ton. The size of the crop in the state made a difference, but availability late in the season often led to either high or low prices. For example, in March 1921, the year after the peak price, the average price received was \$5 per ton, indicating that too much cabbage had been stored that was left looking for a market.

The final third of the bulletin was devoted to looking at ways to forecast cabbage production and prices. Such variables as past prices, production in competing states, summer rainfall, and the wholesale price level were considered using tabular analysis and multiple regression. Graphically it could be seen that summer rainfall was a significant predictor of production once the acreage was planted. The index of wholesale prices was used to "deflate" cabbage prices, but the results obtained were modest. Too many other variables were not considered and the fluctuation in cabbage prices from year to year was historically greater in comparison to variations for most other agricultural commodities, such as wheat or corn.

One interesting graphic at the end of the bulletin was prepared by Misner's faculty colleague, G. P. Scoville. It compared the size of the northern crop of cabbage in the United States to the season's average wholesale price of cabbage in New York, deflated by the index of wholesale prices, for the years 1915–22. The resulting diagram takes the shape of a classic, inelastic demand curve, where quantities demanded strongly influence the prices paid. When only cabbage shipments from New York State were considered, there was much more variability in

prices and quantities from year to year than shown in this figure, reflecting the active, competitive market for northern cabbage during that period.<sup>20</sup>

Like Bulletin 440 on the marketing of potatoes, a great deal of information was included in Bulletin 443 about the nature of the cabbage industry and the process of getting the product from the farm to market. Because so little had been published on topics like this, the information was eagerly sought by farmers and the trade. The USDA was a sponsor of



FIGURE 44. RELATION OF THE SIZE OF THE NORTHERN CROP TO THE SEASON'S AVERAGE WHOLESALE PRICE OF CABBAGE IN NEW YORK CITY (Prepared by G. P. Scoville)

the bulletin, encouraged publication of the detail provided, and helped distribute it to other states.

## Milk Marketing in New York City

While potatoes and cabbage were important to some groups of New York farmers, no product was more important than milk to the state's agricultural industry as a whole, and greater New York City was its chief market. Given the efforts of the Dairymen's League to bargain with buyers and processors on the farm price of milk and the associated publicity on milk pricing during World War I, much more was already known about the major actors in this market than for any other farm products. However, until Experiment Station Bulletin 445, A Preliminary Survey of Milk Marketing in New York, was issued in November 1925, very little had been published to describe the market, its dimensions, and the country plants associated with it. The authors of this publication were to become well-known professors of agricultural economics. L. J. Norton received his Ph.D. from Cornell in 1921 and served on the faculty until 1923, when he moved to the University of Illinois to be professor of marketing for the rest of his career. His coauthor, Leland Spencer, completed his doctorate in 1924 and was the senior figure in milk marketing at Cornell until his retirement in 1964.

In Bulletin 445 Norton and Spencer provided a comprehensive picture of milk and cream receipts in the New York–New Jersey market area between 1885 and 1924. The area's population more than doubled to include about 8.7 million people by the end of that period, and milk consumption per capita doubled as well over those forty years. Highquality milk moved to the city every day by rail from a large number of country plants throughout New York, New Jersey, and northeastern Pennsylvania. By the 1920s New York City health inspectors were examining such plants and certifying them as either Grade A or Grade B sources for the city market. (Much of the milk produced in the counties around Rochester and Buffalo was sent to markets in those cities; historically Buffalo and Rochester have remained separate from New York City with their own regional market systems for securing and pricing milk.)

A number of country plants specialized in receiving milk for manufactured dairy products: cheese, butter, and condensed and evaporated milk. Most of the manufacturing plants were located in areas that were the farthest from the New York metropolitan area and had the least direct transportation routes. Supplies directed to manufacturing A PRELIMINARY SURVEY OF MILK MARKETING IN NEW YORK 25

		Per cent of milk used for each product								
Kind of plant	Per cent of total supply handled	Milk Cream		Condensed, evapo- rated, and powdered milk	Cheese	Butter	Other uses	Total		
Shipping stations Condenseries Cheese and butter	56 18	69 6	22 27	I 62	4 2	4 3		100		
factories. Ice-cream and candy factories	17 2	3	4 27	10	70 4	23 16	43	100 100		
Average	93	43	20	13	15	8	I	100		
Local plants	7	73	16	I	I	6	3 .	100		

 

 TABLE 5. Utilization of Milk at Various Types of Country Milk Plants in New York Counties Tributary to the New York Market, 1922-1923\*

\* Computed from reports made to the New York State Department of Farms and Markets by plants receiving milk or cream from farmers.

peaked in May, June, and July. Fluid milk supplies to urban markets were quite stable throughout the year, with June usually the peak month. This bulletin documented seasonal variation in supplies and the uses to which most were put. By 1922, classified pricing of milk had been established based on use and distance from market. Much of the marketing system established between 1915 and 1920 continues as part of the more complex market orders in use in the twenty-first century.

Bulletin 445 described the market area, the dairy cooperatives and proprietary handlers that moved milk, and the market system that had evolved to handle New York State's most important agricultural product. Later in the decade more substantive studies of the fluid and manufacturing segments of the milk market were published.

Warren's strong interest and support for marketing studies centered on obtaining and publishing more information on how these commodity markets functioned. He sought to learn where there might be opportunities to gain efficiencies, which in turn might lead to increases in farm incomes and improvements in the welfare of rural communities. His interest centered on prices received and paid by farmers and how they were determined. Boyle maintained his contacts and interests in national efforts by cooperatives in the major commodity markets for grains, cotton, and tobacco. Warren especially encouraged his faculty members and graduate students to gain additional knowledge about the markets for farm products produced and sold in the Northeast.

## Other Graduate Student Research Initiatives

A substantial number of students were coming to Cornell to obtain advanced degrees in agricultural economics and farm management. In the academic year 1923–24, eighteen students completed advanced degrees, of which twelve were master's degrees. Some of the M.S. research carried on the more traditional farm management studies, using data and ongoing projects in Massachusetts, Pennsylvania, Illinois, Texas, Utah, and Virginia. These students either brought data with them from their home states or collected it in cooperation with staff in their original college departments. One innovative master's thesis was completed by Roland Bartlett and titled, "A Study of the Organization and Development of Cooperative Fire Insurance Companies in New York State." Under Boyle's direction, Harry J. Chatterton completed his thesis, "A Short History and Survey of Some Important Supply and Demand Factors in the Cotton Industry." Andries A. Smit, a student from South Africa, wrote "The County Agent and the Farm Bureau with Special Reference to its Commercial Activities."

Four of the doctoral students completing degrees in 1923–24 were from China. An important connection between the College of Agriculture at Cornell and the College of Agriculture and Forestry in

Nanking, China, had been established by John H. Reisner, who had a degree in forestry from Yale (1914) and earned an M.S. in agriculture from Cornell in 1916. Reisner became dean of the agricultural college in Nanking, where the primary research efforts were in crop improvements, especially for rice. One of his staff members was J. Lossing Buck, a Cornell graduate in farm management, who had gone to China as an agricultural missionary and started the initial work in farm management at Nanking.

An important concern for the agricultural problems of China was established during this period, and a few Cornell faculty members undertook what would become long-standing



John Lossing Buck

efforts to assist their colleagues overseas. Buck came back to Cornell twice during his years on the faculty at Nanking. He completed an M.S. in 1925 using part of the farm management records he and his students had collected in eastern China. Buck returned to complete his

doctorate at Cornell in 1933. His thesis, "The Chinese Farm Economy: A Study of 2,866 Farms in 17 Localities and 7 Provinces in China," was later published and remains an important historical study widely used by China scholars documenting land use and ownership in the years before the Japanese invasions in the 1930s.

**Agricultural Credit and Finance.** One of the graduate students who completed his Ph.D. in 1923 was Leland Spencer, whose thesis became Cornell Agricultural Experiment Station Bulletin 430, *An Economic Study of Rural Store Credit in New York.* The logic behind this study is suggested in the bulletin's introduction:

Before specialized agencies for lending money were developed in rural communities, farmers relied very heavily upon their local merchants to supply needed credit. More recently country banks have become available to all rural communities as a direct source of credit for farmers. In order to determine to what extent store credit is now used by farmers and the cost and efficiency of this form of credit, this study was made of the credit services of country stores in three typical areas of New York....During the late summer and fall of 1922, personal visits were made to nearly all the country retail merchants in Genesee, Tioga, and Jefferson Counties. A complete record of the credit operations for the preceding fiscal year was obtained from each of 191 merchants.<sup>21</sup>

Stores included in this study included those specializing in feed, groceries, hardware, farm implements, and farm supplies, as well as blacksmiths and garages. All of the participants reported that two-thirds or more of their business was done with farmers, some as high as 95 percent. "Most of the stores discounted a considerable part of their notes receivable. This reduced the amount of credit actually carried by the merchants. In every instance, however, the responsibility for the collection of these notes remains with the merchants."<sup>22</sup>

Spencer collected a substantial base of information about the organization of the rural businesses that provided supplies and services to farmers, as well as the credit structure of the stores themselves. While earlier farm management studies looked carefully at the structure and viability of farms as businesses, this was one of the first management studies that the department conducted about the many other businesses serving the rural economy. In the midst of the agricultural depression, all of these businesses came under substantial economic pressure, and factual information like this provided an important base from which

policy could be changed or influenced. The author concluded: "Country stores are an important source of farm credit as well as personal credit. The cost to the stores of furnishing this credit service is equivalent to twice or three times the usual charge for bank loans ... The result is that country merchants are compelled to take wider margins and to charge higher prices than they would if they were not called upon to furnish this service."<sup>23</sup> Professor W. I. Myers, who directed Spencer's study, focused his own research from this point forward on the rural credit and banking system in New York and the Northeast.

Freight Rates and Agricultural Prices. One of the continuing concerns of farmers was about the shipping rates charged by railroads. The cost of getting farm products to market was an important determinant of the prices they received at the farm. Trains provided the chief means of transport for most agricultural products, from stored commodities such as corn and wheat to fresh milk. Because of Warren and Pearson's almost all-consuming interest in prices, this component of marketing margins was given special attention by doctoral candidate, Harry S. Gabriel. He used national data from the Interstate Commerce Commission in a study that considered fifty typical routes from key rail shipping points to a major market, such as the one for wheat from Larimore, North Dakota, in the center of the state, to Minneapolis, Minnesota. Gabriel examined freight rates on routes for fifteen agricultural commodities between 1900 and 1923, using 1910-14 as a base period for the index numbers constructed. The results of his study were published in December 1925 as Experiment Station Bulletin 446, Index Numbers of Freight Rates and Their Relation to Agricultural Prices and Production. The primary value of this study was in defining the importance of transportation costs in determining the size of marketing margins and what this meant in reducing the prices received by farmers for their products and the value of their farms.

Gabriel's research showed that freight rates rose throughout the country during the war years at a somewhat slower rate than agricultural prices, but unlike farm prices, they remained relatively high and stable in the years following the war. Bar graphs showed the stability of freight rates in index number form compared to farm prices for hay, potatoes, and apples in New York. Another set of graphs compared the relative rises in freight rates to farm prices in the East, Midwest, and the Mountain-Pacific areas.

Once a set of index numbers for freight rates had been established for different routes in each area, they were compared with index numbers of land prices in the three regions. The East was represented by New York, Pennsylvania, and Ohio; the Midwest by Iowa and North Dakota;



Source: Cornell Agricultural Experiment Station Bulletin 446 (1925), 34.

and the Mountain-Pacific area by Utah and Oregon. The conclusions drawn from these comparisons were:

During this period of high prices and low freight rates, western states gained in prosperity more than did eastern states. This prosperity, however, was temporary. When prices declined and freight rates advanced, the results were more disastrous to western farmers than to eastern farmers. Land values declined in every part of the country, but the decrease was greater in the West than in the East. The fact that the changes in freight rates did not keep pace with these changes in prices undoubtedly augmented the variations in land values.<sup>24</sup>

**Taxation of Real and Personal Property.** A new member of the faculty in 1924 was M. Slade Kendrick, who had completed his Ph.D. thesis earlier on "The Marketing of Hay in the United States." His first research assignment was to examine taxes on farm property in New York State and the use of tax revenues by counties, towns, and school districts. For this project Kendrick worked with data obtained from the N.Y.S. Tax Commission and Department of Education. He examined tax receipts from thirty representative townships, each from a different county, ranging from the most rural to those associated with a major city.

This landmark study established index numbers of taxes collected between 1887 and 1924 for county, township, school, and state purposes, using 1910–14 as the base period. Over those thirty-eight years, school and township taxes increased more rapidly than those for county purposes. Likewise, as the need for better roads and more schools increased, farm taxes rose more rapidly than assessed valuations of farm property. Taxes on personal property were a small proportion of assessed values, and two-thirds of the towns had eliminated personal property taxes by 1924.

Kendrick's research was published as Experiment Station Bulletin 457, *An Index Number of Farm Taxes in New York, and its Relation to Various Other Economic Factors,* in December 1926. The bulletin presented comparisons of farm taxes to union wage rates, salaries of school teachers, and school taxes in the townships. All followed similar patterns until the war years, when teachers' wages rose more rapidly. Unlike the index numbers for wholesale prices of farm products, farm taxes did not fall but continued to rise from 1920 forward. Likewise, when index numbers of the values of farmland were compared with those for farm taxes, farmland prices remained relatively stable while farm taxes continued to rise after 1918.

The last sections of the bulletin examined state aid to rural schools. In 1887 state aid accounted for about 50 percent of the funds available to operate rural schools. This percentage had fallen to as little as 27 percent of the total in 1917. The formula for state aid was changed in 1918, and by 1921 it had increased again to 47 percent of the total. Kendrick then compared state aid provided to rural schools with that going to cities of different sizes. The results showed rapid growth in the proportion of state aid for public schools in the larger cities after 1918, whereas the proportions had been more nearly similar in earlier years.

Kendrick's 48-page bulletin was divided into two parts. The first 28 pages consisted of thirteen figures and charts, and twenty tables. There was very little text except to explain the calculations made and what data series were presented. Short statements of the results presented were the rule. The last 20 pages comprised an appendix giving details about the townships studied, the procedures used to construct the index numbers, and another set of tables and graphs to augment those presented earlier. Readers were left to draw their own conclusions about appropriate actions that should or might be taken; however, the intent of the study seems clear enough—to document the increased burden placed on farm real estate by taxes to support local governments.<sup>25</sup>

As a member of the faculty, Kendrick continued to examine issues of taxation and the needs of rural communities for roads, schools, and



welfare. It was one of the innovative ways in which Warren and his department, with strong support from the college, was doing something to serve the interests of rural people in New York. This was an important part of the research effort in political economy, providing reliable information that could be used by agricultural leaders and legislators in establishing more equitable formulas for distributing state funds in rural areas.

## Farm Economics in 1925 and 1926

By July 1925 some twenty-five issues of *Farm Economics* had been distributed to readers in the state and across the country. This publication had become the vehicle through which Warren and Pearson regularly disseminated their work on the agricultural situation and economic outlook. They usually wrote the first articles and discussed business conditions, new agricultural data, trends in prices, and provided their interpretation of recent economic events. Pearson managed each edition since Warren was so often away from Ithaca for speeches and meetings, although it seems likely that Warren was the active force in encouraging articles and establishing general policy.

One of the short articles included in the September 1925 issue was prepared by Gad Scoville and titled "Labor Income and Farm Wages Compared." This article was widely quoted and reproduced in rural magazines, and Warren often mentioned its content in his speeches. Scoville recounted the story of the depth of the agricultural depression in a relatively short amount of space:

Prior to 1920, farmers in the areas surveyed averaged 29 percent more for their time than they paid their year men. Since 1920, farmers received only one-fourth as much as year help. Prior to 1920, the average labor income exceeded the wage rate in two-thirds of the areas, but since 1920, the average labor incomes averaged less than wages in all but one of the areas. The seriousness of the agricultural depression in New York State is evident when the farmers in the best agricultural communities have received for their labor, only one-fourth the wages paid their hired men. This condition has existed for 5 years. The decline in the prices of farm property is not included.<sup>26</sup>

Negative labor incomes had become the general rule for the majority of farms in the 1920s. Farmers with mortgages were struggling to pay the interest due in many cases and the value of farmland was declining as well, especially on the hills with the poorer soil resources.

The November 1925 edition of *Farm Economics* consisted of sixteen pages. After the initial commentary on business conditions, low interest rates, and the spectacular activity on the stock market, Warren commented about crop conditions in the nation, prices received by farmers in New York, and how these prices differed from those in other states. Some gains from the lows in 1922 had occurred. He made

TABLE 1.—THE AMOUNT FARMERS RECEIVED FOR THEIR YEAR'S WORK COMPARED WITH THE WAGES PAID THEIR YEAR MEN PERCENTAGE THAT LABOR INCOME WAS OF HIRED MEN'S WAGES

		Other areas Less than 15 Cows 15 Cows and over						
	Fruit farms	Crop	sales	Crop	sales			
Year	Niagara Co.	Important	Unimportant	Important	Unimportant	All farms		
1907		37				37		
1908		52				52		
1910				77		77		
1911		23	43					
1912		149	17			79		
1913	199	48	13		47	66		
1914	236	32	0	46	6	10		
1915		82	3	47	0	31		
1916	— 35	40	26			23		
1917	19	22	62			82		
1918	62	63				5		
1919	10					10		
1907-1919 Avera	ge — 19	51	9	53	10	29		
1920	64					64		
1921	- 79				-114	69		
1922	- 63			98				
1923				-53		90		
1924						-44		
1920-1924 Avera	ge — 78			56		76		

comparisons among eleven major agriculture-producing states. Iowa farmers had suffered the most and Iowa was the area of greatest farm discontent. Warren concluded, "Prices this fall in the different states show less discrepancy than during any previous time in the last five years. Conditions in the different states seem to be approaching a normal relationship."<sup>27</sup>

The next two short articles were also written by Warren and give a sense of the timely reports and commentary usually provided.

#### **Students of Agriculture**

According to a report issued by the Chamber of Commerce of the United States, the number of students enrolled in agriculture in Land Grant Colleges has decreased 19 percent since 1919. In the northern states the number of students decreased 29 percent, but in the southern states they increased 17 percent. These results are to be expected from the index numbers of prices. With the exception of 1921 the index numbers of prices in the southern states have been much higher than index numbers for northern states. The decreased enrollment has been most striking in colleges near industrial centers. Such colleges lost students who came from cities with expectation of farming and also lost farm students as well.

The decreased enrollment is due in part to the disrepute into which farming has fallen because of low prices of farm products and high wages, and is due in part to the inability of farmers to assist their sons in paying the expenses of an education. It is a very serious mistake for a young man to make his decision for the future on temporary price relationships....From the standpoint of public welfare, decreasing enrollment is very unfortunate. In 1914, in the Land Grant Colleges, 23 percent of the students were enrolled in agriculture. Of the entire enrollment of all colleges and universities in the United States, in 1914, nearly 6 percent were enrolled in agriculture. This number has now declined until it is less than 3 percent of the total registration....Only a little more than one-fourth of the population is engaged in agriculture. If agriculture is to receive due consideration in national policies, the farming population should have its proportionate share of the college trained men. This means that instead of 3 percent, 25 percent of the students should be in agriculture. In the Land Grant Colleges this percentage was practically attainable before the war.<sup>28</sup>

#### A Good Time to Buy a Farm

Prices of farm land as reported by the United States Department of Agriculture last spring were 38 percent above the prewar average for the United States. In New York, prices are reported to be the same as in 1916. City real estate is more than double prewar prices and industrial stocks are 143 percent above prewar. Either industries and cities are much over-valued, or farm property is cheap. Probably both things are true.

It is not a good time to buy a poor farm. Many regions which are now sub-marginal were cleared and settled when labor was cheap. Much of this land is better adapted to forestry than farming. Taxes on sub-marginal land are often more than the farm can be rented for.

It is a good time to buy a good farm. Good buildings can be obtained at much less than prewar costs. Tile drains already laid can be obtained at less than it costs to make and lay them when wages were \$2 per day....It is therefore folly to buy or accept as a gift a place that lacks many of the desired things.<sup>29</sup>

This issue also included three more articles: one by Scoville, "Apple Production and Prices"; another by Warren and Pearson, "Decreases in Farm Capital"; and a final one by Spencer, "Relation of the Price of Milk to the Rate of Production." In this manner, *Farm Economics* brought to its readers information that Warren and Pearson thought was timely and of general interest. No copyright was invoked and short pieces could be reproduced in local newspapers, agricultural magazines, and county extension publications.

In February 1926, a 44-page issue was prepared, again written largely by Warren and Pearson. This was the time for the annual outlook issue, in which the latest statistics and information on livestock and crops, both local and national, were discussed. The first article, as always, was on business conditions in the state and nation. Spencer had been designated to lead the work in milk marketing, and he provided a major article on market conditions for the dairy industry. Much of the writing was still done by Warren and Pearson as the principal authors and editors, but a total of twelve different people contributed to this edition, including one from outside the department. The issue was timed to coordinate with the college's annual Farmers' Week and must have been available for anyone who attended to take home.

## Speech to the National Republican Club

Warren received a substantial number of invitations to speak at meetings of farm groups on college campuses about farm prices and the agricultural situation, especially in the Midwest and the Northeast. He was a principal speaker at Iowa State College for a three-day conference in October 1925 and for another at South Dakota State College in December 1925. He was a featured speaker at Farmers' Week at the University of Illinois in January 1926. He was also invited by the Society of American Foresters to talk at their annual meeting in February; his topic there was "The Use of Sub-Marginal Lands."

One of the speeches for which he prepared with special care was to the National Republican Club in Chicago in January 1926, before his presentation at the University of Illinois. The title of his 13-page address was "The Industrial East and the Agricultural West"; some direct quotes below provide a sense of his thoughts, concerns, and approach to this politically important audience.<sup>30</sup>

For six years the agricultural depression has continued. It is the worst agricultural catastrophe that has ever occurred in America. Thousands of farmers have lost their homes and their lifetime savings. The property has passed into hands of others....In most cases the property still exists but ownership is changed.<sup>31</sup>

The serious situation in agriculture at a time when cities are so prosperous has tended to contrast industry with agriculture and bring to a focus the clashing interests of the industrial East and the agricultural West. Much of the city prosperity is due directly to the agricultural distress. Farmers have been furnishing food at such low prices that city dwellers have readjusted their budgets. Since so little money goes to the country for food, it leaves an abnormal amount of purchasing power in cities to be spent for houses and for buying all manner of things....The primary reason for the agricultural distress was financial inflation followed by deflation. Agriculture is a biological industry and cannot be quickly adjusted to deflation.<sup>32</sup>

Much of our legislation of the past generation has increased disparity between city and country by making improvements in the city without corresponding improvements in the country. Workmen's compensation does much good, but the costs tend to be added to the things farmers buy; and the farmer has received no compensating privileges.<sup>33</sup>

The first thing to do in the development of sound national policy is to have farmers as fully represented in legislatures, in Congress, and in governing boards as are the industrial centers.... Iowa educates citizens for Chicago, furnishes roads for Chicago persons to travel on, and contributes much of the wealth to build Chicago. The only way to make Iowa industries that are located in Chicago pay for services which they get is by a broader system of taxation. The Federal Government must build more national highways on which travel is primarily inter-state.<sup>34</sup>

The hostility of the Agricultural West for the Industrial East has grown to serious proportions. It can be remedied by a constructive national policy, or it can be dangerously increased by continuing to follow an industrial political economy.<sup>35</sup>

These statements are intended to give a flavor of the talk in Warren's own words. His genuine concern for the welfare of farmers and their rural neighbors nationwide, and the growing disparity between their well-being and that of the industrialists and their employees, is guite clear. He saw that the wealth of production from farms in Iowa and Illinois, when shipped to major centers like Chicago, benefited these cities, their manufacturers and workers, but provided little or nothing in return to those who had produced the crops or livestock. His speech was a call to the party in national power to recognize more clearly the needs of 25 percent of the nation's citizens who were on farms who were in need, and who were still struggling in an economic depression. One might argue that "the worst agricultural catastrophe that ever occurred in America" was hyperbole, particularly given the suffering his own family faced in the long dark period from 1873 to 1897. But the strong language of his speech was an attempt to get the attention of the power brokers of the Republican Party and have them recognize that the farm problem was real and continuing.

## Farm and Family

The years from 1922 through 1926 were a relatively quiet period at the Warren farm. Three blocks of land were sold: one on the north side of Hanshaw Road and west of Sapsucker Woods Road in 1921 to the Fralick family; a second one on the south side of Hanshaw Road, at the corner of what later became Warren Road, to the Collins family; and the third to the north of Hanshaw just beyond Freese Road to the

Ketola family. Altogether these properties amounted to about fifty acres and were somewhat inconvenient to reach from the center of Warren's farm. Two of the blocks were across relatively busy roads, as increasing automobile and truck traffic moved along Hanshaw. The corner location on Hanshaw proved to be valuable later as a site for a commercial business. The acreages sold had been used for hay and also included some woodlots.

The Warrens' dairy unit was now well established near the center of the farm on the property purchased from Emmens in 1912. The main barn was approached by a private road; today it is the site of the Cornell Equine Research Facility. The Warrens' family home was about one quarter mile away from the dairy barn, on the lot originally purchased in 1907. The barn was not visible from the house because of the old woodlots to the north and east.



Between 1922 and 1927, Warren's neatly kept journals showed a small decrease in the value of real estate and a reduction in mortgages from \$49,843 in 1922 to \$37,130 in 1927. His family's net worth decreased accordingly from \$84,948 in 1922 to \$77,541 five years later. He reduced the values of crops, livestock, and equipment on the annual inventories, reflecting the impact of the agricultural depression that affected Ithaca just as it had the rest of the country.

During this period, Warren had been to Europe for part of one year and continued to travel widely for speeches and meetings in the Midwest and throughout the East. The farm received his attention on weekends, but was more often left in the hands of a capable farm manager and his wife Mary, and benefited as well from the increasing knowledge and ability of his oldest son, Stanley. In April 1926 Stanley was nineteen and a student in the College of Agriculture at Cornell. His sister Jean was seventeen and soon to enter Cornell as well. Brothers Richard and Fred were respectively fifteen and thirteen that year and able to do a variety of useful things on the farm. The two youngest children, Martha and Mary, were now eleven and nine, and helped their mother run the household while they continued their schooling. In the Quaker tradition that mother Mary quietly maintained, their hands were seldom idle.

George F. Warren was fifty-two when he spoke to the Republican Club in Chicago and physically well and able. He had gained substantial stature in the College of Agriculture and was now well-known among his colleagues at colleges of agriculture across the country. He still enjoyed speaking to farmers and cared deeply that so many of them were facing significant economic difficulties when the industrial sector and urban areas were doing so much better. While he still examined economic issues and problems very much from the perspective of a farmer, his central interests were now focused on prices and rural public policy. Much of his attention was turning to the role of government in this time of rural and agricultural depression, and what might be done by New York State and the federal government to make a difference in rural America. He had now been a member of the Cornell Faculty of Agriculture for twenty years and was one of its major figures, a position in which he took great pride.

## Footnotes

- 1. *Prices of Farm Products in New York,* Cornell Agricultural Experiment Station Bulletin 416 (January 1923).
- 2. Ibid., 3.
- 3. Ibid., 9–10.
- 4. Ibid., 12.
- 5. Ibid., 16–17.
- 6. Ibid., 37.
- 7. Farm Economics 1, no. 6 (August 1923), 46.
- 8. G. F. Warren, "The Agricultural Depression," *Quarterly Journal of Political Economy* (February 1924): 183–84.
- 9. Ibid., 213
- 10. Warren Papers, Box 11.
- 11. Ibid.
- 12. Ibid.
- 13. G. F. Warren and F. A. Pearson, *The Agricultural Situation* (New York: John Wiley & Sons, 1924), vii.
- 14. Ibid., 291, 297.
- 15. Ibid., 299.
- 16. Taylor and Taylor, The Story of Agricultural Economics, 578.
- 17. Ibid., 578.
- 18. *An Economic Study of the Marketing of New York Potatoes,* Cornell Agricultural Experiment Station Bulletin 440 (June 1925), 152–53.
- 19. *The Marketing of Cabbage,* Cornell Agricultural Experiment Station Bulletin 443 (October 1925), 3.
- 20. Ibid., 133.
- 21. An Economic Study of Rural Store Credit in New York, Cornell Agricultural Experiment Station Bulletin 430 (September 1924), 3.
- 22. Ibid., 11.
- 23. Ibid., 39.
- 24. Index Numbers of Freight Rates and Their Relation to Agricultural Prices and Production, Cornell Agricultural Experiment Station Bulletin 446 (December 1925), 36–37.
- 25. An Index Number of Farm Taxes in New York, and its Relation to Various Other Economic Factors, Cornell Agricultural Experiment Station Bulletin 457 (December 1926).

- 26. G. P. Scoville, "Labor Income and Farm Wages Compared," *Farm Economics* 28 (September 1925): 344.
- 27. Ibid., 354
- 28. Ibid., 355-56.
- 29. Ibid., 356.
- "The Industrial East and the Agricultural West," speech given George F. Warren to the National Republican Club, Chicago, January 1926; Warren Papers, Box 12.
- 31. Ibid., 1.
- 32. Ibid., 2–3
- 33. Ibid., 5.
- 34. Ibid., 7–9.
- 35. Ibid., 13.

## State and International Influence

1927–1930

The agricultural depression continued into the second half of the 1920s and there seemed no end in sight. Unhappily it was to persist and worsen into the early 1930s, when a worldwide depression would envelop most of the Western world. This unfortunate future was far from visible to most who were trying to improve conditions in rural America and the nation's general economy.

The annual statement on agricultural situation and outlook in the 40-page February 1927 edition of *Farm Economics* reviewed business conditions as its first topic:

Industrial output in 1926 was very large. With the exception of the textile industry, and one or two others, city industries enjoyed prosperity....The present outlook is for less active business in the coming year. In a number of industries, particularly in building, production has gone so far as to make investors cautious....If the general price level should remain where it is, the adjustments that are being made would probably end the agricultural depression in a few years. If the general price level should continue to decline as there is danger that it will do, further adjustments will have to be made. In that event, distributing charges will again lag behind prices and farm prices will be low compared with retail prices, unless there is a distinct shortage of farm products.<sup>1</sup>

After a review of monthly prices and conditions for individual crops and livestock products of importance in the state, Warren and Pearson provided a current assessment of the agricultural depression nationally as well as in the state. One of the paragraphs under the heading "Agricultural Depression is Not Universal" was of particular interest:

The statement is commonly made that the agricultural depression is worldwide. This is far from true. It is not even nationwide. Farmers in North Carolina have been prosperous.

They raise cotton and tobacco and have good yields and prices in four of the last seven years. Those farmers who retail their products are in general prosperous. Regions that are near the consumer, such as southern New England are much more prosperous than regions far from market. The agricultural depression is much more serious in western New York than in southeastern New York....French farmers are well enough off so that the French government, by various means, controls prices so that food will not be too high. If they deflate, French farmers will have an agricultural depression. If the franc is stabilized at its present value there will be no such serious agricultural depression as occurred here.<sup>2</sup>

Under the heading "Causes of the Depression" they wrote, "Overproduction, speculation in land, debts, taxes, European conditions, price disparity brought about by financial inflation and deflation, and innumerable other things have been blamed for the depression."<sup>3</sup> Each of these proposed causes was then examined in some detail. The authors concluded, however, "If further deflation does not occur, the prices paid to farmers for food will come into adjustment with retail prices before many years. They might do so in any year if there should be a severe drought. If further deflation occurs, the progress may be delayed because costs of distribution would remain high."<sup>4</sup>

One other innovation in this outlook edition of *Farm Economics* was a 7-page section on "Index Numbers of Wholesale Prices of Fertilizer Materials," written by E. E. Vial. This article summarized one part of Vial's Ph.D. thesis and was to continue to be an area of work for staff into the 1930s. Covering the period 1897–1927, it provided a careful review of the sources of the principal ingredients of commercial fertilizers—nitrogen, phosphate, and potash (N-P-K). Index numbers were used to help make the differences in prices and production more understandable. Vial, who was soon to be appointed to the faculty, concluded his article,

During the postwar period, one of the most important features of the fertilizer situation has been the relatively low prices of fertilizer ingredients. Fertilizer materials have been below the general level of wholesale prices of all commodities. Many are below the level of farm prices in the United States. For the 5 years 1922–26, organic ammoniates averaged 133 percent of prewar; phosphoric acid 106 percent; mineral ammoniates average 133 percent; and potash 83 percent of prewar. Potash has been consistently cheaper than the other fertilizer ingredients.<sup>5</sup> Members of the department recognized that one of its most important functions was to provide current, accurate information to farmers and the agricultural industry. As was the case in this article, farmers and cooperatives were not given direct advice on what they should do with the information. The faculty believed that a well-informed public could make its own decisions when unbiased information was provided in an historical context. This entire issue on the "agricultural situation and outlook" took this approach, as was typical of most articles published in *Farm Economics*.

# Land Grant Colleges and Universities Report on the Agricultural Situation

One of the high-priority activities for Warren in 1927 was participating in a special committee of the Association of Land Grant Colleges and Universities on the agricultural situation. At the suggestion of Mann and Ladd, Cornell President Livingston Farrand designated Warren as the official representative from Cornell. The national committee appointed to prepare this report consisted of a rather impressive group of people from across the country:

- **Thomas Cooper**, dean of agriculture, University of Kentucky (committee chair)
- Alfred Atkinson, president, Montana State University
- L. N. Duncan, director of extension, Alabama Polytechnic University
- L. D. Farrell, president, Kansas State University
- Charles A. Lory, president, Colorado Agricultural College
- H. A. Morgan, president, University of Tennessee
- H. W. Mumford, dean of agriculture, University of Illinois
- G. F. Warren, professor, College of Agriculture, Cornell University
- F. W. Peck, director of extension, University of Minnesota (committee secretary)

It seems clear from Warren's papers that he and Peck were the principal authors of the committee's report, which was printed and distributed nationally at the annual meeting of the Association of Land Grant Colleges and Universities in November 1927.<sup>6</sup> He and Peck worked well together in compiling the final report because of their long-standing friendship and background in farm management. Much of the substance of the report was similar to the coverage of economic data presented in Warren and Pearson's 1924 book, *The Agricultural*
*Situation*, but with much less supporting evidence. After providing a general statement on the agricultural situation in the 1920s, supported by national data on the severity of the agricultural depression, the report focused on "Problems Needing Attention." Statements were made on the following topics: surpluses, land policies, taxation, transportation, credit, immigration, tariffs, cooperatives, individual adjustments, research and education, and agricultural legislation.

Agreement on specific language in the report was not easy to establish. As the correspondence in Warren's files suggests, there was great diversity of opinion among the committee and others who made comment. By its very nature, it reflected the diverse concerns of the committee members and their locations in the country. States in the Plains and the Corn Belt were strongly represented on the committee; these were areas where the agricultural depression had hit hardest and where efforts by commodity cooperatives to influence prices had not worked well. The report did draw nationwide attention to the continuing problems of farmers and rural communities, but did not make a clear call for specific national legislation.

His role in this assignment for the land grant university system gave Warren further visibility on the national scene. He was recognized as an agricultural economist with strong ties to production agriculture, as well as an advocate for the interests of farmers and the businesses associated with their products. His interest in the public sector was growing and he recognized the need to influence legislation aimed at improving life and the economic welfare of rural communities. His advanced class in farm management was renamed in the 1927 college catalog as a seminar on the public problems of agriculture.

## Research in Prices, Supply, and Demand Analysis

One of the new faculty members in the Department was Harry A. Ross, whose Ph.D. thesis, "Milk Marketing in the Chicago Dairy District," was an analysis of data from the area where Pearson worked earlier. Using the new marketing funds provided by the Purnell Act (1925) and with the excellent cooperation of processors and distributors in the New York City area, he completed a second study on "The Demand Side of the New York Milk Market." This was published as Cornell University Agricultural Experiment Station Bulletin 459 in July 1927. Given the antagonism that had existed between representatives of dairymen and milk dealers ten years earlier, this study reflected the substantial gains that had been made since the first marketing study had been completed

earlier in the 1920s. Ross had full access to the accounts and records of the largest milk dealers in the metropolitan area. All recognized that they would gain additional knowledge as a result of the study. Sales records were obtained directly from the books of six of the largest distributors for the five-year span of 1919 to 1924. These accounted for 64 percent of the milk sold in the New York area.

The study looked at sales by location, type of product, and season of the year. It established changes in per capita consumption of individual products, such as whole milk, cream, and condensed milk, by season and location (income level of families). Trends over the period 1912–26 were also established, and day-of-the-week variations in retail sales were recognized for different dairy products. The positive influence of temperature on sales was examined, as well as the impact of price



changes (of one cent per quart) on Grade A and Grade B sales over a span of four weeks. Ross concluded his study by showing the participants how they could apply these results in forecasting sales and estimating quantities of supply required to meet the expected demands.

One important benefit of this study was the greater respect that all the participants in the market had for each other as they learned more about their respective roles. It did not stop labor unrest or differences of opinion in bargaining, but the study greatly increased awareness of the scope of the metropolitan market and its complexity. It also established the relevance and role of the college in providing information on the business side of efficiently moving farm products to the consumer.

## Interrelationships of Supply and Price

One of the major research efforts by Warren and Pearson in the 1920s was their study of the effects on agricultural prices of changes in the supply (quantity) of agricultural products coming to the market. A final report was published as Experiment Station Bulletin 466, *Interrelationships of Supply and Price*, in March 1928. This set of commodity studies assumed the existence of rather constant levels of demand for agricultural products. Therefore, year-to-year variations in supply were seen as primarily responsible for the changes in farm prices from year to year. As agricultural economists, they approached supply and demand analysis graphically and statistically, without the benefit of Elmer Working's pathbreaking analysis, "What Do Statistical Demand Curves Show?" That important academic paper appeared in the *Quarterly Journal of Economics* about the time that Warren and Pearson's manuscript was sent to be published by the experiment station.<sup>7</sup>

Warren and Pearson also did not approach their analysis from the point of view of price resulting from the intersection of supply and demand curves, a theory that was made popular by Alfred Marshall in his widely used text presenting the graphics of economic theory.<sup>8</sup> One key sentence in their introduction was, "This bulletin is an attempt to express mathematically some of the relationships of supply to price, relationships of price to supply, relationships of farm and retail prices, and the effect of supply on these relationships."<sup>9</sup>

Some of Warren and Pearson's introductory comments were not well received by economists, in part because the authors were unwilling to use some of the basic language and concepts generally accepted by most economists. For example, they wrote:

Curves such as are here included are sometimes called *demand-curves*. They are in fact supply-price curves. For some farm products a portion of a large crop is never marketed. A demand-curve shows the relationship between the consumers' price and the quantity consumed at that price. The relationship of production to farm prices is not merely a supply-demand relationship. It is a relationship that involves handling charges as well as demand.<sup>10</sup>

The concept of derived demand, by which consumer demand was reflected back to wholesale markets and then to farm markets, was not part of Warren's thinking and training. The contents of the bulletin, however, were of great interest to the profession, regardless of differences about the language in which the authors presented their results.

The introductory analysis presented in this major research bulletin was about the effect of the supply of potatoes on prices. A scatter diagram of potato production in the U.S. and the average annual price received by farmers for a given year, deflated by the Index of Wholesale Prices, was presented in one figure. A second diagram showed U.S. production of potatoes and the deflated price at Batavia, New York. The periods covered were 1895–1915 for the nation and 1897–1915 for Batavia. The war years and those following were excluded because of the major economic upheavals associated with the war period.

The authors then presented similar scatter diagrams for the production/price relationships over the same years in Minnesota and in Rhode Island. Next they considered the effects on prices when crop production was 20 percent below normal and 20 percent above normal, showing the much sharper percentage increases in prices resulting from short crops and the more modest price drops from large crops. With only six and then five years of data available respectively, they also looked at production/price relationships for 1915–120 and 1921–25 for



FIGURE I. RELATION OF THE UNITED STATES PRODUCTION OF POTATOES TO THE PURCHASING POWER OF THE UNITED STATES DECEMBER I FARM PRICE, 1895-1915

When the United States production was 20 per cent below normal, farm prices were 35 per cent above normal



FIGURE 2. RELATION OF THE UNITED STATES PRODUCTION OF POTATOES TO THE PURCHASING POWER OF THE DE-CEMBER PRICES PAID TO PRODUCERS AT BATAVIA, NEW YORK, 1897-1915

When the United States production was 20 per cent below normal, farm prices at Batavia were 54 per cent above normal the United States and for Rhode Island as well. Here they wanted to show the differences resulting from geographic proximity of production to the market, especially when local production was short.

Another important part of this section of the bulletin showed the relationships between wholesale prices in New York City and farm prices some 300 miles away in Batavia, New York, and the spreads between retail and wholesale prices for potatoes in New York City over the marketing periods of 1910–11 through 1926–27. The authors concluded:

The reason for the present violent change in farm prices when there is only a small change in retail prices is that handling charges constitute such a high percentage of the retail price. Freight rates remain exactly the same, and most other handling charges remain about the same, regardless of retail prices. Since farm prices are low compared with handling charges, they are low compared with retail prices, and a small change in retail prices causes a large percentage change in farm prices.<sup>11</sup>

The final analysis of this major section devoted to potatoes considered the effect of prices on acres of potatoes planted the following year. A scatter diagram looking at U.S. acres planted to potatoes and prices the previous year showed only a small percentage change in acreage planted relative to a large percentage change in prices for the previous year. This analysis covered the years 1895 to 1911. The authors commented, "Since weather is the dominating factor in production and prices, the effects of price on acreage and of acreage on price are obscured."<sup>12</sup>

Following the initial analysis presented for potatoes, similar analyses were presented for a group of major crops of interest throughout the United States with quite different characteristics and markets. The first such crop was hay, where only the prewar period was considered because



FIGURE 17. RELATION OF THE PURCHASING POWER OF THE UNITED STATES DECEMBER I FARM PRICE OF POTATOES TO THE UNITED STATES ACREAGE OF POTATOES IN THE FOLLOWING YEAR, 1895-1911

On the average, a 50-per-cent change in the United States farm price of potatoes results in a 5-per-cent increase in the acreage the following year of the impact of cars and trucks on the market for hay. Apples, peaches, and cabbage-market crops of some importance in New York-were also examined briefly.

The next major part of the study was devoted to corn. Similar scatter diagrams to those for potatoes were constructed for U.S. production and seasonal average prices for the nation and for Iowa. In addition, the authors looked at U.S. corn production compared to December cash prices in Chicago and in New York City, and also compared U.S. production to prices for corn in Georgia and in Liverpool, England. Not surprisingly, the smallest association was found in Georgia, where corn production was relatively unimportant and the growing regions also were far from major markets.

Using the same methodology followed in studying potatoes, the authors also looked at the effects on price when corn crops were 20 percent below normal and 20 percent above normal. Using the Liverpool price as a proxy for the world price, they showed that prices increased 40 percent when crop production was 20 percent below normal in the U.S., but fell only 24 percent when production fell by 20 percent. The years for this analysis were 1900–15.



INTERRELATIONSHIPS OF SUPPLY AND PRICE



When the United States production of corn was 20 per cent below normal, the Chicago price was 26 per cent above normal

1876-1913





When the United States production of was 20 per cent below normal, the New City price was 23 per cent above normal of corn ew York



FIGURE 32. RELATION OF THE UNITED STATES PRODUCTION OF CORN TO THE PURCHASING POWER OF THE DECEMBER PRICE OF MIXED AMERICAN CORN AT LIVERPOOL, ENGLAND, 1898-1913 When the United States production of corn

TRUE OF MILED AMERICAN CORN AT LIVERPOOL, ENGLAND, 1898-1913 When the United States production of corn was 20 per cent below normal, the price of American corn at Liverpool was 15 per cent above normal





When the United States production of corn was 20 per cent below normal, the Georgia farm price was 12 per cent above normal

They also examined the relationships between prices at retail (56 pounds of cornmeal in New York City) and a bushel of corn at wholesale in Chicago, and at the farm in Iowa. Finally, they carefully examined the wholesale prices of corn between 1921 and 1926 in Buenos Aires and Chicago, and their important and changing interrelationships.

Similar studies and presentations were made for wheat, hogs, and beef cattle. The impacts of the production cycles for hogs and cattle were also examined as part of the presentations, both graphically and in scatter diagrams. Finally, they used index numbers to compare U.S. retail prices for a bundle of key foods (beef, pork, chicken, eggs, milk, wheat flour, and cornmeal) with the farm prices of the products from which these foods were derived. This graphic representation became a way to summarize structural price changes in the different sectors of the market, which they cited to help explain the agricultural depression.

Warren and Pearson concluded these analyses with a section titled "Who Pays the Freight?":

Many economists have drawn generalized conclusions from industrial conditions. For many industrial products, the price in any given year governs the production of that year. Operating expenses are high compared with fixed capital. Labor is hired or discharged in accordance with orders. If prices are too low to justify operation, the plant is closed and the laborer seeks work elsewhere or is unemployed. If orders are offered at prices that are profitable, the plant operates. Under such conditions freight rates are considered in the cost, the consumer pays most of the freight at once.

In agriculture, it takes from one to many years to produce a marketable product; even with annual crops, it usually takes several years to shift from one crop to another because of rotations and other factors. Many of the good potato sections follow a three year rotation—small grain, clover, and potatoes. The preparation for the potato crop is begun three years in advance of the harvest.<sup>13</sup>

These paragraphs were clearly directed toward a nonfarm audience of economists whom the authors hoped would examine the bulletin. It seems likely that Pearson and Warren were guilty of the same oversimplification of industry decision making and plant operations that they attributed to those looking at price and production data from agriculture. Nonetheless, their aim was to help others understand more fully the basic quantity/price relationships underlying farmers' production decisions.

One of the most significant parts of the bulletin was the appendix consisting of thirty-seven pages of tables, equations, and references showing the statistical work underlying the curves and scatter diagrams presented in the body of the text. There the authors documented the details of their data sources, the ways in which they had calculated index numbers, and the different regression analyses they had tried. They showed the various curves implied by different logarithmic functions they had fitted. They presented a review of other published work on the subject and their brief comments about these results.<sup>14</sup> While they did not discuss price elasticity of demand in the text of the bulletin, they certainly knew the language of economics and the work of Edgeworth, Ezekiel, Henry Moore, Henry Schultz, Holbrook Working, and others, all of whom were carefully cited in this section. The details of 221 equations fitted using various mathematical forms took up the last seventeen pages of the appendix.

Warren and Pearson reserved the last two pages of their bulletin for a summary. These paragraphs provide a sense of their final message and commentary to readers.

Since urban growth is dependent on farm efficiency, the more efficient farmers become, the more violently do farm prices fluctuate. Any change that makes distributing charges high relative to retail prices causes violent fluctuations in farm prices. Deflation left distributing charges high and made farm prices fluctuate violently. Before the war, a 20 percent shortage in the United States potato crop increased farm prices at Batavia, New York, 54 percent, but it now increases them 177 percent. Apparently fluctuations in the total food supply affect food prices less than do fluctuations in the supply of a single commodity.

Farmers respond to prices as vigorously as does industry, but they are dealing with biological facts. When prices of pig iron were 20 percent above normal, production increased 12 percent in the same year. When round steak sold for 20 percent above the normal price, the receipts of steers in Chicago were increased 32 percent eight years later.<sup>15</sup>

Warren and Pearson saw this bulletin as a major effort on their part to contribute to the economic literature of the 1920s on supply and price. They sent draft copies of their text to a variety of leaders in the field and asked for their comments. Warren's files contain copies of letters received in return from Wesley Mitchell at Columbia University, who generally praised the detail and thoroughness of their efforts. He received an almost equally complimentary letter without specific suggestions from Frank Fetter at Princeton. F. W. Taussig at Harvard also sent back a positive letter about their manuscript.

Warren's former student, L. J. Norton, at the University of Illinois, sent back a set of serious suggestions for changes and commented, "... you over-simplify the problem when you limit the influence of supply and demand to retail prices and ignore the importance of margins." John D. Black at Harvard sent four pages of constructive comments, which it appears the authors decided not to accept in detail. Likewise, Fred Waugh at the USDA made corrections in the manuscript and disagreed strongly with some of the generalizations drawn from the data. However, only a few of the suggested revisions sent by these major agricultural economists were saved, so it is difficult to know what Warren and Pearson specifically accepted or rejected.<sup>16</sup>

The authors chose to publish their results as an experiment station bulletin rather than in one or more of the major economic journals of the time. While Warren wanted to influence leading economists who were concerned with the problems of agriculture, his first interest was in reaching out to farmers, their advocates, and the agricultural community. Likewise, by publishing their work in a Cornell bulletin, the authors had more control over its content. As the language of this bulletin indicates, they did not seem to want to use the standard terminology of economics to talk about inelasticity of demand for individual crops at the farm, and also at the wholesale and retail levels.

As the junior author, Pearson supervised most of the substantial statistical work required for amassing all the data and doing the regressions in logarithms in an era when rotary calculators and

comptometers were all that were available do the tedious to calculations. He may preferred well have to follow the style of Moore and Schultz presenting in the statistical results. The language in the bulletin, however, sounds like Warren's speeches and presentations. At its corethiseffortremained primarily a publication directed toward those interested in farms and the agricultural sector.

The bulletin, which was essentially a small book, received mixed reviews in a number of economic journals. The one review Warren saved carefully among his papers was from the December 1929 issue of England's Economic Journal and was written by John Maynard Keynes. This British economist, who

Economic Journal—Review—5

Inter-Relationships of Supply and Prices. By G. F. WARREN and F. A. PEARSON. Published by the Cornell University Agricultural Experiment Station. Ithaca, New York. 1928. Pp. 144.

In the Economic Journal for December 1928 I reviewed Mr. F. C. Mills's investigation into The Behaviour of Prices. Mr. Mills's voluminous and valuable statistical examination into price fluctuations has been since supplemented by this scarcely less laborious inquiry by Messrs. Warren and Pearson. These authors have directed their studies to a somewhat more limited field than that occupied by Mr. Mills. They have sought to discover, in the case of a number of agricultural products, the relationship between fluctuations in the size of the crop and fluctuations in the price received. The work has been carried out-so far as one can judge from outside-with great skill and completeness, and the results are of high interest. One's only doubt is as to whether the initial data are quite good enough to stand the strain which has been placed on them. If the figures as to prices and as to crops which have been used are really reliable, then the authors' quantitative conclusions are of great theoretical importance. But even where the price statistics may be assumed to be fairly reliable, one cannot but feel that the statistics as to the size of the crop are almost inevitably subject to serious error. Probably the authors are alive to the serious strain which their accurate methods are putting upon the inaccurate initial data. But they do not warn the reader of this quite as explicitly as perhaps they ought. Nor do they attempt any evaluation of the margin of possible error which their results probably involve. Moreover, their estimation of a moving "normal" involves methods of elimination of trend which, even when they are the best available, are always dangerous.

However, one must not be ungenerous to writers who have performed so much labour upon the basis of which others can invent theories, whilst themselves, like Mr. Mills, remaining strangely free from attempts to philosophise, except in the most elementary way, about the results of so much laborious calculation. To one theoretical point, however, they do draw attention, and with strong emphasis. They point out that the price which the producer receives, in this case the farmer, is the only price which affects production; whilst the price which the consumer pays is the only price which affects his consumption. Now when general costs such as those of transport and distribution, which are not influenced one way or the other by particular circumstances relating to an individual crop, form a large part of the price paid by the ultimate consumer, a very large fluctuation in the price received by the farmer becomes a comparatively small percentage reduction of price by the time that it has reached the consumer.

An excerpt from the Keynes review from Warren's files.

became the most famous figure in economics in the first half of the twentieth century, gave substantial space and credit to the authors for their scholarship. He included two short abstracts from the bulletin in his review to show the nature of the writing and its contributions.

# Studies on Problems Facing State and Local Governments

Between 1928 and 1930 the results of six important studies of the roles of state and local governments in providing essential services to farmers and rural communities were published by faculty members and students in the Department of Agricultural Economics and Farm Management. Warren saw the opportunity and need to learn more about the use of taxes collected from owners of real estate and property, and the ways in which state and local governments worked to provide schools, roads, and services to rural people. Myers and Hart directed some of this work with graduate students, but M. Slade Kendrick was central to this part of the research program as it evolved in the second half of the decade. Myers, already recognized as the second-in-command in the department, was able to find the financial support for this effort and provided strong encouragement for Kendrick's work.

State, county, and town taxes on real estate were collected at that time in New York by town officials, one in each town. "The town collector's pay was 1 percent of the taxes collected within thirty days, 5 percent of those collected after the first thirty days, and 2 percent on the balance recorded by the county treasurer as uncollected."<sup>18</sup> Kendrick set out to examine how real estate taxes were collected in other states and then to look at New York State's record in comparison. Performance in each county in New York was published and compared with results for nearby northeastern states and a sample of states where counties were the smallest units of local government collecting taxes. The results of this study in June 1928, published as Experiment Station Bulletin 469, were of immediate interest to many people. Kendrick concluded:

In many States, general-property taxes on farm property could be collected more cheaply. The evidence indicates that a general adoption of the system of county-treasurer collection of taxes, with the treasurer on a salary basis, would lower costs (some of them greatly) in most of the 28 States which do not have this system of collection. This is particularly true in the States where fees are paid for tax collection, and in those where the unit of collection is smaller than the county.<sup>19</sup>

Not surprisingly, tax collectors for town governments in New York State were not happy with this published conclusion, even though it was in the interests of community citizens. J. L. Tennant, a Ph.D. student under Warren's direction, completed his thesis, "The Relationship between Roads and Agriculture in New York" in 1928, which was published as Experiment Station Bulletin 479 in May 1929.

The numbers and the percentage of farms located on hardsurfaced, gravel and dirt roads in each county were obtained from the United States Census of 1925. Tallies of the travel on 110 roads were obtained during the summer and fall of 1926 and 1927. Of these roads, 42 were state highways, 11 were county and town roads, and 57 were dirt roads. One- to three-day counts were taken on each road. The counts each day were for eight to ten hours during the daytime....All vehicle traffic on each road was recorded....The motor vehicle traffic was classified into three groups of vehicles: (1) those owned outside New York, (2) those owned in other counties of New York, and (3) those owned within the county.<sup>20</sup>

Census data for the state were further analyzed for the proportions of total farms in each county located on the three types of roads.



MOTOR-VEHICLE TRAVEL FROM UNINCORPORATED PLACES WITHIN THE TOWNSHIP, HORSE TRAVEL, AND ALL OTHER TRAVEL, ON 42 STATE HIGHWAYS, II COUNTY AND TOWN ROADS, AND 57 TOWNSHIP ROADS, NEW YORK

One of the major conclusions of this study was that most New York roads now served more than the local population. Even on dirt roads, one-fourth of the travel originated from outside the county. The bulletin looked at such issues as the effect of the kind of road on the value of farmland. In an associated survey farmers were asked to estimate the decrease in the value of farms if they were located one mile or three miles from a hard-surfaced road. The history of state highway legislation from 1797 to 1927 was reviewed, as well as state aid provided to counties and townships from 1909 to 1927. The bulletin ended with two pages of conclusions. The last three are suggestive of the full list:

In many cases the improvement of a dirt road makes possible a more profitable type of farming, such as selling market milk instead of butter and cheese, the growing of larger acreages of cash crops, or the use of more lime and fertilizer.

A hard-surfaced road increases the value of farm land about 20 percent. A farm worth \$50 per acre would increase \$10 per acre in value, and a farm worth \$100 per acre would increase \$20 per acre in value.

If the improvement of dirt roads, costing \$10,000 per mile, were paid for on the basis of use, the farmers would need to pay only \$1,100 per mile of road. This they could readily afford to do where the land is valued at \$50 per acre or more. On the basis of use, the other population groups would pay the remaining \$8,900.<sup>21</sup>

Bulletin 479 also included a 32-page appendix that listed the roads, the survey forms used, and additional data not reported in the body of the text.

While Tennant was listed as the sole author of this bulletin, both the design of the study and its substantial content reflect Warren's strong influence. Most of the roads studied were located in fifteen counties lying between Livingston County on the west and Albany County on the east. Roads to the northwest of Ithaca and east to Otsego County were heavily represented. The coverage was in areas where some of the state's more productive farms were located, but also included an important part of the hill and valley country. The intent of the bulletin was not only to inform the public, but also to influence legislation and provide evidence for legislators and others to influence state and county spending to improve rural roads.

In June 1929 two more experiment station bulletins were issued. M. Slade Kendrick was the author of *A Comparison of the Cost of Maintenance of Large and Small County Boards in the United States: A Study in the Cost of Government.* He intensively studied the sizes of county boards in different states in relation to population, taxes levied, and costs of operation. Kendrick was careful to offer an indirect answer to the question he posed for study: "Are small county boards to be preferred to large boards?" In his final paragraph he concluded:

The small board functions with much more freedom than the large board. A group of 3 or 5 men may sit around a table, talk a matter over, and come to a conclusion concerning it. A large group—how large it is difficult to say—takes on the character of a legislative body, with speeches, bickering, obstructive tactics, formalities and other time consuming activities which mean that less work can actually be accomplished by it.<sup>22</sup>

Irving J. Call wrote Bulletin 485, which was titled *Farm Property Taxation in New York* and summarized his Ph.D. thesis. Completed under Myers's and Warren's direction, this study focused on farm taxes in relation to farmers' incomes. Comparisons were made with real estate taxes on farms in the years before the war and again in the 1920s. Call emphasized the seriousness of the tax burden, especially on small, less productive farms. A few paragraphs from the summary of the bulletin give a sense of the purpose of the study and its findings:

During the decade ending with 1922, the assessed valuation of property in New York more than doubled and property taxes more than tripled. Increases were much greater in some counties than in others. Greater prosperity among city people has prevented the tax increases from being as severe a burden on them as on farmers....Average taxes for the period 1921 to 1924 required more than one-eighth of the cash farm and family income, as compared with less than one-twelfth before 1921.

Per cent farm property was of total property	Per cent of taxes that were delinquent	Per cent of taxes on which a delinquent fee was charged	Per cent of taxes that were delinquent but were collected at the regular charge
80 to 100	37.7 36.1 28.0 17.6 44.9 20.0	14.7 14.9 11.7 8.8 13.2 12.7	23.0 21.2 16.3 8.8 31.7 7.3
All townships	31.0	. 12.9	18.1

TABLE 64. PERCENTAGE OF TAX PAYMENTS THAT WERE DELINQUENT, AND PER-CENTAGE ON WHICH DELINQUENT FEES WERE CHARGED

From Experiment Station Bulletin 485.

Large farms with poor soils were assessed higher, in relation to values in the region, than were smaller farms or those with better soils. The differences between assessors' valuations and operators' valuations on farms of different sizes increased during the period 1913 to 1924.<sup>23</sup>

Unlike most experiment station bulletins, Call provided a page of specific "suggestions" at the end of the publication, including:

Property taxation can be improved, but it cannot be made equitable under present conditions. To decrease the inequality, state property taxes should be abolished....To improve the quality and reduce the expense of assessments of property taxes, the office of county assessor might be created in each county under the control of the board of supervisors....Similarly the work of tax collection could be done much more efficiently by county treasurers than by town and school-district collectors.... A careful comparative study should be made of towns, counties, and school districts, to learn ways of performing the necessary functions more efficiently.<sup>24</sup>

This final statement in the bulletin appears to be an attempt by Warren and the college to give advice to the governor and state legislature. Communication between legislators and the college had grown in a positive manner. Governor Alfred E. Smith was elected in 1922 and served for three terms until 1928. During his years in Albany he reorganized state government on a businesslike basis and learned how to work with the Republican legislature. He was a reformer, schooled in the politics of New York City, and came to understand the needs of rural communities as well as those of urban centers. Communication between department faculty and Smith's successor, Franklin D. Roosevelt, became even better as the work of the college and Warren's department received increased attention in the state capital.

One other study published as an experiment station bulletin deserves particular mention. Based on R. F. Bucknam's Ph.D. thesis, "An Economic Study of Farm Electrification in New York," this project was a joint effort with the Department of Agricultural Engineering to examine ways in which rural electrification could make substantial differences in the lives of farm families and rural communities. It was published in December 1929 as Experiment Station Bulletin 496. New York State was by then a leader in rural electrification. Bucknam reported, "...on January 1, 1929 about 47,800 of the 188,754 farms in New York were supplied with "central station electric service."<sup>25</sup>

The purpose of this study was to collect and report reliable data on the uses, costs, and possibilities of electricity on New York farms. The extension of transmission and distribution lines from central stations will depend to a considerable extent on the use which prospective customers will make of electricity.<sup>26</sup>

This bulletin brought together information about the use of electricity on farms and in rural homes in New York, and additional data from Alabama, Wisconsin, and the Canadian provinces of Ontario and Quebec, where substantial information was available from published sources. The publication concluded with a comparison of the net cost of electricity in Ontario and New York. Here the effort was not only to bring together current information in New York to help farmers make decisions, but also to speed progress in bringing electricity to more rural areas.

### Abandoned Farmland and Public Policy in New York

In Experiment Station Bulletin 295, his initial major study of farming and farm management in Tompkins County, Warren included a short section on "Abandoned Farms." At that time (1911) he wrote, "The southern half of Tompkins County is in the region of so-called abandoned farms. There are no abandoned farms in the sense of abandonment of title. There are very few farms that are not partly worked."<sup>27</sup> By 1927–28, that statement was no longer true. Farms on dirt roads located on hills at elevations above 1,500 feet had already been deserted or were being abandoned; other people were not willing to pay the back taxes to assume the titles for these properties.

Through research projects carried out by several able students, Warren and Extension Director Carl Ladd set about documenting the size and scope of the problem. William Allen studied the problem of abandoned farms in the town of Pharsalia in Chenango County and the town of Ellery in Chautauqua County. The situation in Pharsalia, documented in Allen's Ph.D. thesis, became much more widely known because the town and county sought state assistance to address the problem, and new legislation was enacted to carry out some of the recommendations arising from the study.

Allen set out to obtain information on the use of land for every parcel of ten acres or more in the township of Pharsalia. Reports for lands not inhabited at the time of the study (summer of 1924) were obtained from neighboring residents or previous farmers still in the region. All operators of existing farms remaining in the town provided labor income records of their operations. Allen reported that the first log house in the town was built in 1797. The peak population was reached in 1845 with 1,209 residents; by 1905 it had declined to 690; and in 1923–24 there were 553 people residing there. There were three small villages at the time of the study, all located above 1,500 feet in quite narrow valleys. Farm buildings in this town were located at an average of 1,700 feet in elevation. Allen provided this description:

Following along the roads not now in general use, the common view is a succession of abandoned farmsteads, broken at intervals by an isolated inhabited farm which is still showing some attempt at operation. There were observed in Pharsalia, at the time of the survey, 103 inhabited farm dwellings. There were 28 vacant farmhouses that were habitable or could be made habitable. There were 46 dwellings in such poor condition that future use is impossible and, of those, 26 were falling [down].<sup>28</sup>



FIGURE 6. PROPOSED FOREST AREAS IN PHARSALIA AND LOCATION OF FARM DWELLINGS IN AND NEAR THOSE AREAS

 Dwellings still inhabited Dwellings now vacant X Dwellings fallen Allen proposed that two forest projects be established on either side of the main road running through the town from southwest to the northeast leading to Norwich, the county seat. These areas included 60 percent of the land in the town. He concluded:

The area for the proposed forest projects could be extended across the town lines to lands in the towns of Lincklaen, Otselic, Smyrna, Plymouth, McDonough, German, and Pitcher. Much of the land in these adjacent towns is similar to that in Pharsalia, and a policy adapted to Pharsalia conditions might well serve in the neighboring towns for the utilization of their poorest sections. Those areas which are suited for farming should continue to be used as farms. Much land similar to that in Pharsalia located in other towns and counties might better be used for forest projects than allowed to remain in its present worthless state.<sup>29</sup>

Without saying so directly, the college was encouraging the state or local government to assume ownership of these areas for public use as reforested lands. The decision to publish the results of this study in 1929 fitted well with the more active positions Warren and other college leaders were taking in proposing public policy initiatives.



FIGURE 2. WEED TREES GRADUALLY OCCUPYING THE ABANDONED LAND This there-apple growth on unused land forms an almost impenetrable thicket, usurping land that should be planted to desirable varieties of trees

From Experiment Station Bulletin 490.

A second major monograph, "Abandoned Farms in New York," by L. M. Vaughn, was completed under Myers's and Warren's direction and published in July 1929 as Experiment Station Bulletin 490. This 285-page publication described in some detail a group of locations in the state where farmlands had been abandoned and the reasons why this had occurred. While Allen's research on Pharsalia had examined the situation over time in one contiguous area, this study pointed out other areas, using the same methodology, where similar phenomena were occurring across the state. The extent of this major research effort by the department is indicated in Vaughn's introduction:

Detailed information concerning farm operations was obtained in 13 areas, comprising 154,784 acres. Records were taken on all occupied farms, and information was obtained concerning all other property within the area from the operators of these farms. One area was visited in September 1926; one in February 1927; one in April 1927; six in June and July 1927; and four in July, August and September 1928. Data concerning the use and condition of buildings and the use of land along the roadside were obtained in 27 additional areas, comprising about 392,400 acres. All of the passable roads within each area were traveled, and tallies were made of the use and condition of the buildings.<sup>30</sup>

All of the properties within each of the thirteen areas were identified on topographic maps like the one shown in Figure 4. In each area, occupancy was indicated as well as the state of repair of houses and buildings. Lands within the boundaries were identified as best suited for



The areas identified in L. M. Vaughn's study of abandoned farmland in New York State between 1926 and 1928 are shown in Figure 3 and an example of one of the areas identified is shown in Figure 4.

reforestation and possible ownership by some unit of government over time. In each case, where an area had been set off within boundaries on a map, the detail of continuing farm operations within these boundaries was presented, along with the status of housing, schools, and other buildings. Estimates of the property values were obtained from current residents.



FIGURE 4. CONNECTICUT HILL AND BULL HILL AREAS

The thirteen areas enclosed within boundaries on topographic maps cut across town and county lines. For example, the Berne Area included parts of Albany and Schoharie Counties and six different townships. Part of the town of Westerlo in Albany County, where the author of this biography was born, was included within the boundary some five to six miles from the family farm settled by his forbears in the 1780s. Today, early in the twenty-first century, much of the land within the Berne Area is now in forest.

Each of these studies was a substantial contribution to the growing effort in the emerging field of land economics at land grant universities across the country, where the wise use of America's natural resources was being considered and debated by economists, agriculturists, and the public. The considerable detail obtained by a group of graduate students in New York State provided a substantial base for discussion at both the county and state level, as public officials and property owners began the complex processes of deciding what should be done in these areas where the local tax base had been so dramatically affected over time by the agricultural depression and the movement of people off the land.

To further publicize the problems associated with abandoned farmland, Warren and Vaughn co-authored articles in *Farm Economics* to inform the public about the information the department had collected. In January 1928 they published a 12-page story, "Uses of Land in New York State," which provided a history of the amount of land in farms across the state by census years, which peaked in 1880. They showed the loss of more than four million acres from farming and summarized the results of the Pharsalia study. The last parts of the article posed questions like, "What Would Become of the Present Settlers if The Land Were Taken for Forests?" and "How May the Land Be Brought into Use?" Copies of that issue and the article quickly ran out of print.

A second article, "Abandoned Farm Land in New York State," was included in the December 1928 issue of *Farm Economics*. At twenty-two pages, this article was longer and reviewed the reasons why land was being abandoned at higher elevations. It further documented how the process occurred in an area known as Connecticut Hill (see Figure 4), within a few miles of the Cornell campus in Tompkins County where trees and brush were taking over the land once cleared for crops. The article made the point: "New York Agriculture was not decadent."<sup>31</sup> Land that should not have been cleared originally for farming was simply returning slowly to its best use, which was forestry. Summary tables from Vaughn's thesis were presented for the areas he had identified where abandoned land was the general rule. The last sections of the article considered the value of forest products in the future if the land were returned to productive forest. In the same issue, Warren and Pearson provided a 16-page article titled "Roads in New York." This piece summarized much of the material presented by Tennant in Bulletin 479, giving priority to the importance of improved roads for agriculture and people living in rural communities. The article concluded with this paragraph:

The data in this article are presented so that basic data will be available for discussion at meetings of farmers, chambers of commerce, automobile clubs, etc. The following subjects are suggested as particularly important for discussion:

- 1. Should a gasoline tax be levied? If so, what should be done with the money? How much should go to the counties for lateral roads?
- 2. What change should be made in the share which the counties must pay for completing the state highway system?
- 3. Should the State pay a part of the costs of the right-of-ways and snow removal? If so, on what basis?
- 4. What change should be made in the distribution of money to townships under Section 101?<sup>32</sup>

## Increasing Interaction with State Government

In 1928, Governor Al Smith became the Democratic candidate for president and New York citizens elected Franklin D. Roosevelt as their new governor. One of Roosevelt's first actions was to create an Agricultural Advisory Commission to consider the unresolved needs of the rural population and report on legislative actions that might be taken to improve conditions. He appointed his Dutchess County neighbor, Henry S. Morgenthau, Jr., as chairman. Commission members included legislators from both political parties, agricultural leaders, and representatives from county governments. One of the members was George F. Warren from the College of Agriculture at Cornell.

The new commission met often and regularly. The chairman had the ear of the new governor and it was clear that he wanted to work with the State Senate and Assembly to enact new legislation. The commission's report was presented to the governor in April 1930; it included considerable documentation to support their recommendations, which were summarized as follows:

1. Counties be relieved of the 35 percent contribution to the State for construction of new highways.

- 2. The State assume costs of removing snow from state highways.
- 3. The State assume costs of eliminating grade crossings.
- 4. Readjustments be made for distribution of moneys from the State for dirt roads.
- 5. A gasoline tax be passed.
- 6. A study be made of costs of local governments.
- 7. The State should assume the minimum salary for rural school teachers.
- 8. A State-wide program of sanitary control and inspection of milk and cream production be established.
- 9. Establish State appropriations for county farm and home bureaus and junior extension work.
- 10. Undertake a survey of the State's Agricultural Resources.<sup>33</sup>

The commission noted that local governments in rural counties had limited capacities to meet needs within their jurisdictions since real estate taxes were high relative to the ability of owners to pay them. Concerns about schools, roads, education, and sanitation were central to this report, which cited the work of the college and the department's recent factual studies. The commission called for a tax on gasoline as a natural source of revenue to help meet some of these needs. Warren took an active role in the work of the commission and its summary statement, and his effort established the beginning of a strong professional relationship between Governor Roosevelt and representatives of the college.

By the end of the decade Warren had begun to put together ideas for what he would say if and when he was asked to make a statement on actions the state might take with respect to possible changes in its land policy. He had such an occasion to make a short statement in December 1930 before an audience of farm leaders and legislators in Rochester, New York. The following are brief excerpts from that speech:

New York has over 30 million acres of land (30,498,560). At the time of settlement, the land policy of the State was to divide all land into small farms. This resulted in clearing much good forest land that was not adapted to farming....At one time over three-fourths of the area in the State was in farms. In the last fifty years, over four million acres of land have gone out of farm use, but total crop production has increased and milk production has increased 20 percent. The policy of the State should be high development of the land that is suitable for agriculture, and the reforestation of the land unsuitable for agriculture.<sup>34</sup>

It is essential that efforts be expended to reduce the costs of distributing farm products. Good roads can be used to bring producers and consumers nearer together. A farm-to-market road has two ends. It is equally important to each that it should be built....As one step in the program of reducing costs of distribution, one regional market should be established as soon as possible. City markets were originally of local interest, but today, the State needs several large regional markets adapted to the use of trucks and automobiles.<sup>35</sup>

Warren also argued briefly for state funding to test cattle for tuberculosis, as well as for a number of the items listed in the commission's report to the governor. As was his habit, he finished with a plea for additional funding for research and education at the New York State College of Agriculture.

# Leonard Elmhirst and the International Conference of Agricultural Economists

An impressive number of students from overseas came to study agriculture at Cornell, bringing with them a variety of backgrounds and interests. One of the most interesting and notable was Leonard K. Elmhirst, who came to Cornell in the fall of 1919 with an M.A. in history from Cambridge University. On completing his degree at Cambridge in 1915 he was sent to India to work in the YMCA because he was physically not well enough for military service. After working as secretary to the head of the YMCA in India for more than a year, he was sent to Mesopotamia (Iraq) and served with the British forces there until his health failed in the heat. He was invalided back to India for recovery. While regaining his health he took an interest in village agriculture and assisted Sam Higginbottom, a Princeton and Ohio State graduate, who was serving as an agricultural missionary in the province of Uttar Pradesh. He liked what Higginbottom was trying to do and decided to seek further training after the war and return to India as an agricultural missionary himself. While in India he sought information

about where he should go to study. In a book he wrote late in his life, Elmhirst described his decision to come to Cornell to study:

"If you survive the War, Leonard," said Sam, "get over to America. Go to one of the better state colleges of agriculture, and learn farming as a business and a science. In England they'll train you to be either a scientist or a walking-stick hobby farmer." Sam had two other American-trained men on his staff. So, to each of them, in turn, I put my problem: "If I manage to get over to America after the War, to which state college of agriculture would you recommend me to apply?" Each separately recommended his own Alma Mater. "And which would you make your second choice?" "Oh, Cornell," was the answer in each case. Sam's answer was the same. He also asked me to put the institute library in some kind of shape. I found the floor loaded down with state college pamphlets for American farmers, many of them from Cornell. I picked these latter out and found them full of practical wisdom, and, as we used to say in the days before tractors appeared on the scene, of horse sense <sup>36</sup>

When Elmhirst recovered his health, he returned to England, joined the army, and was demobilized from military service after serving

briefly in Ireland in 1919. He then set off by ship for New York City, intending to enter Cornell without having applied. He arrived in Ithaca some two weeks after classes had started. After some hesitation about his preparation, he was finally admitted to the College of Agriculture and told that he might obtain a degree in agricultural science by completing two additional years of study, including the requirements in farm practice.

Elmhirst wrote entertainingly about his two years getting his B.S. degree at Cornell in a book titled *The Straight and its Origin,* which was published by the Cornell Alumni Association in 1975. He



Leonard Knight Elmhirst

found a place to live in Collegetown at the Cosmopolitan Club, which was a cooperative house largely filled with foreign nationals. He made his way at Cornell by working first as a kitchen helper, then as a teacher of English, and finally as a laboratory instructor. Elmhirst was soon elected president of the Cosmopolitan Club and discovered that it was \$80,000 in debt and near to declaring bankruptcy. The board of overseers proposed to pay his way to New York City and help him with introductions to individuals who might be interested in helping them refit the club and reduce its debt. In this manner he met Mrs. Willard Straight, the widow of a Cornellian who had died from influenza in France at the end of World War I. Major Straight had left some resources in his will for the purpose of making Cornell "a more human place." Elmhirst made the case to this attractive young widow in her thirties that the Cosmopolitan Club might be a good place for that to start to happen. Mrs. Straight (Dorothy Payne Whitney, who was heiress to a railroad fortune before marriage) agreed to come to Ithaca by train in October 1920 and was given royal treatment on her visit by both faculty and students. She decided to help the Cosmopolitan Club out of her own resources, but more importantly for the university, was persuaded to establish a new student union on the central campus in memory of her husband.

After graduating from Cornell in 1921, Elmhirst went back to India and worked with Dr. Rabindranath Tagore, the Indian teacher, worldfamous poet, and Nobel laureate (1913) whom he had met during his years of convalescence. He helped Tagore found the Institute of Rural Reconstruction at Sriniketan in West Bengal, which was later incorporated into the All India University of Visva-Bharati. In 1923 Elmhirst traveled with Tagore as his private secretary to the Philippines, China, Japan, Argentina, Peru, and Italy. On his return to the United States in 1923, Elmhirst helped Mrs. Straight with the final plans for the construction of Willard Straight Hall, the new student union. They married in 1925, moved to England, and bought Dartington Hall, an old estate in Devon, where they established a private school and committed themselves to rural reconstruction and education in the southwestern part of England.<sup>37</sup>

Elmhirst had been greatly impressed by the effectiveness of agricultural extension programs in the United States and the ways in which his teachers brought the results of their farm management and agricultural economics research into the classroom and to the rural people of New York. In India he helped bring these ideas and methodology to some of the villages of West Bengal.<sup>38</sup> After settling in England, he set about doing some of this same kind of extension work from Dartington Hall and encouraged it with his contacts in the Agricultural Advisory Service throughout the United Kingdom. In 1926, Cornell Professor W. I. Myers visited Dartington Hall while on his sabbatical leave studying cooperative agricultural finance systems in Europe. He suggested that Elmhirst hire Jock Currie, a Scot who earned his M.S. degree from Cornell in 1927, to manage the estate and assist in developing a local extension program with English farmers.

In 1928 the Elmhirsts assisted Extension Director Carl E. Ladd in coming to the U.K. for his sabbatical leave to learn more about agricultural economics in Britain and its Advisory Service. While visiting Dartington Hall, Ladd proposed that the Elmhirsts host a small conference so that agricultural economists from Europe and North America could discuss the state of work in this relatively new academic field and consider how greater interchange could be encouraged among professionals from around the world. This idea was strongly supported by H. C. Taylor and G. F. Warren in the U.S., by key people Ladd visited in the U.K., and a number of leaders in agricultural economics in Europe. The conference was held at Dartington Hall between August 26 and September 6, 1929; fifty agricultural economists from twelve countries attended for ten days of papers, meetings, farm visits, and discussions.

The economists were so enthusiastic about the conference and its value to them that they planned a second broader conference to be held at Cornell the following year at Willard Straight Hall. The new student union, dedicated in 1925 by Mrs. Elmhirst, was already a center for





student life at the university and had proven a fitting way to carry out Major Straight's vision. Strikingly, the Memorial Room, with its high ceiling and banners hung along the north and south walls, was much like the great hall at the Elmhirsts' Devon estate.<sup>39</sup>

The first conference at Dartington Hall concluded with the appointment of an editorial committee, consisting of J. S. King from the University of Edinburgh and Leland Spencer from Cornell, to prepare a summary of the proceedings. That was completed in mimeographed form and finally published after the International Conference of Agricultural Economists was formally organized in August 1930 at Cornell. F. F. Hill at Cornell served as editor of the *Proceedings* issues for both of the first two conferences, which were published by the Collegiate Press of Menasha, Wisconsin.<sup>40</sup>

### The 1930 International Conference at Cornell

The second International Conference of Agricultural Economists was planned by a committee of six: L. K. Elmhirst and J. R. Currie from Dartington Hall; A. Bridges and J. P. Maxton of the Agricultural Economics Research Institute, University of Oxford; and G. F. Warren and C. E. Ladd of the College of Agriculture at Cornell. More than 300 participants came to Cornell for the meeting August 18–30, 1930, with representation from Asia, Africa, Australia, New Zealand, Latin America, and Europe, as well as North America. H. C. M. Case, president of the American Farm Economics Association (AFEA), organized a tour of American agriculture for foreign visitors, which was largely underwritten by the Elmhirsts. Before the conference ended, a constitution and bylaws were adopted by those present and the International Conference of Agricultural Economists (ICAE) was formally established. The first officers elected were:

President: L. K. Elmhirst, Dartington Hall, U.K. Vice President: G. F. Warren, Cornell University Vice President: Max Sering, University of Berlin, Germany Secretary-Treasurer: J. R. Currie, Dartington Hall, U.K.

The 1930 ICAE *Proceedings* was a massive volume of 1,080 pages. Many of the papers that were presented covered a great deal of the history of agricultural economics in the participating countries. Warren had the privilege of calling the meeting to order and commenting about its origins at the Dartington Hall conference the previous year. Dean Mann provided an official welcome from the college and university. AFEA President Case (University of Illinois) provided a brief history



of the origins of the American professional association and saluted this meeting, "...which probably exceeds in numbers that of the American Farm Economics Association less than twelve years ago."<sup>41</sup>

One of the major topics for discussion at this international conference was "Causes of the International Depression of Agriculture." More than 180 pages of the *Proceedings* were devoted to presentations and discussion of this pressing world problem. Speakers from Germany, the U.K., Poland, Canada, Denmark, and the U.S. offered diverse perspectives about both the causes of the depression and what to do about it. One of the more controversial presentations on this topic was given by George F. Warren, "Causes and Probable Duration of the Agricultural Depression."<sup>42</sup> After reviewing in some detail a number of articles that had been written discussing the agricultural depression and its causes, Warren began his central argument under the heading, "Is There a Surplus of Food or Shortage of Gold?" Among his contentious statements was:

American economists commonly use prices, acreages, and production which include cotton, and then begin at once to talk of the percentages thus derived in terms of possible stomach expansion as if these figures represented nothing but food. Cotton should be excluded when food is being discussed. Cotton prices do not follow food prices, but go with industrial conditions.<sup>43</sup>

He also reiterated a principal argument from his major study on the interrelationships of supply and price (Bulletin 466):

I want also to challenge the statement that the demand for food is as inelastic as is commonly supposed. Distributing charges are exceedingly inelastic so that retail prices are inelastic and the consumer does not get a chance to show what he would do if his prices fluctuated as farm prices do.<sup>44</sup>

After appearing to stir up his listeners to respond, he pushed forward with his key thesis:

What are the facts on the exchange values between food products and many kinds of commodities, not merely one sacred commodity, gold? For four years, 1921 to 1924, wholesale prices of the 550 commodities reported by the Bureau of Labor Statistics averaged 144 when pre-war is considered = 100 (table 1). Prices paid to farmers averaged only 125. The prices farmers received were low compared with other wholesale prices. In this period, there was an over-production of food products relative to demand. This was a very important factor in the agricultural depression, but I do not believe that it was the major factor.<sup>45</sup>

Warren then presented seven figures and three more tables to document the differences between farm and retail prices, the importance of the costs of distribution in this spread, and its impact on the purchasing power of farmers in relation to wage earners. He concluded this section of his presentation by stating, *"This maladjustment within the price structure is the major trouble from a declining price level. It leaves prices to farmers and other producers low relative to wages, to retail prices, and to the cost of living. Debts and even taxes are minor in importance."* (Italics were Warren's.)<sup>46</sup>

After considering the agricultural situation and depression at other times in history and in other locations, he provided a three-page concluding statement on "Relation of Diagnosis to Remedies." First he reviewed some of the solutions proposed by others, including reducing production on farms, improved marketing systems, and various government actions. His critical final paragraph stated:

When the public finds that tariffs, export bounties, credit, and so forth, will not cure the depression, probably it will turn to money, as it did in 1896. There is then the danger that the movement will be to a currency less stable than gold. If this diagnosis is correct, it is time now to educate the public on money. When the question becomes political, it will be too late for real study.<sup>47</sup>

The discussion following Warren's paper must have been lively; it was considered so important that nine pages of comments and replies



Figure 7. Farm Prices of Food Products in the United States, Retail Prices of the Same Foods, and the Cost of Distribution 1910-14 = 100

were included in the published *Proceedings* volume.<sup>48</sup> Sering and von Dietze (Germany) spoke with feeling about what had happened during the postwar period in their country. Both strongly believed that Warren placed too much stress on gold and monetary policy as crucial matters. Jensen (Denmark) commented on his nation's more positive experience and included a published table on the returns to capital invested in agriculture from 1916–17 to 1928–29. Jutila (Finland) noted the striking difference in the welfare of Scandinavian dairy farmers compared with those who relied on grains and forest products for their living. A number of Americans also took issue with what they viewed as Warren's overemphasis on world stocks of gold and its price as a major consideration in dealing with the agricultural depression. Warren responded to a set of comments from Ashby (U.K.) by saying:

I think the world has nothing to fear from increased efficiency. That is the way to a higher standard of living. It does require that many persons change their occupations. There is often pain in making the change, but those who change usually profit by it, particularly if they make the change promptly.<sup>49</sup>

The *Proceedings* from the ICAE meeting at Cornell provide an interesting overview of agricultural economics in the western world at the end of the1920s. The conference touched on most of the major issues of the time: farm management research as practiced throughout North America and Europe; some glimpses of economic thought and decision making on the collective farms of the U.S.S.R.; economic research on cooperative marketing successes and failures; agricultural financial institutions and their problems; crop and livestock reporting systems; agricultural systems in such diverse places as the Philippines and Japan; and land values and taxation in a variety of countries.

At the close of the meeting the participants agreed that a third conference should be held at the call of the ICAE Council. Each country represented by five or more members in attendance could elect one person to the council. Informally, the German agricultural economists suggested that the next conference be held in their country and action was subsequently taken to hold the third conference in Bad Eilsen, Germany, in August 1933. The decision to elect Elmhirst and Currie as president and secretary-treasurer was appropriate, given the state of the agricultural economies of the world. It also recognized that the true impetus for financing attendance at the Cornell meeting had come from Mr. and Mrs. Elmhirst and their connections to sources of support, along with the funds raised by Warren and Ladd at Cornell as hosts. Elmhirst's personal relationships with many of the principal leaders of the discipline, especially those in Europe and North America, was crucial in getting these people to write papers and attend. It was Elmhirst who went to Moscow and encouraged Russian economists to participate. He was an important part of the "glue" that held the organization together and kept it alive later in the years after World War II.

One of the bonuses of holding the international conference in Ithaca was that Warren and Pearson were able to prevail on many of the foreign visitors to write short articles for Farm Economics about work in agricultural economics in their countries. The 88-page August 1930 issue was devoted to these articles except for the cover, which was committed to the usual ten sets of index numbers, and a 7-page review of business conditions in the U.S. The first article on Argentine agriculture was followed by similar statements about agricultural policy and problems in South Africa, Great Britain, China, Canada, and the United Kingdom. An article from Switzerland focused on social income; another from South Africa examined the world wool situation. A Filipino considered the benefits and drawbacks of diversified versus specialized farming in his country. Keith Murray (U.K.), who had recently earned a Ph.D. from Cornell, compared the cost of living and farm prices in the U.S. and U.K. Kondratieff (U.S.S.R.), who would later became famous at Harvard for his work on business cycles, wrote about cycles in the purchasing power of wholesale commodities. Five articles were prepared on agricultural cooperatives by economists from Canada, Germany, New Zealand, Czechoslovakia, and India. The final articles were on credit institutions in Germany and China and a report by J. Lossing Buck on his farm management surveys in China. In this way readers were able to get a small glimpse of what was happening in the field of agricultural economics around the world.

### Stanley W. Warren and Farm Management Research

The college's landmark 1907–08 and 1908–09 farm management surveys in Tompkins and Livingston Counties were repeated for the years 1917–18 and 1918–19, and a third set of surveys were made at the same locations in the summers of 1928 and 1929. While the results from these surveys and the comparisons made between them were widely reported at farm meetings in the years immediately following World War I, the department believed that the information gained from the changes documented over this twenty-year period was particularly valuable.

Stanley Whitson Warren, eldest son of the department head, was the graduate student who took on the assignment of analyzing the three sets of data obtained in northern Livingston County. He had completed his undergraduate degree in agriculture at Cornell in 1927 and began graduate study that fall. He was actively involved in completing the labor income survey in the summer of 1929 and received his Ph.D. in 1931. His thesis, titled "An Economic Study of Agriculture in Northern Livingston County, New York," was published as Experiment Station Bulletin 539 in May 1932.

This study examined the labor income records collected from farmers in the five northern townships of Livingston County on either side of the Genesee River—some of the most productive soils in the state. Wonderful cooperation was obtained from those surveyed. For 1908–09 the survey team collected 671 records, of which 578 met the same standards as those included in the study in 1928–29. Homes of wealthy families, those operated by cattle dealers, or as hunt clubs or county homes were excluded from the summary analyses. Essentially Stanley Warren included in his study all the records for the three survey years where the primary business of the operator was farming.

Twenty years after the 1908–09 survey, about the same number of Livingston County farms participated in the new study. Many had changed ownership or sons were now operating the family farms, but this region was much more stable than Tompkins County, where hill farms were being abandoned or lost to receivership because of nonpayment of taxes. A great part of the bulletin centered on a summary of results obtained on Livingston County farms in 1928. The results from 1908 and 1918 were used to provide perspective on changes observed, and to emphasize basic farm management concepts that were reinforced by these data. Variability among farms was emphasized. For example, average capital per farm was \$12,096 in 1908, \$18,870 in 1918, and \$18,195 in 1928. The frequency distributions of capital per farm in each period were also shown.

Comparisons were made between hired men's wages and labor incomes received by farmers, a major issue commonly discussed by G. F. Warren. In this section of the bulletin S. W. Warren reported,

In 1908 hired men's wages in this region were about \$300 per year in addition to use of a house and farm privileges. The average labor income was nearly twice this amount. In 1918 the hired men's cash wages were about \$500 per year and the average labor income was \$203. In 1928 hired men's cash wages were about \$600 and the average labor income was \$386. These comparisons indicate that 1908 was the most prosperous year, and 1918 the least prosperous.<sup>50</sup>

It is important to recognize that interest on capital was charged at 5 percent. Thus, if they had not borrowed most of their farm capital, these farmers had this interest as income for family purposes or to pay interest on debt. The average interest on capital per farm was \$605 in 1908, \$944 in 1918, and \$910 in 1928. In fact, given their capital position and usually more desirable housing, most farmers were better off in 1928 than their hired men.

One of the most striking changes between 1908 and 1928 was the increasing use of alfalfa on these farms and the rise in labor income for those farms where an important acreage of alfalfa was included in the cropping program. Increases in both yield per acre and returns per acre were associated with the introduction of this crop. Such issues as the replacement of power provided by horses also were examined. By 1918, 484 of the 514 farms had an automobile. In 1928, half of the farms had one tractor and more than one-third had a truck. Nevertheless, horses were still an important source of power on most farms. The total number of horses on these farms was 3,218 in 1908, 3,859 in 1918, and 2,440 in 1928.

Because of the importance of cash crops on these Livingston County farms, Stanley Warren created a crop index to compare performance in terms of crop yields with labor income. He then summarized the results graphically for the three different decades (see reproduction of Figure 8). By 1928, in a relatively unfavorable economic environment, management decisions on such issues as the selection of the crops included in the rotation and the yields obtained were increasingly important in determining success and improved net incomes.

One of the more interesting sections of Stanley Warren's research was his study of the most profitable farms in each of the three years studied. He chose to look at the farmers who had achieved labor incomes of \$2,000 or more. In 1908 there were thirty-one who met this standard; in 1918 there were forty-three; and there were fifty-two in 1928. He provided three tables in which ten summary factors for each of the farms was listed. His illustration of a four-legged stool summarizing his conclusions was widely reproduced for use in extension meetings and teaching vocational agriculture.

Like his father's famous publication about the Tompkins County survey (Bulletin 295), Stanley concluded his study with summary data on related issues, such as the effect of distance of the farm from a "hard" road and impacts of tenure on income, which was of special importance in this area. More than one-third of the farmers working on some of the most productive soils were tenants. Given the variability within each group, the differences in average labor incomes between



FIGURE 8. RELATION OF CROP INDEX TO LABOR INCOME

In 1928 the average labor income of the farmers who had low crop yields was lower than in either of the other two years, and the average labor income of those who had high crop yields was higher than in either of the other two years. The importance of good crop yields increased

owners (\$827), part-owners (\$778), and tenants (\$770) were too small to be considered significant. Other factors were more important in determining success.

Substantial space (9 pages) was devoted to an analysis of the influence of the education of the operator on labor income. Stanley Warren concluded this analysis:

The difference between the labor incomes of the agriculturalcollege men, and the high-school men was due partly to native



Figure 16. The necessary supports of a high labor income
ability and partly to training. If only one-seventh of the difference was due to education, the agricultural-college training was a good investment. Since the farmers who had been to an agricultural school or college excelled the average in things which the agricultural colleges were teaching (high crop yields and cow production and the introduction of new crops such as alfalfa), it seems very probable that much more than one-seventh of their added income was due to the training.<sup>51</sup>

After this analysis of operator education, there was a section on automobiles, trucks, and tractors, and their costs of operation. No conclusions were drawn except to note that tractors had high operating costs unless they were used regularly on larger businesses. Because an important number of farms were growing truck crops on muck soils, there was a special section considering these businesses and the great variability in their relative success in each of the three periods studied. Some of the highest and lowest labor incomes were recorded for these farms. The importance of farm products used in the household was highlighted for all of the farms. The size of operators' families was documented and the importance of off-the-farm work was noted. All in all, the 1928-29 Livingston County study established a comprehensive overview of agricultural change over two decades in one of the most productive agricultural areas of New York State. Unlike the hill and plateau areas where land was being abandoned, the net worth of these farmers was larger in 1928 than in 1918. Most Livingston County farmers were making a living and feeding their families well. Although the tractor was gradually replacing the horse as the primary source of power, horses were still important on most farms. Alfalfa and the nitrogen it supplied for the crops that followed was an important innovation.

#### Other Farm Management Studies

Short articles in *Farm Economics* continued to be one of the important ways in which the department reported about ongoing farm management research to a larger general audience. For example, Ph.D. student T. E. LaMont contributed a report in the March 1930 issue titled "Labor Income Analysis of 109 Hilton Farms, Monroe County and 28 Morton Farms, Monroe and Orleans Counties, 1928." The analysis showed that on average these farms obtained a positive return to the operator's capital and labor. But when interest on capital at 5 percent was deducted,

the 102 Hilton farms had a small negative labor income, while the more specialized fruit farms on well-adapted soils had a small positive labor income. Details about the fruit and other crops grown and key management practices that made a difference in results were discussed. In this difficult time for agriculture, farms with a small productive dairy in addition to fruit crops had the largest labor incomes, partly attributed to full employment for family labor in the winter months.

Similar articles reporting results from studies for poultry operations and for crop-vegetable farms were commonly included. One such article in October 1929 was "Cost of Producing Potatoes in 1928," by M. C. Bond and K. A. Howlett, which emphasized the influence of expenditures on fertilizer and the resulting reduction in the cost per bushel because of increases in yield.

#### The Warren Farm and Family Activities

The Warren family's basic farming unit remained quite stable in the late 1920s. A small block of ten acres along Hanshaw Road was added in 1930 when it became available because it was bounded on three sides by fields Warren purchased in 1914 and 1915. The years between 1927 and 1930 were difficult on most farms and this was true for the Warrens as well. With falling farm and real estate prices, the annual ledgers showed a decrease of \$8,000 in total assets between 1927 and 1930 and an equivalent decrease in the family's net worth. Essentially the combination of a steady salary at the university, some income from book sales, and fees for speeches or presentations to out-of-state groups covered the deficits the farm produced.

In 1930 the six Warren children were a busy, productive group. Stanley graduated from the College of Agriculture in 1927 and immediately started an M.S./Ph.D. program in his father's department. He was treated like all the other students and had a strong academic record. He served as an assistant to W. I. Myers in farm management and quickly demonstrated his excellence in working with undergraduates. Later this skill would be a hallmark of his career when he succeeded Myers in teaching that basic course.

Jean was twenty-one and after completing her B.S. in the College of Home Economics in 1929, was now a home demonstration agent in a western New York county. At nineteen, Richard chose to work for a year before entering the College of Agriculture in the fall of 1930. Fred was seventeen and a senior at Ithaca High School. At various times both of these young men had important roles in the labor force on the farm,



This formal family picture was probably taken in either 1927 or 1928 in the living room of the Warren home in front of the fireplace. From left to right are Fred (George Frederick), Father George, Jean, Mary, Richard, Martha, Mother Mary, and Stanley.

especially during the busy seasons or when short-term emergencies arose. Neither had an inclination to take over the farm, nor does it appear that their father encouraged it. Martha and Mary were young teenagers in high school, involved in community activities and a big help in the substantial Warren household.

#### The Department and Its Role in the College

The dean's annual report in 1930 commented about important changes in each of the college's fifteen academic departments:

The resignations of Professor H. A. Ross and Professor M. L. Holmes have necessitated several readjustments in the Department of Agricultural Economics and Farm Management.

Dr. Whiton Powell and Dr. M. P. Catherwood have been appointed as professor and assistant professor, respectively, in business management; M. P. Rasmussen has been advanced to the rank of professor of marketing, and Dr. F. F. Hill has been advanced to the rank of professor of rural economy. During the past year there have been registered in the department as candidates for advanced degrees, 30 majors and 20 minors for the doctor's degree and 10 majors and 39 minors for the master's degree. In addition there were 2 resident doctors, not candidates for a degree. These 101 graduate students represent 28 States and 10 foreign countries.<sup>52</sup>

In the section titled "Report of the Agricultural Experiment Station for the Year 1929–30," there was a brief synopsis of the current research projects in each of the departments. This list with the name of the faculty member or instructor in charge gives a good summary of the busy life of the staff and their interests:

- 1. Research in farm cost accounting. (J. F. Harriott)
- 2. Economic studies of poultry farming in New York. (E. G. Misner)
- 3. Farm Management Surveys of northern Livingston County. (S. W. Warren)
- A statistical study of the problem of making loans on farm mortgage security in the first Federal Land Bank district. (F. F. Hill)
- 5. The cost of production of apples. (T. E. LaMont)
- A study of the effect of soil, size of business, yields and other factors on the profits of fruit farms. (G. P. Scoville & T. E. LaMont)
- 7. An economic study of the production and marketing of field beans. (H. N. Young)
- 8. A statistical analysis of milk production for the New York market. (M. P. Catherwood)
- 9. A survey of some public produce markets in up-state New York. (F. P. Weaver)
- An economic study of the marketing of eastern grapes. (M. P. Rasmussen)
- 11. The potato situation: an economic study of the production and marketing of New York potatoes. (M. P. Rasmussen & J. F. Harriott)
- 12. A statistical study of apple shipments from western New York. (L. Spencer)
- 13. Relative volume of different grades and sizes of apples. (L. Spencer)

- 14. Cost of exporting apples. (L. Spencer)
- Index numbers of wholesale prices, 1795 to 1930. (G. F. Warren & F. A. Pearson)
- A study of wholesale prices of eggs in New York City. (G. F. Warren & F. A. Pearson)
- 17. The effect of daily changes in the prices of hogs, on the subsequent movement of hogs to market. (H. J. Stover)
- Adjusting Vermont milk production to market demands. (A. R. Gans)
- 19. The effect of the quality of eggs on retail prices. (F. A. Pearson)
- 20. The effect of quality of grapes on prices. (F. A. Pearson)
- 21. An economic study of 941 automobiles on New York farms. (J. N. Bannerman)
- 22. Cash and future prices of grain at Chicago. (F. A. Pearson)
- 23. Relation of cash and future prices of grain to profits and losses from hedging. (F. A. Pearson)
- 24. Effect of variations in the analysis of fertilizers on wholesale and retail prices. (E. E. Vial)
- 25. Interrelationships of supply, consumption and prices of wool. (H. Stoker)
- A study of cooperative agricultural business in New York. (F. A. Harpur)
- 27. An economic study of the production and marketing of New York lettuce. (W. G. Meal)
- 28. A study of rural government in New York. (F. F. Hill)
- 29. Public expenditure, a neglected consideration in taxincidence. (M. S. Kendrick)
- The collection of taxes by the State of New York and the division of these revenues with units of local government. (M. S. Kendrick)
- 31. The tax on capital net gains. (M. S. Kendrick)
- 32. A comparison of urban and local taxation on real-estate values. (M. S. Kendrick)
- 33. A study of the uses of and cost of electricity on New York farms. (R. F. Bucknam)
- 34. Increases of electricity on New York farms. (R. N. Bucknam)
- 35. The cost of milk cooling. (R. N. Bucknam)

- 36. A study of rural electrification areas. (R. N. Bucknam)
- A study of regional planning and land utilization. (R. N. Bucknam)<sup>53</sup>

This relatively long list of formal research projects includes a number that were specifically sponsored by some group or agency outside the university. Hill's project with the Federal Land Banks was funded by the regional bank in Springfield, Massachusetts. Weaver's study of public produce markets was sponsored by the N.Y.S. Department of Agriculture and Markets. Rasmussen's project on eastern grapes was a special project funded by the USDA. Vial's work on fertilizer was funded by a firm of potash exporters in Holland. Commonly the USDA or the New York State Department of Agriculture and Markets had an interest in having a specific project done to meet a demand from legislators or influential groups.

The breadth of the department's research programs in marketing and the public problems associated with agriculture and local government is evident. In many respects the administrative work in assigning projects and making sure that necessary progress reports were filed on time fell to W. I. Myers, who was in charge of reporting for the department to the college administration. Nonetheless Warren was very much the department head and set the agenda for its activities. His diary and notes retained in his papers reflect his interest in who was teaching which courses and what took priority when funds were scarce. New appointments remained his prerogative, with the counsel of senior staff like Ladd, along with Myers and Pearson.

With his considerable stature well beyond the borders of New York State, Warren was a key figure in the college and its relations with the state government. While it is not clear from documents that Warren saved, it seems likely that both Dean Mann and Experiment Station Director Ladd strongly supported Warren's increased willingness to make specific proposals for action by the governor and the legislature. The base of economic data built by faculty in the department provided a substantial core of information to back up proposals for changes in funding for roads, reapportionment of taxes to rural areas, and consideration of policy for the use of abandoned farmland. With urban New York now facing the major effects of the stock market crash of 1929, the need for strong leadership was great. Warren was prepared, ready, and willing to make his voice heard in both Albany and Washington.

#### Footnotes

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### Warren as Advisor in Albany

1930–1932

The great stock market crash in 1929 plunged the state and nation into a time of economic despair. Much of the Western world was facing extremely difficult times; no longer was agriculture the only sector in an economic depression. Wholesale prices fell back to the levels of the years before World War I. Economic activity slowed and the boom years many industries experienced in the 1920s slowed to a halt. Not surprisingly, people were discouraged and jobs became scarce in most parts of the country. Most farm families had enough to eat in 1930, but finding markets that could pay cash for their products became more and more difficult.

It was in this setting that Franklin D. Roosevelt began his second two-year term as governor of the State of New York in 1930. He had been reelected by an overwhelming majority at a time of great stress for the state's economy, but his sure handling of state agencies and his willingness to work with the legislature were well received by the public. He had received wide support in both urban and rural areas.

Warren reached a national audience with an article published in the July 1930 issue of the *Journal of Farm Economics* about the growing impact of work by Cornell's agricultural economics faculty on the state legislature and governor. He first presented this statement as an invited address at a luncheon of the AFEA at its annual meeting in December 1929. The title of the article was "A State Program of Agricultural Development." He opened by commenting:

...in this State very unusual progress in a policy of state development has been made recently.

I believe that agriculture and general welfare would be much better served if most of the effort were expended in getting fundamental legislation, that is, legislation that would be needed if there were no depression rather than in efforts to get emergency legislation. Legislation is too slow to meet emergencies. But when emergencies arise, it is a good time to get legislation on the books.

New York State has had a very fortunate set of circumstances. During recent years it has had the benefit of studies by a number of commissions such as the Commission on Taxation and Retrenchment, the Industrial Survey Commission, the Committee of Twenty-one on Rural Schools, the Reforestation Commission, which still continues, and a number of others.

The research work of the College of Agriculture has also been of value in finding basic facts. The farm organizations such as the Grange, Horticultural Society, Farm Bureau, and Home Bureau have worked with the large business cooperatives, the GLF, and the Dairymen's League, so that farm problems are thoroughly discussed, and when a conclusion is reached, it represents agriculture. Formerly, there were not sufficient facilities for discussion, or for expression. Anyone who was born on a farm was assumed to speak for agriculture. This is no longer the case.

It is fortunate that at this particular time, the State has a Governor who is interested in, and has a knowledge of, both urban and farm affairs, at the same time it has a legislature that is interested in State development.

Before he took office, the Governor appointed an advisory commission on agriculture. The chairman of this is a publisher of a farm paper. Its membership includes representatives of farm organizations, Master Farmers, members of the legislature, heads of some State departments, and representatives of the Colleges of Agriculture and Home Economics. Practically all of its many recommendations have been endorsed by the Governor and enacted into law.

Some of the more important problems about which legislation is needed at this time are: schools, roads, electric power, health, and land utilization.<sup>1</sup>

Warren then reviewed recent changes in legislation with respect to each of these areas. One of the more important success stories was with respect to roads.

The State highways are the main roads. They constitute nearly one-sixth of all of the miles of road in the State. Before last year, the counties had to pay 35 percent of the cost of bridges and of the construction and reconstruction of State highways. Legislation passed last winter provided that the entire cost of construction and reconstruction be borne by the State. Before last year, townships were required to pay the State \$50 per mile for the maintenance of State highways. The State has now assumed this obligation. Formerly the towns and counties did all the work of snow removal on State highways. The State now pays half of this cost....A two-cent gasoline tax was passed. Five percent of the money is given to New York City. Twenty percent is given to the counties on the basis of miles of highway outside the State system. The State keeps the balance.<sup>2</sup>

In a similar manner Warren noted the efforts to provide state funds to school districts in relation to their respective tax bases. He reviewed recent legislation to equalize aid to poor districts and establish minimum pay rates for qualified teachers. He described the accomplishments of the Commission on Reforestation and the legislation they proposed by which counties and the state would start acquiring abandoned lands for reforestation projects. He spoke about the methods used to finance these programs and the shift from using taxes on real estate to finance state programs to using taxes on personal income, inheritances, and gasoline. He concluded his remarks by stating:

No such progress can be made without the cooperation of many agencies. The Governor is, of course, the pivotal point in it. If one were talking at a meeting of governors, he would naturally emphasize the State policies involved and the machinery for accomplishing the results. If he were talking to legislators, he would naturally emphasize the methods of legislative procedure to study the facts, arrive at decisions, and pass the necessary laws....Since I am talking to agricultural economists, I naturally overemphasize their part in the work. I should perhaps express my opinion of the place of these workers in State planning. I believe the primary function is as reliable fact-finders. When a commission or other State agency is considering any problem affecting rural development, it should be able to turn to the Agricultural Colleges for basic data that will be accepted by all parties as scientific and accurate.<sup>3</sup>

Warren's leadership, along with strong support from the college administration and the efforts of faculty and students in his department, was an important force in bringing about the state programs he described to his colleagues at this national meeting. Their conscious effort to learn about and report on what was being done at the local level and then make suggestions regarding actions that might be taken had borne fruit in legislation and the governor's actions. The stage for this progress had been set by Al Smith, the previous reform-minded governor. Roosevelt sought advice and counsel from the Agricultural Advisory Commission he appointed before he took office in 1929. He and members of the legislature listened to these ideas and the commission's proposals, and consulted with its members. Out of this came results which were greatly appreciated by local leaders and rural New Yorkers at a time when town and county governments were sorely pressed to find the funds to maintain roads, support schools, and provide basic public services.

Warren accepted an important role in writing the report of the Agricultural Advisory Commission. Roosevelt quickly identified Warren as someone who had ideas and information that could be useful in making decisions about policy for rural New York and in proposing necessary new legislation. FDR was a good listener and sought advice from many different points of view from many people. Warren was one of those who got a hearing and whose proposals had solid support from others. During the year following his election, Roosevelt came to respect Warren's advice and the accumulated evidence from the research he and his colleagues had completed.

Warren's diary entries for 1929 show that he made an increasing number of trips to Albany for commission meetings. In the process he became closely acquainted with Henry Morgenthau, Jr., who chaired the commission. Morgenthau was Roosevelt's neighbor in Dutchess County and Warren quickly recognized that he was the key member through whom ideas could be transferred to FDR.

#### A New Building for the Social Sciences

In April 1930 Governor Roosevelt signed agricultural legislation that included special funding for the College of Agriculture. In the college's 1929–30 annual report Dean Mann happily announced that a new building would be constructed on the campus:

Of equal importance is a special measure, enacted by the Legislature and approved by the Governor, which authorizes the trustees of the University to enter into a contract or contracts for a new building for the Departments of Agricultural Economics and Farm Management, and Rural Social Organization, at a cost of \$650,000. The bill provides \$100,000 for use this year with the expectation that the remainder will be appropriated in 1931. As these two departments are now the most inadequately housed of any in the College, and the demands upon them have grown greatly in recent years, provision for this building is viewed with exceptional gratification.<sup>4</sup>

Warren was on hand at a special ceremony in Albany, along with other representatives from the Agricultural Advisory Commission, when Roosevelt signed this legislation. As he affixed his signature the governor commented, "This bill is a personal tribute to Dr. Warren," and handed Warren the pen with which he signed it.<sup>5</sup>



Governor Roosevelt signs the agriculture bill in 1930 authorizing funds for a building for the rural social sciences at Cornell. Seated by Roosevelt (to his left in the picture) is Henry Morgenthau, his neighbor in Dutchess County and key advisor. Behind Roosevelt are Carl E. Ladd, then director of extension, and George F. Warren (fourth and second men, respectively, from the right).

Warren developed a warm and respectful relationship with Roosevelt during his tenure as governor. In the late fall of 1930 he was invited to Warm Springs, Georgia, to confer with Roosevelt and Morgenthau on the state's future agricultural policy, the decline in commodity prices,

and what might be done nationally to turn the economy around. There are no specific notes surviving from these discussions, but they must have been wide-ranging. It seems likely that Warren talked about the need to "reflate" the U.S. dollar or go off the gold standard, since this was often a topic of discussion or comment in the speeches and articles he prepared during those years. FDR reportedly liked to hear any and all ideas, usually with his long-time friend and neighbor, Morgenthau, on hand. Shortly thereafter, Warren was invited as a weekend guest to Roosevelt's home in Hyde Park and asked to comment on the management of FDR's farm and to talk further about monetary policy and the price level. The governor drove Warren and Morgenthau all over his estate, commenting about the trees, forestry practices, and recent changes he had made in land use. They talked about many things besides farming, but FDR wanted some comments about his farm operations after the weekend. Warren subsequently sent Roosevelt a letter with some suggestions about things he might consider for managing the estate, however there is no more correspondence on this subject among Warren's papers.<sup>6</sup>

Although funds were in short supply in 1931, Roosevelt and the state legislature kept the promises made in 1930. Dean Mann's report for the college in June 1931 stated, "The State College of Agriculture and the Cornell University Agricultural Experiment Station received from the State Legislature of 1931 the sum of \$1,973,973 for regular and special maintenance, plus \$500,000 for the construction of the new building for Agricultural Economics and Rural Social Organization."<sup>7</sup>

From the perspective of the twenty-first century, these appropriations may not seem large. Yet, a little less than \$2 million was enough to keep the College functioning, to pay salaries, and to maintain its teaching, research, and extension programs. "The policy of the Legislature of 1931, applied to all state activities, was that there should be no salary increases this year, the available funds in the treasury be devoted rather to public works which should relieve the widespread unemployment situation."<sup>8</sup> The appropriation for the new building also fit in well with the governor's and the legislature's policies for encouraging limited expenditure for buildings and public works throughout New York.

During 1931–32, an important part of the money allocated for this new building was committed to construction. It was sited in line with two of the original buildings on the central agriculture campus and immediately to the east of Caldwell and Comstock Halls. The recently completed plant science building was located across what became known as the "Ag Quadrangle" and to the south of the new building under construction. In between the two was the old judging pavilion, which housed part of the faculty and staff in agricultural economics during the 1920s. It was an exciting time for students and faculty, but one during which working conditions remained difficult.



Marketing Building



Farm Management Building

Professors George Lauman and E. G. Misner were given responsibility on behalf of the faculty to meet with architects, make decisions on details within the new building, and communicate with university officials when necessary. With commodity prices falling and construction workers eager and anxious for work, it was an ideal time to build and furnish a new building.

The cornerstone was laid with appropriate ceremony on May 23, 1932, a splendid, bright spring day. University President Livingston Farrand and Albert R. Mann (who had become university provost)

spoke of their pleasure in having this fine new building as a base for work in the rural social sciences. All of the college faculty and students were on hand for this great occasion. Both Warren and Dwight Sanderson, head of the Department of Rural Social Organization, gave short speeches. Among his papers Warren preserved a copy of his remarks, along with a number of pictures of the new building at various stages of construction, a list of the items included in the cornerstone, and pictures of all the faculty members in the two departments.

Warren titled his historic remarks "Development of Work in Farm Management, Marketing, Rural Economy, and Prices and Statistics." This quote from his four-page speech provides substantial insight into what he was teaching in his graduate classes and his thinking about research in agricultural economics:



Warren Hall during construction.



Laying the cornerstone for Warren Hall, May 23, 1932.

The erection of this building comes as a result of the application of scientific methods of research to these fields, in which this step was long over-due. The basis of most scientific work is measurement. Lord Kelvin says, "When you can measure what you are speaking about and express it in numbers, you know something about it, but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind." One of the first scientific methods depended on observation and experimentation in which all but one of the conditions were identical or were made as nearly so as possible. This has been the basis for the larger part of the research work in medicine, agriculture, and engineering. In fact, it has been so widely used that many persons think it is the only scientific method.

#### DEPARTMENT OF AGRICULTURAL ECONOMICS AND FARM MANAGEMENT CORNELL UNIVERSITY 1932



1. L. M. Vaughan 2. C. E. Ladd 3. M. P. Rasmussen 4. Van B. Hart 5. M. P. Catherwood 6. G. F. Warren 16. F. L. Underwood 7. Cornelius Betten 17. L. C. Cunningham 8. Livingston Farrand, President 18. O. H. Maughan 9. A. R. Mann 10. G. N. Lauman

11. J. E. Boyle 12. E. G. Misner 13. F. A. Pearson 14. T. E. LaMont 15. F. A. Harper 19. L. E. Cruikshank 20. H. M. Stoker

21. A. R. Gans 22. P. J. Findlen 23. G. T. Blanch 24. O. J. Wheatley 25. G. P. Scoville 26. H. L. Patterson 27. R. R. Liston 28. K. Hood 29. M. C. Bond 30. Whiton Powell

31. F. F. Hill 32. Leland Spencer 33. G. W. Hedlund 34. L. L. Clough 35. A. B. Lewis 36. D. A. Russell 37. C. G. Bennett 38. John Gauss 39. W. I. Myers 40. P. V. Kepner

Many problems cannot be solved by this means, notably problems of heredity and economics. It is not possible to have two gametes identical in all respects but one. It is also impossible to have two farms, businesses or nations identical in all respects but one. When there is more than one difference in the accompanying circumstances, a difference in results is beyond man's philosophical ability to reason as to which is cause. Little progress was made in solving such problems until statistical analysis was used. If purity in characters cannot be set up by experimental methods, differentiation must be accomplished by using large numbers and obtaining comparability by sub-sorting. The more characters there are, the greater the numbers necessary. We have scarcely begun the science of farm management, because the number of records is always too few. No mathematical methods can make up for the shortage....Statistical methods of research will contribute greatly to all science. In every field there are many problems that are best solved by this means and many problems that cannot be solved. All scientific methods and any other means of discovering truth must be used in economics, but statistics is the most generally applicable tool.<sup>9</sup>

Warren viewed this as an important occasion for a statement of his beliefs. One can sense that he wanted to challenge his colleagues to carry on this tradition in this fine new center for study and academic work. Other brief quotes from his speech reflect some of his priorities:

You may hear certain statements as to this building being a credit to certain persons. Such a statement was made when the bill was signed. There is nothing personal about it. It is a tribute to the application of science in fields formerly dominated by theory.<sup>10</sup>

Graduate students from eleven countries and thirty-one states are taking part in these exercises. As you go back to your own institutions, your facilities may appear meager and, worse, you may find many of the institutions manned by two groups of persons, one group not interested in any scientific methods and the other thinking that experimentation is the only scientific method. But if you combine courage and patience with an ability to make your work play, such a situation need not be overwhelming.<sup>11</sup>

This building will be equipped for science, primarily for dealing with the science of large numbers. The equipment will, I presume, be the best that has thus far been devoted to any phase of economic work. It may look expensive to some persons, but it is small in comparison to chemistry or engineering. Not many years hence economics will be equipped in every large university, and when as much money is spent on economic research as on medical research, we will look back on conditions like the present as we now look back on the typhoid epidemic which ravaged the university in 1903—as a leftover from the Dark Ages....The State recognized the importance of scientific work in these fields and is providing this building as an investment....<sup>12</sup>

Warren had great hopes that increases in productivity would be achieved with the use of the new IBM punch-card system and sorting equipment that were installed in the basement of the new building. It was to be used cooperatively by staff in home economics as well as those in other departments of the college. For years clerical staff in the Department of Agricultural Economics and Farm Management processed massive numbers of records and price series using manual tabulations and hand-operated calculating equipment. The staff and graduate students were probably just as excited as the faculty about the potential of using the new equipment.

Warren concluded his speech with a challenge to his colleagues and the students: "I hope that as the years go by, the contributions through discovery of new truth and through teaching and public service may be as great per square foot of floor space in the new building as they have been in the old ones."<sup>13</sup> Faculty and staff had "made do" with inadequate space and housing in a variety of campus locations for many years. The new building was a luxury that all were to enjoy throughout the twentieth century. They moved into new offices in the early winter and some lectures and conferences were held there during Farm and Home Week in February 1933.

After more than seventy-five years the building, now named Warren Hall, is one of the most heavily used classroom facilities on the Cornell campus and shows signs of wear from many feet on its stairs, classrooms,



The newly completed Warren Hall in the mid-1930s.

and halls. Yet it well deserves the praise received from Dean Ladd in the college's 1932–33 annual report:

In many ways it is the most satisfactory building that has ever been constructed at the college. It is efficiently arranged, well constructed, and furnished with suitable facilities in every way; and the construction was completed promptly. A particularly desirable feature of the building is the acoustical treatment given to the larger lecture rooms and to a considerable proportion of the whole building. The beneficial results are particularly noticeable. Every room is quieter and more restful....This acoustical treatment is very inexpensive and should be used in every future building constructed on the campus.<sup>14</sup>

The seminar room at the west end of the fourth floor of the new building proved to be a great asset in bringing graduate students and faculty members together. The department held weekly seminars there on Mondays at 4:00 p.m., and a tradition carried on until the 1970s required all attendees to sign the "seminar" book, which was returned to the department head's office after each meeting. Whenever a visitor came to the department, a special seminar was expected; these meetings and the ideas presented therein were a constant stimulus and graduates often mentioned them as one of the cherished memories of their years at Cornell.

Among the special furnishings of the seminar room is a table given to the department by those who attended the Second International Conference of Agricultural Economists at Cornell in 1930. Inset into the top of the English oak table are blocks of wood from twenty of the countries that participated in the conference. It was crafted at Dartington Hall in England and shipped to Cornell by the Elmhirsts shortly after the building was opened.



W. I. Myers Seminar Room, Warren Hall



INTERNATIONAL CONFERENCE TABLE

This table was given to the department for use in the New Agricultural Economics Building by the Second International Conference of Agricultural Economists, which met at Cornell University in August 1930.

The table was made of English Oak at Dartington Hall, Totnes, Devon, England.

The Insets are typical woods of the countries that were represented at the Conference.

Country	Wood
Australia	Black bean
Bulgaria	Oak
Canada	Birch
China	Camphor
Denmark	Beech
Finland	Birch
Germany	Oak
Greece	Olivewood
Hawaii	Cuba mahogany
India	Bombay rosewood
Japan	Jap oak
Mexico	Mahogany
New Zealand	Jarra
Philippine Islands	Bagac
Poland	Oak
Porto Rico	Jacaranda
South Africa	African walnut
Soviet Republics	Oak
United Kingdom	English oak
United States of America	American walnut

#### Sale of the Warren Farm to New York State

Farming was not profitable for the Warrens in the late 1920s and early 1930s. Warren maintained the business during these difficult times by virtue of having established a solid net worth and strong business relationships in the community. At the same time, many other properties close to Cornell had been sold to university employees for home sites. As the state colleges had grown, their need for more land to carry on research with plants and animals had expanded accordingly, but available acreage in reasonable proximity to the campus was scarce.

In response to the current and future needs of the university and the college, Dean Mann included this statement in the 1930–31 Annual Report of the College under the heading "Additions to the College Farms":

During the year covered by this report, there were purchased, on the state appropriation of \$60,000 made by the Legislature of 1930, parts of the Warren and Calkins farms at Forest Home adjoining the college poultry farm, approximately 502 acres of excellent land with good barns. This is for the use of the Department of Animal Husbandry.<sup>15</sup>

The dairy herd on campus had grown in size beyond the existing capacity of the dairy barns and farmlands adjacent to it, just east of Judd Falls Road. There was neither enough space nor dairy animals to meet the needs of the many research and demonstration projects of Cornell's nationally renowned animal husbandry department. The faculty needed a larger farm close to the campus for feeding trials, studies of milking management, and physiology experiments. At some time in the late 1920s the college began negotiations with Warren to take over his dairy facilities, pasture, and cropland east of Warren Road. The two parties established and agreed upon a price for the 502 contiguous acres of land bounded by Warren Road on the west and by Hanshaw Road on the north. Warren had operated this block of land as a dairy unit ever since he put it together as a successful operating farm between 1915 and 1920.

Particularly in the years after Governor Roosevelt took office, Warren was less often at home to manage his dairy business. In 1930 he was fifty-six, in reasonably good health, and enjoyed many opportunities to express his views in speeches around the state and at a variety of colleges and public meetings across the nation. The farm was supported in part by his salary, and through his careful financial management with help from his family. But nearly all the basic labor was hired; some were full-time men and some were college students. Mary Warren often had to deal with many of the daily decisions, and she was more than ready for a less hectic life now that most of her children were either in college or high school. The needs of the Department of Animal Husbandry provided the Warrens with a good opportunity to reduce their farming activities to a much smaller unit on the fields and land adjacent to the original farm they purchased in 1907. Thus, for \$60,000 the State of New York acquired title to the lands Warren had put together between 1911 and 1920. The college was well served as it took ownership of the dairy facilities on Warren Road.

Warren's credit statement after the sale in 1931, in the depths of the depression, listed assets of \$63,810, debts of \$2,182, and a net worth

of \$61,628. A quick review of these annual statements shows that the family's net worth peaked in 1922 at \$84,948 and then fell gradually through the 1920s to \$69,051 in 1930. Throughout this period farmland prices were slowly falling and the dairy operation was not adding to family income. With their oldest son, Stanley, working full time in the department and about to be married in August 1931, and their other two sons in college at Cornell, George and Mary decided it was time to consolidate the family farm operations into a smaller unit. They retained their homestead and a more manageable farm business. Now Mary and the girls had fewer worries when the men of the house were away a large share of the time.

Warren must have enjoyed the challenge of putting together his large farm operation. He had foreseen a growing university and the likelihood that land might prove to be a good investment. In the decade between 1910 and 1920, land values had risen in the Ithaca area. However, the agricultural depression, followed by the economic collapse of 1929–30, led to falling real estate values nearly everywhere. Selling much of his real estate was a logical way for Warren to pay off his mortgages and loans, and reduce his and Mary's management burdens as well. This also gave him more time to concentrate his energies on the central concerns of his department and the college.

#### Land Classification Studies and Reforestation Legislation

Efforts to identify abandoned farmlands and areas where their best use would be a return to forestry had been pursued vigorously by department faculty and students in the 1920s. Toward the end of the decade Professor F. F. Hill, working with L. W. Vaughan, identified a number of locations across the state that had been cleared for farming in the nineteenth century but for which forestry was the logical, long-time use. Under Warren and Hill's direction, in 1930 A. B. Lewis completed an economic study of land utilization in Tompkins County for his Ph.D. thesis. After careful review and further testing, a system for identifying economic classes of land as proposed in his thesis was published as Cornell Memoir 160 in April 1934.

Lewis reviewed a number of earlier studies of land utilization by college faculty members in the previous two decades, and then described the New York State Land Survey and the new resources that led to his work.

On August 2, 1929, Governor Roosevelt's Agricultural Advisory Commission recommended that a general study be made of the agricultural resources of the State. It was contemplated that this study would be carried on over a period of approximately ten years. For this purpose, \$20,000 was appropriated in 1930 and the amount was increased in 1931 to \$96,000. The following types of work were provided for in these and subsequent appropriations: (1) The soil survey. (2) The assembling of climatological data. (3) The land-utilization and -classification survey. (4) The orchardsoil survey. (5) The vegetable-soil survey. (6) The pasture survey. (7) The publication of crop bulletins and studies of the cost of producing milk.

In 1930, the Department of Farm Management and Agricultural Economics of the New York State College of Agriculture began a study of land utilization and a land-classification survey of Tompkins County....The land was divided into five general classes according to the intensity of present and probable future uses. [See Figure 1, opposite page.]

Land class I is primarily adapted to forestry and recreational uses. It contains a large proportion of woodland. Many of the farms have been abandoned.

Land class II is better suited to forestry and recreational uses than to farming, but considerable farming is done. Wherever land in Class II can be purchased for a reforestation price, it would be desirable to purchase such land for forestry and recreational purposes. For the most part abandoned-farm areas are found in land classes I and II. There are occasionally idle farms in other areas, but not large numbers of them.

Land in classes III, IV, and V is agricultural land classified according to the intensity of use. Land in class IV is more intensively used than is land in class III. In turn, land in class V is more intensively used than in class IV.

Many factors are related to the intensity of use to which land is adapted, and therefore may be used as bases of land classification. In classifying the land in Tompkins County, the condition of the buildings, the use of the land, and the character of the soil were the three principal types of information used.<sup>16</sup>

Much of the memoir was devoted to a discussion of how Lewis, Professor Hill, and a group of graduate students established the economic land classes they proposed using the data collected from farm



FIGURE 1. LAND-CLASSIFICATION MAP OF TOMPKINS COUNTY This map is based primarily on intensity of use. The higher the number, the more intensively the land is used

management surveys over the years, together with soil maps, weather data, elevations, and the associated length of the growing season. The intent of this effort was to provide generalized maps for land use in whole counties. Their expectation was that these maps would help individuals and public bodies make wiser decisions about land use over time across the whole state.

In the short run, these maps identified the locations where Land Classes I and II predominated, with the strong suggestion that the best future use of such land was for forestry and recreation. The college's effort in land classification and mapping was coincident with the work of the State Reforestation Commission, which was created by the state legislature in 1928. Its mission was to "Investigate the subject of reforestation, with particular reference to ascertaining the location, value and area of lands in the State which were unsuitable for agriculture but which might be utilized for reforestation, and to determine the best means of promoting and financing reforestation within the State."<sup>17</sup> This commission, headed by State Senator Charles E. Hewitt, found that about one million acres of idle farmlands could be obtained in tracts of 500 acres or more at a reforestation price. The 1929 Reforestation Law authorized the State Conservation Department to acquire, by gift or purchase, reforestation areas consisting of not less than 500 acres of contiguous land and included provisions for planting and management of these forests. Application of the law was restricted to areas outside of the sixteen counties in the Adirondack and Catskill Mountains that were already designated as forest-preserve counties. The reforestation law also provided that the state should pay town and school taxes, but not state and county property taxes, for these lands.

In a related effort, the Reforestation Commission sponsored the County Reforestation Law, which also was enacted in 1929. It authorized the board of supervisors in any county to acquire lands for reforestation and to establish and maintain forest plantations on lands already owned by the county. County boards were also authorized to appropriate funds for these reforestation projects and the state was authorized to contribute funding to defray part of the expense of the work (not to exceed \$5,000 in any one year for each county). County reforestation areas were to be exempt from state and county taxes. By 1932 a total of twenty-six counties had participated in this program, putting 16,533 acres into county forests.<sup>18</sup>

An amendment to the State Constitution in 1931 established a longterm program for the State Conservation Department; it provided for the acquisition and reforesting of one million or more acres within a period of fifteen years at a total cost of not more than \$20 million. This amendment permitted the state to cut timber and forest products on any reforestation areas acquired under the provisions of the law. By 1934, Lewis reported that the state had acquired 174,685 acres in twenty-nine counties at an average price of \$3.86 per acre.<sup>19</sup>

In this manner the economic land-classification studies by A. B. Lewis, F. F. Hill, and Hill's students provided additional information about the location of substantial parcels of land that logically qualified for reforestation at the state or county level. The effort to produce complete maps for individual counties, like the one they completed for Tompkins County, had to proceed more slowly because substantial resources were required to produce such county maps. The key essentials were a topographic map, a relatively recent soil survey map, a set of labor income records covering important parts of commercial farming, and survey teams to drive all the roads and make notations on maps about the condition of buildings and the status of commercial farming activity.

In the 1933 college annual report, Professor Hill provided this summary under the heading "Land-utilization and -classification studies":

It is contemplated that the land in all of the agricultural counties of the State will eventually be classified on somewhat the same basis as is the land in Tompkins County. The work of classification has been started in the following counties: Monroe, Montgomery, Broome, Rensselaer, Steuben, Orleans, Chenango, Genesee, and Chemung.<sup>20</sup>

This statement was followed by a brief comment on the progress made at each location. For example, in Monroe County between 700 and 800 farm records had been taken and the roads had been driven, but final lines were not drawn since they were waiting for a new soil map to be completed by the Department of Agronomy in cooperation with the USDA. In Broome County the work was nearly complete with all of the necessary data in hand. Cooperation was good in most of the other counties, but some key elements of information had not yet been obtained. Making decisions on the intensity of use of the land in farming required review and comment before the final boundaries could be drawn between Classes III, IV, and V on county maps. In many cases mature judgment from Hill and Lewis was critical in establishing consistency from location to location before publication of a county map was authorized.

From the beginning Warren was a key figure in both research and extension efforts to identify abandoned farms and think seriously about how reforestation could be implemented by the public sector. Carl E. Ladd, the director of extension, was enthusiastic about these projects and closely followed what had been learned from the studies in Chenango County and the Town of Pharsalia. He was a catalyst in encouraging new legislation and moving work forward in land economics and public policy. Ladd was an activist; he, Myers, and Warren often had breakfast together on Sunday mornings in the Warren kitchen. This was a way to keep each other informed and to plan how best to move ahead with an agenda to help impoverished farmers and the towns and counties where they lived. They also probably reviewed the potential of various graduate students to lead research studies, discussed preliminary results of work, and exchanged news about state and national politics related to agriculture.

Forrest "Frosty" Hill's promise as an important figure in the department and college must have been established in such discussions. He received his Ph.D. in 1929, completing his thesis work on the problems of making longterm loans on farm property in New York. This gave him unusual insight into the difficulties faced in counties where most of the land in whole sections could not qualify to be mapped as high as Land Class III. Warren assigned Hill to lead the land-classification work. With Myers on leave in 1933 serving as deputy governor of the Farm Credit Administration in Washington, Hill became the key faculty member in farm finance as well.



Forrest F. "Frosty" Hill

#### Invitations to Warren to Speak to Out-of-State Audiences

With people facing a worldwide depression, national interest centered on the economy and what could be done to respond in a positive manner. Warren was invited to speak in many locations in the Midwest and the Northeast about his ideas and suggestions. Increasingly he talked about the roles of money and credit in the economy, and the effects of deflation on farmers and other basic commodity producers. He pointed out the importance of supply and demand for gold as underlying phenomena that had led to deflation. His speeches were widely reported in newspapers and farm magazines, and this publicity led to more invitations.

One of the most influential farm magazines in the country at that time was the weekly *Wallace's Farmer*. The Wallace family was well known nationally and their magazine had a wide audience outside of its base in Iowa. Founded in the nineteenth century by Henry Wallace, it was his son, Henry Cantwell Wallace, who brought it to greater national prominence when he became the editor. H. C. Wallace served as U.S. Secretary of Agriculture from 1921 to 1924, and his son, Henry Agard Wallace, became its next editor. H. A. Wallace took an active role in agricultural economics and attended the International Conferences of Agricultural Economists at Dartington Hall in England in 1929 and at Cornell in 1930.

In his files Warren preserved a clipping from the June 6, 1931, issue of *Wallace's Farmer*, in which Henry A. Wallace provided the following comment:

I wished all the thoughtful farmers of the United States could have heard the points made by Dr. George F. Warren of Cornell University before a small group of economists with regard to gold supplies and the future course of prices. It was in late May and I listened to the discussion with the very greatest of interest because I knew that December corn future prices were only 48 cents, which would suggest about 30 cents for new corn on Iowa farms. Furthermore, I knew there were hundreds of other commodities selling at wholesale almost equally cheap and that millions of people, because of these prices, were in great misery....

...With world productivity as it is now, there should be an addition each year to the monetary gold stock of the world of at least 3.1 percent if prices are held at the present point. Actually new monetary gold is coming into being at the rate of only about 2.4 percent. By 1940, according to the gold delegation of the United Nations, there will probably be in existence in the world about 659 million fine ounces of monetary gold. To keep prices as high as they are at the present time will take about 843 million fine ounces. The deficiency of 22 percent is enough to indicate a further serious price decline....

...Most of the economists seemed convinced by Doctor Warren's analysis and those who disagreed with him did not put up a very convincing argument....Warren thinks that someday the world will not tolerate such a barbarous thing as our present world gold standard as now used, but has small hopes that world monetary education can go on rapidly enough in the next 10 or 20 years to change the rules of the game.<sup>21</sup>

Wallace quoted directly from Warren's speech in this statement, but then put the ideas into a local context, which undoubtedly was more effective in reaching his readers.

#### Warren's Insights on the History and Development of Farm Management

A special dinner was held at the December 1931 AFEA annual meeting in Washington, D.C., to honor the life and work of Dr. William J. Spillman, the first president of the association. T. N. Carver, H. C. Taylor, and G. F. Warren prepared a statement reviewing Spillman's contributions to the profession during his thirty years of work. This was published on the initial page of the January 1932 issue of the *Journal of Farm Economics*. Three other short papers were read that evening. The first was Warren's, "The Origin and Development of Farm Economics in the United States." It remains one of his most commonly cited articles because of its insights into Warren's own attraction to the field by working with Roberts, Bailey, and Hunt at Cornell, and its recital of the separate routes through which Spillman, Carver, Taylor, Hays, and others came to be early leaders in farm economics.

In particular, Warren referred to his memories of the importance of the Graduate Schools of Agriculture in bringing together faculty and USDA personnel to exchange ideas, research results, and methodology. He commented:

The first of these gave no place to economic work. But for the school of 1908 held at Cornell University, Spillman was allowed to give a few lectures. With his usual enthusiasm and generosity he divided his time with others working in the field of farm management. After conferring with him, a circular letter was mailed to all colleges and experiment stations, and to all individuals who were known to have any interest in the subject. This called for an exhibit of laboratory work, forms for research work, and the like. This meeting was called for and held on July 28, 1908. This was, I think, the first formal meeting of persons engaged in this work.

For the graduate school of agriculture held at Ames, Iowa, in 1910, Spillman was allowed one week of lectures, Butterfield and others were allowed three weeks under the title of rural economy....In preparing the circular letter which was to go to all institutions, a statement was included proposing an organization of the workers in farm management.

This idea was heartily approved by Spillman, and a meeting was held at Ames, July 27, 1910, at which the American Farm

Management Association was organized. Spillman was elected president....The work gradually broadened, particularly after the formation of the Bureau of Markets, and a committee was appointed (1917) to consider changing the name of the association. In January (1919) the name was changed from the American Farm Management Association to the American Farm Economic Association.

...The merging of the Bureau of Markets, the Office of Farm Management, and the Bureau of Crop Estimates into the present Bureau of Agricultural Economics and its rapid development under the



W. J. Spillman

guidance of H. C. Taylor is such recent history as to be known by all. I will not attempt to describe the vast amount of work that has been done in recent years. I am including ancient history only....<sup>22</sup>

# The Future of the General Price Level and the Role of Gold in Its Determination

Warren also had been asked to present the lead paper at the AFEA meeting on the day following the dinner to honor Spillman. He and Pearson prepared a statement that attempted to summarize their ideas about the worldwide depression and the steps that should be considered in trying to slow the economic retreat and move away from growing despair. Copies of the paper had been distributed in advance to the two discussants: M. A. Copeland, a professor of economics at the University of Michigan, and M. R. Benedict, head of the agricultural economics department at the University of California, Berkeley. All three papers were published in full in the *Journal of Farm Economics*.<sup>23</sup> Pearson presented the paper because Governor Roosevelt had requested that Warren return to Albany immediately following the dinner on the previous evening.

Warren and Pearson opened their paper by commenting on the gravity of the situation:

Economic changes, drastic in character, are occurring with such rapidity that it is difficult for the human mind to foresee them or even grasp the significance of the changes after they have occurred. The more important are: the precipitous decline in commodity prices, followed by the suspension of payments on reparations, war debts, and other international debts; the suspension of specie payment by most countries of the world; the drastic drop in the pound sterling and other exchanges; unprecedented exports of gold; the rapid expansion of note circulation; hoarding of currency....The world has never experienced, in times of peace, such a prodigious destruction and transfer of wealth in so short a time. We are now in the most severe depression this country has ever experienced. Most measures of industrial activity are about 30 to 40 percent below normal.<sup>24</sup>

Some eighty years later, these words remind us of the general malaise and despair of this difficult time for ordinary working people and those who had been their employers in the United States and abroad. The paper centered on the details of the agricultural depression, ranging from the specific case of cotton to the more general case of food and feed crops. Using eleven figures and only one table, Warren and Pearson sought to put the recent set of events for production and prices following World War I into a historical context. Their summary comments reflect their strongly held views:

It is very unfortunate that so many persons who presume to speak with authority for agriculture and for industry take the point of view that our difficulties are due to over-production. Whenever the world has found itself confronted with declining prices, there have always been two schools of thought: over-production and monetary.<sup>25</sup>

The next ten pages concentrated on monetary policy and the relationships associated with "the supply of and demand for gold" in an historical context from 1830 to 1930. They chose to italicize this statement, which was central to their presentation:

Regardless of the differences in the commodities included in the index numbers and regardless of the banking systems, there appears to be a definite and uniform rate of increase in monetary gold stocks necessary to maintain stable prices. If monetary stocks

## of gold increase faster than this normal rate, prices rise. If the stocks of gold increase less rapidly than this normal rate, prices fall.<sup>26</sup>

In this context they commented in turn on world gold production, the uneven distribution of gold among major countries, prices since 1914, credit, the future of prices, and the effects of falling prices. One of the more important conclusions they drew was the following:

It makes no difference what caused prices to rise. Having become adjusted to a commodity price level of about 150, we cannot afford to risk the injury to society that will result if commodity prices are lowered to 100 or less and all other human relationships adjusted to this basis....Before anything can be done to provide a permanently more stable measure of value, there must be a widespread understanding of the relationship of gold, money, credit, and prices and the relationship of prices to national welfare.<sup>27</sup>

Warren and Pearson closed their paper by briefly summarizing four remedies under discussion to help the world move out of the depression:

- 1. A definite legal provision for a bank policy that will attempt to stabilize commodity prices under the present banking system.
- 2. A monetary policy designed to maintain commodity prices at a stable level which adds to the bank policy plan a requirement to change the weight of the metal in the monetary unit when necessary.
- 3. The use of two or three metals not as alternates but as provided by Marshall's symmetallism. This is a practical method of accomplishing what the bimetallist desired.
- 4. The reduction of the metal in the monetary unit. This does not provide for continuing stability of value but is a single drastic adjustment to meet a catastrophe resulting from declining prices. This was done by France, Italy and many other countries, and is being discussed in England and most of the remaining countries of the world. Suspension of the gold standard is a temporary measure adopted by many nations, which checks bankruptcies and other effects of price collapse and gives time to decide on what to do next....The alternative to some monetary remedy is completion of the process of price collapse. If commodity prices are to remain at pre-war or fall below pre-war, all other things can be adjusted in time.<sup>28</sup>

This summary outlines the authors' key ideas without the aid of graphics and most of their supporting commentary. It emphasizes their view that the Great Depression was not the result of overproduction, at least in agriculture, but stemmed from a significant loss in aggregate demand and purchasing power as jobs and incomes were reduced. The four remedies they suggested to stabilize commodity prices all centered on steps to be taken in changing national monetary policy. Clearly they favored "reduction of the metal in the monetary unit." The central importance of gold in influencing prices was at the core of their arguments.

The authors of the two full-length papers that followed as comment and discussion found many things about which to differ with Warren and Pearson in concept as well as specifics. Copeland's introductory statement provides the central flavor of his more detailed comments:

In considering the probable trend of the level of prices of commodities at wholesale in the United States during the next decade, three chief groups of factors should be taken into account: (1) monetary and credit factors, (2) changes in technology and the geographic distribution of industry and trade, and (3) the development of market organization. Economic theory has too often concentrated on the first of these groups of factors, slighting the second and third groups by assuming that "other things being equal." It is here contended that these two latter groups are of paramount importance.<sup>29</sup>

Quite correctly, Copeland pointed to the impact of new technology on production costs in a variety of industries and the role of substitutes in bringing prices to lower levels for a number of wholesale commodities. He also took issue with making comparisons between the period following the Civil War and the conditions after World War I. He spoke to the influences associated with high protective tariffs both in the United States and in a number of European countries. Copeland summarized:

The prospect for the trend of commodity prices then, as I see it, resolves itself largely into two opposing sets of forces—on the one hand technical change, geographic shifts, and development of new resources tending to depress prices, and on the other efforts at market organization designed to prevent overproduction and demoralization of prices....Monetary and credit conditions are more likely to exert an important influence upon the cyclical movements of the general index of wholesale prices in the next four years than they are on the ten-year trend. The price level during the next three or four years will probably be somewhat above the low point of the present depression, and somewhat below the level of 1929.<sup>30</sup>

Murray R. Benedict from U.C. Berkeley was much better known by most of the agricultural economists than Copeland (who had the reputation of being a good analyst but a somewhat dull and tedious speaker). Benedict's style of writing was quite different from Warren's and he got a friendly reception from the audience. Benedict was later elected president of AFEA in 1941. His opening statements were courteous, but he also raised serious questions about the proposals Warren and Pearson suggested to improve stability:

Professor Pearson and Professor Warren have carried out a most painstaking and time-consuming study of this important problem, and their conclusions merit most careful consideration. Nevertheless, I find myself in some disagreement, in part with the conclusions reached and in part with the methodology and reasoning whereby the conclusions were reached.<sup>31</sup>

Like Copeland, Benedict raised questions about whether the Index of Wholesale Commodity Prices was the appropriate measure to use to approximate the general price level in the United States. He raised issues about the content of the index and the appropriateness of weights used in its calculation. One of his most interesting comments related to the emphasis Warren and Pearson placed on the supply and demand for gold, and suggested contrary notions:

This indicates what has already been pointed out by Professor Laughlin and others that the structure of the banking systems of the world and the banking policies adopted may be fully as important as the actual amount of gold available. The value of gold is in fact being held at an artificially high level at the present time. Among other things it seems entirely possible that with the restoration of confidence there will be a substantial redevelopment of the gold exchange standard, especially for the commercially dependent countries.<sup>32</sup>

Benedict's comments in the second half of his paper centered on agriculture and the needs of those in disadvantaged positions, living on
the land in large parts of the country. No doubt, Warren and Pearson agreed with much of the content of his final statements:

Agricultural welfare may rest rather largely on a loosening of the regulation and on lower costs rather than on a tightening of the strings of control. The economic structure, as a whole, has in recent years become more and more rigid with the pricing of the majority of products other than farm products and the pricing of labor on a basis which does not permit any ready adjustment to changes in relative supplies of the various factors and products. Thus the farmer, selling for the most part in freely competing exchanges, has been exposed to a greater and greater variability in his prices, because of the larger and larger proportion of fixed expenses and the greater and greater pressure on the residual income which goes to him. Many of these adjustments to low prices will have little direct effect on agricultural production. They will, however, affect significantly the individuals now on farms and also the lending agencies. It is possible, also, that these changes may affect the situation through the changed nature of the ownership and different methods of farming resulting from this.<sup>33</sup>

Here, Benedict joined Warren and many others in questioning the wisdom of government imposing production controls or quotas on what farmers might produce or sell in the marketplace. Increasingly during 1931 there had been widespread discussion about establishing some kind of national production controls as a way of increasing prices for basic agricultural commodities. This discussion and debate would continue without cease throughout the 1930s.

These quoted excerpts from the lead presentations at the AFEA annual meeting reflect the public position that Warren was taking and would continue to champion throughout much of 1932–34, when he became a national figure beyond the realms of agriculture and university life. By studying historical data from both the United States and Europe, Warren was convinced that the dollar, pegged to the price of gold, was undervalued. With the United States now in the position of having the strongest productive economy in the world, he believed it was time to go off the gold standard or to increase the number of dollars that were equal to one ounce of gold. He had argued continuously throughout the 1920s about the deleterious effects of deflation and the agricultural depression on farmers and resource owners. He now saw the need to "reflate" the national currency as a necessary step to move away from the depression and increase consumer confidence in the economy. In the months to come Warren would have many opportunities to make a case for his ideas. He presented all of these talks with charts and tables. The language was direct and simple; most who listened had the sense that he was talking with them in a way that they could understand.

### Index Numbers of Wholesale Prices and Production

One of the major research efforts Warren and Pearson started at the end of the 1920s was to develop a comprehensive set of monthly index numbers of wholesale prices in the United States from 1797 forward. The Bureau of Labor Statistics had produced a widely respected set of monthly index numbers for wholesale prices starting in 1902, which included 250 to 260 commodities. This set of index numbers was quite widely viewed as the best available measure of the nation's "general price level." Changes in this monthly index were carefully watched as indicators of what was happening to prices in the general economy.

Warren was interested in examining changes in U.S. price levels following earlier wartime periods and comparing them with what was occurring in the years after World War I. While a number of people had developed quarterly estimates of price changes dating back to the Civil War, most were not comprehensive. Moreover, the problems of changes in the composition of the products moving in trade and their relative importance in an index of prices had not been considered in detail on a monthly basis. To provide greater substance for an extended historical study of prices, Warren obtained a special grant from the International Committee on Price History to carry out this research effort.

Warren and Pearson summarized their studies in Cornell Agricultural Experiment Station Memoir 142, which was published in November 1932. They began:

Up to the present time no monthly index numbers of wholesale prices covering the past century have been prepared; although a number of persons have prepared index numbers for part of the period. It is the aim of this study to present comprehensive index numbers to correspond with the present index numbers of the United States Bureau of Labor Statistics (BLS).<sup>34</sup>

In a major footnote on the opening page they acknowledged the cooperation of Carl Snyder and H. V. Rhodes of the Federal Reserve Bank of New York, Professor Alvin H. Hansen of the University of Minnesota, and Ethelbert Stewart of the BLS, all of whom furnished valuable materials for the project. They also cited the important assistance of the

Public Library of New York City and the New York Historical Society, where they were able to access extensive historical materials on prices.

The size of this undertaking was substantial. Going back to the time immediately following the Revolutionary War, they first sought to find prices of commodities moving in trade. Insofar as possible, the prices of these commodities were grouped into the same ten general categories of commodities for which the BLS was at that time (1928–30) providing index numbers as well as the summary index. The ten categories were: 1) farm products, 2) foods, 3) hides and leather, 4) textiles, 5) fuel and lighting, 6) metals and metal products, 7) building materials, 8) drugs and chemicals, 9) house furnishings, and 10) miscellaneous. Because whisky and spirits were so important in trade in the years before the Civil War, Warren and Pearson concluded they needed to construct a separate index for that group of commodities as well.

They were able to develop monthly data on prices for 116 commodities for the entire period and 138 commodities from 1889 forward. Beginning in 1889 many new ones, such as petroleum and kerosene, had become important in the marketplace. Inevitably, the authors had to think and write about the rather fundamental problem of weights for the prices in the index. How important was wheat as a product in the economy in 1800 compared to pig iron or leather? And then, how did wheat's importance change over time in the mix of commodities in the market? Warren and Pearson helped to bring these issues to the attention of a wider audience, as well as to the economists and statisticians who carefully reviewed their estimates. One of the reasons they constructed an index for spirits was because whisky and rum were important U.S. import items in the early years, and continuous price data were available for them.

One of the authors' initial interests was to establish price series and index numbers going back to colonial times for each of the major farm products. With this information they could extend the BLS commodity





During most of the last 140 years, instability of the general price level has been the most important problem of agriculture and industry. The periods of rising prices have been periods of prosperity, and periods of falling prices have been periods of distress.

From Cornell Agricultural Experiment Station Memoir 142.

index for farm prices back to the turn of the nineteenth century. This process was not straightforward, however, as the mix of farm products had also changed over time. Corn had grown in importance as the West was settled, while the role of cotton in the national economy changed over time. Relatively new crops like soybeans had to be recognized and added. There was also the question of which price to choose as the representative one for each month.

Much of Memoir 142 was concerned with technical questions encountered in constructing the index numbers for each of the ten categories in the national BLS series. Warren and Pearson constructed one set of index numbers of wholesale prices with constant group weights and a second set with variable group weights to reflect the changing importance of the commodities in the market. These were compared with the work of other analysts and the nature of the resulting differences was examined. Often the differences were small, but some were significant. This helped to focus attention on the methodology BLS was using and modifications to be made in the future as rapid changes in technology and wholesale products occurred, affecting not only prices but the mix of commodities to be included.

On the issue of which price to choose as the representative one for the month, Warren and Pearson summarized:

The following conclusions seem justified:

- 1. The average of the high and low for the 5th, 15th and 25th days of the month is the best of the abbreviated methods.
- 2. The average of the high and the low for the month or that of the high and the low of the middle day of the month is second in reliability (15th of the month).<sup>35</sup>

This followed a rather extensive review of the differences observed when considering alternative approaches for selecting "the price for the month" for commodities such as wheat, corn, and cotton, where many sources were available at many locations and a single national number was finally selected for the index.

Essentially this Memoir was a research monograph compiling the explorations in methodology required to develop the index numbers Warren, Pearson, and their staff prepared in extending the national index of Monthly Wholesale Prices back to 1797. Much of what they did was accepted by the Bureau of Labor Statistics and incorporated into the "official" national series for the early years. It is important to recognize the amount of hard work involved in obtaining the price series from any and all published sources for the years before the Civil War.

The statistics collected by the Federal Reserve Bank of New York were invaluable, as were the early newspapers preserved at the New York Public Library (NYPL). Herman Stoker was a key figure in hiring local workers to obtain data from sources in the NYPL for his own Ph.D. thesis on prices and production in the eighteenth century, as well as for Warren and Pearson's major project. In Ithaca, massive efforts were required to manipulate the price and production data in order to establish the final methodology used. Most of the experimentation was completed on prices of farm commodities about which the authors had the most knowledge. In the world of twenty-first century computing technology, it is difficult to visualize the time required in the early 1930s for making calculations and checking results by hand.

The publication in 1932 of Memoir 142, *Index Numbers of Wholesale Prices*, and the companion Memoir 144, *Physical Volume of Production in the United States*, represented the completion of the research assignment associated with the grant Warren obtained from the International Committee on Price History. These two memoirs proved to be a lasting contribution to the study of index numbers and the details of methodology required in building a series that seeks consistent treatment of the component data over time. The primary reasons for doing this work were to extend and improve the historical series of index numbers of wholesale prices for the United States. But documenting how they actually estimated the index numbers and why the authors took the actions they did in producing the final numbers also was an important matter of record.



per cent per year, when adjusted for the changes in the number of horses and mules. From Memoir 144, *Physical Volume of Production in the United States*.

### A New Book in 1933

While the manuscripts for Memoirs 142 and 144 were in the last stages of completion, Warren and Pearson also were busy preparing a new book, which was titled simply *Prices*. It was published by John Wiley & Sons in January 1933. Their preface reviewed a number of the same topics Warren discussed in the short paper he prepared for the cornerstone ceremony for the new building in May 1932. It again made reference to the words of Lord Kelvin:

When you can measure what you are speaking about and express it in numbers, you know something about it, but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind....

It is the aim of this work to add something to the science of economics, something to the dissemination of knowledge, and to help individuals with their immediate problems, so that they may adjust their affairs to the probable economic weather.

A knowledge of the laws of prices is essential for personal business success because every business transaction involves a guess as to the future of prices. Such knowledge not only is essential for the individual but also is vital for national stability. Many persons blame Congress, or the democratic form of government, or the organization of society based on private enterprise for the business collapse. These things are no more to blame for this collapse than they are to blame for the stalling of an automobile when the battery fails. If the battery fails, the thing [to do] is to correct the battery—not the gasoline, or the engine, or the grade of the road. If the exchange cog in our business machinery breaks, the thing to correct is that cog.

The individual has two tasks. One is to forecast the future of prices and conduct his affairs accordingly. The other is to inform himself and help in guiding public opinion so that national progress may be made. It is hoped that this book may help him in both respects.<sup>36</sup>

These final paragraphs from the preface summarize the authors' hopes for the new book in direct, simple language. By the time *Prices* was published, Roosevelt had been elected president of the United States and Warren was making trips to Albany, Hyde Park, and Washington

whenever he was invited. The book was intended for well-informed laymen, rather than for economists. It had a specific perspective on what was needed to assist the economy in becoming more productive. At the same time it set out to show readers what the authors had learned about prices and the forces that determined them.

The chapter headings indicate the wide range of topics that Warren and Pearson discussed and suggest something of their perspectives on what actions individuals and governments should take. At the outset they discussed: Measures of Value; Index Numbers for Groups of Commodities; Physical Volume of Production; Money; and Gold and Prices. These topics made up about one-third of the book. They then considered: Short-Time Variations in the Price Level; Comparison of Panics; Silver; Stabilizing the Price Level; Causes of Inflation and Deflation; and the Price Chaos Caused by Inflation and Deflation. The next group of chapters provided data and comment on Wages; Wealth and Debts; Taxes; Prices of Farmlands; City Real Estate; and Stocks and Bonds. The final chapters considered: Investments when the Dollar is Unstable; Other Effects of Inflation and Deflation; Price Supporting Measures; Effects of the Discovery of America on Prices; The History of Prices in the United States; and The Price Outlook.

Most of the writing was supported by graphics and tables; in the first 126 pages there were 85 figures and 19 tables. Some of the tables were replete with six or seven columns of numbers. Much of these data and the graphics came from Memoirs 142 and 144 or the data associated with those publications.

Warren had introduced most of the book's ideas and concepts in his speeches and presentations during the second half of the 1920s. The short chapter on money and the longer one on gold and prices brought together most of the suggestions that had proved controversial to many economists across the country, as well as to politicians in both parties. However, farmers in much of the country, as well as most small businessmen, strongly supported these points of view.

Because gold was the commodity used by most countries in Europe and North America as the basis for value in the paper currencies they issued, Warren and Pearson argued that the supply of and demand for gold were major considerations in determining the price level in those nations. They stated that deflation in the prices of basic commodities such as wheat, cotton, and pig iron was due in large part to maintaining the value of the U.S. dollar at a constant ratio, where one ounce of gold was equal to \$20.67. Because the volume of production of goods and services had increased more rapidly than the quantity of gold reserves in the world, deflation was the result. The authors buttressed much of this argument by using data on wholesales prices in England and the United States. After World War I these nations had emerged as the two strongest economies in the world. Tables of index numbers of wholesales prices of all commodities in England were provided from 1782 to 1932, with 1910–14 as the base period. Similar tables were prepared for the United States from 1839 to 1932. The authors also sought to estimate world stocks of gold from 1880 to 1932 and index numbers of the world's physical volume of production. They italicized this statement as a fundamental concept on which they built their argument:

For the 30-year period 1885 to 1914, monetary stocks of gold in the United States had to increase at the same rate as the physical volume of production in the United States in order to maintain stable commodity prices. If gold stocks increased more rapidly than the production of other things, prices rose; if gold increased less rapidly, prices fell.<sup>37</sup>

Much of the rest of this chapter cited historical data in support of this basic concept, both from the period following World War I and from earlier times in other countries. Appended to this chapter was a rather extensive bibliography of references on gold, its movement, and the gold standard. One gets a sense of the authors' frustration in the depths of the world depression from this concluding statement:

The present depression is not an Act of God for the purification of men's souls. It is not a business cycle. It is not due to extravagant living. It is not due to too great efficiency. It is due to high demand for gold following a period of low demand for gold. It teaches the devastating effects of deflation, but teaches no other lesson that is good for society.<sup>38</sup>

The two longest chapters in the book were the ones on "Gold and Prices" and "The History of Prices in the United States." The latter provides an interesting commentary on the economic history of the country as reflected in commodity price changes from 1720 forward, starting with data collected from New York City and Philadelphia for those early years. The authors were impressed by Benjamin Franklin's efforts in Pennsylvania to issue paper money and control the amount issued.

Franklin considered the increase in population and increase in business as evidence of the need for money and stated that, "a dollar thereby coming to be rated at eight shillings in paper money of New York and 7s, 6d in paper of Pennsylvania, it has continued uniformly at those rates in both provinces now nearly forty years, without any variation upon new emissions; though in Pennsylvania the paper currency has at times increased from  $\pm 15,000$  the first sum, to  $\pm 600,000$  or near it. Nor has any alteration been occasioned by the paper money, in the price of necessaries of life, when compared with silver.<sup>39</sup>

This quotation also reflects the authors' growing interest in moving the nation to a managed currency, a position they were to suggest regularly in speeches and articles in the balance of the decade.



Figure 164 from Prices.

The balance of this review of economic history shows how carefully Warren and Pearson read the historical record, as they included more than eighty-nine citations from the substantial materials available in the libraries at Cornell and in New York City. They commented on each of the depressions or panics during the early years of our republic. They examined the difficulties of the First and Second Banks of the United States, and the expansions and contractions that followed when the nation operated without a central bank. The national banking system began in 1865, and debate continued until the turn of the century about the use of silver as well as gold as the basis for issuing currency in this country. Because of their strong interest in gold and the gold standard that was maintained throughout these years, Warren and Pearson emphasized the volatility of prices and the impacts of new discoveries of gold (supply) on economic stability in U.S. and world markets.

O. C. Stine of the USDA Bureau of Agricultural Economics and a former president of AFEA, published a review of *Prices* in the October 1933 *Journal of Farm Economics*. A balanced and favorable review, it

was especially timely because of the many actions President Roosevelt had taken during the first months of the New Deal. Stine commented:

This book contains valuable data, extensive bibliographical references, and is interesting reading for the students of prices. The critical student should read first of all the preface. [quoted above] ...Among the most important contributions of the authors are improved index numbers of wholesale prices, extended throughout the period of the life of the nation. Heretofore, we have had to work with a spliced series. Several pieces had been constructed of different commodities by different methods and upon different bases. Some of the pieces showed monthly variations and others only quarterly or annual variations. Now we have, thanks to their great patience and labor, a reasonably comparable series of monthly wholesale prices, complete without break from 1793 to date.

Another contribution of great importance is the index number of physical volume of production. Available data have been brought together, providing an index number of volume of production for use in analysis of prices. This makes a real contribution even though production data in general are quite incomplete and unsatisfactory for careful analysis.<sup>40</sup>

One of Stine's more telling and useful criticisms in his review was the following:

Admitting the great difficulties that arise out of instability [of prices] we may still ask, How much stability do we want? The authors admit that stability of the prices of individual commodities and wages is not desirable, and yet they ask for stability of the all-commodity price level. Wishing for a greater amount of stability in the prices of many commodities and in the all-commodity price level, we may still doubt that absolute stability in the all-commodity price level is ideal.

...Progress requires change. Insofar as it is possible to do so, we should plan for the desirable changes and eliminate the undesirable. Having recently had a great war, the present problem is to make a rational readjustment from a deranged national and world economic organization.<sup>41</sup>

As Stine suggested, the book's most important, lasting contribution was the wide distribution of the index numbers of wholesale prices for the United States from 1797 to 1932, and the concurrent index numbers of the volume of production. His thoughtful review and the space given to it in the profession's journal must have pleased Warren and Pearson, although events in Washington and actions taken as part of the New Deal overshadowed the book and its potential market. A major revision of its contents was already in progress by the time this review was published.

During 1931 and 1932, Warren and Pearson produced four substantial publications. Their lead address at the December 1931 AFEA meeting in Washington, "The Future of the General Price Level," was a compelling argument for stabilizing the price level and inflating the value of the dollar by devaluing the currency. The two Experiment Station memoirs published in 1932 presented their monographs on index numbers of wholesale prices and production for the United States from 1797 forward. The manuscript for *Prices* was completed and delivered to a publisher for release in January 1933. Much of the work for this impressive stream of publications had been done over a longer period, but this rash of publication was, in and of itself, a major accomplishment.

# Warren's Speech to the American Farm Bureau in December 1932

Warren was invited to speak in Chicago at the American Farm Bureau Federation (AFBF) meeting in early December 1932. The title he chose for that speech was "Stabilization of the Measure of Value." At the American Statistical Association meeting in Cincinnati at the end of the same month, he and Pearson co-authored an invited paper titled "Physical Volume of Production of Gold, Silver, and other Commodities, and the Relationship of Gold to Prices." Although the two speeches differed in style, the concluding points were similar. In both cases, listeners and readers were encouraged to obtain a fuller treatment of the topics by reading the soon-to-be-published *Prices*.

The AFBF speech gave Warren a chance to make his case for "reflation" of the dollar to a national agricultural audience. It is clear from the style of the speech that he felt at home in this setting. He started by setting aside some of the frequently suggested reasons given as causes of the continuing depression. He made the case that overproduction was not the trouble, that too much efficiency was not the problem, nor was too much democracy. Using a number of examples, he then went on to discuss how prices are determined:

If a bushel of wheat (60 pounds) exchanges for 23.22 grains of gold (otherwise named \$1), and if at a later time it takes 2 bushels of wheat to get the dollar, we blissfully explain it as too much wheat. There are four factors in price, not two as is commonly supposed. This error has been the cause of innumerable business failures and of much foolish legislation. The price of wheat is the ratio of the supply of wheat and the demand for it to the supply of gold and the demand for it. Our present measure of value is a given weight of a single commodity, the value of which changes with the supply of this commodity and the demand for it in precisely the same way as the value of any other commodity changes.

The "money illusion" is as thoroughly dominant in this generation as was the illusion of a flat earth about which the sun revolved in the time of Galileo. It is almost as dangerous for an economist to challenge the money illusion as it was for Galileo to threaten the foundations of civilization by saying that the earth revolved.<sup>42</sup>

Warren followed these introductory statements with a discussion of the relationship of gold to prices during the preceding seventy-five years. He spoke about the consistency of debts, regardless of the price level, and concluded, "At the present price level, the debts represent so close to the value of the property [nationally] that a large part of them can never be paid."<sup>43</sup> He followed this assertion with a section headlined, "Deflation or Reflation?"

The price level must be raised to the debt level, or the debt level must be lowered to the price level. This is a matter of grim reality that cannot be cured by psychology, confidence, or government lending. We must choose between deflation and reflation. No country likes to change its monetary system, nor does any country like to go through wholesale bankruptcies and continue to have millions of unemployed. Our choice is not between two desirable things. Merely raising the well-known objections to either procedure does not commend the other. The question is: Which is worse?<sup>44</sup>

Warren then answered his question, first by listing many of the readily recognized problems that had already occurred in agriculture and business because of deflation—bankruptcies and private adjustment of debts, loss of confidence, despair, and a sense of failure by many people. He followed this with a substantial discussion of the impacts of reflation, pointing out many potential problems as well as the gains that might be expected, but clearly emphasizing the positive potential of such action. He also said many things his audience wanted to hear about the expected results from reflation:

Costs of distribution would rise very little. Therefore, prices paid to farmers and other producers would rise much more than retail prices. This would bring farm prices into adjustment with other prices....Prices of basic commodities such as copper, corn, wheat, and cotton, would rise very decidedly because they are so far below the price level that would be restored. The declines in values of homes and farms would be stopped.<sup>45</sup>

There were two other paragraphs included in this speech and the one he gave to the American Statistical Association that are of particular interest given the events that were to follow in succeeding months and years to come. Under the heading, "Re-valuation," Warren said:

Most of the continent of Europe has reduced the weight of gold in the monetary unit. It is probable that England and the 32 other countries that have "officially" suspended the gold standard will do the same. If so, this will leave the United States as one of the very few countries that attempts to maintain the pre-war price of gold regardless of the supply of it or demand for it.<sup>46</sup>

And, under the heading, "Managed Currency," he commented:

Many proposals have been advanced to provide for a permanent, stable measure of value. One of these proposes a managed currency to be controlled by central banks in such a way as to keep the average of commodity prices stable. To operate such a system requires willingness and intelligence in bank management, and freedom from influence by politics or desire for profits. At innumerable times in history, the gold and silver standards have broken down and a managed currency has been substituted....England had such a currency from 1915 to 1925 and has had such a currency since September 1931. Prices in England since she left the gold standard have been more stable than prices here. Apparently, such a country as England could permanently operate such a currency successfully. The possibility of a managed currency should not be judged entirely by its success

or failure when conditions are so bad that the gold standard has failed. Under the guidance of Benjamin Franklin, Pennsylvania operated a managed currency for many years, with a fair degree of success. This was favorably commented on by Adam Smith in his *Wealth of Nations*.<sup>47</sup>

The speech to the AFBF was well received and widely reported in newspapers in the Midwest and Northeast. Much less is known about the reception of Warren's remarks at the American Statistical Association. One would guess that his presentation was not quite what the statisticians expected, since the central content of the two addresses was so similar. With these speeches, as well as a similar one read before the National Industrial Conference Board (NICB) in New York City (January 1933), Warren became an advocate for a policy position at the national level.

Taking these public positions was in sharp contrast to his general efforts as a teacher and researcher for most of his life, where he sought to provide information, report results of his department's work, and then offer advice only when he was asked for it. In the past two years, however, Warren had been much more active in suggesting policy changes for legislative action in New York State.

The final paragraph of his speech to the NICB offers a sense of his own great concerns for the country:

If we continue to allow our whole price and debt structure to be based on accidental discoveries of some one commodity or the accidents of demand for it, we should not be surprised to see the social system that depends on such an unstable medium of exchange seriously threatened. The present revolutions and political upheavals in the world are the direct and indirect results of a breakdown in the medium of exchange. If such a monetary system continues, every investor, farmer, home-owner, and business man should give first attention to the probable supplies of and demand for gold, before he considers the details of his business.<sup>48</sup>

### Emphasis on Gold and Monetary Policy

Warren had grown up during the 1895–96 presidential campaign, when disagreement about the gold standard was a central issue in the debates between Bryan and McKinley. The reliance on gold as the basis for settling international trade accounts during that earlier agricultural depression must have had some continuing hold on Warren during the devastating economic depression of the late 1920s and early 1930s. His speeches were quite effective in pointing out that gold was just another commodity like wheat or corn. But he also made clear that gold was the commodity that had been used historically as the base upon which paper currencies had been issued at fixed rates by individual countries. In the U.S. the continuing rate was one ounce of gold = \$20.67. He argued that this rate should be changed so that one ounce of gold equaled more U.S. dollars or that the nation should go off the "gold standard." However, Wall Street bankers and the Hoover administration had been unwilling to consider such an action throughout those four years of the Great Depression.

It is likely that Warren felt more comfortable talking about gold than the broader issues of monetary policy, as he could discuss it like any other commodity in terms of supply and demand. Nevertheless, monetary policy slowly began to become a more central focus in his speeches. He saw the need for a managed currency, where the national government or banking system established the value of the dollar in relation to the currencies of the countries with which the United States traded. He recognized that his background in this area was much less extensive than that of many economists who were advising Roosevelt and Congress. Nevertheless, his most recent book, Prices, showed that he had read the history of banking and monetary policy in the United States in some depth. He was particularly struck by how well Benjamin Franklin had done between 1720 and 1770 issuing paper currency in relation to the growth in population and business activity in Philadelphia. In the next two years Warren would become an even stronger advocate for a managed currency with much less reliance on gold as the base for the value of the dollar.

## Warren and Pearson's Collaboration in Research and Writing

One cannot help but wonder about the relationship between Warren and his junior colleague Pearson in their jointly authored papers and books. How many of the ideas were Pearson's?

As their talks and papers of the late-1920s clearly indicate, they saw deflation following World War I as particularly injurious to farmers and resource owners, and used index numbers and historical series to support their arguments. In his January 1923 bulletin, *Prices of Farm Products in New York*, Warren had devoted eight pages to money, credit, and the roles of gold production and reserves as price determinants. At that time, however, his primary focus still was on farm prices in New York and the reasons for their variability.

By the early 1930s, however, gold, money, and credit were among Warren's central concerns in writing about economic conditions affecting farmers and rural America. Over the next ten years Warren and Pearson's joint research increasingly focused on improving the quality and interpretation of state and national price and production data. Warren's continuing strong interest in improving the Census of Agriculture reflected that same desire. He wanted to make available to farmers and decision makers as much accurate information as possible about prices and production. Obtaining funding to build a historic summary of U.S. index numbers of monthly wholesale prices was part of that quest. Pearson must have been more than a willing partner, as he was the one who managed all the people and efforts to get original data and then maintain comparability and consistency in the series they developed over time.

Each of the partners in this effort contributed in different ways to their productive output. Warren was the balance wheel and the one who convinced the funding groups that these research efforts were important and deserved substantial support. From the style of writing in their joint publications, it seems likely that Warren usually was the lead author. But one can assume that Pearson and his staff produced most of the charts and tables that comprised an important part of nearly every speech or publication these two close associates wrote. It was Pearson who checked the details and guaranteed the accuracy of what was presented.

No doubt, it was Warren who finally took the initiative to step further into the policy arena by proposing that the federal government or the Federal Reserve take action with respect to reflating the currency, a step he saw as necessary in moving the country out of the depression. Through his work on FDR's Advisory Commission, Warren had helped the New York State Legislature and governor to see that changes in legislation were necessary by presenting the results of research carried out by his faculty and staff. There was usually a study and data to support the changes he suggested, such as in the distribution of school aid to rural areas or the need for a tax on gasoline to support road improvements. Each of the studies and proposals that came from the department spoke to a needed change with evidence that would help legislators see the gains from responding in a positive manner. As a member of Governor Roosevelt's Agricultural Advisory Commission, Warren had taken the opportunity to make many suggestions that resulted in action during FDR's second gubernatorial term.

Pearson clearly went along with Warren on the content of the speeches and papers they co-authored. It is hard to know how many of the ideas Warren presented in his speeches came from Pearson's active mind. Pearson continued to maintain an active interest in gold for the rest of his life and talked about it in his undergraduate classes in "Prices" into the late 1950s. One cannot help but wonder if some of the colleagues' initial interest in gold and its influence on commodity prices stemmed from Pearson. But there is no question that it was a central focus of both men in the work they published in the second half of the 1920s and the early 1930s.

#### Footnotes

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- 3. Ibid., 366.
- 4. *Annual Report of the College of Agriculture, 1929–30* (Cornell University, June 1930), 10–11.
- 5. Pearson, "The Fact Finder," 5506.
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- 7. *Annual Report of the College of Agriculture, 1930–31* (Cornell University, June 1931), 8.
- 8. Ibid., 8-9.
- 9. Department of Applied Economics and Management, Cornell University, Historical Records of Building Warren Hall, Agricultural Economics Archives (kept in the department chairman's office), 1–2.
- 10. Ibid., 2.
- 11. Ibid., 3.
- 12. Ibid., 4.
- 13. Ibid.
- 14. Annual Report of the College of Agriculture, 1932–33 (Cornell University, June 1933), 13. The favorable acoustical effect was achieved with an asbestos mix applied to all ceilings in the building. It worked very well, but is now difficult and costly to remove when necessary changes are made in offices and classrooms.
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- 37. Ibid., 84.
- 38. Ibid., 125.
- 39. Ibid., 327.
- 40. O. C. Stine, "Review of *Prices*," *Journal of Farm Economics* 15, no. 4 (October 1933): 746.
- 41. Ibid., 748-49.
- 42. Warren Papers, Box 28-14, 4.
- 43. Ibid., 5.
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46. Ibid., 11–12.
47. Ibid.
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# Warren as Advisor in Washington

1933 - 1934

George F. Warren experienced moments in the national limelight when the pricing of milk and wheat had become important issues in New York City and Chicago during 1917–18. When Franklin D. Roosevelt became the U. S. President in the depths of the Great Depression, Warren's name became much more familiar as one of his advisors on monetary policy in Washington. Although he was primarily in the background, one of many people advising the President, Warren was widely associated with the decision to go off the gold standard, a position he had advocated consistently during the late 1920s and early 1930s as a necessary step to moving the nation out of the continuing economic depression.

The National Economic Setting, 1932

It is difficult to convey a true sense of the desperation that millions of American families felt at the time of the national election in November 1932. For much of President Hoover's four years in office the American economy had gone from prosperity to failure or near failure for many giant corporations, as well as large numbers of other businesses that served the general population. Unemployment increased from 4 million in March 1930 to 8 million in March 1931, and to 12 million in March 1932. As bread lines grew throughout the country, so did unrest. The calls for new ideas and answers to old problems were insistent. Human misery was real and unmistakable nearly everywhere in small towns and villages, as well as in the great cities.

The stock market crash in 1929 brought the rest of the nation into the economic depression that had plagued life in most of rural America since the early 1920s. The combination of events that led to the fall in common stock prices on Wall Street was part of a wider economic phenomenon throughout the Western world. U.S. manufacturing and business prospered in the 1920s as capital was poured into new plant and equipment. Untouched by the destruction of World War I in Europe, American industry found ready markets for its products until European industries slowly began to serve their own consumers once again. To foster local industry and rebuild their own agricultural markets, European nations constructed tariff walls to keep out competition. Foreign trade, already slowed nearly to a halt for North American grains, now was slowed by tariff barriers for manufactured products. A mere six months after President Herbert Hoover took office in March 1929, the speculative bubble that had been pushing common stock prices higher and higher finally broke. Hoover and his advisors consistently held the belief that the economy would correct itself after the crash, but the Great Depression was solidly entrenched by the winter of 1931–32.

In his book *The Crisis of the Old Order*, Arthur Schlesinger summarizes the economic scene that year:

As the number of unemployed grew, the standards of relief care declined. More and more it seemed as if the burden was too great for individual communities to carry longer. In the fall of 1931 Governor Franklin D. Roosevelt of New York established a state emergency relief administration; other states followed this example. Effective relief, said William Allen White in September 1931, would be "the only way to keep down barricades in the streets this winter and the use of force which will brutalize labor and impregnate it with revolution in America for a generation." But President Hoover announced that a nation-wide survey had convinced him that state and local organizations could meet relief needs in the coming winter....And so, through the winter of 1931–32, the third winter of the depression, relief resources, public and private, dwindled toward the vanishing point. In few cities was there any longer pretense of meeting minimum budgetary standards. Little money was available for shoes or clothing, for medical or dental care, for gas or electricity. In New York City entire families were getting an average of \$2.39 a week for relief.<sup>1</sup>

It was natural that FDR would bring many of the trusted advisors from his gubernatorial staff in Albany to serve in his administration in Washington. Henry Morgenthau, Jr. was one member of that inner circle who continued to serve in the tumultuous days between the election in November 1932 and inauguration in March 1933, and subsequently throughout FDR's presidency.

### Morgenthau and Warren

It was largely through Morgenthau that Roosevelt became well acquainted with Warren and learned about the contributions that Cornell faculty members in agricultural economics were making in studying rural problems and offering suggestions for their solution. In the depths of the depression, the decision to fund construction of a new building for the rural social sciences at Cornell recognized both the need for such a building and the importance FDR attached to the work of Warren and his colleagues. In December 1931 Governor Roosevelt established a new Commission on Rural Homes and named Warren its chairman. The commission included both Mr. and Mrs. Morgenthau; Flora Rose, dean of Cornell's College of Home Economics; the president of Home Bureaus; the commissioners of Social Welfare and Agriculture and Markets; and representatives from the state Senate and Assembly.

After completing its initial report in 1930, the Agricultural Advisory Commission continued to meet regularly in Albany. In 1931 and 1932, Warren's diaries showed regular trips to Albany and Syracuse to meet with these commissions and the State Agricultural Conference Board, which sought to represent the interests of farmers, cooperatives, and agricultural business to the governor and legislature in a united manner.

Because of his work in Albany and regular interactions with Morgenthau, Warren became something of an "insider" among the large number of figures whom the governor called upon for comments and advice. He was certainly not as close to Roosevelt as Frances Perkins or Morgenthau, and when it came time for the Democratic Party to choose its presidential candidate, Warren was not involved. He was not pledged to any party but was generally considered a conservative by nature, and had been invited a number of times to speak to national meetings of Republicans. Nevertheless he was certainly an activist in supporting state initiatives to take action with respect to improving schools, building hard-surfaced roads, and increasing efficiency in town and county government. He was a stalwart for the public purchase of abandoned lands for reforestation and for expansion of the Forest Reserve. It is clear that he was a supporter of Governor Al Smith's reforms in state government and FDR's leadership from 1928 to 1932. Warren followed the general pattern of most leaders of the College of Agriculture with respect to state government; that was to work as effectively as possible with legislative leaders and the governor's office. regardless of political party lines, and to be prepared to provide data and information from college research on issues of public interest.

Warren greatly respected FDR's true interest in the conservation of the state's and nation's natural resources. While governor, Roosevelt had appointed Morgenthau to be the state's commissioner of conservation, reflecting the priority he gave to this area. He paid close attention to actions taken to preserve the state's natural resources. FDR also gave State Senator Charles E. Hewitt's report of the Reforestation Commission his strong support and fought for the funding required to give it a good start. He agreed that taking abandoned farms off the tax rolls and providing for state or county reforestation were good for rural areas and agriculture as well. Both Warren and Roosevelt were champions of rural electrification and cheaper electric power. All in all, they shared the same general objectives on many topics and similar opinions about the role of government in accomplishing them.

### The Committee for the Nation

In the summer of 1932 a new group concerned about the "monetary question" was formed under the leadership of Frank A. Vanderlip, who for many years had been president of the National City Bank of New York, and another banker, George LeBlanc. The full name of this organization was the Committee for the Nation to Rebuild Prices and Purchasing Power. One of its members was Frank E. Gannett, founder of the Gannett Company and newspaper publishing group, a champion of Warren's views on monetary policy. Other members included major figures in business like General Robert E. Wood of Sears, Roebuck and James Rand, Jr. of Remington and Rand. Yale economist Irving Fisher was a key consultant for the group and George Warren was the other regularly invited economist who prepared testimony and data for its meetings. The group became known in the press as "The Committee for the Nation" and its members clearly believed that reflation through some means should be accomplished. The idea of a "commodity dollar," which Fisher had proposed as a basis for the currency of the United States, was strongly endorsed by a number of its members.

Warren made a number of trips to New York City and Washington, D.C., to meet with the Committee for the Nation. It provided him an opportunity to listen to the often-conflicting views of committee members and to get better acquainted with Irving Fisher's ideas. Fisher was a well-respected statistician and economist but departed from the majority view in his profession in thinking that the value of the dollar should not be tied so closely to the price of gold. He believed that the dollar should be linked to the wholesale prices of a selected group of basic commodities, the concept of the "commodity dollar." There were the natural arguments about what commodities should be included and the weights used in any index on which the value of this commodity dollar should be based. Warren's contributions to the committee's deliberations were to demonstrate, through his charts and tables, that maintaining the gold standard for the U.S. dollar was one of the reasons for the continuing depression, which by then had extended to nearly all segments of the economy.

In most of his papers and speeches in late 1932 and early 1933 Warren commented on the concepts of revaluation and a managed currency. He focused on these topics in a widely reported speech to the American Farm Bureau Federation in Chicago on December 6, 1932; his paper was reprinted and broadly distributed.<sup>2</sup>



Photo of cover page of *Dairymen's League News*, 12/6/32, Box 14.

Warren's notes from his visits to meetings of the Committee for the Nation do not include copies of his presentations or specific copies of the charts and tables he used. It is likely that his comments were similar to those he was making in speeches throughout 1932 and early 1933. Warren and Pearson's 1933 book, *Prices*, contained the more detailed statement of the authors' positions on monetary policy and the body of data they used in supporting their views. A closing statement in his

December 1932 speech summarizes Warren's view at that critical time following Roosevelt's election as the next president:

A scientific money is one with a constant buying power for all commodities rather than a fixed weight of one commodity. Our whole tax and debt structure rests on commodity prices. If this structure is to be kept sound either for the creditor or the debtor, it is commodity prices that need to be kept stable, not the weight of gold for which a dollar will exchange.<sup>3</sup>

## The Call to Washington, March 1933

Shortly after the election, Warren sent President-elect Roosevelt a short, hand-written letter of congratulations on November 17, 1932, which included these final comments:

Under present conditions, it seems to me that the positions of Secretaries of State, Treasury, Agriculture and Labor are most important, not the least is Secretary of Agriculture. I very much doubt whether you will find a man better than Henry Morgenthau for this position. His experience as Chairman of the Advisory Commission, Head of the Conservation Department, his courage and patience, and his knowledge of administration are all important qualifications.<sup>4</sup>

On January 12, 1933, Warren sent a typed, somewhat more formal letter to FDR in Warm Springs, Georgia. The body of the letter included these statements:

There are four outstanding problems for your administration:

- 1. Steps toward economic peace in the world which means lowering of trade barriers and international debts.
- 2. The money question.
- 3. Unemployment, in case nothing is done about the money question.
- 4. The agricultural problem which will be of supreme importance if nothing is done about money.

Of the four, the money question is undoubtedly the most prominent. A solution to our own monetary problem is of primary importance as a step toward the removal of trade barriers. Our people will not favor such a procedure while we have millions of unemployed....If in your administration a real contribution is made to the monetary problem, and if you make a contribution to agriculture equal to what you did in this state, it will be an outstanding administration.

I hope you will excuse me for taking part in the favorite indoor sport of America of giving advice to Presidents.<sup>5</sup>

The tone of this letter reflects the degree to which Warren thought he could candidly speak his mind to the incoming president, and his expectation that Roosevelt would get to read his letter and respond. His admiration is readily evident for FDR's successful efforts on behalf of farmers and rural people during his years as governor.

Warren's schedule for the last half of January 1933 included trips to Minnesota and Iowa to speak in each state at their annual Farm Bureau meetings, and to the American Bankers Association in Minneapolis. On January 26 he spoke in New York City to the National Industrial Conference Board on "Causes of the Depression and Remedies for It." This presentation became the central text for many of Warren's speeches given in the following weeks. On January 31 and February 1 he spoke at Farmers' Week in Madison, Wisconsin, and to the Wisconsin State Legislature. His speeches were titled, "Two Ways Out of the Depression." On February 2 he addressed Farmers' Week at Michigan State University, and the next day he was in Chicago to speak at a dinner meeting of business leaders, no doubt at the invitation of members of the Committee for the Nation.<sup>6</sup>

Warren's diary for February 3 also includes a letter FDR sent to him from Warm Springs, Georgia, with this message:

That is an interesting letter of yours, and I wish I had the opportunity of having another good talk with you while I am down here. Some day when you are in New York City I wish you would run in and have a talk with Raymond Moley about the monetary situation.<sup>7</sup>

Warren replied to Roosevelt on February 11:

Your letter of February 3 received, and I will try to get in touch with Professor Moley before long. I do not think he has done much research work on the question of money or prices. I have attempted to put the results of some of our research work into brief form and am enclosing a copy of some material presented at the National Industrial Conference Board and before a group of business executives at Chicago. Since it is certain that this question will be one of the most prominent before your administration, I hope that you may find time to read at least certain sections of this. I have marked certain pages as of most importance.<sup>8</sup>

Farmers' Week was held in Ithaca in mid-February as usual. On February 8 Warren talked at the Ithaca Rotary Club meeting and produced a press release titled "Ways Out of the Depression." His talks during Farmers' Week were given each day with the following titles: "Causes of Depression," "Adjusting Agriculture to the Present Situation," "Causes of the Depression," and "Stabilizing the Unit of Value."

On February 16, the next-to-last day of Farmers' Week, he had breakfast and dinner with Mrs. Roosevelt, who was in Ithaca as a guest of Flora Rose. He made these handwritten notes in his diary:

Mrs. R. has a real understanding of all the work that Pearson and I have done and is quite able to put an economist on the rack if he disagrees with her....Was seated beside her at breakfast and dinner.<sup>9</sup>

At the end of Farmers' Week the Governor's Agricultural Advisory Committee held a meeting to put together advice on agricultural and rural needs to give to Governor-elect Herbert Lehman. Two specific recommendations were made: first, to increase registration fees for trucks over 4,000 lbs. and, second, to proceed with building a regional market in Albany. Morgenthau attended and met with Warren and a small group to discuss the national government's credit problems and actions that needed to be taken in Washington, early in March if possible.

On February 28 Warren went to New York City to meet with William Woodin, who had been chosen to be the Secretary of the Treasury. His appointment with Woodin was made by Henry Morgenthau, Sr., who was still an active figure in the Democratic Party. Representatives from the Committee for the Nation attending the meeting included Frank Vanderlip, J. H. Hammond (chairman of the executive committee of the National Industrial Conference Board), Fred E. Sexauer (Dairymen's League), James H. Rand, and Morgenthau. Woodin was sixty-four years old and in poor health, not a dominating personality, but one with strong resolve. He listened attentively to all that the Committee members had to say. Warren's notes from the meeting indicate that he had put emphasis "…on suspending specie payment. I think Woodin got this."<sup>10</sup>

On the following day Warren talked at length with Irving Fisher at the offices of the Committee for the Nation. Both had been encouraged by FDR to see Raymond Moley, chief of Roosevelt's campaign brain trust. That proved difficult in those last few days before the inauguration. The committee members present discussed possible recommendations on the banking system to make to the president. Warren's notes suggest that the majority thought that all bank deposits should be guaranteed; he and Vanderlip, however, were opposed.

Warren returned to Ithaca and wrote a letter to Henry Morgenthau, Jr., who had just been announced as the appointee to head the Farm Credit Administration. Dated March 4, 1933, it offered congratulations as well as advice:

Now you are in charge of one of the most important financial divisions of the government. You have as much right to speak on money as the Chairman of the Federal Reserve Board, the Head of the Reconstruction Finance Corporation, or the Secretary of the Treasury. Furthermore you now have a duty to speak on it. Agriculture will look to you to be its spokesman on fiscal affairs.

I do not know how much attention you have given to the money question. The following are some conclusions that you can depend on:

- 1. No matter whether the administration wishes it or not, it is practically certain that gold payments in this country will be suspended sooner or later. It is only a question of how much time and money we waste....Our procedure should be to suspend specie payments and prohibit the export of gold and do it as quickly as it can legally be done.
- 2. This proposal ought to be accomplished by some form of clear indication that Congress is to consider a future dollar or even a stronger statement, the implication of which is that we are not going back to the present dollar.
- 3. The future dollar should be some form of an index-number dollar which can be established on a gold basis, a gold and silver basis, or even a straight managed currency as Sweden is now successfully operating.<sup>11</sup>

# **Roosevelt Takes Action**

Through the wind and light rain on March 4, 1933, President Franklin D. Roosevelt spoke to the citizens of the United States at his inauguration: "This nation asks for action and action now....We must act and act

quickly." As Schlesinger writes in his prologue to *The Coming of the New Deal*:

Through the country people listened to their radios with a quickening hope. Nearly half a million of them wrote letters to the White House in the next few days. People said: "It was the finest thing this side of heaven"; and "Your human feeling for all of us in your address is just wonderful"; and "It seemed to give the people, as well as myself, a new hold upon life." ...But others could not suppress anxiety. Eleanor Roosevelt called the inauguration "very, very solemn and a little terrifying"—terrifying—"because when Franklin got to the part of his speech when he said it might become necessary for him to assume powers ordinarily granted to a President in war time, he received his biggest demonstration." What could this mean for the baffled and despairing nation? "One has a feeling of going it blindly," she said, "because we're in a tremendous stream, and none of us knows where we're going to land."<sup>12</sup>

Warren sought an appointment with FDR on March 5 through Flora Rose, who was with Mrs. Roosevelt; he made his first flight by private airplane from Ithaca to Washington that Sunday. He had dinner with Morgenthau, who told him that FDR was in agreement on the money question. The president had told Morgenthau that he thought Warren was "absolutely right." Warren went with Morgenthau to see FDR that evening at 10:30 p.m. Roosevelt read his proclamation to the assembled group, declaring a bank holiday and prohibiting the export and hoarding of gold. He signed it that evening, commenting that it was the second official act of the Secretary of State; the first was to call Congress into session. According to Warren's notes, the president said to the small group, with a great deal of glee, "We are now off the gold standard." Of course, this was not a public statement, nor would he have acknowledged his feelings publicly at this stage of his administration. While Warren was there, FDR took time for a long talk by telephone with Governor-elect Lehman, discussing the proclamation and what it might mean during the coming week.<sup>13</sup>

On March 6, Warren spent part of the day with Morgenthau, discussing actions that would be taken in response to the bank holiday and the proclamation made on the previous day. Treasury Secretary Woodin was busy with key congressmen and his staff members, preparing legislation for action on Thursday, March 9, when Congress would convene. Warren advised Morgenthau to encourage them to hold the wheat acquired by the Federal Farm Board because of the monetary situation. They met with Senator Robert J. Bulkley from Ohio, whom Warren thought to be helpful and a "good man."<sup>14</sup>

On March 7, Warren went with Morgenthau to meet with leaders from the grain industry and discuss the current situation. They agreed that the best policy would be to tell the public at once how much wheat the government held. Warren met again with Senator Bulkley that evening and discussed the money question with him in great detail. He returned to Ithaca on March 8 and noted in his diary that he had been followed by newspapermen from the Associated Press from the time he arrived until he left, but commented that they missed him when he went to the White House and a meeting at the Mayflower Hotel.<sup>15</sup>

On March 9, Warren wrote a follow-up letter to Morgenthau:

A little honesty in the Farm Board seems to have worked satisfactorily. Why not have some honesty in the bank examinations?...The banks are in better shape than the public believes. For several years the banks have been told to make false statements on the value of their assets....If we cannot trust our bank examiners and if our government tells them to lie, how can we expect people to have confidence in our banks? I am certain that it would be a great hit if bank examinations from now on were to be honest examinations....The government ought either to stop bank exams and finally say so; or if it is to represent the public, stop lying.<sup>16</sup>

Morgenthau wrote back to Warren on March 14, "I agree with you as to the need for honesty in bank examinations." This note was written on Federal Farm Board stationery, showing that Morgenthau was already making decisions on behalf of the new administration.<sup>17</sup>

After a few days in Ithaca, Warren spent Sunday, March 12, in New York City at the offices of the Committee for the Nation. Members listened to Alexander Sachs of the Lehman Corporation, who proposed that 6,000 banks should be closed permanently and "the processes associated with deflation carried through to the bitter end."<sup>18</sup> After considerable discussion the committee did not approve or support his proposals. On Monday, Vanderlip and Warren were invited speakers at a meeting of the National Manufacturers Association. Vanderlip spoke about the banking situation and the Emergency Banking Act, which had just been passed by both houses of Congress on March 9, with banks reopening on March 10. Warren gave his now-standard talk on the money situation, using his large collection of charts and providing copies for participants at the end of the meeting.<sup>18</sup> In these somewhat chaotic days of the new presidency, Warren sent off two more letters of particular interest. On March 15 he wrote a short, direct letter to Morgenthau, saying:

If the dollar is pegged to foreign exchange our wheat and cotton will be as bad off as before....If I had more faith in the wisdom of New York City bankers and in "The Wise Men of the East," I would sleep better.<sup>19</sup>

On March 16, he wrote to President Roosevelt:

The general public has been delighted with the prospect of reflation and is buying in expectation of this. If this expectation is disappointed, it will be a very severe shock. It is very important that the rise in commodity prices which has begun be continued without a break until a just price level is restored. If those who expect to maintain the dollar at par in foreign exchange are correct, I am very fearful of the future.

Of course I have no means of knowing whether the attempt to hold the dollar at par is temporary or a permanent measure. Possibly, it is the intent that the dollar should be eased off gradually; if so the procedure should not be a timid one.

If the dollar is pegged at par in foreign exchange, it means that our cotton and wheat are to be measured by the old 23.22 grains of gold. Being off the gold standard then means very little....The simplest way to proceed is to reduce the gold in the dollar at once, but we should make provision for a dollar that will be stable in buying power.<sup>20</sup>

Roosevelt was listening to a wide range of conflicting voices in these two initial weeks of his presidency. Many close advisers were hard at work on a variety of efforts to restore confidence in the government, its banking system, and the general economy. Roosevelt's budget director, Lewis Douglas, was a believer in government economy. He did not believe in raising taxes but in reducing government spending—tapering off subsidies to farmers, payments to war veterans, salaries of government officials, and funds for national defense. He sought an "unimpaired credit of the government." He was one of many in Roosevelt's inner circle who believed it was important to keep the dollar at par with other currencies in the world. Warren heard these conflicting voices and used the letters he wrote to reinforce his own views that reflation was necessary, not only for the farmers of the country, but also for the country itself. Because Morgenthau was truly a part of the innermost circle around FDR, Warren saw him as one of the key people with whom to make his points and to keep informed about what he was writing or saying to the president.

The second major piece of legislation enacted in March was the President's Economy Act on March 20. It reflected some of Budget Director Douglas's vision and Roosevelt's own sense of what was necessary to say to the country. The act provided for reorganization of the veterans' pension system and reduction of pensions, and a reduction in congressional and federal employees' salaries in order to save a halfbillion dollars in the federal budget. Roosevelt argued that the federal government had been on the road to bankruptcy and it was time to move toward balancing the budget. This proposal met with determined opposition from many quarters, especially from congressmen within the Democratic Party. But he prevailed with the help of the conservative Democrats who held leadership positions in Congress. FDR's first "fireside chat" to the nation on March 12 helped his cause and the bill finally passed in both houses. Warren was one of those who welcomed the passage of this legislation.

The month of March 1933 was also a busy time for the new governor of New York. Warren went to Albany to confer with Lehman and other members of the Agricultural Advisory Committee about the milk situation. Bills seeking to fix the price of milk had been introduced in both houses of the state legislature. All on the Advisory Committee agreed that this would be undesirable legislation for both consumers and farmers, and encouraged Lehman and legislative leaders not to accept the bills.

One other action taken that month in Washington was significant in terms of its immediate benefit to the country and its lasting benefits still evident in the twenty-first century. This was the establishment of the Civilian Conservation Corps (CCC) on March 31. Congress left much of the details of this new program to the executive branch. It was quickly determined that the CCC should be limited to unmarried men between the ages of eighteen and twenty-five, chosen from families on relief. The U.S. Army, Forest Service, and Labor Department cooperated in putting together a workable system. By June 1, 300 camps were established and over 300,000 men were in the woods or working on projects before the end of July.

More than 2.5 million young men passed through the CCC camps; the peak number in the program was 500,000 in July 1935. There were difficulties among the sponsoring agencies and some efforts by the army to find ways to keep some of these young men as troops. But the conservation programs in the forests and parks remained central; most who joined stayed in the CCC from six months to a year. Many who went in as boys came out as men, with training in a trade and self-confidence in their own abilities to succeed. The trees they planted, the trails and bridges they built, the streams they channeled, and the buildings they constructed at national and state parks remain a legacy that they and succeeding generations have continued to enjoy.<sup>21</sup>

Warren returned to Washington in April to work at the headquarters of the Committee for the Nation. He and Irving Fisher co-wrote a rough draft of legislation to move the United States off the gold standard and have the nation's gold stocks held by the U.S. Treasury instead of the Federal Reserve System. Working with Senator Robert L. Owen (Oklahoma), who was bitter about actions taken in the past by the Federal Reserve, this legislation proposed that the Treasury issue Treasury notes instead of Federal Reserve notes.

These ideas for major changes in legislation were presented at a meeting in the committee's offices with a group of legislators and farm leaders. That group generally approved the drafts because they combined the concepts of revaluation and the issuance of Treasury notes. When reviewed by the whole Committee for the Nation, however, the proposed legislation got mixed reviews and less support. Opinions by these business leaders varied widely. The need for a new approach was accepted, but the specifics were still at issue.

On April 12 Warren went with Rand, Lessing Rosenwald (Sears & Roebuck), Sexauer, and E. I. McClintock from the Committee for the Nation to see the president and report on their progress. FDR asked for a specific figure of grains of gold in the revalued dollar they were prepared to propose, but no specific answer was provided collectively. He encouraged them to continue their work and to seek further input and comment. Warren then met with W. I. Myers, who was on leave from Cornell and working as Morgenthau's deputy at the Farm Credit Administration, to get Myers's views on key people in Congress or the administration who were close to Roosevelt. They concluded that Senators Barkley and Byrnes, Representatives Marvin Jones and Henry Steagall, Secretary of Interior Harold Ickes, Attorney General Homer Cummings, Secretary of Labor Frances Perkins, and Logan Morris, chairman of the U.S. Board of Tax Appeals, were all friendly to the idea of revaluation. Those less willing or opposed included cabinet members Cordell Hull (Secretary of State), Woodin (Treasury) and Swanson (Secretary of Navy), along with Assistant Secretary of State Raymond Moley and Budget Director Lewis Douglas.<sup>22</sup>

After a weekend in Ithaca, Warren returned to work on a draft of possible legislation creating the Federal Deposit Insurance Corporation with Representative Thomas Alan Goldsborough (Maryland) who was prepared to introduce it to his committee in the House. He met with Senator Bulkley, who was in favor of revaluation but not a "compensated" dollar; he clearly saw the need for a gradually rising price level. He also met at length with Senator Robert J. LaFollette (Wisconsin). The legislation that was introduced would have amended the Federal Reserve Act and had as its objective the restoration of the "normal" commodity price level, using as a base an average of wholesale prices as calculated by the Bureau of Labor Statistics (BLS) where 1926 = 100. It proposed establishing a monetary commission, the purchase by the Treasury of fine gold at \$30 per ounce, and the issuance of gold certificates by the Treasury. Discussion and debate on this bill provided an opportunity to learn how more congressmen and people around the country viewed the dollar and the prospects of support for revaluation. It was not enacted.

Warren set down his feelings and concerns in a letter addressed to President Roosevelt on April 24, with copies to Mrs. Roosevelt, Morgenthau, and W. I. Myers:

The newspaper comments make me quite uneasy. They sound as if there were an inference that the right to lower the gold content of the dollar is not to be exercised but merely to be used as a club over foreigners.

The primary reason for reducing the weight of gold in the dollar is to improve the internal conditions in America so that we will not have to complete the bankruptcy process which deflation means. The mere issuance of paper money or expansion of credit so long as each dollar is kept at par, will have very little influence on prices. The world determines the value of 23.22 grains of gold in terms of commodities. We determine the grains of gold in the dollar, and only by this means can we set our price level out of line with the world value of gold.

This principle is unknown to a considerable number of economists who have been steadily wrong in all their forecasts. In fact, a large number of economists petitioned Hoover a year and a half ago to do just what he did, thinking they could raise prices by credit expansion. They are just as wrong now as they have been for 15 years.

There is one and only one way to raise our commodity price level; that is by reducing the amount of gold in the dollar. A rise in prices this week of basic commodities was directly in proportion to the decline in the value of the dollar in foreign exchange. Cotton did not rise in Liverpool....There is only one safe course; reduce the gold value of the dollar.<sup>23</sup>

### The International Monetary and Economic Conference

Warren's letter to Roosevelt came at a time when some of the president's closest advisors were in favor of stabilizing the dollar in relation to other major currencies. A group had gathered at the White House on April 18 to discuss the long-projected International Monetary and Economic Conference,<sup>24</sup> to which Hoover had committed the U.S. while he was President. Those present included Hull and Woodin from the cabinet; Senator Key Pittman (Nevada), chairman of the Foreign Relations Committee; William C. Bullitt, special assistant to Hull; Herbert Feis, economic advisor, State Department; Budget Director Douglas; and Assistant Secretary of State Moley. Roosevelt told the group that the gold standard, in suspension since March 4, was definitely to be abandoned. He also showed them the Thomas amendment, named for Senator Elmer Thomas (Oklahoma), which was added to the Agricultural Adjustment Act (AAA) in late April. It was signed into law in May and gave the President authority to issue greenbacks, remonetize silver, and alter the gold content of the dollar. He reminded them that a great many in Congress supported this position and concluded that the conference must go on as the European nations wished. FDR put preparations for it in the hands of his economic advisor, Bernard Baruch, and Moley. Representatives from key nations were invited to Washington for an exchange of views before the conference opened in London in June 1933.

The American delegation to the conference in London was headed by Secretary of State Cordell Hull, whose central interest was in reducing European barriers to trade with the U.S. The other members were James M. Cox (three-term governor of Ohio and former Democratic candidate for president in 1920, with FDR as his running mate); Senator Pittman; Representative Sam D. McReynolds (Tennessee), chairman of the House Foreign Affairs Committee; Senator James Couzens (Michigan), member of the Senate committees on Banking and Currency and Finance; and Texas businessman Ralph Morrison. No official member of the delegation had ever been to an international conference representing the United States before. They were supported, of course, by professional staff from the State and Treasury Departments. The de facto chairman of the delegation was FDR, acting from Washington. It soon became clear that the majority of nations attending wanted to establish parity among the major currencies: the British pound, French franc, German mark, and the U.S. dollar. The first proposal was that the dollar and the pound be stabilized at \$4.00 = 1£. By telegram in late June Roosevelt refused this plan, arguing that the U.S. "...must retain full freedom of action...in order to hold up the price level at home....far too much influence is attached to exchange stability by banker-influenced cabinets."<sup>25</sup>

Additional attempts were made to reach some acceptable agreement on all sides. When the text of a second proposal reached Roosevelt at the end of June, while he was vacationing at sea, he foresaw trouble even if a temporary agreement were reached. He concluded that it would be unwise to permit other governments to impose limitations on U.S. domestic actions. FDR's telegram in reply to this proposal stated in part:

The economic conference was initiated and called to discuss and agree on permanent solutions of world economics and not to discuss economic policy of one nation out of the 66 present....A sufficient interval should be allowed the United States to permit... a demonstration of the value of price lifting efforts which we have well in hand.<sup>26</sup>

Roosevelt's telegram and his subsequent public statements essentially scuttled the conference. The general reaction in most European countries was dismay and anger, especially among the gold block countries. In contrast to most, John Maynard Keynes, the worldfamous Cambridge economist, congratulated Roosevelt. In an article he prepared for London's *Daily Mail*, Keynes wrote:

President Roosevelt is magnificently right for cutting through cobwebs with such boldness. The message was a challenge to us to decide whether we propose to explore new paths; paths new to statesmen and to bankers, but not new to thought.<sup>27</sup>

Winston Churchill joined a group of Oxford economists in hailing the statement as well. Here in the United States there was applause from Walter Lippmann, the influential syndicated columnist of the *New York Herald Tribune*, along with some of FDR's advisors, including Hull, Baruch, and Leffingwell, who was a banker at J. P. Morgan & Co. The
conference went on for another three weeks, but Hull was still unable to get agreement on reducing trade barriers. Each country participating had looked to self-interest first and was basically concerned with survival in their own particular economic and political setting. At the same time, Roosevelt had made it clear to the rest of the nations that U.S. domestic policy took precedence over international agreement on the currency issue in that time of economic depression.<sup>28</sup>

### Major Legislative and Administrative Actions, May–June 1933

Many New Deal initiatives were put in motion during the spring 1933 session of Congress. Henry Wallace's Agricultural Adjustment Act became law on May 12, including the Thomas amendment that gave the President power to allow monetary expansion. On the same day the Emergency Farm Mortgage Act became law, providing for the refinancing of farm mortgages backed by federal government funds. The following week, the enabling legislation for the Tennessee Valley Authority was put in place. On May 27, the Truth-in-Securities Act was passed, requiring full disclosure when companies issue new securities.

The Home Owners' Loan Act was passed in June, which provided for federally backed refinancing of home mortgages. Later that month the National Industrial Recovery Act (NRA) was adopted, leading to the experiments tried under the NRA, as well as an appropriation of funds for a \$3.3 billion public works program. The Glass-Steagall Banking Act separated commercial from investment banking and provided for federal guarantees of bank deposits. Earlier in the session the gold clause in public and private contracts was abrogated. The Farm Credit Act, which reorganized agricultural credit activities, also was put in place. This piece of legislation reflected the hard work of Henry Morgenthau, Jr. and W. I. Myers to reenergize the nation's farm credit cooperatives. Finally, the position of federal coordinator of transportation was established under the Railroad Coordination Act. All of this extraordinary legislative activity was completed before Congress paused for its summer recess.

Warren was pleased with many parts of these initiatives and the new legislative mandates, especially those that promised to put people to work productively, tightened the reins on banking, reduced the role of gold in contracts, and made the credit markets work more effectively. The ability of homeowners and farmers to deal with their debts in a systematic and supportive environment was critical to economic recovery. On the other hand, Warren was at odds from the beginning with Secretary of Agriculture Henry Wallace's Agricultural Adjustment Act. He also disagreed with the idea that reducing farm production would help raise prices of agricultural products in the existing economic environment, given that large stocks of farm commodities were on hand, depressing prices. However, he was careful to make few public comments about these views while he was in Washington or at the regular opportunities he had to speak at meetings within New York State and elsewhere.

In May, Warren spent some time with Woodin at the Treasury Department, probably at Morgenthau's prompting. Warren's diary suggests that Woodin was discouraged with the advice he was receiving from economists because they were unable to predict what was likely to happen if different actions were taken. Warren also thought that Moley did not have a good understanding of the "money problem." Warren advised Woodin that the Treasury should start buying gold and move the price 50 percent above its current level, but Woodin thought that was too high a target. Warren left their meeting after making three major points:

- 1. The money problem should be viewed as primarily internal to the United States;
- 2. The U.S. should reduce the weight of gold in the dollar; and
- 3. Such actions should not be long delayed.<sup>29</sup>

Compared to the preceding three months, Warren spent little time in Washington during June and early July. Using charts and materials from his new book, *Prices*, he spoke to the Bankers Club in New York City on June 1, with 250 in attendance. He also put together a general paper of twenty-six mimeographed pages, "The Business Situation," to distribute when asked to speak. It included about twelve pages of text materials making now-familiar points and three tables and nineteen charts to provide supporting evidence. In the middle of June he agreed to speak to a regional meeting of vocational agriculture teachers in Columbia, Missouri; he noted that businessmen attended as well, from as far away as Kansas City and Chicago. After this meeting he went on to Colorado and Utah to make similar presentations to teachers and the Utah Bankers Association. He stayed on at Utah State University for nearly two weeks to give a set of lectures on prices and farm management to faculty and graduate students.<sup>30</sup>

On his return trip to Ithaca Warren stopped to see his brothers— Henry, who was now farming in Colorado, and Herbert, who was still farming in Trumbull, Nebraska. Both were troubled by drought conditions, and George obtained their insights on what farmers were saying and doing. He was in an area where there was strong pressure to monetize silver and to do something—whatever was necessary—to raise the prices of agricultural commodities. Continuing east he stopped in St. Louis to speak before the Chamber of Commerce. He went on to Chicago by commercial airline, noting in his diary that the price of airfare was cheaper than travel by rail.<sup>31</sup>

After some days with his family in Ithaca, Warren returned to Washington on July 10 and met with FDR, Professor J. H. Rogers from Yale, Commerce Secretary Daniel C. Roper, and Agriculture Secretary Wallace. They discussed monetary policy and the conflicting views of the president's closest advisors. Some thought Roosevelt had almost endorsed the idea of a commodity dollar in some of his statements. Warren spent considerable time with Jacob Viner, a well-known economist from Princeton, who agreed that staying on the existing gold standard was not a good idea and stated that change was necessary. On July 12, Warren and Rogers had tea with FDR and talked for one and a half hours. Warren noted in his diary that FDR was anxious to keep the pound and the dollar in some kind of continuing stable relationship.<sup>32</sup>

Warren returned to Washington on July 18 and spent the week talking with Professor Rogers and other advisors concerned with monetary policy. Budget Director Douglas was most concerned about balancing the budget in some manner. According to notes in his diary, Warren kept making the point that a balanced budget would only come when the country was moving toward prosperity and when people had incomes with which to pay taxes and interest on their debts. Warren said he could be in favor of a managed currency in this country, but was concerned about whether there were knowledgeable people in government who were committed and prepared to provide the necessary management. He noted that England was succeeding fairly well with such a policy.

On July 24 Rogers and Warren sent a joint letter to FDR, which included these paragraphs:

With reference to our conversation at noon today, we believe that the shrinkage in gold and exchange value of the dollar has been the major influence in the recovery thus far accomplished. Prices of basic commodities have moved consistently with such shrinkages, though usually more violently.

We fear, therefore, that over-emphasis of other measures, some of which are deflationary, may strengthen the dollar and bring about a further slump in prices, unless some reference is made to the fact that monetary legislation has played an important part in recovery and that whatever measures may be necessary will be taken to raise prices.<sup>33</sup>

### Visit to Europe and Report on Conditions There

Before Warren left Washington that week, FDR encouraged him and Rogers to go to Europe and report back to him on the business and monetary situations there. Warren immediately set about booking



The four fact-finders on the deck of the S. S. Europa (Warren far right).

passage on the S. S. Europa, ostensibly to visit farms in England and northern Europe. Originally he had intended to do this before the planned international conference of agricultural economists in Germany. That meeting had been postponed for a year because of Hitler's rise to power in the spring of 1933. He asked three other agricultural economists to travel with him and gather information: E. B. Hill (Michigan State), V. B. Hart (Cornell), and J. Farrell (Ohio State). It was a good trip; Warren's diary includes pictures of the four men on the ship and later visiting Rothamsted, the world-famous British agricultural experiment station north of London.

On his return to the United States in September, Warren sent the following report to Secretary Roper in the Commerce Department:

In the countries off the gold standard there is a general belief that prices must be raised. It seems to be a choice between a rise in prices or a rise in dictators. Sweden has definitely started to raise some prices. Denmark keeps her prices at 125 to 100 compared to English; that is, keeps her price of gold and commodity prices 25% higher than English. They have only 84,000 unemployed, equivalent to less than 3 million for the U.S. In England the price of gold has risen 10 shillings per ounce since we left the gold standard in April and will probably go considerably higher.

The countries now on the gold standard will find it extremely difficult if not impossible, to stay on. I believe that the sooner they are forced off, the better for them and for the world. In spite of the infinite variety of price-raising schemes, no country has been able to exercise any material control over its general level of prices, except by reducing the gold content of its money.<sup>34</sup>

Warren also reported directly to the President in a letter dated September 18:

My dear Mr. President:

As a result of my stay in Europe I have reached the following conclusions which I think are dependable:

- 1. All of the countries of Europe desire a rise in commodity prices. The only alternative seems to be more dictatorships.
- 2. In the countries that have left the gold standard, opinion is rapidly crystallizing, and I think it can now be said to be definite, that when they return to the gold standard their currency will contain less gold than its present value.
- 3. There is a widespread feeling that the unregulated, old type of gold standard should never be re-established, but no general agreement as to how it should be modified. Some would prefer never to return to gold.
- 4. The majority of opinion is more concerned with exchange rates than with gold values. The more thoughtful opinion; which is in control in Sweden, in approximate control in Denmark, and which is held by an important and growing group in England; is that the internal problem is more important than the external, and that they must revalue their currencies at such a level as to restore a balance in the internal price structure so as to make it possible to pay taxes and debts and provide employment.
- 5. All of the countries which are off the gold standard are looking to the United States for leadership in monetary matters.

6. [A listing of prices of gold in 12 countries on April 18 and September 16, 1933, reflecting increases from 5 to 40 percent was then provided.]

...The countries that are off the gold standard have had enough experience so that they no longer fear violent inflation as they see that they can control their money. When the gold standard was left they stopped deflation without price restoration. One after another they have come to the conclusion that the price level should be restored. Denmark, New Zealand, and Sweden have taken definite steps in this direction and England is proceeding slowly in the same direction without having announced any plan. By definite control, Denmark, Australia, and New Zealand have set their currencies at 125 to 100 when compared with the English Pound.<sup>35</sup>

Warren then provided a specific report of conditions in Denmark, Sweden, Germany, and England as he understood them. He concluded the letter:

I have studied wages, prices, and debts and see no reason why the pound and the dollar should not have their old ratio. If the dollar is reduced somewhat faster than the pound until the old parity is reached I think England will go along for the remaining distance by raising prices. There is little use in conferring on such a matter until the fact of parity has existed for a time.<sup>36</sup>

## Major Decisions on Monetary Policy in the Final Months of 1933 and Early 1934

U.S. agricultural commodity prices were falling when Warren returned from Europe. Farmers and congressmen from the South, West, and Midwest were demanding some sort of prompt action on the part of government to raise prices and provide some hope for better days ahead. The fall in cotton prices, along with the simultaneous drop in prices for grains, united a large part of the country in their demands for action. Those close to the President, both within and outside his cabinet, continued to have differing views about what should be done about monetary policy. Any proposal that directly suggested an alternative to staying with the old official standard for the amount of gold in the dollar was resisted by a group lead by Dean Acheson, undersecretary of the Treasury. (Woodin was in ill health and no longer in day-to-day charge of the department.) The political pressure was so strong that the debate within the administration had to be resolved by Roosevelt himself. After preparing his reports for FDR and Commerce Secretary Roper, Warren went to New York City to meet with key members of the Committee for the Nation. He found that Irving Fisher was no longer such a strong advocate for an "autonomous commodity dollar." He seemed in favor of reducing the value of gold in the dollar by as much as 50 percent. On September 20 Warren had lunch with the President. Afterward he prepared the following paragraph for Roosevelt's review and future use:

It is the purpose of this administration to restore prices to such a level as will enable industry and agriculture once more to give employment to the existing masses of the unemployed and make possible the payment of public and private debts. It is equally the purpose to prevent any rise in the price level beyond the point necessary for the attainment of these ends. It is not the intention to make any permanent revaluation of the dollar until the price level has been raised and stabilized. As stated to the World Economic Conference we hope ultimately to establish a dollar which a generation hence will have the same purchasing power as the dollar value which we hope to attain in the near future.<sup>37</sup>

On Warren's return to Ithaca, he wrote a letter to Morgenthau, dated September 29 and labeled "confidential." It gives a real sense of how he felt about what was happening in Washington and the urgency of those weeks:

Things do not look good to me. I am planning to be in Washington next Wednesday and Thursday and hope to see you. As you know I have never enthused about the AAA or the NRA. If the public had been sufficiently educated, it would have been better economically to raise prices and get men back to work before raising wages. Prices have fallen so low that they are out of line with most wages. NRA has increased the amount that it will be necessary to cut the dollar to restore equilibrium.

I think it is unfortunate to have persons in prominent administration positions attacking rising prices and profits. It is only through rising prices and profits that debts and taxes can be met and banks made solvent—only through profit that businesses will be able to hire the unemployed and get them back to their regular kinds of work where they belong. Attempts to raise prices and start employment through credit will fail just as they have under Hoover. The only way to raise prices is by cutting the gold value of the dollar. ...The legal questions are troublesome but I think a way must be found to raise the price of gold to about \$35.00 at once, keep it from falling and raise it fairly rapidly. The longer the delay, the more the dollar must be cut. It now looks as if public and private finances and social confusion have reached such a stage that the price of gold will have to be raised to the legal limit of \$41.34. We will have to govern our own currency independently of Europe. I believe Europe will follow and six months after the fact will approve. But we cannot wait for England.<sup>38</sup>

At some point in September, Roosevelt must have concluded that he had heard enough from the group he believed represented orthodox economists and bankers. They seemed to have no feeling for those ordinary citizens who had debts to pay and no concrete suggestions on how to raise the price level. He turned to Morgenthau to see if there was a legal way to start purchasing gold in the open market. On September 26 Morgenthau told him that lawyers in the Farm Credit Administration (FCA) had a proposal for him. Herman Oliphant, FCA general counsel, suggested that a separate corporation could be established in the Reconstruction Finance Corporation (RFC) to buy gold as collateral against the money loaned to it by the U.S. Treasury. Stanley Reed, general counsel of the RFC, agreed.<sup>39</sup>

Things came to a final climax in October 1933. Warren went to Washington whenever he was asked, whether by Morgenthau or Roosevelt directly. FDR had made up his mind and planned to announce his decisions to the general public through a fireside chat scheduled for October 22. He now needed the right tone for his speech and ways to explain what he planned to announce. Warren prepared a number of statements at Morgenthau's request. One such effort concluded, "Practically all countries off the gold standard are raising the price of gold. There is general agreement that it was not sufficient to stop the decline in prices, but that a restoration of prices is essential."<sup>40</sup> Another paragraph prepared by Warren in anticipation of the speech was the following:

It is not the intention to make any permanent revaluation of the dollar until the price level has been restored and stabilized. We hope ultimately to establish a dollar which a generation hence will have the same purchasing power as the dollar which we hope to attain in the near future. The Treasury is authorized to buy such newly mined gold at prices which will be announced from time to time.<sup>41</sup> Roosevelt encouraged continuing meetings between Warren and Rogers, the economist from Yale. During late September and early October some general agreement on a variety of issues was reached by those who had regularly disagreed with the concepts Roosevelt planned to announce in his fireside chat —that the dollar should be revalued and that the United States should enter the gold market as a buyer. Warren had a copy of the most recent thirteen-page statement from that group addressed to the President, entitled "How to Raise Prices." Some of the concluding paragraphs in this paper indicate how much agreement for change had been reached or accepted by those who previously disagreed with the underlying actions to be taken:

In monetary policy, a middle but consistent course, similar to that adopted in England and in the British Empire, and the Scandinavian countries is recommended. The gains which have accrued from the depreciation of the dollar should not be sacrificed—on the other hand, the risks of further uncontrolled and widely fluctuating depreciation should be avoided.

The policies above recommended can be pursued satisfactorily if, and only if, public confidence in the money unit is sufficient to make possible private as well as government credit on a large scale and at reasonable rates of interest. It is therefore recommended that a considerable degree of stability in the money unit be maintained at a level low enough to consolidate gains of depreciation, but at the same time not too low to disturb investors' confidence in the future of the dollar. ...Actual stability gains of depreciation, but at the same time not too low to disturb investors' confidence in the future of the dollar....Actual stability within broad brackets, similar to that obtaining in Great Britain and in the Scandinavian countries would probably stimulate business confidence at the same time that freedom of monetary action were being retained.<sup>42</sup>

On October 22 the final draft of the speech FDR would read in his fireside chat was reviewed in the late afternoon by Rogers and Morgenthau; Harry Hopkins, personal advisor to FDR; Henry Bruere, a close friend of Frances Perkins; Moley; Oliphant; Wallace; and Warren. There were some proposals for changes, but the final



Franklin D. Roosevelt and Henry Morganthau

#### Figure 1: Excerpt from Press Copy of FDR's Fireside Chat

October 22, 1933.

Address of the President delivered by radio from the White House

CAUTION: This address is for release in editions of all newspapers appearing on the streets NOT <u>EARLIER THAN</u> 10 o'clock P. M., Eastern Standard Time, without further notice of release.

> STEPHEN EARLY Assistant Secretary to the President

It is three months since I have talked with the people of this country about our national problems; but during this period many things have happened, and I am glad to say that the major part of them have greatly helped the well-being of the average citizen.

Because, in every step which your government is taking we are thinking in terms of the average of you - in the old words "the greatest good to the greatest number" - we, as reasonable people cannot expect to bring definite benefits to every person or to every occupation or business, or industry or agriculture. In the same way no reasonable person can expect that in this short space of time, during which new machinery had to be not only put to work, but first set up, that every locality in every one of the 48 states of the country, could share equally and simultaneously in the trend to better times.

The whole picture, however - the average of the whole territory from coast to coast - the average of the whole population of 120,000,000 people - shows to any person willing to look - facts and action of which you and I can be proud.

In the early spring of this year there were actually and proportionately more people out of work in this country than in any other nation in the world. Fair estimates showed 12 or 13 millions unemployed last March. among those there were, of course, several millions who could be classed as normally unemployed - people who worked occasionally when they felt like t, and others who preferred not to work at all. It seems, therefore, fair to say that there were about 10 millions of our citizens who earnestly, and in many cases hungrily, were seeking work and could not get it. Of these, in the short space of a few months, I am convinced that at least 4 millions have been given employment - or, saying it another way, 40% of those seeking work have found it.

That does not mean, my friends that I am satisfied, or that you are satisfied that our work is ended. We have a long way to go but we are on the way.

How are we constructing the edifice of recovery --- the temple which, when completed, will no longer be a temple of money changers or of beggars. but ather a temple dedicated to and maintained for a greater social justice, a greater welfare for America --- the habitation of a sound economic life. We are building, stone by stone, the columns which will support that habitation. Those columns are many in number and though, for a moment the pro ress of one colum may disturb the progress on the pillar next to it, the work on all of them must proceed without let or hindrance.

We all know that immediate relief for the unemployed was the first essential of such a structure and that is why I speak first of the fact that three hundred thousand young men have been given employment and are eing given employment all through this winter in the Civilian Conservation Corps camps in almost every part of the Nation.

continued

#### Figure 1: Excerpt from Press Copy of FDR's Fireside Chat

As a further offective means to this end, I am going to establish a government market for . gold in the United States. Therefore, under the clearly defined authority of existing law, I am authorizing the Reconstruction Finance Corporation to buy gold newly mined in the United States at prices to be determined from time to this effor consultation with the Secretary of the Treasury and the President. Whenever necessary to the end in view, we shall also buy or sell gold in the world market.

My aim in taking this step is to establish and maintain continuous  $\texttt{control}_{\bullet}$ 

This is a policy and not an expedient.

It is not to be used merely to offset a temporary fall in prices. We are thus continuing to move towards a managed currency.

You will recall the dire predictions made last Spring by those who did not agree with our common policies of raising prices by direct means. What actually happened stood out in sharp contrast with those predictions. Government credit is high, prices have risen in part. Doubtless prophets of evil still exist in our midst. But government credit will be maintained and a sound currency will accompany a rise in the American commodity price level.

I have told you tonight the story of our steady but sure work in building our common recovery. In my promises to you both before and after March 4th, I made two things plain: First, that I pledged no miracles and, second, that I would do my best.

I thank you for your patience and your faith. Our troubles will not be over tomorrow, but we are on our way and we are headed in the right direction.

draft was essentially the same one accepted by Roosevelt that morning. Warren was included at a supper at the White House before the broadcast. Those attending included Moley, King, Ms. LeHand (FDR's secretary), Morgenthau, Oliphant, and Warren, among a few others. The speech was laid out on five legal size pages; Warren retained two copies for his files. Some of the key policy statements included in this document are shown in Figure 1.<sup>43</sup>

This announcement of actions to be taken, a little more than seven months into Roosevelt's administration, was a sharp and final step away from Hoover's and the nation's long-standing policy of a dollar convertible in a fixed amount of gold. The United States had taken the major step toward operating with a managed currency, essentially letting international market forces establish the value of the U.S. dollar. As Baumol and Blinder point out in a review of this period in their introductory economics textbook, "Under the gold standard, no nation had control of its domestic monetary policy, and therefore, no country could control its domestic economy very well."<sup>44</sup>

By taking this action the United States joined a group of northern European countries and those trading with England and the British Empire in establishing a set of exchange rates between their currencies, where the U.S. dollar or the British pound was the base for much of their commerce. The dollar and the pound were the standard for substantial trade, and communication about establishing a range of values for parity became important. Hence, when Warren was in Washington over the next few months he spent a substantial part of his time following the price of gold in Paris, London, and New York, and the value of the British pound relative to the U.S. dollar. Both governments saw the need for some stability in this latter ratio.

Reactions to Roosevelt's fireside chat in October were predictably varied. Treasury Under Secretary Dean Acheson was fired by Roosevelt because Acheson openly disagreed with the change in policy, believing that there was no constitutional basis for the authority to buy gold. Nevertheless, when Henry Morgenthau, Jr. was sworn in as Under Secretary of the Treasury, Acheson attended the ceremony and congratulated him. This civil and sporting action made a lasting impression on Roosevelt, who thought well of Acheson in later years in his continuing service in the government.<sup>45</sup> The week after the fireside chat, the *New York Herald Tribune* summarized the results flowing from Roosevelt's announcements:

- 1. the flight of gold and capital from Europe to the United States had been reduced;
- 2. newly mined gold from the United States was no longer going to Europe;
- 3. deflation in the United States had been checked.<sup>46</sup>

## Warren on the Cover of Time Magazine, November 17, 1933<sup>47</sup>

While Warren had sought to serve behind the scenes as one of FDR's advisors, *Time* decided to make him the subject of its cover story on November 27, 1933.<sup>48</sup> This story brought Warren's name and ideas to the attention of a greater cross section of America's general public. In its article, *Time* described Warren as "a new professor in the chair of U.S. economics" and reminded readers that "the President of the U.S. was his own Finance Minister." Warren's role in contributing to the content and central message of FDR's Fireside Chat on October 22 was disclosed, as well as his long-time associations with both Roosevelt and Morgenthau in Albany during the previous four years. The recent close association of Warren with Professor Rogers at Yale and their joint interactions with the Committee for the Nation were highlighted.



The article provided a quick overview of Warren's career, early years on the farm in Nebraska, his college education at Nebraska and Cornell, and his success as a teacher of farm management and his present concerns with prices and the agricultural depression. His contributions to FDR's Agricultural Commission in New York and the resulting rural policy initiatives were cited. With Morgenthau now acting as Secretary of the Treasury, Warren's position as a key advisor in that department was thus made public. Warren's desire to avoid public attention as an advisor was made clear in the article: "Since he has been in Washington he has spoken no word to the Press, written no articles, refused to express his opnions even by letter." Warren wanted to serve behind the scenes, leaving the central stage for FDR and his inner circle.

To replace Morgenthau as head of the Farm Credit Administration, FDR chose William I. Myers, who had been serving as the deputy administrator. In this manner, an able professor from Cornell became an

important figure in the Roosevelt administration, one who did much to put this national, farmerowned cooperative back on a sound financial base. Initially funded borrowed government with capital until it become solvent, the FCA now required farmers who obtained loans to also own some capital stock in the lending agency. With this appointment, Warren now had an informed, but exceedingly busy, friend and colleague in Washington with whom to discuss ideas when he was asked by Morgenthau to give advice or help prepare written statements.

In December 1933 Warren spent substantial amounts of time in Washington working as an



William I. Myers

advisor to Morgenthau and his staff. He met with Rogers and Oliphant rather regularly and at the same time prepared his address for the annual meeting of the American Economic Association in Philadelphia on December 28. Titled "Some Statistics on the Gold Situation," it was co-authored with Frank Pearson, as usual. In many respects it was an essay on the economic history of gold during the last 150 years, with special emphasis on production and prices of gold in the five years from 1929 to 1933, and gold's impact on wholesale commodity prices and general price levels in Western Europe and the United States. The authors presented a substantial body of data for seven countries using four graphs and eleven tables, which were largely the work of Pearson. Of particular interest were a series of index numbers reflecting daily changes in the prices of gold and their respective currencies in England and the U.S. before and after FDR's fireside chat in October 1933.

Warren and Pearson concluded:

Some Americans think that being on gold regardless of the rate is all that is required. They seem to have forgotten our experience from 1929 to February 1933. To set any figure that is to hold for a generation certainly involves a considerable element of risk, both to our prosperity and to the future of the gold standard. The gold standard might be unable to survive another unsuccessful world attempt to reestablish it. A proposal to provide some method for making future necessary changes in the price of gold without the necessity of long years of economic distress and political agitation would seem to be a conservative proposal. If the gold standard is to have a fair chance for survival, it requires some kind of safety valve.<sup>49</sup>

Comment on Warren's paper was provided by L. L. Watkins, University of Michigan, and reflected the general view that Warren's emphasis on the supply of and demand for gold overstated the more complex forces determining the general price level in the United States and other major countries with which we carried on trade.<sup>50</sup> Watkins was a strong proponent of working with other major countries to stabilize exchange rates and reestablish stable trading relationships. The need to restore confidence in the dollar was seen as central in moving out of economic depression.

Those leaders in Congress and the President's cabinet who disagreed with the decision to enter the world gold market fought back actively to establish greater stability for the dollar over the longer run. The New York bankers, the U.S. Chamber of Commerce, and a group of Congressmen set to work preparing new legislation that would consolidate the gains made from revaluing the dollar and provide greater stability in the marketplace. The Gold Reserve Act of 1934 became law when an important group within FDR's administration joined those seeking a return to an announced gold base for the dollar in writing new legislation. Once serious work on such bills was in progress in both houses of Congress, Warren spent substantial time making analyses and writing statements for Morgenthau. Both Rogers and Warren strongly encouraged that nothing be done to monetize silver until after this new legislation was agreed upon. Informally Britain, France, and the United States had already agreed to work toward controlling the price of gold between \$33 and \$35 per ounce by the end of November 1933. The new law provided the desired international evidence of stability.<sup>51</sup>

In January 1934 Roosevelt accepted the strong political and business forces seeking to establish an official gold value for the dollar and agreed with his advisors that the U.S. price of gold should be fixed by his proclamation at \$35 per ounce, with the contingency to raise the price if necessary. In this manner the U.S. Treasury gained a windfall in the value of its existing stocks of gold, prevented its export, set aside the gold clauses in private and public contracts, and generally denied citizens the rights to hold gold except for manufacture. Before the act was passed, Warren appeared for three hours giving testimony and answering questions before the Senate Committee on Money and Banking. He was one of the last witnesses and pointed out that this legislation would give the administration the right to manage the nation's currency. His formal statement to the committee was essentially the same one he gave three weeks earlier in Philadelphia to the American Economics Association.<sup>52</sup>

#### Return to Cornell

In February 1934 Warren spent most of his time at Cornell, teaching his graduate course on Public Problems of Agriculture and preparing for Farmers' Week, February 12–17. He made four presentations that week on familiar topics. There was the traditional breakfast one morning with a group of Genesee County farmers, which had been going on for more than a decade. His first speech, "Some Suggestions to Young Farmers," was a return to the topic of farm management. His notes emphasized the advantages for young farmers of using someone else's capital, rather than trying to take title to all the land that they farmed. He suggested avoiding the debt habit; it was a poor time to be a speculator. As usual he emphasized the value of good records. He was upbeat about the signs of recovery during the past year, but caution was one of his central points in this message.

The notes in his diary suggest that 1,500 were in attendance in Bailey Hall for his talk, "Some Public Problems of Agriculture." The February 1934 issue of *Farm Economics* was available for those in attendance. The tone of his speech is suggested by one of the lead paragraphs of that issue:

Conditions became so serious last February that a complete breakdown occurred in the credit structure of the nation and the suspension of the gold standard followed. A rapid recovery began in April and continued until July. The recovery was then checked until last fall; since then a gradual improvement has occurred. The various statistical measures indicate that the rate of improvement as a whole has been very rapid, but conditions were so bad that much of the long distance to recovery lies ahead.<sup>53</sup>

Warren made a number of points directed toward New York public policy. He talked about the cattle cycle and the need for public support for tuberculosis tests for cattle. He cited the advantages of building regional markets as centers for assembly and distribution of farm products, and urged that cooperatives be formed to operate them. He encouraged people to recognize that some branch railroad lines could no longer compete with trucks. He made a plea to modernize local government operations and concluded by encouraging real efforts to "…make our hills an asset through reforestation."<sup>54</sup> His central concern was directed to changes that could be made through actions taken in New York by both the people and the state government.

Warren's final lecture was entitled, "The Business Situation." It was here that he talked about national issues and presented many of the charts and tables he had used earlier when speaking in Philadelphia and Washington. He concluded with these comments:

Something of what has been accomplished since February 1933 is shown by the statistics of recovery. Prices paid to farmers in the U.S. fell to less than a third of prices before the depression and less than half the price level before the war. From February to June of this year prices paid to farmers rose 45%. But this still leaves them less than a half of the price level before the depression and far below prewar. The better feelings on farms are quite as much based on hope for the future as to the rise that has occurred.

The President now has authority to set the price of gold at any point from \$34.45 to \$41.34 per ounce of pure gold. The present price is \$35.00 per ounce or an increase of 69%....The immediate problem is to get out of depression. But it is hoped that provision will be made for an improved monetary system for the future.<sup>55</sup>

In addition to teaching his graduate seminar, Warren was busy with Pearson revising the manuscript for *Prices*, which was published through John Wiley and Sons the previous year. They decided to reissue it with a different title, *Gold and Prices*, as the new book would emphasize the importance of gold in establishing commodity prices and influencing the price level. Much of the statistical work that Pearson had been doing was related to this effort, as well as preparing the supporting materials for their co-authored speeches and papers.

In late February, Warren returned to Washington to speak before the Agricultural Committee of the U.S. Chamber of Commerce. In this speech he emphasized the changes that had occurred in commodity prices, especially for grains and cotton, and what might be expected in the year ahead.

In mid-March he spent some time consulting with a group of business leaders at the headquarters office of the Committee for the Nation. His notes suggest that considerable differences remained among these businessmen in their support for Roosevelt's policies. Warren found himself trying to help Rand, one of these leaders, to be more constructive in his criticisms of the NRA. He encouraged Rand to make less public criticism and more direct suggestions to the individual agencies about possible changes in their actions.<sup>56</sup>

On March 21 Warren gave a major speech, titled "The Gold Situation," to the nation's Academy of Political Science in New York City. He started on an historical note:

With the outbreak of the World War many countries went on a strictly paper basis for their currencies and stepped out of the market for gold as effectively as if they had demonetized it. Because of this decreased demand for gold, commodity prices in gold rose throughout the world. To anticipate that any such price level could be maintained when the gold standard was restored ignored reality.<sup>57</sup>

The body of the speech was constructed around the statistics of commodity prices and gold quantities and prices in the years between World War I and 1934, and the importance of the supply of gold and the "demand" for it in relation to commodity prices. His concern about the move toward dictatorship in Germany was readily evident. He concluded his presentation by stating:

[If] this form of government and social organization is to have a fair chance to show its merits, we must avoid any repetition of such deflation as we have suffered during the past few years. Some provision for better monetary control seems essential. If we establish a currency designed to maintain reasonable stability in the level of commodity prices, it is hoped that other countries will move in the same direction so that violent fluctuations in exchange rates may be prevented. But the well being of our people and the maintenance of democratic institutions is more dependent on the former than the latter.<sup>58</sup>

Warren's notes indicate that he was pleased with the invitation and the opportunity to address such a distinguished group. He prepared more than one draft of his presentation and strongly believed, as did many in his audience, that the monetary situation and economic instability in Germany and in other European countries was of great concern and might lead to other dictatorships. The strong emphasis on gold in the title of his speech reflected his own central concern for avoiding a return to the "gold standard" many continued to propose. His growing belief that the U.S. should move to rely on a managed currency was evident in his remarks, but he did not make the case for this policy directly. On March 29 he spoke at Cornell on "The Monetary Situation" in the faculty lecture series. Much of the body of that lecture was similar in tone and content to the speech he gave to the Academy of Political Science; his concluding statement in the mimeographed text was:

The safety of such a civilization depends on the adoption of some form of monetary control that will not permit the value of the currency to be upset every time the supply of gold or the demand for it changes.<sup>59</sup>

### Advising the Treasury on Silver

During April 1934 Warren spent considerable time in Washington at the Treasury Department, preparing notes and papers for Morgenthau on the role of silver in the economy and the legislation being pushed forward by Congressmen from the western states. He reminded Morgenthau that one of the actions taken at the London Conference in July 1933 was an agreement on silver, approved by sixty-six nations, which the U.S. had ratified in December 1933. The agreement gave power to each nation's monetary authorities to monetize silver as a base for its currency. There was now pressure through legislation to force action on this issue, already authorized by the Thomas amendment that was attached to the Agricultural Adjustment Act (AAA) when it was passed in 1933. For almost a year Roosevelt had opted not to use his discretionary powers to monetize silver. On March 15 Morgenthau had announced that he was opposed to any silver legislation that session; the House responded by passing Texas Representative Martin Dies's silver purchase bill four days later. In April Roosevelt met with a group of "silver" senators; he said he sympathized with their views but requested that they not force action through mandatory legislation. They were prepared, however, to stand up to the president and threaten some of his other requests to Congress. In this case the legislative branch prevailed; Roosevelt sent a message to Congress on May 22, asking for legislation that would permit the Treasury Department discretion in the timing and conditions of silver purchase. By June such legislation was in place.60

Warren's role in silver policy was minor, except for the statements he wrote for Morgenthau to use in his own presentations and in response to questions. None of the leaders among Morgenthau's close associates wanted the mandatory purchase program that the western and southern states so vigorously demanded. Roosevelt accepted this political reality in order to get along with Congress, allowing the silver lobby to win for themselves a substantial victory and subsidy for their producers.

Following Warren's work at the Treasury Department in April, he carried on some correspondence with Morgenthau and Treasury Counsel Oliphant, discussing issues related to the effect of silver on commodity prices (essentially none) and the need to keep control of monetary policy in Washington rather than on Wall Street. Warren spent most of his time in Ithaca working on drafts of the revised book to be issued in 1935 and in meetings in Albany with the State Committee on Rural Land Use Planning, which he chaired. Thomas E. LaMont and Martin P. Catherwood from Cornell's agricultural economics department presented reports to the committee about the progress made by staff at the college on their land classification work in individual counties. The fine relationships established earlier between the college and the governor's office and state legislature were maintained.

At the end of August Warren spent a weekend with the Morgenthaus in Washington before he attended the meeting of the International Conference of Agricultural Economists (ICAE) in Bad Eilsen, Germany. He also spent almost an hour with FDR discussing monetary conditions in Europe; his notes suggest that they agreed the chance of a return to the old gold standard was essentially no longer a factor in world commodity prices. For the first time Warren also chose to suggest that stronger



Members and visitors attending the Third International Conference of Agricultural Economists, Bad Eilsen, Germany, 1934. Warren is in the center of the front row with his legs crossed.

prices for wheat and cotton were not primarily due to actions taken by the AAA in restricting production of these crops. His notes about this meeting indicate that he feared he had irritated the president by his comments about the AAA. He followed up afterward by sending FDR a six-page memo providing index numbers on wholesale commodity prices for six countries on a monthly basis between January 1932 and July 1934, using prewar gold prices as a base. He left New York for Europe immediately following this trip to Washington.<sup>61</sup>

#### Trip to Europe and Return

As he had done a year earlier while in Europe gathering information for the president, Warren visited friends in Scandinavia, England, and France. At the ICAE Conference in Germany he presented his paper entitled "The Monetary Situation." Much of the content was similar to the speech he delivered to the American Economic Association in December 1933, with updated statistics and charts. In mid-September, while in London, Warren sent Morgenthau some notes on key observations he had made from his visits and meetings:

There is practically no interest in silver in Germany, France or Belgium and a very limited interest in England. One German professor at the Conference suggested that a portion of the reserve might be in silver but he did not want it used as any part of the measure of value. Germany is in a difficult situation for foreign exchange, but Hitler is very popular with a large proportion of the population and supported by a large proportion of those who are against him, because they see nothing better. The sore spot in Europe is Germany and the gold standard countries—Holland, Belgium, France, Switzerland and Italy. England is having a building boom and looks prosperous. The textile and coal-mining sections are less prosperous. There is no desire there to return to gold soon.<sup>62</sup>

Warren returned to the U.S. at the end of September. Morgenthau thanked him for his notes from Europe and forwarded them to the president. In mid-October Warren went to Washington, stayed with the Morgenthaus, and had lunch with Roosevelt to talk about what he had seen and heard while traveling in Europe. They went over some of the statistics that Warren had compiled for the "new" book on gold and its historic importance in the world economy. Warren's notes suggest that much of their conversation centered on the value of public works projects and their potential impact on the national economy. Before leaving Washington he met with a number of the Treasury staff and had lunch with Henry Wallace. Warren found Wallace convinced that the AAA was improving the health of agriculture, but he also noted that Wallace seemed to be lacking friends within the administration. As usual after Warren's visit, Morgenthau wrote to thank him for coming to Washington and for the helpful comments and advice Warren provided to his staff.

During the month of November Warren fulfilled a number of speaking engagements in the Northeast. While the titles of the speeches changed, his continuing interest was in explaining how commodity prices were determined and the role of U.S. monetary policy in the changes that had occurred since 1932. His first speech was to a large conference of extension workers from throughout the Northeast. The next week he spoke to the National Grange meeting in Hartford, Connecticut, and to the Association of Land Grant Colleges and Universities in Washington, D.C.

In early December Warren decided to take his wife Mary with him to Nashville, where he was to speak at the American Farm Bureau Federation meeting. The couple joined the New York delegation and they traveled together, a somewhat unusual occurrence in their life for the past two years. In Nashville, Warren spoke to a group with whom he felt at ease and where he received a strong, friendly welcome.



New York State Delegation, American Farm Bureau Federation, Nashville, Tennessee, December 1934

He produced a different, carefully written paper for this audience; it reflected a more comprehensive statement of "the monetary situation" as his thinking had evolved. Excerpts from his introductory statement and the last two paragraphs provide a sense of the speech:

Since April 1933, this country has made remarkable progress in recovery, but the bottom of the pit was so deep that we still have a long way to go. I doubt whether any of us can remember how bad things were. Progress in the different countries is very unequal. Australia and Sweden have made good progress; England is doing very well; conditions in the "gold-bloc" countries have steadily grown worse....

It is not necessary to use a "commodity" money. A managed currency has been successfully operated at many times. England has been off the gold standard in 38 of the past 138 years. She is running such a currency now. On each of these occasions gold currency was not functioning well. If she can run a managed currency fairly successfully in periods of monetary chaos, she ought to be able to run it easily in times that are more normal. The experiment that England is now running is of very great value to the world, and I hope that it will not be interfered with by other nations whose monetary operations are less successful and who would like to have England follow their less successful plans.

The question is whether we as a nation know enough about money so that we can adopt a measure of value that is more stable than a single commodity, and whether we dare risk a repetition of the chaos that the blind adherence to the gold standard brought. With our present high degree of organization to resist declining prices, could we stand another such period of falling prices as occurred in the gold-using world from 1873 to 1896? Could we stand another deflation as that which began in 1929? Is it wise for us to go back to a measure of value which permitted such chaos, or should we attempt to make some monetary progress?<sup>63</sup>

Warren was now committed to a managed currency for the United States, rather than a commodity dollar or a return to a currency pegged to the value of gold and/or silver. He was clearly opposed to the forces in the country who wanted to go back to a dollar convertible in gold. He probably saw this speech as a contribution to the effort to keep the management of monetary policy in Washington and a voice against return to control by the old international establishment dominated by bankers in New York, London, and Paris. In this sense, the speech was about as political in character as any national speech Warren was to make.

In early January 1935, George F. Warren was made a fellow of the American Association for the Advancement of Science. In typical fashion he made little note of this in Ithaca or at Cornell, but was extremely proud of this recognition. Interestingly, his certificate of recognition apparently was never framed, but was included among his papers, along with his diaries and letters for this period of his life.<sup>64</sup>

The American Association Advancement of Science This is to Certify George Frederick Warren has been elected a Tellow of the American Association for the Advancement of Science and is duly enrolled in the list of fellows Daled: January 8, 1935

AAAS Membership

During January Warren worked in Washington for Morgenthau, writing and rewriting at least six drafts of a statement on monetary policy for the Secretary of the Treasury to give before congressional banking committees. The sixth draft, including Warren's suggestions for possible changes, provided a chronological review of the actions taken on monetary policy since Roosevelt's inauguration, and brief statements about the reasoning:

I have tried to indicate that our actions with respect to monetary policy have been the actions that any intelligent group of men faced with our problems might have taken. Our actions, in other words, were not the products of abstract theories. They were in all cases rational responses to practical problems.<sup>65</sup>

The credit position of the American government has been enormously strengthened. As against a general fund balance of \$159 million on March 3, 1933, we had a working balance of \$1,680 million, exclusive of revaluation and seigniorage profits on December 31, 1934.<sup>66</sup>

I have tried to stress the fact that our actual monetary policy has been the result of highly practical problems; and that, judged by the way in which it has functioned, we have considerable ground for satisfaction with it. Recovery is far from complete. We still have considerable distance to travel before normal conditions are achieved. I think however that we can definitely say that the downward spiral of deflation was stopped in March 1933 and that we have made definite progress.<sup>67</sup>

Unlike Roosevelt, Morgenthau was not at ease under questioning and wanted to have a statement that he could enter into the record and then defend. The redrafts were to ensure that the facts were correct and that the language was finally his own words, not those of Warren or Oliphant, his general counsel. Despite Morgenthau's objective, the wording cited above often sounded like Warren and reflected his advice and efforts to include factual information throughout the presentation.

In many respects, Warren's contributions in Washington were largely made in the first two years of Roosevelt's presidency. He was certainly willing and anxious to be of service. He felt strongly about the need to move the nation off the gold standard, and saw his advisory role as a means to do something positive toward revaluing the currency and increasing commodity prices. His access to the president was gained primarily through his excellent relationship with Morgenthau, with whom he had worked so successfully for four years when Morgenthau was chairman of Governor Roosevelt's Advisory Committee on Agriculture.

Warren was one of many who had some impact on national policy for a brief period in those crucial first months of Roosevelt's presidency. FDR listened to many voices. He had the ability to encourage widely diverging points of view, to listen to them carefully, and then to act, if he either agreed or found the points of great personal interest. In those critical early days when actions were required, Warren's voice on monetary policy was one of those with whom Roosevelt agreed—to the point of taking decisive action on declaring a bank holiday, suspending payment in specie, and requiring private ownership of gold to cease. Clearly he had heard Warren's ideas on gold, along with many others, before he was elected president. His own desire to take the initiatives away from the banking establishment around the world was evident in some of his speeches during his election campaign. If Hoover was the "hard" moneyman, Roosevelt was the "soft" money campaigner.

Warren's position on the need to raise commodity prices was consistent throughout the decade preceding Roosevelt's election as governor and then as president. He believed that the United States should go off the gold standard and revalue its currency as a vital step necessary to move the nation out of the Great Depression. His excellent working relationship with Henry Morgenthau, Jr. gave him Roosevelt's ear, first in Albany and then in Washington. It was through Morgenthau that Warren served in any way he could when asked. When no more requests for his services came from Washington, he quietly returned to work in Ithaca, where he felt much more at home working in the university community of which he was so much a part.

#### Footnotes

- 1. Arthur M. Schlesinger, Jr., *The Crisis of the Old Order* (Boston: Houghton Mifflin, 1957), 172–74.
- 2. Warren Papers, Box 28-14.
- 3. Warren Papers, Box 28-16, page 17.
- 4. Warren Papers, Box 28-13.
- 5. Warren Papers, Box 28-15, diary.
- 6. Warren Papers, Box 28-16, diary.
- 7. Ibid.
- 8. Ibid.
- 9. Ibid.
- 10. Ibid.
- 11. Warren Papers, Box 28-17.
- Arthur M. Schlesinger, Jr., *The Coming of the New Deal* (Boston: Houghton Mifflin, 1958), 1–2.
- 13. Warren Papers, Box 28-17, diary.
- 14. Ibid.
- 15. Ibid.
- 16. Ibid.
- 17. Ibid.
- 18. Ibid.
- 19. Ibid.
- 20. Ibid.
- 21. For example, the CCC constructed many of the trails in the Finger Lakes State Parks including those at Watkins Glen, Upper Treman, and Taughannock.
- 22. Warren Papers, Box 28-20, diary. Alben Barkley (Kentucky) was chairman of the Senate Library Committee and a member of the Banking and Currency Committee. James F. Byrnes (South Carolina)

was chairman of the Senate Committee on Audit and Control and also a member of the Banking and Currency Committee. Marvin Jones (Texas) chaired the House Agriculture Committee and Henry Bascom Steagall (Alabama) chaired the House Banking and Currency Committee.

- 23. Warren Papers, Box 28-20, diary.
- 24. See Schlesinger, *Coming of the New Deal*, 195–232, for more information on the International Monetary and Economic Conference.
- 25. Warren Papers, Box 28-20, diary.
- 26. Schlesinger, page 221
- 27. Ibid, page 223
- 28. Schlesinger, 195–232, provides additional insights into the reasons Roosevelt had to act in behalf of the United States.
- 29. Warren Papers, Box 28-21, diary.
- 30. Ibid.
- 31. Warren Papers, Box 28-22, diary.
- 32. Ibid.
- 33. Ibid.
- 34. Warren Papers, Box 28-23, diary.
- 35. Ibid.
- 36. Ibid.
- 37. Ibid.
- 38. Ibid.
- 39. Warren Papers, Box 28-24, diary.
- 40. Ibid.
- 41. Ibid.
- 42. Warren Papers, Box 28-25, diary.
- 43. Ibid.
- 44. William J. Baumol and Alan S. Blinder, *Economics: Principles and Policy* (New York: Harcourt, Brace & Jovanovich, 1979), 742.
- 45. Schlesinger, Coming of the New Deal, 242-43.
- 46. Warren Papers, Box 28-26, diary.
- 47. The *Time* magazine cover can be viewed on the web at http://www.time. com/time/covers/0,16641,1101331127,00.html.
- 48. "Teachers & Pupils," *Time*, November 27, 1933. This article can be viewed in its entirety on the web at http://www.time.com/time/magazine/ article/0,9171,746344,00.html.

- 49. G. F. Warren and F. A. Pearson, "Some Statistics on the Gold Situation," *American Economic Review* 24, no. 1 (March 1934): 129.
- L. L. Watkins, "Discussion," American Economic Review 24, no. 1 (March 1934): 131–36.
- 51. Schlesinger, Coming of the New Deal, 243-52.
- 52. Warren Papers, Box 28-29 and 28-30, diary. The hearings on Senate 2366 were held January 19–23, 1934. Warren's discussion with senators and the text of his presentation were printed on pages 257–311 of the hearings.
- 53. G. F. Warren, "A Start Toward Recovery," *Farm Economics* (February 1934): 2010.
- 54. Warren Papers, Box 29-1, diary.
- 55. Ibid.
- 56. Warren Papers, Box 29-2, diary.
- 57. Ibid.
- 58. Ibid.
- 59. Ibid.
- 60. Schlesinger, Coming of the New Deal, 243-52.
- 61. Warren Papers, Box 29-6, diary.
- 62. Warren Papers, Box 29-8, diary.
- 63. Warren Papers, Box 29-10, diary.
- 64. Warren Papers, Box 29-12, diary.
- 65. Ibid., 6.
- 66. Ibid., 8.
- 67. Ibid., 10.

# Senior Professor

1935–1938

Warren must have enjoyed the excitement and opportunity to have a small, but important role in the policy-making process during the early days of Roosevelt's presidency. It was a time of great need and economic upheaval in the country. He was on hand when a number of major legislative decisions were made and was a part of the process when significant changes were established in U.S. monetary policy. He saw firsthand the complex manner in which FDR sought and listened to many differing views before taking a final position. Those first few months of 1933 gave Warren substantial insight into the national political process. No doubt, he took great satisfaction in the decisions to restrict specie payment, to go off the gold standard, and to move toward the use of a managed currency. All of this was difficult, even for the president, particularly in getting some key members of his cabinet and the Congress to accept these actions as best for the welfare of the country. It was a heady experience and Warren must have gotten great satisfaction from the results over time, even though some were different from what he initially expected.

There were other things about the New Deal, however, that Warren did not like. He tried to maintain silence about his personal opinions during his trips to Washington and only shared them with his close friends. He found the remarks of some of Roosevelt's advisors distasteful and inappropriate when they argued publicly against actions the president had taken, even though they had been present when decisions were made. His confidential letters to Morgenthau reflect some of this feeling. Warren was glad to make his ideas known and argued for them strongly, but he did not seek ways to make his differing views a subject for public discussion.

Most of Warren's time in Washington from 1934 forward was spent providing comment to Morgenthau on Treasury issues or in preparing papers for him. With his close associate, W. I. Myers, serving as principal administrator of the Farm Credit Administration (FCA), and F. F. Hill also on leave from Cornell serving as FCA deputy governor, he felt certain that this key part of the federal government was in good hands. It was now time for Warren to return to directing most of his energy and attention to policy issues in New York State and working with his academic colleagues at Cornell.

#### **Return to Department Business**

As usual Warren gave great importance to being on hand for Farmers' Week in Ithaca in February 1935. He made three presentations, including one before a large audience in Bailey Hall. The lead article in Farm Economics, which was made available that week, was written by Warren and Pearson and titled "Business Conditions." They were pleased to announce in the lead paragraphs:

In two years the average index for prices of all farm products in New York has risen from 56 to 93. In February 1933 prices paid to farmers in the United States for all food products were 51 percent of pre-war. The same food sold at retail at 97 percent of pre-war. In January 1935, the index of prices paid to farmers was 99 and the same food sold at retail at 130. Prices paid to farmers rose 94 percent whereas retail prices rose 34 percent. This shows how the unbalanced price structure of February 1933 is being brought into balance by rising prices. In general things which fell most, rose most.<sup>1</sup>

INIDE



FIGURE 3.—PRICES OF BASIC COMMODI-TIES IN SIX COUNTRIES EXPRESSED IN PRE-WAR GOLD CURRENCES AND PRICES IN CURRENCY IN THE UNITED STATES,

#### 1929-34 $\operatorname{Pre-war} = 100$



FIGURE 4.—PRICES OF BASIC COMMODI-TIES IN SIX COUNTRIES EXPRESSED IN PRE-WAR GOLD CURRENCIES AND PRICES CURRENCY IN ENGLAND, 1929-34 Pre-war = 100

Currency prices in England followed the world level of commodity prices until England left the gold standard in the fall of 1931. By raising the price of gold, she stopped the price collapse.

Currency prices in the United States followed the Currency prices in the Oniced States followed the world level of commodity prices until the United States left the gold standard in March 1933. By raising the price of gold when prices in gold were falling slowly, the United States raised commodity prices.

Warren also took particular pleasure in writing about the value of gold and showing the impact on commodity prices when England and the United States went off the gold standard (in 1931 and 1933, respectively) compared to six countries that remained on the gold standard.

The February 1935 issue of *Farm Economics* also included four articles on the dairy industry, explaining the flow of "western" cream into eastern markets by railroad from their points of origin. Wisconsin producers found it profitable at times to ship fresh cream to both Boston and Philadelphia, and were the largest suppliers outside the East; dairymen in Indiana were second. Leland Spencer and one of his students, *C.* W. Pierce, reported on milk routes in New York City and a series of time and motion studies of these routes, looking for more efficient distribution systems to respond to customer interests. Spencer also reported on a study of milk dealers operating in the city, including the number of retail and wholesale routes they ran and the nature of their costs.

In May 1934, H. M. Haag had written Agricultural Experiment Station Bulletin 598, *Government Costs and Taxes in Some Rural New York Towns*, summarizing his Ph.D. thesis. It documented in more detail the difficulties faced by all the units of local government in four counties: Allegheny, Chenango, Genesee, and Schuyler. Real estate taxes were the primary source of income for these government units, with state aid the second, but much smaller source. The study focused on the situations found in operating town governments under depressed economic conditions. Sources of revenue were studied in detail and compared with costs of operations. The largest expenditures were for roads, followed by welfare and debt service. The study documented clearly that the towns with the least taxable wealth had the highest tax rates per capita and the most problems in collecting taxes and meeting the needs of their citizens. Thus, highway expenditures were highest per mile in the towns with the greatest taxable wealth.

This study also reported the impact of a new method of granting state aid for town highways, which had gone into effect in 1931:

The present method of distributing state aid has decreased highway taxes in those towns with low wealth per mile of town highways. Tax rates, however, are far from equalized among towns of different wealth per mile. Further changes in state aid might be toward equalizing the tax rates for the bridge, machinery, and miscellaneous funds.<sup>2</sup>

Bulletin 598 was one of several reporting research by students and staff in the Department of Agricultural Economics and Farm Management to which Warren pointed with pride when he talked in 1932 at the American Farm Economics Association (AFEA) about the fine working relationships established between the college and state government.

#### Writing and Speaking about Monetary Policy

Morgenthau continued to communicate with Warren and when he asked him for a summary of his views on the concept of a managed currency, Warren sent this reply on March 1, 1935:

At the present time the idea of a managed currency has the widest world interest of any of the new proposals. If such a plan is followed, it would be best to change the price of gold every day so as to get used to it as England is doing. If this is continued for some years without any definite law, it would probably result in the re-establishment of the gold standard, because there would probably be a time when gold would be stable in value for some period and people would then say why not go back to it? Any permanent plan of this sort should have legislation requiring its continuance. It would undoubtedly require legislative provisions for using an index number as a guide.<sup>3</sup>

Warren and Pearson sent their new book, *Gold and Prices*, to the publishers on October 1, 1934, and it was released for sale early in 1935. It was reviewed with support and praise by some, but with less glowing comment from those economists who believed that going off the gold standard was a mistake. Warren kept the review from the June 1935 issue of *The Economist* and considered it fair.

> Professors Warren and Pearson have written a book that is partly a historical study of the relationship between gold and prices during the last 75 years. They are concerned to

GOLD AND PRICES GEORGE F. WARREN, Ph.D. Professor of Agricultural Economics and Farm Manageme at Cornell University AND FRANK A. PEARSON, Ph.D. Professor of Prices and Statistics at Cornell University NEW YORK JOHN WILEY & SONS, INC. LONDON: CHAPMAN & HALL, LIMITED 1985

describe especially the broad principles which can be shown by the figures of gold production, gold movements, and the prices of commodities to underlie the whole price structure over a long period.

...The authors are as conscious of the dangers of inflation as they are of the excesses of deflation. They approve the reflation to a "normal" price structure which has been attempted by the American government, partly in response to their advice. Against those critics who point out that some prices (e.g., scrap steel and hides) have recovered under this policy more rapidly than others (e.g., steel rails, boots and shoes) they are able to point that the latter had never suffered so severe a decline; in their case reflation saved them from a fall.

This is a book of solid facts and simple, if not crude, theory supply and demand and the quantity theory of money are the chief principles involved. There is no brilliant theorizing, sound or unsound. But as against the principles of many politicians, or against the defense of "sound money" the applied common sense of the authors appears on the whole reasonable, losing very little through lack of refinement. Only with a re-established price level, it might be argued, will the central banks be able to afford a subtler experiment; then will be the time to discuss the accurate adjustment of investment policy, which these authors leave out of account.<sup>4</sup>

In June 1935 Warren was invited to speak on "Gold and Prices" at the Cornell Alumni Institute. No doubt this was an excellent opportunity to sell and autograph a few copies of the book. He had copies of a mimeographed statement of seventeen pages, accompanied by eighteen pages of charts, available for those attending. Warren enjoyed the question-and-answer period following his presentation, including comments from alumni who disagreed strongly with the actions taken in Washington in 1933.

In July the American Institute of Cooperation held its annual meeting on the Cornell campus. Warren gave three speeches; the first was titled "Production and Use of Gold," and the second, "The Relation of Supply of and Demand for Gold to Commodity Prices." At each talk he provided a mimeographed copy of his remarks to anyone who wanted it. He noted that the materials all came from the recently published *Gold and Prices*. The third speech, "Prices in Various Countries," provided current information beyond that available in the book in response to questions about the possibilities of stability when there is no gold standard on which to rely. He concluded that speech with this paragraph:

The world is now confronted with the decision as to whether it will return to an automatic gold standard with its history of merits and demerits, or whether it will establish a more stable measure of value, that is a measure of value that is stable to the average of many commodities rather than only one commodity, but with gold as a monetary reserve. If the currency is stable to gold only, it must vary in value relative to the average of many commodities; the price of gold must be variable as it is today in England. For nearly four years England has managed her currency with considerable skill, but has adopted no permanent plan. Whatever the measure of value, it is desirable that the permanent plan be definitely prescribed by law.<sup>5</sup>

Warren's opinions about a managed currency were still evolving. This statement echoed what he had written to Morgenthau in March and reflected his developing view that a managed currency needed some basis in law, with the management process placed in the hands of a known group or entity and with the stamp of approval from Congress.

#### Research Output from the Department

One of the excellent experiment station bulletins reporting on the landclassification studies in process in New York State was published in June 1934.<sup>6</sup> Written by F. F. Hill and George T. Blanch, it was for Montgomery County, one of the areas with substantial areas of productive soils on both sides of the Mohawk River. Hill had been in charge of the department's land-classification efforts before he took a leave from Cornell in 1933 and went to Washington to help rebuild the Farm Credit Administration. This bulletin was one of the most useful in setting out the procedures followed in the large number of county studies then in progress. Each such bulletin included a copy of an overall county map designating all areas according to their expected best use in agriculture in the years ahead.

The importance and value of a study like this to town and local governments and to state officials is suggested by a few paragraphs from the summary:

The full value of land and buildings ranged from \$13.09 per acre in land class I to \$58.76 in land class IV. In one-teacher

school districts the average current expenses per pupil ranged from \$143 in land classes I and II to \$103 in land classes III and IV. For the same schools the average state aid per pupil ranged from \$119 in land classes I and II to \$46 in land classes III and IV. About 30 percent of the 850 miles of road in Montgomery County is hard-surfaced. Only 4.2 percent of the hard-surfaceroad mileage is in land classes I and II. It is suggested that an additional 300 miles of road be hard-surfaced. Only 8 miles of this is in land classes I and II....It is suggested that land classes I and II are probably better suited for forestry and recreational use than for agriculture. The State is probably the agency best suited to reforest this land.<sup>7</sup>

Warren took publications like this with him when he reported to the governor's Commission on Agriculture, as well as to the Committee on Rural Land Planning, which he chaired.

Warren did not lack for continuing opportunities to speak to groups within New York State and outside its borders. He used the materials he had carefully prepared for his three presentations to the American Institute of Cooperation as a base for many of these talks. He spoke at the North Atlantic Section of the American Society of Agricultural Engineers, the annual meeting of the GLF (Cooperative Grange League Federation Exchange) in October, and the New York State Farm Bureau meeting in November. One of the invitations, for which he prepared in more detail than most, was to speak to Professor Reed's economics class at Cornell on "The Value of Gold." Reed was an outspoken critic of Warren and a strong proponent of returning to the gold standard. Warren expected a somewhat hostile reception, but his notes suggest that it was a good opportunity for the students to listen to the differing views of two Cornell professors.

#### Warren Speaks Publicly about AAA Policies

As usual Warren attended the annual meetings of the American Farm Economics Association and the American Statistical Association in New York City, both of which were held at the end of December 1935. The title of his address at AFEA was "Validity of the Fundamental Assumptions Underlying Agricultural Adjustment." This was the first time that Warren spoke publicly about his concerns about the Agricultural Adjustment Act (AAA) and his reasons for raising questions about its policies. His short paper raised twelve issues in opposition to AAA in
"...adopting processing taxes and governmental control of production as a permanent policy." The first issue he discussed was "Variations Due to Acreage and to Weather":

Crop yields per acre planted are more variable than acreages planted. Even the yields per acre harvested are often more variable than acreages harvested. It is, of course, a serious statistical error to use acreages harvested, which are the ones usually quoted, as a measure of the variability in acres planted—i.e., of man's efforts. Control of acres planted will not be sufficient. If governmental control is to be permanent, it must control the quantity marketed.<sup>8</sup>

He followed this initial point with a paragraph of comments under each of the following headings:

- Relationship of supply to income
- Reduced supply and income when the whole price level is low
- The greater the surplus of a non-perishable product the less the effect of decreased production
- Permanent versus temporarily reduced production
- Effects on consumer good-will
- Effects of price on consumption
- Effects on foreign production
- Effect of government control on violence of fluctuations
- · Government loans or purchases to delay marketing, and
- Attempts at control, a consequence of neglect of other measures

He concluded with these final statements:

It is not a question as to whether production should be controlled. It has always been controlled. The question is as to whether control should be the algebraic sum of many individual acts based on individual judgments, or whether control should be exercised by government and by monopolies....If we follow the former procedure, we will push research and educational programs that will aid individuals in making wiser judgments as to the procedures which are best to follow. If the latter procedure is to be followed, we need to train individuals to be good followers of whatever program is adopted. Neither method is perfect—the question is, which is best for our generation?

...At best, modern society will find a steadily increasing number of prices and charges that change with extreme slowness. If the competitive society is to be our choice, we must prevent the recurrence of such a collapse in the price structure as occurred in the gold-using world beginning in 1929, because this leads to overwhelming demand for attempts to control prices individually, and often leads to the rigid economy of dictatorships. Our choice is between such a management of money as will prevent such a collapse in the general level of prices as began in 1929, or being forced to uneconomic attempts to control each individual price. The world has proved that an economic order based on individual enterprise cannot stand a deflation that cuts the level of commodity prices in half. It will either take steps to stop deflation or cease to be a democratic society. This country did not stop deflation one day too soon. The major accomplishment of the administration is that it stopped deflation. If we had had the wisdom to stop deflation in 1931 when England did, we would have prevented the economic ruin of millions of individuals; would have saved the city, state and national governments great expense; and would have saved ourselves from numerous experiments. Had we continued efforts to deflate as France and Holland are doing, the results are not pleasant to contemplate.9

In this summary, Warren championed the free enterprise system and opposed the efforts of the AAA to manage and control agricultural production. He recognized that free enterprise alone had not been enough to raise commodity prices in the 1920s. His last paragraph argued that "wise" decisions by government on monetary policy could make a large difference. Here he spoke in a public forum for the first time opposing Henry A. Wallace's efforts at the USDA to raise prices by establishing production controls and to try to manage the supply of crops coming to market. With this kind of open split with the leadership of the USDA, it was unlikely that Warren's connections in Washington would continue very far beyond his correspondence with Morgenthau and Oliphant at the Treasury, and with Myers and Hill at the Farm Credit Administration.

#### Work on New York Agricultural Problems and Issues

Warren spoke to the New York Horticultural Society in Rochester on January 17, 1936, and at its eastern New York meeting in Kingston

on January 31. The title of his speech, "Prices of Farm Products," was familiar to both audiences, but fruit and vegetable producers came in large numbers to hear what their old friend and mentor, now more famous around the country, had to say. As usual he found a way to talk in language they understood. He led off:

It is commonly said that supply and demand govern prices. Since a sale of apples for dollars is in fact an exchange of apples for gold; or an exchange of apples for an order of gold, which is the same thing; the supply of and demand for gold is just as important in the exchange as the supply of and demand for apples. Since the nation's money is determined by legislative act, a unit of money may be anything that the government chooses. If it chooses gold as currency and changes the amount of gold in the dollar, this adds another factor to price.<sup>10</sup>

For much of his speech Warren spoke from an outline and used charts and slides to make his points. Many of the charts were from the book, *Gold and Prices*, and reflected his work on the history of gold prices and production. The second part of the speech focused on the wholesale prices of apples by variety, using index numbers of their relative prices from 1879 to 1935. Much of this work and analysis had been done by his colleagues G. P. Scoville and T. E. LaMont. In the 1880s the most popular apple in terms of sales was Fameuse, commonly called the "Snow Apple." The Gravenstein was the second-bestseller at that time. In the decade of the 1890s the Alexander apple claimed the highest prices with Gravenstein close behind. At the turn of the century the McIntosh and Jonathan were introduced in sufficient numbers to make the list and have the highest prices. By the 1930s the McIntosh and Northern Spy topped the list in terms of prices, along with the Albemarle Pippin.

It is interesting to speculate on what Warren might have said about these varieties and the reasons for their changing prices. Consumer preference and the ability of different varieties of apples to hold their quality when shipped to market must have been a part of the discussion. The ten recommended varieties in the 1930s included Baldwin, McIntosh, Northern Spy, R. I. Greening, Fall Pippin, Wealthy, Jonathan, Twenty Ounce, Fameuse, and Gravenstein. In the twentyfirst century the McIntosh, Northern Spy, Jonathan, Twenty Ounce, and Gravenstein varieties are still commercially viable, either for fresh market or processing at some locations in the U.S. Since Warren found his way into farm management and agricultural economics by studying fruit farming in Western New York some thirty years earlier, he must have enjoyed talking again about this crop with the growers and buyers who attended these meetings in large numbers. It is doubtful that he spent much time on the influences of the supply of and demand for gold in this part of his presentation.

In February 1936, Farmers' Week as usual was central to Warren's interest. Eleanor Roosevelt attended these meetings, as she had rather regularly over the years while FDR was governor of New York, participating actively in the programs arranged by faculty in the College of Home Economics. She and Warren had lunch together on February 13; they talked about the AAA and the National Industry Recovery Act (NRA). Warren's notes indicate that he felt comfortable with her in explaining his concerns about government deciding what to plant and when to sell. He assured her of his strong support for the president and Morgenthau's leadership on monetary policy. After Farmers' Week he sent a letter to her in Washington, which included this comment:

I think the major accomplishment of the AAA was the giving of money to people in the drought area when they had nothing to sell. Such an unprecedented drought required some kind of relief measure. The AAA was in a position to act quickly. When it came to increasing incomes from cotton, their program was not so effective. Cotton has not risen much in terms of gold ...<sup>11</sup>

Warren gave three talks on successive days during Farmers' Week. The titles were not much different from those given in previous years. The first discussed "Some Current Farm Problems." The second was titled "The Monetary Situation" and used now-familiar charts and tables from *Gold and Prices*. His third speech, on the "Farm Price Outlook," covered some of the same materials included in the February 1936 issue of *Farm Economics*. Historical changes in the prices of corn, oats, hay, cabbage, and cotton were considered over the years 1923 through 1935. He concluded that presentation with this paragraph,

More research work is needed on the relationships of supply to price. More accurate estimates of supply and carry-over are very important for farm and commercial use. Little research has been done on changes in demand. After such developments occur, much more accurate estimates can be made.<sup>12</sup>

Warren rather regularly made a case for obtaining more money for research and for the need to improve the quality of the data available, whether it was for the Census of Agriculture or monthly estimates by the USDA of production and the amount of stocks on hand for storable commodities. His continuing interest was to provide more accurate data, which individuals could then use to make improved decisions for their respective businesses.

#### Leadership in Research and Publications

With both Myers and Hill in Washington, and Warren now spending more time in Ithaca, he was once again more actively involved in managing department affairs and its programs. He gave high priority to pushing ahead with the efforts to complete land-classification maps for the major agricultural counties as fast as the soils maps, climatological data, and topographic maps became available. Cornell's soil scientists in the Department of Agronomy were a crucial part of the process and worked in cooperation with the Bureau of Soils in the USDA.

The third land-classification map published was for Chemung County, a small county with substantial hill land. It also had valley soils along the Chemung River and its tributaries, which were intensively used for high-value crops like hops, tobacco, and market vegetables. For the first time Land Class VI was mapped for the most intensively used agricultural areas. The county map included the full range of classifications, from large tracts of abandoned farms and forest lands to areas of highly productive agriculture. The final map classified 43 percent of the acreage as Class I and 21 percent as Class II. The land classified as V or VI amounted to only 6.5 percent of the county's acreage but was crucial to its economy. This was the county in which W. I. Myers had grown up on a farm in the Chemung Valley, and where F. F. Hill had earlier studied abandoned farms on the hills above 1,500 feet in elevation. Thomas E. LaMont authored the bulletin summarizing the study. He had completed his Ph.D. thesis at Cornell in 1932 and was appointed to the faculty shortly afterward, when Hill was given leave to work at the Farm Credit Administration. LaMont soon was given responsibility for the land-classification projects throughout the state and wrote the bulletin on Broome County as well.<sup>13</sup>

In nearly all cases, the new land-classification map for a county was reviewed by a number of people within the county before the final lines were drawn and it was published. This proved to be an excellent way for the economic leadership in a county to learn more about its physical limitations and economic potential in agriculture. Not everyone agreed with the lines as drawn, but all appreciated the intent of the studies and having the information brought together.

Warren's continuing presence at Cornell led to a large output of bulletins by agricultural economists at the college in 1936, 1937, and 1938. His powerful personality pushed forward the preparation of the manuscripts and then their publication through the experiment station process. In 1935 only one of the college's twenty bulletins was authored by someone in his department. Undoubtedly the combination of the move to a new building, Warren's regular trips to Washington, and the leaves granted to Myers and Hill in 1932 and 1933 led to other items taking priority, such as teaching and college operations. In 1936 Warren saw that fourteen of the college's twenty-one experiment station bulletins were produced from manuscripts by authors in his department. In 1937 half of the twenty-four such bulletins came from authors in agricultural economics, and in 1938 thirteen of the twenty-seven bulletins were written by staff, including graduate students, in the department.

Warren had established himself as a major figure in the field and attracted able students from the Great Plains states, the Corn Belt, and the Northeast. As well as the reputation of the college, Cornell's academic standing was certainly an attraction for students to come to Ithaca. Warren set students to work gathering data on the economic problems of the rural areas of the state and the markets they sought to serve. The 1930s were a time when local governments needed assistance. The margins between receipts and expenses were narrow, even under good management, and both individuals and businesses were looking for new ideas and information. Warren believed that with more and fuller information, decision-makers would respond more effectively to their challenges.

Besides the land-classification studies for Chemung and Broome Counties, two other similar bulletins and maps were published for Tioga and Chenango Counties in 1936. These were authored by Paul Jones and Howard Tyler, and served as their master's theses since the basic methodology they used was now well established. The other ten experiment station bulletins published that year by members of Warren's department reflected the range of topics on which students and faculty worked. L. C. Cunningham's doctoral thesis on seasonal costs and returns in producing milk in Orange County was based on detailed records obtained on 111 dairy farms in the fluid-milk production area close to New York City. This publication centered on improving efficiency in the use of labor and feed. The gains in net income, obtained from managing the dairy herd for greater production in the fall and winter months, were carefully documented. Shortly after completing this study Cunningham was appointed assistant professor of farm management.

Because dairy farming was the most important source of agricultural income in the state, a series of studies were made in different production areas. Experiment Station Bulletin 644, issued in March 1936, had the

title, *Economic Studies of Dairy Farming in New York, XII: 150 Farms in the Tully-Homer Area.* This study was the third in a series for the area made at five-year intervals. It examined changes in labor and feeding efficiency over the ten-year time span and provided an excellent set of business analysis factors with which farmers keeping records could compare their own results. The author of the bulletin, John R. Raeburn, obtained his M.S. for completing the study. He later completed his Ph.D. at Cornell and returned to his native Scotland, where he rose through the ranks to become dean of agriculture at the North of Scotland University, Aberdeen.

One of the more innovative studies was published in the bulletin summarizing the Ph.D. thesis of Kenneth Hood, "An Economic Study of Part-Time Farming in the Elmira and Albany Areas of New York, 1932 and 1933."<sup>14</sup> At the bottom of the Depression, part-time farming provided family sustenance, combined with work in town when there were such opportunities. Soon after Roosevelt's inauguration, a Division of Subsistence Homesteads was established in the U.S. Department of the Interior with a revolving fund to help unemployed individuals in urban areas purchase subsistence homesteads with loans at low interest rates. Hood's study examined conditions and situations where part-time farming could succeed. The definition of a part-time farmer used for this study was "a person who lives in the country but who obtains a large portion of his income from some occupation other than farming."<sup>15</sup> In some cases the operator only had a good-sized garden. A few had substantial livestock or poultry enterprises.

Hood studied 725 part-time farms; the average operator's annual farm income plus privileges amounted to \$214. Unpaid family labor was charged as a farm expense but was one of the reasons for maintaining these enterprises. This bulletin documented examples of how part-time farms succeeded near urban areas. Living on a hard-surface road was especially important. Many of these families were on relief but found that the food and fuel produced on their farm made an important difference in their livelihoods. Reasons cited by families for living outside the city were increased earnings and cheaper living, love of the countryside, improved health, and a better place to rear children. The chief disadvantages for living outside urban areas were lack of transportation, conveniences, and poor roads. Almost 55 percent of the food produced on the part-time farms was consumed on those farms.

### Studies on Local Government

Four of the experiment station bulletins published in 1936 summarized studies of the operation of local governments in New York State and the quality of their services. W. M. Curtiss wrote "Use and Value of Highways in Rural New York."<sup>16</sup> It provided a history of the development of New York highways from the colonial period forward and then considered the use of highways in rural New York and the problems of their construction and maintenance. In the earliest years the town was the important unit of government for highway administration. Three commissioners were elected "to regulate, lay out, and alter the highways." Highways were grouped into several road districts and in each district an overseer was elected to superintend work done on the roads. The bulletin reported, "...practically all highway work was conscripted from the citizenry on the order of the overseer."<sup>17</sup> This was commonly called the forced-labor system of highway construction and maintenance, which continued into the nineteenth century in most rural towns. All male inhabitants between twenty-one and sixty years of age, with a few exceptions, were expected to work on the roads. Most of this work was done between April 1 and July 1.

During the years prior to 1890, little change had taken place in town-highway administration in New York. In 1873 the state legislature provided that any town might adopt the "money-system" for highway construction and maintenance. The need for highway machinery was recognized and real estate taxes were raised to pay for work on town highways. In 1898 the state government began to provide funding or aid to towns for highway purposes. Counties were relatively unimportant in highway administration before 1900. This bulletin provided important background information about the history of relationships among town, county, and state governments in building and maintaining rural roads. It also provided substantial new information on the intensity of use of town, county, and state highways.

In August 1935 Curtiss worked with the New York Farm Bureau and distributed 31,270 questionnaires to members on their use of roads of each type, the vehicles used on them, and estimates of the roads' value to them and to the value of their properties. Only 16 percent responded, but they provided information about the use of trucks and automobiles on the roads in fifty-two of the fifty-seven counties outside New York City. At that point in time 90 percent of the respondents owned automobiles and 52 percent had trucks. Curtiss reported that participating farmers concluded that upgrading a dirt road to a gravel base increased the value of a farm by \$9 per acre; the value increased \$21 per acre if the dirt road was upgraded to a hard surface. The bulletin concluded,

The net position of agriculture in New York would be greatly improved if practically every farm worth farming were served with an all-weather road. Not only would production and marketing costs be reduced, but the value of the farms as homes would be increased.<sup>18</sup>

Curtiss completed his study under the direction of M. P. Catherwood, who authored Bulletins 658 and 659, *Variations in Town Taxes in New York* and *Receipts and Expenditures of 876 New York Towns in 1934*.<sup>19</sup> As the titles of these two bulletins suggest, Catherwood gained access to data on the finances of towns through the courtesy of the Bureau of Municipal Accounts, N.Y.S. Department of Audit and Control. He thus could study all of the records available from the 932 towns in the state. Catherwood chose to omit towns in Nassau, Rockland, Suffolk, and Westchester Counties because they were largely urban in their orientation.

Catherwood's study on receipts and expenditures brought together data of interest and use to both the state government and the towns themselves. Individual towns could compare their experience to that of other towns of similar size. Because the chief expenditure items in most towns were for highways and welfare, substantial space in Bulletin 659 was devoted to these two topics. Catherwood examined many interrelationships with respect to the population of a town, as well as its population density, miles of highways per capita, and the values of real estate per capita. Towns with large areas, few people per mile of highway, and low real estate values per capita had the most difficulty serving their own residents, as well as people from other towns who used their roads. This kind of study helped the state develop and establish formulas for state aid to town governments in a more equitable manner.

Catherwood's second bulletin examined trends in town and special district taxes over the years between 1900 and 1934. By law, towns in New York at that time were grouped into two classes. With few exceptions, those with a population of 10,000 or less were in the first class; the more populous ones made up the second class. The major source of revenue for all the towns was real estate taxes. The tax law required that property be assessed at full value. This bulletin provided substantial information on the impacts over time of changes in population on taxes per capita in relation to taxable property and population per square mile. In 1934 density of population and taxable property per capita were the most

important factors influencing variation in taxes per capita. Fifty-seven tables in the bulletin provided a kind of census for New York towns, highlighting reasons for the growing differences in the ability of towns to carry out their responsibilities for highways and welfare. The towns with the greatest problems in 1934, of course, were those that lost population during the Depression as people moved from the rural hills to more urbanized areas.

Bulletin 657, *Local Government in Tompkins County, New York,* analyzed in detail the structure and operation of local government for the county where Cornell University was located.<sup>20</sup> One of the advantages of studying the interactions of the various units of

government in this county was that access could be obtained to the records of the city of Ithaca, as well as the villages, towns, school districts, and other special districts (water and street lighting). Anyone reading the bulletin could not help but note the overlapping functions of the units of government and the complexity associated with their operations. The intent of the bulletin was to help residents think about possible ways to improve the efficiency of these government operations. It provided historical data on taxes obtained from 1817 through 1933. The summary and conclusions spoke to the needs for governmental services, their costs, andalternativewaysofapportioning the costs of government. Of course,



T. Norman Hurd

responsibility for decisions about changes rested with the electorates of the several governments described. The author of this bulletin, T. Norman Hurd, became a faculty member in the department and served on leave in Albany twice as director of the state budget. He finally resigned from the faculty and finished his career as New York's budget director.

In many respects this set of bulletins was part of a larger educational effort to provide the state's citizenry with enough reliable information so that they might be able to move forward in their respective towns and counties to make responsible changes in local government. Warren saw an opportunity to provide information that would be especially of value to the towns and counties where income from taxes had diminished at the same time as needs for services in the form of highways and welfare increased. This effort helped the governor and state legislature respond with different formulas for assistance in education, as well as aid for highways and welfare. Governors Smith, Roosevelt, and Lehman strongly supported these initiatives by the department.

# Travel to Nebraska and Attendance at the ICAE Meeting in Scotland

Warren continued to correspond regularly with Morgenthau and his staff at the U.S. Treasury. He also communicated with E. A. Rumely at the Committee for the Nation and strongly supported the idea of expanding from thirty to fifty the number of commodities included by the Bureau of Labor Statistics in their monthly Index of Wholesale Prices. His opinion was that this index was widely used as a general indicator of the "general price level" and therefore should be more comprehensive in its coverage. During July 1936 he spent a week in Washington working with two of his former students who were now employed at the Farm Credit Administration.

At the end of July he made a trip to Nebraska to see his brothers and observe how well the crops were doing en route. He noted that all of the fields west of Lincoln, Nebraska, were not likely to produce enough grain to even provide seed for crops another year. Grasshoppers were damaging crops in Iowa and the pastures were brown. He noted the excellent rail service west of Chicago in contrast to the alternatives available on routes in the East. His time with his brothers was short during this trip. Both Henry and Herbert were feeling all the economic pressures that other crop farmers experienced. It must have been difficult for all of them, given the modest circumstances of the two older brothers as they approached retirement, while their youngest brother and his family were doing well in Ithaca.

Before attending the fourth meeting of the International Conference of Agricultural Economists (ICAE) at the East of Scotland College of Agriculture at St. Andrews, Warren prepared an article for the *Rotarian* titled, "Stable Wages vs. Stable Prices." His central theme was that increased efficiency in production would raise the purchasing power of wages: "All classes of the population will benefit in the long run, and profit most by a stable or slightly rising general level of commodity prices with wages rising as rapidly as efficiency increases."<sup>21</sup> He was opposed to efforts to establish minimum levels of wages for each industry or to index wages to increases in the price level. He saw increased productivity as the key to a better standard of living for all segments of society.

Before leaving for Scotland he received letters of introduction from Morgenthau to American diplomatic and consular offices abroad. The expectation was that once again he would report to Morgenthau and others in Washington about what he had observed and learned. This was an overseas trip to which Warren looked forward; he would see old acquaintances in a setting where he felt at home. He expected to see his friends and former students, Elmhirst and Currie, at Dartington Hall, as well as Keith Murray, now at the Agricultural Economics Research Institute, Oxford University. Moreover, he could get useful observations about the economies of many European countries from those attending the conference whom he had met at the three previous ICAE meetings.

Warren's own speech at the conference was part of the opening ceremonies. As first vice president, he followed Elmhirst in welcoming those in attendance. Although he had no inkling at the time, it would be his last appearance before this group, for whom he had much affection and great hopes for the future of this association he had helped found. Two paragraphs from this speech reflect his often-expressed thoughts about what was important.

During the past twenty years the world has made great progress in industrial mass production. All nations have also tried mass thinking. We have found that the factory method of mass production does not work well when we are searching for truth. The world of mass production needs a period of individual research and thinking. Progress in the search for truth moves irresistibly forward. Nothing can stop it, but it advances on a very uneven front. Progress takes place at a very rapid rate first at one point then at another. The last thirty to fifty years have seen a revolution in medical science, primarily due to the knowledge about bacteria. Chemistry has made great strides. The old alchemy is gone. Genetics has replaced superstition with science.

During most of this period economic science was very nearly stationary, but I believe we are now in the beginning of a period that will show an equal advance in economic science. Economic alchemy must be laid aside. In every advance in chemistry, engineering and the like, there is a threat to society, if not accompanied by an equal advance in the science of economics. It is however not enough that the doctors alone should know about bacteria. Public health requires universal dissemination of that knowledge. Similarly, it is not enough to discuss the laws of economics. That knowledge must be universally disseminated. The world of action cannot wait for science. It did not wait for medical science. It bled men for typhoid fever because it did not know enough to filter the water. It put them in closed rooms for tuberculosis instead of abolishing the common drinking cup and other sources of infection. So the economic world is today bleeding the patient because it does not know what it is doing. I need not enumerate to you the thousands of foolish things that are being done either because the laws of economics are not discovered or because the knowledge is not available to those who must act. It is the purpose of this Conference to exchange ideas and inspire each other to more zealous search for truth and obtain a wider dissemination of the little that is known.<sup>22</sup>

Warren also joined in the discussion following two different papers in a session centered on farm organization and economic development. After one presentation he pointed out:

Farms in the United States are probably the smallest in the world—when measured by number of workers per farm.



E. H. Thomson, George Warren, and J. P. Maxton, taken at the Fourth International Conference of Agricultural Economists, St. Andrews, Scotland, 1936.

According to the research work of Larsen of Denmark and Buck of China, we have fewer workers per farm than in either of these countries. We also have fewer workers than formerly in the United States. Our farms have grown larger in acres but smaller in number of workers....Every invention of machinery favors enlarging the farm. On the other hand, progress in education and in use of machinery increases the amount of produce required to pay for an hour of labor. As Dr. Zorner has stated, the smaller units are far more flexible in ability to meet labor emergencies.... What we call a family farm in America should not be compared with what are called "smallholdings" in Europe. A farm that has the equivalent of two to three men, one of whom is the operator, uses the same modern equipment as is used in corporation farms. It is not necessary that use of this machinery be confined to one farm in all cases. Tractors, combines, and grain binders are often used for custom work for neighbors.<sup>23</sup>

#### Before the discussion closed Warren spoke again:

If I may be permitted to speak twice, I should like to correct some misunderstandings. So far as I have observed, governments almost universally divide the land into too small units. When New York was settled after the Revolutionary War, they had the 50–100 acre idea. These were too small for family farms at the time, so that no sooner was the country settled than they began to combine farms and tear down houses....It is a mistake to expect a man to make his living on a farm that is too small to furnish full employment when modern machinery is used. This is dooming the man to perpetual unemployment, unless industrial work is available....As the representatives from Denmark and Czechoslovakia have just stated, it is the family farm or middlesized farm that produces farm products most cheaply, so in the United States, this is generally a two- to three-man farm.<sup>24</sup>

Warren enjoyed himself at the conference and warmed to this discussion period. Points of view differed; he spoke without notes but had the opportunity afterward to review what the recorder for the session had summarized for publication. No other session at the conference had as many pages devoted to discussion as the three opening papers. Evidently the debate was heated at times, with discussion continuing well after the formal session closed. Participants at the ICAE came largely from Europe, Great Britain, and North America, so English was the only language used in the discussion periods following papers. German was the other language frequently used or heard during the conference. Warren understood some German, but was most at home in serious discussions using the American version of English.

Following the conference, Warren wrote to Morgenthau about his impressions of the economic situation in Great Britain and what he had learned about the currencies of the major European countries:

I am, of course, gratified to see the rapid moves that are taking place in the gold-bloc countries. I hope you will use every effort to get Germany and Italy to come along. The German situation is, as you know, utterly chaotic, with marks selling at all kinds of prices and such a variety of restrictions, that it interferes with all business and tourist travel in Germany....I have, on a number of occasions called your attention to the excessive value of gold (note that I am speaking of value not price). I think that the pressure for gold hoarding will now be decidedly relieved and that gold may lose some of its excessive value in the not distant future. Ultimately it will lose in value very much. That is, prices of gold will rise....I hope that nothing will be done to interfere with the successful operation of the British and Swedish policies. Revaluation is merely an emergency measure but contributes nothing to a permanent solution to the money question. The money question will not be solved until we devise money that is stable in purchasing power.<sup>25</sup>

Morgenthau replied with thanks and said that he had shared Warren's letter with FDR. It is likely that some of the letter was intended as much for Roosevelt as it was for the Treasury Department. Warren had now become an advocate for a managed currency similar to the two "experiments" in Britain and Sweden. A final plea for money that is stable in purchasing power was a regular part of Warren's talks and written statements on economic policy. His continued emphasis on gold in his speeches and writing may be interpreted as his efforts to get rid of gold as a basis for the underlying value behind a nation's currency. He had concluded that a managed currency was the great hope for replacing gold in monetary policy. He may well have foreseen the day when national currencies would trade in international markets with somewhat stable ratios, as had been established then between the British pound, the Swedish krone, and the American dollar.

Warren was invited to address the annual meeting of the GLF on October 19, 1936. His address on the "Price Outlook" was heard by the 400 delegates present and also was broadcast on the radio. At the end of the month he joined a group of college faculty members in visiting counties where land-classification work had been completed or was then in process. This program was truly a college effort with strong support from Dean Ladd as well as the governor's office.

# The Department's Roles in the College

In the dean's annual reports, summary statements were made every few years on hours of instruction provided by individual departments. Such a summary was provided in the 1935 report. In the academic year 1934–35, the departments that supplied the most hours of undergraduate instruction were agricultural economics, botany, animal husbandry, and rural education, in that order. Agricultural economics provided 11.2 percent of the total and botany 10.8 percent. In terms of graduate school hours, agricultural economics provided 30.6 percent of the total. It had the largest number of students enrolled in the graduate school in the college, along with a large number of minors from other departments.

Faculty members listed on leave from the department were Professors W. I. Myers and F. F. Hill, both still at the Farm Credit Administration in Washington, as well as Assistant Professor Stanley Warren, who spent the fall semester at the FCA. Professor V. B. Hart was assigned to serve in Albany with the N.Y.S. Agricultural Conservation Committee.

One of the important components of the college's extension responsibilities was its radio service, which had evolved in the late 1920s. In the 1936 annual report, Extension Director L. R. Simons made this summary statement:

During the past year the radio service has broadcast about 3,720 manuscripts, addresses and other educational items. These include 1,280 manuscripts syndicated to 24 stations, which resulted in about 30,000 presentations of our syndicated items. In addition to the syndicated manuscripts, 741 broadcasts were made by county extension agents, 1,623 broadcasts from the university station, and 76 broadcasts by the staff on stations other than WESG. Altogether, our radio service results in an average of about 72 presentations a day over the 24 cooperating stations.<sup>26</sup>

Extension staff of the department regularly participated in these broadcasts, especially in the one-hour agricultural program broadcast by WESG at noon six days a week. One of the regular assignments of this group was to prepare news releases based on information reported in *Farm Economics*, in service letters, and mimeographed reports.

M. C. Bond, the department's extension leader, made these initial comments for the 1936 annual report:

The general aims of the extension work of the Department... continue to be concerned with direct and indirect means of raising the net income of farm families. The ultimate objective is the creation of conditions whereby farm families may have a higher standard of living and more time for intellectual development and recreation.<sup>27</sup>

Standard projects were reviewed. Efforts on outlook, farm account projects and record-keeping, farm finance and credit, cooperatives, and assistance to state and federal agencies were noted. Paragraphs on continuing efforts in creating public markets, in land use planning, and conservation were provided. The equivalent of about eight full-time men was engaged in extension programs during the year.

The 1936 *Report of the Experiment Station* listed fifty-six formal projects underway by faculty members and graduate students in the department, and seventy-five publications and mimeographed reports classified as scientific papers. Of that group, sixteen were papers or articles authored by Warren, or by Warren and Pearson, during the academic year 1935–36. Twenty research projects were described with a short paragraph each that provided a summary of the results obtained and a progress report. G. W. Hedlund, a future head of the department, filed this report reflecting the substantial financial difficulties farmers were facing:

Sources and costs of farm credit: Of 456 farmers in Genesee, Tioga and Ulster Counties, 83.3 percent obtained short-term credit during the year studied. Mortgage credit was owed by 53.7 percent of the farm owners. The farmers who used shortterm credit obtained an average credit of \$842 during the year. These farmers obtained 66.4 percent of this credit on open book accounts, 23.1 percent from banks, and 10.5 percent from other lenders. Approximately one-half of the mortgage credit was past due or due on demand. The repayment on all first mortgages during the year equaled 3.8 percent of the first mortgage credit outstanding. At that rate of repayment it would take approximately 28 years to retire all of the outstanding first mortgage credit.<sup>28</sup>

All in all the Department of Agricultural Economics and Farm Management was a busy place during the academic years 1935–36 and 1936–37. Warren had returned to spend more of his time in Ithaca, but still maintained a busy schedule of meetings and speeches throughout

the Northeast. He was invited to meet with the General Education Board of the Land Grant Colleges and Universities at the end of October 1936 and then addressed the New York State Farm Bureau Federation's annual meeting in Syracuse in November. The speech was titled, "The Economic Outlook." In early December he returned to Washington to work with staff at the Treasury on a new set of index numbers they were preparing. Warren spent some time with Morgenthau and passed on congratulations for his return to Washington for another four years. The election campaign had provided a strong mandate to FDR to continue his New Deal programs. During this trip, Warren did not include any comments in his diary about activities in the AAA programs at the USDA.

Warren attended the AFEA annual meeting in Chicago at the end of December. He had no formal role in the program but enjoyed participating in the sessions and talking with his former students and old friends. One of the sessions was devoted to land utilization. His comments on the role of the public sector in the purchase of land as part of the discussion were published in the May 1937 issue of the *Journal of Farm Economics*:

New York State is celebrating its fiftieth year in buying land not suited to agricultural purposes. We have now purchased over three million acres of land with no attention given to a program of assisting the people to resettle elsewhere.

There are, however, essential differences with which the people in New York State are confronted compared to other areas in the matter of relocation. In the first place, our people do not have to move long distances to find other opportunities. Second, New York State has purchased land only when the seller was ready. By this procedure, the seller has found a solution to his relocation problem before he offers his land for sale.

...If no nearby opportunities were available, the policy of New York State would not have worked. In any public land purchase program, it is desirable to have the maximum decision made by the people themselves. The infiltration type of resettlement has many advantages over community type of resettlement, and, in my opinion, should be followed whenever possible.<sup>29</sup>

Because of the success of New York's programs over time and the initial creation of the Adirondack and Catskill forest preserves, it seems likely that Warren may have been asked to comment near the end of the discussion. Once again he used the opportunity to express his reservations about centralization of authority in Washington and some of the national actions taken in land purchase and resettlement programs.

#### World Prices and the Building Industry: A New Book

With the publication of *Gold and Prices* in 1935, Warren and Pearson were already planning another book. Each of the authors had a long-standing interest in business cycles and both had written about and also attempted to measure the hog cycle and the cattle cycle. These were topics of discussion in chapters in their books published in 1933 and 1935. They also wanted to present what they had learned about prices in a number of countries in Western Europe when indexed to their national currencies and to the price of gold.

The preface to the new book explained their intent:

The first part of this volume is an attempt to compare prices of basic commodities in currency and in gold in various countries. The most important business factor to consider since 1914 has been the changing price level, that is, changes in the value of money. The next most important factor is the building cycle. This involves such a high percentage of the population and fluctuates so violently that, next to variations in the value of money, it is the most important business variable. The second part of this book is devoted to the building industry.

Recognizing the importance of basic commodity prices in the financial and business world, Wertheim & Co. of New York, London, and Amsterdam supplied funds and rendered other valuable assistance which facilitated the preparation of the index numbers for different countries. Their cooperation made it possible to visit a number of European countries to obtain prices that were already collected and make arrangements for the tabulation of prices of many commodities that otherwise would not have been available.<sup>30</sup>

Following this introduction, the writers listed the cooperating individuals and agencies that assisted in providing price data and index numbers. The countries from which these numbers came included: Australia, Belgium, Bulgaria, Canada, England, Finland, France, Germany, Italy, Netherlands, New Zealand, Spain, Sweden, and the United States. Cooperation was aided by the contacts Warren and Pearson had made at the ICAE meetings and by former Cornell graduate students who were now working in these countries. Funding from Wertheim & Co. and the contacts they supplied made a substantial difference in getting the price data and index numbers calculated in the uniform format that Warren and Pearson desired. This part of the book was an extension of the research that resulted in the publication of *Gold and Prices*.

Part I of the book examined the prices of basic commodities in the fourteen countries since 1914 on a consistent basis and their interrelationships. Index numbers established for forty basic commodities important in commerce in each country were presented graphically and in tabular form. These were first presented using the currency of each country as they would have been published by their respective governments. They were then recalculated using the price of gold instead of the national currency as the base. The authors then compared the two index numbers graphically for each individual country and then among the nations using both sets of index numbers. This dramatically differentiated Italy and France at higher levels when prices of commodities were indexed to national currencies. When indexed to gold, the numbers followed much more similar patterns from 1921 through 1936.

The last chapter in Part I provided a short summary of the outlook for prices. The first paragraph was a statement of Warren's beliefs on the "money question":

If a country operates a managed currency, it can have any kind of price level that it desires. A managed currency can be operated by a government agency without definite legal restriction. This is essentially what was done in England, beginning in 1931. It can be operated under definite legal requirements, such as the maintenance of a stable average price of basic commodities.<sup>31</sup>

After commenting that prices would probably rise rapidly in the event of another European war, they concluded the chapter:

There seems to be little probability of a material fall in prices of basic commodities, and considerable probability of a rise. Basic commodities have not reached their usual ratio to the cost of living. Therefore, the cost of living will rise much less than prices of basic commodities.<sup>32</sup>

This rather fearless forecast turned out to be correct, as World War II came much more quickly than the authors would have guessed.

The second half of the book focused on business cycles, particularly those associated with the building industry. First, they summarized the work of a number of analysts on building activity in cities like St. Louis and Chicago, starting in the nineteenth century and continuing to the 1930s. A variety of authors were cited and charts based on the work and research of Riggleman, Wenzlick, Newman, the Brookmire Corporation, and the Federal Reserve Bank of New York were reproduced with commentary. Warren and Pearson then synthesized a composite index for the United States, centered on the work from all the different studies, concluding, "The peaks average 18 years apart; the low points, 18 years."<sup>33</sup> They reviewed the literature from other countries and cities, including London, Glasgow, Hamburg, Berlin, Stockholm, and Montreal. Not surprisingly, they concluded:

The statistics of the building industry are extremely incomplete. Government agencies should determine farm, rural, and urban home construction of different classes, construction of manufacturing plants, office buildings and the like. If an attempt is made to smooth out these cycles, accurate data are needed.<sup>34</sup>

This major chapter was followed by efforts to relate building activity to railroad traffic, tonnage of shipping built, furniture production, interest rates, prices of stocks, and other indices of business activity. They concluded:

Apparently, the national industrial activity is subject to similar movements. The nation normally grows about three percent per year. This is a great tidal movement, largely independent of all others....The rhythmic movements of the long-time trend, the cycles and the ripples are occasionally altered for a time by very violent price movements.<sup>35</sup>

Part III of the book was an appendix of fifty-three pages explaining the methods used in obtaining the index numbers for currency prices of gold for each of the fourteen countries, as well as the sources and methods used to obtain quantity weights for the forty basic commodities included in the index numbers. Substantial information from each of the countries was documented.

*World Prices and the Building Industry* was the most experimental of Warren and Pearson's books that John Wiley & Sons published. Funding from Wertheim & Co. must have included money for publication. The work on index numbers of prices on a common base in fourteen developed countries in North America, Europe, and Oceania was similar to what they had been doing earlier, but encompassed a much wider base. Their exploration of cycles in building activity brought together earlier work by other analysts, followed by reports of their own explorations. In many ways this research was documented in a similar manner to their studies reported in Experiment Station Memoir 142, *Index Numbers of Wholesale Prices*, 1932; and Memoir 144, *Physical Volume of Production in the United States*, 1932.

The book was reviewed in the *Journal of Farm Economics* in May 1938 by Norman J. Silberling, Stanford University. He carefully described the outline of the book and what the authors had presented in its three major sections. He clearly disagreed with one of the main theses on which the authors' research was based:

Considerable attention is devoted to the relation in each country of prices in terms of currency to prices in terms of gold. Warren and Pearson insist that the breakdown of both gold and currency prices after 1929 occurred because of rise in the "demand" for gold; and that when this demand was modified in any country by departure from gold or a rise in the price of gold, the raw materials index in currency invariably rose. Little attention is paid to the possibility that physical supplies of raw materials accumulated as the depression developed and the flow of trade was hampered by many special obstacles, some of them political....Warren and Pearson at no point attempt to show just what is meant by the varying "demand for gold" or in what way this concept is related to an interpretation of price movements in terms of the varying quantity of currency media. To regard the demand for gold as being itself a function of credit expansion and contraction appears highly metaphysical and not likely to afford a useful tool for thought.36

This statement from Silberling's review summarizes the prevailing view of most economists with respect to Warren and Pearson's emphasis on the importance of the supply of and the demand for gold as a determinant of commodity prices, and hence, the general price level. In the opinion of the majority of agricultural economists, as well as the larger economics profession, his continuing "overemphasis" on gold reduced the effectiveness of Warren's analyses, particularly once the United States had moved more nearly to using a managed currency. Most recognized the benefits from moving to a managed currency, which Warren had championed. Warren may well have given all this emphasis to gold to ensure that the country did not return to the gold standard. Unfortunately, he did not make this additional point directly in his writing. Even if his central desire remained to move the United States to reliance on a managed currency, the continual reference to "the demand for gold" as a determinant of commodity prices reduced the effectiveness of his argument.

# A Semester of Teaching at Louisiana State University

In the first months of 1937, Warren and Pearson completed final work on the manuscript for their new book. In January Warren spoke on the outlook for prices to the New York State Vegetable Growers Association at their annual meeting in Syracuse and two weeks later to the State Nurserymen's Association in Rochester on the same topic. He accepted his usual position on the Farmers' Week agenda for three lectures in February.

Warren also accepted a heavy teaching schedule that spring at Louisiana State University (LSU). He taught a course in agricultural policy, for which his notes on his Cornell course in public problems of agriculture served him well. He taught a course on prices and used material from his recent books as the basis for the lectures and exercises. He also used this time to learn more about agriculture in the South, especially in the Delta country where sugar and cotton were major crops. He gave a number of public lectures; one of the early ones was on "The Gold Situation and its Effect on Prices"; another was "Some Factors Affecting the Price of Milk."<sup>37</sup>

Warren continued to correspond from Baton Rouge with Morgenthau. In a letter dated May 7, he expressed concern about the New Dealers who opposed recovery so that there would be greater acceptance for "revolutionary society." He clearly felt comfortable writing to Morgenthau and sharing whatever was on his mind. As usual he had some specific words of advice at the close:

A further rise in prices is necessary to bring the American price structure into balance. Since it is not possible to deflate highly organized labor or other administratively-set prices, the only way to bring the price structure into balance is by a further rise in prices. I enclose a statement showing that a considerable rise in prices will have to occur before any inflation occurs.<sup>38</sup>

While at LSU Warren received a letter from the University of Nebraska's Class of 1897, inviting him to participate in a celebration of the fortieth anniversary of their graduation at Lincoln on June 6, 1937. In case he could not attend in person, he was asked to provide

his classmates some information about himself and his family. He took pleasure in preparing this reply:

[There] are three sons, three daughters, a daughter-in-law, to say nothing of prospective daughters-in-law and sons-in-law. There is only one wife. The youngest daughter will be a dignified (?) senior at Cornell next year. The others as well as the wife are Cornell graduates. The oldest is a professor at Cornell.

During the daytime I have been professoring at Cornell for 31 years, and head of the Department of Agricultural Economics and Farm Management. Because there are so many good professors in the department it has a good standing in the State. That is how it is able to carry me along as ballast. I am doing some work for this university in Louisiana for a half-year. I have never dared to remain away for more than half a year for fear Cornell would discover that it gets along better when I am away.

As to advice for the next 40 years—well, if in 40 years there is anyone among us who has learned how to hide his shortcomings from a near-sighted world, what is the use of advice now?...I expect to come to the 50th anniversary; am practicing walking to be sure that I will be able to get there.<sup>39</sup>

Before leaving Louisiana Warren visited LSU experiment station sites away from the campus and made notes on their work in the culture of soybeans, sorghum, and vetch, as well as on cotton and sugarcane. He took pictures of the campus and the state capitol building, and noted in his diary his pleasure with the time spent in Baton Rouge and the hospitality of his hosts.

## Published Research in 1937 Experiment Station Bulletins

The department's effort to prepare and distribute land-classification studies and maps for major agricultural counties continued in 1937. Four experiment station bulletins and maps for Genesee, Steuben, Rensselaer, and Monroe Counties were published. Genesee and Monroe had some of the most productive soils and farms in the state. Both Steuben and Rensselaer had combinations of hill and valley soils. Areas of Land Class I and II made up 52 percent of Rensselaer, and 44 percent of Steuben Counties; in contrast Genesee had less than 2 percent and Monroe County had no areas in these classes. At a time when farming was slowly emerging from the depths of the Depression, these maps were especially useful to potential buyers of farmland, as well as to lenders, assessors, and county legislatures.

Professor Gad P. Scoville, initially hired as the first extension economist in the department, had taken responsibility for research as well as extension with the state's fruit industry. His bulletin, *Marketing Apples in the Champlain Valley*, examined a relatively small, concentrated area of apple production that directed its crop to fresh-market buyers in the metropolitan area of New York City. About 75 percent of the crop produced in 1933–35 was of one variety, McIntosh. This study looked in depth at the grades and prices received for different varieties at various locations in the state, and the packages used to ship fruit to the market. Special attention was given to methods of storage and transport in moving crops to market. During the early 1930s the costs of packaging, freight, and selling remained nearly constant, so returns to the grower were substantially reduced. Part of Scoville's effort was to examine possible ways to reduce selling costs so that growers could keep within the narrow margins remaining to cover their production costs.

Three other bulletins reported research completed under E. G. Misner's direction. The titles reflect the central focus of these projects: An Economic Study of Grape Farms in Schuyler and Yates Counties, Crop Year 1935 (Bulletin 670); An Economic Study of Vegetable Farming in New York: Market-Garden Farms with Greenhouses, Rochester Area (Bulletin 671); and Economic Studies of Vegetable Farming in New York: Market Garden Farms without Greenhouses (Bulletin 673). These bulletins provided an economic picture of some important parts of New York agriculture that had received only modest attention in earlier studies by farm management staff. Grape farms in Schuyler and Yates Counties were at the center of what has become the Finger Lakes wine industry. The years of prohibition made this an area of juice production. No doubt some wine was produced, but not officially until after December 1933 when prohibition was repealed with the passage of the 21st Amendment to the Constitution. The study of market garden farms with greenhouses demonstrated the importance of markets and strong management in this capital-intensive industry. Proximity to market, high-quality produce, and labor efficiency were key factors in success. The map on the cover of Bulletin 673 indicates something of the importance of vegetable crops to agriculture on many farms. Fruit trees and vegetables for canning were a fairly common combination on farms close to Lakes Erie and Ontario, and in the Hudson Valley.

It is easy to conjecture that the impetus to study fruit and vegetable farming and produce these experiment station bulletins came from Warren, with strong and repeated encouragement from the leadership of the N.Y.S. Horticultural Society. This would have been especially important as the Depression years hit their members hard at a time when weather conditions had been especially difficult. For some of the



same reasons, Bulletin 684, *Economic Studies of Poultry Farming in New York: Commercial Poultry Farms, 1926–33,* was published in December 1937. This was a comprehensive farm management bulletin similar in format to those issued regularly for the dairy industry. All of the farms included in these studies had flocks of 500 or more layers. The USDA also provided support for this project. Poultry businesses from thirty different counties provided business records for one or more years for this study. Some of the conclusions from the summary were:

A decrease of 1 cent per dozen in the cost of producing eggs increased the labor income \$50....An increase of 100 layers was accompanied by an increase of \$95 in labor income....An increase of 1,000 in dozens of eggs produced per man was accompanied by an increase of \$154 in labor income and a decrease of \$0.80 cent in the cost of producing eggs.<sup>40</sup>

One of the most interesting of these bulletins from the perspective of the early years of the twenty-first century is W. M. Curtiss's study, *Development of Highway Administration and Finance in New York*. Published as Experiment Station Bulletin 680, it traced the development of New York's highway system from the colonial period forward, starting in Manhattan with Petrus Stuyvesandt in 1647 and the appointment of three street surveyors (Roymeesters) who were hired

...to condemn unsightly and irregular buildings, fences, palisades, posts and rails within or near the city of New Amsterdam. They were especially charged with the control of erection of houses, extending lots beyond the survey lines, and setting up hog pens and privies on highways and streets. In 1652 laws were passed prohibiting fast driving in New Amsterdam. No wagons, carts or sleighs were to be driven at a gallop.<sup>41</sup>

This bit of early history was followed by a summary of the "Duke's Laws" from 1664 when England gained control of the colony, as well as examples of early laws passed by individual counties in the Hudson Valley.

Curtiss's bulletin brought together information from town, county, city, state, and federal sources on the laws and methods of financing highways that allowed New York's road and highway system to develop from its beginnings. The bulletin concentrated on legislation from 1890 forward, when the state took a more active role in helping finance state and county highways and their maintenance, and as automobiles and trucks became the dominant means of local transport in the 1920s and 1930s. For town and county governments and their employees, this bulletin brought together the basic legislation and authority under which they operated. It provided a perspective on funding and a historical record of how money had been allocated by the state over time and the sources of revenue for highways for 1900–35. It was also a basic, readable resource that explained how the current system came into being and the basis and authority for its operations.

The resources that Cornell's College of Agriculture and Warren's department put into its programs on taxation and local government were unusual compared to what was being done in most land grant universities at that time. The college's commitment to serve these needs of rural people followed the lead of its first deans, Isaac Roberts and Liberty Hyde Bailey. The Country Life Movement that Bailey had championed in Theodore Roosevelt's time was still alive, although it no longer was an effective national movement. Warren had encouraged M. Slade Kendrick to take the lead on this work in the 1920s; Kendrick's first research assignment was to examine taxes on farm property in New York State and the use of tax revenues by counties, towns, and school districts, and then to carry on the work focused on local governments. The work expanded in the 1930s to encompass preparing land-classification maps, studying town and county government operations, and establishing extension schools for highway superintendents and

town and county assessors. Another contribution in this effort was *Development of Assessment of Property and Collection of Taxes in Rural New York* by F. F. Hedlund, published in November 1937 as Bulletin 681. This was a companion volume to Curtiss's Bulletin 680, with many of the same general purposes.

Leadership of research and extension programs in local government was entrusted to Martin P. Catherwood, a dynamic young faculty member who had completed his doctorate in agricultural economics in 1930. State government leaders quickly recognized him as an effective teacher, leader, and administrator.



M. P. Catherwood

## Final Speeches and Meetings

Warren attended the annual meetings of the American Farm Economics Association and American Statistical Association on December 27–30, 1937. He had an opportunity, along with a number of others, to speak briefly on the general topic, "Objectives of the National Agricultural Policy." While he was allotted a time slot of ten minutes, his prepared speech was a full eight-page paper. Two paragraphs give a sense of his message:

In general we have found that the national government can wisely aid in road construction, education and research. Few expenditures of the national government have been so productive as expenditures in these fields. The Federal Land Bank is generally approved...

I am also greatly disturbed by the national consequences of too great centralized power in Washington. At a time when the British Empire is giving its dominions greater freedom, we are moving to try to make a continent uniform. We have conditions about as diverse as the British Empire—diverse as to race, climate, and economic conditions. I believe the success of the union of states has been in no small measure due to the number of things that the central government lets alone so that they could be handled by local circumstances....[The] attempt to bring everything under central control, instead of strengthening the central government, is in serious danger of weakening it, by arraying region against region.<sup>42</sup>

Warren could not bring himself to speak directly against the leadership of the USDA. However, he shared his views privately with friends and colleagues about Secretary of Agriculture Henry Wallace's efforts to strengthen his position within the government and establish production controls over agricultural output. He knew that Wallace also wanted to have greater control over the Farm Credit Administration, which his colleague, FCA Governor W. I. Myers, opposed. This speech was his way of voicing disapproval about further centralization of power in the executive branch.

One of the documents Warren carefully preserved was the page from the 1938 *International Who's Who*, where his brief biography was listed. He spent little time talking about his inclusion in honor societies or other forms of recognition he received during the 1930s, but was clearly pleased by them.

On January 6, 1938, Warren spoke about the "Price Outlook" to the Empire State Potato Club at its annual meeting, using the nowfamiliar charts and materials from other speeches. During Farmers' Week at Cornell in February he made three presentations. He spoke on "The Farm Outlook for 1938" on the first day. He gave a lecture on "Prices of Farm Products" on Wednesday, which was broadcast by the college radio station, WESG. His last lecture was in Bailey Hall, where he talked about "Adjustments Taking Place in New York Agriculture." In this presentation he discussed some of the materials and information prepared by his colleagues for the experiment station bulletins published in 1936 and 1937.

The lead article by Warren and Pearson in the February 1938 *Farm Economics* issue was uncharacteristically short. Titled "Farm Prices," it

spoke to the unwelcome news that farm prices had fallen during the past year. It was the last article in this widely distributed publication to which Warren made an important contribution. The first and last two paragraphs from the article follow:

Prices paid to farmers for farm products fell from an index of 131 in January 1937 to an index of 102 in January 1938. Farm prices were 70 percent of 1926 prices and were low compared with wages, debts, taxes, the cost of living, and prices of manufactured goods. A striking decline has occurred in the price of grains, cotton, potatoes, and apples. All these products are selling below prewar prices....

Many persons mistakenly believed that the rise in prices which began in 1933 would cause the cost of living to rise as much as the cost of basic materials rose. Of course, this



George Warren

could not have happened because the cost of living was high. From December 1932 to last June, prices of farm products doubled, but the cost of living rose only 11 percent. The maladjustment was being corrected, but complete correction would have required a considerable further rise in prices. The index number of farm prices in June 1937 was 124; and the cost of living, 147. Since last June, prices paid to farmers have declined 18 percent, but the cost of living has declined very little.

At no time since the beginning of the depression have farm products or other raw materials reached their normal relationship to wages, debts, taxes, the cost of living, and other inflexible charges. Last spring, this equilibrium was approached but not reached. Since the depression began, the price structure has at all times been deflationary.<sup>43</sup> These paragraphs, although few in number, have the sound of vintage Warren. He was reminding his readers that the prices farmers received still lagged behind their cost of living and prices for items they had to buy. As usual, he provided the facts behind his conclusions and tried to interpret the numbers in a readily understandable way. He was still busy teaching and educating the public, up to the end of his fruitful career.

The last speech Warren gave, for which he left a copy in his files, was to the New York Extension Workers Conference in Ithaca on March 23, 1938, titled "Trends in New York Agriculture."<sup>44</sup> He provided them with a substantial number of tables and charts, which covered some of the same topics discussed earlier at Farmers' Week, for their use in county meetings.

#### Last Months

At some time late in December 1937 or early in 1938, Warren was diagnosed with liver cancer. He and his physicians concluded that since it was so far advanced, overt actions to try to stem it would not be taken. He went about his work as usual on a part-time basis and, as far as he was able, did the things that he had always done. He stopped going to the office early in April and was hospitalized for a period thereafter. He was released from the hospital and continued working until the middle of May, when his condition required a return to the hospital. George F. Warren died on May 24, 1938, in Ithaca.

#### Responses and Tributes at Warren's Death

On June 1, 1938, William I. Myers returned to Ithaca from his leave of absence in Washington and resumed his position as professor of farm finance in the College of Agriculture. He was appointed head of the Department of Agricultural Economics and Farm Management on July 1, 1938. Professor F. F. Hill continued on leave in Washington and replaced Myers as governor of the Farm Credit Administration.

The June 1938 issue of *Farm Economics* replaced its cover page, usually replete with columns of index numbers, with an announcement of Warren's passing. Bordered in black, it was prepared by co-editor Frank A. Pearson, his long-time colleague and friend.

In the college's 1938 annual report, Dean Carl E. Ladd included a substantial statement reviewing the life and work of his long-time friend and mentor. Two paragraphs from that statement are of particular FARM ECONOMICS Department of Agricultural Economics and Farm Management

NEW YORK STATE COLLEGE OF AGRICULTURE CORNELL UNIVERSITY, ITHACA, N. Y.

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The death of the founder and senior author of Farm Economics occurred at Ithaca. New York on May 24. 1938. As a pioneer worker in the field of Farm Management, Dr. Warren established Farm Management research at Cornell and became Head of the Department of Farm Management on its establishment in 1911. The transition from studies of economic factors affecting the financial success of individual farmers to research in prices which affect the welfare of all farmers was a natural one for a man of Dr. Warren's brilliant and original mind. The importance of his personal work and his leadership in the field of Aaricultural Economics and Farm Management to New York State and to the Nation cannot be overestimated. The most fitting tribute that we, his associates, can make to his memory is to carry on the work to which he devoted his life to the best of our ability as nearly as possible in the way in which he would have wished.

interest. The first gives a summary of Warren leadership in building his academic department:

During the administration of Dr. Warren, the work of the Department of Agricultural Economics and Farm Management showed a remarkable expansion. At the conclusion of his leadership the personnel of the department included twenty professors working in such diversified subfields as farm management, marketing, prices and statistics, land utilization, history of agriculture, rural economy, and public administration and finance. Probably more than any other person, Dr. Warren was responsible for the introduction of scientific methods of research on these subjects, more especially on farm management and prices.<sup>45</sup>

Dean Ladd closed his statement with a tribute from Liberty Hyde Bailey, Warren's early mentor:

It is appropriate to repeat here a most fitting tribute by Dr. L. H. Bailey, former Dean of the College, under whose administration Dr. Warren's work at Cornell began: "George F. Warren was a man apart. He was singularly original. His department in the College of Agriculture broke new ground, at first against opposition. He amassed facts with tireless patience and perseverance. He chose able helpers and let them work out their destiny. He was incisive, and chose his words. A few words from him might change the course of a man's thinking. He was honest in his opinions to the point of clarity. He has contributed a great name to agricultural thought, and has left a strong, virile, well-manned department that will continue his work. The people on the land believed in him. We stop to ponder when such men leave us."<sup>46</sup>

Perhaps the most complete review of Warren's life and work was presented in the August 1938 issue of the *Journal of Farm Economics*. It was written by one of his former doctoral students, Professor E. C. Young at Purdue University. After reviewing his education, work at Cornell, publications, and public service in New York and for the federal government, he summarized Warren's contributions to the profession and to his students:

Between 1906 and 1938, Dr. Warren built at Cornell University a research and teaching organization unique in the field of Agricultural Economics. He has a lasting memorial in his research and in his students that has no counterpart in the United States. In a great educational institution he impressed his ideals, his character and his philosophy of life on his students in a manner with few parallels in modern education.

Dr. Warren's philosophy of life was simple, honest and straightforward. His influence on his students was so profound that the criticism was sometimes made that his students were in a measure small editions of himself. To his students this is understandable. He attracted students who were mentally equipped to use the scientific method in solving economic problems. He invariably used the inductive process in studying a problem and taught his students to do likewise. His dictum "get the facts first" became a part of the basic training of every student. Dr. Warren was never comfortable in reasoning, if the process led him far from the facts. Next to the greatness of his intellect, Dr. Warren's strongest characteristics were his unselfishness and his modesty.

He believed that Research and Education offered the greatest fields of opportunity for service for intelligent men and women. He followed this course consistently throughout his own life and refused to accept responsibilities or honors that would lead him away from this field.

He had a peculiar gift for discovering problems and initiating research in profitable lines long before the importance of these problems was generally recognized. His last great contribution in the field of prices is illustrative of this point. This research, begun before 1916, had reached a stage of development that made it invaluable when it was needed during the post war deflation. Lines of research once initiated were continued after the period of general popularity had passed. Dr. Warren believed in the cumulative value of economic research. The labor income studies initiated in the early days at Cornell are still repeated periodically. He believed that in order to insure honest conclusions, economic studies should be made before problems reached the controversial stage.

In recent years he attracted large numbers of graduate students from all parts of the world. He died at the height of his usefulness.<sup>47</sup>

# Warren's Continuing Influence on the Department and Cornell

With the return of W. I. Myers to Ithaca and his appointment as department head, the transition of leadership in agricultural economics was nearly seamless. One strong administrator was replaced by another, already proven as a national leader for the resurgent, well-financed Farm Credit Administration. Myers knew his department colleagues well; they in turn had great respect for him and his abilities and skills. Little had to change in the way things were done or in the structure of the department. Myers continued Warren's priorities for work on the county land-utilization and classification studies, local government issues, and marketing.

With the onset of World War II and America's entry into the conflict in 1941, academic work in agricultural economics continued, but on a much-reduced scale and with more limited resources. Tragically Dean Ladd died in 1943. Myers was chosen shortly thereafter to become the new dean of the college. Shortly after Myers became the new department head, F. F. Hill had returned to Cornell from his position as governor of the Farm Credit Administration. When Myers became dean, it was Hill who was chosen as the new head of the Department of Agricultural Economics and Farm Management.

With two of Warren's most able former students in top leadership positions at the college, agricultural economics faced the challenges of the postwar years with many of its senior faculty still on hand. Some faculty members (Ivan Bierly, W. M. Curtiss, and F. A. Harper) were attracted away to work at the Foundation for Economic Education, whose stated mission was to educate the public on the merits of a free market system with a minimum of government interference. Martin P. Catherwood, who led the department's local government programs before the war, became New York's commissioner of commerce for Governor Lehman. In 1947 he was appointed the second dean of the New York State School of Industrial and Labor Relations at Cornell. Thus, as the new department head, Hill soon had many key positions to fill, as well as a large influx of both undergraduate and graduate students for the department to teach as veterans returned to take advantage of the G. I. Bill.

Hill was a strong and able leader in the critical postwar years. Senior faculty members were already busily at work carrying on the excellent programs in farm management and marketing, and Hill made sure that extension efforts to serve the needs of farmers and rural people were given continued priority as well. M. C. Bond led these efforts, ably assisted by C. A. Bratton and a number of recent Ph.D. students. The work in local government was led by E. A. Lutz, while Howard E. Conklin picked up leadership of the work in land economics when Hill became department head.

Graduate education in the postwar years continued to emphasize the importance of collecting original data from farmers, businessmen, and consumers. With access to IBM equipment in the basement of the building and a group from the biometrics now housed in the building, students continued to benefit from learning how to collect and summarize original data, identify the importance of its variability, and develop effective ways to present the results to the public. This important heritage from the Warren years was kept alive and given even greater attention.

Hill recognized that there many important things resulting from Warren's productive leadership of agricultural economics that deserved continued priority and emphasis at Cornell. He saw that the state, as well as the public, had benefited from Warren's emphasis on getting and studying the facts about farms, businesses, and local governments. All the participants in these studies—those who collected and studied the data, and those who were the subjects of the research—profited from the process. Getting the results of such studies into print and distributed received precedence. Good communication and strong leadership in the department's extension efforts received encouragement and recognition.

Hill served as department head from 1943 to 1954 and also filled in as provost of the university in 1952 when Deane Malott became its sixth president. It was Hill who started the process of advertising new faculty positions nationally and hiring the first faculty members with Ph.D.s from other universities. Hill was elected president of the American Farm Economics Association for the 1950–51 year. He recognized that Warren had not only been a national leader in the profession, but also one whose national stands had led to some controversy. Warren's preference for hiring the best of his own Ph.D.s for faculty positions at Cornell led to a national reputation of having an "inbred" department. Hill set the pattern of searching widely for new talent and hired the first two such Ph.D.s in the 1950s. This practice was continued by G. W. Hedlund, his successor, and all of those who followed as department leaders. Hill had a great talent for working well with people of all different persuasions. He was greatly appreciated by his colleagues in the department and the university where he served with distinction and then finished his career as a vice president of the Ford Foundation.
#### A Lasting Image

From the perspective of the twenty-first century, it is clear that George F. Warren left his indelible mark at Cornell as a great teacher, writer, and educator. His ability to make his ideas come alive in both his speeches and on the printed page is legendary. He captured the minds of his students and listeners. His presence was commanding, yet the people who listened to him felt that he was one of them, a citizen concerned about their lives and welfare. He left behind a record of which his family and future generations of Warrens could be proud with good reason. He was a man of the soil who had made life better for those who were to follow in the paths he had trod. Indeed there was good reason for his name to grace one of the major buildings of the College and University.

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Nearly 70 years have passed since George F. Warren's death in 1938. The impacts on world agriculture resulting from the adoption of new technology by the end of the twentieth century and the rates of change in rural America could not have been forecast or imagined in 1938. Farm numbers have continued to decline rapidly in the United States; the industrialization of agriculture and the internationalization of the food industry have evolved at surprisingly rapid rates. Through it all, the college and the university have adapted well to these new challenges, seeking to serve their changing clientele of students, businesses, and government.

#### The Warren Family

All six of George and Mary Warren's children were to carry on in the paths of their parents as educators in a university setting. **Stanley Whitson Warren**, the oldest, spent his life as a faculty member in agricultural economics at Cornell. He was a much loved and admired teacher of farm management in the department founded by his father. In 1947, he received the College's first Professor of Merit Award selected by its seniors. He is well remembered in the community, not only as an outstanding teacher, but also for his work with Boy Scouts and for helping to save and restore the Eight Square Schoolhouse in the Town of Dryden as an educational center for elementary schools in the area.

**Jean Warren**, the second of the Warren children, also completed her Ph.D. at Cornell after first working as a county home demonstration agent in the state. She started her academic career on the faculty of the University of California, Davis. She was attracted back to Cornell as a professor in the College of Home Economics, where she worked until she took early retirement in 1965. She then served as a visiting professor at a number of different colleges in Argentina, Uruguay,



The Warren children as adults (left to right): Stanley, Jean, Dick, Fred, Martha, and Mary.

Mexico, Guatemala, and El Salvador. Like her brother Stanley, she was a popular teacher, both here and abroad, where she gained an excellent command of Spanish.

**Martha Warren** Hertel and her husband John raised their family in Ithaca and spent their lives as part of the university community. John (Ph.D. 1938) became a senior administrator in the Office of Resident Instruction in the College of Agriculture until his retirement. When mother Mary Warren moved out of the family's home in Forest Home, the Hertels became its next residents and continued their family's active participation in the life of the Forest Home community. One of their sons, Thomas Hertel, completed his Ph.D. in agricultural economics at Cornell, is now a member of the faculty at Purdue University, and was elected a Fellow of the American Agricultural Economics Association in 2004.

**Mary Warren** Swan married John, who graduated from Cornell and then became a county agricultural agent in New York State and later county director of extension. The Swans returned to Ithaca in the 1960s when John was appointed a state leader of agricultural extension for the College. Mary and John made their home in Forest Home, not far from the Hertels and the homestead where Martha and Mary had grown up.

**Richard (Dick) Warren** received his B.S. and M.S. at Cornell in 1934 and 1935, respectively. After completing his degrees, he moved to

the University of New Hampshire where he headed extension programs in poultry husbandry.

**George Frederick Warren**, the namesake of his father and grandfather, was always known as **Fred** by family members and professionally. He completed his B.S. in 1935 at Cornell and then came back to complete his Ph.D. in 1945. He became a professor of weed science at Purdue University and was later elected president of the national weed science professional association.

The professional drive and commitment to education of George and Mary Warren were passed on to their children and succeeding generations of Warrens. All of the immediate family completed undergraduate degrees at Cornell and continued to contribute to teaching and scholarship throughout their working lives.

#### **Professional Associations**

George F. Warren was one of the founders of the American Farm Management Association (AFMA) in 1910, which later joined with an association of agricultural economists and changed its name to become the American Farm Economics Association (AFEA) in 1919. It later became the American Agricultural Economics Association (AAEA) in 1968. Warren was also a major figure in the founding of the International Conference of Agricultural Economists, which held its first two meetings at Dartington Hall in southwest England in 1929 and at Cornell in 1930. That professional association continues as the International Association of Agricultural Economists (IAAE) and meets every three years at locations in different continents around the world.

Cornell faculty members in agricultural economics have continued to carry on in the Warren tradition by taking an active role in these national and international associations. The AAEA and its professional journals are respected parts of the economics profession. Warren was secretary-treasurer of the AFMA in 1910–12 and then served as its president in 1913. In 1924, W. I. Myers was chosen vice president of the AFEA and then served as its secretary-treasurer from 1927–31; he was elected president in 1934. In 1932, V. B. Hart served as vice president of the AFEA; Leland Spencer served as its vice president in 1935.

In the postwar years, Stanley W. Warren followed his father as a vice president of the AFEA in 1947. In 1951, F. F. Hill was the third Cornellian to serve as its president; Kenneth L. Robinson was elected vice president in 1957; and then for a span of 11 years from 1959–69, C. D. Kearl took on the responsibilities of secretary-treasurer. These

were the years when the business office of the national association was provided by the department where the secretary-treasurer was located; essentially it was a way that major departments subsidized the operations of the professional association. This practice ceased in the late 1970s when the AAEA established its office in Ames, Iowa, and hired an executive secretary.

Faculty members from Cornell continue to serve the profession. B. F. Stanton was elected as a director of AAEA for 1974–76 and then served as president in 1979. W. G. Tomek was named editor of the *American Journal of Agricultural Economics* (AJAE) from 1975–79 and then served as president of the AAEA in 1986. Ralph Christy was elected president of AAEA in 1997. Harry Kaiser served as one of the directors of the AAEA from 2003–05. Per Pinstrup-Andersen served as president in 2006 and Chris Barrett served as an editor of the *AJAE* from 2005–07.

Working for the professional association undergirding one's field of study provides personal satisfaction for those asked to serve and allows faculty and their departments to respond to changing needs of the profession over time. In the early years of the International Conference of Agricultural Economics, Cornell faculty were active in helping the founding president, Leonard Elmhirst, make it possible for this international interchange among agricultural economists to continue, particularly after World War II. Elmhirst continued to use his greatly diminished resources in the postwar years to bring representatives from western countries and the developing nations together for an initial conference at Dartington, England, in 1947. Encouraged by renewed interest, conferences were held in Italy (1949), the U.S. (1952), and Finland (1955). The author received a scholarship from Cornell's College of Agriculture to attend the 1955 meeting; earlier he had received a scholarship from Elmhirst to spend one year at Oxford University in a graduate program.

In the decade of the fifties and sixties, a fund was established to seek gifts to provide scholarships for agricultural economists under the age of 40 to participate in the International Conference of Agricultural Economics and present a paper or poster, or serve as a discussant for a paper. Early leaders in establishing this fund were W. I. Myers and F. F. Hill along with other leaders in the profession across the United States. The managing directors of the Farm Foundation in Chicago served as secretary of the fund's board of directors and managed the funds obtained and the scholarships provided. International conferences were held in India (1958), Mexico (1961), France (1964), Australia (1967), USSR (1970), and Brazil (1973). Sadly, Leonard Elmhirst died in 1974. The IAAE had survived in large part after the war because of his continuing commitment to bringing agricultural economists from all parts of the world together to better understand each other and their approaches to solving economic problems. Subsequent triennial meetings have been held in Kenya, Canada, Indonesia, Spain, Argentina, Japan, Zimbabwe, United States, Germany, South Africa, and Australia, helping to make agricultural economics more visible in each host country. One or more representatives from Cornell have attended all of these conferences around the world. In 1991, B. F. Stanton was vice president for program in Japan. Communication using fax machines allowed the preparations for that conference to move forward smoothly despite the distance and many cultural differences.

In the fall months of 2004 and 2005, the board of directors of the IAAE met at Dartington Hall in England and at Cornell University for weekend meetings to celebrate the 75th anniversaries of the two initial meetings of the ICAE at these locations. Robert Herdt, a retiree from the Rockefeller Foundation and adjunct professor at Cornell, organized the program in 2005, titled "Emerging Issues in Agriculture and the Role of the International Association of Agricultural Economists." Papers were prepared in advance by six internationally well known economists: Soren Frandsen, director general, Food & Resource Economics Institute (Denmark); Steven Were Omano, International Food Policy Research Institute (Kenya); Jikun Huang, director, Center for Chinese Agricultural Policy (China); Ruben Echeverria, executive director, CGIAR Science Council (Uruguay); Ashok Gulati, division director, IFPRI (India); and Bruce Gardner, professor, University of Maryland (U.S.). Discussion centered on the issues raised in these papers and suggested responses that might be made by IAAE and economists in the twenty-first century.

It was particularly satisfying to the hosts at Cornell to have these leaders from all parts of the world meeting in the seminar room in Warren Hall with its special table made at Dartington Hall after the first international meeting in 1929 that includes woods from each of the countries attending with country names carved into the appropriate blocks around the edges of the table. Memories of Elmhirst and Warren were an informal, but important part of the meeting, with pictures of participants in the first four meetings of ICAE still gracing the walls of the seminar room.

#### Department Faculty and Students, 2006-07

This book about the life of George F. Warren is being published 100 years following the year he was made head of the Department of Farm Crops in 1907. The department was soon to become Farm Crops and Farm Management, and then in 1911 simply Farm Management, when Bailey made Farm Crops a separate department. It became the Department of Agricultural Economics and Farm Management in 1919 and for most of the rest of the century was known simply as Agricultural Economics. After two earlier efforts to change the name to describe more accurately what faculty and students were doing, the name Applied Economics and Management was chosen and approved by the college and university in 2000.

**Faculty:** In 2007 there are 39 faculty members in the department with titles of assistant, associate, or full professor. In addition, there are 12 professional positions with titles of senior lecturer, lecturer, senior extension associate, and senior research associate. There are also 22 emeritus faculty, many of whom live in the Ithaca area and have desks or office space in the building. The 40 active professors have Ph.D.s from 25 different universities, including three located overseas. Those with final degrees from the University of California-Berkeley and the University of Wisconsin-Madison provide the largest numbers currently, but the diversity of backgrounds and experience gained at a wide variety of locations is readily evident.

**Graduate Students:** As always, this group plays an important role in the research and teaching efforts of the department. There were 78 students enrolled for M.S. (25), Ph.D. (49), and MPS (5) programs in 2006–07. Of that total, 20 students are from the United States and the other 59 come from 28 different countries: Australia, Belgium, Brazil, Canada, China, Colombia, Denmark, Germany, India, Indonesia, Iran, Italy, Japan, Korea, Lebanon, Malaysia, Mexico, Mozambique, Nepal, Nigeria, Pakistan, Palestine, Portugal, Taiwan, Thailand, Uganda, United Kingdom, and Zimbabwe. The diversity and breadth of the list reflect the range of interests and experiences of the faculty with whom these students are working. All the continents of the world are well represented. Important numbers come from the two most populous countries in the world, China and India.

**Undergraduate Students:** The undergraduate program in the Department of Applied Economics and Management (AEM) provides students with ten different specialization opportunities: accounting; agribusiness management; applied economics; entrepreneurship; environmental and resource economics; finance; food industry

management; international trade and development; marketing; and strategy. In 2006–07, there were 716 undergraduate majors in the department. The number of seniors graduating in 2006 with a major in applied economics and management was 216, a number much larger than 25 percent of the undergraduate total. This increase in numbers exists because of internal transfers from within the college and other colleges at Cornell, as well as transfers to the program from other colleges and universities. AEM is home to Cornell's accredited general business degree program for undergraduates—one of only two accredited programs in the Ivy League. In 2007, AEM was nationally ranked #10 by *BusinessWeek* and #11 by *U.S. News & World Report* in their listings for undergraduate business programs.

Extension and Outreach: One of the important functions of the department has always been to bring the results of research and scholarship to the public in a variety of ways. Cooperative Extension has been one of these mechanisms. Planning and holding workshops and conferences is an important part of this department's responsibilities. Conferences scheduled for 2007 included: Agricultural Labor: Preparing for the Future; Cornell Dairy Executive Program; Conference on Dairy Markets and Product Research; Cooperative Leaders Forum; Northeast School of Agricultural Lending; Northeast Agribusiness Seminar; National Grocers Association Leadership Development Program; Cornell Food Executive Program; Northeast Cooperative Council's Future Cooperative Leaders Forum; Cornell In-Depth Income Tax Schools; Agribusiness Outlook Conference; and Regional Income Tax Schools for Small Businesses and Farms. This list provides a sense of the kinds of interactions faculty and staff have with the several publics it seeks to serve in the state, region, and nation. These conferences range in length from one to two days to two weeks. The programs are conducted on campus or at a variety of locations across the state. Many involve faculty from other departments on campus as part of the professional staff.

**Programs with Web Sites:** Faculty work with other professionals in a variety of fields and disciplines at other locations, including cooperators in other states and nations, and maintain web sites as part of their programs. The content of the programs is suggested in part by their names: African Food Security and Natural Resources Management (Barrett); Agricultural Marketing and Management Interdepartmental Team; Agricultural and Small Business Finance (Gloy); Commodity Promotion Research (Kaiser); Cooperative Enterprise (Henehan); Dairy Farm Business Summary (Knoblauch); Emerging Markets in Africa (Christy); Entrepreneurship (Streeter); Food and Brand Lab (Wansink); Food Industry Management Program (McLaughlin); New York Farm Link (Staehr); and New York FarmNet (Knoblauch). The last two web sites are part of a program effort to assist farmers and rural businesses in New York that are in financial difficulty and to provide counseling in deciding whether to leave farming or what to do to resolve their problems.

The Department of Applied Economics and Management at Cornell University has a website, http://aem.cornell.edu, which provides additional information about the work of its faculty and students, and the materials summarized in the preceding paragraphs. Viewing this web site helps one appreciate the enormity of the changes in communication in the span of 100 years since Warren first headed a department in the college. One cannot help but wonder what the next 100 years will bring to education and the roles of colleges and universities as they evolve.

The structures of agriculture and business have changed mightily in the lifetime of the author. Yet, both agriculture and business will remain important subjects for continuing study because they are so basic to human life and the conduct of trade in our society. The work of the department and faculty that Warren headed has not been completed and will provide challenge to its members for many years to come.

> **B. F. Stanton** June 2007



#### Children of George F. Warren and Julia Stanley

Arthur Stanley Warren	Born: June 4, 1854 Married: Flora M. Bingham, 1888 Died: October 22, 1911
William Edward Warren	Born: April 25, 1856 Died: October 23, 1863
George Frederick Warren	Born: March 29, 1858 Died: November 21, 1863
Elizabeth May Warren (Lizzie)	Born: April 19, 1860 Married: Joseph James Renie, 1878 Died: November 18, 1895
Henry Grant Warren	Born: February 23, 1862 Married: Rebecca Jane Roby, 1892 Died: March 31, 1942

Alice Katie Warren (Allie)	Born: June 1, 1865 Married: Harry Joseph Noyes, 1891 Died: June 5, 1896
Herbert Franklin Warren	Born: January 23, 1868 Married: Cora Belle Kaylor, 1892 Died: January 3, 1948
Joseph Allen Warren	Born: September 7, 1870 Married: Mary May Philpott, 1898 Died: January 3, 1948
George Frederick Warren, Jr.	Born: February 16, 1874 Married: Mary Whitson, June 21, 1906 Died: May 24, 1938

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## Children of George F. Warren, Jr. & Mary Whitson

Stanley Whitson Warren	Born: April 30, 1907
	Married: Esther Jeanette Young,
	August 3, 1931
	Died: January 10, 1994
Jean Warren	Born: April 17, 1909
	Died: July 19, 1990
<b>Richard Warren</b>	Born: August 6, 1911
	Married: Dorothy Esther Brown, July 10, 1937
	Died: January 14, 1997
George Frederick Warren (Fred)	Born: September 23, 1913
-	Married: Ann Fusek, July 30, 1944
	Died: July 18, 1999
Martha Warren	Born: October 8, 1915
	Married: John Parker Hertel,
	August 6, 1938
	Died: May 7, 2004

Mary Warren Born: December 28, 1917 Married: John Curtis Swan, July 9, 1943 Died: January 7, 2005

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### Children of Arthur S. Warren & Flora Bingham

Alice May Warren Born: May 21, 1889

Henry Stanley Warren Born: August 12, 1891

Albia Ruth Warren Born: February 24, 1893

Calista Isabel Warren Born: May 28, 1895 Died: February 9, 1897

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#### Children of Elizabeth Warren (Lizzie) & Joseph Renie

Charles Warren Renie	Born: July 8, 1879 Died: August 18, 1880
George William Renie	Born: June 5, 1881 Married: Elizabeth Dunn, December 23, 1903
Joseph Arthur Renie	Born: October 5, 1883
Clara May Renie	Born: April 4, 1886 Died: December 14, 1901
Lyle Robert Renie	Born: February 3, 1889 Died: February 16, 1890
Mary Hazel Renie	Born: March 15, 1891 Died: March 27, 1891
Allen Stanley Renie	Born: September 7, 1892 Died: October 1972 in Oregon
Katie Alice Renie	Born: July 27, 1895 Died: January 27, 1896

### Children of Henry G. Warren & Rebecca Roby

Earl Stanley Warren	Born: February 4, 1893 Married: April 9, 1928 Died: April 7, 1979
Julia Fern Warren	Born: April 9, 1895 Married: Walter A. Gathman, December 1918
William Wallace Warren	Born: February 23, 1897 Died: May 24, 1899
Arthur Frederick Warren	Born: November 16, 1899 Married: Cordie Peterson, May 24, 1931
Albert Augustus Warren	Born: March 19, 1902 Married: Margaret C. Mapes, October 1928
Alford H. Warren	Born: May 7, 1905 Died: May 8, 1905
Mary Alice Warren	Born: October 10, 1906 Died: February 1, 1937

#### Child of Alice K. Warren (Allie) & Harry J. Noyes

Howard Lucius Noyes Born: February 13, 1893 Married: Milly Winifred Warner, December 5, 1915

## Children of Herbert F. Warren & Cora B. Kaylor

Ellen Fern Warren	Born: April 4, 1893 Married: Otto J. Paulus Died: February 3, 1980
Roy Hilton Warren	Born: September 11, 1894 Married: Ruth Miller, February 25, 1920 Died: August 29, 1972
Harley Lester Warren	Born: January 18, 1897 Married: Verda Skinner, May 20, 1922 Died: March 10, 1986
Alma Faye Warren	Born: March 21, 1899 Married: Ray O'Donnell, 1919 Died: June 17, 1969
Stanley Gray Warren	Born: March 12, 1901 Married: August 24, 1931 Died: January 21, 1971
Hazel May Warren	Born: October 1, 1903 Married: Walter Scott Died: April 23, 1989
Harold Thomas Warren	Born: October 23, 1906 Married: Myrna Hubbell Died: April 23, 1989
Clarence Dale Warren	Born: December 26, 1908 Died: February 7, 1909
Mabel Esther Warren	Born: July 2, 1910 Married: Roy Gueck, June 16, 1932 Died: November 30, 1989
Alice Lorinne Warren	Born: October 30, 1913 Married: Gerald Wolfe

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## Children of Joseph A. Warren & Mary Philpott

Myrna Warren	Born: January 18, 1900 Married: Arthur C. Tuesborg, 1930
Methyl Field Warren	Born: August 22, 1901 Died: September 9, 1901
Elliot Field Warren	Born: July 31, 1902 Married: Albertine Landfadt, 1926 Died: January 9, 1970
Seral Ivan Warren	Born: February 15, 1904 Married: Agnes Dunkel, August 14, 1927 Died: December 3, 1973
Harris Gaylord Warren	Born: October 10, 1906 Married: Judith Tornval, March 1933
Allen Joseph Warren	Born: April 27, 1909 Married: Irma Jean Myers, 1933
Phoebe Imogene Warren	Born: October 29, 1911 Married: William W. Monroe, June 1933
Forest Glen Warren	Born: December 15, 1913 Married: Olive Lauterbach, October 1942

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Numbe	r Date	Author and Title
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