

DEVELOPING THE COUNTRY
“SCIENTIFIC AGRICULTURE” AND THE ROOTS OF THE REPUBLICAN PARTY

by

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ABSTRACT

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This dissertation examines the emergence and political significance of the antebellum agricultural reform movement in order to investigate how economic change structured party realignment in the decade before the Civil War. It focuses attention on a critical yet almost ignored constituency of the period, northeastern farmers, showing why they would steadfastly support a Republican Party typically associated with manufacturers. Second, it uncovers the roots of one of our most powerful and enduring special interest groups—the agricultural lobby—demonstrating its powerful impact on federal policy as early as the antebellum period. It thus sheds new light on the causes of sectional conflict and on the course of American state development in the 1800s.

At midcentury the rural Northeast faced a four-fold challenge: (1) depleted soils resulting from over-cropping; (2) western competition in grains; (3) steady out-migration; and (4) increasingly virulent pest infestations. Agricultural reformers responded by arguing for a modernized “scientific agriculture” that would reinvigorate the northeastern countryside. The new farming would be intensive, sustainable, and profitable, its practitioners both market and technology savvy. In order to offset western advantage in grains, reformers urged northeastern farmers to specialize in hay, wool and perishables for nearby urban centers. In order to increase production, they urged the adoption of commercial fertilizers, rational bookkeeping practices, and other innovations.

I argue that as northeastern farmers shifted toward more capital intensive crop production for domestic markets, they forged an alliance with nascent American manufactures. Ideologically, this alliance was sustained by a vision of mutual reciprocity between town and country that promised rural modernization within a rubric of overall national growth. Practically, its substance was state aid for domestic economic development. Agricultural reformers lobbied vigorously for federal institutions such as land grant colleges and the Department of Agriculture while manufacturers demanded a protective tariff. Such claims on the federal government brought both groups into increasing conflict with southern slaveholders, who feared that any expansion in federal domestic functions portended danger for slavery. Consequently, agricultural reformers and manufacturers were drawn into the Republican Party’s antislavery cause as a way to break southern power in Washington.

Based on print and manuscript sources from across the Northeast, the dissertation integrates histories of party politics, commercial agriculture, education, the environment, and science and technology, to show how rural northeasterners organized themselves in order to demand that state and national governments help them prosper in a rapidly changing economy. These demands not only influenced the immediate course of American politics toward the Civil War, but helped define long-term processes of state formation by initiating a matrix of state and federal agencies that by the early twentieth century reached into virtually every rural county in the country.

*To the memory of my mother,
Elaine Ron (1943-2010)*

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INTRODUCTION

AGRICULTURE AND THE “ECONOMIC” CAUSES OF THE CIVIL WAR

In spite of historians’ best efforts, many educated Americans still believe in the so-called “economic” interpretation of the Civil War. This usually turns out to be some version of the story told by the Progressive Era historians Charles and Mary Beard of an inevitable showdown between northern-industrial and southern-agrarian interests.¹ Generations of professional historians have rejected the Beards’ account for its rigid economic determinism—“the South,” according to the Beards, “was fighting against the census returns”—yet many people still find these arguments compelling and entire public school systems continue to teach it. The California Board of Education, for instance, prescribes standards for the teaching of American history that include, under the heading of “the multiple causes, key events, and complex consequences of the Civil War,” the mandate to “trace . . . the differences between agrarians and industrialists.”² Yet most historians today believe the conflict to have been fundamentally about slavery, not the forwarding of industrial modernity nor the defense of agrarian traditionalism. Although they argue about whether slavery should be regarded as a proximate cause of the war or as an underlying source of tension that led to armed conflict only as a result of other circumstances, they agree that slavery went to the heart of the matter.

It is difficult to see how it could be otherwise. Given the alignment of foes, any alternative has to posit either no underlying reason at all or a sectional division that just happened to coincide with the boundary between slave and free territory. Oddly, the scholars who demoted slavery to a position of relative insignificance simply accepted the categories of “South” and “North” as if they were pre-given, natural entities. Why this particular geographical split should be the relevant one never seems to have concerned them. But that the Mason-Dixon Line attained such significance seems unaccountable if not for the fact that *all* of the states north of it abolished human bondage in the wake of the American Revolution while *none* of the ones south of it did likewise. Charles Beard’s quip that slavery merited barely a footnote in the history of the Civil War thus appears as inexplicable as it is indefensible.³

The Beardian dismissal of slavery followed closely on, though it did not endorse, a historiographical consensus on the Civil War that derived explicitly from racist assumptions.⁴ When

¹ Charles A. Beard and Mary R. Beard, *The Rise of American Civilization*, New ed. (New York: The Macmillan Company, 1962).

² California State Board of Education, *History-Social Science Content Standards for California Public Schools: Kindergarten Through Grade Twelve* (California Department of Education, 2000), 37, <http://www.cde.ca.gov/be/st/ss/documents/histsocscistnd.pdf>.

³ Beard is quoted as having said, “When I come to write my history [of the Civil War] I’ll put slavery into a footnote. The war was a struggle between an agrarian aristocracy and a commercial aristocracy and a parcel of western farmers who wanted free land,” in Nathaniel Wright Stephenson, “California and the Compromise of 1850,” *Pacific Historical Review* 4, no. 2 (June 1, 1935): 115.

⁴ Peter Novick, *That Noble Dream: The “Objectivity Question” and the American Historical Profession* (Cambridge: Cambridge University Press, 1988), 72–80, 235–236; David W. Blight, *Race and Reunion: The Civil War in American Memory* (Cambridge,

American historians subsequently rejected the Beardian view, they did so for a complicated mixture of reasons internal to the discipline and much broader in scope. Revised views of race formed only one among many factors in that shift. To a great degree, however, rejection of the Beardian view has been sustained ever since then as part of a general repudiation of a historiography either unconcerned with or openly hostile to black Americans. The dismissal of slavery as a significant cause of the conflict is now regarded as historically false and morally unacceptable.

Yet many people not invested in the internal dynamics of the history profession continue to find the Beardian economic thesis both credible and appealing. Ironically, the same tectonic shift in racial attitudes that has brought historians to put slavery at the center of their research agendas and thus at the core of the sectional crisis has led much of the public in the opposite direction. Steeped in more than two generations of intense race politics and cynical about government after a succession of wars and scandals, they can hardly believe that the “dead white men” of a century and a half ago could have taken up a moral crusade against black slavery, much less seen it through a catastrophic civil war. There is certainly warrant for this line of reasoning. As Leon Litwack showed long ago, northern politicians regularly delivered savage racist diatribes to approving audiences.⁵ Scholars have addressed this matter by distinguishing between political antislavery, which could actually draw strength from the racist impulse to deny blacks the benefits of citizenship, and moral abolitionism, which pointed toward a greater degree of racial equality. They have further shown that northern public opinion shifted from the former to the latter under the pressure of events dictated in crucial ways by the slaves themselves, and how it subsequently turned back again during Reconstruction.⁶ But while this helps explain the course of the war and its aftermath, it cannot explain the outbreak of hostilities. Nor does it address the nagging suspicion that economic interests must have played a central role in the consolidation of sectional division during the 1850s.

The basic question that historians have tried to answer is why northerners took a stand against slavery’s extension. More specifically, it is why the Republican Party suddenly appeared and swept the North during the mid to late 1850s. Our current understanding of that development is guided by two prevailing interpretations. The first, best articulated by Eric Foner in *Free Soil, Free Labor, Free Men*, posits free labor ideology and the Slave Power thesis as the discursive glue that held together a Republican coalition of former Democrats, Whigs and Free Soilers. In chapters on Salmon P. Chase and the Democratic Republicans, Foner draws particular attention to the critical role of non-Whigs in the new party. Their presence was highly significant, he argues, because it dictated “the virtual elimination from national party politics of the financial issues which had formed the core of Jacksonian political campaigns.” Having battled each other for years on the questions of banks, internal improvements and tariffs, Republicans of diverse political backgrounds “consciously

MA: Belknap Press of Harvard University Press, 2001); John Higham, *History: Professional Scholarship in America* (Baltimore: Johns Hopkins University Press, 1989), 167, 200–201.

⁵ Leon F Litwack, *North of Slavery; the Negro in the Free States, 1790-1860* (Chicago: University of Chicago Press, 1961).

⁶ Ira Berlin et al., *Slaves No More: Three Essays on Emancipation and the Civil War* (Cambridge: Cambridge University Press, 1992); Eric Foner, *Reconstruction, America’s Unfinished Revolution, 1863-1877*, New American Nation Series (New York: Harper & Row, 1988). The shift in racial views over the course of the war in one northern family can be followed in Robert Francis Engs and Corey M Brooks, eds., *Their Patriotic Duty: The Civil War Letters of the Evansfamily of Brown County, Ohio*, 1st ed. (New York: Fordham University Press, 2007).

avoided economic issues” in favor of a positive articulation of the free labor vision and forceful criticism of the southern slavocracy.⁷

Foner’s interpretation has proven remarkably robust. More than forty years after its publication, *Free Soil* remains indispensable to understanding the early Republican Party. Yet it has been challenged by a second major interpretation that emphasizes the prior breakdown of the existing two-party political structure in clearing the way for a new two-party system anchored at one end by the Republicans. The leading scholars of this approach, Michael Holt and William Gienapp, have demonstrated through minute scrutiny of voter behavior and party strategy at both the state and national levels that the Whig-Democratic alignment collapsed because new issues arose in the 1850s that displaced the old debates over economic policy and expansionism. The Republicans emerged, in this analysis, because they were best able to capture voters left politically homeless. As a result of superior leadership and continuing sectional tensions, Republicans won out over the Know Nothings to become the nation’s second major party, even as Democrats, despite losses, managed to survive as their opponents. In this explanation the inherent tensions between free and slave states could not escalate into warfare until the party system that had successfully managed those tensions broke down, largely as a result of unrelated ethnocultural divisions within northern society.⁸

If the free labor and party system schools thus treat the issue of slavery quite differently, they both downplay economic factors. Each responds to the Beardian identification of Republicans with industrialists by showing, in different ways, that “the Republican party was not simply the Whig party in new garb,” bent on the same old developmental policies Whigs had been advocating for years.⁹ This is not to say that they ignore economic factors. For Foner, free labor ideology grew out of the lived socioeconomic experience of the northern middle class. Thus Republicans’ antislavery convictions stood on a solid material base, which really did differ from southern society in fundamental ways. For Holt and Gienapp, economic developments remain mostly in the background, but they occasionally enter the main story in crucial ways. For example, Holt argues that the immigration of the late 1840s and the recession of 1854-1855 account for the rise of the nativist Know Nothing Party.¹⁰ In both interpretive frameworks, however, the economy is distinctly not at the center of analysis. Instead, the two schools focus, respectively, on ideological beliefs and

⁷ Eric Foner, *Free Soil, Free Labor, Free Men: The Ideology of the Republican Party Before the Civil War* (Oxford: Oxford University Press, 1995), pp. 168-170.

⁸ William E. Gienapp, *The Origins of the Republican Party, 1852-1856* (New York: Oxford University Press, 1987); Michael F. Holt, *The Political Crisis of the 1850s* (New York: Norton, 1983); Michael F. Holt, *The Rise and Fall of the American Whig Party: Jacksonian Politics and the Onset of the Civil War* (New York: Oxford University Press, 1999). The Holt-Gienapp interpretation draws heavily on the “ethnocultural” school of American politics, represented by the work of scholars such as Lee Benson, Samuel P. Hayes, Joel Sibley, Richard Jensen, Ronald Formisano, and others, which used statistical analysis of election returns to argue that American politics were largely determined by cultural, ethnic and religious antagonisms between different social groups. Holt contributed directly to this literature with his *Forging a Majority: The Formation of the Republican Party in Pittsburgh, 1848-1860* (Pittsburgh, PA: University of Pittsburgh Press, 1990). Holt and Gienapp also work within the framework of party realignments elaborated by the political scientists V.O. Key, Jr. and Walter Dean Burnham. For reviews of this literature, see the historiographical essays, “Ethnocultural Interpretations of Nineteenth-Century American Voting Behavior,” and “The Realignment Synthesis in American History,” in Richard L. McCormick, *The Party Period and Public Policy: American Politics from the Age of Jackson to the Progressive Era* (New York: Oxford University Press, 1986).

⁹ Gienapp, *Origins of the Republican Party*, 446.

¹⁰ Holt, *The Political Crisis of the 1850s*, 159-161; Holt, *Rise and Fall of the American Whig Party*, 805.

on electoral dynamics. Criticizing the Beards for differentiating between North and South on the basis of “specific legislative policies,” they appear explicitly to rule out the economic policy arena as a site for understanding the Republican Party’s formation.¹¹

If political historians have rejected the Beardian focus on policy, they have not really thought about the Beardian canon of actual policies, which Foner summarizes as “a high tariff, a centralized banking system, government aid to internal improvements, and a homestead law.”¹² This list curiously neglects two major Republican economic measures: the Morrill Land Grant Act and the Department of Agriculture (USDA), both passed in 1862.¹³ Given the immense importance of these enactments, even relative to the Beards’ formidable array, the omissions are extraordinary. The Morrill Act formed the foundation of a state college system unique in the world for its commitment to democratic access and its extension work with farmers, while the USDA pioneered the growth of the modern federal bureaucracy and became, in many respects, the fountainhead of American state science.¹⁴ Combined, these two sets of institutions did nothing less than revolutionize global food production. On the other hand, American industrialization would surely have occurred in the absence of a tariff, the wartime banking system was replaced within fifty years by the Federal Reserve, and the transcontinental railroads, we have recently learned, did little to promote economic growth.¹⁵ Among the Beards’ list of critical Republican policies, only the Homestead Act has left a clearly transformative legacy, though here too historians have sometimes questioned the law’s efficacy.¹⁶

How could Beard have ignored not only slavery but the Morrill Act and the USDA? The answer, of course, is that these were not industrial but agricultural policies. Moreover, they did not, as homestead legislation did, support the thesis of a grand bargain between northeastern industrialists and Midwestern grain farmers, an influential formulation that was subsequently amplified by the sociologist of comparative development, Barrington Moore.¹⁷ Like the Prussian “marriage of iron and rye” on which it was modeled, the grand bargain formed a pithy and plausible digest of a complicated political realignment. One might speculate that its Faustian quality, in light of

¹¹ Foner, *Free Soil, Free Labor, Free Men*, 5. Similarly, another of Beard’s well known works, *An Economic Interpretation of the Constitution*, has been criticized for “excessive concreteness” (Higham, *History*, 180).

¹² Foner, *Free Soil, Free Labor, Free Men*, 2.

¹³ For a useful examination of these policies in relation to the emergence of the Republican Party, see Sarah T. Phillips, “Antebellum Agricultural Reform, Republican Ideology, and Sectional Tension,” *Agricultural History* 74, no. 4 (Autumn 2000): 799–822.

¹⁴ Earle Dudley Ross, *Democracy’s College: The Land-Grant Movement in the Formative Stage* (Ames, IA: The Iowa State College Press, 1942); Daniel P. Carpenter, *The Forging of Bureaucratic Autonomy: Reputations, Networks, and Policy Innovation in Executive Agencies, 1862-1928* (Princeton, NJ: Princeton University Press, 2001), chap. 6–8; A. Hunter Dupree, *Science in the Federal Government: A History of Policies and Activities to 1940* (Cambridge, MA: Belknap Press of Harvard University Press, 1957), chap. 8.

¹⁵ Richard White, *Railroaded: The Transcontinentals and the Making of Modern America*, 1st ed. (W. W. Norton & Company, 2012).

¹⁶ Paul W. Gates, *History of Public Land Law Development* (Washington, DC: G.P.O., 1968); Paul Wallace Gates, “The Homestead Law in an Incongruous Land System,” *The American Historical Review* 41, no. 4 (July 1936): 652–681; Gary Libecap, “Property Rights and Federal Land Policy,” in Price Van Meter Fishback and et al., *Government and the American Economy: A New History* (Chicago: University of Chicago Press, 2007), 89–114.

¹⁷ Barrington Moore, *Social Origins of Dictatorship and Democracy: Lord and Peasant in the Making of the Modern World* (Boston: Beacon Press, 1967), 111–155; see also Richard Franklin Bensel, *Yankee Leviathan: The Origins of Central State Authority in America, 1859-1877* (Cambridge: Cambridge University Press, 1990), 66.

the later Granger and Populist movements, added to its narrative appeal. But while not entirely untrue, the thesis of a grand bargain between eastern capital and western agriculture obscures as much as it illuminates. That such a majestic interpretation has not come under more scrutiny can only be explained by the circumstance that the words “economic interpretation,” when attached to the words “Civil War,” have come to imply an apology for slavery. Even Foner, for whom economic conditions are basic, engages in an analysis of ideas rather than of economic trends. For the latter, he relies on the literature, and thus he works with an image of mid-nineteenth-century farmers that is implicitly Midwestern. To a great extent historians still do so. As a result, the Beards’ industrial interpretation has been allowed to pass for *the* economic interpretation instead of *an* economic interpretation.

PAYING ATTENTION TO THE RURAL NORTHEAST:
AGRICULTURAL REFORM AND THE DOMESTIC ECONOMY

Sven Beckert has recently called our attention to a significant northern economic division that became manifest in the political realignment of the 1850s. In New York City, merchants ensconced in the traditional economy based on transatlantic trade, including, of course, the cotton trade, viewed Republicans’ strident antislavery appeals with alarm. They therefore clung to their old party affiliations and advised appeasing southerners on the matter of slavery. On the other hand, a nascent class of artisans-turned-manufacturers tended strongly to favor the Republicans. Along with merchants engaged in internal commerce, this class of businessmen was oriented toward the growth of a domestic economy. They were threatened not by Republicans’ antislavery appeals, but by foreign imports. Still socially near enough to the shop floor to have had personally worked with their hands, this group shared a commitment to free labor ideology and to government-led development of the domestic market, particularly by means of a protective tariff. A similar political division, according to Andrew Dawson, emerged in Philadelphia. Transatlantic merchants thus took a pro-South position while manufacturers, who favored domestic development, became “solid Republicans.” These accounts are important because they link specific socioeconomic categories to particular political affiliations.¹⁸ But New York City and Philadelphia were not representative of the antebellum United States, not even of the North, which remained overwhelmingly agricultural throughout the period. Farmers made up the bulk of Republican voters and, particularly in the Northeast, remained loyal Republicans through the rest of the century.

In rethinking the role of economic factors in the coming of the Civil War, then, I begin with agriculture, and specifically with northeastern agriculture. As I argue in this dissertation, the Morrill Act and USDA emerged from an organized agricultural reform movement that developed first in the rural Northeast, which I define here as New England and the mid-Atlantic free states of New York,

¹⁸ Sven Beckert, *The Monied Metropolis: New York City and the Consolidation of the American Bourgeoisie, 1850-1896* (Cambridge: Cambridge University Press, 2001), 66–75, 85–94; Andrew Dawson, *Lives of the Philadelphia Engineers: Capital, Class, and Revolution, 1830-1890*, Modern Economic and Social History Series (Aldershot, Hants., England; Burlington, VT: Ashgate, 2004), 21, 24, 33–34; see also Sean Wilentz, *Chants Democratic: New York City & the Rise of the American Working Class, 1788-1850* (New York: Oxford University Press, 1984); Philip Sheldon Foner, *Business and Slavery: The New York Merchants and the Irrepressible Conflict* (Chapel Hill: The University of North Carolina Press, 1941).

Pennsylvania and New Jersey, shading into Maryland and Ohio. This place—the rural Northeast—has been largely ignored by political scholars when they are not talking about evangelicalism, temperance, or nativism. This is odd for two reasons. First, the region was far too large and diverse to be defined by ethnocultural cleavages alone. In 1860 rural areas accounted for almost two thirds of the population of the Northeast. Thus rural voters comprised a sizeable majority of even the most urban, as well as the most populous, part of the nation.¹⁹ Second, the region experienced a major structural transition during the antebellum period that involved a shift in agricultural production from export to domestic markets and from traditional farming practices to those of “scientific agriculture.” These changes altered the rural Northeast’s social structure and its political economy, eventuating in new demands on government at both the state and federal levels. Thus no political party could hope to succeed without addressing in some way the economic changes experienced by northeastern farmers.

Though historians are well aware of these facts, they often forget them in practice. For instance, Foner tells us how Horace Greeley viewed trade unions, but not what he thought of agricultural societies; his support for the Homestead Act to reform urban labor markets, but not his support for the Morrill Act to reform agricultural practices; his “pauper” labor defense of the tariff, which was aimed at urban workingmen, but not his “home market” defense of the tariff, which was aimed at farmers.²⁰ Such one-sidedness on economic issues is very much the norm. Holt and Gienapp, to the extent that they discuss the rural Northeast at all, tend to see it as a site of ethnocultural conflict rather than of any specifically agricultural policy, even though they demonstrate clearly that political nativism originated in urban clashes over public schooling, not in the countryside. Sean Wilentz does briefly discuss the Morrill Act in his recent political synthesis of the period, but by attributing it to radical workingmen he completely misconstrues the origins and support base of a measure that was known as the “agricultural college bill” throughout its legislative career. Finally, Marc Egnal’s neo-Beardian account, because it resurrects the grand bargain thesis through its emphasis on the emergence of the “lakes economy,” hardly mentions the Morrill Act, the USDA not at all.²¹ Yet when we look at the Republican economic program from the perspective of northeastern farmers, the Morrill Act and the Department of Agriculture loom too large to be ignored. A new examination of these policies, as we shall see, not only uncovers a massive yet hitherto shrouded agricultural reform movement, but sheds new light on conventional economic measures, especially the tariff.

The failure to connect structural change in the northeastern agricultural economy with national politics is also partially attributable to rural historians, whose research interests have mostly lain elsewhere. To begin with, there has been a great deal of emphasis on the frontier and on the slave south. Ever since Frederick Jackson Turner, if not before, historians have been fascinated by the process of western expansion and have looked to the frontier experience to explain basic

¹⁹ *Historical Statistics of the United States, Millennial Edition Online* Table Aa 36–92, <http://hsus.cambridge.org/HSUSWeb/HSUSEntryServlet>.

²⁰ Foner, *Free Soil, Free Labor, Free Men*, 19–21, 26–28. In general, Foner works largely within a labor history tradition heavily focused on cities.

²¹ Sean Wilentz, *The Rise of American Democracy: Jefferson to Lincoln* (New York: Norton, 2005), 281–282; Marc Egnal, *Clash of Extremes: The Economic Origins of the Civil War* (New York: Hill and Wang, 2009).

features of American life. Though critical both of Turner and of the public domain scholars who followed him like Paul Wallace Gates, a generation of social historians devoted great attention to frontier communities.²² The South, on the other hand, was looked to first as an anomaly, an island of semi-feudal resistance to modernity.²³ Recent historians have generally disagreed with this view, seeing slavery as central rather than “peculiar” and as fully compatible with modernizing impulses, but this about-face has only increased the scholarly focus on southern slave society.²⁴ Similarly, economic historians have discussed at length the profitability of slavery for southern cotton and of the mechanical reaper for western wheat, but have spared far less attention for developments in the Northeast.²⁵

More important, however, has been the continuing impact of the transition-to-capitalism debate. For years historians argued about when and how a market economy emerged in the American countryside. Social historians were particularly concerned to establish a clear if drawn out shift in the rural “*mentalité*” from a pre-capitalist ethos of familial independence and security to a market-driven culture of profit-maximizing individualism.²⁶ But specifying the precise nature of this

²² John Mack Faragher, *Sugar Creek: Life on the Illinois Prairie* (New Haven: Yale University Press, 1986); Susan E. Gray, *The Yankee West: Community Life on the Michigan Frontier* (Chapel Hill: University of North Carolina Press, 1996); Don Harrison Doyle, *The Social Order of a Frontier Community: Jacksonville, Illinois, 1825-70* (Urbana, IL: University of Illinois Press, 1978).

²³ Eugene D. Genovese, *The Political Economy of Slavery: Studies in the Economy and Society of the Slave South*, 2nd ed., 1st Wesleyan ed. (Middletown, Conn: Wesleyan University Press, 1989).

²⁴ Joyce Chaplin, *An Anxious Pursuit: Agricultural Innovation and Modernity in the Lower South, 1730-1815* (Chapel Hill: Published for the Omohundro Institute of Early American History and Culture, Williamsburg, Virginia, by the University of North Carolina Press, 1996); John Majewski, *Modernizing a Slave Economy: The Economic Vision of the Confederate Nation* (Chapel Hill: University of North Carolina Press, 2009); Brian Schoen, *The Fragile Fabric of Union: Cotton, Federal Politics, and the Global Origins of the Civil War*, Studies in Early American Economy and Society (Baltimore: Johns Hopkins University Press, 2009); Matt Karp, “‘This Vast Southern Empire’: The South and the Foreign Policy of Slavery, 1833-1861” (Ph.D. diss., University of Pennsylvania, 2011).

²⁵ Paul David, “The Mechanization of Reaping in the Antebellum Midwest,” in *Industrialization in Two Systems: Essays in Honor of Alexander Gershenkron*, ed. Henry Rosovsky (New York: Wiley and Sons, 1966); Alan L. Olmstead, “The Mechanization of Reaping and Mowing in American Agriculture, 1833-1870,” *The Journal of Economic History* 35, no. 2 (June 1, 1975): 327–352; Charles Post, “The ‘Agricultural Revolution’ in the United States: The Development of Capitalism and the Adoption of the Reaper in the Antebellum U. S. North,” *Science & Society* 61, no. 2 (July 1, 1997): 216–228; Robert William Fogel and Stanley L. Engerman, *Time on the Cross: The Economics of American Negro Slavery* (Boston: Little, Brown, 1974); Robert William Fogel and Stanley L. Engerman, *Without Consent or Contract* (New York: Norton, 1991); Gavin Wright, *The Political Economy of the Cotton South: Households, Markets, and Wealth in the Nineteenth Century* (New York: Norton, 1978).

²⁶ James A. Henretta, “Families and Farms: Mentalité in Pre-Industrial America,” *The William and Mary Quarterly* 35, no. 1, Third Series (January 1, 1978): 3–32; James A. Henretta, *The Origins Of American Capitalism: Collected Essays* (Boston: Northeastern University Press, 1991); Michael Merrill, “Cash Is Good to Eat: Self-Sufficiency and Exchange in the Rural Economy of the United States,” *Radical History Review* 3 (1977): 42–71; Charles Grier Sellers, *The Market Revolution: Jacksonian America, 1815-1846* (New York: Oxford University Press, 1991); Steven Hahn and Jonathan Prude, eds., *The Countryside in the Age of Capitalist Transformation: Essays in the Social History of Rural America* (Chapel Hill: University of North Carolina Press, 1986); Winifred Barr Rothenberg, *From Market-Places to a Market Economy: The Transformation of Rural Massachusetts, 1750–1850* (Chicago: University of Chicago Press, 1992); Christopher Clark, *The Roots of Rural Capitalism: Western Massachusetts, 1780-1860* (Ithaca, NY: Cornell University Press, 1990); Allan Kulikoff, *The Agrarian Origins of American Capitalism* (Charlottesville: University Press of Virginia, 1992); Richard Lyman Bushman, “Markets and Composite Farms in Early America,” *The William and Mary Quarterly* 55, no. 3 (July 1998): 351–374; Naomi R. Lamoreaux, “Rethinking the Transition to Capitalism in the Early American Northeast,” *Journal of American History* 90 (September 2003): 437–461; Thomas Summerhill, *Harvest of Dissent: Agrarianism in Nineteenth-Century New York* (Urbana, IL: University of Illinois Press, 2005); Charles Post, *The American Road to Capitalism: Studies in Class-Structure, Economic Development, and Political Conflict, 1620-1877* (Leiden; Boston: Brill, 2011).

shift proved extraordinarily difficult, plunging many scholars into an ever deeper analysis of what they termed the “household mode of production” and its reorganization by market forces. This focus had two consequences that continue to structure scholarly thinking on the rural Northeast before the Civil War. First, it drew attention toward the period from the late colonial to the early Jacksonian eras, when pretty much everyone agreed the transition occurred, at least in the Northeast. Second, and more important, the intense scrutiny of the household encouraged community-level studies.²⁷ These studies have brought much needed attention to certain facets of rural transformation and, in my view, have provided especially valuable contributions to gender and family history. Yet they have left largely untouched the trans-local features of much of the institutional context in which households were situated.²⁸ Instead, whatever extended beyond the local community was termed “the market” without any sustained investigation of what that market might actually be. Ironically, a scholarly project founded in part on the insight drawn from cultural anthropology that commercial markets are “embedded” in society somehow rejected the significance of changing market structure. Even econometric and demographic studies have largely concentrated on household matters such as average farm size, wealth distribution, and migration patterns, while accepting the premise that farming practices can best be characterized in terms of a simple dichotomy between traditional and commercial motives.²⁹ The agricultural reform movement has thus received little attention, all the more surprising for the fact that it led directly to such basic rural institutions as the county fair and the Grange.³⁰

I depart from these lines of inquiry in several ways. First, eschewing the quest to pinpoint the “market revolution” in favor of an analysis of economic restructuring, I treat the economy as a shifting matrix of trade patterns and organizing institutions. I also approach the topic from a wide-angle perspective, seeking to connect economic changes on the ground to national political

²⁷ Joan M. Jensen, *Loosening the Bonds: Mid-Atlantic Farm Women, 1750-1850* (New Haven: Yale University Press, 1986); Nancy Grey Osterud, *Bonds of Community: The Lives of Farm Women in Nineteenth-Century New York* (Ithaca, NY: Cornell University Press, 1991); Sally McMurry, *Transforming Rural Life: Dairying Families and Agricultural Change, 1820-1885* (Baltimore: Johns Hopkins University Press, 1995); Martin Bruegel, *Farm, Shop, Landing: The Rise of a Market Society in the Hudson Valley, 1780-1860* (Durham, NC: Duke University Press, 2002); J. M. Opal, *Beyond the Farm: National Ambitions in Rural New England* (Philadelphia: University of Pennsylvania Press, 2008); Robert P. Swierenga, “Theoretical Perspectives on the New Rural History: From Environmentalism to Modernization,” *Agricultural History* 56, no. 3 (July 1, 1982): 495–502.

²⁸ The Spring 2007 special issue of *Agricultural History* (vol. 81, no. 2) on “new directions in rural history” focuses on broad cultural patterns such as consumerism and various international comparisons, but does not address the shifting relationship between rural communities, state institutions, and structural economic change in the United States.

²⁹ Jeremy Atack and Fred Bateman, *To Their Own Soil: Agriculture in the Antebellum North* (Ames: Iowa State University Press, 1987); Donald Hugh Parkerson, *The Agricultural Transition in New York State: Markets and Migration in Mid-Nineteenth-Century America*, The Henry A. Wallace Series on Agricultural History and Rural Life (Ames, IA: Iowa State University Press, 1995). An important departure is Alan L. Olmstead and Paul Webb Rhode, *Creating Abundance: Biological Innovation and American Agricultural Development* (Cambridge: Cambridge University Press, 2008).

³⁰ The only major studies are all over thirty years old and, while excellent in the details, rather narrowly focused. Donald B. Marti, *To Improve the Soil and the Mind: Agricultural Societies, Journals, and Schools in the Northeastern States, 1791-1865* (Ann Arbor, MI: Published for the Agricultural History Society and the Dept. of Communication Arts, New York State College of Agriculture and Life Sciences, Cornell University by University Microfilms International, 1979); Albert Lowther Demaree, *The American Agricultural Press, 1819-1860*, Columbia University Studies in the History of American Agriculture 8 (New York: Columbia University Press, 1941); Wayne Caldwell Neely, *The Agricultural Fair*, Columbia University Studies in the History of American Agriculture 2 (New York: Columbia University Press, 1935).

developments.³¹ This presents a methodological challenge because farmers left little direct testimony of how their day-to-day work experiences affected their political choices. But the evidence presented in this dissertation—drawn from manuscript census schedules, county histories, agricultural periodicals, farmers’ private diaries and ledgers, and agricultural societies’ voluminous official reports and internal archival records—reveals a vast agricultural reform movement that mediated between farmers and the realm of public policy. This movement channeled a potentially baffling set of problems and opportunities into a coherent developmental ideology and a concrete policy program. Undoubtedly some farmers found the reform movement’s developmental zeal alienating. Moreover, the discourse of agricultural reform tended to obscure the contributions and views of farm laborers and immigrants. Despite these drawbacks, the demonstrable popularity of the reform movement’s basic institutions—societies, fairs, and periodicals—indicates that it spoke for many farmers in a meaningful way.

Few political historians seem to have any sense of how quickly and thoroughly the agricultural reform movement penetrated the rural North in the antebellum period. Almost moribund at the end of the 1820s after a brief efflorescence earlier in the decade, by the late 1850s the movement boasted close to a thousand state-funded agricultural societies and countless smaller “farmers’ clubs,” hundreds of highly popular annual fairs that institutionalized its presence in rural locales across the region, and a specialized agricultural press that not only competed favorably with general-interest media but was certainly the largest and most diverse of its kind in the world. The movement, in other words, was big and significant. Until we understand what it was about, whom it represented and why, what issues it tried to address and in what manner, how its aims entered the political arena and with what effect—in short, until we address the economic interests of the majority of voters, we will possess an insufficient basis for either accepting or dismissing economic interpretations of the era’s political crisis.³²

The agricultural reform movement emerged over the course of several decades to address structural changes in the American economy that altered farmers’ relationships to global and domestic markets and that reconfigured many basic patterns of farm operation.³³

³¹ My approach has been influenced by Charles Postel, *The Populist Vision* (Oxford: Oxford University Press, 2007); M. Elizabeth Sanders, *Roots of Reform: Farmers, Workers, and the American State, 1877-1917* (Chicago: University of Chicago Press, 1999); Richard Franklin Bensel, *The Political Economy of American Industrialization, 1877-1900* (Cambridge: Cambridge University Press, 2000).

³² Hal Barron issued this call a generation ago, but he did not emphasize national political outcomes, even if his research findings suggested the possibility of reinterpreting important political events; “Rediscovering the Majority: The New Rural History of the Nineteenth-Century North,” *Historical Methods* 19 (Fall 1986): 141–152; *Those Who Stayed Behind: Rural Society in Nineteenth-Century New England* (Cambridge: Cambridge University Press, 1984).

³³ The subsequent chapters will make evident my intellectual debts to many agricultural historians, but among the studies of agricultural history on which I rely especially heavily and have not already cited, are Richard A. Wines, *Fertilizer in America: From Waste Recycling to Resource Exploitation* (Philadelphia: Temple University Press, 1985); Clarence H. Danhof, *Change in Agriculture: The Northern United States, 1820-1870* (Cambridge, MA: Harvard University Press, 1969); Margaret W. Rossiter, *The Emergence of Agricultural Science: Justus Liebig and the Americans, 1840-1880* (New Haven: Yale University Press, 1975); David B. Danbom, *Born in the Country: A History of Rural America*, Revisiting Rural America (Baltimore: Johns Hopkins University Press, 1995); Paul Wallace Gates, *The Farmer’s Age: Agriculture, 1815-1860*, Economic History of the United States 3 (New York: Holt, Rinehart and Winston, 1960); Ulysses Prentiss Hedrick, *A History of Agriculture in the State of New York* (Albany, NY: Printed for the New York State Agriculture Society, 1933); Robert Leslie Jones, *History of Agriculture in Ohio to 1880* (Kent, OH: Kent State University Press, 1983).

Nineteenth-century Americans often designated this modernizing project by the term “scientific agriculture.” Each region faced its own set of challenges and opportunities, of course, and agricultural reform generated much interest both North and South. Political historians’ understanding of the phenomenon, however, may have been skewed by the extraordinary attention given to the Virginia agriculturalist and southern nationalist, Edmund Ruffin.³⁴ In fact, as I show in Chapter 1, the agricultural reform movement was heavily concentrated in the North, which dominated the field of agricultural publishing, boasted far more agricultural societies in both absolute and per-capita terms, and produced much more of the new farming technologies that helped characterize the era’s transformation. Furthermore, during the antebellum era the movement was largely centered in the Northeast, especially in upstate New York, though the shift that would carry its core to the Midwest was already underway by the 1850s.³⁵

Northeastern agricultural reformers sought to guide the region’s farmers through a series of transitions dictated by four basic challenges. The first and most important was the decline of soil fertility resulting from pioneer-style agricultural practices that economized labor at the expense of land maintenance. To remedy this problem reformers prescribed, and northeastern farmers almost universally adopted, more intensive cultivation methods that included soil-conserving crop rotations and heavy use of organic and mineral soil amendments. By the early national period competition from western grains posed a second difficulty. The emergence of the Genesee wheat country and later of the Midwestern bread basket forced northeastern farmers to shift to new crops, especially to commercial production of wool, hay, dairy, and fresh fruits and vegetables, which were demanded by growing urban-industrial populations. Worsening infestations of crop pests and diseases, driven in part by transportation improvements and market extension, added a third pressure, leading not only to the abandonment of wheat in many areas but to a more general readiness to adjust repeatedly to changing market opportunities and environmental constraints. Finally, the northeastern countryside contended with growing land scarcity, rising property values, and consequently a steady stream of outmigration both to the West and to cities. In many areas, however, the same

³⁴ Benjamin Cohen, *Notes from the Ground: Science, Soil, and Society in the American Countryside*, Yale Agrarian Studies (New Haven: Yale University Press, 2009), chap. 3; W. M. Mathew, *Edmund Ruffin and the Crisis of Slavery in the Old South: The Failure of Agricultural Reform* (Athens, GA: University of Georgia Press, 1988); Betty L. Mitchell, *Edmund Ruffin: A Biography* (Bloomington, IN: Indiana University Press, 1981); Avery Craven, *Edmund Ruffin, Southerner: A Study in Secession* (New York: D. Appleton and Company, 1932); Edmund Ruffin, *Agriculture, Geology, and Society in Antebellum South Carolina: The Private Diary of Edmund Ruffin, 1843*, ed. W. M. Mathew (Athens, GA: University of Georgia Press, 1992); Edmund Ruffin, *Incidents of My Life: Edmund Ruffin’s Autobiographical Essays*, Virginia Historical Society Documents v. 17 (Charlottesville, VA: Published for the Virginia Historical Society by the University Press of Virginia, 1990); Edmund Ruffin, *Nature’s Management: Writings on Landscape and Reform, 1822-1859* (Athens, GA: University of Georgia Press, 2000); Edmund Ruffin, *The Diary of Edmund Ruffin*, ed. William Kauffman Scarborough, The Library of Southern Civilization (Baton Rouge, LA: Louisiana State University Press, 1972).

³⁵ Many of the ethnocultural political historians, who criticized an earlier generation for succumbing to a “Civil War synthesis” that neglected basic electoral continuities across the nineteenth century, might be charged with a their own “midwestern synthesis,” which attributes an implicit normativity to that region; see *Beyond the Civil War Synthesis: Political Essays of the Civil War Era*, Contributions in American History 44 (Westport, CT: Greenwood Press, 1975).

circumstances structured a kind of rural gentrification process that fostered a middle-class society fully committed to agricultural modernization.

The agricultural reform movement thus took shape in response to big changes in the American political economy during the years following the Revolution and especially after the War of 1812. To a large degree, these changes amounted to the emergence of a dynamic domestic market in contradistinction to colonial-era export markets. The Northeast's commercial cities, its relatively dense rural hinterland, and its early investment in transportation infrastructure fueled the growth of the new internal economy.³⁶ The same conditions also contributed to a particularly rich associational life, a vibrant public sphere, and a marked emphasis on popular education. Though we often associate these trends with the urban middle class, they were just as important in the coeval, though not identical, formation of a rural middle class.³⁷ Consequently the northeastern countryside became the wellspring of the agricultural reform movement.

Agricultural reform was an expressly didactic undertaking. It aimed to teach farmers to farm more intelligently, to instill them with a thirst for new knowledge, and to serve as a network for the continual exchange of information. The keystone of the movement, the annual agricultural fair, was thought to operate on the principle of “emulation,” a concept that was intended to stimulate a zeal for self-improvement and that was closely associated with contemporary pedagogy. Largely coinciding with the common school movement, agricultural reform also emerged from the same northeastern middle class associated with evangelicalism, reformism, and Whiggery. More concretely, agricultural reformers found their closest allies among educators; indeed, the two groups often coincided. Furthermore, the reform movement's signature policy goal was the establishment of specialized institutions for agricultural education and research. The reform movement thus dovetailed with a more general contemporary enthusiasm for education. Though heavily invested in the inculcation of moral rectitude and civic responsibility, this educational movement also reflected the perceived imperatives of domestic economic development, particularly in its growing focus on the natural sciences and on “practical” vocational schooling.³⁸

³⁶ Diane Lindstrom, *Economic Development in the Philadelphia Region, 1810-1850* (New York: Columbia University Press, 1978); John D. Majewski, *A House Dividing: Economic Development in Pennsylvania and Virginia Before the Civil War*, Studies in Economic History and Policy (Cambridge: Cambridge University Press, 2000); David R. Meyer, *The Roots of American Industrialization* (Baltimore: The Johns Hopkins University Press, 2003).

³⁷ Mary P. Ryan, *Cradle of the Middle Class: The Family in Oneida County, New York, 1790-1865* (Cambridge: Cambridge University Press, 1981); Sally McMurry, “Progressive Farm Families and Their Houses, 1830-1855: A Study in Independent Design,” *Agricultural History* 58, no. 3 (July 1, 1984): 330–346.

³⁸ J. M. Opal, “Exciting Emulation: Academies and the Transformation of the Rural North, 1780s-1820s,” *The Journal of American History* 91, no. 2 (2004): 445–470; Sally McMurry, “Who Read the Agricultural Journals? Evidence from Chenango County, New York, 1839-1865,” *Agricultural History* 63, no. 4 (Autumn 1989): 1–18; Nancy Beadie, *Education and the Creation of Capital in the Early American Republic* (Cambridge: Cambridge University Press, 2010); Carl Kaestle, *Pillars of the Republic: Common Schools and American Society, 1780-1860* (New York: Hill and Wang, 1983); Sun Go and Peter Lindert, “The Uneven Rise of American Public Schools to 1850,” *The Journal of Economic History* 70, no. 01 (2010): 1–26.

Until the mid-1820s or so the agricultural reform project was promoted by elites—the kind of people John Lauritz Larson has called the “monied gentry”³⁹—who saw it as one part of their wide-ranging effort at economic development and state building. But once a new kind of democratic partisan politics began to take shape, elite agricultural reform came under attack. Very quickly politicians who would soon coalesce into the Democratic Party rolled back the state aid to agricultural societies first won by gentleman reformers in the years after the War of 1812. Consequently the movement appeared almost to disappear by the late 1820s. Yet just as the early agricultural societies were fading away, the rise of a specialized agricultural press indicated widespread interest in the promise of “scientific agriculture,” if not in patrician leadership. In the 1840s a revitalized movement led by agricultural editors and a new generation of middle-class reformers allied with what Sean Wilentz calls the “new school Whigs” achieved renewed public funding in several important states, especially New York and Ohio.⁴⁰

Thanks to the jumpstart provided by government aid, the annual agricultural fairs put on by state and county agricultural societies quickly became among the era’s most popular events (Chapter 1). The largest state exhibitions regularly packed fairgrounds with 100,000 visitors or more. By the 1850s the agricultural reform movement had become a fully institutionalized presence throughout much of the countryside and even in politics. Numerous permanent fairgrounds dotted the rural landscape; semi-official state societies and boards of agriculture ensconced in Albany, Columbus, Harrisburg, and other state capitals presided over a network of county and town organizations; leading agricultural journals enjoyed a combined circulation in the hundreds of thousands; major newspapers such as the New York *Tribune* and the New York *Times* added agricultural editors to their staffs; and there was a de facto agricultural agency in Washington, DC—the “Agricultural Division” of the Patent Office—which published highly demanded agricultural reports in annual editions of two- to three-hundred thousand copies, far and away the federal government’s largest printing expense. Reformers had even established a national agricultural society with a permanent Washington office in order to lobby Congress for a federal department of agriculture and, later, for the Morrill Act.

But the rise of the agricultural reform movement signified more than an organized lobby in behalf of agricultural policy, important as that development was. The structural changes occurring in the Northeast—the emergence of the domestic market—altered the region’s political economy and thus conditioned the ways in which farmers related to other occupational groups. Significantly, the shift from exportable wheat to a mix of farm products bound for domestic consumption encouraged farmers to accept the long-standing argument made by economic nationalists that tariff-protected industrial growth would provide American agriculture with a reliable “home market” (Chapter 2). Famously advanced by Alexander Hamilton in his

³⁹ John Lauritz Larson, *Internal Improvement: National Public Works and the Promise of Popular Government in the Early United States* (Chapel Hill: University of North Carolina Press, 2001), chap. 1.

⁴⁰ Wilentz, *The Rise of American Democracy*, 483. Wilentz uses the term to define the faction of the Whig Party that emerged from the Anti-Masonic movement of the late 1820s and which tended to hold progressive views on slavery and other reform issues as well as on economic development.

Report on Manufactures, the home market argument gained in popularity after the War of 1812 introduced many farmers to the benefits of a domestic wool industry. As northeastern farmers deepened their commitment to hay, dairy, wool, and other products consumed by a growing population of factory workers and urban consumers, the home market argument appeared to make more and more sense.

At the same time, many farmers accepted the basic tenet of “scientific agriculture” that technological progress promised the productivity gains they would need to successfully negotiate market restructuring. By the 1850s several important Republican economic thinkers, including Henry Charles Carey, George Perkins Marsh, and members of William Seward’s circle of new school Whigs, had developed an elaboration of the home market argument that integrated a theory of beneficial technological spillover effects from industry to agriculture. The growth of the manufacturing sector, they argued, would not only provide farmers with markets for their output, but also with critical inputs of scientific knowledge, chemical fertilizers and new mechanical implements. What I call the Republican developmental synthesis thus indicated a reciprocal relationship between town and country. This economic vision, nurtured and promoted by the widespread institutions of the agricultural reform movement, underpinned seminal Republican policies aimed at developing the domestic economy. The Morrill Act and the Department of Agriculture numbered among these, but so did the tariff and internal improvements.

As manufacturers found with regard to the tariff, proposals for new kinds of federal agricultural agencies met stiff southern resistance (Chapter 5). Not all southerners, of course, opposed such measures. Indeed, Whigs from the Upper South proved among the staunchest supporters. Yet overall, opposition to the creation of an official federal agricultural agency in the early 1850s and, later in the decade, to passage of the Morrill Act, came overwhelmingly from the South. In spite of the reasonable expectation that new institutions of agricultural education and research might aid the almost totally agrarian South relatively more than the mixed economy of the North, most southern politicians believed that any novel extension of federal domestic powers threatened the institution of slavery. Republicans, meanwhile, championed these measures as necessary to the prosperity of farmers and to the long-term development of the domestic economy. In this context, federal agricultural policy became highly sectionalized. When Democratic President James Buchanan vetoed the Morrill bill in 1859 at the behest of southern members of his party, Republicans responded with outrage, pinning blame squarely on the “Slave Power.” Faced with southern obstructionism, the dominant northern wing of the agricultural reform movement largely swung into the Republican coalition.

POLITICAL PARTIES, ORGANIZED INTERESTS
AND THE STATE IN THE NINETEENTH CENTURY

Battles over economic policy at the federal level are thus essential to understanding the relationship between the agricultural reform movement and the party system. This is important

because our traditional conception of sectional politics largely ignores the state as an institutional presence of any significance beyond the dispensation of partisan patronage or of “distributive” state resources. Yet several recent studies have demonstrated that a critical examination of state policy can reveal a great deal about the social and political dynamics underlying the whirl of partisanship. Cross-sectional comparative studies of taxation by Robin Einhorn and of development policy by Sean Adams have yielded strong evidence that northern state governments were more democratic, more responsive to constituents, and ultimately more capable than their southern counterparts. Along with Leonard Richards’s structural analysis of the Democratic Party, they suggest not only that Republicans’ charges of a national “Slave Power” had a material basis, but that the threat posed by that power extended beyond abstract liberty to concrete state policies. Meanwhile, new work by Brian Schoen, John Majewski and others has brought to light a distinctively southern state-building project particularly oriented toward aggressive foreign policy. Tied to a slave-based cotton export economy very different from the diverse free-labor domestic economy developing in the North, southerners increasingly believed their interests might best be served by an independent slaveholding republic.⁴¹ In short, federal policy mattered, and consequently control of the national state mattered.

Theoretically, too, it has become impossible to ignore the state. In recent years a multi-disciplinary group of scholars has turned on its head the received wisdom of a weak pre-New Deal national governing authority. Rejecting entirely Calvin Coolidge’s dictum that were the federal government to go out of business the average citizen would need six months to notice, they have characterized the American state as a pervasive presence, in some accounts even at the height of Gilded Era *laissez faire* hegemony. Two disparate streams have fed this new perception. The first has been the effort, most associated with Theda Skocpol and Stephen Skowronek, to “bring the state back in.”⁴² Arguing that even the elusive American state has had an autonomous existence, these scholars responded to the earlier pluralist view of government as merely an arena for competing interest groups. Their basic point is not that the federal government resembled an absolutist regime, but that structural features of the constitutional order condition political outcomes. New institutionalist historians such as Richard John have strengthened this view by showing the state’s power to act “as an agent of change” in the nineteenth century.⁴³

⁴¹ Robin L. Einhorn, *American Taxation, American Slavery* (Chicago: University Of Chicago Press, 2006); Sean P. Adams, *Old Dominion, Industrial Commonwealth: Coal, Politics, and Economy in Antebellum America*, Studies in Early American Economy and Society (Baltimore: Johns Hopkins University Press, 2004); Leonard L. Richards, *The Slave Power: The Free North and Southern Domination, 1780-1860* (Baton Rouge, LA: Louisiana State University Press, 2000). Recent work on the South has built off of the stress that Gavin Wright and James L. Huston have placed on slavery as a system of property rights rather than as a system of labor: Wright, *Political Economy of the Cotton South*; James L. Huston, *Calculating the Value of the Union: Slavery, Property Rights, and the Economic Origins of the Civil War*, Civil War America (Chapel Hill: Univeristy of North Carolina Press, 2003); Schoen, *The Fragile Fabric of Union*; Majewski, *Modernizing a Slave Economy*; Don E. Fehrenbacher, *The Slaveholding Republic: An Account of the United States Government’s Relations to Slavery* (Oxford University Press, 2002); Matt Karp, “This Vast Southern Empire”; Gautham Rao, “The Federal Posse Comitatus Doctrine: Slavery, Compulsion, and Statecraft in Mid-Nineteenth-Century America,” *Law and History Review* 26, no. 1 (Spring 2008).

⁴² Peter B. Evans, Dietrich Rueschemeyer, and Theda Skocpol, eds., *Bringing the State Back In* (Cambridge: Cambridge University Press, 1985); Theda Skocpol, *Protecting Soldiers and Mothers: The Political Origins of Social Policy in the United States* (Cambridge, MA: Belknap Press of Harvard University Press, 1992); Stephen Skowronek, *Building a New American State: The Expansion of National Administrative Capacities, 1877-1920* (Cambridge: Cambridge University Press, 1982).

⁴³ Richard R. John, *Spreading the News: The American Postal System from Franklin to Morse* (Cambridge, MA: Harvard University Press, 1995); other studies in this vein include Merritt Roe Smith, *Harpers Ferry Armory and the New Technology:*

The other stream feeding into the new view of American state presence has been the interdisciplinary interest, reflecting the influence of Michel Foucault, in the mechanisms and properties of power.⁴⁴ Eschewing Eurocentric, Weberian assessments of state capacity, scholars such as William Novak have shifted ground from bureaucratic to “infrastructural” power, from the government to “governmentality.”⁴⁵ This move has underlined the fact that social policy is made by a variety of institutions beyond traditional government administrative bodies. It has also highlighted the variety of structures of authority. But it has blurred the bounds of what could plausibly be called a state. Increasingly this entity appears as a formless specter haunting every corner of market and society.

Political historians thus still largely operate with a conception of the nineteenth century as the “party period” or, in a somewhat broader scheme, as a time when the United States was governed by “a state of courts and parties.” According to these models, the nineteenth-century political system was characterized by the dominance of parties that coordinated carnival-like electoral campaigns and engaged in a form of public policy that was primarily “distributive.”⁴⁶ After 1900 or so a new kind of politics emerged, one in which a rapidly expanding realm of state administration encircled by organized special interests began to compete with the parties as the locus of substantive policy-making. The key to the shift was the transition from a distributive to a regulatory regime. Whereas the former was fundamentally promotional, the latter sought to manage the excesses and complexities of industrial capitalism. The state was thus called to play the role of economic arbiter, a delicate task that required at least partial insulation from politics. As a result, new bureaucratic agencies, protected from partisan meddling by civil service reform and the claims of expertise, took an increasingly central role in the determination of public policy. Organized client groups coalesced around these agencies, thus initiating the dense policy establishment we now associate with Washington “insider” politics.⁴⁷

Enacted in 1862, the Morrill Act and the Department of Agriculture clearly foreshadowed such institutional innovations of the Progressive Era. While the agencies themselves became really important only from the 1880s or so, the process by which they were brought into being suggests that organized special interests played a larger role in nineteenth-century public policy than is normally realized. That the “agricultural interest” sought the particular institutions it did is also highly significant. In meaningful ways, the land grant colleges and the USDA can be regarded as distributive. But each was also characterized by clear and salient indivisibilities. Indeed, it was precisely these indivisibilities that led agricultural reformers to call for a federal agricultural agency to serve as a source of authoritative information, and to seek first private funding, then state-level

The Challenge of Change (Ithaca, NY: Cornell University Press, 1977); Mark Wilson, *The Business of Civil War: Military Mobilization and the State, 1861-1865* (Baltimore: Johns Hopkins University Press, 2006).

⁴⁴ Daniel T. Rodgers, *Age of Fracture* (Cambridge, MA: Belknap Press of Harvard University Press, 2011), 102–107.

⁴⁵ William J. Novak, “The Myth of the ‘Weak’ American State,” *The American Historical Review* 113, no. 3 (June 1, 2008): 752–772; see also Brian Balogh, *A Government Out of Sight: The Mystery of National Authority in Nineteenth-Century America* (Cambridge: Cambridge University Press, 2009).

⁴⁶ “Distributive” public policies are those that are highly divisible in the sense that benefits conferred on one set of constituents do not preclude conferring similar benefits on another group. The distribution of corporate charters is one prime example.

⁴⁷ McCormick, *The Party Period and Public Policy*, 197–227; Skowronek, *Building a New American State*, chap. 1–2; Carpenter, *The Forging of Bureaucratic Autonomy*, chap. 1.

funding, and finally federal funding for agricultural colleges (Chapters 3 and 4). Moreover, state and federal attempts to manage such problems as fertilizer frauds and contagious animal diseases were clearly regulatory. The Morrill Act and the USDA thus fit awkwardly into a party period scheme that posits a fairly sharp break around the turn of the century.

In fact, this can be said even of the tariff, the distributive policy *par excellence*. According to the traditional view, Republican politicians handed out protective tariff rates to industry after industry in a classic logrolling arrangement. Rendered in such simple terms, however, this view distorts the inherent challenges of adjusting tariff rates among mutually dependent industries. For example, protected raw wool increased production costs for woolens manufacturers, who also demanded protection. Consequently, congressional Republicans spent much of their time working out the details of rate schedules through intricate negotiations. But they did not act alone. Organized industry groups assembled reams of data on which congressmen and the media relied heavily. Thus wool growers and wool manufacturers each enjoyed representation by highly influential national associations. Indeed, the chairman of the 1882 Tariff Commission was John L. Hayes, former secretary of the National Association of Wool Manufacturers. Similarly, iron and steel rates were increasingly dictated by the American Iron and Steel Association (AISA), which became a power in Republican politics under the secretaryship of James Moore Swank. Swank, not incidentally, began his career as chief clerk of the Department of Agriculture. Organized special interest groups even extended their reach beyond policy making to the electoral process. The AISA, in particular, was a veritable factory of protectionist campaign literature.⁴⁸

Under the guise of continuous legislative supremacy, a good deal of bureaucratization occurred in the post-bellum years. As Republicans made the tariff the foundation of their party coalition, industry groups became organized to plead their cases, acquiring professional staffs to gather information, raise funds, coordinate publicity, and plan strategy in testimony before congressional standing committees and special commissions. This process is almost instantly discernible in the lengthening records of nineteenth- and early twentieth-century tariff commission proceedings. In turn, implementation of protectionist policy became more complicated, with customs officials called on to make ever finer distinctions between imported products and to

⁴⁸ For a brief account of Swank's role in the American Iron and Steel Association, see his obituary in the *New York Times*, 22 Jun 1914; for Swank's work at the Department of Agriculture, see James M. Swank, *The Department of Agriculture: Its History and Objects* (Washington: G.P.O., 1872). On the American Iron and Steel Association's tariff lobbying, see, for instance, Arthur M. Lee, "Henry C. Carey and the Republican Tariff," *Pennsylvania Magazine of History and Biography* 81 (1957): 280–302; Steven A. Sass and Barbara Copperman, "Joseph Wharton's Argument for Protection," *Business and Economic History* 9 (1980): 51–60. On manufacturers' lobbying for the 1861 Morrill Tariff, see Phillip W. Magness, "Morrill and the Missing Industries: Strategic Lobbying Behavior and the Tariff, 1858–1861," *Journal of the Early Republic* 29, no. 2 (2009): 287–329. The beginnings of more organized tariff lobbying are apparent from the correspondence with manufacturers conducted by post-bellum Commissioner of the Revenue, Stephen Colwell, which is indicated in the Revenue Commission Papers, Stephen Colwell Papers, 1838–1866, University of Pennsylvania Libraries, Rare Book and Manuscript Library Collections. See also the correspondence of Colwell's good friend and renowned tariff advocate, Henry Carey, in the Henry Charles Carey Papers, Edward Carey Gardiner Collection, Historical Society of Pennsylvania; for instance, see the letters of Wisconsin manufacturer and tariff advocate, Eber B. Ward, or the letter of Walter Wells, Secretary of the National Association of Cotton Manufacturers and Planters (Boston), dated 9 Mar 1870.

increase the policing of smugglers.⁴⁹ The Republicans subsequently buttressed the party-building aspects of the tariff with generous pensions to Union war veterans. Here they relied on yet another organization, the Grand Army of the Republic. The result of all this was not a simple party state, but an authority structure in which parties attempted to coordinate the demands of numerous organized special interests possessing their own agendas, resources and social bases of support. To some extent, the development of this kind of economic policy making had begun in the antebellum era. But the Civil War probably boosted the process immensely as Republicans, who were explicitly committed to active use of the state in the service of economic development, took control of the federal government, and as tens of thousands of newly minted Union officers gained valuable administrative experience from a war effort of unprecedented scale.⁵⁰

The agricultural reform movement pioneered the entrance of organized special interest groups into the realm of economic public policy. As I show in the subsequent chapters, this occurred before the Civil War and played an important role in consolidating the Republican coalition that won the 1860 election. The undeniable success of reformers' lobbying demonstrates the power of civic associations to reshape political discourse on the subject of economic development as well as on such well-studied religiously-based issues as sabbatarianism, antislavery and temperance. Significantly, this reshaping occurred even though agricultural reformers avoided the deliberately disruptive political strategies doggedly pursued by political abolitionists and spectacularly instantiated by the Know Nothings. Instead, the agricultural reform movement followed an initially nonpartisan course that required trailblazing what L. Ray Gunn has called "the administrative strategy of legitimacy."⁵¹ This approach was dictated by the need to maintain bipartisan support at the grassroots, but it ended up contributing to the pressure on the national political system.⁵² Essentially interested in carving out a piece of autonomous authority insulated from party politics, the reform movement used its independent organizational capacity to force itself into the legislative arena—the domain of the parties—in order to create new bureaucratic agencies. Once there, reformers' demands could only be addressed within the sectional terms set by the southern defense of slavery.

⁴⁹ On the categorization and valuation of imported goods see, for example, the testimony of Assistant Secretary of the Treasury, Henry F. French, in *Report of the Tariff Commission Appointed Under Act of Congress Approved May 15, 1882*, vol. 1 (Washington, DC: GPO, 1882), 157–159. French told the commissioners that the chief duty of customs officers related "to the matter of classification, and I suppose most of you—all of you who have had any occasion to be concerned with the examination of the tariff law—know what classification means" (157). He then detailed the elaborate bureaucratic process by which complaints over improperly classified items were adjudicated. On the policing of smugglers, see Andrew Wender Cohen, "Smuggling, Globalization, and America's Outward State, 1870–1909," *The Journal of American History* 97, no. 2 (2010): 371–398.

⁵⁰ L. Ray Gunn, *The Decline of Authority: Public Economic Policy and Political Development in New York, 1800-1860* (Ithaca: Cornell University Press, 1988); Wilson, *The Business of Civil War*; Bense, *Yankee Leviathan*; Bense, *The Political Economy of American Industrialization, 1877-1900*; Skocpol, *Protecting Soldiers and Mothers*; Alfred D. Chandler, *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, MA.: Belknap Press, 1977); John, *Spreading the News*.

⁵¹ Gunn, *The Decline of Authority*, 198–221.

⁵² The importance of the grassroots means that, although the agricultural reform movement was organized, it was also a social movement, and cannot be easily subsumed by the Weberian bureaucratization paradigm of the "organizational synthesis." See Louis Galambos, "The Emerging Organizational Synthesis in Modern American History," *The Business History Review* 44, no. 3 (October 1, 1970): 279–290.

Political scholars tend to view civic organizations as gaining political relevance only during the Progressive Era. But antebellum historians have now shown convincingly that the development of the “Benevolent Empire” during the Jacksonian period had decisive political implications. Those implications, of course, ultimately turned on the question of slavery.⁵³ Other moral issues, however, also mattered, particularly temperance which, combined with the common school movement, set the stage for the emergence of political nativism. The 1850s thus witnessed a convergence of seemingly exogenous pressures on the two-party system. Between the Missouri Crisis and that latter period the barriers to political association outside of the major parties had been drastically reduced. In the intervening years the transportation system, the proliferation of printing technologies, the reductions in letter rates, and the consequent re-imaginings of spatial and temporal relationships contributed to vastly more extensive organizing potentialities.⁵⁴ Thus new civic organizations, existing quite apart from the political parties and pursuing a variety of strategies, thrust new issues onto the public agenda that could not be damped down by party leaders.

The structure of the federal government exacerbated the resulting strain. Legislative dominance focused contention in the highly visible arena of Congress rather than potentially dispersing it among many administrative bodies. While antislavery politicians intentionally turned Congress into a theater for the performance of slavocratic tyranny, agricultural reformers had no

⁵³ For a synthesis of this literature and a thought-provoking theory of the emergence and failure of antebellum American nationalism, see John L. Brooke, “Cultures of Nationalism, Movements of Reform, and the Composite–Federal Polity: From Revolutionary Settlement to Antebellum Crisis,” *Journal of the Early Republic* 29, no. 1 (2009): 1–33. One need not accept all of Brooke’s claims to recognize that religiously-based civic organizations came to impinge mercilessly on the gentleman’s agreement between the Democrats and Whigs to avoid discussing slavery at the national level. For a thorough demonstration of how political abolitionists consciously orchestrated a remarkably successful campaign to disrupt the Second Party System, see Corey Brooks, “Building an Antislavery House: Political Abolitionists and the U.S. Congress” (Ph.D. diss., University of California, Berkeley, 2010). Corey’s study has deeply influenced my thinking on this subject and I thank him for many stimulating conversations and thoughtful comments on early versions of my research.

⁵⁴ In my view this has been demonstrated conclusively by the outpouring of cultural history since the “literary turn,” which has revealed a discursive realm far more extensive, surprising, and interesting than an earlier generation of political scholars ever imagined. Historians have thus begun to emphasize the phenomenon of an antebellum “communications revolution.” See David Henkin, “Howe Forum: Henkin on the ‘Communications Revolution,’” *H-shear*, November 10, 2008, <http://h-net.msu.edu/cgi-bin/logbrowse.pl?trx>. In *The Postal Age: The Emergence of Modern Communications in Nineteenth-Century America* (Chicago: University Of Chicago Press, 2006), chap. 1, Henkin shows that technological and institutional developments are necessary but insufficient to grasping what was revolutionary about antebellum communications. John, *Spreading the News*, chap. 2, provides a brilliant institutional analysis of how postal policy underwrote the emergence of American national political discourse. Daniel Walker Howe, *What Hath God Wrought: The Transformation of America, 1815-1848* (Oxford: Oxford University Press, 2007), 5 and throughout, provides a broad if somewhat thin statement of how the antebellum communications revolution transformed civic life. An early statement is Robert G. Albion, “The ‘Communication Revolution,’” *The American Historical Review* 37, no. 4 (July 1, 1932): 718–720. Much of the recent literature is very much indebted to two theoretical contributions by non-Americanists: Jürgen Habermas, *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society*, trans. Thomas Bruger, 1st MIT Press paperback ed., Studies in Contemporary German Social Thought (Cambridge, MA: MIT Press, 1991); and Benedict R. Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London: Verso, 1991). For an example of how scholars of American history have made explicit use of Habermas and Anderson, see Michael Warner, *The Letters of the Republic: Publication and the Public Sphere in Eighteenth-Century America* (Cambridge, MA: Harvard University Press, 1990). For a recent cultural history that help demonstrate the unplumbed depths of antebellum discourse even when limited strictly to white males, see Brian Luskey, *On the Make: Clerks and the Quest for Capital in Nineteenth-Century America* (New York: NYU Press, 2010).

choice but to go through Congress, unintentionally contributing to the tension.⁵⁵ Meanwhile, the rise of political nativism and a growing consensus on economic development—itsself a product of the ubiquitous discourse of agricultural reform—unraveled partisan ties at the local level. Unable to control public discourse at either end of the political spectrum, the party-system finally collapsed. But that climactic event was a long time coming. The pressure from a public sphere that had grown massively in the antebellum years crushed the rigid but thin protective shell that politicians had built around slavery in the wake of the Missouri Crisis.

In one respect, then, the story of the agricultural reform movement merely illustrates the growth and institutionalization of a multifarious public sphere that came to impinge on the two-party political system. In this sense, it must play second fiddle to the abolitionist movement and the religiously-based Benevolent Empire from which abolitionism emerged. In another sense, however, the agricultural reform movement is quite central. When we talk about the “economic causes” of the Civil War, we inevitably contend with the Beards’ deterministic interpretation centered on industrial development and with Foner’s more flexible ideological interpretation of a society wrestling with the emergence of industrial wage labor. Nobody, in fact, doubts that basic elements of the nineteenth-century trajectory toward more manufacturing and urbanization were already apparent by the 1840s. Moreover, everyone concurs that Republican disagreements over the post-bellum “labor question” helped sink Reconstruction.⁵⁶ What is often forgotten, however, is the equally significant post-bellum “farmer’s question.” If, as Richard Hofstadter pronounced, “the United States was born in the country and has moved to the city,” it is hardly enough to investigate only the city.⁵⁷ And as Thomas Paine reminded Americans at the inception of their national independence, eating is a “custom” difficult to break free of. No amount of industrialization can render agriculture unimportant.

Although the story I tell largely ends with enactment of the Morrill bill and the Department of Agriculture in 1862, my analysis indicates the continuing significance of the agricultural lobby in holding together the Republican coalition after the Civil War. In part, this has to do with the further structural transformation of the rural North, which brought the political economy of agricultural-industrial co-development to the Midwest.⁵⁸ That political economy conditioned attachments between many business-oriented farmers’ organizations and the Republican Party state. Indeed, beginning with the antebellum agricultural reform movement, agricultural interests successfully institutionalized their presence in the federal government in ways that neither labor (too weak) nor industry (too strong) ever really did. To a surprising degree, we still live in an agricultural state, one shaped by the disproportional representation accorded to low-population density farm states in the Senate and via the seniority system of congressional committee assignments; by the outsized importance of the Iowa and New Hampshire presidential primaries (a reflection, perhaps, of the

⁵⁵ Brooks, “Building an Antislavery House.”

⁵⁶ David Montgomery, *Beyond Equality: Labor and the Radical Republicans, 1862-1872* (New York: Knopf, 1967); Foner, *Reconstruction, America’s Unfinished Revolution*, chap. 10; Heather Cox Richardson, *The Death of Reconstruction: Race, Labor, and Politics in the Post-Civil War North, 1865-1901* (Cambridge, MA: Harvard University Press, 2001), chap. 3.

⁵⁷ Richard Hofstadter, *The Age of Reform* (Vintage, 1960), 23.

⁵⁸ Brian Page and Richard Walker, “From Settlement to Fordism: The Agro-Industrial Revolution in the American Midwest,” *Economic Geography* 67, no. 4 (October 1, 1991): 281–315.

enduring pastoral ideal in American culture); by USDA-administered redistributive programs and the land grant colleges' extension work; and finally by the prerogatives of agribusiness.⁵⁹ Consequently, scholars pursuing the continuities in American political development, as well as the massive rupture of the Civil War era, must contend with the emergence of the "agricultural interest."

* * *

This dissertation follows the example set by Charles Postel, Elizabeth Sanders, and Mary Summers by examining farmers' strategies for accommodating and shaping, not just resisting, economic change through organized political action.⁶⁰ But it begins by looking away from politics. Buffeted by campaign crosswinds and pitched at general audiences, political rhetoric can be hopelessly obscure. Even the most determined study of campaign literature, electoral returns, and the private correspondence of party leaders simply cannot reveal the myriad issues competing for attention in the antebellum public sphere. The two chapters in Part 1, "Structure and Ideology," describe first the rise of the agricultural reform movement and then the economic changes that conditioned its ideological expressions. I have chosen to begin with organizational infrastructure in order to highlight the substantial presence of a movement hitherto hidden in plain sight. The three chapters in Part 2, "Politics and Policy," are more narrative. They show the complicated public issues engendered by unregulated scientific claims in a marketplace of new agricultural technologies; the financial challenges of establishing new institutions of agricultural education, research and authoritative information in the context of a dispersed farming population characterized by pervasive collective action problems; and finally the hostility toward federal agricultural institutions manifested by southern Democrats intent on protecting slavery by restricting federal domestic powers. In the conclusion, I argue that the antebellum agricultural reform movement matters not only for its direct influence on state policy, but also for its deeper if less distinct role in promoting a developmental ethos in the northern countryside.

Finally, a word on terminology: I use the term "farmers" rather loosely in this dissertation to signify rural people whose business related closely to the farming economy. This encompasses the kinds of folk that the word probably brings to mind immediately, but also a substantial variety of others, including rural professionals with a strong interest in agriculture and specialized suppliers of farm inputs such as nursery operators, stock breeders and seed growers. Even farmers fitting our traditional image often engaged in a good deal of non-agricultural work while, on the other hand, many rural professionals and other non-farmers in the country also engaged in agriculture. Yet whatever these diverse groups did for a living, all depended on the agricultural economy in a fairly self-evident way and thus all had a personal stake in rural development.

⁵⁹ Richard Walker, *The Conquest of Bread: 150 Years of Agribusiness in California* (New York: New Press : Distributed by Norton, 2004).

⁶⁰ Postel, *The Populist Vision*; Sanders, *Roots of Reform*; Mary Summers, "Conflicting Visions" (unfinished doctoral dissertation in author's possession).

CHAPTER 1

RISE OF THE AGRICULTURAL REFORM MOVEMENT, 1785-1860

On September 10, 1849, tens of thousands of people began arriving in Syracuse in anticipation of the New York State Agricultural Society's ninth annual fair, set to begin the following morning. Though only exhibition officials and members of the state society would be admitted on the first day, the city's hotels were already nearly full. As many as five thousand new members joined the society at the gates by paying one dollar instead of 12.5 cents for a general admission ticket, entitling them to bring with them their families (and frequently neighbors and friends, too) at no additional charge. The fairgrounds were thus packed from the outset, somewhat frustrating the opening day restrictions' intent of providing members and judging committees with leisurely access to the exhibits.¹ "But if the first day had witnessed a crowd," a local magazine asked rhetorically, "what shall we say of the second? Every street and public place was literally crammed with human beings."² Overnight thousands more visitors had arrived in all manner of vehicle "loaded to repletion."³ Leaving his home in Farmington, Ontario County, on September 11, the young farmer Benjamin Gue walked eight miles with a friend to Canandaigua to "take the cars," which were "crowded as they could be." A packet boat on the Erie Canal appeared in much the same condition. "It was a complete jam," Gue noted in his diary, "there wasnt [sic] a spot on deck or below."⁴ As vacant hotel rooms in Syracuse disappeared, private homes were opened to visitors, canal boats remained moored in town to provide makeshift sleeping quarters, and special trains conducted the spillover to Oswego, Auburn, and even Utica, over fifty miles away.⁵ Every account of the three-day event stressed the incredible amount of people—a "dense mass," an "immense assemblage"—and estimates of total attendance ranged from sixty to two-hundred thousand. If the published ticket-sale figures are near accurate the actual number was certainly over one-hundred thousand, whereas the inhabitants of Syracuse numbered barely a fifth of that figure.⁶

The New York State Agricultural Society (NYSAS) was, of course, highly gratified by the turnout. Its annual report bragged of "a throng beyond the population of a great city—a representation, almost by their individual presence, of the farmers of the State."⁷ Others seemed less enthusiastic. "Such a mass of human beings never was collected together before," wrote one

¹ *Hudson River Chronicle*, 18 Sep 1849, p. 2 (America's Historical Newspapers online); *New York Daily Tribune*, 13 Sep 1849, p. 1.

² *Literary Union*, 22 Sep 1849, p. 394 (American Periodical Series Online).

³ *American Agriculturist* 8 (Oct 1849): 300.

⁴ Benjamin Gue, *Diary of Benjamin F. Gue in Rural New York and Pioneer Iowa, 1847-1856*, ed. Earle D. Ross (Ames, IA: Iowa State University Press, 1962), 51–52.

⁵ *Robert Merry's Museum* 18 (1849): 187 (American Periodical Series Online); *Working Farmer*, 1 (Oct 1849): 129-130.

⁶ *Transactions of the New York State Agricultural Society* 9 (1850): 12-17, 157; *New York Daily Tribune*, 17 Sep 1849, p. 2; *Pittsfield Sun*, 20 Sep 1849, p. 2 (America's Historical Newspapers online); *Farmer's Cabinet* (Amherst, NH), 20 Sep 1849, p. 2 (America's Historical Newspapers online); *Cultivator*, 6 (Oct 1849): 304; 1850 Federal Population Census.

⁷ *Transactions of the New York State Agricultural Society*, 9 (1850): 12.

observer, “and I hope never will be again.”⁸ Yet just such a mass—perhaps an even larger one— assembled the following year when the state agricultural fair came to Rochester. The NYSAS’s report of that event responded to visitors’ complaints by contending that “although, for the time, they speak of the crowd as so great that they will not again attend, yet, after they return to their homes, it is one of the great events of their lives, and they refer with the deepest interest, to the fact that they were present at the Great Fair, the greatest ever held.”⁹ Benjamin Gue appears exemplary in this respect, devoting to the Syracuse fair several pages of a diary generally characterized by only perfunctory notes on farm chores and daily happenings.¹⁰

Occupying over twenty enclosed acres on a small hill about a mile east of the city, the 1849 Syracuse exhibition offered a wide variety of attractions both in and out of the fairgrounds (Figures 1.1-1.4). New York *Tribune* editor Horace Greeley was positively stupefied by the whole thing, though agreeably so. “After passing three or four hours in wandering among and gazing at this bewildering mass of Live Stock, Implements, Farm Produce, Inventions, &c.,” he wrote to his many readers, “I have brought away little more than a headache and a more vivid conception of the wonders of Nature and Art, and a more lively idea of that beneficent Future to which Industry is now hastening.”¹¹ According to Benjamin Gue’s description, the first thing one saw upon entering the grounds was the speaker’s tent and just beside it another, designated “Floral Hall” (Figure 1.2). Gue had never seen anything like it before; its “dazzling splendor and unsurpassed beauty” simply amazed him.¹² Beyond these and to the right were three additional “halls,” two of them long wooden structures housing the mechanical and agricultural exhibitions, the third a large tent containing the dairy display (where Gue observed “some noble specimens of butter and cheese but not a great variety”). Visitors might then proceed counterclockwise toward a pair of rings where horses were put through their paces for the inspection of judges and passersby. Further on, one came to a series of pens, coops, and stalls and finally to a natural grove of four acres. Here the hundreds of improved breeds of cattle, sheep and swine competing for premiums could rest in the shade, escaping the worst of the heat and dust kicked up by an unusually dry September. Surrounding the whole grounds just inside the fence was a carriage way affording “a very pleasant drive.”¹³

While Floral Hall proved especially popular, the livestock and implement displays also generated much interest. In a typical statement, the *New England Farmer* contended that “the cattle

⁸ *Robert Merry’s Museum* 18 (1849): 187.

⁹ *Transactions of the New York State Agricultural Society*, 10 (1851): 20.

¹⁰ Gue, *Diary of Benjamin F. Gue*, 51–53. The day after his return, for example, Gue recorded just the following: “was pleasant, plowed in the orchard for wheat.” Although Gue’s detailed firsthand account of the fair is unique in that it was never meant for publication, it should not be read as the unmediated expression of his experience. Gue began keeping a diary following a teacher’s suggestion that it would improve his writing. While typical entries were brief and unadorned, Gue occasionally used a particularly memorable event to attempt lengthier essays. In the case of the Syracuse fair, he appears to have adopted a journalistic tone that helps account for the strong correspondence between his account and published ones. In later years, in fact, Gue would become a newspaper editor. Yet even if Gue was consciously attempting to ape the papers, his report remains a valuable source for an ordinary’s farmer’s perspective on the event.

¹¹ *New York Weekly Tribune*, 22 Sep 1849, p. 3.

¹² Gue, *Diary of Benjamin F. Gue*, 52.

¹³ Quotation in *Hudson River Chronicle*, 18 Sep 1849, p. 2; for additional descriptions of the fairgrounds, see *Transactions of the New York State Agricultural Society*, 9 (1850): 12-17; *American Agriculturist* 8 (Oct 1849): 300-302; *Cultivator* 6 (Oct 1849): 304-306; *Genesee Farmer* 10 (Oct 1849): 228; *Ohio Cultivator* 5 (Oct 1849): 289-291; *New York Daily Tribune*, 17 Sep 1849, p. 2; *Literary Union*, 22 Sep 1849, p. 394.

show may, without exaggeration, be said to have been the greatest exhibition of fine stock ever held on this continent.”¹⁴ Agricultural editors generally singled out the herd of Devon cattle as the best and most extensive, though the Short Horns, Ayrshires, Herefords and native grades were also impressive.¹⁵ The French Merino sheep belonging to a Vermont breeder drew particular attention. One observer was startled to discover a creature on whom “the wool stood out each side full a foot,” obscuring almost all of its features (Figure 1.3).¹⁶ Even more striking, many thought, was the “vast display of improved implements.”¹⁷ Mechanics’ Hall “was filled to overflowing,” exclaimed the editor of the *Ohio Cultivator*. “The plows, harrows, cultivators, sowing machines [i.e., seed drills], rollers, horse rakes, straw cutters, reapers, thrashing machines, mills, and cook stoves, might be estimated by acres.”¹⁸ Horace Greeley considered “this altogether the most important feature of the Fair. A great ox may be reared by a greater fool; but no man who ever worked a year at farming can spend a day among these implements and inventions without being stimulated to *think*.”¹⁹ Benjamin Gue noted in his diary that several implements “displayed much ingenuity.” Having purchased a name brand plow (the “Cayuga”) the previous spring as well as having constructed his own cultivator (a relatively novel device at the time), Gue undoubtedly felt sufficiently qualified to form an intelligent opinion on the matter.²⁰ So, too, presumably, did many other farmers who attended the fair, some of whom surely invested in new equipment. One farm journal editor, at any rate, believed the event particularly beneficial precisely because “farmers see, and have an opportunity to purchase, hundreds of new contrivances for abridging human toil in tillage, haying and harvesting operations.”²¹

In addition to the ongoing displays, the Syracuse fair featured a number of noteworthy events. By far the most exciting was the visit by Henry Clay, the “man of men” according to Gue, and the most prominent of such attending notables as Vice President Millard Fillmore and Governor Hamilton Fish.²² The traditional plowing match and “Floral Ball” supplied further entertainment.²³ More edifying were the scheduled discussions of sheep husbandry and agricultural schooling; the latter, Horace Greeley thought, “cannot fail to awaken a general and lively attention to the great topic it presented.”²⁴ The annual address was delivered by Professor James F. W. Johnston of Edinburgh, one of the world’s foremost agricultural chemists. Though he lectured on technical subjects for nearly two hours toward the end of an exhausting exposition, Johnston drew such a large audience that Greeley and many others could not get close enough to hear. Afterward

¹⁴ *New England Farmer* 1 (13 Oct 1849): 340.

¹⁵ *Working Farmer* 1 (Oct 1849): 129-130; *Cultivator* 6 (Oct 1849): 304-306; *American Agriculturist* 8 (Oct 1849): 300-302.

¹⁶ *Robert Merry’s Museum* 18 (1849): 187.

¹⁷ *New England Farmer* 1 (13 Oct 1849): 340.

¹⁸ *Ohio Cultivator* 5 (Oct 1849): 291 (emphasis in original).

¹⁹ *New York Weekly Tribune*, 22 Sep 1849, p. 3 (emphasis in original); also reprinted in *Farmer’s Cabinet* (Amherst, NH), 7 Feb 1850, p. 1.

²⁰ Gue, *Diary of Benjamin F. Gue*, 29, 31, 33, 41, 48; on cultivators and other mechanical agricultural innovations of the period, see Peter D. McClelland, *Sowing Modernity: America’s First Agricultural Revolution* (Ithaca, NY: Cornell University Press, 1997), 106–128.

²¹ *Genesee Farmer* 10 (Oct 1849): 228.

²² Gue, *Diary of Benjamin F. Gue*, 53; *New York Daily Tribune* 13 Sep 1849, p. 1; *Transactions of the New York State Agricultural Society* 9 (1850): 14.

²³ *Ohio Cultivator* 5 (Oct 1849): 291; *Cultivator* 6 (Oct 1849): 304

²⁴ *New York Daily Tribune*, 17 Sep 1849, p. 2

the various premium committees announced their decisions, the winning animals were paraded before spectators, and finally a sale of stock, implements and grain closed the fair. Even then events had not quite concluded, as the next day the North American Pomological Society convened its second annual meeting on the grounds.²⁵

Such official occasions, however, hardly exhausted the fair's happenings, for outside the enclosure an army of "publicans, porters, and purveyors of every sort" added to the general merriment. Fanny Kemble Butler, the famous English actress recently returned to the United States to finalize a high profile divorce, gave dramatic readings of Shakespeare, while an early version of the Ferris Wheel gave dramatic viewings of the surrounding country (Figure 1.4).²⁶ Some agricultural reformers denounced the juxtaposition of such "spurious broods of auxiliaries" with the fair's authorized ends. The result, they complained, was an "incongruous mass of utility and nonsense, things befitting the occasion and things utterly subversive of it." Yet most visitors presumably enjoyed it all without qualms.²⁷ For the *Albany Evening Journal*, one of New York's leading Whig political papers, the 1849 exhibition "was more than successful—it was triumphant"; for a local magazine it "was undoubtedly the greatest gathering of the kind ever known in the New World."²⁸

And yet, within only a few years, similar gatherings and still greater ones would become familiar events as agricultural reformers organized substantial state expositions throughout the Northeast and Midwest. The Indiana state fair of 1851, for example, reprised events at Syracuse almost exactly, the town of Lafayette suddenly peopled to overflowing.²⁹ The 1854 Pennsylvania state exhibition attracted a reported one-hundred thousand visitors.³⁰ Tramping about eastern Ohio in September 1859, a young farmer named Oscar Jackson observed a train "presenting the appearance of a mass of human beings." When he arrived in Zanesville later that day, Jackson witnessed streets "very much crowded with visitors, 40,000 being the estimated number inside the fair grounds today."³¹ That same year the exhibition of the United State Agricultural Society in Chicago featured more than forty enclosed acres, 150,000 square feet of roofed display space, two steam-powered presses, a telegraphic office, and \$20,000 in premiums—the combination attracting a single-day attendance of fifty thousand.³² Meanwhile the NYSAS fairs continued to grow apace, while across the state the annual exhibitions of the American Institute of the City of New York, which included plowing matches, cattle shows, and substantial displays of farm products and agricultural implements, had been drawing crowds in the hundreds of thousands since the mid-1840s (Appendix C). Clearly, then, the state agricultural fairs of the 1850s were massive events.

State exhibitions, however, represented only the tip of an iceberg. Before the Civil War, smaller affairs at the county and town level, typically drawing a few thousand participants, became

²⁵ *New York Daily Tribune*, 13 Sep 1849, p. 1; *Hudson River Chronicle*, 18 Sep 1849, p. 2; *Magazine of Horticulture* 15 (Oct 1849): 465-468.

²⁶ *Semi-Weekly Eagle* (Brattleboro, VT), 2 Oct 1849, p. 1; *Ohio Cultivator* 5 (Oct 1849): 291.

²⁷ *American Agriculturist* 8 (Oct 1849): 300.

²⁸ *Albany Evening Journal*, 14 Sep 1849, p. 2; *Literary Union*, 22 Sep 1849, p. 394.

²⁹ William M. Reser, "Indiana's Second State Fair," *Indiana Magazine of History* 32 (March 1936): 30–31.

³⁰ *Annual Report of the Transactions of the Pennsylvania State Agricultural Society* 1 (1851–1854): 36.

³¹ David P. Jackson, ed., *The Colonel's Diary: Journals Kept Before and During the Civil War by the Late Colonel Oscar L. Jackson, Sometime Commander of the 63rd Regiment O. V.* I 11, <http://www.archive.org/details/colonelsdiaryjou00jack>.

³² Albert Lowther Demaree, *The American Agricultural Press, 1819-1860*, Columbia University Studies in the History of American Agriculture 8 (New York: Columbia University Press, 1941), 202.

annual rites in much of the American countryside. By the late 1850s several hundred yearly agricultural fairs recapitulated in miniature many of the features of their larger state counterparts.³³ The phenomenon was national but, as I show later in this chapter, it was heavily tilted toward the North, which hosted far more societies and fairs both in absolute and per-capita terms. More than the state expositions, which migrated each year from one urban venue to the next, county fairs came to be woven into the fabric of rural life. As early as 1844 the *Pittsfield Sun* referred to the Berkshire County Agricultural Society's annual exhibition—at thirty years, one of the longest running in the country—as a “time-honored institution.”³⁴ Although in some parts the county fair was just beginning to take hold in the 1840s, within a few years it would become not only commonplace but “an essential part of the agricultural system and of rural social organization.”³⁵ Thus Benjamin Gue, a year before his grand adventure at Syracuse, noted his attendance at the ninth annual Ontario county fair without elaboration.³⁶ Evidently it was an occasion worthy of record but too familiar to bother describing.³⁷

The period between 1850 and 1870 has been called the golden age of the agricultural fair, one indication that in the decade before the Civil War the agricultural reform movement became an institutionalized presence in much of the American countryside.³⁸ Integral to this trend was the rise of a specialized agricultural press that staked out a prominent place not only on the bookshelves of rural homes, but in the wider public discourse on economic development that lay below the surface of the era's swirling politics. A remarkable outpouring of government-sponsored reports at both the state and federal levels cemented agricultural reform's public prominence. The voluminous official record also indicated that reformers had made their way into state capitals and on to Washington. Indeed, by the mid-1850s reform initiatives had broken entirely new ground in American governance as state after state sanctioned semi-autonomous boards of agriculture to promote the development of their agricultural economies, and as the federal government contemplated doing likewise for the nation as a whole by financing agricultural and mechanical colleges and creating a new executive department devoted entirely to farming.

These developments had decisive implications for the political realignment of the 1850s that set the stage for the Civil War and, after it, for the Republican-party hegemony that sustained

³³ *Annual Report of the Commissioner of Patents on Agriculture* (1859): 91; Demaree, *The American Agricultural Press*, 201; Fred Kniffen, “The American Agricultural Fair: Time and Place,” *Annals of the Association of American Geographers* 41, no. 1 (March 1, 1951): 44. The Patent Office's list of agricultural organizations totaled 912. Demaree believes this understates the true number, but cites one farm journal's opinion that 500 fairs would occur in the fall of 1858, i.e., roughly half the number of organizations. Kniffen estimates 894 fairs that year after eliminating from the Patent Office figures a few organizations he believes unlikely to have held fairs. According to Demaree, Ohio alone probably held over 100 fairs in 1859 (203); a similar count is made by Robert Jones, *History of Agriculture in Ohio to 1880* (Kent Ohio: Kent State University Press, 1983), 290, 298.

³⁴ *Pittsfield Sun*, 10 Oct 1844.

³⁵ Wayne Caldwell Neely, *The Agricultural Fair*, Columbia University Studies in the History of American Agriculture 2 (New York: Columbia University Press, 1935), 22.

³⁶ Gue, *Diary of Benjamin F. Gue*, 40.

³⁷ Similarly laconic records of attendance at local agricultural fairs appear in other farmers' diaries; see Emily Pawley, “‘The Balance-Sheet of Nature’: Calculating the New York Farm, 1820-1860” (Ph.D., University of Pennsylvania, 2009), 54.

³⁸ Liberty Hyde Bailey, ed., *Cyclopedia of American Agriculture*, vol. 4: Farm and Community (New York: The Macmillan Company, 1911), 292; Neely, *The Agricultural Fair*, 82.

American industrialization. In the dissertation as a whole I argue that the agricultural reform movement played a critical role in bringing rural Northeasterners to support national economic development policy under Republican auspices. This chapter provides the setting for that larger argument by narrating the reform movement's institutional history and identifying its socioeconomic base of support. Doing this requires carefully considering the often prosaic details of organizational structure and financing, but without such an investigation the significance of reform discourse, as it was manifested in thousands of fairs and pages of print, will remain murky. I am particularly concerned here to show how the reform movement's growth related to contemporary political alignments, sectional differences, and market patterns in order to lay the foundations for the subsequent chapters' discussions of ideological commitments and policy initiatives.

Agricultural reform between the American Revolution and the Civil War occurred in roughly three phases. The first, corresponding to the period from independence to the War of 1812, saw the formation of several gentlemanly societies dedicated to agricultural improvement. These were based in major coastal cities and for the most part limited their activities to discussion meetings, published compilations of essays written by members, and standing offers of premiums for solutions to particular farming problems. In the second phase, centered on the decade or so after the War of 1812, new county agricultural societies in the northeastern interior joined the older organizations, while modest yet consequential state subsidies encouraged additional groups to form. Still dominated by the "monied gentry," agricultural organizations began to extend their influence and popularity thanks to the first fairs and the appearance of specialized agricultural journals.³⁹ Within only a few years, however, the nascent reform movement fell victim to its own success. As a new kind of democratic politics took shape in the 1820s, agricultural organizations came under attack for their patrician bias and lost their public funding. Before the end of the decade most had simply ceased to exist. During the 1830s several influential agricultural journals appeared and agitated for renewed state subsidies. Shedding the elite paternalism of the old societies in favor of a new rhetorical stance stressing pragmatism, usefulness, and government's obligation to foster agricultural development, a revived and broadly based set of local and state agricultural societies finally emerged in a third phase of antebellum agricultural reform, covering the last two decades of the period. By the mid-1850s, publicly subsidized state agricultural organizations coordinated networks of well established local societies in each of the large northern states.

The regenerated agricultural reform movement was truly a mass movement. It requires some effort, however, to see this. Based in rural areas, the movement was diffuse and comprised of individuals who, though perhaps quite prominent in their locales, were otherwise obscure. Moreover, while it generated an incredible amount of print, it did so in media that have been very much under-utilized by historians. Indeed, even experts on antebellum publishing have little idea of the extraordinary quantity of agricultural reports turned out annually by state and federal printers. Similarly, historians of fairs, parades, carnivals and the like have barely looked at the period's

³⁹ The term comes from John Lauritz Larson, *Internal Improvement: National Public Works and the Promise of Popular Government in the Early United States* (Chapel Hill: University of North Carolina Press, 2001), 9.

massive agricultural exhibitions.⁴⁰ The true extent and significance of public funding for agricultural societies has also proven somewhat elusive. Such funding, much of it in the form of printing subsidies, was ultimately quite modest, yet it proved sufficient not only to set off a rapid proliferation of agricultural organizations but to make reform discourse surprisingly omnipresent.⁴¹ By the mid-1850s, then, agricultural reform was more than an idea or even a movement, it was a physical presence instantiated in state office buildings, county fairgrounds and innumerable farm improvements, and it was also a common set of truisms regarding the future of American farming. This chapter explains how these circumstances came about and for whom they most mattered.

ORGANIZED AGRICULTURAL REFORM BEFORE JACKSONIANISM

The first important gentlemanly agricultural organizations were the Philadelphia Society for Promoting Agriculture and the South Carolina Society for Promoting and Improving Agriculture and Other Rural Concerns, both established in 1785. Membership in these groups was highly selective. The founders of the Philadelphia Society, for example, included four signers of the Declaration of Independence in addition to several senators, congressmen, army officers, and even George Washington's personal physician.⁴² Other "promoting" societies with similarly elevated memberships soon followed. Formed in 1791 and chartered the following year, the New York Society for the Promotion of Agriculture, Arts, and Manufactures was led by powerful political figures and large landholders such as John Jay, Robert L. Livingston, and Stephen Van Rensselaer.⁴³ The Massachusetts Society for Promoting Agriculture was founded in 1792 by Samuel Adams and a group comprised mostly of wealthy Boston merchants; it soon added other prominent members such as Josiah Quincy, Fisher Ames, and John Adams, the latter serving as its president from 1805 to 1813.⁴⁴ Similarly, the Society for Promoting Agriculture in the State of Connecticut was initially

⁴⁰ An exception is Catherine E. Kelly, "The Consummation of Rural Prosperity and Happiness: New England Agricultural Fairs and the Construction of Class and Gender, 1810-1860," *American Quarterly* 49 (September 1997): 574-602.

⁴¹ Historians of antebellum agricultural societies have clearly established that even modest government funding was critical to the societies' ability to put on agricultural fairs. A few have also noted that printing subventions significantly augmented direct appropriations. In my view, however, no scholar has noticed the fundamental importance of printing subventions to the societies' success not only in establishing annual fairs but in spreading their discourse far and wide. See Donald B. Marti, *To Improve the Soil and the Mind: Agricultural Societies, Journals, and Schools in the Northeastern States, 1791-1865* (Ann Arbor, MI: Published for the Agricultural History Society and the Dept. of Communication Arts, New York State College of Agriculture and Life Sciences, Cornell University by University Microfilms International, 1979), 14; Jones, *Agriculture in Ohio*, 274-280, 290; John Majewski, *Modernizing a Slave Economy: The Economic Vision of the Confederate Nation* (Chapel Hill: University of North Carolina Press, 2009), 77-78.

⁴² Simon Baatz, "*Venerate the Plough*": *A History of the Philadelphia Society for Promoting Agriculture, 1785-1985* (Philadelphia: The Philadelphia Society for Promoting Agriculture, 1985), 5-6.

⁴³ Alfred Charles True, *A History of Agricultural Education in the United States, 1785-1925*, reprint of 1929 ed., United States Department of Agriculture Miscellaneous Publication No. 36 (New York: Arno Press, 1969), 9, <http://www.archive.org/details/historyofagricul29true>; Ulysses Prentiss Hedrick, *A History of Agriculture in the State of New York* (Albany, NY: Printed for the New York State Agriculture Society, 1933), 113-115.

⁴⁴ Massachusetts Society for Promoting Agriculture, *Centennial Year, 1792-1892, of the Massachusetts Society for Promoting Agriculture* (Salem, MA: Salem Observer Office, 1892?), 8-15, <http://www.archive.org/details/centennialyear1700massrich>; Tamara Plakins Thornton, *Cultivating Gentlemen: The Meaning of Country Life Among the Boston Elite, 1785-1860* (New Haven: Yale University Press, 1989), 58 and ch. 2 generally.

headed by James Wadsworth, within a few years to become one of the Genesee Valley's largest landholders, and attracted the likes of David Humphreys, a diplomat, manufacturer and litterateur with close ties to George Washington.⁴⁵ Comparable organizations of which little is known presumably also appealed to a mix of wealthy farmers and other leading citizens.⁴⁶ By 1803, in any case, a prominent New York minister believed that there was "scarcely a State in the Union in which an institution of this kind" had not been organized.⁴⁷

The promoting societies invariably set themselves the goal of bettering the country's general level of farming, but in practice they acted more like exclusive scientific associations. Members experimented with fertilizers, implements, plant varieties, crop rotation sequences, pest-control schemes and other innovations, then reported their results in letters or learned papers that were occasionally collected and published.⁴⁸ Such efforts undoubtedly influenced the practices of wealthy farmers and perhaps of others as well. Among the far-reaching contributions of the promoting societies was the importation of purebred livestock. Robert Livingston and David Humphreys, members of the New York and Connecticut organizations, respectively, helped introduce Merino sheep to the United States, while the Massachusetts Society imported and diffused Ayrshire and Devon cattle.⁴⁹ There were also some attempts to reach wider audiences directly. In 1788 George Logan, a member of the Philadelphia Society, founded a separate and more inclusive organization, though it did not last long.⁵⁰ Fifteen years later Logan joined an effort to form an "American Board of Agriculture." Presided over by James Madison, the Board was certainly an elite undertaking, but its stated purpose was to go beyond the "circumscribed" sphere of the existing societies by making widely available all valuable information on agriculture and manufactures, subjects it considered "equally open and intelligible to the informed and the ignorant." Logan and Samuel Latham Mitchill,

⁴⁵ True, *History of Agricultural Education*, 14; Paul Wallace Gates, *The Farmer's Age: Agriculture, 1815-1860*, Economic History of the United States 3 (New York: Holt, Rinehart and Winston, 1960), 30–31.

⁴⁶ For example, in 1781 there was a "New Jersey Society for Promoting Agriculture, Commerce and Arts" in existence, with Samuel Witham Stockton, a lawyer and public figure, as secretary; in 1819 Federalist leader Rufus King was named president of the newly-formed Queens County Society for the Promotion of Agriculture and Domestic Manufactures; New Jersey State Agricultural Society, *The History of the New Jersey Agricultural Society: Early Attempts to Form a Society, Proceedings, Fairs, Activities and Accomplishments, 1781-1940* (Trenton: The Society, 1947), 5; David Gary, "Mundane Radicalism: Enlightenment Thinking and Free Labor Politics on Rufus King's Long Island Farm," unpublished manuscript in author's possession 40–41.

⁴⁷ Samuel Miller, *A Brief Retrospect of the Eighteenth Century: Part First*, vol. 2 (T. and J. Swords, 1803), 262.

⁴⁸ *Transactions of the Society for Promoting Agriculture in the State of Connecticut* (New Haven: Printed by William W. Morse, 1802); *Transactions of the Society, for the Promotion of Agriculture, Arts and Manufactures, Instituted in the State of New-York*, vol. 1, 4 vols., 2nd revised. (Albany: Charles R. and George Webster, 1801); *Memoirs of the Philadelphia Society for Promoting Agriculture, Containing Communications on Various Subjects in Husbandry & Rural Affairs, to Which Is Added, a Statistical Account of the Schuylkill Permanent Bridge*, vol. 1 (Philadelphia: Jane Aitken, 1808); *Papers, Consisting of Communications Made to the Massachusetts Society for Promoting Agriculture* (Boston: Young & Minns, 1806), <http://www.archive.org/details/papersconsisting0607mass>.

⁴⁹ Ezra Ayers Carman, Hubert A. Heath, and John Minto, *Special Report on the History and Present Condition of the Sheep Industry of the United States* (Washington, DC: G.P.O., 1892), 131–216; MSPA, *Centennial Year*, 33–34, 109–111; Alan L. Olmstead and Paul Webb Rhode, *Creating Abundance: Biological Innovation and American Agricultural Development* (Cambridge: Cambridge University Press, 2008), 295, 318–319; George F. Lemmer, "The Spread of Improved Cattle Through the Eastern United States to 1850," *Agricultural History* 21, no. 2 (April 1, 1947): 79–80.

⁵⁰ Baatz, *Venerate the Plow*, 13.

Professor of Natural History at Columbia College and active member of the New York promotion society, were to be vice presidents of the organization, but nothing apparently came of it.⁵¹

Meanwhile the Philadelphia Society for Promoting Agriculture (PSPA) hoped to enlist the state in an expansive plan to improve the practices of ordinary farmers. In 1794 it presented the Pennsylvania legislature with a proposal calling for a chartered state agricultural society, overseen by public officials, which would keep the government “informed on a subject so important to the prosperity of the country.” The PSPA further suggested that the state endow agricultural professorships and provide the society itself with funds so that it might “stimulate, by premiums and other incentives, the exertions of the agricultural citizens.” Headquartered in Philadelphia, the society would represent the state as a whole through branches at the county and even township levels. These local offices, moreover, were to be closely integrated with area schools—the schoolmasters serving as secretaries and the schoolhouses as meeting places—providing a convenient channel for introducing agricultural texts into the standard curriculum. “Thus the youth in our country will effectually, and at a cheap rate, be grounded in the knowledge of this important subject,” which would not only improve the general level of agriculture, but “assist good government.” Finally, the plan envisioned a system of “*Pattern Farms*” to serve as both models of best practices and as sites for experimentation. The PSPA petition made sure to remind the legislature that “it is vain to give facility to transportation, unless the products of the country are increased by good husbandry.” The people’s representatives, however, rejected this ambitious example of elite state building. This is perhaps surprising given the PSPA’s influential membership. But at the time of its petition the society found itself in no position to provide adequate lobbying support. Its membership was rent by internal disputes and harried by the seasonal yellow fever epidemics that devastated Philadelphia starting in 1793. Having already ceased regular meetings in that year, the PSPA suspended operations entirely soon after the petition, not to reconstitute itself for over a decade.⁵²

The Massachusetts Society for Promoting Agriculture (MSPA) proved somewhat more successful in its efforts to extend its relevance. Among its early endeavors was the establishment of an agricultural library and the publication of “many communications . . . of practical value” both in its own volumes of transactions and in local newspapers. In these respects it was similar to its sister organizations in New York and Philadelphia. But the MSPA did better in developing durable connections beyond Boston. In 1799 and 1800 it circulated a lengthy questionnaire aimed at ascertaining existing farming practices throughout the state. Around the same time newly formed local associations in Middlesex, Worcester and Kennebec helped distribute MSPA publications. In 1812 the society sent letters intended to stimulate interest in its activities to the state’s town clerks with a request that they be read at town meetings. Emboldened by the subsequent appearance of “numerous town societies,” the MSPA initiated the semi-annual *Massachusetts Agricultural Journal* the following year, hoping it would form “a channel of communication between the several Agricultural

⁵¹ *National Intelligencer*, 2 Mar 1803; *Famer’s Cabinet* (Amherst, NH), 17 Mar 1803, 2.

⁵² *Memoirs of the Philadelphia Society for Promoting Agriculture*, 1:xxi–xxx; Baatz, *Venerate the Plow*, 1–20; Lucius F. Ellsworth, “The Philadelphia Society for the Promotion of Agriculture and Agricultural Reform, 1785-1793,” *Agricultural History* 42, no. 3 (July 1968): 192.

Societies in the Commonwealth, and between individual farmers.”⁵³ This move foreshadowed the advent, within less than a decade, of an agricultural periodical press. By 1827 independent weekly and monthly agricultural journals were well enough established for the MSPA to discontinue its own journal.

The appearance of magazines dedicated to agricultural subjects helped define what I consider the second phase of American agricultural organization, dating roughly to the decade or so following the end of the War of 1812. State funding and the first fairs comprise the two other important developments that characterize this new period, but there was no definite break in time. Some agricultural societies had enjoyed public aid earlier and what is generally considered the initial agricultural fair, itself drawing on precedents, occurred in 1811. Similarly, the agricultural press was not entirely *sui generis*. Not only had promoting societies periodically published anthologies of agricultural essays, but newspapers serving rural areas regularly printed comparable material under the conventional heading, “Agricultural.” Nevertheless, the years after the War of 1812 witnessed a discernible flowering (and subsequent withering) of agricultural organization that merits consideration as a distinct phase.

Historians generally credit Elkanah Watson with organizing the first “modern” agricultural fair in the western Massachusetts town of Pittsfield in the fall of 1811. At the same time they have treated Watson’s claims to have invented the agricultural fair out of whole cloth as overblown at best.⁵⁴ Watson’s grand developmental vision, boundless self-promotion, and extensive personal journals have made him an irresistible historical character. An energetic “projector” of numerous reforms and improvements who had met important people in Europe during the Revolution and made and lost a fortune in trade, Watson began writing about the feasibility of a canal system linking the Hudson River to the Great Lakes as early as 1788. When he moved to Albany the following year, his ambitious developmental plans led the town’s Dutch residents to designate him “that infernal paving Yankee.” Appropriately enough for a man seemingly bent on improving everything, Watson joined the New York agricultural promotion society. In 1807 he purchased a farm in the Berkshire Hills near Pittsfield. He planned to establish a woollens industry there and, to this end, acquired a Merino ram and ewe from Robert Livingston. According to Watson’s account, when his showcasing of the sheep pair drew a crowd of spectators in the Pittsfield town square, he hit upon the idea of an annual exhibition of livestock and agricultural productions.

⁵³ MSPA, *Centennial Year*, 7, 28–32; *Inquiries by the Agricultural Society* (Boston: Young & Minns, 1800), <http://www.archive.org/details/inquiriesbyagric00mass>; Marti, *To Improve the Soil and the Mind*, 11.

⁵⁴ On Watson and his role in developing the county agricultural fair, see Mark Mastromarino, “Fair Visions: Elkanah Watson (1758-1842) and the Modern American Agricultural Fair” (Ph. D. diss., College of William and Mary, 2002); Marti, *To Improve the Soil and the Mind*, 15–31; Donald Benedict Marti, “Agrarian Thought and Agricultural Progress: The Endeavor for Agricultural Improvement in New England and New York, 1815-1840” (Ph.D. diss., University of Wisconsin, 1966), 17–33; Clarence H. Danhof, *Change in Agriculture: The Northern United States, 1820-1870* (Cambridge: Harvard University Press, 1969), 60–61; Neely, *The Agricultural Fair*, 51–71; Arthur Pound, *Native Stock: The Rise of the American Spirit Seen in Six Lives* (New York: The Macmillan Company, 1931), 197–267; Watson sets out his own version of events in Elkanah Watson, *History of the Rise, Progress, and Existing Condition of the Western Canals in the State of New-York from September 1788, to the Completion of The middle Section of the Grand Canal in 1819, Together with the Rise, Progress, and Existing State of Modern Agricultural Societies, on the Berkshire System, from 1807 to the Establishment of the Board of Agriculture in the State of New-York, January 10, 1820* (Albany, NY: D. Steele, 1820); Elkanah Watson, *History of the Rise, Progress, and Existing State of the Berkshire Agricultural Society in Massachusetts with Practical Directions for Societies Forming in North-Carolina, on the Berkshire Model* (Albany, NY: E. & E. Hosford, 1819).

As historians have recognized, however, there were significant precedents. To begin with, Europeans were already holding agricultural fairs and Americans knew about them. In 1802, for example, several northeastern newspapers reported on the “French Agricultural Fair at the national farm at Rambouillet.”⁵⁵ About the same time George Washington Custiss appears to have hosted the first American sheep shearing—a kind of proto-agricultural fair—in Alexandria, Virginia. Thought to have originated with the English aristocrat and celebrated agricultural improver Thomas Coke, sheep shearings dated to at least the late eighteenth century; in the first few years of the nineteenth they were witnessed by several Americans, including Rufus King and Christopher Gore of the MSPA.⁵⁶ By 1810 similar events held by Robert Livingston on his Clermont estate in upstate on the Hudson River were gaining national renown.⁵⁷ Also in 1810 David Humphreys hosted a July Fourth celebration that featured a plowing match, later a fair staple.⁵⁸ The following spring a brief report by the *National Intelligencer* on the semi-annual exhibition of the Columbian Agricultural Society in Washington, DC was reprinted by newspapers around the country.⁵⁹ That fall the Bucks County (PA) Society for Promoting Agriculture and Domestic Manufactures also held a fair.⁶⁰ In short, Watson’s famed “Berkshire system” of fair-holding agricultural societies was assembled from ready-made parts.

After the disruption caused by the War of 1812, agricultural societies both old and new moved to host exhibitions. Between 1817 and 1819 local societies in New York’s Otsego, Jefferson, Albany, Rensselaer, Queens and Oneida counties were founded and held fairs.⁶¹ About the same time, the MSPA initiated two decades of its popular Brighton “cattle shows” (essentially the same as other agricultural fairs) and the PSPA began planning its own event.⁶² Fair-holding societies also appeared in Ohio, Maine and New Hampshire.⁶³ In 1821 an agricultural exhibition in New York City drew six thousand attendees, while the PSPA’s Philadelphia show in the following year brought an estimated ten thousand.⁶⁴ By 1825 the MSPA estimated nearly fifty agricultural fairs throughout the country.⁶⁵ Some of these were already well established annual events. “We do not suppose, at this

⁵⁵ *Daily Advertiser* (New York), 6 Oct 1802, 3; *Independent Chronicle* (Boston), 22 Nov 1802, 2; *National Aegis* (Worcester, MA), 24 Nov 1802, 2; *Independent Republican* (Norwalk, CT), 7 Dec 1802, 1.

⁵⁶ Thornton, *Cultivating Gentlemen*, 29; Rodney C. Loehr, “The Influence of English Agriculture on American Agriculture, 1775-1825,” *Agricultural History* 11, no. 1 (January 1937): 5; Gary, “Mundane Radicalism,” 10.

⁵⁷ Donald B Marti, *Historical Directory of American Agricultural Fairs* (New York: Greenwood Press, 1986), 2–3; Neely, *The Agricultural Fair*, 35–50.

⁵⁸ *Connecticut Journal*, 12 Jul 1810, 3.

⁵⁹ See *Political Barometer* (Poughkeepsie, NY), 29 May 1811, 3, and other newspapers available through America’s Historical Newspapers online by searching for “agricultural exhibition” in full text.

⁶⁰ Baatz, *Venerate the Plow*, 39.

⁶¹ Donald B. Marti, “Early Agricultural Societies in New York: The Foundations of Improvement,” *New York History* 48 (October 1967): 318–319; Gary, “Mundane Radicalism,” 40.

⁶² MSPA, *Centennial Year*, 31–32; Thornton, *Cultivating Gentlemen*, 95–103; Baatz, *Venerate the Plow*, 39–40.

⁶³ Jones, *Agriculture in Ohio*, 274–280; Marti, “Agrarian Thought and Agricultural Progress,” 108, 120–121.

⁶⁴ Charles P. Daly, “Anniversary Address Before the American Institute, ‘on the Origin and History of Institutions for the Promotion of the Useful Arts,’ Delivered at the Hall of the New York Historical Society, on the 11th of November, 1863,” in *Report of the American Institute of the City of New York for the Years 1863, ‘64* (Albany, NY: Comstock & Cassidy, 1864), 68; Baatz, *Venerate the Plow*, 44.

⁶⁵ W. H. Brewer, “Agricultural Societies, What They Are and What They Have Done,” in *Annual Report of the Secretary of the Connecticut Board of Agriculture*, vol. 14 (Hartford, CT, 1881), 107.

time,” commented the *Connecticut Courant* in advance of the fifth Hartford County agricultural fair in 1821, “any thing need be said to convince the public of the beneficial tendency of this institution.”⁶⁶

Such exhibitions differed from the traditional market fairs that existed in colonial America. Rather than sites to facilitate direct trade, “modern” agricultural fairs revolved around public displays with an expressly didactic purpose.⁶⁷ The heart of the distinction, as people in the early nineteenth century understood it, was the Enlightenment concept of “emulation.” According to the *Encyclopédie*, the great compendium of Enlightenment thought, “emulation” was a “noble and generous passion which, admiring merit, beautiful things and the actions of others, attempts to imitate them, or even to surpass them, striving to this end courageously and with honorable and virtuous principle.”⁶⁸ The idea was closely associated with public spiritedness, nationalist sentiment, and economic development.⁶⁹ In fact, it was thought of as a mechanism for aligning individual behavior with broader goals for social and national advancement. It was thus a powerful concept in early republican America. John Adams, for instance, thought that “emulation next to self-preservation will forever be the great spring of human action” and a variety of improvement oriented associations sought to apply the principle.⁷⁰ Emulation proved particularly significant for the many rural academies that sprang up across the Northeast in the decades after the Revolution. Drawing on European examples such as the French *concours*, a year-end contest in which top students received awards for their scholastic achievements, American academies employed public exhibitions and class rankings to motivate students. Educators explicitly harnessed these pedagogical innovations to the grand project of nation-building. By making acts of public utility conspicuous, they argued, the thirst for recognition would redound to the common good. This joining of personal ambition to national purpose validated the aspirations of teacher and student alike, particularly in the American hinterland where individual drive could conflict with traditional familial expectations.⁷¹

Agricultural societies operated on essentially the same principle. Offering medals, certificates, silver plate, cash prizes and other “premiums,” the societies created a system of public distinctions intended to awaken spectators’ innate impulse for social recognition. The advent of agricultural fairs greatly expanded the scope of the premium system that the early promoting societies pioneered. Not only did the fairs constitute social gatherings that drew large numbers of observers, but they received coverage in local and sometimes distant newspapers, thus greatly enhancing the publicity which was their whole point. By making farming “an object of public attention, and a means of obtaining

⁶⁶ *Connecticut Courant*, 18 Sep 1821, 3.

⁶⁷ Neely, *The Agricultural Fair*, 3–23, 155–184.

⁶⁸ John Iverson, “Introduction to Forum on Emulation in France, 1750-1800,” *Eighteenth-Century Studies* 36, no. 2 (Winter 2003): 218.

⁶⁹ John Shovelin, “Emulation in Eighteenth-Century French Economic Thought,” *Eighteenth-Century Studies* 36, no. 2 (Winter 2003): 226.

⁷⁰ Adams is quoted in Jay Fliegelman, *Declaring Independence: Jefferson, Natural Language & the Culture of Performance* (Stanford University Press, 1993), 180. For other examples of the use of emulation, see *National Intelligencer*, 17 Oct 1804, 3; *Voice of the Nation* (Philadelphia), 16 Mar 1814, 4; *Vermont Intelligencer and Bellows’ Falls Advertiser*, 20 Jul 1818, 1.

⁷¹ J. M. Opal, “Exciting Emulation: Academies and the Transformation of the Rural North, 1780s-1820s,” *The Journal of American History* 91, no. 2 (2004): 445-470; J. M. Opal, *Beyond the Farm: National Ambitions in Rural New England* (Philadelphia: University of Pennsylvania Press, 2008), especially 111–117; see also Nira Kaplan, “Virtuous Competition among Citizens: Emulation in Politics and Pedagogy during the French Revolution,” *Eighteenth-Century Studies* 36, no. 2 (December 1, 2003): 241-248.

celebrity,” the exhibition-oriented agricultural organizations of the period after the War of 1812 hoped to reach the “retired and unknown farmer.”⁷² In turn, argued Timothy Pickering of the MSPA, “exciting emulation among our farmers will lead to important improvements in our husbandry.”⁷³ Emulation, therefore, was a critical developmental lever.

The watchword of the whole enterprise, in fact, was ultimately “improvement” rather than “emulation.” Like the academy exhibition, the agricultural fair was designed to align the initiative of individuals with national development priorities. This, for example, was the meaning of premiums for cattle, sheep, swine, horses and other farm animals which, by encouraging the importation and development of better breeds, would eventually raise the general level of the national stock. Thus the Rensselaer Agricultural Society contended that fairs “cannot fail to promote” both “individual wealth, and . . . the best interests of the community.”⁷⁴ Reflecting on the purpose of such fairs in the 1840s, one speaker emphasized their importance to a “new country” (i.e., a developing one) before concluding that “instruction is their aim, patriotism is their motive, and their country is the only shrine at which they worship.”⁷⁵ In organizers’ minds, exhibitions on the emulatory principle harmonized the developmental interests of individuals, communities and the nation.

In practical terms, emulation amounted to a competition for premiums and thus the more premiums on offer the more successful a fair was likely to be. But premiums required funding. Accordingly, agricultural societies turned toward state governments, confident that their public purposes warranted public subsidies. The Massachusetts General Court proved both responsive and generous. Between 1792 and 1809 it granted three prospective Maine townships to the MSPA, contributing to a permanent endowment that by 1813 came to almost \$20,000. Notwithstanding this large amount, the following year the General Court voted a \$1,000 annual allowance to the society “for printing and circulating their publications on agriculture” and for “any experiments made by them to promote agricultural knowledge.” In 1816 it added another \$500 annually to enlarge the Society’s premium list, thus aiding the success of the Brighton fairs, and within a few years it was funding the county agricultural societies as well.⁷⁶ Other state legislatures, though not nearly so munificent, also responded to solicitations from agricultural organizations. New Hampshire, for example, granted \$100 in 1817 to each of two county agricultural societies, enlarging and extending the gift to five societies the following year. Though a meager subsidy to be sure, it was enough for reformers to draw up a premium list and thus to draw out local farmers.⁷⁷ Encouraged by the trend, the PSPA renewed a long-stalled campaign to win funds from its own state legislature. In 1820, after “intensive lobbying,” it succeeded in obtaining an allowance of \$50 for every member of the state

⁷² Quotation from Rev. Wilkes Allen speaking before the Western Society of Middlesex Husbandmen in 1819, in Marti, “Agrarian Thought and Agricultural Progress,” 98.

⁷³ MSPA, *Centennial Year*, 82.

⁷⁴ *Farmer’s Register* (Troy, NY), 21 Sep 1819, 2.

⁷⁵ Harman C. Westervelt, “Address Delivered before the American Institute at Castle Garden, October 6th, 1846,” in *Fifth Annual Report of the American Institute* (Albany: C. Van Bethuysen and Co., 1847), 290-291.

⁷⁶ MSPA, *Centennial Year*, 34-35; Marti, “Agrarian Thought and Agricultural Progress,” 75-76; Baatz, *Venerate the Plow*, 50.

⁷⁷ Marti, *To Improve the Soil and the Mind*, 28-30; *Transactions of the New Hampshire State Agricultural Society* 1 (1853): 14-20.

House of Representatives from the city and county of Philadelphia. Amounting to \$650 in total, the grant enabled the PSPA to put on its first fair in 1822.⁷⁸

It was the agricultural improvers of New York, however, who pulled off the biggest coup. The old New York Society for the Promotion of Agriculture, Arts, and Manufactures—which changed its name to the Society for the Promotion of Useful Arts (SPUA) in 1804—had enjoyed some state funding early on, but never enough for an extensive premium list. As a result, it focused on publishing several volumes of scientific and speculative essays concerned with agricultural improvement. After the war of 1812, however, the profile of agricultural organizations suddenly rose as new county societies appeared. The patroon and SPUA president Stephen Van Rensselaer, for example, worked with Jesse Buel and others to found the Albany County Agricultural Society, while a transplanted French aristocrat named James Le Ray de Chaumont organized a similar group in Jefferson County. In 1818 Governor DeWitt Clinton recommended creation of a state Board of Agriculture modeled on the British institution of that name, something Van Rensselaer had already been advocating.⁷⁹ The legislature responded the following year by approving a state Board composed of delegates from the county societies and providing these organizations with a combined \$10,000 annually. The appropriation was to last for an initial period of two years but was extended through an additional four in 1820.⁸⁰ Thus the legislature pledged \$60,000 over the course of six years, “a staggering sum,” as one historian characterizes it.⁸¹ The outpouring of money helped bring into being new county agricultural societies, so that by 1822 perhaps three quarters of New York’s counties had one.⁸²

Almost immediately, however, the Board and the county societies came under attack from anti-Clintonites as elitist organizations closed to ordinary farmers.⁸³ Given the patrician backgrounds of the leading agricultural improvers, such allegations certainly seemed plausible. The committee report favoring the act creating the Board of Agriculture was headed by Robert Livingston, while the Board’s first president was Van Rensselaer. Thus the Board appeared simply to be a continuation of the patrician SPUA clothed with state authority and paid for out of the state treasury. Patronizing statements from Van Rensselaer that the Board “elevated the condition of the yeomanry in their own estimation” must not have helped.⁸⁴ Neither could ordinary farmers have found cause for confidence in Simeon De Witt’s 1819 pamphlet on the need for an agricultural college to train wealthy youth for the business of running country estates. “The resources of government cannot be better employed for any other object,” proclaimed De Witt, who was then the SPUA president.⁸⁵ But

⁷⁸ The quotation is taken from Baatz, *Venerate the Plow*, 35, 40.

⁷⁹ Marti, “Early Agricultural Societies in New York,” 314–321.

⁸⁰ Board of Agriculture of the State of New York, *Memoirs of the Board of Agriculture of the State of New York*, vol. 1 (Albany: S. Southwick, 1821), v–vii, xlvii; Marti, “Early Agricultural Societies in New York,” 321.

⁸¹ Baatz, *Venerate the Plow*, 38.

⁸² Marti, *To Improve the Soil and the Mind*, 23.

⁸³ Marti, “Early Agricultural Societies in New York,” 321–322; Marti, *To Improve the Soil and the Mind*, 23–24; Marti, “Agrarian Thought and Agricultural Progress,” 141–151.

⁸⁴ See the preface to Board of Agriculture of the State of New York, *Memoirs of the Board of Agriculture of the State of New York*, vol. 2 (Albany: Packard & Van Benthuyesen, 1823).

⁸⁵ Simeon De Witt, *Considerations on the Necessity of Establishing an Agricultural College, and Having More of the Children of Wealthy Citizens, Educated for the Profession of Farming* (Albany, NY: Websters and Skinners, 1819), 25–26; Society for the

the new democratic mass politics taking shape in the 1820s would not support the public funding of what looked like a network of gentlemen's clubs. Thus in 1823 a New York Assembly dominated by Martin Van Buren's anti-Clintonian Bucktail faction overwhelmingly voted to repeal the law of 1819, which was closely associated with the Clinton administration's program of developmental spending. Only inaction in the Senate prevented the Board's immediate elimination, but two years later the same result was achieved when the legislature refused to renew the Board's enacting legislation.⁸⁶

Concrete grievances against the ways in which premiums were awarded fueled the backlash against state subsidies for agricultural societies in New York and elsewhere. The chief complaint was that most of the premiums inevitably went to the richest farmers, thus discouraging ordinary tillers from competing. Indeed, societies often limited the competition for premiums to dues-paying members. Especially galling were the premiums won by country gentleman who produced impressive results by employing uneconomical means, that is, by lavishing more labor and capital on crops or livestock than they could possibly return. Such charges were leveled even by some society members, who argued that if greater inclusivity was not quickly achieved public repudiation was sure to follow. Worse still, in some cases agricultural-society officers seem to have been guilty of outright fraud by conspiring to distribute premiums among themselves.⁸⁷

The story in Pennsylvania closely paralleled the one in New York, albeit with an ironic twist. In 1823 a merchant turned cattle breeder named John Hare Powel, upset that the PSPA had failed to reach beyond its elite membership to a wider audience of farmers, established a rival organization called the Pennsylvania Agricultural Society (PAS). Powell promised that this new society, "principally composed of practical farmers," would form the antidote to "abstruse scientific disquisitions" and "the elaborate deductions of specious theory." Armed with such anti-elitist rhetorical barbs and the support of leading farmers in the agricultural counties surrounding Philadelphia, Powell succeeded in having the legislative appropriations slated for the PSPA transferred to his own group. The PAS then put together a well attended fair in Chester County and published a compilation of practical farming essays. Yet the supposedly egalitarian association was quickly revealed as nothing of the sort. Not only was its membership wealthier than its rhetoric suggested, but Powell himself kept winning most of the premiums. At one exhibition, every single one of the prize-earning neat cattle either belonged to Powell or originally came from his herd. With nearly \$4,000 of state funds already expended, little wonder that farmers became incensed at a system of subsidies that seemed to transfer tax dollars from their pockets directly into those of wealthy gentlemen. By the end of 1825 a massive wave of petitions convinced the Pennsylvania

Promotion of Useful Arts, in the State of New-York, *Transactions of the Society for the Promotion of Useful Arts, in the State of New-York*, vol. 4, pt. 2 (Albany, NY: Websters and Skinners, 1819), part 2.

⁸⁶ Marti, "Agrarian Thought and Agricultural Progress," 146–148; Marti, "Early Agricultural Societies in New York," 323–324; for an account stressing the elite sources of agricultural improvement initiatives in the period, see Thomas Summerhill, *Harvest of Dissent: Agrarianism in Nineteenth-Century New York* (Urbana, IL: University of Illinois Press, 2005), 34; for the association of the Board of Agriculture with Clinton see, for example, *American Journal* (Albany), 14 Mar 1820, 1.

⁸⁷ Marti, "Agrarian Thought and Agricultural Progress," 138–139; Marti, "Early Agricultural Societies in New York," 321–322; Marti, *To Improve the Soil and the Mind*, 28–30; Mary Summers, "Conflicting Visions", unpublished doctoral dissertation in author's possession, chap. 2.

legislature to abrogate public funding for all agricultural societies.⁸⁸ A broadly similar scenario played out in New Hampshire, where in 1824 the legislature rescinded funding for the state's county societies and Board of Agriculture amidst charges that they were political vehicles for "great agriculturists."⁸⁹

As Donald Marti has convincingly argued, agricultural societies in their initial years relied heavily on state subsidies to finance the fairs that were their reason for existence. Consequently, when public aid was withdrawn in New York, Pennsylvania, and New Hampshire, most agricultural organizations in these states simply ceased to exist.⁹⁰ In other states, too, fledgling movements to form societies dissipated, presumably due to bad publicity and the vanishing prospects of legislative support.⁹¹ By the mid-1820s, then, agricultural organizations in most of the Northeast had become easy targets for the small-government political forces that would soon coalesce into the Democratic Party. While many individual Democrats fully supported the objects of agricultural reform and even called for renewed state aid in the 1830s, their party's position in the emerging two-party system tended to militate against taking strong ground for such a policy of government spending. It was therefore the Whigs who would sponsor the resurgence of agricultural societies in the 1840s.

Only in Massachusetts did subsidies and fairs continue without interruption throughout the antebellum era. But even here there is evidence that elitism undermined the popularity of agricultural societies from the mid-1820s through the subsequent decade.⁹² In an 1823 talk before the Berkshire agricultural society, Theodore Sedgwick warned of "a lurking jealousy and ill will toward these societies" as a result of their tendency to attract "the more opulent farmers."⁹³ The member rolls of the Middlesex Agricultural Society appear to register this resentment as a sharp decline in new memberships. The association added hundreds of members in the 1820s, most of them in two large batches during the fall of 1820 and the fall of 1824.⁹⁴ Thereafter, however, new memberships slowed to a trickle until a revival occurred in the 1840s and 1850s (Table 1.1).⁹⁵ Perhaps in response to this downward trend, the society's trustees decided in December 1829 to introduce a new premium category "for the best cultivated Farm, regard being had to the quantity of produce, *manner and expense* of cultivation, and general appearance of the Farm." By creating an award for overall farm management rather than just for unusually large farm products, the trustees may have sought to

⁸⁸ Baatz, *Venerate the Plow*, 42–46; quotations from the opening unnumbered pages of the *Memoirs of the Pennsylvania Agricultural Society* (Philadelphia: J.S. Skinner, 1824).

⁸⁹ Marti, "Agrarian Thought and Agricultural Progress," 108–117 (quotation on p. 112); *Transactions of the New Hampshire State Agricultural Society* 1 (1853): 29.

⁹⁰ Marti, *To Improve the Soil and the Mind*, 14; Marti, "Early Agricultural Societies in New York," 324; see also Neely, *The Agricultural Fair*, 69–71.

⁹¹ Jones, *Agriculture in Ohio*, 274–280.

⁹² Thornton, *Cultivating Gentlemen*, 70, 99–104.

⁹³ *New England Farmer* 2 (31 Jan 1824): 212, quoted in Marti, "Agrarian Thought and Agricultural Progress," 101–102.

⁹⁴ The fact that most members were added in the fall suggests that new members typically joined during the annual fair. One possibility is that new members joined simply to reduce the cost of bringing their families to the fairs, but this is unlikely, at least before the 1850s. First, the society did not purchase and enclose grounds by which entry to the fair could be strictly controlled until 1853. Second, new members clustered very strongly in certain years, suggesting concerted membership drives rather than highly uneven fair attendance.

⁹⁵ This gap mirrors almost precisely the period from 1823 to 1839 in which no new county agricultural societies were established in Massachusetts; Summers, "Conflicting Visions," chap. 2.

open competition to middling as well as “opulent” farmers.⁹⁶ Yet the move did nothing to change the stagnant rate of new members until broader conditions became more favorable to a resurgent agricultural reform movement roughly a decade later.

THE REBIRTH OF ORGANIZED AGRICULTURAL REFORM

If the 1830s proved the low tide for agricultural organizations, this was not necessarily the case for agricultural reform in general. The same period witnessed an explosion of new periodicals specializing in agriculture. Several of these journals would become highly influential while many others were short-lived, in some cases issuing only a single number before folding. Yet by making a serious attempt to put a new title on the market, the failed editors and publishers as much as the successful ones evinced confidence in a ready audience, providing a useful if limited measure of popular interest in “scientific” agriculture. As Table 1.2 demonstrates, the number of agricultural journal titles to appear at least once more than quadrupled from the 1820s to the 1830s, while the ratio of such journals to free rural inhabitants more than tripled.⁹⁷ In the next decade both figures continued to rise but more slowly; in the 1850s the absolute number of new titles rose yet again while the per capita rate flattened out. These trends likely reflect the rapid initial growth and subsequent consolidation of the farm journal business. Successful early forays into the field during the 1820s encouraged a proliferation of new entrants in the following decade. As time passed the more profitable journals merged with or bought up their competitors in order to enlarge their subscription lists. As a result, the rate of new journals slowed even as overall circulation, for which we have no precise measure, probably continued to increase rapidly. In 1852 one informed observer estimated about thirty active journals with a total circulation of 500,000, by which time the three leading papers may have accounted for half of that figure.⁹⁸ At this point American farmers already constituted “the largest farm readership in the world” as well as “one of the largest communities of popular science on the continent.”⁹⁹

The demand for agricultural literature encompassed more than specialized periodicals. To begin with, newspapers large and small greatly expanded the reach of the farm journals by regularly reprinting their articles and providing additional space for original agricultural content. The weekly edition of the New York *Tribune*, which circulated widely in the immense rural hinterland of New York City, frequently published agricultural items before adding a full-fledged agricultural department in 1853 under the editorship of popular journalist and reformer, Solon Robinson; the

⁹⁶ Bound manuscript records, Society of Middlesex Husbandmen and Manufacturers, 1822-1839, Series II, Item 2, Records of the Middlesex Agricultural Society, 1820-1892, Concord (MA) Free Public Library (hereafter CFPL; emphasis added).

⁹⁷ Demaree, *The American Agricultural Press*, 18, estimates that “well over 400” agricultural journals appeared during the antebellum period, but the numbers I compiled from Stuntz in Table 3 suggest a somewhat lower number.

⁹⁸ Cong. Globe, 32nd Cong., 1st Sess., Appendix, 494; Marti, *To Improve the Soil and the Mind*, 162; For examples of journal mergers, see *Cultivator* 7 (Jan 1840): 5; *Farm Journal and Progressive Farmer* 6 (Jan 1856): 29; Danhof cites an estimated total circulation of 350,000 in 1860 (*Change in Agriculture*, 56).

⁹⁹ Danhof, *Change in Agriculture*, 57; Pawley, “The Balance-Sheet of Nature,” 11. As Pawley points out, effective circulation was undoubtedly much larger than the actual number of copies sold because of the prevalence of borrowing in contemporary reading practices (62-63).

New York *Times* did similarly by employing Luther Tucker, editor of several important agricultural journals.¹⁰⁰ Small-town papers repeated this trend at the local level. The *Semi-Weekly Eagle* of Brattleboro, Vermont, for example, included in most issues an “Agricultural” section with articles reprinted from the *Cultivator* and *Genesee Farmer*.¹⁰¹ Serving the rural suburbs of Philadelphia, the daily *Germantown Telegraph* provided a space headed “The Farmer” in which correspondents discussed fertilizers, crop rotations, and other agricultural matters.¹⁰² Such sections were apparently so popular that they began to appear in unexpected places. In September 1849, for instance, the *Puritan Recorder* announced the inception of a regular agricultural department. Its editor argued that the “singular . . . avidity with which articles on agricultural interests are read” suggested that “the family religious paper would be quite incomplete” without one. Two months later he reported back with satisfaction that “the arrangement meets a public demand,” adding that several of the *Recorder*’s exchange papers had followed suit by introducing their own agricultural sections.¹⁰³ Of course the market for agricultural literature was not limited to periodicals. The catalog of agricultural monographs grew rapidly through the period, evidenced by the appearance in 1847 of C.M. Saxton & Co., the first publishing firm devoted exclusively to agricultural topics. By comparison, the first publisher specializing in technical industrial issues appeared only several years later and did not achieve success until after the Civil War.¹⁰⁴

The agricultural press proved instrumental to the revival of publicly supported agricultural organizations that began the third phase of antebellum reform. Journals not only publicized the benefits of the reform movement, they provided an open forum for farmers and others to publish their views on all matters agricultural. The *Cultivator*’s 1844 volume, for instance, included some three hundred letters from correspondents, “almost all of them practical farmers”; another journal urged in its masthead, “Farmers! Write for your Paper!” Similarly, the *Germantown Telegraph* continually sought “general contributions from our agricultural friends.”¹⁰⁵ Such frequent solicitation and publication of reader correspondence fostered a more impersonal, interactive and inclusive public space than had existed in the 1810s and 1820s. At the same time, the editorial staffs of agricultural journals became the focal points of a great deal of private correspondence on farming matters.¹⁰⁶ Through print and the post, therefore, agricultural editors played a critical role in building a network of reform-minded individuals throughout the countryside, a broad-based constituency for

¹⁰⁰ Solon Robinson, *Solon Robinson, Pioneer and Agriculturist: Selected Writings*, ed. Herbert Anthony Kellar, vol. 1 (Indianapolis: Indiana Historical Bureau, 1936), 31, <http://www.archive.org/details/solonrobinsonpio01robi>; Danhof, *Change in Agriculture*, 58.

¹⁰¹ See for example, *Semi-Weekly Eagle*, 12 Oct 1847, p. 2.

¹⁰² *Germantown Telegraph*, 30 Jan 1850, p. 4 (emphasis in original).

¹⁰³ *Puritan Recorder*, 34 (27 Sep 1849): 154; (15 Nov 1849): 184.

¹⁰⁴ Danhof, *Change in Agriculture*, 55; *Pennsylvania Farm Journal* 6 (May 1856): 154; Pawley, “The Balance-Sheet of Nature,” 14, 59–60; James Green, “Henry Carey Baird and Company, America’s First Technical Publishers,” *PASCAL News* 1 (September 1991): 7–9.

¹⁰⁵ *Cultivator* 2 (Mar 1845): 86; *Prairie Farmer* 15 (9 Dec 1858): 369; *Germantown Telegraph*, 30 Jan 1850, p. 4. One of the *Cultivator*’s three hundred correspondents was a central Pennsylvania farmer named Charles Colfet whom I discuss in detail later in this chapter. For the persistence of agricultural journals’ policy of soliciting readers’ correspondence, see Alan I. Marcus, *Agricultural Science and the Quest for Legitimacy: Farmers, Agricultural Colleges, and Experiment Stations, 1870-1890* (Ames: Iowa State University Press, 1985), 15–16.

¹⁰⁶ Danhof, *Change in Agriculture*, 59; Donald Hugh Parkerson and Jo Ann Parkerson, *The Emergence of the Common School in the U.S. Countryside*, Mellen Studies in Education 36 (Lewiston, N.Y.: E. Mellen Press, 1998), 41–43.

agricultural reform that could be mobilized in support of policy goals, including state funding of agricultural societies.¹⁰⁷ Beginning in the 1830s, Samuel Fleet of the *New York Farmer*, Luther Tucker of the *Genesee Farmer*, and Jesse Buel of the *Cultivator* advocated tirelessly for government sponsorship of agricultural organizations. In 1832 these editors helped call a convention in Albany that formed a new state agricultural society and lobbied for government support. Meeting again each year for nearly a decade, the convention finally won its point with an 1841 law that provided \$8,000 annually to the state society and its county subsidiaries. Although this was a far cry from the \$25,000 reformers had asked for initially, it was enough for the state society to achieve a firm footing and for county societies to proliferate rapidly.¹⁰⁸

But the restoration of public funding that began with New York's 1841 law owed as much to the rise of the Whig Party as to the organizational effectiveness of the farm press. This may not appear immediately obvious. Agricultural reformers themselves maintained a strong taboo against open partisanship even if their leaders were frequently Whigs.¹⁰⁹ Moreover, as early as 1832 leading Democratic politicians such as New York Governors Enos Throop and William Marcy called for renewing aid. In fact, the fundamental aims of the agricultural reform movement did not mark a clear division between Whigs and Democrats because the leaderships of both were committed to national progress and the basic tenets of a market economy. But reform could and did become a partisan issue when public funding and government oversight were at issue. Although conservative Democrats might support limited public sponsorship of agricultural societies, their colleagues in the party's "Radical" wing subscribed to an anti-statist ideology that viewed such subsidies and their concomitant extensions of state authority as precisely what the Democratic Party was formed to fight. The case of reformer and Democrat Isaac Hill, though unusual, is instructive in this regard. After ending his term as New Hampshire governor in 1839, Hill not only published his own agricultural journal but also helped found a county agricultural society. Nevertheless, he opposed public funding for agricultural organizations. In New York, Radicals such as Samuel Young and Jehiel H. Halsey successfully fought off the renewal of state support for agricultural organizations throughout the 1830s, arguing that earlier funding for the Board of Agriculture had been wasted on the visionary projects of rich dilettantes. Thus not until the "resounding Whig triumph" of 1840 did the New York Assembly respond to reformers' demands.¹¹⁰

A Whig legislature was again responsible when reformers scored their next major victory with the creation of the Ohio Board of Agriculture in 1846. Ohio reformers had been calling for state support for some time, leading to an 1833 law authorizing disbursements of up to \$50 from county treasuries to local societies meeting prescribed conditions. But county commissioners often refused to distribute even this meager sum and consequently the law was largely a dead letter. After 1844, however, Whig control of both the governorship and the legislature, along with the example

¹⁰⁷ For the antebellum postal system as an ever-available network that altered Americans' sense of their connections to each other across vast distances, see David M. Henkin, *The Postal Age: The Emergence of Modern Communications in Nineteenth-Century America* (Chicago: University Of Chicago Press, 2006).

¹⁰⁸ *Transactions of the New York State Agricultural Society* 1 (1842): 5–15; Marti, "Early Agricultural Societies in New York," 324–327; Marti, *To Improve the Soil and the Mind*, 49–58.

¹⁰⁹ Pawley, "The Balance-Sheet of Nature," 42; Summers, "Conflicting Visions," chap. 3. Jesse Buel, the most prominent reformer of the 1830s, was even the Whig nominee for New York governor in 1836.

¹¹⁰ Marti, *To Improve the Soil and the Mind*, 49–58, 142–143; Marti, "Early Agricultural Societies in New York," 324–328.

of the New York system, inspired Ohio reformers to mount a serious lobbying campaign. In June 1845 they convened a two-day meeting in Columbus, leading to the introduction of a bill to create and fund state and county-level organizations. During the subsequent winter, legislators were treated to almost daily petitions in support of the bill, amounting to eighty-six in total from forty-nine counties.¹¹¹ When the bill finally came up for a vote, clear party differences emerged. I was able to determine the probable party affiliations of roughly half of the legislators in each of two key votes, the first on an amendment to strip the bill of its public funding provision, the second on final passage. Although the data is thus incomplete, the results given in Table 1.3 appear unambiguous: whereas Democrats mostly opposed, Whigs almost unanimously supported the ambitions of Ohio's agricultural reformers. The Whig majority assured the establishment of the Board of Agriculture and its financing from a "state agricultural fund" that netted several thousand dollars per year. As in New York, public money quickly brought about the organization of county associations, so that from 1846 to 1850 fifty-two local societies appeared or re-appeared after a period of dormancy.¹¹²

The New York and Ohio cases therefore indicate that when it came to public policy, the reform movement's objectives tended to align it with the Whigs' state-sponsored developmentalism even if many individual reformers were Democrats and the movement's discourse was carefully nonpartisan. The pattern continued to hold when at the end of the 1840s reformers moved up to the federal level. There, too, as I detail in Chapter 5, Whig administrations and members of Congress were far more likely to support reform initiatives than were their Democratic colleagues.

In the years following the establishment of the New York and Ohio systems other states solidified the legal and financial standings of agricultural societies by providing them with acts of incorporation and modest levels of funding.¹¹³ The 1851 law by which Pennsylvania incorporated its state agricultural society pledged \$2,000 to the society for its first year and thereafter funds matching the annual contributions of members up to \$2,000; county societies were entitled to annual matching funds of up to \$100, but several obtained special acts of incorporation that provided additional subsidies or tax exemptions.¹¹⁴ Smaller states also renewed aid to agricultural societies.¹¹⁵ In Massachusetts, meanwhile, an uninterrupted system of appropriations dating to the late 1700s encouraged agricultural societies to invest funds in permanent endowments and thus to build up substantial treasuries. In 1852 the General Court sanctioned a state Board of Agriculture convened the year before by leading reformers, while it continued to subsidize its various agricultural organizations with a combination of "bounties" that by 1854 topped \$9,000 a year.¹¹⁶ Although even

¹¹¹ Jones, *Agriculture in Ohio*, 280–288; *Journal of the House of Representatives of the State of Ohio* 64 (1846): 40, 46, 57, 64–65, 82, 90, 103–104, 112, 117, 123, 129–130, 141, 148–149, 159, 167, 176, 183–184, 192, 208, 218–219, 227, 240, 245, 267, 280, 292, 302, 326, 341, 351, 359, 383, 514.

¹¹² *Annual Report of the Ohio State Board of Agriculture* 21 (1867): 476–477; Ohio, *Acts of a General Nature and Local Laws and Joint Resolutions Passed by the General Assembly of the State of Ohio* 53 (1856): 208; Jones, *Agriculture in Ohio*, 288–290.

¹¹³ For the revival of agricultural societies in New England and New York from the 1830s, see Marti, *To Improve the Soil and the Mind*, 45–123.

¹¹⁴ *Transactions of the Pennsylvania State Agricultural Society* 2 (1855): 9; *Laws of the General Assembly of the Commonwealth of Pennsylvania* (1849): 327; (1851): 557–558; (1853): 712–713; (1857): 196–197; (1861): 265–267.

¹¹⁵ Edwin C Rozwenc, *Agricultural Policies in Vermont, 1860-1945* (Montpelier, VT: Vermont Historical Society, 1981), 13; New Jersey State Agricultural Society, *History of the New Jersey Agricultural Society*, 13; Marti, *To Improve the Soil and the Mind*, 98–101.

¹¹⁶ *Annual Report of the Secretary of the State Board of Agriculture of Massachusetts* 1 (1854): 16.

here the appropriations were basically quite small, public funding was sufficient in most states to establish permanent state-level agricultural bodies and to ensure the rapid growth and proliferation of agricultural fairs. Rising fair revenues, in turn, augmented organizational budgets. In several states public funding allowed the state organizations to be staffed by full-time salaried secretaries who could devote undivided attention to the cause.¹¹⁷ Benjamin P. Johnson of the New York Society, Charles L. Flint of the Massachusetts Board, and John H. Klippart of the Ohio Board, in particular, would emerge as long-tenured and highly respected figures.

Other measures also promoted the cause of agricultural reform. In 1853 and 1855 New York enacted and revised a general incorporation law for county and town agricultural societies to facilitate their organization and acquisition of real estate.¹¹⁸ Although many such societies had existed for years without incorporation, several factors contributed to the enactment of new legal arrangements. First, the law was part of the broad wave of general incorporation laws passed in the wake of New York's 1846 Constitution, which struck a bargain between anti-monopoly Radical Democrats and pro-development Whigs by throwing the doors open for anyone to incorporate.¹¹⁹ As far as reformers were concerned, the proliferation of independent agricultural organizations made a true general incorporation law desirable. The legislation of 1841 had provided a kind of restricted general law by authorizing one official agricultural society per county, but by the 1850s numerous additional local fair-holding societies had appeared. Closely related to this development was the movement to establish permanent fairgrounds. Local societies everywhere began raising substantial sums of money for land and improvements. For example, the agricultural society of St. Lawrence County in northern New York, founded around 1850, spent almost \$15,000 on its fairgrounds in 1859. The state further aided this kind of effort by exempting agricultural fairgrounds from taxation. Local towns, which often competed to become the permanent sites of county fairs, added yet another measure of public subsidization.¹²⁰

These policies, however, represented only a fraction of total government support for the societies. A critical source of funding came in the form of state printing subventions budgeted separately from direct appropriations. Although a few historians have noted this additional backing, they have not observed that it often greatly exceeded direct appropriations. In 1852, for example, the Wisconsin legislature paid for the printing and binding of 1,800 copies of the state society's annual report despite granting the society no direct money whatsoever.¹²¹ More importantly, historians have failed to register the remarkable quantity of agricultural reports that state printers turned out year after year. Ohio ordered fifty thousand total copies of the Board of Agriculture's

¹¹⁷ Danhof, *Change in Agriculture*, 64.

¹¹⁸ "An Act to facilitate the forming of agricultural and horticultural societies," *Laws of the State of New York* (1853), ch. 339, pp. 716-718; "An Act to facilitate the forming of Agricultural and Horticultural Societies," *Laws of the State of New York* (1855), ch. 425, pp. 777-780.

¹¹⁹ Gunn, *The Decline of Authority*, 238.

¹²⁰ Henry G. Foote, *Address of the St. Lawrence County Agricultural Society Delivered at the Eighth Annual Fair, at Canton, by Henry G. Foote, President, September 30th, 1859* (Ogdensburgh, NY: Abbott & O'Brien, 1859), 1; *Transactions of the New York State Agricultural Society* 16 (1856): 493-494; "An Act to exempt lands held by Agricultural Societies from Taxation," *Laws of the State of New York* (1856), chapter 183, p. 304; for other examples of county societies establishing permanent fairgrounds, see *Pennsylvania Farm Journal* 5 (Jul 1855): 216-217; *Farm Journal and Progressive Farmer* 6 (Sep 1856): 287-288.

¹²¹ *Transactions of the Wisconsin State Agricultural Society* 1 (1852): 4-5; 2 (1853): 7; for other states, see *Transactions of the State Agricultural Society of Michigan* 4 (1853): 12; *Transactions of the New Hampshire State Agricultural Society* 1 (1853): 3.

annual reports for 1855, 1856 and 1857, and added to that over seven thousand copies of the Board president's separate report. These documents were far and away Ohio's most heavily printed state papers and were specifically exempted from the general law on printing; their cost greatly exceeded what the Board earned from the state agricultural fund in the best of years.¹²² The legislature of New York supported the printing and binding expenses of not one but two major agricultural institutions, the state society and the American Institute of the City of New York. By my calculation it ordered a combined total of about thirteen thousand copies in 1858 and similar amounts in other years.¹²³ Such documents were no lightweight affairs. The New York state society's annual report exceeded eight hundred pages throughout the 1850s—topping a thousand pages in 1849, 1850, 1852 and 1855—and cost the state around \$8,000 each year, equal to the annual direct appropriation for all of New York's agricultural organizations combined.¹²⁴ Other state organizations, including the Massachusetts Board of Agriculture and the Illinois State Agricultural Society, benefitted from similar legislative largesse when it came to the publishing costs of their annual transactions.¹²⁵

The revival of government support for agricultural reform thus flooded the countryside with hefty official reports from agricultural societies. These documents greatly increased the volume of available agricultural literature and were used by the societies to arouse latent energies in support of reform.¹²⁶ Yet the tens of thousands of reports that emerged from state printers each year paled in comparison to the output of the federal government. Between 1851 and 1860 Congress ordered the printing of roughly 2.2 million copies of the Patent Office's "Agricultural Report." In 1859 alone, the Government Printing Office turned out more than 326,000 copies of the six-hundred-page volume, a figure comparable to the record-breaking first-year sales of *Uncle Tom's Cabin*.¹²⁷ Easily the federal government's leading printing expense, the Agricultural Report was an annual best-seller. "Probably most of the members of this House, who represent rural districts," asserted one Congressman, "are almost daily reminded of the estimate placed upon these reports by their constituents."¹²⁸ It may seem incredible that a volume containing several hundred pages of technical agricultural material could arouse so much interest, but such seems to have been the case. Newspaper editors consistently praised the reports' "real value" and agricultural reformers avidly exchanged them with one another.¹²⁹

Official reports, however, hardly exhausted the range of state support for agricultural publications. In 1839 New York paid for a school district library series that included several

¹²² *Journal of the House of Representatives of the State of Ohio* 53 (1857): 511–512; *Acts of a General Nature and Local Laws and Joint Resolutions Passed by General Assembly of the State of Ohio* 53 (1856): 171–178, 248–249; *Ohio Cultivator* 14 (1 Apr 1858): 104.

¹²³ *Journal of the Assembly of the State of New York* (1858): 768–769.

¹²⁴ Cong. Globe, 31st Cong., 1st Sess., 1642.

¹²⁵ *Transactions of the Illinois State Agricultural Society* 2 (1858): xi; *Acts and Resolves Passed by the General Court of Massachusetts* (1856): 268.

¹²⁶ *Annual Report of the Secretary of the State Board of Agriculture of Massachusetts*, 1 (1854): 16–17.

¹²⁷ For figures on the Patent Office Agricultural Report, see Chapter 5, Table 1; for *Uncle Tom's Cabin*, see Ronald D. Patkus and Mary C. Schlosser, "Aspects of the Publishing History of *Uncle Tom's Cabin*, 1851–1900," *Vassar College Libraries, Archives and Special Collections* <http://specialcollections.vassar.edu/exhibits/stowe/essay2.html>.

¹²⁸ Cong. Globe, 32nd Cong., 1st Sess., Appendix, 746.

¹²⁹ Leaflets and newspaper clippings in the folder marked "Printed material: 1844," Henry O'Reilly Papers, Series VI, Box 40, New-York Historical Society (hereafter, NYHS); James Worthington to John Alsop King, 4 Apr 1855, John Alsop King Papers, Box 1, NYHS.

monographs on agriculture, including Jesse Buel's two-volume *Farmers' Instructor*.¹³⁰ Several years later it began publishing the five-volume *Agriculture of New York*, a part of the monumental (and monumentally expensive) *Natural History of New York*, which was distributed to most of the state's approximately two hundred Regents academies.¹³¹ These two acts, therefore, supplied virtually every district school and academy in the state with works in the emerging field of agricultural science. Similarly, an 1854 Vermont law funded the purchase of a new agricultural textbook for local school districts.¹³² State legislatures also occasionally supported the printing and distribution of specific agricultural monographs.¹³³ Altogether, then, while direct government funding of agricultural societies was quite modest, printing subsidies and various other aids helped make the discourse of agricultural reform ubiquitous. Indeed, as Emily Pawley and Benjamin Cohen have shown, even the technical jargon of agricultural chemistry had become remarkably commonplace by the late 1840s.¹³⁴ "What is the percentage of ammonia?" asked one United States Senator in reference to a sample of imported fertilizer during an 1856 debate. "It is given as 13.50 including the crenates and humates of ammonia, oily matter and lithic acid," replied a colleague casually.¹³⁵ Such an exchange became possible thanks to the wide coverage of the discourse on scientific agriculture.

As Oz Frankel has argued, the printing and distribution of official documents was a major means of state-making in the nineteenth century.¹³⁶ If so, then annual state and federal agricultural reports played an especially significant role in this process—a circumstance that might, after all, be expected in a predominantly agrarian country. Yet the relationship between state governments and their agricultural organizations was, by our standards, ill-defined at best. State boards enjoyed a closer formal association with their respective governments than did state societies, but there was no significant difference in functions or funding. Over time agricultural organizations tended to take on more official responsibilities and gradually evolved into full-fledged state agencies. At the same time, however, they spawned new kinds of civic organizations such as the Grange and a variety of special-interest farming associations. But that came later. During the antebellum period, state boards and societies functioned as bodies that were semi-official, semi-autonomous. The advantage of this arrangement was that there was little direct political oversight; more specifically, agricultural organizations could avoid becoming patronage institutions beholden to whatever party happened to

¹³⁰ Marti, "Agrarian Thought and Agricultural Progress," 285–286.

¹³¹ Emily Pawley, "Accounting with the Fields: Chemistry and Value in Nutrient in American Agricultural Improvement, 1835–1860," *Science as Culture* 19, no. 4 (December 2010): 461–462; Pawley, "The Balance-Sheet of Nature," 141–142. Academies holding the *Natural History of New York* can be identified in the *Annual Report of the Regents of the University of the State of New York* throughout the 1840s and 1850s.

¹³² *New York Daily Tribune*, 23 Jan 1855, 4; George Edwin Waring, *The Elements of Agriculture: A Book for Young Farmers: With Questions Prepared for the Use of Schools* (Montpelier: S.M. Walton, 1855); the back cover of this edition claims 2,000 copies had been ordered in accordance with the law.

¹³³ For example, "Resolve concerning Models of Fruits and Animals," *Acts and Resolves Passed by the General Court of Massachusetts* (1854), ch. 33, 426; "Resolves for reprinting a report on the insects of New England, which are injurious to vegetation," *Acts and Resolves Passed by the General Court of Massachusetts* (1859), ch. 93, 466–467.

¹³⁴ Pawley, "Accounting with the Fields," 463, 468, 471; Benjamin Cohen, *Notes from the Ground: Science, Soil, and Society in the American Countryside*, Yale Agrarian Studies (New Haven: Yale University Press, 2009), 36–37.

¹³⁵ Cong. Globe, 34th Cong., 1st Sess., 1697.

¹³⁶ Oz Frankel, *States of Inquiry: Social Investigations and Print Culture in Nineteenth-Century Britain and the United States*, New Studies in American Intellectual and Cultural History (Baltimore: Johns Hopkins University Press, 2006).

be in power. On the other hand, they had to fight continually for influence and to define their policy aims as proper objects of government action.

The New York State Agricultural Society, for example, worked hard to secure its official status, establishing its central office in Albany's "Old State House" and drawing attention to the fact that its annual transactions were published "under legislative authority." It also sought to cultivate influential connections by inviting legislators and other prominent figures to monthly and later weekly public meetings of its executive committee. "The object," its president explained in a form-letter invitation, "is to promote the cause by bringing together occasionally, for free conversation, the friends of Agriculture and Horticulture, including the Agricultural Committees of Senate and Assembly, and such other legislators and strangers as may be in Albany." Simultaneously, the state society made use of its ties to county agricultural societies to strengthen its position with both the legislature and its own constituency. The society solicited not only the formal county reports required by law, but also "the names of *many* active practical farmers" (emphasis in original) and "any newspapers containing articles calculated to promote the interests of the Farming Community"; it thus built a record of public endorsements and a central list of statewide contacts. It also urged officers of county societies to publicize its annual fairs by placing notices in local newspapers and agricultural journals and, more generally, requested "their influence in promoting the purposes of the State Society."¹³⁷ The annual agricultural convention in January and the state fair in the fall afforded additional opportunities for agricultural reformers from around the state and beyond to make connections.¹³⁸ State society officers also traveled to county fairs to further solidify ties. These efforts at network building paid off in the erection at public expense of a new building to house the society, its museum, and the cabinet of natural history; an annual appropriation to fund entomological research on harmful insects; continued public funding of agricultural organizations; and other measures, including an 1862 law by which the state society was to supervise the collection of standardized agricultural statistics in every one of the state's roughly 12,000 school districts.¹³⁹

Most important, the New York society's efforts resulted in spectacularly crowded annual fairs. Ultimately the power of such agricultural societies derived from their ability to mobilize, on the one hand, a very large if dispersed constituency of farmers and, on the other hand, a small but powerful set of men in state capitals. If agricultural organizations could effectively mediate between these groups, they might potentially exert a great deal of influence in a predominantly agrarian nation. Yet it is important to understand the limits of organized agricultural reform. State boards and societies had no authority and little informal power to compel any kind of behavior from anyone, even the county and town societies that were in some sense subsidiary to them. Thus state societies "respectfully requested" information from their local-level counterparts and appealed to the "welfare

¹³⁷ See the folder marked "Printed material: 1844" in the Henry O'Reilly Papers, Series VI, Box 40, NYHS.

¹³⁸ Agricultural societies made it a point to invite officers from other societies to their fairs. The records of the Delaware County Institute of Science, which functioned as the local agricultural society, are full of such correspondence. See, for example, Jeffersonville Agricultural Association to DCIS, 20 Sep 1849; Jonathan C. Baldwin to DCIS, 12 Aug 1849; Algernon S. Roberts to Dr. Geo. Smith, 8 Apr 1837, in Delaware County Institute of Science Minutes and Papers, circa 1833-1873, American Philosophical Society.

¹³⁹ *Laws of the State of New York* (1854), ch. 283, 616; (1862), ch. 293, 489-491; *Transactions of the New-York State Agricultural Society* 14 (1855): v-vi; 15 (1856): v; Marti, *To Improve the Soil and the Mind*, 122; Asa Fitch, *First Report on the Noxious, Beneficial and Other Insects, of the State of New York* (Albany: C. Van Benthuysen, 1855).

of the Cause” to motivate action.¹⁴⁰ While most county societies complied willingly, annual reports frequently complained that some were delinquent or failed to respond at all. Moreover, there was rarely more than a single salaried society officer in any one state; everyone else from the state executive board down to the local town society treasurer volunteered their services and, not surprisingly, usually rotated out of office after a year. A great many people thus took a turn at the organizational wheel and, though a core group of members often provided continuity, societies remained rather loosely organized. As a result of these circumstances, the whole enterprise resembled a social movement much more than a political machine or a bureaucratic agency. And consequently, shared experience, knowledge and beliefs—rather than patron-client relationships—formed the critical unifying bonds. Indeed, beside the state society secretaries the only other professional reformers were agricultural editors. The reform movement thus constituted a communications network for distributing technical knowledge, policy proposals, and ideological truths. This it did very effectively.

These structural features of the reform movement may help to explain the pronounced disparity in the sectional occurrence of agricultural organizations. Table 1.4, based on a national survey of agricultural societies conducted by the Agricultural Division of the Patent Office in 1858, indicates that such organizations were heavily concentrated in the northern states in both absolute and relative terms. For reasons I discuss below, the accuracy of these figures is open to question, particularly with regard to the gap within the North between the Northeast and the Midwest. Nevertheless, as the only available source of quantitative data on the national distribution of agricultural societies, the Patent Office survey is worth analyzing. The table provides two measures for gauging the density of agricultural organizations on a per capita basis. The first normalizes the regional distribution of organizations by regional population totals, giving some indication of the overall incidence of agricultural societies in those areas. The second attempts to approximate farmers’ propensity for agricultural organizing by excluding the urban population and slaves (who were obviously prevented from forming or joining agricultural associations).

Both of these measures strongly favor the North. That is not to suggest that southerners were uninterested in agricultural reform. Most historians would now reject the notion that southern planters were pre-modern feudal barons basically uninterested in rationalizing their operations.¹⁴¹

¹⁴⁰ Folder marked “Printed material: 1844,” Henry O’Reilly Papers, Series VI, Box 40, NYHS.

¹⁴¹ The classic statement of planter premodernity is Eugene D. Genovese, *The Political Economy of Slavery: Studies in the Economy and Society of the Slave South*, 2nd ed., 1st Wesleyan ed. (Middletown, CT: Wesleyan University Press, 1989), 3; for the more common current view that slaveholders could be perfectly modern, see John Majewski, *Modernizing a Slave Economy: The Economic Vision of the Confederate Nation* (Chapel Hill: University of North Carolina Press, 2009), 53–80; see also Brian Schoen, *The Fragile Fabric of Union: Cotton, Federal Politics, and the Global Origins of the Civil War*, Studies in Early American Economy and Society (Johns Hopkins University Press, 2009) and Joyce Chaplin, *An Anxious Pursuit: Agricultural Innovation and Modernity in the Lower South, 1730-1815* (Chapel Hill: Published for the Omohundro Institute of Early American History and Culture, Williamsburg, Virginia, by the University of North Carolina Press, 1996); for a position somewhere in between Genovese and the current one, see James Oakes, *The Ruling Race: A History of American Slaveholders*, 1st ed. (New York: Knopf, 1982), xi–xiii; a newer statement of the premodern slave society idea is given by Marc Egnal, *Divergent Paths How Culture and Institutions Have Shaped North American Growth* (New York: Oxford University Press, 1996); for recent work on slaveholders and agricultural reform, see Steven G. Collins, “System, Organization, and Agricultural Reform in the Antebellum South, 1840-1860,” *Agricultural History* 75, no. 1 (January 1, 2001): 1-27; A. Glenn Crothers, “Agricultural Improvement and Technological Innovation in a Slave Society: The Case of Early National Northern Virginia,” *Agricultural History* 75, no. 2 (Spring 2001): 135-167; for older accounts of southern agricultural

Yet although they read agricultural journals, adopted new planting methods, and formed some societies, southerners proved far less active organizers than did northerners. The leading southern economic editor, J.D.B. DeBow, believed that planters were simply uninterested in “agricultural societies among themselves” and historians who have commented on the matter have generally agreed. Certainly no southern state agricultural society ever achieved the national stature of the New York, Massachusetts, or Ohio state organizations.¹⁴² Nor did any southern state other than Maryland go as far in establishing institutions of agricultural education and research before the Civil War as did the states of New York, Pennsylvania, Michigan, Ohio and even Iowa. Moreover, to the extent that southerners did organize vibrant agricultural societies, they tended to be concentrated in the Upper South.¹⁴³

To understand this sectional disparity we must consider the structure of the agricultural reform movement in relation to the recent literature on comparative sectional development. What allowed the North to develop more rapidly than the South in the antebellum period, several historians have found, was the much higher density of its rural population and consequently the greater size of its consumer markets for manufactured goods. It seems likely that a similar dynamic was at work in the case of the agricultural reform movement, which depended on well-attended fairs and the wide market for agricultural publications. As John Majewski and Viken Tchakerian argue, “low population densities also made it more difficult for Southerners to create institutions to cultivate and disseminate knowledge.”¹⁴⁴ Indeed, the insight can be generalized more broadly. The North’s greater population density in the countryside sustained not only deeper consumer markets

reform, see Weymouth T. Jordan, “The Peruvian Guano Gospel in the Old South,” *Agricultural History* 24, no. 4 (October 1950): 211-221; Avery O. Craven, “The Agricultural Reformers of the Ante-Bellum South,” *The American Historical Review* 33, no. 2 (January 1, 1928): 302-314.

¹⁴² In 1853 the highly respected agricultural expert Daniel Lee reviewed the state of American agricultural literature. As editor of both a leading northern journal (the *Genesee Farmer*) and a leading southern journal (the *Southern Cultivator*), as well as head of the Patent Office’s Agricultural Division, no one could have been better informed on the subject. Lee commended the many voluminous reports produced by the New York, Massachusetts, Ohio, Michigan and Wisconsin agricultural societies, but referred only to a single southern report, the one volume issued by Georgia’s South Central Agricultural Society; *Report of the Commissioner of Patents, Agriculture* (1853): 21-22. Given Lee’s pro-slavery views and residence in Georgia, northern prejudice could not have been the reason for the disparity. On Lee, see E. Merton Coulter, *Daniel Lee, Agriculturist: His Life North and South* (Athens, GA: University of Georgia Press, 1972).

¹⁴³ DeBow is quoted in David R. Francis, “Southern Agricultural Fairs and Expositions,” in *The South in the Building of the Nation*, vol. 5 (Richmond: The Southern Historical Publication Society, 1909), 589; for scholars’ views on southern agricultural societies, see Kniffen, “The American Agricultural Fair,” 46; Gates, *Farmer’s Age*, 314–315, mentions only northern agricultural societies among those whose annual reports exhibited merit; for antebellum agricultural colleges see chapters 4 and 5 of this dissertation.

¹⁴⁴ John Majewski and Viken Tchakerian, “The Environmental Origins of Shifting Cultivation: Climate, Soils, and Disease in the Nineteenth-Century US South,” *Agricultural History* 81, no. 4 (October 1, 2007): 541. For the argument that differences in rural population densities led to differential development, see John D. Majewski, *A House Dividing: Economic Development in Pennsylvania and Virginia Before the Civil War*, Studies in Economic History and Policy (Cambridge: Cambridge University Press, 2000), 171–172. Majewski originally regarded low southern population density as a consequence of slavery, but has recently emphasized environmental factors much more strongly; see Majewski and Tchakerian, cited above, and Majewski, *Modernizing a Slave Economy*, 22–52. For similar views of the significance of rural population density, see Brian Page and Richard Walker, “From Settlement to Fordism: The Agro-Industrial Revolution in the American Midwest,” *Economic Geography* 67, no. 4 (October 1, 1991): 281-315; David R. Meyer, *The Roots of American Industrialization* (Baltimore: The Johns Hopkins University Press, 2003).

but thicker associational networks, including those knit together by agricultural societies.¹⁴⁵ As a result of these advantages in both absolute and relative terms, northern voices dominated the discourse of agricultural reform and ultimately came to dictate its national agenda (see Chapter 5).

Table 1.4 also indicates a significant divergence within the North between the Northeast and the Midwest. This gap seems to reflect, at least in part, inflated Midwestern totals. For example, the Patent Office listed Iowa as having seventy-four agricultural and horticultural societies, yielding rates relative to total and free rural populations of 10.96 and 12.03, respectively—double the regional rate (which would be lower if Iowa were excluded). The comparable rates for Minnesota are even higher, and for Nebraska Territory, which is not included in the table, the rates climb to the improbable peaks of 38.14 and 38.16, respectively. Some historians attribute the high western totals to “the tendency of Americans to organize on every and all occasions . . . far ahead of practical need.”¹⁴⁶ There is in fact good evidence that settlers eagerly formed agricultural societies almost immediately upon their arrival. Minnesota, which did not become a state until 1858, chartered several functioning societies in its territorial phase, leading a correspondent for the *American Agriculturist* to comment that easterners would “hardly credit the statement, that in a region so recently a wilderness, there already exists a fully-organized and flourishing society of men, deeply interested in the growth and success of agricultural industry. But such is the fact.”¹⁴⁷ Still, the twenty-nine agricultural societies reported for Minnesota’s roughly 170,000 inhabitants strain credulity. Wisconsin, with a population of 775,000, had only thirty-five societies, a figure consistent with the state organization’s 1860 annual report and that yields per capita rates comparable to the regional average.¹⁴⁸ Many of the reported far western societies, then, were probably either paper organizations, very small, or quite nonexistent.

This analysis casts doubt on the general reliability of the Patent Office’s survey. But in the case of older states the numbers more likely underestimate than overestimate the true totals. Not only were new local organizations popping up each year independent of official supervision, but numerous informal “farmers’ clubs” were certainly not counted.¹⁴⁹ Indeed, the density of settlement

¹⁴⁵ Sean Patrick Adams brilliantly shows the importance of the interaction between civic institutions and consumer markets in “Warming the Poor and Growing Consumers: Fuel Philanthropy in the Early Republic’s Urban North,” *Journal of American History* 95, no. 1 (June 2008). In an earlier cross-sectional study, Adams showed that the civic organizations that helped push coal development in Pennsylvania were absent in Virginia; *Old Dominion, Industrial Commonwealth: Coal, Politics, and Economy in Antebellum America*, Studies in Early American Economy and Society (Baltimore: Johns Hopkins University Press, 2004), 77, 80–81.

¹⁴⁶ Kniffen, “The American Agricultural Fair,” 44, paraphrasing Percy Wells Bidwell and John I. Falconer, *History of Agriculture in the Northern United States, 1620-1860*, Carnegie Institution of Washington Publication no. 358 (Washington: The Carnegie Institution of Washington, 1925), 190.

¹⁴⁷ Merrill E. Jarchow, “Early Minnesota Agricultural Societies and Fairs,” *Minnesota History* 22 (September 1941): 249–269; Sally McMurry provides a brief portrait of a progressive farmer who, after studying chemistry and botany at the Rensselaer Polytechnic Institute, which was noted for its attention to agricultural science, migrated to Illinois and established an agricultural society; *Families and Farms in Nineteenth-Century America: Vernacular Design and Social Change*, 1st ed. (Oxford University Press, USA, 1988), 17.

¹⁴⁸ 1860 Federal Population Census; *Transactions of the Wisconsin State Agricultural Society*, 6 (1860): 356–357.

¹⁴⁹ According to an 1862 circular letter from the American Institute of the City of New York, there were “more than five hundred Farmer’s Clubs in the State of New-York alone, besides many similar organizations in other States”; “Scrapbook, 1857-1869,” Box 461, Records of the American Institute of the City of New York for the Encouragement of Science and Invention, NYHS. The Institute’s book of subscriptions for its annual *Transactions* listed several of these clubs.

and activity in the older states probably meant that even well-informed correspondents, on whom the survey relied, could not have kept abreast of each new organization's founding. Emily Pawley finds that the Patent Office survey counted about two-thirds of New York's official agricultural societies and perhaps only one third or less of its total number of agricultural and horticultural societies, exclusive of the smaller farmers' clubs.¹⁵⁰ Thus the gap between the organizational rates of the Midwest and Northeast was likely not as large as suggested by the Patent Office's numbers if it existed at all. Still, it is clear that migrants to the Midwest established agricultural societies *en masse* almost as quickly as they established schools, churches, and other local institutions. That this was the case suggests that agricultural societies in the migrants' northeastern points of departure were already firmly established by the early 1850s, and it is in this context that we should view the subsequent explosion of midwestern societies. Thus before the Civil War the reform movement's center of gravity remained in the Northeast even if its movement westward was already well under way. The Northeast maintained its preponderant influence not only as the origin of the county fair, but as the site of the most important state agricultural organizations and, critically, as the nerve center of the agricultural press.¹⁵¹ This becomes undeniably true if one expands the definition of the Northeast to encompass Ohio, many parts of which were basically similar to the western portions of New York and Pennsylvania by the 1850s.

It is worth stressing, also, that agricultural societies were organized according to political jurisdictions. At the state level societies appointed officers to represent major political divisions, such as state senate districts in New York or congressional districts in Pennsylvania; at the county level, societies typically appointed representatives from each town. This institutional form originated with the early patrician agricultural promotion societies and persisted because of the centrality of maintaining ties to the state.¹⁵² The most obvious alternative organizational principle would have been to form around particular farming interests. After the Civil War this increasingly became the norm as farmers organized into associations of "dairymen," "stockmen," fruit growers and the like; by the end of the century marketing cooperatives would become important. In the antebellum period, however, the only significant example of this kind of differentiation occurred in the separate existence of horticultural societies, which really reflected class divisions rather than crop specializations. Other organizing principles are also imaginable. Methodist conferences, for instance, crossed state and even international borders willy-nilly in order to facilitate circuit riding. But, as we have seen, the agricultural reform movement began as a kind of adjunct to the broader state-building projects of Early Republic elites. Moreover, it depended on government resources and the authority that came with quasi-official status. For this reason agricultural reform remained closely linked to state development, a circumstance that sustained its Whiggish affinities.

Significantly, the reform movement's federated structure allowed it to exert influence at all levels of government. By the mid-1850s reformers enjoyed a permanent presence in hundreds of counties, the capitals of the most important northern states, and even in Washington, DC. As we have seen, this allowed them to put together well-attended delegate conventions and to coordinate

¹⁵⁰ Pawley, "The Balance-Sheet of Nature," 50–51.

¹⁵¹ Danhof, *Change in Agriculture*, 56–57.

¹⁵² Mary Summers, "Conflicting Visions," chap. 2.

petition drives in order to win legislative aid at the state level. As I show in Chapter 5, the same capacity was used to win state resolutions of support for the Morrill land grant bill at the federal level in the late 1850s. While the reform movement's power should not be overstated, it did constitute an important arena for shaping public opinion and for mobilizing action on agricultural policies.

AGRICULTURAL REFORM AT THE LOCAL LEVEL

Examining the local level of antebellum agricultural reform will help to flesh out the central claims of this chapter. Specifically, it will provide depth to my argument that from rather elite beginnings among the “monied gentry,” engagement with scientific agriculture and organized reform became increasingly broad-based over the period. The passage of general incorporation laws for agricultural societies, the growth and proliferation of state and county fairs, and the development of the agricultural press provide compelling but indirect evidence of this shift. The sectional disparity in organizations points in the same direction because it reflects the antebellum North's greater capacity to sustain popular participation across a wide range of associational life. It thus seems unlikely that an elite constituency of “country gentlemen” could alone support reform's impressive expansion in the 1840s and 1850s. Indeed, if Tamara Plakins Thornton is correct, the gentleman farmers who had initiated agricultural reform during the Early Republic, at least in Massachusetts, had by 1830 or so already turned toward an entirely symbolic form of “rural pursuits” that stressed beauty over practicality, and thus willingly relinquished leadership in the larger reform movement.¹⁵³ From this time on, Sally McMurry argues emphatically, “the notion of a sharp polarization between progressive agriculturists and the rest—hidebound, book-scoring traditionalists—cannot be sustained.”¹⁵⁴ We should therefore find evidence that ordinary farmers and rural folk joined reformer ranks.

One indication of the agricultural reform movement's local penetration comes from the period's popular county histories. In the emerging conventions of this triumphalist genre, the sequential founding of local churches, schools and banks, along with the arrival of the first post office or railroad, formed a developmental chronicle tracking the region's rise from pioneer “wilderness” to a civilized, progressive present. Such histories commonly included the establishment of agricultural societies and fairgrounds.¹⁵⁵ Quite typical, in its implicit teleology, is the 1859 account of a Montgomery County, Pennsylvania historian: the six farmers who only twelve years earlier founded the local agricultural society, he remarked, could hardly have imagined “that from that germ

¹⁵³ Thornton, *Cultivating Gentlemen*, 161, 174, and chs. 5–6 generally.

¹⁵⁴ McMurry, *Families and Farmhouses in Nineteenth-Century America*, 25.

¹⁵⁵ See, for example, Franklin Benjamin Hough, *A History of Jefferson County in the State of New York, from the Earliest Period to the Present Time* (Albany, NY: Joel Munsell, 1854), 401–408; Franklin Benjamin Hough, *A History of Lewis County, in the State of New York* (Albany, NY: Munsell & Rowland, 1860), 273–274; Nathaniel Soley Benton, *A History of Herkimer County* (Albany: J. Munsell, 1856), 254–256; Emory F. Warren, *Sketches of the History of Chautauque County* (Jamestown, NY: J. Warren Fletcher, 1846), 124–125; Samuel W. Eager, *An Outline History of Orange County* (Newburgh, NY: S.T. Callahan, 1847), 58–70; William T. Martin, *History of Franklin County* (Columbus, OH: Follett, Forster & Company, 1858), 96–104; Henry Rush Boss, *Sketches of the History of Ogle County, Ill., and the Early Settlement of the Northwest* (Polo, IL: Henry R. Boss, 1859), 72; C. W. Richmond and Henry F. Valette, *A History of the County of Du Page, Illinois* (Chicago: Bross & Spear, 1857), 61–62.

should spring such a noble and expanded institution, whose grounds and buildings would cover twelve acres, and be witnessed with gratifying interest annually by thousands of persons.”¹⁵⁶ Thus the agricultural society and county fair took their place in the infrastructure of rural civilization. Indeed, in rural communities across the Northeast agricultural fairs became favorite annual rituals within only a few years of their introduction. After little more than a generation they were venerated as “ancient” rites.¹⁵⁷

Fairs were occasions for edification, sociability, entertainment, civic pride, and local boosterism. “Never felt we so proud of our citizenship in the good old County of Windham,” editorialized the *Semi-Weekly Eagle* of Brattleboro, Vermont in the fall of 1851, “as when we looked upon the multitudinous array of fair women and brave men, who were assembled at Fayetteville, on the farmers’ festal day.” The *Eagle* estimated an attendance of four thousand—a good showing but not unusual for a county fair—before continuing:

One of the most attractive features of the occasion, was the great team with which the Townshend people made their entrée into Fayetteville.—About fifty yokes of oxen, each decorated with evergreen, and the first yoke bearing a small banner with the word ‘Townshend’ on it, drew into the village a large extemporaneous omnibus, in which were between forty and fifty ladies, and half a dozen gentlemen. At the front of the omnibus was a large banner, bearing on one side the inscription, ‘Agriculture’ with a plough, and on the other ‘Knowledge is power.’¹⁵⁸

With a population of roughly 3,800, Brattleboro was the larger of only two towns in the county that qualified as “urban”; the remaining twenty-three thousand inhabitants were rural folk.¹⁵⁹ The local economy was based on farming, leading the *Eagle* to argue that “the value of a well-established and prosperous Agricultural Society, in this county, may be easily made of substantial interest to not only every farmer but to every man.”¹⁶⁰ Area residents seemed to agree. In 1852 the “noted agricultural town” of Wilmington (population, 1,372), perhaps in an effort to emulate Townshend’s spectacular effort of the year before, preceded the annual county fair with its own exhibition. “The farmers drove in their cattle and horses, the mechanics exhibited the products of their handicraft, the gardeners any amount of big vegetables,” the *Eagle* reported, while “several samples of butter . . . proved indisputably that the fair housewives of the town were fully competent for their duties.”¹⁶¹ Such local exhibitions were very much community affairs, and though official membership in agricultural societies was generally restricted to men, rural women played a critical role in the success of these events.

¹⁵⁶ William Joseph Buck, *History of Montgomery County Within the Schuylkill Valley* (Norristown, PA: E.L. Acker, 1859), 93–94.

¹⁵⁷ Quoted in Kelly, “The Consummation of Rural Prosperity and Happiness,” 575.

¹⁵⁸ *Semi-Weekly Eagle*, 13 Oct 1851, p. 1.

¹⁵⁹ 1850 Federal Population Census, 36.

¹⁶⁰ *Semi-Weekly Eagle*, 7 Oct 1852, p. 2.

¹⁶¹ *Ibid.*, 20 Sep 1852, p. 1; for women’s role as butter makers, see Joan M. Jensen, *Loosening the Bonds: Mid-Atlantic Farm Women, 1750-1850* (New Haven: Yale University Press, 1986), 79–144; Nancy Grey Osterud, *Bonds of Community: The Lives of Farm Women in Nineteenth-Century New York* (Ithaca, NY: Cornell University Press, 1991), 139–230.

A typical antebellum county fair lasted one or two days and revolved around the display of farm, orchard and garden products; various livestock; agricultural implements and machinery; and domestic manufactures, including the work of professional male craftsmen and of skilled women producing for commercial and household purposes.¹⁶² The Middlesex Agricultural Society's schedule for its 1859 fair at Concord, one of three in the county that year, was typical in its arrangement of features. It began at 9 o'clock with a plowing match, to be followed an hour later by a "Trial of Strength and Discipline of Working Oxen" and, at 10:30, a horse exhibition on the "circular course in the Society's grounds." After several hours for visitors to observe the displays and enjoy the offerings of "Peddlers, Auctioneers, Showmen, and Caterers," the society's officers, members, and invited guests would form a procession and march to Town Hall for the annual address, additional speeches, the reports of the judging committees, and the awarding of premiums. With almost seven hundred members and their families potentially participating, the procession was likely to be an impressive one. Indeed, the previous year's exhibition was noted for its crowding. At 4 PM the society's annual meeting for the election of officers would be held in the Court House, and after that a dinner with more speeches and toasts. A year earlier Ralph Waldo Emerson, echoing the Baconian slogan emblazoned on the Townshend "omnibus," had used the occasion to declare to delighted guests, "The earth works for man. It is a machine which yields new service to every application of intellect."¹⁶³

Although the Middlesex Agricultural Society had existed in one form or another since 1794, it did not begin collecting a fund for permanent fairgrounds until the early 1850s, around the same time that many other local agricultural organizations were doing similarly. Contributors to the fund included several wealthy businessmen, but the majority appear to have been farmers. Table 1.5 reports the occupations and real property, where identifiable from manuscript census records, of the twenty-nine contributors from the town of Concord, the society's headquarters; the remaining thirty-two contributors were scattered through other towns in the vicinity. Farmers accounted for nineteen of Concord's twenty-four identifiable contributors. The average value of their real estate was \$6,519, considerably higher than the average farm value for all of Concord of \$3,653. The two figures are not strictly comparable, however, since the former, which comes from the Federal Population Census, includes all real estate, while the latter, which comes from the Agricultural Census, applies only to farm value. Thus one of the wealthier farmers on the list, George M. Barrett, claimed total real holdings of \$10,000, of which his farm accounted for \$7,000. Barrett was clearly a well-off farmer. Not only was his farm worth roughly twice the town average, but the value of his livestock (\$865) and his tools (\$400) also greatly exceeded the mean town figures (\$295 and \$208, respectively). Yet the list of subscribers included truly middling farmers as well. Marshall Miles, for instance, moonlighted as a pencil maker, while Cyrus Stow owned livestock (\$265) and tools (\$150)

¹⁶² For general accounts, see Demaree, *The American Agricultural Press, 1819-1860*, 199–200; Fred Kniffen, "The American Agricultural Fair: The Pattern," *Annals of the Association of American Geographers* 39, no. 4 (December 1, 1949): 264–282.

¹⁶³ "List of Committees and Premiums for the Cattle Show and Exhibition of the Middlesex Agricultural Society, at Concord, on Wednesday, September 28th, 1859" (Benjamin Tolman: Concord, 1859), Series V, Folder 4, Middlesex Agricultural Society Records, CFPL; for the number of members, see the handwritten report of the 27 May 1857 annual meeting in the volume of manuscript records catalogued as Item 5 in Series II. Emerson is quoted in *Working Farmer* 10 (Dec 1858): 271. See also *Annual Report of the Secretary of the Massachusetts Board of Agriculture* 6 (1859): 118–119.

that fell below the average town values.¹⁶⁴ Given that even utterly typical farmers chose to donate to the fairgrounds fund, it seems reasonable to infer that a sizeable number of the nearly seven hundred dues-paying society members were basically ordinary farmers. The contributors' list therefore testifies to the active involvement of bona fide farmers in the agricultural reform movement, while it also indicates that those farmers tended to enjoy at least average wealth.

Sally McMurry's study of the subscription list kept by the *Cultivator's* agent in Oxford, New York between the years 1839 and 1865 leads to a similar conclusion.¹⁶⁵ Situated in Chenango County in the center of the state, Oxford represented a typical rural community of the northeastern interior. It was settled by New Englanders in the late eighteenth century, its nineteenth-century population peaking at 4,500 inhabitants around the year 1860, indicating the slowing growth of the late antebellum period. According to McMurry, over two thirds of the *Cultivator's* Oxford subscribers were farmers, most of them well off if not quite rich. Several of these farmers pursued sideline occupations—everything from milling and blacksmithing to bookselling and surveying. McMurry points out, however, that even the non-farming subscribers often had a direct interest in agriculture. Some of them, for example, owned stock in the Oxford Hoe and Edge-Tool Company. They must have been gratified to notice that in its issue of April 1854 the *Cultivator* warmly acknowledged receiving a sample of the company's productions from its treasurer, Joseph G. Thorp.¹⁶⁶ The subscribers comprised members of both major political parties and a variety of religious denominations. They were, however, distinguished by their attention to education. At least ten of them, seven of whom were farmers, served on the board of the local grammar school. Some, perhaps, played a role in the decision of Norwich Academy, just nine miles up the road, to introduce a course on agricultural chemistry in the mid-1850s.¹⁶⁷ In terms of farming practices, subscribing farmers were no more adventurous than their neighbors in their choice of crops, but they may have produced more of them and of better quality. They also apparently used modern implements earlier than others. Altogether, then, McMurry finds that the *Cultivator's* subscribers represented mostly, if not exclusively, farmers of the local respectable class who cautiously moved toward agricultural modernization.

McMurry's study is, of course, very limited in scope, covering only one agent for one journal in one town. But anecdotal evidence from the diaries, ledgers, daybooks and other personal documents of antebellum farmers scattered around the Northeast suggest much the same picture elsewhere. As in Oxford, many ordinary farmers showed a marked interest in scientific agriculture by subscribing to journals, participating in fairs and, most importantly, adopting new farming practices. Indeed, it is remarkable how frequently evidence of involvement with the institutions of agricultural

¹⁶⁴ "Report of the Committee to Purchase Land, &c.," dated 4 Oct 1853, Middlesex Agricultural Society Records, 1803-1892, Series V, Box 5, Folder 3, CFPL; 1850 manuscript Federal Population and Agricultural Censuses for Concord, Middlesex County, Massachusetts, accessed through Ancestry.com; Jonas Michael Miles, *Miles Genealogy: John Miles of Concord, Massachusetts and His Descendants* (Boston: C. E. Goodspeed, 1920), 31.

¹⁶⁵ Sally McMurry, "Who Read the Agricultural Journals? Evidence from Chenango County, New York, 1839-1865," *Agricultural History* 63, no. 4 (Autumn 1989): 1-18; McMurry notes that Oxford was similar to the Vermont town of Chelsea described in Hal S. Barron, *Those Who Stayed Behind: Rural Society in Nineteenth-Century New England* (Cambridge: Cambridge University Press, 1984).

¹⁶⁶ *Cultivator* 2 (Apr 1854): 129.

¹⁶⁷ See the tables on academy curricular offerings in the *Annual Report of the Regents of the University of the State of New York* for 1854, 1855, and 1856.

reform turns up in contemporary farmers' records.¹⁶⁸ Surely a selection bias is at work, as wealthier and better educated farmers were presumably more likely to keep a diary, to take an interest in scientific agriculture, and to have their records survive in public repositories. Indeed, the farmers I profile below were without exception of average wealth or better. If the "dirt" farmers around them thus go regrettably undetected, the evidence remains strong that middle-class farmers actively supported the agricultural reform movement.

Francis W. Squires appears exemplary in this respect.¹⁶⁹ Squires was born in Martinsburg, Lewis County, New York, in the far northern part of the state. His father specialized in dairy farming, apparently with some success. Not only did a sample of his cheese take second place at the 1844 county fair, but he owned more cows and produced far more cheese than the local average. We do not know whether the family subscribed to an agricultural journal, but we do know that they practiced up-to-date farming techniques, including crop rotations, the use of plaster and ash as fertilizers, and the stabling of cattle in winter. Despite their large and modern operation, however, the Squireses mostly depended on family labor and exchanging works with neighbors; only during haying season did they typically hire two extra hands. In 1846 the family relocated to New Haven in Oswego County, apparently seeking a better market position, for in their new location they shifted production in two ways. First, the father handled a reduced dairy business while Francis and his brother engaged in full-time coopering for the nearby salt makers of Syracuse and the flour mills of Oswego. Second, dairy production moved from cheese to butter, which was more profitable given the proximity to urban markets. By the early 1850s the family changed course again, reducing their coopering business while moving into apple production and stock raising. The men (and, it can only be assumed, the women as well) continued to work hard, hiring no extra help even during the busy season. In 1853 Francis recorded in his diary that, at sixty-eight years old, his father could still "do a good days [sic] work." Thus, though the Squireses enjoyed an apparently comfortable middle-class existence, they were very much working people. They were also apparently Whigs. Francis, at any rate, voted for Henry Clay in 1844 and, in 1860, helped organize a local Republican club.

Other farmers demonstrated similar interest in agricultural reform, changing market opportunities, and overall economic development. Benjamin Gue, whose enthusiasm for the 1849 state fair at Syracuse has already been mentioned, worked an average farm for his area. In 1850 the Gues estimated the value of their homestead at \$6,000, the value of their agricultural implements and machinery at \$250, and the value of their livestock at \$530—figures basically similar to the corresponding town averages of \$5,641, \$185, and \$594, respectively. A few years later the family sold their New York farm and migrated to Iowa. There Gue eventually moved into a career in journalism and Republican Party politics. He did not abandon his interest in scientific agriculture, however, for he played a central role in founding Iowa State Agricultural College in the 1860s.¹⁷⁰ Another average upstate New York farmer, Henry K. Dey, evinced interest in agricultural reform by

¹⁶⁸ My findings, in this respect, closely mirror those reported in Pawley, "The Balance-Sheet of Nature," 41, 44 and throughout.

¹⁶⁹ This paragraph is based on Yasuo Okada, "Squires' Diary: New York Agriculture in Transition, 1840-1860," *Keio Economic Studies* 7, no. 1 (1970): 78-98 (quotation on p. 89).

¹⁷⁰ Manuscripts of the 1850 Federal Agricultural Census, Farmington, Ontario County, New York; Gue, *Diary of Benjamin F. Gue*.

subscribing to a leading agricultural journal and investing in a system of drainage tiles to improve his land; he also wintered his cattle, purchased commercial seed, and used new farming technologies such as a mechanical reaper and mower. In the 1860s Dey steadily increased his market involvement on both the production and consumption ends, devoting “more and more time to cash crops” while simultaneously upping his purchases from local stores. “Dey, like other farmers,” concludes David C. Smith, “not only was losing his self-sufficiency, he was, the evidence suggests, giving it up happily.”¹⁷¹ The Ward family of Worcester County, Massachusetts encapsulated all of the themes discussed above: they subscribed to several agricultural journals, were active in local agricultural societies, and modernized their farming practices by investing in commercial fertilizers, better breeds of cattle, and substantial capital improvements. Over the course of the antebellum period they also steadily shifted production, moving from cheese to butter to liquid milk, and contracting out more and more aspects of their beef stock business as they relentlessly pursued specialization.¹⁷² Altogether, then, these thumbnail sketches indicate that many farmers acted in accordance with the urgings of agricultural reformers.

The personal papers of several Pennsylvania farmers indicate just how deeply farmers could engage with the agricultural reform project. The journal of Chester County farmer Thomas J. Aldred, for example, includes numerous clippings and handwritten transcriptions of articles on farming.¹⁷³ In one case Aldred copied out an essay on crop rotations; in another, he meticulously reproduced the illustrations from Thomas Jefferson’s famous essay applying mathematical principles to the design of a plow’s mould board. Many of the articles that Aldred clipped or transcribed concerned dye-making techniques and suggest that he was interested in developing madder as a cash crop. They also indicate that he had some understanding of chemistry and must therefore have enjoyed something like an academy education. The transcriptions suggest that Aldred took agricultural reform seriously not only because he spent the time to make them, but because he must have asked to borrow the originals from others. Also revealing is a booklet documenting an auction of Aldred’s property on February 23, 1853. It records his ownership of several brand-name implements, including a “Harper Plow No. 1,” indicating a consciousness that plows and other farming tools should be distinguished by their makes and model numbers. Manuscript Census records show that in 1850, when he was about forty-seven, Aldred’s lands were worth \$7,000; a decade later his real estate was valued at \$10,000 and his personal estate at \$2,745, making him certainly a successful farmer, but far from a country gentleman.¹⁷⁴

A more detailed portrait is possible in the case of Charles Colfelt, a merchant and well-to-do farmer who, over the course of the antebellum era, migrated through the rural counties of Centre, Mifflin and Bedford in central Pennsylvania. Colfelt did well for himself through a combination of his wife’s inheritance and his own varied activities: in 1860 the aggregate value of his real and

¹⁷¹ David C. Smith, “Middle Range Farming in the Civil War Era: Life on a Farm in Seneca County, 1862-1866,” *New York History* 48 (October 1967): 352-369, quotation on p. 361.

¹⁷² Andrew H. Baker and Holly V. Izard, “New England Farmers and the Marketplace, 1780-1865: A Case Study,” *Agricultural History* 65, no. 3 (Summer 1991): 29-52.

¹⁷³ For similar practices among farmers, see Pawley, “The Balance-Sheet of Nature,” 64.

¹⁷⁴ Thomas J. Aldred Papers, Miscellaneous Professional and Personal Business Papers, 1732-1945, Historical Society of Pennsylvania (hereafter, HSP); manuscript 1850 Federal Population Census, West Whiteland, Chester, PA; East Caln, Chester, PA; Jefferson’s article appears in *Transactions of the American Philosophical Society* 4 (1799): 313-322.

personal estate topped \$20,000. In his ledger, Colfelt recorded transactions involving fertilizers and brand-name implements. Colfelt was also an evangelical, for in 1847 he became a lifetime member of the American Tract Society.¹⁷⁵ Given his wealth, evangelicalism, and zeal for improvement, it is perhaps not surprising to find that, in common with Francis Squires, Benjamin Gue and most agricultural reformers, Colfelt was a Whig. In 1834 his name appeared on a petition that sought to impress Congress with the “conviction that a national bank is necessary to the existence of a sound and uniform currency,” thus clearly identifying its signatories as Whig supporters of the American System of national economic development.¹⁷⁶ In many ways, therefore, Colfelt typified the rural middle class that formed the social base of agricultural reform.

Colfelt is particularly interesting because of two short contributions he made to reform discourse. His ledger records an 1851 subscription to the *Cultivator*, which listed him as one of its hundreds of local agents in 1849, but Colfelt must have been reading the *Cultivator* as early as 1844, for the February issue includes a summary of a letter he wrote reporting an experiment on two fields of potatoes. The following year the journal published the full text of another Colfelt letter, this one detailing a homemade mixture of fertilizers and its application to a corn crop. “Some of my neighbors rather quizzed me about the compost,” Colfelt wrote, “but when husking and hauling in time came, they were amazed. The corn grew surprisingly. . . . Some of the ears were so high upon the stalks that my hired man of six feet could not reach the top of the ear.” Colfelt apparently continued to experiment on his farm, for in 1846 he documented in his private journal the planting of a “long field” of corn, including weather conditions and the types, amounts, and costs of the fertilizers he used—gypsum, lime, and “salts.” With only two brief appearances in print, Colfelt nevertheless reached a wide audience. The Pittsfield *Sun* reprinted the essentials of his first letter, while the Patent Office did the same for his second. And at least one farmer—hundreds of miles away in St. Lawrence County, New York—reported positive results after trying Colfelt’s fertilizer mixture on his own corn crop.¹⁷⁷

As these examples illustrate, many farmers took an active interest in the agricultural reform movement, which could thus plausibly claim to represent “the farming interest.” One of the important long-term results of this was the consolidation of agriculture as a special interest served by a panoply of dedicated organizations and government agencies. But during the antebellum period reformers could have it both ways, calling for specific government policies in aid of agriculture while arguing that these did not amount to class legislation because agriculture was both the business of the majority and fundamental to everyone else. “It is conceded that money from the State should not be given unless it be to promote some general object,” wrote a correspondent to an agricultural journal with regard to government-funded agricultural colleges. “But to what more general object

¹⁷⁵ Charles Colfelt Ledger and Miscellaneous Accounts, Miscellaneous Professional and Personal Business Papers, 1732-1945, HSP; Lawrence M. Colfelt, “Autobiography by Rev. L.M. Colfelt,” *Bedford Gazette* (Bedford, PA; 5 Nov 1926); manuscript 1850 Federal Population Census, Armagh, Mifflin, PA; 1860 Federal Population Census, Bedford, Bedford, PA; *American Farmer* 5 (Dec 1849): 191.

¹⁷⁶ Charles Colfelt Ledger and Miscellaneous Accounts; *Memorial of Inhabitants of Centre County, in Relation to the Currency*, H. Doc. 336, 23rd Cong., 1st Sess. (Washington, DC), Serial Set Vol. No. 257, Session Vol. No.4.

¹⁷⁷ Charles Colfelt Ledger and Miscellaneous Accounts; *Cultivator* 1 (Feb 1844): 41; 2 (Mar 1845): 89; 4 (Mar 1847): 91; 6 (Dec 1849): 381; *Pittsfield Sun* 8 Feb 1844, 4; *Annual Report of the Commissioner of Patents, Agriculture* (1846): 186.

can these grants be applied?”¹⁷⁸ Few Americans were ready to deny the implicit truism contained in that rhetorical question. As Millard Fillmore put it in his presidential address of only a few days earlier, “More than three-fourths of our population are engaged in the cultivation of the soil. The commercial, manufacturing, and navigating interests are all to a great extent dependent on the agricultural.”¹⁷⁹ Yet if reformers claimed for agriculture a unique importance, they also recognized a national whole within which agriculture bore a particular relationship to other sectors of the economy. The next chapter explores this dimension of the reform movement.

¹⁷⁸ *Massachusetts Ploughman* 10 (28 Dec 1850): 1.

¹⁷⁹ Millard Fillmore, “First Annual Message,” *The American Presidency Project*, December 2, 1850, <http://www.presidency.ucsb.edu/sou.php>.

CHAPTER 2

THE “HOME MARKET”

STRUCTURAL CHANGE AND DEVELOPMENTAL IDEOLOGY IN THE RURAL NORTHEAST, 1815-1860

As the colonial crisis moved toward revolution in 1775-1776, Thomas Paine sought to reassure Americans that independence would not mean economic ruin. As long as “eating is the custom of Europe,” he remarked wryly, Americans would always enjoy ready markets for their primary commerce in the “necessaries of life.”¹ The comment was typical of Paine’s sardonic attitude toward British rule. But it also reflected the realities of the colonial economy. Paine assumed as a matter of course that Americans would continue to rely on the sale of agricultural staples, especially wheat, to consumers who resided in Europe rather than in America. Such an export-oriented view seemed obvious. In the years immediately preceding the American Revolution the ratio between the colonies’ foreign and coastal trade, excluding items consumed locally, stood at four-to-one. Although additional extra-local domestic commerce along navigable rivers and overland routes reduced that disparity, the balance surely remained heavily weighted toward foreign markets. By the 1840s, however, the proportion of foreign to domestic trade had been dramatically reversed, now standing at perhaps one-to-nine. “When colonial Americans engaged in production for markets outside their colony,” writes economic historian Diane Lindstrom, “the markets normally were to be found overseas. By the 1830s or at least the 1840s, a substantial domestic market had emerged.”²

The early national and antebellum periods, therefore, witnessed a profound shift in the American economy as it turned from traditional Atlantic trade to internal commercial growth. Yet the domestic market extended unevenly. Considering that production of the country’s leading export, cotton, was confined to the South, and that its principal northern export, wheat, came increasingly from the Midwest, it is clear that the heart of the domestic economy was in the Northeast. The sectional disparity fueled political contention over national economic policy, particularly the tariff, and conditioned cross-sectional alliances. Coastal merchants committed to the traditional Atlantic trade economy tended to align with southern planters in favor of free trade policies and aggressive expansion of overseas markets, whereas most northern and some border state manufacturers called for protective tariffs, internal improvements, and government-assisted

¹ Thomas Paine, *Common Sense* (Dover Publications, 1997), 19.

² Diane Lindstrom, *Economic Development in the Philadelphia Region, 1810-1850* (New York: Columbia University Press, 1978), 3. See also Percy Wells Bidwell and John I. Falconer, *History of Agriculture in the Northern United States, 1620-1860*, Carnegie Institution of Washington Publication no. 358 (Washington: The Carnegie Institution of Washington, 1925), 196–199; Clarence H. Danhof, *Change in Agriculture: The Northern United States, 1820-1870* (Cambridge: Harvard University Press, 1969), 9–11. According to Danhof, in 1820 the proportion of American farm products that were exported was 4 percent, while the proportion that was sold domestically (beyond the local community) came to 15 percent, for a ratio of nearly one to four. By 1870 the percentage of exports had not changed while domestic consumption excluding local consumption had climbed to 35 percent of the total agricultural product, for a ratio of almost one to nine. While Lindstrom’s and Danhof’s figures, derived from different sources, may differ somewhat, the overall direction of change is unmistakable.

domestic development in general.³ A variety of other interests considerably complicated this picture. The most important of these was of course slavery. Indeed, this dissertation is largely about how all economic interests came to be cast in political relation to slavery. But we must recall that there were, in fact, other interests. This chapter, then, is concerned with the emergence of the northeastern domestic market and with the transformed political economy that it inaugurated.

Cities and manufacturing were central to the developing domestic economy, but they were not the sum of it. We often think of the period's economic dynamism as largely a function of urban and industrial growth while we see the northeastern countryside as the site of decline or, at best, stability. Northeastern farmers did indeed face a set of serious challenges, including deteriorating soils, ruinous competition from western grains, worsening outbreaks of crop parasites and livestock diseases, and steady outmigration. Yet the rural Northeast was far more vital and innovative than we usually realize. Many northeastern farmers were able to meet these various challenges by adopting newly intensive practices to rebuild their soils and increase productivity, and by shifting from grain production to perishables such as butter and fresh vegetables in which they enjoyed the advantage of nearby urban consumers. Other leading northeastern agricultural products, particularly wool and hay, were likewise bound mostly for domestic markets.

This broad shift from an export to a domestic orientation was accompanied by an ethos of improvement that was every bit as modern as the more familiar social reform initiatives and industrial developments associated with the urban middle class. The transformation of the countryside brought a flowering of popular interest in natural science, a pronounced emphasis on education that seems to have run ahead of urban sentiment, and considerable technological novelty that is especially impressive when "biological innovation" is considered alongside mechanization. The growth of the domestic economy, then, involved both a reorientation of northeastern agriculture from export to domestic markets and a commitment to scientific knowledge, technological progress, precise calculation, efficient time use, practical education, and so on—in short, a commitment to modernization. As one northeastern agricultural reformer put it, "a new order is brought about," one that required farmers "to call in the aid of more skill, to give increased productiveness to the labor of our hands."⁴

The agricultural reform movement channeled these trends into a more-or-less coherent ideology that I have termed "the Republican developmental synthesis." Crucially, this synthetic vision reconciled urban and rural interests within a single developmental framework that provided a common rationale for an industrial tariff and for the agricultural policy represented by the Morrill Act and the Department of Agriculture. As we saw in Chapter 1, the reform movement collected enormous audiences in print and in person via farm journals and agricultural fairs. Reformers used such outlets to articulate distinct interests that fostered a discrete farmer class. But the movement's

³ Sven Beckert, *The Monied Metropolis: New York City and the Consolidation of the American Bourgeoisie, 1850-1896* (Cambridge: Cambridge University Press, 2001); Andrew Dawson, *Lives of the Philadelphia Engineers: Capital, Class, and Revolution, 1830-1890*, Modern Economic and Social History Series (Aldershot, Hants., England; Burlington, VT: Ashgate, 2004); Philip Sheldon Foner, *Business and Slavery: The New York Merchants and the Irrepressible Conflict* (Chapel Hill: The University of North Carolina Press, 1941).

⁴ Gouverneur Emerson, *Address Delivered Before the Agricultural Society of Chester County, Pennsylvania, September 17, 1853* (Philadelphia: T.K. and P.G. Collins, 1853), 4.

diffuse organizational structure, its reliance on print media, its explicit rhetoric, and even the arrangement of fair displays, encouraged farmers to identify with a broader national project of moral and material progress. However much they aimed at a distinctively rural perspective, therefore, reformers shared in a world view wide enough to encompass affinities with other groups and deep enough to sustain passionate devotion to the national cause. This combination, I contend, made the northern agricultural reform movement a powerful engine of Republican Party sentiment.

STRUCTURAL CHANGE IN THE NORTHEASTERN COUNTRYSIDE, 1815-1860

The War of 1812 provides a convenient starting point for considering the reorientation of northeastern farmers from export to domestic markets. The war and the embargo that preceded it are traditionally thought to have provided the first stimulus to American manufacturing, thus beginning the expansion of the nonfarm sector that would provide northeastern farmers with domestic consumers. Moreover, the depression that followed the war helped initiate over a decade of rancorous tariff debates in which, as we shall see, economic nationalists worked hard to convince farmers that their best interests lay in tariff-protected growth of the “home market.” Just as important, however, was the war’s impact on Native Americans and consequently on western settlement. By devastating once powerful tribes in the Old Northwest, the war opened the gates for a torrent of Euro-American settlers to flow into the Great Lakes region, a process quickened by the granting of veteran land warrants confined to military reserves in Ohio.⁵ Western expansion, in turn, bore on the rural Northeast in two very important ways: first, by opening a channel of continuous out-migration and, second, by eventually inundating the region with cheap grain and other agricultural products. For northeastern farmers, then, urban growth and western expansion formed a carrot-and-stick combination.⁶

The construction of the Erie Canal and other transportation facilities, including country turnpikes, was essential to this dynamic by exposing the northeastern countryside to the full force of western competition and by enlarging the hinterland commerce that fueled urban growth.⁷ In response, farmers altered their crop mix, specializing in products in which their proximity to domestic markets provided an advantage. Economic geographers use the framework elucidated by the early nineteenth-century German landowner and economic thinker Johann Heinrich von Thünen to conceive of the relationship between urban markets, transportation costs, ground rents,

⁵ Daniel Walker Howe, *What Hath God Wrought: The Transformation of America, 1815-1848* (Oxford: Oxford University Press, 2007), 74–76; James Warren Oberly, *Sixty Million Acres: American Veterans and the Public Lands Before the Civil War* (Kent, OH: Kent State University Press, 1990), 9–10.

⁶ I am not arguing that western competition was a necessary condition for either the intensification or market reorientation of agricultural production that I discuss in this Chapter, only that western competition strongly re-enforced these developments. For such changes prior to western competition, see Winifred Barr Rothenberg, *From Market-Places to a Market Economy: The Transformation of Rural Massachusetts, 1750–1850* (Chicago: University of Chicago Press, 1992), 211; Richard A. Wines, “The Nineteenth-Century Agricultural Transition in an Eastern Long Island Community,” *Agricultural History* 55, no. 1 (January 1, 1981): 52.

⁷ The classic account of antebellum transportation infrastructure is George Rogers Taylor, *The Transportation Revolution, 1815-1860*, *The Economic History of the United States* 4 (New York: Rinehart, 1951); see also Allan Pred, *Urban Growth and City-System Development in the United States, 1840-1860*, *Harvard Studies in Urban History* (Cambridge, MA: Harvard University Press, 1980).

and agricultural land-use patterns. Von Thünen reasoned that given an “isolated state” characterized by a single central city and surrounding hinterland, agriculture would sort itself into zones of specialization based on transportation costs to the urban market. Thus a pattern of concentric rings would form: high-value perishables such as fluid milk, fresh butter, fattened livestock, and garden products would occupy the space nearest the urban market; bulky items that could not bear distant transportation, such as forest products and hay, would form the next ring; further out grains and dairy products such as preserved butter and cheese would concentrate; finally, stock-raising and industrial raw materials would dominate the outer-most ring.⁸ Similarly, as land value declined in proportion to its distance from the urban market, so would the intensiveness of agricultural land use.

The appearance of Von Thünen rings in the antebellum era thus indicates the new centrality of American cities as agricultural markets. In the Philadelphia region, the distinctive zones were clearly discernible by 1840 whereas they had not been when Thomas Paine wrote *Common Sense* or even as late as 1800.⁹ A similar pattern developed around Syracuse in the 1840s and 1850s as the combination of older canal and newer railroad links stimulated urban growth and transformed the surrounding hinterland. By the 1860s the same process was transforming the agricultural surroundings of Madison, Wisconsin.¹⁰ Thus the immediate hinterlands of first the large coastal cities and then the progressively more western interior canal and railroad towns turned to market gardening, truck farming, and the supply of hay and forest products (such as cordwood and barrel staves) for rapidly rising urban populations of humans and horses. By the 1850s proliferating railroad routes were beginning to expand these inner rings by extending urban “milksheds” and the truck farming zone. With the help of mechanical hay presses and new harvesting equipment, especially the “revolving” rake, railroads significantly enlarged the range of city-bound commercial hay production as well.¹¹

⁸ I have found no evidence that antebellum Americans were aware of Von Thünen’s treatise, *The Isolated State*, published in 1826. However, they clearly understood in general terms the dynamic that he formally modeled. As prominent agricultural improver James Mapes put it, “In obedience to the laws of demand and supply . . . the country adjacent to the great markets will furnish the perishable articles and those required for immediate use and consumption, while the great staple products will come from more distant points. It is in obedience to this law that the New England States and the river counties of New York have long since ceased to furnish the ‘staff of life’ to any great extent” (*Working Farmer* 11 [Feb 1859]: 36); see also *Pennsylvania Farm Journal* 5 (Jan 1855): 11.

⁹ Lindstrom, *Economic Development in the Philadelphia Region*, 140–145; see also Jeremy Atack and Fred Bateman, *To Their Own Soil: Agriculture in the Antebellum North* (Ames: Iowa State University Press, 1987): “In a typical pattern farmers near cities specialized in fluid milk . . . those more remote, especially where transportation was poor, produced butter and cheese” (149).

¹⁰ Roberta Balstad Miller, *City and Hinterland: A Case Study of Urban Growth and Regional Development*, Contributions in American History no. 77 (Westport, CT: Greenwood Press, 1979), 95; Michael Conzen, *Frontier Farming in an Urban Shadow: The Influence of Madison’s Proximity on the Agricultural Development of Blooming Grove, Wisconsin* (Madison: State Historical Society of Wisconsin for the Department of History University of Wisconsin, 1971), 88–96; see also William Cronon, *Nature’s Metropolis: Chicago and the Great West* (New York: W.W. Norton, 1991).

¹¹ Paul Wallace Gates, *The Farmer’s Age: Agriculture, 1815-1860*, Economic History of the United States 3 (New York: Holt, Rinehart and Winston, 1960), 239–240, 250–252, 256, 261, 266, 267, 269; Eric Brunger, “Dairying and Urban Development in New York State, 1850-1900,” *Agricultural History* 29, no. 4 (October 1, 1955): 169–174; Clay McShane and Joel A. Tarr, *The Horse in the City: Living Machines in the Nineteenth Century* (Baltimore: The Johns Hopkins University Press, 2007), 130–133; William R. Baron and Anne E. Bridges, “Making Hay in Northern New England: Maine as a Case Study, 1800-1850,” *Agricultural History* 57, no. 2 (April 1, 1983): 176–177; Clarence H. Danhof, “Gathering the Grass,” *Agricultural History* 30, no. 4 (October 1, 1956): especially 172–173; Robert Leslie Jones, “The Introduction of Farm Machinery into Ohio Prior to 1865,” *Ohio Archaeological and Historical Quarterly* 58 (1949): 18–19; Harry N. Scheiber, *Ohio*

Northeastern farmers further out from urban markets produced a variety of more transportable items, tending to specialize in one of three areas: dairy products, with the mix between cheese and butter conditioned by relative market accessibility; wheat in central and western Pennsylvania and New York's Genesee Valley; and wool, especially in hilly areas relatively removed from water and rail transport and less suitable to tillage. Of these three specializations none more obviously encouraged farmers to link their interests with manufacturers than wool. Fleece production rose rapidly during the Embargo and War of 1812 in response to the mushrooming woollens industry. Central to this trend was a contemporary craze for purebred Merino sheep. Initially imported from Spain, the introduction of fine-wool Merinos represented a major technological transfer. Indeed, Spain banned their sale to foreigners, but the disruptions of the Napoleonic Wars allowed alert American diplomats and merchants to ship tens of thousands home. American breeders subsequently improved the imported stock further, partially by bringing in new varieties from France (Rambouillet Merinos) and Germany (Saxon Merinos) and partially by their own efforts.¹² Alan Olmstead and Paul Rhode estimate that, nationally, the average clip of raw wool more than doubled from 1800 to 1860 while the quality of the fiber improved significantly over the same period. These advances, they show, contributed to "a complete redesign of the physical makeup of the sheep" in the two centuries before 1940, just one of the many ways in which Americans engaged in "biological innovation" long before genetic hybridization.¹³

The return of British woolen goods after the War of 1812 temporarily halted the growth of the American wool industry, but the ensuing protectionist tariff schedules helped resurrect domestic production. As prices rose in the 1820s and 1830s "sheep mania" took hold in Vermont and the larger New England hill country, transforming the region from pioneer self-sufficiency to specialized commercial agriculture. This change contributed to rural tariff support and to Vermont's "strong Whig sentiment."¹⁴ A similar process occurred in the hill towns of the Hudson Valley, in Central New York and western Pennsylvania—in fact, throughout the Northeast—encouraging pro-tariff views and, according to one social historian, extending farmers' "mental horizons" as well.¹⁵ Farmers further west also came to share the enthusiasm for wool and wool tariffs. In Ohio this occurred as early as the initial stimulus of wartime, making the state the national leader in number of sheep and

Canal Era: A Case Study of Government and the Economy, 1820-1861 (Ohio University Press, 1969), 332; Ulysses Prentiss Hedrick, *A History of Agriculture in the State of New York* (Albany, NY: Printed for the New York State Agriculture Society, 1933), 262, 386, 402; Atack and Bateman, *To Their Own Soil*, 149.

¹² Alan L. Olmstead and Paul Webb Rhode, *Creating Abundance: Biological Innovation and American Agricultural Development* (Cambridge: Cambridge University Press, 2008), 296–298; Gates, *Farmer's Age*, 222–223; Eric Carlos Stoykovich, "In the National Interest: Improving Domestic Animals and the Making of the United States, 1815-1870" (Ph.D. diss., University of Virginia, 2009), chap. 1. From the spring of 1810 to the fall of 1811, 180 ships carrying nearly 20,000 Merinos arrived in American ports (Olmstead and Rhode, 296).

¹³ Olmstead and Rhode, *Creating Abundance*, 302.

¹⁴ Edwin C. Rozwenc, *Agricultural Policies in Vermont, 1860-1945* (Montpelier, VT: Vermont Historical Society, 1981), 3–5 (quotation on p. 5).

¹⁵ Martin Bruegel, *Farm, Shop, Landing: The Rise of a Market Society in the Hudson Valley, 1780-1860* (Durham, NC: Duke University Press, 2002), 75–79 (quotation on p. 79); Reeve Huston, *Land and Freedom: Rural Society, Popular Protest, and Party Politics in Antebellum New York* (New York: Oxford University Press, 2000), 55; Miller, *City and Hinterland*, 92–93; Stevenson Whitcomb Fletcher, *Pennsylvania Agriculture and Country Life, 1840-1940* (Harrisburg: Pennsylvania Historical and Museum Commission, 1955), 265; Steven Stoll, *Larding the Lean Earth: Soil and Society in Nineteenth-Century America* (New York: Hill and Wang, 2002), 118–119.

wool produced by 1850.¹⁶ The combination of rising western competition and reduced tariff protection after the 1846 Walker Tariff pushed marginal eastern producers out of the business. If they could manage it, they moved into dairying or, alternatively, into mutton production for which they imported entirely different kinds of breeds.¹⁷ Elsewhere, however, and particularly in Vermont where the average sheep fleece “far surpassed the average of any other state,” wool growers persevered and even thrived thanks to continuous improvement in breeds and care.¹⁸ In the town of Chelsea, for instance, labor was so scarce that farmers could not switch to the more lucrative but also more intensive dairy business until the end of the century, yet they maintained stable incomes in the intervening decades by upgrading their sheep flocks.¹⁹

Dairy farming became increasingly central to northeastern agriculture over the course of the nineteenth century. One impetus for this shift, as I discuss in more detail below, was the pattern of declining soil fertility that occupied agricultural reformers from the late colonial through the antebellum periods. During the early 1800s many farmers addressed this problem by adopting a set of practices that included enlarging livestock herds and conserving manure for soil restoration. The extra animals were typically milch cows and farmers found remunerative markets for butter. If the new farming practices taken up in the face of soil depletion encouraged increased dairying, however, they did not demand a wholesale abandonment of marketable wheat. That step was forced by two other factors that impinged with increasing force in the first half of the nineteenth century: waves of destructive pests and the influx of cheap western grain.

Appearing first on the seaboard and inexorably moving west, the Hessian fly, “the blast” (black stem rust, a type of fungus), and the wheat midge were only the worst of a host of infestations that devastated wheat yields. The wheat midge, for instance, first appeared in the United States in the 1820s, wreaking havoc as it spread. In 1854, the year it entered the Genesee Valley, the New York State Agricultural Society estimated \$15 million in damage to the state’s wheat crop, and largely as a result of the midge wheat production in New York declined by 44 percent from 1849 to 1859.²⁰ As Olmstead and Rhode show, however, American researchers, farmers, and travelers abroad worked to combat these threats by constantly seeking new, pest-resistant wheat varieties and cultivation methods. “Without significant investments in maintenance operations,” they conclude, “grain yields would have plummeted as the plant’s enemies evolved,” leading to yields perhaps less than half of those actually achieved by 1909.²¹ The introduction from Europe of Mediterranean wheat, widely adopted by the 1850s, proved particularly important in this regard, as it was both suitable to the late planting that combated the Hessian fly and enjoyed resistance to the wheat midge. Farmers tried out many other varieties as well. A survey in New York around 1840 listed forty-one wheat varieties being grown in the state, while in 1857 the Ohio Board of Agriculture

¹⁶ Robert Leslie Jones, *History of Agriculture in Ohio to 1880* (Kent, OH: Kent State University Press, 1983), 140–149; Scheiber, *Ohio Canal Era*, 331.

¹⁷ Danhof, *Change in Agriculture*, 164–166. According to Gates, “raising sheep required less capital and less attention than raising dairy cattle” (*Farmer’s Age*, 221).

¹⁸ Gates, *Farmer’s Age*, 225.

¹⁹ Hal S. Barron, *Those Who Stayed Behind: Rural Society in Nineteenth-Century New England* (Cambridge: Cambridge University Press, 1984), 59–64.

²⁰ Olmstead and Rhode, *Creating Abundance*, 49–50.

²¹ *Ibid.*, 41, 60–61.

catalogued 111 varieties, over a quarter of which had probably been introduced into the state within only the previous five years.²² This widespread and continuous experimentation indicates just how dynamically innovative American agriculture was in the period.

Although concerted effort significantly reduced the negative impact of pest infestations, competition from as yet unaffected western farms, which also enjoyed fresh, highly productive soils, forced farmers across the Northeast to give up wheat. In New York, the opening of the Erie Canal exposed eastern portions of the state to grain imports from the Genesee region and later from Ohio.²³ In turn, wheat in eastern Ohio declined in the 1850s in the face of newly arrived pests, declining soil fertility, and competition from the rest of the emerging Midwestern breadbasket.²⁴ The shift was far from total, of course. Where northeastern farmers were able to adopt improved, cost-effective methods, such as in the Genesee Valley and western Pennsylvania, wheat growing continued. These new methods inevitably involved capital deepening as farmers purchased new machinery and the horses to operate them, as well as seed and fertilizer. The new tools included the much studied mechanical reaper, but also improved plows, seed drills, fanning mills, horse-powered threshers (typically hired rather than bought) and other devices, not to mention improved breeds of horses.²⁵ But even where wheat continued as a major cash crop within the Northeast, urban markets largely supplanted export markets. Thus in 1847 the Patent Office believed it “very doubtful if more than one-tenth of the wheat crop” of the seaboard wheat states—New York, Pennsylvania, Maryland and Virginia—“can be spared for exportation; while in the western states probably one-fifth might be thus appropriated.”²⁶ Like the rest of the region’s farmers, then, northeastern wheat growers became oriented toward urban markets and “scientific” agriculture.

The most important line of farming in the Northeast was dairying. Indicative of the region’s general neglect by scholars, economic historians have paid far more attention to wheat and cotton culture.²⁷ The best work on dairy farms in the nineteenth century comes from social historians of rural women because women were typically responsible for critical aspects of the dairy, especially the skilled work of butter and cheese making.²⁸ These products became more and more important to northeastern farming families through the first half of the nineteenth century. In 1860, according to the agricultural census, all eight of the states that had either more “milch” cows than “other” cows or about an even number were in New England and the mid-Atlantic.²⁹

²² *Ibid.*, 28, 50.

²³ Sally McMurry, *Transforming Rural Life: Dairying Families and Agricultural Change, 1820-1885* (Baltimore: Johns Hopkins University Press, 1995), 11; Huston, *Land and Freedom*, 47; Bruegel, *Farm, Shop, Landing*, 75–76; Miller, *City and Hinterland*, 61, 92–93.

²⁴ Jones, *Agriculture in Ohio*, 58, 63–64; Scheiber, *Ohio Canal Era*, 321–333.

²⁵ Danhof, *Change in Agriculture*, 235–240; Gates, *Farmer’s Age*, 166, 279–293; Atack and Bateman, *To Their Own Soil*, 194; Jones, “The Introduction of Farm Machinery into Ohio Prior to 1865”; Bidwell and Falconer, *History of Agriculture in the Northern United States, 1620-1860*, 207–215.

²⁶ *Annual Report of the Commissioner of Patents* (1847): 104.

²⁷ Olmstead and Rhode, *Creating Abundance*, 263.

²⁸ Joan M. Jensen, *Loosening the Bonds: Mid-Atlantic Farm Women, 1750-1850* (New Haven: Yale University Press, 1986), 79–141; Nancy Grey Osterud, *Bonds of Community: The Lives of Farm Women in Nineteenth-Century New York* (Ithaca, NY: Cornell University Press, 1991), 139–186; McMurry, *Transforming Rural Life*.

²⁹ Gates, *Farmer’s Age*, 233; Joseph C. G. Kennedy, *Agriculture of the United States in 1860; Compiled from the Original Returns of the Eighth Census* (Washington: G.P.O., 1864), 184. The first four states were Vermont, Massachusetts, New York and New Jersey, the next four were Maine, Connecticut, Pennsylvania and Delaware.

Of the two primary dairy products—butter and cheese—butter was by far the more important.³⁰ Up to the War of 1812 it was often destined for foreign markets. Philadelphia merchants, for instance, enjoyed a lucrative trade with the West Indies. Afterward, however, Philadelphians themselves and other domestic urban populations became the primary consumers. New manufacturing villages also proved important. According to Joan Jensen, “the prospects for farms selling produce to the new factories being built along the Brandywine [River] seemed so good that farmers in the area petitioned Congress in 1816 to raise protective barriers to ‘enable the manufactories to continue their works . . . & furnish us with a home market for our products.’”³¹ On the other hand cheese producers, who were centered in the valleys of the St. Lawrence and Mohawk Rivers in New York and in the Western Reserve of Ohio, enjoyed a growing European market through the period. Still, the vast majority of saleable American cheese went to domestic consumers.³²

In order to increase dairy production farmers generally had to intensify their inputs of both labor and capital relative to land. A substantial dairy operation required new buildings, including redesigned barns and even specialized sheds fitted with stanchions to confine cows during milking, as well as smaller outbuildings such as ice houses for making and storing dairy products. “A pervasive concern with system informed the arrangement” of these structures, evidence of the attention to time-saving efficiency fostered by rising demands on labor. Other capital costs went to new tools such as box churns, improved butter-working tables, butter prints and pails, cheese vats, multi-blade steel “dairy knives,” and “self-acting” cheese presses. Among these items even those that could be made on the farm or by local artisans were increasingly factory produced. The Patent Office issued 244 patents for butter-related machinery in the years between 1802 and 1849; from 1850 to 1873 that number rocketed up to 1,360. Farmers also enlarged cattle stocks and, to a lesser extent, upgraded breeds. To feed their herds they planted higher-yielding “English” grasses and acquired more land for fodder production, which then necessitated additional fertilizers and investment in planting and harvesting machinery, including horses. These multiple needs, which hint at the complex interdependencies of farm operations, may explain why farmers gave relatively less attention to specialized breeds of milch cows until after the Civil War. Despite this omission, however, milk yields steadily increased in the period as the result of better feed and care. “In just a generation,” concludes Sally McMurry, “a dynamic innovativeness had replaced conservatism” in the economic strategies of dairy farming families.³³

The role of women’s labor in the shift to dairy indicates the broader social transformations entailed by the structural changes in the northeastern agricultural economy. One reason why women could devote more time to butter and cheese making was that they were devoting less time to home

³⁰ National butter production, in pounds, was more than four times that of cheese, and butter was also more valuable per pound; Kennedy, *Agriculture of the United States in 1860*, 186; Yasuo Okada, “Squires’ Diary: New York Agriculture in Transition, 1840-1860,” *Keio Economic Studies* 7, no. 1 (1970): 88.

³¹ Jensen, *Loosening the Bonds*, 79–83 (quotation on p. 83).

³² McMurry, *Transforming Rural Life*, 59; Jones, *History of Agriculture in Ohio*, 182–185; Gates, *Farmer’s Age*, 244–245.

³³ McMurry, *Transforming Rural Life*, 24–38, 85–95 (quotation on pp. 32, 122); Jensen, *Loosening the Bonds*, 92–113; Huston, *Land and Freedom*, 48, 201; Jones, *History of Agriculture in Ohio*, 186, 190–191; Olmstead and Rhode, *Creating Abundance*, 331–339; Atack and Bateman, *To Their Own Soil*, 147–161; Gates, *Farmer’s Age*, 241–246; Thomas Summerhill, *Harvest of Dissent: Agrarianism in Nineteenth-Century New York* (Urbana, IL: University of Illinois Press, 2005), 99, 101, 112.

manufactures. Weaving, especially, declined rapidly thanks to the increasing availability and falling costs of consumer textiles. Indeed, the antebellum era witnessed the almost wholesale collapse of household manufacturing, at least in the Northeast, as rural families opted for inexpensive factory output.³⁴ Individual farms were thus becoming more specialized and more exclusively agricultural. The same was true of whole rural communities. When transportation improvements expanded markets, manufacturing that had once been scattered across the countryside in thousands of small villages tended to centralize in larger towns. Country villages might experience sudden relative decline as a result, but they often rebounded by building plank roads to central market towns, which helped local merchants to specialize in retailing consumer goods, local artisans to move from production to repair work, and the village economy in general to shift toward farmer-oriented services.³⁵ In one sense, then, the hinterland became more agricultural. Local agricultural societies helped smooth this process by providing promotional opportunities for businessmen engaged in supplying farmers with consumer and producer goods.

Observing the constant outflow of migrants, some contemporaries and historians have thought that the northeastern countryside was suffering economic devastation. Yet ever-rising land values tell a very different story.³⁶ High land prices signify a number of things. First, soil depletion, pest infestations, western competition and outmigration—the whole range of rural problems—were not so great, given proximity to urban markets, as to make all farming unprofitable. Second, land pressure among rural families structured a process of social differentiation rather than overall decline. High land values gave poorer landowners a double incentive to migrate: on the one hand, they could not expect to settle their children nearby while, on the other, they would earn a tidy sum from the sale of the land they did possess, money that would go a long way in the West. Those who remained thus tended to be older and wealthier than those who left. These “persisters” enjoyed the prosperity to engage in the more capital-intensive farming that could thrive in the region and, often, to expand operations by buying up their departing neighbors’ land, livestock and tools. They also married later and seem to have practiced birth control to reduce fertility. These are all signs of middle-class formation.³⁷ What was occurring, therefore, was not necessarily decline, but a kind of rural gentrification.

³⁴ Lindstrom, *Economic Development in the Philadelphia Region*, 122, 179; Atack and Bateman, *To Their Own Soil*, 204–205; Donald Hugh Parkerson, *The Agricultural Transition in New York State: Markets and Migration in Mid-Nineteenth-Century America*, The Henry A. Wallace Series on Agricultural History and Rural Life (Ames, IA: Iowa State University Press, 1995), chap. 1; Donald Hugh Parkerson and Jo Ann Parkerson, *The Emergence of the Common School in the U.S. Countryside*, Mellen Studies in Education v. 36 (Lewiston, N.Y.: E. Mellen Press, 1998), 44–45.

³⁵ Barron, *Those Who Stayed Behind*, especially 71–74; Miller, *City and Hinterland*, especially 68–70; John Majewski, Christopher Baer, and Daniel B. Klein, “Responding to Relative Decline: The Plank Road Boom of Antebellum New York,” *The Journal of Economic History* 53, no. 1 (March 1993): 106–122; Lindstrom, *Economic Development in the Philadelphia Region, 1810-1850*, 146–147; Summerhill, *Harvest of Dissent*, 102.

³⁶ The discussion in this paragraph is informed by Atack and Bateman, *To Their Own Soil*; Danhof, *Change in Agriculture*; Gates, *Farmer’s Age*; Barron, *Those Who Stayed Behind*; McMurry, *Transforming Rural Life*; Parkerson, *Agricultural Transition in New York State*; Parkerson and Parkerson, *Emergence of the Common School in the U.S. Countryside*.

³⁷ Atack and Bateman, *To Their Own Soil*, 49–66; Parkerson, *Agricultural Transition in New York State*, 133–136; Summerhill, *Harvest of Dissent*, 44–45, 145–146. For a brilliant exploration of the emerging rural middle class’s values through an analysis of its vernacular architecture, see Sally McMurry, “Progressive Farm Families and Their Houses, 1830-1855: A Study in Independent Design,” *Agricultural History* 58, no. 3 (July 1, 1984): 330–346

As with present-day urban gentrification, apparent middle-class homogeneity masked a more complicated social structure that included property-less laborers and tenants.³⁸ Nevertheless, the rural Northeast remained quite egalitarian in comparative perspective. The northern countryside enjoyed greater wealth equality than contemporary urban areas, the South, and the United States as a whole; within the North, there was little difference in rural wealth distribution between the Northeast and Midwest once age is taken into account.³⁹ In this context the period's celebrations of the free-labor "agricultural ladder" made considerable sense. Working for wages on someone else's farm (often a family relative) was in fact a viable avenue to propertied independence.⁴⁰ Indeed, according to Clarence Danhof, rising wages actually made it easier to acquire a farm in the 1850s and 1860s than had been the case in earlier decades.⁴¹ For many farmers, then, the period's rapid development offered, if not riches, comfort and independence.

Development of the domestic market fundamentally altered the Northeast's political economy by orienting its farmers toward new outside influences: urban markets for agricultural produce and the public sphere of print media. If this seemed to undermine the ideal of yeoman independence, so much the worse for the ideal, reformers believed. As Horace Greeley put it bluntly, "Let us deal decisively at the outset with the mistaken consciousness of self-sufficiency, which is the chief obstacle of Agricultural Progress."⁴² Like Greeley, most reformers came out of a tradition of economic nationalism that stressed the benefits of *interdependence*. During the Early Republic, nationalist discourse centered on the need for a diversified domestic economy. Indeed, the first northern agricultural societies were closely associated with broad national development schemes predicated on tariff-protected manufacturing growth.⁴³ In 1824, for example, the Philadelphia Society for Promoting Agriculture invited the country's leading protectionist publicist, Mathew Carey, to deliver its annual address. Drawing on the likes of Alexander Hamilton and Tench Coxe, Carey sought "to establish an identity of interests between agriculture and manufactures," arguing that American farmers would benefit from development of domestic industry because it would provide a reliable "home market."⁴⁴ This "home market" argument formed the foundation of protectionist appeals to farmers for the entire nineteenth century.⁴⁵

³⁸ Parkerson and Parkerson, *Emergence of the Common School in the U.S. Countryside*, 40; Huston, *Land and Freedom*, 202–203; Pawley, "The Balance-Sheet of Nature," chap. 2; Summerhill, *Harvest of Dissent*, 12–17.

³⁹ Atack and Bateman, *To Their Own Soil*, 86–101; see also Bruegel, *Farm, Shop, Landing*, 104.

⁴⁰ Eric Foner, *Free Soil, Free Labor, Free Men: The Ideology of the Republican Party Before the Civil War* (Oxford: Oxford University Press, 1995), 29–38; Parkerson, *Agricultural Transition in New York State*, 126–141.

⁴¹ Danhof, *Change in Agriculture*, 73–78.

⁴² *Cincinnatus* 3 (Oct 1858): 465; for similar sentiments, see *Working Farmer* 1(1849): 126 and the letter of Ariel Hunton in *The Plough, the Loom, and the Anvil*, 6 (1853): 90.

⁴³ Marti, *To Improve the Soil and the Mind*, 131; Lawrence A. Peskin, *Manufacturing Revolution: The Intellectual Origins of Early American Industry* (Baltimore: Johns Hopkins University Press, 2003), 123–129.

⁴⁴ Mathew Carey, *Address Delivered Before the Philadelphia Society for Promoting Agriculture, at Its Meeting, on the Twentieth of July, 1824*, 4th ed. (Philadelphia: Joseph R.A. Skerrett, 1824), 16; Alexander Hamilton, "Report on Manufactures," in *Papers on Public Credit, Commerce, and Finance*, ed. Samuel McKee, Jr., The American Heritage Series (The Liberal Arts Press, 1957), 175–276; Tench Coxe, *A View of the United States of America, in a Series of Papers, Written at Various Times, Between the Years 1787 and 1794* (Philadelphia: William Hall, 1794), 380.

⁴⁵ See, for example, Thomas Haines Dudley, *The Farmer Feedeth All: How Protection Affects the Farmer: An Address Delivered Before the New Jersey State Agricultural Society, at Waverly, Sept. 22, 1882* (Allen, Lane & Scott's Printing House, 1882); Thomas Haines Dudley, *Farmers and the Tariff: A Speech Delivered at the Meeting of the Farmers' Congress, Chicago, November 11, 1887* (American Protective League, 1887).

The first incarnation of the New York Board of Agriculture (1819-1825) exemplifies the early nationalist vision. Its members included such noted protectionists as George Tibbits and Stephen Van Rensselaer.⁴⁶ In 1820 a petition from its subsidiary organization in New York City reminded Congress that the Board “embraces the encouragement of domestic manufactures, as well as the cultivation of the soil.” Noting that the city’s merchants opposed protective duties, the petitioners explained that “while the advantages of this emporium for extensive foreign commerce are duly appreciated, we can never forget that vast and fertile inland territory, with whose flourishing or unprosperous condition the fortunes of the city of New York are intimately connected.”⁴⁷ The petitioners thus pointed to development of the American interior, rather than to further extension of traditional transatlantic trade, as the path toward national prosperity.⁴⁸ For patrician improvers such as Van Rensselaer, who owned enormous tracts of land upstate, domestic manufacturing, internal improvements, and scientific agriculture all figured into the development formula.⁴⁹ Of special concern, in this regard, was the woollens industry. Robert Livingston, like Van Rensselaer a major landlord and co-founder of New York’s first agricultural society, introduced purebred Merinos to the United States. In Connecticut, the agricultural society president, Merino importer, and wool manufacturer, David Humphreys, penned didactic protectionist poetry as early as 1794, urging Congress, “To useful arts a nation’s aim direct/ Create new fabrics and the old protect.” In 1827 a protectionist convention in Albany attended by George Tibbits resolved that “to encourage the growth and manufacture of wool, would afford great relief to the depressed condition of our agricultural interests.”⁵⁰

As the American interior filled up with white settlers, ordinary rural inhabitants attained a critical stake in internal economic development. Significantly, by midcentury the home market idea appeared to accord with what northeastern farmers were actually experiencing, that is, a shift toward production for domestic urban centers. While cotton planters and merchant princes continued to look to export markets, northeastern farmers literally lived the home market as the American countryside transformed around them. In an 1858 talk before a local agricultural society, Ralph Waldo Emerson made what was by then the utterly conventional observation that the northeastern farmer enjoyed “the advantage of a market at his own door, the manufactory in the same town.”⁵¹ Thus the “true policy,” according to Whig politician Charles B. Haddock, was “a mill upon every

⁴⁶ George Tibbits, *A Memoir on the Expediency and Practicability, of Improving or Creating Home Markets for the Sale of Agricultural Productions and Raw Materials, by the Introduction or Growth of Artizans and Manufacturers*, 3rd ed. (Albany: J.R.A. Skerrett, 1827); *Report of the Committee on Agriculture, Upon the Subject of Increasing the Duties Upon Articles of Foreign Growth or Manufacture*, H.Rpt. 89, 18th Cong., 1st Sess. (Washington, DC, 19 Mar 1824), Serial Set Vol. No. 106, Session Vol. No.2; the committee was chaired by Van Rensselaer..

⁴⁷ *Memorial of the New York County Agricultural Society*, H. Doc. 28, 16th Cong., 2nd Sess. (Washington, December 15, 1820), 6, Serial Set Vol. No. 48, Session Vol. No.1.

⁴⁸ On the late antebellum division between New York City manufacturers and merchants regarding domestic development versus expansion of Atlantic trade, see Beckert, *The Monied Metropolis*.

⁴⁹ Huston, *Land and Freedom*, 35–38; Summerhill, *Harvest of Dissent*, 12–13, 20, 27.

⁵⁰ Humphreys is quoted in Frank Landon Humphreys, *Life and Times of David Humphreys: Soldier, Statesman, Poet*, vol. 2 (New York: G. P. Putnam’s sons, 1917), 323; *Niles’ Weekly Register* 8 (28 Jul 1827): 363. For similar pro-tariff statements particularly focused on wool, see also *Memorial of the Berkshire Agricultural Society of the Commonwealth of Massachusetts. January 22, 1821. Referred to the Committee on Manufactures* (Washington: Gales & Seaton., 1821).

⁵¹ *Annual Report of the Secretary of the State Board of Agriculture of Massachusetts* 6 (1859): 15.

stream.”⁵² One scholar who has thoroughly surveyed agricultural reformers in New York and New England finds that throughout the antebellum period virtually “every northeastern agricultural editor . . . insisted that agriculture profited from the growth of manufactures” and therefore asked farmers to support protective tariffs.⁵³ Historians have repeatedly found evidence that northeastern farmers responded positively to this message.⁵⁴ As David Danbom observes, farmers “could hardly avoid the conclusion that cities were shaping their lives.”⁵⁵

Farmers’ growing participation in the public sphere proved no less important to the Northeast’s shifting political economy. Print media provided a discursive forum in which lived experience could be interpreted as rural-urban interdependence. It also added a whole new dimension to rural life: the incessant flow of information. The culture of print media and postal communication could reshape rural outlooks in striking ways.⁵⁶ In the 1840s and 1850s, for instance, “progressive” farmers began arguing that farmhouses should be relocated away from the road in order to preclude constant interruptions from passersby.⁵⁷ Such suggestions evidenced the reform movement’s emphasis on efficiency, but they could only have been contemplated in a rural society where written communication had begun to compete with the neighborhood grapevine as the primary source of information and even of basic knowledge. As I show in Chapter 1, rural northeasterners fully participated in the antebellum rise of mass media culture by reading agricultural journals and weekly editions of such leading urban newspapers as Horace Greeley’s *New York Tribune*. In this context the northeastern countryside soon formed the backbone of American nationalism. When James Mapes opened the second volume of his *Working Farmer* by invoking “an imaginary shaking of hands” with his readers, he may not have been anticipating Benedict Anderson, but he was certainly illustrating the “imagined community” that Anderson regards as the precondition for national consciousness. So did Edward Everett in an address that, delivered in person, was subsequently redelivered in posted print: “Twenty-seven millions of human beings, by accurate computation, awoke this very morning in the United States, all requiring their ‘daily bread,’” he announced, stressing both the communal relevance of political boundaries and the centrality of agriculture to this particular polity.⁵⁸

⁵² *Working Farmer* 9 (1857): 12.

⁵³ Marti, *To Improve the Soil and the Mind*, 49–58, 147.

⁵⁴ Gates, *Farmer’s Age*, 381; Huston, *Land and Freedom*, 55; Jensen, *Loosening the Bonds*, 83; Malcolm Rogers Eiselen, *The Rise of Pennsylvania Protectionism* (Philadelphia, 1932), 46.

⁵⁵ David B. Danbom, *Born in the Country: A History of Rural America*, Revisiting Rural America (Baltimore: Johns Hopkins University Press, 1995), 83.

⁵⁶ For detailed and nuanced discussions of the antebellum “communications revolution,” see David M. Henkin, *The Postal Age: The Emergence of Modern Communications in Nineteenth-Century America* (Chicago: University Of Chicago Press, 2006), chap. 1; Richard R. John, *Spreading the News: The American Postal System from Franklin to Morse* (Cambridge, Mass: Harvard University Press, 1995), chap. 2; for general statements, see Howe, *What Hath God Wrought*, 5 and throughout; Robert G. Albion, “The ‘Communication Revolution,’” *The American Historical Review* 37, no. 4 (July 1, 1932): 718–720. It seems worth noting that, according to Henkin, seeds were the items most commonly mailed along with letters after money and photographs (60). See also Allan Pred, *Urban Growth and the Circulation of Information: The United States System of Cities, 1790-1840* (Cambridge: Harvard University Press, 1973).

⁵⁷ McMurry, *Families and Farmhouses in Nineteenth-Century America*, 63–64.

⁵⁸ *Working Farmer* 2 (Mar 1850): 1; Benedict R. Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London: Verso, 1991); *Farm Journal and Progressive Farmer* 6 (Jan 1856): 28.

Not surprisingly, farmers began to stress literacy and numeracy as never before.⁵⁹ One of the most far-reaching correlates of the rural gentrification process was a deepening commitment to formal education. According to one study, before 1850 “the rural North led the world in the building of schools, the hiring of teachers, and overall enrollments.”⁶⁰ According to another, within the rural North, farmers “seem to have invested much more in the education of their children” than did non-farmers, and northeastern rates of school attendance appear to have been higher than Midwestern rates.⁶¹ Rising interest in schooling beyond the elementary level further attests to these trends. Enrollment increases in New York Regents’ academies, which were mostly located in small county towns, outpaced new school capacity in every decade between 1820 and 1860. This demand, several education scholars have found, “was rooted in rural life and the commercial farming economy” and was both a cause and a consequence of rural middle-class formation.⁶² Enthusiasm for education was thus most pronounced in those agricultural areas experiencing the most structural change. This should come as no surprise given that day-to-day agricultural practices were becoming more “scientific” and that farmers were upping their reading of farm journals which frequently presumed a basic familiarity with scientific concepts. Rising attendance in schools that were becoming integrated into state educational systems must also be regarded as a buttress to nationalist sentiment.⁶³

Of course education had long been valued for religious and civic reasons, but in the late antebellum era economic justifications gained new prominence. As Isaac Roberts, the first dean of the Cornell College of Agriculture, recalled of his youth on a Seneca County farm, “ambitious families . . . laid almost as much stress upon ‘schooling’ as upon manual dexterity and willingness to work.”⁶⁴ Economic priorities were manifested in a new emphasis on the natural sciences. In 1843, the Cortland Academy, a school that would soon pioneer in the teaching of agricultural chemistry, reported to the New York Regents that courses in “Algebra, and Natural Philosophy” were “required” by many of the area’s common schools. The Franklin Academy in rural Steuben County likewise observed “that in this part of the country, Natural Philosophy, Chemistry, and Algebra, seem to be regarded of much importance even by many who send to our common schools.”⁶⁵

⁵⁹ Carl Kaestle, *Pillars of the Republic: Common Schools and American Society, 1780-1860* (New York: Hill and Wang, 1983), 13, 29; Patricia Cline Cohen, *A Calculating People: The Spread of Numeracy in Early America* (New York: Routledge, 1999), 12, 116–149.

⁶⁰ Sun Go and Peter Lindert, “The Uneven Rise of American Public Schools to 1850,” *The Journal of Economic History* 70, no. 01 (2010): 2; see also Nancy Beadie, “Tuition Funding for Common Schools: Education Markets and Market Regulation in Rural New York, 1815–1850,” *Social Science History* 32, no. 1 (2008): 128.

⁶¹ Atack and Bateman, *To Their Own Soil*, 47; Parkerson and Parkerson, *Emergence of the Common School in the U.S. Countryside*, 2.

⁶² Quotation in Nancy Beadie, “Toward a History of Education Markets in the United States: An Introduction,” *Social Science History* 32, no. 1 (2008): 59–60; Parkerson and Parkerson, *Emergence of the Common School in the U.S. Countryside*, 23–26, 48–49.

⁶³ Ernest Gellner, *Nations and Nationalism* (Malden, MA: Blackwell Pub., 2006), 34 and ch. 3 generally; J. M. Opal, *Beyond the Farm: National Ambitions in Rural New England* (Philadelphia: University of Pennsylvania Press, 2008), Introduction; Kaestle, *Pillars of the Republic*, chap. 5.

⁶⁴ Isaac Phillips Roberts, *Autobiography of a Farm Boy* (Albany, NY: J. B. Lyon Company, 1916), 66–67; also quoted in Parkerson and Parkerson, *The Emergence of the Common School in the U.S. Countryside*, 18.

⁶⁵ *Annual Report of the Regents of the University of the State of New York* 56 (1843): 174, 181.

Horace Mann elaborated on the logic behind this popular interest in scientific subjects, placing them squarely in the context of agricultural reform:

Agriculture requires knowledge for its successful operation. In this department of industry, we are in perpetual contact with the forces of nature. We are constantly dependent on them for the pecuniary returns and profits of our investments, and hence the necessity of knowing what those forces are . . . This brings into requisition all that chemical and experimental knowledge which pertains to the rotation of crops, and the enrichment of soils.⁶⁶

This was more than a leading reformer's pronouncement from on high. The Weeks brothers, who farmed on shares with their father near Albany and made their own children's shoes, manifested a strong interest in agricultural reform by subscribing to farm journals and adopting various improvements, while they evinced an equally strong interest in natural science by attending lectures on electricity, magnetism, physiology and chemistry.⁶⁷ Thus the New York Regents had a strong basis for reporting to the state legislature in 1857 that "in this age science is greatly popularized," for "it is a conceded principle of political economy, that science and knowledge constitute the most productive capital."⁶⁸

Many agricultural and educational reformers placed natural science schooling in a nationalist perspective. Speaking of the "Advantages Derived from Cultivating the Arts and Sciences," the physician and agricultural improver Gouverneur Emerson argued that "nothing will . . . suffice to enable one people to compete with others engaged in similar pursuits, but an equality of intellectual cultivation sufficiently diffused."⁶⁹ More grandly, the populist Whig politician Ira Harris predicated America's national greatness on a combination of formal education, applied science, and a participatory public sphere in his keynote address at the Cortland Academy's 1846 jubilee. "Every body is taught to read, and every body does read upon every subject," he observed. "Every body writes and discusses, and prints." This "extraordinary activity of mind" had already brought astounding technological gains. Harris thus concluded that "an *intelligent* public opinion" was the precondition of a national destiny "far exceeding in magnificence and moral splendor, anything that the heart of man has yet conceived."⁷⁰ As Harris's political patron, William Henry Seward, argued at the 1842 New York state agricultural fair, "all scientific acquirements here, and all inventions, pass immediately to the general use and contribute directly to the general welfare."⁷¹ Many rural northeasterners thus saw themselves as forging ahead into a brave new world.

Agricultural reformers relentlessly insisted that scientific and technological literacy were fundamental to successfully negotiating the processes of economic restructuring and global

⁶⁶ *Annual Report of the Board of Education* (Massachusetts) 5 (1842): 102–103.

⁶⁷ Pawley, "The Balance-Sheet of Nature," 40–41, 54–55, 69–70.

⁶⁸ *Annual Report of the Regents of the University of the State of New York* 70 (1857): 20, 23.

⁶⁹ G[ouverneur] Emerson, *Lecture on the Advantages Derived from Cultivating the Arts and Sciences* (Philadelphia: A. Waldie, 1840), 17.

⁷⁰ *The Cortland Academy Jubilee Celebrated at Homer, N.Y., July 7 & 8, 1846* (Syracuse, NY: Stoddard & Babcock, 1846), 55–56.

⁷¹ William Henry Seward, *The Works of William H. Seward*, ed. George E. Baker (Boston, New York: Houghton, Mifflin and Company, 1884), 3: 167.

competition, as much for individuals as for nations. “The farmer is no longer a mere laborer,” James Mapes explained. “To succeed in competition with the improvements of the day, he must be educated to a fair extent.”⁷² Constant injunctions to stay informed and get ahead by reading agricultural publications contained an obvious component of self-promotion, but reformers made no apologies. “If ‘he who causes two blades of grass to grow where but one grew before, is a benefactor of his race,’ he is not less so who imparts to millions a knowledge of the methods by which it is done.”⁷³ Agricultural editors and lecturers took every opportunity to encourage the consumption of more information, working to build the institutional capacity for doing so by establishing libraries and reading rooms, offering farm journals and monographs as fair premiums, and advocating the establishment of farmers’ clubs where agricultural subjects could be discussed on a regular basis. “Nothing more steadily advances the cause of science or of agriculture,” argued the president of a county agricultural society, “than the free interchange of knowledge and opinion.”⁷⁴ Thus the agricultural reform movement stressed a vibrant public sphere as an essential precondition of progressive development.

Indeed, by the 1850s, science, education and the free flow of information fit centrally into an elaborated version of the old home market argument, what I call the Republican developmental synthesis. Drawing heavily on the discourse of agricultural reform, Republican ideologists posited a complicated interdependence between town and county that went beyond the simple exchange of consumer goods. The architects of Republican economic policy paid close attention when prominent agricultural reformers pointed out the externalities, positive and negative, that they perceived to result from rural-urban exchange. In particular, the idea that dense local commerce and communities of knowledge fostered beneficial technological spillover effects while long-distance trade led to irreversible soil depletion formed the core of Henry C. Carey’s highly influential writings on political economy. In order to understand the basis of such arguments, we must first scrutinize the ways in which market restructuring appeared to affect soil fertility.

EXPANDING THE “RECYCLING MENTALITY”

Soil maintenance was absolutely fundamental to the agricultural reform project. Indeed, declining soil fertility gave reform its initial impetus. Euro-American settlers, whether in the colonial period or later on the western frontier, tended to economize labor by wasting land. Eschewing intensive soil restoring practices, they relied on landed abundance instead. Yet farmers who chose to remain in their communities beyond the pioneer stage eventually had to come to terms with soil “exhaustion.” By the final decades of the eighteenth century sharply reduced yields from over-cropping characterized the entire Atlantic Coast. In the vicinity of Philadelphia, for example, farms that had once produced twenty-five to thirty bushels of wheat per acre were down to ten bushels per

⁷² *Working Farmer* 1 (Nov 1849): 4.

⁷³ J. H. Walden, *Soil Culture; Containing a Comprehensive View of Agriculture, Horticulture, Pomology, Domestic Animals, Rural Economy, and Agricultural Literature* (New York: C.M. Saxton, Barker & Co., 1860), 5.

⁷⁴ Foote, *Address of the St. Lawrence County Agricultural Society Delivered at the Eighth Annual Fair, at Canton, by Henry G. Foote, President, September 30th, 1859*, 6.

acre or fewer by century's end. Soil acidity, poor drainage, shallow tillage, and erosion ensuing from deforestation all aggravated the underlying deficit of essential nutrients.⁷⁵

To remedy these problems, agricultural reformers began adopting and adapting European soil conserving techniques.⁷⁶ The practices they introduced stressed, first, crop rotations that alternated grains with soil restoring fodder crops and, second, assiduous application of fertilizers and other soil amendments. The critical advance of the new rotation schemes was to introduce legumes, grasses and root crops that allowed farmers to enlarge their stock herds by providing winter feed. In turn, more animals meant more animal dung that could be carefully retained and returned to the soil to increase grain yields. Legumes, moreover, aided the soil directly because their roots host bacteria that fix atmospheric nitrogen in a form that becomes available to plants. Although this process was not fully understood until much later, its practical effects were observed by seaboard farmers from around the turn of the century. By the 1820s methods of careful fertilization and crop rotation—what was known as “convertible agriculture”—were firmly established in the farming districts surrounding Boston, New York, Philadelphia and probably Baltimore.⁷⁷ As Sally McMurry points out, “numerous diaries show that farmers . . . were spending long hours procuring and hauling fertilizers,” so it is hardly surprising that they were eager to learn what worked best.⁷⁸ Discussion of soil maintenance was thus basic to the discourse of agricultural reform. But how and where were soil amendments “procured”? Answering this question reveals much about the broad significance of agricultural reform.

In the first half of the nineteenth century the development of the American fertilizer trade was, among other things, a story of the growing integration between rural and urban economies. Farmers steadily increased their use of soil augmenting materials, commercial networks gradually developed to supply their needs, and the products themselves came to be factory manufactured. Although barnyard manure produced on the farm remained a mainstay of northeastern agriculture, the shift to new concentrated artificial fertilizers was well underway by the 1850s. The agricultural press played a central role in this process as simultaneously promoting medium, watchdog group, and discussion forum. Also critical were state geological and agricultural surveys and advances in the field of agricultural chemistry. As I discuss in detail in Chapter 3, science complicated things considerably. Finally, the development of a fertilizer industry depended on broader economic development, especially the growth of related chemical and food processing enterprises and transportation improvements. It thus exemplified the positive technology spillovers that, according to Whig and Republican economic theorists, would accrue to a dense national economy of diverse specializations. The quickening demand for commercial fertilizers, moreover, appeared to call for a

⁷⁵ Danhof, *Change in Agriculture*, 254; Stevenson Whitcomb Fletcher, *Pennsylvania Agriculture and Country Life, 1640-1840* (Harrisburg: Pennsylvania Historical and Museum Commission, 1950), 124–125; Lewis B Nelson, *History of the U.S. Fertilizer Industry*, ed. J. Harold Parker (Muscle Shoals, AL: Tennessee Valley Authority, 1990), 27.

⁷⁶ G. E. Mingay, *The Agricultural Revolution: Changes in Agriculture, 1650-1880* (London: Adam & Charles Black, 1977).

⁷⁷ Danhof, *Change in Agriculture*, 49–52, 269–277; Wines, *Fertilizer in America*, 9–17; Stoll, *Larding the Lean Earth*, 25, 49–54; Fletcher, *Pennsylvania Agriculture, 1640-1840*, 126–130.

⁷⁸ McMurry, *Transforming Rural Life*, 29. Richard Wines notes that the Long Island farmer “Noah Youngs spent fifty-four days fishing and carting organic fertilizers in 1822. That year he spent only fifty-seven days plowing, planting, and harvesting (excluding threshing)” (“The Nineteenth-Century Agricultural Transition in an Eastern Long Island Community,” 54).

reciprocal relationship between town and country because farmers now relied on the urban and manufacturing sectors not only for markets, but for the processed byproducts that went to fertilize their fields. Following the trail of the nutrient circuit, therefore, will help us understand how agricultural reformers came to conceive of the national economy.

In an excellent study of the nineteenth-century fertilizer industry, Richard Wines argues that during the early 1800s Americans approached the subject of soil fertility with a “recycling mentality.” Organic matter extracted from the ground by plant growth, they reasoned, had to be replaced with similar organic matter.⁷⁹ Originally thought of in terms of the individual farm’s cycling of nutrients from field to barn and back again, the recycling mentality expanded to accommodate the regional patterns of “urban-rural nutrient recycling systems” that developed around major coastal cities after the turn of the century. Long Island farmers, for instance, grew hay for New York City’s horses and livestock, carting back the same animals’ dung to apply to their fields. But farmers also purchased spent bone black from sugar manufactories, ground bonemeal from urban abattoirs, byproducts from tanneries and glue-makers, deodorized night soil from vaults and privies, street sweepings rich in horse dung, restaurants’ refuse food (offal), and other organic industrial and urban wastes.⁸⁰ The circuit of nutrients thus extended well beyond any single farm. At midcentury James Mapes encapsulated the enlarged scope of the recycling mentality when he explained that “the waste of factories, animal deposits of all kinds, etc., came originally from the soil, and should be returned to it.”⁸¹ Such sentiments often took on a moral freight based on humanity’s supposed stewardship of the Earth. Reformers thus spoke of doing “justice” to the soil or, on the other hand, of “robbing” it.⁸²

By the 1850s the nutrients of urban and industrial byproducts were being sold in chemically processed forms designed to render them concentrated and transportable. Farmers adopted these new products rapidly because they were already familiar with a market for soil-augmenting substances that had been developing for decades. Lime, which corrects soil acidity and thus frees up nutrients for plant uptake beside itself providing needed calcium, had been in widespread use since the late 1700s.⁸³ Because it was bulky and commonly available lime did not enter into long-distance trade, but at the local level it was certainly bought and sold. Around 1855 farmers in eastern Pennsylvania hauled the stuff up to twenty-five miles after purchasing it “at the kilns” for about six cents per bushel, while in sparsely settled western parts of the state lime could sell for twice that

⁷⁹ See, for example, John Hannam, *The Economy of Waste Manures: A Treatise on the Nature and Use of Neglected Fertilizers* (Philadelphia: Carey & Hart, 1844), 19–20: “it is necessary that all which has come from the earth should be returned to it, since all things that have had life will nourish future life.”

⁸⁰ Wines, *Fertilizer in America*, 3, 9–21; McShane and Tarr, *The Horse in the City*, 131–132; Joel A. Tarr, “From City to Farm: Urban Wastes and the American Farmer,” *Agricultural History* 49, no. 4 (October 1, 1975): 598–612.

⁸¹ *Working Farmer* 8 (Dec 1856): 224.

⁸² *Cincinnati* 1 (Jan 1856): 11; George E. Waring Jr., “Agricultural Features of the Census of the United States for 1850,” *Organization & Environment* 12, no. 3 (1999): 306.

⁸³ Fletcher, *Pennsylvania Agriculture, 1640-1840*, 132–136; Wines, *Fertilizer in America*, 15–17. For contemporary statements of lime’s general usage, see James Hyatt, *Lime and Marl: Their Agricultural Uses. With Explanations of Their Properties and Management, the Soils to Which They Are Applicable, and the Precautions to Be Observed in Their Use. Especially Adapted to the Wants of Practical Farmers* ([Mount Airy Agricultural Institute], 1848), v; Daniel Jay Browne, *The Field Book of Manures; or, the American Muck Book* (New York: A. O. Moore, 1858), 80.

amount.⁸⁴ In New York, farmers with their own deposits often quarried and calcined (burned) it themselves, enjoying a “profitable sideline” from its sale.⁸⁵ That a lime market existed is also evidenced by advice that farmers purchase it as quicklime, which was cheaper to transport because it lacked the bulk added by hydration.⁸⁶ Agricultural supply merchants even advertised specific kinds of lime. In 1859, for example, the Andover Lime Company marketed its product as “manufactured from the White Crystalline Stone,” making it “a pure Carbonate of Lime,—according to analysis of Professor Rogers and others.” Thus it attempted to distinguish its product in a competitive marketplace by branding its source materials and claiming the implicit endorsement of the state surveyor.⁸⁷

Similar in its effects to lime was the marl championed by the famous Virginia agricultural reformer, Edmund Ruffin. Marl is a generic term for any of a variety of soils composed of fine-grained minerals. In his famous *Essay on Calcareous Manures*, Ruffin referred to the limey marl found throughout the Chesapeake and elsewhere on the eastern seaboard, which was formed from the disintegrated shells of ancient invertebrates. That Virginia contained marl beds had long been known, but deposits were not widely exploited or even surveyed until Ruffin called attention to their value. As with lime, Ruffin’s marl corrected soil acidity, but it generally had to be applied in larger quantities because it was intermixed to varying degrees with other substances. “There are many marls which do not contain more than 15 to 25 per cent of lime,” the Yale agricultural chemist John Pitkin Norton explained, adding that “of course they will not bear transportation to so great a distance.”⁸⁸

New Jersey farmers made use of greensand marl, which contains little to no lime and is instead valuable for its potash content (glaucanite). Greensand pits were opened in the 1820s and exploited by many farmers locally, but word did not spread farther afield for some time. In 1848 Anthony Benezet Allen of the *American Agriculturist* still thought that greensand “may not be known to all our readers.”⁸⁹ He was able to draw information, however, from the state geological survey, suggesting the importance of government science in publicizing American resource endowments. Plans were soon underway to market the stuff more widely and a significant amount was carried for commercial sale out of state.⁹⁰ Because it needed to be used in large quantities, however, greensand, like other marls, required a great deal of labor. While some believed its potential unlimited, others understood that it could not be transported profitably very far, especially given the emerging

⁸⁴ *Farm Journal and Progressive Farmer* 6 (Feb 1856): 79; Ridgway Farm, Agricultural and Coal Co., *A Farm Within the Reach of Every Man!* (Philadelphia: Joseph Severns, 1855), 5. The trade between New Jersey and Pennsylvania grew substantial enough to warrant special rates for lime wagons on Delaware River toll bridges; Hubert G. Schmidt, *Agriculture in New Jersey: A Three-Hundred-Year History* (New Brunswick, NJ: Rutgers University Press, 1973), 126–128.

⁸⁵ McMurry, *Transforming Rural Life*, 29. For a farm press article detailing the building of lime kilns, see *American Agriculturist*, 1 (Mar 1843): 278.

⁸⁶ John Pitkin Norton, *Elements of Scientific Agriculture, or the Connection Between Science and the Art of Practical Farming* (New York: C. M. Saxton, Barker & Co., 1860), 111.

⁸⁷ *New Jersey Farmer* 5 (Oct 1859): 62.

⁸⁸ Norton, *Elements of Scientific Agriculture*, 112; Lyman Carrier, *The Beginnings of Agriculture in America*, First ed. (New York: McGraw-Hill, 1923), 267–268; L. C. Gray, *History of Agriculture in the Southern United States to 1860* (Washington, DC: Carnegie Institution of Washington, 1933), v. 2, 780.

⁸⁹ *American Agriculturist* 7 (Aug 1848):233–234.

⁹⁰ *Annual Report of the State Geologist of New Jersey for the Year* 3 (1857): 53–59; *Cultivator* 5 (Jul 1857): 203; *Working Farmer* 2 (Jun 1850): 73; 9 (May 1857): 71.

commercial alternatives. As one New York-area reformer explained, “there were various concentrated manures which would answer the purposes of farmers in this vicinity better.”⁹¹ Even where greensand was near at hand, in fact, it had to be supplemented by other soil amendments because it contained little phosphoric acid and no nitrogen or calcium. Consequently it ended up encouraging even New Jersey farmers to increase their consumption of the compact artificial fertilizers that came onto market in the 1840s and 1850s.⁹²

Whereas liming and marling were practices of ancient lineage, the use in agriculture of gypsum (calcium sulfate) starting in the 1770s was apparently novel. Also known as plaster of paris or simply plaster, gypsum was thought to be especially effective on clover, a legume essential to the crop rotations and enlarged livestock herds that were the hallmarks of convertible agriculture. As early as the Revolutionary era a gypsum craze developed in eastern Pennsylvania where members of the Philadelphia Society for Promoting Agriculture and even Benjamin Franklin campaigned in its favor. By about 1800 plastering had come “into fairly general use” in New Jersey and the Chesapeake region.⁹³ In northern Virginia, for example, local newspapers sometimes advertised land for sale as improved with plaster, suggesting that area farmers were well acquainted with it.⁹⁴ In New York gypsum exceeded all other fertilizers by both tonnage and value as late as 1850, and according to one Schenectady farmer writing in 1839, “mills to grind plaster for manuring purposes, are as common throughout this part of the country, as those devoted to grain.”⁹⁵ From about 1835 Ohio wheat farmers near Sandusky and in the Muskingum Valley employed gypsum in conjunction with the clover phases of their rotations.⁹⁶

Gypsum fell out of favor in some areas as early as the 1820s and everywhere by the 1870s because of its diminishing benefits on repeat applications.⁹⁷ Despite its relatively brief reign, however, the gypsum interlude is highly significant because it “broke down the prejudice of many farmers against the use of ‘artificial’ fertilizers.” An exception to the local recycling system, plastering entailed the use of a mineral imported from quarries in Nova Scotia, New York and Michigan, rather than locally recycled organic waste. Gypsum thus helped forge an interregional commercial market in off-farm fertilizing materials.⁹⁸

⁹¹ *Transactions of the American Institute of the City of New York* (1860–1861): 369.

⁹² Schmidt, *Agriculture in New Jersey*, 129–130; Danhof, *Change in Agriculture*, 26; Wines, *Fertilizer in America*, 17–18.

⁹³ Schmidt, *Agriculture in New Jersey*, 125.

⁹⁴ A. Glenn Crothers, “Agricultural Improvement and Technological Innovation in a Slave Society: The Case of Early National Northern Virginia,” *Agricultural History* 75, no. 2 (Spring 2001): 150–158.

⁹⁵ *Farmers’ Register* 7 (30 Nov 1839): 645.

⁹⁶ Fletcher, *Pennsylvania Agriculture, 1640-1840*, 135–136; Browne, *Field Book of Manures*, 69; Schmidt, *Agriculture in New Jersey*, 125; Wines, *Fertilizer in America*, 18; Danhof, *Change in Agriculture*, 263; *Farmers’ Register* 7 (30 Nov 1839): 645; McMurry, *Transforming Rural Life*, 29; Nelson, *U.S. Fertilizer Industry*, 30; Neil Adams McNall, *An Agricultural History of the Genesee Valley, 1790-1860* (Philadelphia: University of Pennsylvania Press, 1952), 114–115, 149–150; Jones, *Agriculture in Ohio*, 60; Gray, *Agriculture in the Southern United States*, vol. 2, 803, 807–809.

⁹⁷ Gypsum can supply plants with calcium and sulfur but does not reduce soil acidity directly. It is possible that once large applications of gypsum stocked the soil with these nutrients, other nutrient deficiencies became the limiting factor in plant growth, accounting for the disappointing results on repeat applications. Today gypsum is used to render clay soils more friable, but I have not seen mention of this benefit with regard to the antebellum Northeast.

⁹⁸ Quotation in Fletcher, *Pennsylvania Agriculture, 1640-1840*, 136; Wines, *Fertilizer in America*, 15–16; Pawley, “The Balance-Sheet of Nature,” 146.

As farmers grew accustomed to purchasing the “raw material of crops,” merchants worked to develop the market by promoting new fertilizing agents and sometimes moving into their manufacture.⁹⁹ One of the first manufactured fertilizers was “poudrette.” Introduced from France as early as the 1820s but not produced commercially in the United States until the late 1830s, poudrette was made out of human night soil collected in cities, which was then mixed with an odor-neutralizing absorbent and sometimes gypsum.¹⁰⁰ The resulting compound was reputed to be a powerful fertilizer, more economical than barnyard manure and transportable at “trifling” cost.¹⁰¹ The respected agricultural reformer Jesse Buel, for instance, termed poudrette a “species of concentrated manure” that was “the most efficient, in its immediate effects, of any manure we have tried.”¹⁰² Other commercial fertilizers made from night soil were branded with names such as “urate,” “pablette,” “taefu,” “excrementum,” “chemical manure” and “chemical compost.” Citing such internationally eminent chemists as Jöns Jacob Berzelius, Justus von Liebig, and Carl Sprengel, advertisements and catalogs depicted these new fertilizers as the latest discoveries in agricultural chemistry.¹⁰³ By 1855 the farm press reported poudrette as “becoming quite common in market.”¹⁰⁴

What really changed the fertilizer business, however, was the introduction of Peruvian guano. Formed from generations of accumulated bird droppings in the uniquely dry climate of the Chincha Islands, Peruvian guano was exceptionally rich in nitrogen and phosphorous content. Its fertilizing properties had been well known to native peoples for centuries, but not until British merchants began to import the stuff in the early 1840s did it come into large scale use in the West. Guano’s popularity was spurred by stories of its miraculous power and by endorsements from leading European chemists.¹⁰⁵ As early as 1842 *Niles’ National Register* reported on the “sensation” guano was causing among English farmers. The next year the American Institute noted “its almost incredible fertilizing properties.”¹⁰⁶ Thanks to gypsum, as we have seen, commercial networks for the distribution of fertilizers were well in place in most of the seaboard states by the 1840s. Americans had also gained experience, via poudrette, with concentrated fertilizers marketed on the basis of chemical analyses. As a result, guano entered the American market easily and quickly exploded in popularity. Promotional efforts by well known agricultural reformers such as the farm journalist Solon Robinson and the southern planter David Dickson helped propel the ensuing craze.

⁹⁹ Wines, *Fertilizer in America*; quotation in *Working Farmer* 7 (Apr 1855): 43.

¹⁰⁰ On the manufacturing process, see *Pennsylvania Farm Journal* 5 (Jun 1855): 169. For early references, see *American Farmer* 7 (3 Feb 1826): 362; *Farmers’ Register* 5 (1 Oct 1837): 358. For information on antebellum poudrette makers, see *Laws of the State of New York* (1839): 350–352; Wines, *Fertilizer in America*, 25–30; *American Agriculturist* 16 (Feb 1857): 45.

¹⁰¹ *American Agriculturist* 2 (Apr 1843): 25; *Farmers’ Register* 7 (11 Nov 1839); *New and Improved Poudrette of the Lodi Manufacturing Company* (n.p., 1853).

¹⁰² Jesse Buel, *The Farmer’s Companion, or, Essays on the Principles and Practice of American Husbandry* (Boston: Marsh, Capen, Lyon, and Webb, 1839), 72.

¹⁰³ Schmidt, *Agriculture in New Jersey*, 132; *New and Improved Poudrette of the Lodi Manufacturing Company*, 2–3; *American Farmer* 4 (May 1849): 379; *Annual Report of the American Institute, on the Subject of Agriculture* 3 (1844): 134–137.

¹⁰⁴ *Pennsylvania Farm Journal* 5 (Jun 1855): 169; for evidence of earlier interest, see, for example, *American Agriculturist* 3 (Jan 1844): 9.

¹⁰⁵ Wines, *Fertilizer in America*, 33–34; Jimmy M. Skaggs, *The Great Guano Rush: Entrepreneurs and American Overseas Expansion* (New York: St. Martin’s Press, 1994), 4–15.

¹⁰⁶ *Niles’ National Register* 12 (2 Jul 1842): 288; *Annual Report of the American Institute, on the Subject of Agriculture* 3 (1844): 8.

By the 1850s, according to one historian, “fervent testimonials of farmers operating holdings of all sizes indicate[d] the existence of a literal guano crusade.”¹⁰⁷

“Guano mania,” as contemporaries often called it, was particularly pronounced in the Chesapeake region. Several reasons account for this. First was Baltimore’s position as the central hub of the American guano trade. Benefitting from its existing commercial ties with South America and from a highly developed chemical industry, Baltimore became the center not only of guano distribution but, within a few years, of the manufacture of a new class of artificial fertilizers.¹⁰⁸ Just as important was the demand from Chesapeake wheat and tobacco farmers who had long since grown accustomed to purchasing commercial soil amendments. Guano was reputed to double and even triple wheat yields while it was also frequently credited with restoring “worn out” tobacco and cotton lands. The diary of Maryland planter William Claytor, for example, registers the use of guano on both tobacco and wheat fields in the 1850s.¹⁰⁹ By that time many Chesapeake farmers had come to consider guano “indispensably necessary.”¹¹⁰ Yet northern farmers used guano extensively, too. The North’s relatively milder response to the exotic import was due to the much wider availability of city-based fertilizers.¹¹¹ Thus agricultural reformers in one of the dairy counties surrounding Philadelphia noted that “stable manure, lime, street dirt, guano, bone dust, and plaster” were all among the area’s “principal fertilizing agents.”¹¹²

The Peruvian government maintained a guano monopoly that made the miracle fertilizer very expensive and as its popularity grew so did its price, often exceeding fifty or even sixty dollars per ton. In 1854, the peak year of American importation, the retail value of guano imports approached nine million dollars.¹¹³ Yet despite the almost prohibitive costs, strong demand continued unabated.¹¹⁴ Three strategies for obtaining cheaper and more plentiful supplies emerged in consequence. The first, direct negotiations with Peru, proved a complete bust.¹¹⁵ At one point Congress even considered punitive tariffs, but as long as Britain remained Peru’s primary market, economic sanctions stood little chance of success.¹¹⁶ More promising were the efforts of enterprising merchants to search out new guano supplies. After 1856 these ventures benefitted from the protection of the United States Navy, which was enjoined by the Guano Islands Act to back

¹⁰⁷ Weymouth T. Jordan, “The Peruvian Guano Gospel in the Old South,” *Agricultural History* 24, no. 4 (October 1950): 212; Solon Robinson, *Guano: A Treatise of Practical Information for Farmers* (New York: S. Robinson, 1853); Chester McArthur Destler, “David Dickson’s ‘System of Farming’ and the Agricultural Revolution in the Deep South, 1850-1885,” *Agricultural History* 31, no. 3 (July 1957): 32.

¹⁰⁸ Frank R. Rutter, *South American Trade of Baltimore*, Johns Hopkins Studies in Historical and Political Science (Baltimore: Johns Hopkins University Press, 1897), 39-49; Wines, *Fertilizer in America*, 46-47, 77-79.

¹⁰⁹ William Quesenbury Claytor, *Diary of William Claytor, 1849-1896*, vol. 1 (Alexandria, VA: Alexander Street Press, 2002), 31 May 1851; 27 Oct 1856, <http://solomon.cwld.alexanderstreet.com/cgi-bin/asp/philo/cwld/documentidx.pl?sourceid=S7387>.

¹¹⁰ Wines, *Fertilizer in America*, 40.

¹¹¹ *Ibid.*, 41.

¹¹² *Report of the Commissioner of Patents*(1849): 451.

¹¹³ Gates, *Farmer’s Age*, 327.

¹¹⁴ *Farmers’ Cabinet* (Amherst, NH) 55 (23 Apr 1857): 2; Wines, *Fertilizer in America*, 51-53.

¹¹⁵ Skaggs, *Great Guano Rush*, chs. 1-3; Kenneth E. Shewmaker, “‘Untaught Diplomacy’: Daniel Webster and the Lobos Islands Controversy,” *Diplomatic History* 1, no. 4 (October 1, 1977): 321-340.

¹¹⁶ *DeBow’s Review* 18 (Jan 1855): 33-4.

Americans' claims to guano-containing islands unclaimed by other nations.¹¹⁷ Even before passage of this legislation, however, Americans were importing new kinds of guano from Mexico, Colombia, Patagonia and the African island of Ichaboe. Unlike Peruvian guano, these varieties contained little nitrogen but were rich in plant-available phosphorous, helping to expand Americans' sense of what constituted a fertilizer.

The third alternative to Peruvian guano, and ultimately the most successful, was development of an artificial substitute. In the 1850s the Royal Agricultural Society in London offered a £1,000 premium for such a substance.¹¹⁸ One option proposed by American agricultural reformers was to manufacture a concentrated fertilizer from fish, which had long been applied directly to soils on the coast.¹¹⁹ In 1851 the famed Philadelphia chemist Robert Hare patented a process for doing just that and later other patented production methods appeared.¹²⁰ Much more important, however, was the establishment of an American superphosphates industry. Thanks to familiarity with European trends in agricultural chemistry and experience with phosphatic guanos, Americans were well aware of this potent fertilizer several years before it became commercially available to them in significant quantities circa 1852. Demand rose rapidly and by decade's end as many as forty-seven factories existed.¹²¹ Dependent on industrial chemicals for their production processes, these and other artificial fertilizer makers clustered in major northeastern cities, especially Philadelphia and Baltimore, each of which boasted advanced chemical industries.¹²²

"A few years since our old style farmers could scarcely be made to believe that sulphuric acid would ever be used as a fertilizer," noted one agricultural reformer in 1853 even as another pointed out almost simultaneously that "sulphuric acid must come to be regarded nearly as essential to the agricultural as it is to the manufacturing interests."¹²³ Nothing better illustrated the potential positive technological spillovers for farming of industrial development. Indeed, manufacturers soon realized that farmers offered a potential market for all kinds of byproducts. Industrial fish oil makers, for

¹¹⁷ Skaggs, *Great Guano Rush*, chs. 4–5.

¹¹⁸ *Annual Report of the Commissioner of Patents, Agriculture* (1853): 12; *American Farmer* 4 (Feb 1849): 264–265; *Pennsylvania Farm Journal* 1 (May 1851): 64; *Working Farmer* 4 (Jun 1852): 89; *Farm Journal and Progressive Farmer* 6 (Dec 1856): 382.

¹¹⁹ For reformers's statements, see Ebenezer Emmons, *Agriculture of New-York*, vol. 3 (Albany: C. Van Benthuysen & Co., 1851), 3:267 and Norton, *Elements of Scientific Agriculture*, 107–108. For treatments of the nineteenth-century fish fertilizer industry, see Wines, *Fertilizer in America*, 87–95; Nelson, *U.S. Fertilizer Industry*, 41–42; Danhof, *Change in Agriculture*, 266–267; *Annual Report of the Secretary of the Maine Board of Agriculture* 6 (1861): 43–64; United States Commission of Fish and Fisheries, *Report of the Commissioner for 1877*, vol. 5 (Washington: G.P.O., 1879), 161–267.

¹²⁰ For Robert Hare's efforts, see several undated items in Series I, Box 4 and Series II, Boxes 9 and 12, Robert Hare Papers, 1764-1858, American Philosophical Society; see also *American Farmer* 6 (Dec 1851): 451; for other patented processes for making fish fertilizers, *Annual Report of the Secretary of the Maine Board of Agriculture* 6 (1861): 50, 55.

¹²¹ Wines, *Fertilizer in America*, 175–176; Nelson, *U.S. Fertilizer Industry*, 45. These products were marketed under numerous brand names, including "Mapes' Improved," "De Burg's No. 1," "Reese's and Kettlewell's Manipulated Guano," "Dickson's Compound," "Hildreth No. 1," "Trego's Phospho-Peruvian Guano Compound," "Allen & Needles' Superphosphate of Lime," and others.

¹²² Wines, *Fertilizer in America*, 96–111; United States Department of Agriculture and Tennessee Valley Authority, *Superphosphate: Its History, Chemistry and Manufacture* (Washington: For sale by the Superintendent of Documents, U.S. Govt. Print. Off, 1964). For discussions of European experiences with superphosphates in the agricultural press, see *American Agriculturist*, 5 (Jul 1846): 207; Henry Colman, *European Agriculture and Rural Economy from Personal Observation*, vol. 2 (Boston: Arthur D. Phelps, 1848), 363–366. The connection to the chemical industry was also present in the case of fish fertilizers, which became feasible after factories producing fish oil used in paints, lubricants, and other chemicals began marketing their dessicated scrap to farmers as "fish guano" (Wine, *Fertilizers in America*).

¹²³ *Working Farmer* 5 (Feb 1853): 73; Emerson, *Address Delivered Before the Agricultural Society of Chester County*, 19.

instance, began selling their desiccated scrap as “fish guano” from the late 1840s or so. Around the same time the future metals magnate Joseph Wharton attempted the commercial production of cottonseed oil and experimented with the byproduct as cattle feed.¹²⁴

Starting in the early 1850s reformers noted the “rapid extension of the use of concentrated fertilizers” and argued that “chemical manures” would soon occupy a central place in American farming.¹²⁵ Although the really widespread use of commercial fertilizers did not occur until the post-bellum period, the 1850s were clearly years of brisk expansion and intense discussion. Total manufacture of artificial fertilizers roughly tripled during the decade (Table 2.1) while guano imports soared.¹²⁶ Thus in 1857 the chronicler of Philadelphia’s industrial development, Edwin T. Freedley, reported that “the manufacture of Artificial Fertilizers has become quite an extensive business within a few years.”¹²⁷ By that time one agricultural journal felt constrained to remind readers that the new importance of chemical fertilizers did not obviate the need to conserve cattle dung.¹²⁸ Even in areas where the newer fertilizers were not used as a matter of common practice, extensive experimentation occurred before the Civil War. Thus in 1859 an assistant editor of the *New England Farmer* stated matter-of-factly, “we are all buying what one of our neighbors comprehensively calls ‘bag manure.’”¹²⁹ A year later the agricultural chemist and educator Evan Pugh commented that “every town, almost, has its manure manufactories” (Figure 2.1).¹³⁰

Significantly, the regional recycling paradigm in which nutrients traveled an eternal circuit between farm and city easily contained this phase of fertilizer development. Before the Civil War the manufacture of superphosphates amounted to mixing a pile of ground bones in a tub of sulfuric acid. While reformers marveled at the use of an industrial chemical in agriculture, they gave no less attention to the animal products that held the critical phosphorous. Within a few years of the war’s end the bones once collected from urban abattoirs would be replaced with nonrenewable mineral rock sources, but up to that point the centrality of organic byproducts to the production of superphosphates, fish guanos, poudrette, and other fertilizers supported the basic framework of the recycling mentality. Even guano, which came from thousands of miles away, was shoehorned into the recycling paradigm. Reformers reasoned that continental runoff fed oceanic algae which then fed sea birds that finally excreted the original nutrients onto rocky outcroppings.¹³¹ The persistence of the recycling mentality undoubtedly had something to do with its appealing moral themes of prudence and stewardship. While its platitudes posed few real obstacles to the subsequent shift to nonrenewable resources, it did, as I discuss next, provide a compelling vision for American nationalists’ arguments in favor of fostering an independent domestic economy protected from the soil-depleting effects of international trade.

¹²⁴ Wines, *Fertilizer in America*, 87; W. Ross Yates, *Joseph Wharton: Quaker Industrial Pioneer* (Bethlehem: Lehigh University Press, 1987), 126–127.

¹²⁵ Emerson, *Address Delivered Before the Agricultural Society of Chester County*, 13; *Genesee Farmer* 8 (Sep 1852): 269.

¹²⁶ Skaggs, *Great Guano Rush*, 9–15.

¹²⁷ Edwin T. Freedley, *Philadelphia and Its Manufactures: A Hand-Book Exhibiting the Development, Variety, and Statistics of the Manufacturing Industry of Philadelphia in 1857* (Philadelphia: E. Young, 1858), 144–146.

¹²⁸ *Farm Journal and Progressive Farmer* 6 (Nov 1856): 334.

¹²⁹ *New England Farmer* 9 (Sep 1859): 411.

¹³⁰ Quoted in Fletcher, *Pennsylvania Agriculture, 1840-1940*, 94.

¹³¹ Wines, *Fertilizer in America*, 7.

HENRY CAREY'S "MANURE THEORY"

In the 1850s Henry C. Carey, the leading voice of the American School of political economy, elaborated what Paul Conkin has called the "manure theory."¹³² Carey argued that the only way to sustain the rising agricultural productivity on which industrial progress depended was to ensure that fields and factories stood near enough to each other to exchange not only farm produce for manufactured goods, but to recycle industrial and urban byproducts back to the land. And the only way to do that, Carey continued, was to erect a high tariff barrier that would expand the home market and preclude the need to export agricultural staples. Carey further argued that tightly bound communities would foster the exchange of information and the generation of new technical knowledge. The manure theory thus synthesized the existing tradition of American protectionist thought with the contemporary discourse of scientific agriculture to arrive at an original model of intensive economic development. Ingenious and fundamentally optimistic, Carey's writings won a substantial international following. In the United States his ideas and his political organizing influenced such leading Republicans as Justin Morrill, John Sherman, William Seward and Horace Greeley. Making sense of the manure theory, therefore, will help us see how agricultural reform came to play a central part in Republican economic thinking during the 1850s. It will also help us see that our traditional categories of Jeffersonian agrarianism, Hamiltonian industrialism, and worker radicalism, leave out an essential portion of antebellum socioeconomic thought.

Henry Carey was of course the son of Mathew Carey, the most prominent tariff advocate of the early national generation. As we have seen, the older Carey's brand of advocacy leaned heavily on the argument that an expanded manufacturing sector offered farmers a reliable home market. But the case for industrial protection went beyond merely substituting a national market for a foreign one. Fundamentally the policy aimed to develop a different kind of national economy, one in which advanced labor-saving technology played a decisive role. Theoretically, then, tariff protection was a

¹³² Paul Keith Conkin, *Prophets of Prosperity: America's First Political Economists* (Bloomington: Indiana University Press, 1980), 283–284; Conkin's two Chapters on Carey remain the best introduction to his thought. More recent work appears in Stephen Meardon, "Reciprocity and Henry C. Carey's Traverses on 'the Road to Perfect Freedom of Trade,'" *Journal of the History of Economic Thought* 33, no. 03 (2011): 307–333; Stephen Meardon, "A Tale of Two Tariff Commissions and One Dubious 'Globalization Backlash,'" RES Working Papers (Inter-American Development Bank, Research Department, 2006); many of Meardon's other articles and essays also touch on Carey's ideas. Other recent work includes Jeffrey P. Sklansky, *The Soul's Economy: Market Society and Selfhood in American Thought, 1820-1920* (Chapel Hill: University of North Carolina Press, 2002), chap. 3; Andrew Dawson, "Reassessing Henry Carey (1793-1879): The Problems of Writing Political Economy in Nineteenth-Century America," *Journal of American Studies* 34, no. 3 (December 1, 2000): 465–485; Michael Perelman, "Henry Carey's Political-Ecological Economics: An Introduction," *Organization & Environment* 12, no. 3 (September 1, 1999): 280–292; Rodney J. Morrison, *Henry C. Carey and American Economic Development*, Transactions of the American Philosophical Society, (Philadelphia: American Philosophical Society, 1986). For aspects of Carey's business interests, see Anthony F. C. Wallace, *St. Clair: A Nineteenth-Century Coal Town's Experience with a Disaster-Prone Industry* (New York: Knopf, 1987), 184–200 and throughout; David Kaser, *Messrs. Carey & Lea of Philadelphia: A Study in the History of the Booktrade* (Philadelphia: University of Pennsylvania Press, 1957). Older but still useful studies of Carey include Arnold W. Green, *Henry Charles Carey, Nineteenth-Century Sociologist* (Philadelphia: University of Pennsylvania Press, 1951); George Winston Smith, *Henry C. Carey and American Sectional Conflict* (Albuquerque: University of New Mexico Press, 1951); Arthur M. Lee, "Henry C. Carey and the Republican Tariff," *Pennsylvania Magazine of History and Biography* 81 (1957): 280–302; A. D. H. Kaplan, *Henry Charles Carey, a Study in American Economic Thought* (Baltimore: The Johns Hopkins press, 1931).

developmental tool, not an end in itself. By the end of the century continued protection for industrial giants dominating the domestic market to the point of overproduction showed that venality rather than developmental theory were the operative factors in tariff policy. But before the Civil War, when the United States remained essentially a developing nation, protectionism was a more genuine reflection of nationalist sentiment and its advocates invested significant intellectual resources in establishing its theoretical validity.

Early protectionists focused on what they called a nation's "productive powers," which encompassed both the current level of economic development and the ability to sustain further development through continual innovation. So long as British industrial capacity far outstripped everyone else's, they argued, the only way to increase national productive powers was to block out British imports. Their main theoretical beef, therefore, was with the principle of comparative advantage and the international division of labor, according to which some nations were best fitted to manufacturing finished goods while others were suited to producing food and raw materials. Protectionists regarded this doctrine—and, indeed, the whole edifice of classical political economy—as little more than ideological dressing for naked British industrial interests. "English Authors write Free Trade doctrines for other Nations," they cried.¹³³

Protectionists also rejected the population and rent theories of Malthus and Ricardo, which implied that abject poverty was natural and unavoidable for most of humanity. The nationalist-developmental project, for all of its hardnosed strategic and fiscal calculations, depended on a romantic vision of progress. It could hardly win adherents if Malthus's and Ricardo's forecasts appeared correct. Indeed, tariff opponents repeatedly pointed to the horrendous condition of British workers as the reason why nations should avoid rather than promote industrial development. In 1820, for instance, a group of Virginia agricultural societies argued in a petition to Congress that, after stripping away protectionist rhetoric, "in plain English, the hardy, independent sons of our forests and our fields are called on to consent to be starved into weavers and button-makers."¹³⁴ Tariff advocates thus sought to exempt their national case from the ineluctable scarcity that Malthus and Ricardo said governed the world. In the United States these efforts took on the characteristic features of American exceptionalism, but the basic impulse was common to economic nationalists everywhere and, indeed, to socialists and any other heterodox economic thinker who looked to a brighter future day. According to Karl Marx, for instance, Malthus was a "baboon" who implied "that the increase of humanity is a purely natural process," when in fact "overpopulation is . . . a historically determined relation."¹³⁵

Importantly, both the Malthusian and Ricardian analyses were premised on a technological bottleneck in agriculture. Malthus accepted that farming productivity could rise but argued that population rose at a much faster rate, thereby quickly leading to famines, epidemics, wars, and other

¹³³ American Institute [of the City of New York], *Report on the Commercial Intercourse of the United States and Great Britain* (New York: Jared W. Bell, 1844), 11.

¹³⁴ *Memorial of the Delegates of the United Agricultural Societies of Prince George, Sussex, Surry, Petersburg, Brunswick, Dinwiddie, and Isle of Wight. December 13, 1820. Referred to the Committee on Agriculture* (Washington: Gales & Seaton, 1820).

¹³⁵ Robert C. Tucker, ed., *The Marx-Engels Reader*, 2nd ed. (New York: W. W. Norton & Company, 1978), 276; on American exceptionalism, see Dorothy Ross, *The Origins of American Social Science* (Cambridge: Cambridge University Press, 1991), chap. 2.

natural “checks” on population growth.¹³⁶ Ricardo added to this alarming picture a no less alarming distributional analysis.¹³⁷ Agricultural productivity, he assumed, was largely determined by “the original and indestructible powers of the soil.” Thus although improved implements and fertilizers might raise output for a time, additional applications would bring diminishing returns. Consequently, as population grew people would be forced onto evermore marginal lands, steadily raising the costs of sustaining workers’ subsistence wages. Eventually all of society’s productive capital would be swallowed up by landlords accruing unearned rents from their ownership of the most fertile lands.

For economic nationalists, the promise of agricultural reform offered an obvious way out of this conundrum. Friedrich List, the German national economic theorist who spent several years in Pennsylvania in close association with Mathew Carey and other American protectionists during the 1820s and 1830s, relied on technological progress to dismiss Malthusian and Ricardian premises outright.¹³⁸ Recent improvements had already “increased tenfold the productive powers of the human race for the creation of the means of subsistence,” he argued, so the further advance of knowledge and technology would likely more than keep pace with population growth. “Who,” he demanded, “will venture to set further limits to the discoveries, inventions, and improvements of the human race?” List’s response to Ricardo, which anticipated Henry Carey’s more elaborate refutation, followed easily from his confidence in the future of agricultural technology. The logical corollary of stressing human artifice, after all, was that natural conditions mattered little. Thus List asserted that “the original natural productive capability of land is evidently so unimportant, and affords to the person using it so small an excess of products, that the rent derivable from it alone is not worth mentioning.” Instead, rent “rose everywhere with the progress of civilisation, of population, and with the increase of mental and material capital.”¹³⁹

In his earliest economic writings Henry Carey argued along similar lines. “What are indestructible powers?” he asked. “The most fertile soil, if not renewed, will have its powers destroyed.”¹⁴⁰ Though nominally a free trader at this time, Carey was firmly committed to a vision of economic progress and clearly drew on the promise of agricultural reform to attack Ricardian distribution theory. But Ricardians never denied that improvements in agricultural technology could slow the rise of rents, they only maintained that improvement would eventually run into diminishing returns and that the shift to marginal soils, which could only be improved at great expense, was ultimately certain.¹⁴¹ Carey crafted an ingenious historical refutation of this argument in *The Past, the Present, and the Future* (1848), perhaps his most important work. His purpose was to show that increasing returns from technological progress constituted a general phenomenon, as true in

¹³⁶ Thomas Malthus, *An Essay on the Principle of Population*, ed. Geoffrey Gilbert, Oxford World’s Classics (Oxford: Oxford University Press, 2004).

¹³⁷ David Ricardo, *Principles of Political Economy and Taxation*, ed. E.C.K. Gonner (London: G. Bell and Sons, Ltd., 1919), chap. 2.

¹³⁸ Roman Szporluk, *Communism and Nationalism: Karl Marx Versus Friedrich List* (New York: Oxford University Press, 1988); Wallace, *St. Clair*, 184–185.

¹³⁹ Friedrich List, *The National System of Political Economy*, trans. Sampson S. Lloyd (London: Longmans, Green, and Co., 1916), 104, 206.

¹⁴⁰ H. C. Carey, *Principles of Political Economy* (Philadelphia: Carey, Lea & Blanchard, 1837), vols. 1, 189.

¹⁴¹ Conkin, *Prophets of Prosperity*, 270–271.

agriculture as in manufacturing—to show, in other words, that there was no bottleneck. Underpinning his thesis was the optimistic rhetoric of scientific agriculture.

Carey argued that Ricardo had gotten things backward. People did not begin on the best soils, proceeding to worse when population pressures forced them to. Rather, they first settled “the high and thin lands requiring little clearing and no drainage,” the only lands that their primitive knowledge, technology, and modes of cooperation allowed. Only when their societies advanced could they manage the difficult task of clearing and draining “lower and richer lands.” Further progress would allow them to tap fecund subsoils and otherwise improve their capacities to utilize nature. Carey confirmed this theory with endless historical examples spanning the globe, finally concluding unequivocally that “everywhere” the growth of population and civilization resulted in an “increased power over land.” Better tools and methods constantly redefined the very meaning of soil fertility, for “all soils have qualities tending to render them useful.” Carey’s theory of settlement, then, was actually a theory of scientific and technological progress. “The earth is a great machine,” he declared, “given to man to be fashioned to his purposes.” References to lime, marl, bones, sulfuric acid, under-draining of farms, and sub-soil plowing indicate Carey’s close familiarity with the agricultural reform literature. When he asserted that “the whole business of the farmer consists in making and improving soils,” he simply repeated an admonition that utterly pervaded the discourse of agricultural reform. The proposition that agricultural technology would save the day clearly echoed Friedrich List. But Carey’s far more detailed discussion gave his pronouncements the appearance of a firm grounding in modern agricultural science.¹⁴²

The agricultural reformer and Whig politician George Perkins Marsh had implicitly argued something similar a year earlier. Marsh is remembered today as the author of *Man and Nature* (1864), the first systematic exploration of how human societies alter the natural environment. An extraordinary polymath, he combined an unmatched breadth of reading in historical sources with firsthand experience of Vermont’s economic development to achieve penetrating insight into the ways that humans reshape the natural landscape.¹⁴³ But Marsh was no spiritual environmentalist. At one time the owner of a woolens factory and hundreds of purebred Merinos, his goal was resource management. He had no doubt that natural science promised economic advancement.

Steeped in the stadial theory of social development articulated by Scottish Enlightenment thinkers and in his own commitments to rural Vermont, Marsh believed that agricultural society promoted—or at least could promote—a progressive, sustainable utilization of nature. In a seminal address at the 1847 Rutland County (VT) agricultural fair, he argued that the “savage . . . desolates the region he inhabits,” but that “social man repays to the earth all that he reaps from her bosom, and her fruitfulness *increases* with the numbers of civilized beings who draw their nutriment and clothing from the stores of her abundant harvests.”¹⁴⁴ In other words, by carefully recycling organic wastes, agricultural productivity would easily keep pace with growing population. Elsewhere Marsh

¹⁴² Henry Charles Carey, *The Past, the Present, & the Future*, Reprints of Economic Classics (New York: A. M. Kelley, 1967), 9–133 (quotations on pp. 24, 49, 95, 99).

¹⁴³ David Lowenthal, *George Perkins Marsh, Prophet of Conservation*, Weyerhaeuser Environmental Books (Seattle: University of Washington Press, 2000).

¹⁴⁴ George Perkins Marsh, *Address Delivered Before the Agricultural Society of Rutland County, Sept. 30, 1847* (Rutland, VT: Herald Office, 1848), 6 (emphasis added).

added a kind of New-England Puritan twist to this vision by arguing that civilization had historically progressed the furthest “where the earth, with the latent capacity of giving the most, does yet spontaneously yield the least.”¹⁴⁵ Only soils that provided a challenge to human initiative, he thought, would be cultivated to the greatest extent. By the publication of *Man and Nature* Marsh had grown less sanguine, yet he still believed that “ingenuity” and “wise economy” would make nature a “plenteous and perennial” source of material wellbeing.¹⁴⁶

There is no obvious indication that Carey and Marsh knew each other’s work, but this makes the parallels between them all the more interesting. Both formulated original thoughts on the relationship between nature and society by directly observing the extremely rapid development of the American countryside while reading widely in European sources on older societies.¹⁴⁷ As Carey put it, Ricardo’s errors stemmed from the fact that “he had never witnessed, as at this moment we do from the window at which we write, the progress of a new settlement.”¹⁴⁸ Carey’s experience led him to emphasize what he termed “combination of action” or “association” as the key to achieving the increasing returns that would banish the Malthusian-Ricardian specter. His elaboration of this concept offered a nuanced conceptualization of technology’s role in economic development.

At first glance, Carey’s “combination of action” may seem like just another way of phrasing what Adam Smith had explained long before, that market-driven specialization leads to higher productivity. Indeed, the phrase recalls Friedrich List’s point that the division of labor into specialized individual tasks was meaningless without their subsequent reintegration, or “union of labor.”¹⁴⁹ For List this was basically an argument for the necessity of management and state economic coordination. But Carey was getting at something more subtle, which he illustrated with his own version of the conventional economic fable:

The first cultivator can neither roll nor raise a log, with which to build himself a house. . . . He is in hourly danger of starvation. At length, however, his sons grow up. They combine their exertions with his, and now obtain something like an axe and a spade. They can sink deeper into the soil; and can cut logs, and build something like a house. . . . With the growth of the family new soils are cultivated, each in

¹⁴⁵ George Perkins Marsh, “The Study of Nature,” in *So Great a Vision: The Conservation Writings of George Perkins Marsh*, ed. Stephen C Trombulak, Middlebury Bicentennial Series in Environmental Studies (Hanover, NH: Middlebury College Press: University Press of New England, 2001), 75.

¹⁴⁶ George Perkins Marsh, *Man and Nature*, ed. David Lowenthal, Weyerhaeuser Environmental Classics (Seattle: University of Washington Press, 2003), 29.

¹⁴⁷ Marsh was an exceptional linguist with a library of some 12,000 volumes. Carey and his friend and fellow economic writer, Stephen Colwell, each compiled a massive library of political-economic pamphlets from around the world, which are now intermixed in the single Colwell and Carey Collection at the University of Pennsylvania and include some 10,000 pamphlets. Colwell’s few surviving manuscripts include a letter to a J. Dobson, dated January 1839, asking for a steady stream of works on political economy from Europe, as well as two notebooks recording orders for almost two hundred books on economic issues from France and Britain (Stephen Colwell Papers, 1828-1866, University of Pennsylvania Libraries, Rare Book and Manuscript Library). See also *The Library Chronicle of the Friends of the University of Pennsylvania Library* 18 (1951-1952): 74. I thank John Pollack in the Rare Book and Manuscript Library for introducing me to this remarkable collection which remains only partially catalogued.

¹⁴⁸ Carey, *The Past, the Present, & the Future*, 24.

¹⁴⁹ List, *The National System of Political Economy*, Book II, Chapter 3.

succession yielding a larger return to labour . . . and thus with every increase in the return to their labour the power of combining their exertions is increased.”¹⁵⁰

What Carey depicted here went beyond a process of Smithian growth in which each person, by specializing, worked more adeptly and efficiently. Rather, Carey stressed the interactive effects that occur when some people specialized not in making basic consumer goods, but in making producer goods, that is, tools. In the above scene, it is not the case that a few of the sons go to farming while others go to somehow knocking down trees. Instead, some of the sons make the implements by which the others can do more of everything. The result is a compounding of Smithian productivity gains whereby advances from specialization in tool-making cascade through the entire economy. In turn, as agricultural productivity rises, a higher proportion of the population can specialize in non-agricultural pursuits, creating a virtuous upward cycle.

Carey applied this reasoning to the United States by essentially arguing that more Americans needed to work on the tools of agriculture rather than in agriculture itself. In his model of population growth, “better machinery applied to better soils” brought unalloyed gain to everyone.¹⁵¹ George Marsh similarly argued that expanding the manufacturing sector would forward technological innovation and a more “complete mastery over inanimate nature.” Neatly combining the protectionist arguments for home markets and productivity-raising technological spillovers, Marsh concluded that the “mechanic arts . . . are at once the most profitable customers of the agriculturalist, and the most munificent patrons of the investigator of nature’s laws.”¹⁵² Indeed, both Carey’s and Marsh’s deepest insights, though they appear at first glance distinct, boiled down to the single observation that people could modify the natural order to a very great extent. In *Man and Nature* Marsh showed that not only did the natural environment shape human society, as Enlightenment social philosophers had long recognized, but that human society could itself shape the environment.¹⁵³ Carey’s development theory, with its sophisticated conception of continuing technological transformation, stood in just the same relationship to Ricardian naturalism, which posited a given distribution of factor endowments rigidly determining economic life. Though Marsh was certainly far less optimistic than Carey, both indicated that the trap of diminishing returns could be avoided through rational innovation. That a drive for industrialization and an ethos of conservation should lie so closely together may seem odd, but that is so only from our vantage point.

Carey and Marsh agreed that urban-rural nutrient recycling was essential to continuing economic growth. Innovation alone was not enough—a rational market structure had to obtain as well. Carey made this principle one of the pillars of his protectionism. He argued that agricultural production must remain in close geographic proximity to manufacturing towns so that byproducts could be cheaply returned to the land. Two implications followed. First, staples exports permanently alienated vital soil nutrients by placing them beyond the practical possibility of return. British

¹⁵⁰ Henry Charles Carey, *The Harmony of Interests: Agricultural, Manufacturing & Commercial* (New York: A. M. Kelley, 1967), 86.

¹⁵¹ Carey, *The Past, the Present, & the Future*, 13; Carey, *The Harmony of Interests*, 86.

¹⁵² Marsh, *Address Delivered Before the Agricultural Society of Rutland County, Sept. 30, 1847*, 24.

¹⁵³ Marsh, “The Study of Nature,” 76–77; Marsh, *Man and Nature*, 13–14, 19.

industrial dominance thus calamitously distorted the world market. Second, hasty western expansion dispersed the population over too great an expanse, again making it prohibitively expensive to recycle the byproducts of towns and factories. A protective tariff would resolve both of these problems by encouraging manufacturing and intensive farming in the same immediate vicinity. Carey thus envisioned a decentralized multitude of closely integrated industrial-agricultural zones. Farming's productivity would surely rise in the future, he promised, "but the consumer and the producer will then be near neighbours to each other, and all the manure produced by the land will go back again to the great giver of these supplies."¹⁵⁴

This idea has recently attracted the attention of environmental economic historians.¹⁵⁵ Though Carey may have been the first to spell out the tariff implications, neither he nor Marsh came to their views in isolation. In the United States, Daniel Lee, agricultural editor and head of the Patent Office's Agricultural Division, began warning of the soil depleting effects of commercial agriculture at very nearly the same time as Carey. The farmers of the Midwest, Lee argued, "export a million tons of breadstuffs and provisions where they import one ton of the atoms drawn from their virgin soils, to form agricultural products. Can it be said, in truth, that a million tons of bread and meat are produced from nothing?" Lee repeatedly contended that if such modes of farming appeared profitable, that was only because future nutrient deficiencies were being left out of the account. "No fact in the science of political economy is more important than this," he averred.¹⁵⁶ Though he never made the case for tariff protectionism explicitly, perhaps because of his strong southern sympathies, he hinted at the need for such barriers several times. Thus he alleged that "all the commercial nations of Europe have made war against the soil of North America since its first colonization."¹⁵⁷ As we saw in Chapter 1, the Patent Office Agricultural Reports were issued in massive numbers, giving Lee's warnings a wide circulation. Similar anxieties soon appeared elsewhere in the agricultural press. "Every bushel of corn, bale of cotton, barrel of rosin or other commodity we now send to Europe, and which are consumed there," James Mapes editorialized in the *Working Farmer*, "places just so much of the ultimate constituents of plants in their soil for continued and repeated reproduction, and removes it from ours." Mapes thus remarked with alarm, "We are rapidly parting with our capital, never to return."¹⁵⁸

The ultimate source of this line of thinking may very well have been the German agricultural chemist, Justus von Liebig. As I discuss in more detail in Chapter 3, Liebig became an immensely influential figure in the United States during the 1840s. In one of his most popular texts, published in 1843, he asked pointedly:

Can the art of agriculture be based upon anything but the restitution of a disturbed equilibrium? Can it be imagined that any country, however rich and fertile, with a flourishing commerce, which, for centuries, exports its produce in the shape of grain

¹⁵⁴ Carey, *The Past, the Present, & the Future*, 284–314 (quotation on p. 306).

¹⁵⁵ Perelman, "Henry Carey's Political-Ecological Economics"; John Bellamy Foster, "'Robbing the Earth of Its Capital Stock': An Introduction to George Waring's Agricultural Features of the Census of the United States for 1850," *Organization & Environment* 12 (1999): 293–297.

¹⁵⁶ *Annual Report of the Commissioner of Patents, Agriculture* (1850): 8–9.

¹⁵⁷ *Genesee Farmer* 12 (Jul 1851): 178.

¹⁵⁸ *Working Farmer* 2 (Feb 1851): 271.

and cattle, will maintain its fertility, if the same commerce does not restore in some form of manure, those elements which have been removed from the soil, and which cannot be replaced by the atmosphere? Must not the same fate await every country which has actually befallen the once prolific soil of Virginia, now in many parts no longer able to grow its former staple productions?¹⁵⁹

Such worries, which followed from Liebig's own "mineralist" views of plant nutrition, engaged the attention of many western economic theorists. After studying Liebig intensely during the 1860s, for instance, Marx concluded that capitalist agriculture's "progress in increasing the fertility of the soil for a given time is a progress towards ruining the more long-lasting sources of that fertility."¹⁶⁰ By that time, indeed, fertilizer manufacturers had largely shifted to sourcing their raw materials from nonrenewable mineral deposits.

Of course American agricultural reformers of the 1850s would not condemn capitalism out of hand, but they anticipated a portion of Marx's market critique. It was precisely because agriculture had "made wonderful progress" in the preceding years, Daniel Lee explained, that soil depletion was actually accelerating. "Productiveness of crops and destructiveness of soil are the two most prominent features of American agriculture," he affirmed ruefully.¹⁶¹ Other reformers agreed: "The improvements in farm implements, modes of transit by railroad, river, lake, &c., as well as the increased demand from abroad for our breadstuffs, serve but to open increased facilities, and to call into requisition new agencies for robbing more effectually and speedily the productive elements of the soil."¹⁶² Even the normally optimistic Horace Greeley suddenly found that "the grand improvements recently made or now promised in Agricultural Machinery cast before them a shadow that is absolutely baleful."¹⁶³ In spite of their commercial orientation, then, agricultural reformers could be highly critical of willy-nilly market growth.

Since most reformers were Whigs, they looked to state authority to structure a rational market. The tariff stood out, but reformers highlighted other government means from the federal all the way down to the municipal and district levels. "It is commerce, manufacturers, and the community at large," Lee insisted, "that place the elements of crops beyond the reach of the good husbandman." Thus "the community, through its State and national legislatures," had to address the problem.¹⁶⁴ Mapes, for instance, suggested that corporate charters for railroad and turnpike companies should mandate reduced tolls on fertilizers and he applauded when a few state legislatures adopted the policy.¹⁶⁵ Much more significant, however, was the general call for new institutions of agricultural education and research. These I discuss in detail in subsequent Chapters. Here it is appropriate to note that in supporting Justin Morrill's land-grant college bill, congressional

¹⁵⁹ Justus Liebig, *Familiar Letters on Chemistry and Its Relation to Commerce, Physiology and Agriculture*, ed. John Gardner (New York: D. Appleton & Co., 1843), 116. After Lee (and perhaps Carey) popularized such concerns, Mapes reprinted Liebig's essay in *Working Farmer*, 5 (Apr 1853): 44.

¹⁶⁰ Quoted in Michael Perelman, "Marx, Carey, and Liebig: The Early Environmental Economics of Guano," in *19th Century Roads Less Travelled* (presented at the History of Economics Society Annual Conference, Toronto, 2008), 14.

¹⁶¹ *Annual Report of the Commissioner of Patents, Agriculture* (1853): 3–4.

¹⁶² *Cincinnatus* 1 (Jan 1856): 10.

¹⁶³ *Ibid.* 3 (Nov 1858): 488.

¹⁶⁴ *Annual Report of the Commissioner of Patents, Agriculture* (1853): 8.

¹⁶⁵ *Working Farmer* 1 (Apr 1849): 31; 2 (Apr 1850): 25; 11 (Jul 1859): 164.

Republicans argued for “a judicious system of measures by the government to restore the fertility of the old States and preserve that of the new,” noting that the threat of soil depletion was “patent to every one paying the slightest attention to the subject.”¹⁶⁶ Southern Democrats vehemently opposed such federal efforts as a violation of the Constitution and a threat to property rights (Chapter 5). Thus Lee, whose southern sympathies led him to Georgia and slave ownership in the mid-1850s, was denounced for his “Yankee notions” when he continued to support the Morrill bill by asserting that certain “common rights enjoyed by all” could trump the principle of private property.¹⁶⁷

Southerners’ criticism notwithstanding, Lee hammered away at the need for more detailed federal agricultural statistics as a basis for sound policy making. Clearly inspired by these calls, a young agricultural reformer named George E. Waring, Jr. tried to quantify the annual national loss of essential plant nutrients in an 1856 paper before the American Geographical and Statistical Society. Waring was then an assistant editor for Mapes’s *Working Farmer* and, around the same time, worked as a farm manager for both Horace Greeley and Frederick Law Olmstead.¹⁶⁸ Proceeding through a series of calculations on the Census of 1850, he estimated the total annual loss at no less than equivalent of 1.5 billion bushels of corn. “To suppose that this state of things can continue, and we as a nation remain prosperous, is simply ridiculous,” he concluded.¹⁶⁹ Thus Waring, like Lee, Mapes and others, stressed the need to devise better methods for collecting, sanitizing, and transporting the massive quantities of byproducts wasted in cities each year. As the *Genesee Farmer* put it, “a general reform both in town and country must take place, before agriculture can rest on a safe, or an improved system.”¹⁷⁰ After the Civil War, Waring would take practical steps in this direction as a leading urban sanitation engineer. In the meantime, his report found its way to Henry Carey, who quoted it in a series of articles on the need for resuming protectionism in the wake of the Panic of 1857, as well as in his magnum opus, *The Principles of Social Science* (3 vols., 1858-1860). To complete the circle, Liebig subsequently quoted Carey in support of his own earlier views.¹⁷¹

The effort to institute viable urban-rural recycling systems was in fact a thoroughly transatlantic phenomenon. Throughout the nineteenth century public health officials and agricultural reformers in London, Paris and elsewhere discussed the desirability of building municipal sewage systems that would both improve urban sanitation and provide rural districts with inexpensive

¹⁶⁶ “Land for Agricultural Colleges, &c., to Accompany Bill H. R. No. 2, April 15, 1858, 35th Cong., 1st Sess., House Report No. 261, p. 12.

¹⁶⁷ *Annual Report of the Commissioner of Patents, Agriculture* (1853): 8; George F. Lemmer, “Early Agricultural Editors and Their Farm Philosophies,” *Agricultural History* 31, no. 4 (October 1957): 16; E. Merton Coulter, *Daniel Lee, Agriculturist: His Life North and South* (Athens, GA: University of Georgia Press, 1972), 109, 111.

¹⁶⁸ On Waring, especially his work as an urban sanitation engineer, see Albert Shaw, *Life of Col. Geo. E. Waring, Jr.: The Great Apostle of Cleanliness* (New York: Patriotic League, 1899); Richard Skolnick, “George E. Waring, Jr.: A Model for Reformers,” *New-York Historical Society Quarterly* 47 (July 1963): 257–287; Martin Melosi, *Pragmatic Environmentalist, Sanitary Engineer George E. Waring, Jr.* (Washington: Public Works Historical Society, 1977); Martin V Melosi, *Garbage in the Cities: Refuse, Reform, and the Environment: 1880-1980* (College Station, TX: Texas A&M University Press, 1981), 51–78; Stanley K. Schultz and Clay McShane, “To Engineer the Metropolis: Sewers, Sanitation, and City Planning in Late-Nineteenth-Century America,” *The Journal of American History* 65, no. 2 (September 1978): 389–411.

¹⁶⁹ Waring, “Agricultural Features of the Census of the United States for 1850,” 306.

¹⁷⁰ *Genesee Farmer* 7 (Apr 1855): 43. This quotation sounds like Daniel Lee, but Lee left his post as editor of the *Genesee Farmer* in 1854.

¹⁷¹ Foster, “‘Robbing the Earth of Its Capital Stock,’” 293–294.

fertilizers.¹⁷² Sometime around 1850, for instance, a French sanitary engineer named Augustus Peysson arrived in Philadelphia with a plan to erect “an establishment for the transmutation of feculent matter into inoderous and chemical manure.” Peysson promised that his method preserved more nitrogen (“azote”) than did poudrette and therefore yielded a much superior product. He also noted that “the union of an abattoir, or slaughter house, to the manufacture of chemical manure” would further serve the twin goals of urban public health and rural soil fertility.¹⁷³ A few years later the “Street Sweeping & Fertilizing Company of Philadelphia” and a similar New York firm presented still another avenue for shifting city refuse onto farmers’ fields.¹⁷⁴

By rendering city wastes into profitable fertilizers, these ventures promised to solve two of the most worrisome problems of nineteenth-century economic growth: the maintenance of rural soil fertility and of urban health. To put it another way, they tried to address two major industrial externalities by internalizing them to the market. Although such efforts continued throughout the nineteenth century and, indeed, persist today, environmental reformers still struggle with the problem of finding cost effective sewage treatments that will yield sanitary, transportable fertilizers.¹⁷⁵ But in the 1850s the practical challenges appeared manageable.¹⁷⁶ Perhaps they would have been overcome had it not been for the speedy entrance of easily exploited nonrenewable raw materials. In the antebellum period, however, the recycling mentality still reigned.

As Emily Pawley has shown, the agricultural reform movement was shot through with the discourse of financial accounting.¹⁷⁷ Reformers envisioned a circulation of physical matter comparable to the round of self-balancing market transactions, a series of chemical conversions coordinated by a parallel series of commercial transactions. The person who theorized this homology most clearly was Erasmus Peshine Smith, an upstate New York lawyer with close ties to William Henry Seward, perhaps the leading exponent of progressive Whig economic policy. A disciple of Carey, Smith went much farther than Carey in grounding an anti-classical political economy in the most up-to-date science of the day. Indeed, he attempted what can only be described as a project of visionary ambition: “to construct a skeleton of Political Economy upon the basis of purely physical laws, and thus to obtain for its conclusions that absolute certainty which belongs to the positive sciences.”¹⁷⁸ Though largely forgotten today, Smith’s only major work, *A Manual of Political Economy* (1853), was translated into French, German and Japanese and went through several American editions in the second half of the nineteenth century. Just as important, of

¹⁷² Tarr, “From City to Farm,” 598–600. As early as 1826 the *American Farmer* reprinted a letter from the Philadelphia Board of Health to the Pennsylvania Society for the Promotion of Agriculture calling on it to investigate the use and production of poudrette as a way to dispose of city wastes (7 [3 Feb 1826]: 362). For transatlantic connections in agricultural reform more generally, see Pawley, “The Balance-Sheet of Nature,” 7 and throughout.

¹⁷³ A. Peysson, *Public Health and Agriculture* (Philadelphia: J.H. Jones, 1851), 4, 10; *Germantown Telegraph* 5 Mar 1851, 4; *Pennsylvania Farm Journal*, 1 (Jun 1851): 91.

¹⁷⁴ *The Street Sweeping & Fertilizing Co. of Philadelphia: Incorporated by the State of Pennsylvania. Its Objects, Facilities and Prospects of Operation in the City of Philadelphia, and Other Cities and Towns of the United States. Charter Perpetual* (Philadelphia: King & Baird, 1857); *Philadelphia Press* 19 Sep 1857, 3; 9 Oct 1857, 2.

¹⁷⁵ Wines, *Fertilizer in America*; Tarr, “From City to Farm.” I also thank Lana Skrtic, formerly Waste Prevention Specialist at RecycleMore (West Contra Costa Integrated Waste Management Authority) for discussing these matters with me.

¹⁷⁶ But see *Farm Journal and Progressive Farmer* 6 (Jan 1856): 16-19, for the view that the problem would defy solution.

¹⁷⁷ Pawley, “Accounting with the Fields.”

¹⁷⁸ E. Peshine Smith, *A Manual of Political Economy* (New York: George P. Putnam & Co., 1853), iii.

course, was his direct influence on Seward, whom he served in several capacities, and Carey, whose writings of the late 1850s borrowed heavily from his ideas.¹⁷⁹

Smith was acting Professor of Mathematics and Natural Science at the University of Rochester when he wrote the *Manual*. In this position he was able to study and apply the latest developments in western scientific theory to his economic treatise. Only after Chapters on “matter and force,” “the formation of soils,” and the “co-operation of the natural agents with human labour,” did the *Manual* get to such traditional topics in political economy as rent, wages, and profit. For Smith, as for Malthus, Ricardo, and Carey, food production was “at the basis of Political Economy.”¹⁸⁰ In this regard he drew heavily on Liebig and other agricultural chemists, citing, for example, the reports of the New York State Agricultural Society and the Patent Office. But Smith situated the principles of agricultural production within the much larger framework of the very recently enunciated First Law of Thermodynamics—what we now call the “conservation of energy”—which he learned not only from Liebig but from the physicists James Joule and Alessandro Volta, who were trying to understand such technological phenomena as how a steam engine converts heat into mechanical motion or how a chemical reaction generates an electric current.¹⁸¹

As historians of science have argued, the principle of energy conservation was approached by numerous scientists working in disparate fields during the 1840s.¹⁸² As a result, perhaps, it was initially expressed quite fuzzily in terms of the inter-convertibility of “forces,” a word of great semantic breadth but little scientific precision. Smith applied that protean term to an economic analysis of production under the heading, “The Law of Endless Circulation of Matter and Force.” The key point in Smith’s formulation was that, as one force became another, it necessarily acted on and altered the physical makeup of some material substance. If the substance was thus “consumed,” it was not destroyed, but rather changed into a new form appropriate for some other process of conversion. The essence of technological progress, then, was the conscious manipulation, extension, and interlinking of these conversion processes. Smith illustrated the principle with a detailed explication of the nutrient cycle from earth to plant to animal and back again. “By watching this chain,” he quoted the Yale agricultural chemist John Pitkin Norton, “we may hope to grow constantly wiser in every department of agriculture.” Smith therefore argued that the errors of Malthus and Ricardo flowed from their misperception “that man’s consumption of food is its

¹⁷⁹ Michael Hudson, “E. Peshine Smith a Study in Protectionist Growth Theory and American Socialism” (New York University, 1968), 22–34; Michael Hudson, *Economics and Technology in 19th Century American Thought*, The Neglected American Economists (New York: Garland Pub., 1975), 212–227; Frederick W. Seward, *Reminiscences of a War-Time Statesman and Diplomat, 1830-1915* (New York and London: G. P. Putnam’s Sons, 1916), 85, 91–92; John Henry Hobart Peshine, *The Peshine Family in Europe and in America* (Santa Barbara, CA: Frank Morley, 1916), 80–81.

¹⁸⁰ Smith, *Manual of Political Economy*, 23.

¹⁸¹ Bruce J. Hunt, *Pursuing Power and Light: Technology and Physics from James Watt to Albert Einstein* (Baltimore: Johns Hopkins University Press, 2010); for references to various agricultural chemists, see Smith, *Manual of Political Economy*, 26, 33, 36, 37, 41–42 (ff), 46, 51; for references to Volta’s work, *Manual*, 24–25; for a clear familiarity with Joule, see Smith to Henry Carey, 28 Dec 1854, Henry Charles Carey Papers, Edward Carey Gardiner Collection, Historical Society of Pennsylvania (hereafter, HSP).

¹⁸² The discussion in this paragraph draws on Hunt, *Pursuing Power and Light*, chap. 1–3; Ronald E. Martin, *American Literature and the Universe of Force* (Durham, N.C: Duke University Press, 1981), chap. 1–3; Anson Rabinbach, *The Human Motor: Energy, Fatigue, and the Origins of Modernity* (New York: Basic Books, 1990), chap. 2.

destruction” when, in fact, “in the natural course of things it is returned to the earth, to be again formed into food.” Following Carey, he concluded that it could be no part of the natural order “that the agriculturist of any nation should be ‘an exporting interest.’”¹⁸³

Breathtakingly naïve, Smith was also unquestionably brilliant. But he regarded Carey as having made the significant breakthrough. “Your Past Present & Future came to me as welcome as a torch to a man groping in darkness,” he wrote Carey in 1850. “I cannot but think, that there must be many men in my situation, who will feel under the same obligation to you that I do, and who must exercise, as an educated class, no slight influence upon public opinion and action.”¹⁸⁴ Carey’s appeal was indeed powerful in the mid-nineteenth century and his influence proved enormous. John Stuart Skinner, founder of what is generally regarded as the first American agricultural journal, was so completely converted to Carey’s point of view in the winter of 1847-1848 that he established a new periodical, *The Plough, the Loom, and the Anvil*, devoted largely to publicizing Careyite ideas (see Figure 2.2).¹⁸⁵ Horace Greeley provided Carey with open access to the pages of the *Tribune* throughout the 1850s and published important review essays by Smith.¹⁸⁶ Carey’s major works also appeared in multiple European editions and were particularly influential in Germany.¹⁸⁷ Karl Marx, who derisively exposed Carey’s many weaknesses, nevertheless paid him the complement of calling him “the only original economist among the North Americans.”¹⁸⁸

In Carey’s home state of Pennsylvania, which his protectionism was well calculated to serve, political pundits of all party stripes conveyed his ideas to the public. The conservative Democrat Jeremiah S. Black and the vehemently anti-Jacksonian Sidney George Fisher each parroted Carey’s distinctive settlement theory in several agricultural fair addresses during the 1850s.¹⁸⁹ Besides such casual popularizers, Carey gathered a circle of influential adherents that, in addition to Smith, included Stephen Colwell, an ironmaster, Christian political economist and future Republican

¹⁸³ Smith, *Manual of Political Economy*, 22–37 (quotations on pp. 22, 33, 35, 36).

¹⁸⁴ Smith to Carey, 14 Apr 1850, Henry Charles Carey Papers, HSP.

¹⁸⁵ George Winston Smith, *Henry C. Carey and American Sectional Conflict* (Albuquerque: University of New Mexico Press, 1951), 31–33. According to Smith, Carey met Skinner in 1848, but the two must have met at least a short while beforehand, because Skinner quotes Carey’s *The Past, the Present, and the Future*, with great admiration, in the December 1847 issues of his *Monthly Journal of Agriculture* (292). *The Plough, the Loom, and the Anvil* appeared starting in 1848 and serialized the sequence of essays that Carey would later publish as *The Harmony of Interests* (1851).

¹⁸⁶ Michael Perelman, *Marx’s Crisis Theory: Scarcity, Labor, and Finance* (New York: Praeger, 1987), chap. 2; Smith, *Henry C. Carey and American Sectional Conflict*, 36–37. According to Smith, Carey’s relationship with Greeley cooled after the *Tribune* failed to fight the Tariff of 1857 as vigorously as Carey thought it should, but in late 1858 Greeley was still making distinctively Careyite arguments in the Ohio agricultural journal, *Cincinnatus* 3 (Nov 1858): 488. For the text of Smith’s review essays in the *Tribune*, which appeared on 5 and 12 Apr 1856, see Hudson, “E. Peshine Smith,” 233–247.

¹⁸⁷ Gordon Alexander Craig, *Germany, 1866-1945*, Oxford History of Modern Europe (New York: Oxford University Press, 1978), 87; Ivo N. Lambi, “The Protectionist Interests of the German Iron and Steel Industry, 1873-1879,” *Journal of Economic History* 22, no. 1 (March 1962): 59–70. See also [Hermann] Grothe to Carey, 26 May 1878, Box 13; [Count] Kardoff-Wabnitz to Carey, 15 May 1876, Box 19; [Dr. Friedrich] Stöpel to Carey, 4 Mar 1870 and 12 Feb 1876, Box 18, Henry Charles Carey Papers, HSP.

¹⁸⁸ Karl Marx and Frederick Engels, “Bastiat and Carey,” in *Karl Marx, Frederick Engels: Collected Works*, trans. Ernst Wangermann (New York: International Publishers, 1975), 6.

¹⁸⁹ “Extracts from an Address Delivered by the Hon. Jeremiah S. Black, before the Somerset County Agricultural Society,” *Pennsylvania Farm Journal* 5 (Jan 1855): 21–22; Sidney George Fisher, *Address Delivered Before the Montgomery County Agricultural Society at Their Annual Exhibition Held at Springtown, October 7th, 1859* (Philadelphia: James B. Chandler, 1859), 6–18; Sidney George Fisher, *An Address Delivered Before the Agricultural Society of New Castle County, Delaware, at the Annual Exhibition, Held at the Society’s Farm, Near Wilmington, October 17, 1860* (Philadelphia: C. Sherman & Son, 1860), 9–16.

Commissioner of the Revenue;¹⁹⁰ William “Pig Iron” Kelley, a Democrat turned Republican congressional spokesmen towards labor;¹⁹¹ William Elder, an abolitionist and author who served in the Civil War Treasury Department;¹⁹² Joseph Wharton, an industrialist and founder of the Wharton Business School;¹⁹³ and Thomas Haines Dudley, an influential New Jersey Whig and Republican who helped thwart Confederate military procurements in Britain.¹⁹⁴ Beyond this inner circle were still more regional politicians, journalists and businessmen with whom Carey kept in constant contact. Finally, such leading national Republicans as Justin Morrill, John Sherman and Salmon Chase conferred closely with Carey in drafting early Republican tariff legislation.¹⁹⁵

Carey’s influence thus extended throughout the North. Even Ralph Waldo Emerson was taken with his ideas. In an 1858 talk before the Middlesex Agricultural Society in Concord, he preached:

There has been a nightmare brought up in England, under the indigestion of the late suppers of overgrown landlords and loomlords, that men bred too fast for the powers of the soil . . . The theory is that the best land is cultivated first. This is not so, as Henry Carey, of Philadelphia, has shown, for the poorest land is the first cultivated, and the last lands are the best lands. It needs science to cultivate the best lands in the best manner. Every day a new plant, a new food is found. Thus political economy is not mean, but liberal, and on the pattern of the sun and sky; it is coincident with love and hope.¹⁹⁶

Emerson’s rosy account suggests one reason why Carey’s theory proved so appealing. Paraphrasing Carey that “the earth . . . is a machine which yields new service to every application of intellect,” he expressed a sentiment that must have resonated with middle-class farmers committed, as we have seen, to natural-science education and scientific agriculture. The message reverberated throughout the reform movement. “Who can predict the amount of our agricultural products, when genius shall have improved as highly as possible the implements of husbandry, and when science shall have

¹⁹⁰ Henry C. Carey, *A Memoir of Stephen Colwell: Read Before the American Philosophical Society, Friday, November 17, 1871* (Philadelphia: Collins printer, 1871); Stewart Davenport, *Friends of the Unrighteous Mammon: Northern Christians and Market Capitalism, 1815-1860* (Chicago: University of Chicago Press, 2008), chap. 8.

¹⁹¹ Wallace, *St. Clair*, 197.

¹⁹² William Elder, “Henry C. Carey,” *Sartain’s Union Magazine of Literature and Art* 10 (June 1856): 7–12; William Elder, *A Memoir of Henry C. Carey: Read Before the Historical Society of Pennsylvania, Philadelphia, January 5, 1880* (H.C. Baird & Co., 1880).

¹⁹³ Steven A. Sass and Barbara Copperman, “Joseph Wharton’s Argument for Protection.”

¹⁹⁴ See the correspondence between Dudley and Carey in the Thomas Haines Dudley Collection, Huntington Library, San Marino, California, as well as in the Henry Charles Carey Papers, HSP; John William Potts, *Biographical Sketch of the Late Hon. Thomas H. Dudley* (Philadelphia: MacCalla & Company, Inc., 1895).

¹⁹⁵ Lee, “Henry C. Carey and the Republican Tariff”; Phillip W. Magness, “Morrill and the Missing Industries: Strategic Lobbying Behavior and the Tariff, 1858–1861,” *Journal of the Early Republic* 29, no. 2 (2009): 287–329.

¹⁹⁶ Charles Flint, ed., *Abstract of Returns of the Agricultural Societies of Massachusetts, 1858* (Boston: William White, 1859), 17–18; Thomas D. Birch, “Toward a Better Order: The Economic Thought of Ralph Waldo Emerson,” *The New England Quarterly* 68, no. 3 (1995): 394–400; Kenneth Cameron, “Emerson’s Second Merlin Song and H. C. Carey,” *Emerson Society Quarterly* 13 (1958): 65–83. Emerson’s essays “Wealth” and “Considerations by the Way” in *The Conduct of Life* (1860) show clear evidence of the influence of Carey and, through his *Principles of Social Science*, of E. Peshine Smith. The latter essay, for example, includes a couplet in its epigraph that appears to summarize Carey’s reversal of the Ricardian theory of settlement: “Say not, the chiefs who first arrive/Usurp the seats for which all strive.”

applied to the arts of cultivation the rich fertilizers that now lie in their native beds!” And again: “For so good is God, and so wisely has he made the world, that while it may lie, as it doubtless hath lain for ages, useless and unproductive without decay, it is capable also of supplying the wants of any amount of animal life that can by any possibility come upon its surface, without exhaustion.”¹⁹⁷

If Carey’s optimism proved critical, so did the seeming correspondence of his historical observations to Americans’ lived experience. “The proposition proclaimed by Carey in opposition to the long-received theories of Ricardo and Malthus, and recently sustained by Mr. Smith in his *Manual of Political Economy*, that the inferior lands are first occupied by pioneers, is a fact that strikes one throughout the whole West,” wrote a correspondent for *Hunt’s Merchant Magazine*.¹⁹⁸ Carey and Smith always contended that their conclusions flowed inductively from empirical investigation in contrast to the deductive, *a priori* method practiced by Ricardo and defended by John Stuart Mill. As Michael Hudson points out, classical economics began from an equilibrium model, which presumably had its roots in rational moral philosophy.¹⁹⁹ But for many antebellum Americans undergoing structural change, development was surely a more meaningful concept than equilibrium. The landscape itself registered *disequilibrium* unmistakably. To take one pertinent example, the hillsides of George Marsh’s Vermont hometown exhibited, according to Marsh’s biographer, “no static panorama but one in ceaseless flux, rapidly being transformed.”²⁰⁰ If Marsh refused to celebrate such “improvement” unreservedly, he was even less inclined toward Thoreau’s wilderness fetish.²⁰¹ Carey meanwhile gave hopeful voice to the experience of change. His economic theory proved so influential because it generalized from a developmental context readily accessible to most Americans. According to Smith, it was a theory for those “who have been in the world.”²⁰² In Marx’s view, it was simply “Yankee universalism.”²⁰³

Carey thus helped to work out, as did Smith, Marsh, Greeley, Seward, Waring, and Mapes, a fusion of scientific, reformist, and nationalist strands into an apparently coherent vision: the Republican developmental synthesis. It was developmental because it incorporated a principle of historical progress based on economic growth, technological mastery over nature, and national destiny. It was synthetic because it presented an integrated picture of the national economy that expanded on the longstanding home market argument to portray agriculture and industry as enjoying a reciprocal, mutually beneficial relationship. This is important because, although historians are aware that protectionists consciously appealed to farmers, they tend to focus almost exclusively on how protectionists appealed to workers. Eric Foner, for instance, discusses Carey’s argument for “the harmony of interests” as if it were a statement entirely about what *we* think of as classes—workers and factory owners—instead of about what we think of as *sectors* but antebellum Americans

¹⁹⁷ *Journal of the United States Agricultural Society* 2 (1854): 15; *Report of the Managers of the Agricultural Society of Lehigh County: Third Annual Meeting, October 10, 1854* (Allentown, PA: Haines & Diefenderfer, 1854), 19.

¹⁹⁸ *Hunt’s Merchant Magazine* 30 (1 Mar 1854): 322.

¹⁹⁹ Michael Hudson, “The Use and Abuse of Mathematical Economics,” *Real-World Economics Review*, no. 55 (December 17, 2010): 2–22.

²⁰⁰ Lowenthal, *George Perkins Marsh*, 4.

²⁰¹ Marsh’s perspective conformed much more closely to what Benjamin Cohen calls “georgic science” than to Thoreau’s pastoral idealism (*Notes from the Gourd*, chap. 1).

²⁰² Erasmus Peshine Smith to Henry Carey, 2 October 1850, Box 18, Carey Papers, HSP.

²⁰³ Marx and Engels, “Bastiat and Carey,” 10.

also included in the language of class—agriculture and manufacturing.²⁰⁴ In fact the home market argument, the bedrock of protectionist doctrine just as much as the “pauper” labor argument, offered nothing to workers. Yet Republican ideologues invested much effort and resources in publicizing the home market argument and in extending its appeal in the 1840s and 1850s by stressing the technology spillovers that manufacturing promised for modern agriculture. As William Seward told a knowing audience at the 1852 Vermont state fair: “And so you are well aware that a constant and uniform relation must always be maintained between the state of agriculture (and, indeed, of society itself) and the contemporaneous state of invention in the arts.”²⁰⁵ For the middle-class farmers who had come to populate the northeastern countryside, this was a potent message.

Speaking at an agricultural fair, Seward helped articulate the Republican developmental synthesis as verbal theory. Yet the fair itself also exhibited the synthesis as visual theater. At a very practical level, agricultural fairs—and the agricultural reform movement in general—provided an important institutional means for promoting the sale of a wide variety of industrial goods, especially “improved” agricultural implements and machinery. “How many manufacturers would be forever without a market were it not for our fairs?” asked James Mapes.²⁰⁶ But reformers also explicitly highlighted the ideological didacticism implicit in the fair’s side-by-side arrangement of goods. Arraying the products of farm and factory within an enclosed space, fairs facilitated comprehension of a single, interdependent economic system. The vignette that opened Chapter 1 depicts how the 1849 New York state fair at Syracuse instantiated such a dramatization of the national economy. That type of exhibition, argued an early fair chronicler, “focalized the industry of the country, by bringing it under view as one spectacle, thus enabling all to know, from time to time, the exact state of it.”²⁰⁷ Similarly, the *American Agriculturist* praised fairs for their “nice adjustment and harmonious grouping of the varied productions of the husbandmen, the artisan, the manufacturer, and the artist.”²⁰⁸ Or, as one president of a county agricultural society expressed it, fairs presented “a prominent theatre for the display of American ingenuity.”²⁰⁹ Addressing the New York state exhibition when it returned to Syracuse in 1858, Joseph Williams of the Michigan Agricultural College dwelled romantically on the several displays before drawing the inevitable nationalist moral: “When we look abroad upon the magnificent spectacle these grounds present to-day, we are not surprised that your great annual festival has become national in its character and its attractions, for it speaks trumpet tongued of a nation’s present capacities and future grandeur.”²¹⁰ Just in case the

²⁰⁴ Foner, *Free Soil, Free Labor, Free Men*, 19–21; for a similar view, see James L. Huston, “A Political Response to Industrialism: The Republican Embrace of Protectionist Labor Doctrines,” *The Journal of American History* 70, no. 1 (June 1983): 35–57. In *The Political Economy of American Industrialization, 1877-1900* (Cambridge: Cambridge University Press, 2000), Richard Bense also discusses tariff rhetoric (as opposed to actual tariff rates on, for instance, wool), as primarily aimed at securing labor’s vote, though this emphasis is far more justifiable for the late nineteenth century.

²⁰⁵ Seward, *The Works of William H. Seward*, 3:178.

²⁰⁶ James Jay Mapes, *Address, Delivered at the Opening of the 18th Annual Fair of the American Institute, at Niblo’s Garden, Tuesday, Oct. 7, 1845* (New York: James Van Norden & Co., 1845), 7.

²⁰⁷ Charles P. Daly, “Anniversary Address Before the American Institute, ‘on the Origin and History of Institutions for the Promotion of the Useful Arts,’ Delivered at the Hall of the New York Historical Society, on the 11th of November, 1863,” in *Report of the American Institute of the City of New York for the Years 1863, ‘64* (Albany, NY: Comstock & Cassidy, 1864), 59.

²⁰⁸ *American Agriculturist* 1 (Aug 1842): 129–130.

²⁰⁹ *Transactions of the New York State Agricultural Society* 9 (1850): 464.

²¹⁰ *Ibid.* 18 (1858): 32–33.

audience somehow failed to grasp the point, George Geddes followed by thanking Williams “for giving us the lessons that must be drawn from placing side by side, for comparison, the finest specimens of all the varieties of domestic animals and of the products of the garden and field, as well as for this magnificent display of the implements which we see before us.”²¹¹ In the context of massively attended fairs, these were powerful statements for the centrality and progressivity of the domestic economy (Figure 2.3).

From our perspective there are two basic problems with the Republican developmental synthesis as given by the likes of Carey and the spokesman for agricultural reform. The first was that its optimistic embrace of “force” conservation took no notice of what scientists would soon term entropy, the principle that any conversion of energy into useful work can never attain perfect efficiency. There was no room in Smith’s “law of endless circulation” for the heat loss and energy dissipation that, in practice, render an economical urban-rural nutrient recycling system so difficult to achieve.²¹² Relying as we do today on nonrenewable resources, we are, in George Waring’s words, “robbing the earth of its capital stock” as effectively as ever.²¹³ Indeed, the irony of Carey’s technologism is that precisely as he was enunciating the principle of tariff-protected local nutrient recycling, advances in agricultural chemistry were on the verge of rendering the point irrelevant. Early soil amendments had indeed been too bulky to travel far, but guano demonstrated that a concentrated fertilizer could be shipped great distances. Even as Carey wrote, the British superphosphates firm of John Bennet Lawes was proving that humans could artificially manufacture such substances on a large scale by exploiting nonrenewable mineral resources.

Second, Carey, Smith and other Republicans gave a rather complacent treatment to property rights and political institutions. Assuming that a demonstration of increasing returns to “labor” proved that wages naturally rose not only in absolute terms but relative to society’s overall wealth, they failed to register that gains in labor productivity from machinery might accrue not to workers, but to the owners of the machines. They thus misconstrued (or intentionally obscured) many actual distributional consequences of industrialization.²¹⁴ The Republicans’ confusion was in part a function of the semantic elasticity of the term “labor” in a producerist society where workers and factory

²¹¹ Ibid., 59.

²¹² Smith’s and Carey’s views were actually a little more complicated. Both always argued that producers and consumers should be located near each other in order to save transportation costs. In Carey’s ever-present machine metaphor, shippers and other intermediaries represented parts to be optimized as far as possible. We might construe this as a partial recognition that the endemic inefficiencies stemming from transaction costs are analogous to heat loss. In any urban-rural system, the cycling of materials will gradually lead to the buildup of entropy. Getting rid of this problem, in Carey’s model, would require pushing the two sectors closer and closer together until there was no intermediation at all. Carey, of course, never suggested anything like this, but rather seemed to assume an ideal geographic extent of urban-rural exchange that sometimes seemed suspiciously coterminous with the Philadelphia hinterland.

²¹³ Foster, “Robbing the Earth of Its Capital Stock.”

²¹⁴ Actually, Carey’s friend Stephen Colwell, though more conservative in some ways, may have had a better grasp of these issues. Colwell envisioned a “paternal” government of responsible elites that actively sought to structure a just social order on the basis of Christian love. The best way to do this, he contended, was through a kind of proto-Fordist policy that ensured that workers earned enough to “consume freely and largely.” Stephen Colwell, *The Claims of Labor, and Their Precedence to the Claims of Free Trade* (Philadelphia: C. Sherman & Son, 1861), 26, 51.

owners remained relatively undifferentiated.²¹⁵ It was also a function of the apotheosis of education in both free labor ideology and the developmental synthesis. As Smith asserted far too optimistically, “man’s office in the world is that of engineer.”²¹⁶

In this regard, the negative example of slavery helped relegate to the background socialist critiques of free labor and industrial growth. Smith regarded “man . . . as the lord, not the slave of Nature.” For Marsh, too, “man” was “the rightful lord, and Nature the lawful, though unwilling slave.”²¹⁷ And then there was Emerson: “New slaves fulfilled the poet’s dream/Galvanic wire, strong-shouldered steam.”²¹⁸ For each of these antislavery northerners, the invocation of the word “slave” in such epigrammatic phrases could not have been accidental. Republicans’ combination of nationalism, technologism and antislavery thus suggested that, in the exceptionalist American version of industrial society, it would be, as Michael Hudson puts it, “nature and not labor that was exploited.”²¹⁹

Of course slavery was much more than just a rhetorical foil. It was also a controlling economic interest that extended far beyond the master’s doorstep. Though not everything in antebellum America came down to slavery, virtually nothing escaped its penumbra. In the three chapters that comprise Part II, I show how the northern agricultural reform movement, despite its general silence on the subject, nevertheless came by gradual steps to confront the prerogatives of the Slave Power.

²¹⁵ Sean Wilentz, *Chants Democratic: New York City & the Rise of the American Working Class, 1788-1850* (New York: Oxford University Press, 1984); David Montgomery, *Beyond Equality: Labor and the Radical Republicans, 1862-1872* (New York: Knopf, 1967); Beckert, *The Monied Metropolis*.

²¹⁶ Smith, *Manual of Political Economy*, 74.

²¹⁷ *Ibid.*, 17; Marsh, “The Study of Nature,” 75.

²¹⁸ Epitaph to “Wealth” in *The Conduct of Life*, www.rwe.org.

²¹⁹ Hudson, “E. Peshine Smith,” 134.

CHAPTER 3

A CRISIS OF AGRICULTURAL EXPERTISE

SCIENCE, TECHNOLOGY AND INSTITUTIONAL AUTHORITY DURING THE 1850S

Sometime in 1856 Professor James Jay Mapes, a well known figure among American agricultural reformers, began to expound a peculiar new theory he called the “progression of primaries.” By “primary” Mapes meant a chemical element, and the ones he had particularly in mind were the dozen or so then known to be essential to plant life. The novelty of Mapes’s theory came from its contention that the primaries could take on different forms and “functions.” Undetectable by contemporary scientific investigation, these differences nevertheless proved decisive for plant growth. Mapes further theorized that the variations succeeded one another in a progressive sequence. The lowest forms of plant life, such as lichens and mosses, took up the primaries as mere disintegrated rocks and assimilated them in the process of growth. This very growth process somehow altered the primaries, transforming them into the proper nutrients for the next, higher order of being. Any given element thus climbed up a ladder of life forms that culminated in humans, converted at each stage into a food suitable for more advanced life. As Mapes put it, “every substance in nature is *progressed* each time it enters into organic life, and is again rendered up for reappropriations to new growths.”¹ Mapes said nothing, however, about how such transformations occurred. Indeed, he claimed that the mechanics of the process were beyond the scrutiny of contemporary chemistry. Instead he seemed to rest his case on the blanket assertion that “God’s eternal law is progression.”²

The theory, frankly, sounds absurd today. Even in Mapes’s own time it faced its share of scorn. The *Genesee Farmer*, for example, dismissed outright the “new and strange doctrine” as “unworthy of serious consideration,” while Samuel W. Johnson, the leading figure of American agricultural science in the third quarter of the nineteenth century, regarded its basic premise as “simply ridiculous.”³ But Mapes enjoyed significant support. The hold of his views proved particularly tenacious among American fruit growers, who were frequently gentlemen of means.⁴ In an admiring obituary of 1866, the *Horticulturalist* termed Mapes’s progression hypothesis “the most striking” of his “many important theories and discoveries.” Two years later Thomas Meechan, editor of the *Gardener’s Monthly and Horticultural Advertiser*, discussed the theory at a meeting of an agricultural society. As late as 1886 a paper in the official report of the Minnesota Horticultural Society presented the concept as unproblematically true, the writer commenting incidentally that

¹ *Working Farmer* 9 (1857): 113 (emphasis in original); Mapes elaborated his theory in many articles and comments in the *Working Farmer* from late 1856 on; fairly full statements of the theory can also be found in *Transactions of the American Institute of the City of New York*, (1856): 328-336; see also the entry for “Agriculture” in *The American Annual Cyclopaedia and Register of Important Events of the Year 1861* (New York: D. Appleton & Company, 1864), 2-9.

² *Working Farmer* 11 (1859): 1-2.

³ *Genesee Farmer* 21 (1860): 170-171; see 20 (1859): 169-170 for similar; Johnson quotation in *Transactions of the Connecticut State Agricultural Society* (1859): 47.

⁴ See, for instance, Tamara Plakins Thornton, *Cultivating Gentlemen: The Meaning of Country Life Among the Boston Elite, 1785-1860* (New Haven: Yale University Press, 1989).

Mapes's "horticultural writings are above all price."⁵ Mapes's ideas also managed to span the Atlantic. In 1871 the *English Mechanic and World of Science* noted a recent article in the *Journal of Applied Chemistry* "supporting at great length" the progression hypothesis. And the theory seemed to take on a life of its own, popping up in unexpected places. In 1859 Isaac Coddington of the American Pharmaceutical Association suggested that it might explain the differential effects of certain medicines and proposed further investigation. Several years later another writer on health issues, this one with a more spiritual bent, discussed the "progression of primaries," though without attribution to Mapes.⁶

Evidently, then, the theory had considerable appeal. Pursuing the story of why this should have been so reveals much more than just the fate of a quixotic scientific speculation. Understanding Mapes's views and their reception reveals a fundamental dilemma at the heart of American agricultural reform in the 1850s. But the episode's significance goes deeper, for it exemplifies general problems that arise when scientific expertise and novel technologies enter into an unstructured commercial market. Furthermore, it indicates that Americans sought government-based solutions for such problems long before the better known state expansion of the Progressive Era. Mapes thus leads us to an important rationale for the novel public policies initiated by the Morrill Act and the Department of Agriculture: the goal of technological development guided by a federal guarantee of accurate, impartial, authoritative knowledge. The simultaneously promotional and regulatory aspects of this principle were at the heart of the nineteenth-century American development state. As we saw in Chapter 2, agricultural reformers recognized knowledge spillovers as an essential positive externality of economic modernization. During the 1850s, however, they came to realize that the free exchange of scientific information and its practical applications could generate a wholly unanticipated negative externality: widespread public confusion and uncertainty. Like the problem of nutrient export, this impediment to sustained commercial growth seemed to require correction through state action.

The Mapes progression thesis represented in some respects a logical response to a crisis in agricultural science that set in after 1852. In the preceding years the American agricultural reform movement had seemingly become entranced by visions of a farmers' millennium in which science—chemistry in particular—played the role of messiah. Developmentally minded Americans had long thought of science and its technological applications as the basic force behind economic progress. Thus agricultural reformers frequently lamented the stagnant state of American farming while noting steam power's revolutionary impact on manufacturing. By the late 1840s, however, as a result of dramatic recent advances in agricultural chemistry and especially the enthusiasm for the "mineral theory" of German chemist Justus von Liebig, chemical soil analysis appeared poised to effect a similar revolution in agriculture. A vigorous campaign to promote soil analyses to farmers soon commenced. Consequently, when soil analysis and some of Liebig's views came into question after

⁵ *Horticulturist, and Journal of Rural Art and Rural Taste* 21 (1866): 93; *Gardener's Monthly and Horticultural Advertiser* 1 (1868): 127–128; J. O. Barrett, "Progressive Primaries for Fruit Growing," in *Annual Report of the Minnesota State Horticultural Society* 14 (1886): 184–188.

⁶ *English Mechanic and World of Science*, 25 Aug 1871, 563; *Proceedings of the American Pharmaceutical Association at the Eighth Annual Meeting* (Boston: Geo. C. Rand & Avery, 1859), 373–374; Andrew Jackson Davis, *The Harbinger of Health; Containing Medical Prescriptions for the Human Body and Mind* (New York: C. M. Plumb & Co., 1865), 155.

1852, agricultural reformers were publicly caught out on a limb. Each sought to beat a hasty if dignified retreat from a now precarious position. Mapes found himself especially exposed because not only had he very vocally encouraged farmers to hire chemists such as himself to perform soil analyses, but he had also begun to market an artificial fertilizer that was closely identified with Liebig's "mineralist" views. It was imperative, therefore, that Mapes rectify his reputation and provide a new explanation for the value of his commercial fertilizer.

Mapes's predicament was symptomatic of the general crisis of agricultural expertise that set in after the discrediting of soil analysis, a pivotal episode that to date has received attention only from historians of science. Margaret Rossiter has detailed the rise and fall of the "soil analysis craze" among European-trained American agricultural scientists who hoped to establish research laboratories in the United States. More recently, Emily Pawley has brilliantly shown how the period's practice of agricultural chemistry was merged with, indeed, subordinated to, an accounting discourse that aimed to construct a definitive "balance sheet of nature."⁷ This chapter builds on Rossiter's and Pawley's work but approaches the episode from a broad institutional perspective to demonstrate its widespread implications for a growing marketplace of implements, fertilizers and other "improvements" predicated on often hazy scientific claims.

In this story, neither farmers nor aspiring professional researchers play the lead role. Instead, that part is reserved for figures like Mapes, the purveyors of new-fangled farming technologies. The collapse of soil analysis occasioned not only criticism of Mapes, but also the atmosphere of uncertainty in which his views, speculative as they were, could appear plausible. Mapes capitalized on the crisis by rhetorically positioning himself as a "practical" farmer rather than as a cloistered expert and by invoking widely prevalent beliefs in a natural law of progress. These moves earned him support, but they further exposed the challenges of creating a modern agricultural sector. Entrusting their future to the practices of "scientific agriculture," farmers and reformers alike were troubled by the doubtful state of agricultural science and the simultaneous proliferation of commercial products presenting themselves as essential "improvements." For their part, purveyors of new technologies often recognized that uncertainty, as much as backwardness, hindered commercial growth. In this context, longstanding calls for agricultural education and research, and for state provision of an

⁷ Margaret W. Rossiter, *The Emergence of Agricultural Science: Justus Liebig and the Americans, 1840-1880* (New Haven: Yale University Press, 1975). Rossiter provides the antebellum background for the discussion of scientific expertise and professionalization given in Alan I. Marcus, *Agricultural Science and the Quest for Legitimacy: Farmers, Agricultural Colleges, and Experiment Stations, 1870-1890* (Ames: Iowa State University Press, 1985); David B. Danbom, "The Agricultural Experiment Station and Professionalization: Scientists' Goals for Agriculture," *Agricultural History* 60, no. 2 (Spring 1986): 246-255; Deborah Kay Fitzgerald, *Every Farm a Factory: The Industrial Ideal in American Agriculture* (New Haven: Yale University Press, 2003); Charles E. Rosenberg, "Science, Technology, and Economic Growth: The Case of the Agricultural Experiment Station Scientist, 1875-1914," *Agricultural History* 45, no. 1 (January 1971): 1-20; see also A. Hunter Dupree, *Science in the Federal Government: A History of Policies and Activities to 1940* (Cambridge, Mass: Belknap Press of Harvard University Press, 1957). Pawley is part of a newer literature on the history of science that focuses on the construction of scientific epistemology and discursive authority; Emily Pawley, "Accounting with the Fields: Chemistry and Value in Nutrient in American Agricultural Improvement, 1835-1860," *Science as Culture* 19, no. 4 (December 2010): 461-482; Emily Pawley, "'The Balance-Sheet of Nature': Calculating the New York Farm, 1820-1860" (Ph.D., University of Pennsylvania, 2009), chap. 5. See also Steven Stoll, *Larding the Lean Earth: Soil and Society in Nineteenth-Century America* (New York: Hill and Wang, 2002); Benjamin Cohen, *Notes from the Ground: Science, Soil, and Society in the American Countryside*, Yale Agrarian Studies (New Haven: Yale University Press, 2009); Courtney Fullilove, "The Archive of Useful Knowledge" (Ph.D. diss., Columbia University, 2009), chap. 5.

authoritative information clearinghouse, acquired new urgency, leading reformers to a program of institution building that dominated much of their efforts in the decade or so before the Civil War.

AGRICULTURAL CHEMISTRY AND SOIL ANALYSIS

By the late 1840s the notion that agricultural chemistry, especially the chemical analysis of soils, constituted the most important avenue of agricultural improvement was well established among American agricultural reformers. Soil analysis, it was believed, would lay bare the relationship between soil composition and fertility. “In this early phase of scientific agriculture,” according to Rossiter, “all truths were considered to be basically very simple.” The tremendous promise of agricultural chemistry was thus fueled by a somewhat naïve sense that the major obstacles to rational, systematic farming would soon be solved.⁸ In an address before the Worcester Agricultural Society in October 1846, for example, the country’s senior agricultural editor, John Stuart Skinner, suggested that “within a few years, a farmer will make out his prescription for specific manures, according to the crop he wishes to cultivate, and send it to an agricultural chemist to be compounded to order.” Five years later Marshal Pinckney Wilder, head of the Massachusetts Board of Agriculture, summarized the prevailing wisdom in an official report to the state legislature on the need for agricultural education. “The investigations of scientific men have proved, beyond the possibility of a doubt,” Wilder affirmed, “that, by the analysis of the soil, and the desired crop, and a wise reference to atmospheric influences, we are as competent to adapt food to the different species of vegetables, as to the various kinds of animals.”⁹

Such views trickled down to the local level of agricultural reform, percolated up into higher intellectual circles, and seeped out into the popular press. Thus a former president of the Lamoille County (VT) Agricultural Society asserted that “knowledge of chemistry is indispensable to the farmer.”¹⁰ William Claytor, a recent college graduate and large tenant farmer in southern Maryland’s wheat district, seemed to agree. In the summer of 1849, after meeting the state chemist, Dr. Higgins, Claytor became infatuated with agricultural chemistry, confiding to his diary that “the analysis of soils is one of the most delicate and difficult observations which has ever demanded the beauties of science or the skill of man to perform. Its application to practical agriculture is necessary and certain in its effects. I certainly intend to use it.”¹¹ At the crest of the soil analysis wave, the New York *Sun* opined that “the introduction of labor-saving machines created a new era in the history of agriculture, but the application of chemical science to the soil was a grander step,” adding hyperbolically that “the golden age is rapidly approaching.” Even after faith in soil analysis had largely receded by the mid-1850s, paeans to chemistry remained common. “Who are the farmer’s servants?” Ralph Waldo Emerson asked rhetorically in 1858. “Not the Irish, God help him. No, but

⁸ Rossiter, *Emergence of Agricultural Science*, 118. This, in turn, reflected the wider prevalence among nineteenth-century scientists of what historians of science call “naïve realism.”

⁹ *Monthly Journal of Agriculture* 2 (1846): 455; *Report of Commissioners Concerning an Agricultural School, January 1851* (Massachusetts?: n.p., 1851), 5.

¹⁰ *The Plough, the Loom, and the Anvil* 6 (1853): 90.

¹¹ William Quesenbury Claytor, *Diary of William Claytor, 1849-1896*, vol. 1 (Alexandria, VA: Alexander Street Press, 2002), 28 Jul 1849, <http://solomon.cwld.alexanderstreet.com/cgi-bin/asp/philo/cwld/documentidx.pl?sourceid=S7387>.

chemistry.”¹² Perhaps the most illustrative evidence of agricultural reformers’ tremendous enthusiasm for science, and chemistry in particular, is the frontispiece to *Scientific Agriculture*, a popular textbook said to have sold an impressive 3,000 copies (Figure 1.1).¹³ At the center of the engraving is a heavenly hand reaching down to earth and offering a scroll emblazoned with the words chemistry, geology, botany, meteorology and agriculture; significantly, “chemistry” and “agriculture” bracket the list. No image could better capture the combination of faith in science and faith in divine purpose that animated the agricultural reform movement at midcentury.

Testing soils for their constituent parts was nothing new, having been a mainstay of the geological surveys undertaken by many states in the 1830s.¹⁴ But after 1843, the practice of soil analysis received a strong impetus and new focus from Justus Liebig’s mineral theory.¹⁵ In that year Liebig’s *Familiar Letters on Chemistry and Its Relations to Commerce, Physiology, and Agriculture*, a collection of wide-ranging newspaper articles on the practical applications of chemical science, was published in the United States in at least three separate editions.¹⁶ Liebig was already a recognized authority on agricultural chemistry, but his views had changed subtly from the 1840 publication of his *Organic Chemistry in Its Applications to Agriculture and Physiology*, the work that had established his reputation in British and American circles. Whereas he had initially emphasized the role of ammonia (nitrogen) in plant nutrition, he now called attention instead to phosphates and other inorganic minerals. He further argued that such nutrients, where they were not already present in the soil in sufficient quantity and appropriate form, had to be supplied by outside fertilizers. In order to know which plants required which nutrients and to what extent a given soil was deficient in these, chemical analysis was indispensable. Yet while earlier chemical soil testing was often deemed simple enough for farmers to undertake themselves, it was now necessary to ascertain mineral proportions with such minute precision that only trained and properly equipped professionals could be relied upon.¹⁷ Liebig therefore looked “to the united efforts of the chemists of all countries” to solve what he later identified as “the most urgent problem” of his time, the need to raise agricultural productivity in order to feed a growing population.¹⁸

The chemists’ first task was to catalog the chemical composition of each crop. This done, analysis of a given soil would yield a nutrient profile which, when compared with the profile of the desired crop, would determine a precise fertilizer prescription. Employing the accounting discourse

¹² The New York *Sun* piece is reprinted in the *Working Farmer* 1 (1850): 181; Emerson appears in *Working Farmer* 10 (1858): 271.

¹³ Liberty Hyde Bailey, ed., *Cyclopedia of American Agriculture*, vol. 4: Farm and Community (New York: The Macmillan Company, 1911), 383.

¹⁴ Paul Wallace Gates, *The Farmer’s Age: Agriculture, 1815-1860*, Economic History of the United States 3 (New York: Holt, Rinehart and Winston, 1960), 316.

¹⁵ My understanding of Liebig’s influence in the United States and of the science behind soil analysis is largely drawn from Rossiter, *Emergence of Agricultural Science* and Pawley, “Accounting with the Fields”; see also Forest Ray Moulton, ed., *Liebig and After Liebig a Century of Progress in Agricultural Chemistry*, American Association for the Advancement of Science 16 (Washington, DC: American Association for the Advancement of Science, 1942).

¹⁶ *American Agriculturist* 2 (1843): 318.

¹⁷ Rossiter, *Emergence of Agricultural Science*, 119–120; *Genesee Farmer* 2 (1832): 412; *New York Farmer* 1 (1833): 246–249; *American Farmer* 1 (1840): 347.

¹⁸ Justus Liebig, *Familiar Letters on Chemistry and Its Relation to Commerce, Physiology and Agriculture*, ed. John Gardner (New York: D. Appleton & Co., 1843), 172; Justus Liebig, *Letters on Modern Agriculture*, ed. John Blyth (New York: John Wiley, 1859), 1.

which had already become standard among agricultural reformers on both sides of the Atlantic, Liebig predicted confidently that “the farmer will be able to keep an exact record of the products of his fields in harvest, like the account-book of a well-regulated manufactory; and then by simple calculation he can determine precisely the substances he must supply to each field, and the quantity of these, in order to restore their fertility.”¹⁹ In the event, it turned out not to be so simple. In fact soil science is complicated, involving, for example, the activities of microorganisms that would not be discovered for decades to come. For several years, however, the promise of chemical soil analysis beguiled American agricultural reformers.

The growing importance attributed to agricultural chemistry is evidenced by more than just enthusiastic pronouncements. The 1840s witnessed the first attempts to establish modern, European-style agricultural research institutions. The Lawrence Scientific School at Harvard and the Sheffield Scientific School at Yale trace their origins, to a large degree, to agricultural chemistry. Central figures in both institutions obtained doctoral degrees in Europe, returning to the United States with ambitions to institutionalize basic scientific research in agriculture. Eben Horsford at Harvard and Samuel W. Johnson at Yale both studied with Liebig, while John Pitkin Norton, also of Yale, studied with the Scottish agricultural chemist James F.W. Johnston and one of Liebig’s chief European rivals, Gerrit Jan Mulder. Other American agricultural chemists with European credentials included Evan Pugh, who would come to head the Agricultural College of Pennsylvania (now Pennsylvania State University), and William H. Brewer, who was briefly named to the chair of agricultural chemistry at the short-lived New York State Agricultural College before joining Johnson at Yale. As Rossiter shows, however, these highly qualified scientists found it difficult to conduct basic research in an American environment that demanded immediate practical utility from investment in science. Hoping to advance agriculture by long-term careful investigation, the scientists tended to appeal to the more practical considerations of farmers in order to justify the funding of new research institutions. Not until the 1880s did well-funded, reasonably independent agricultural research institutions begin to come into their own, and even then the pressure to focus on practical applications remained intense.²⁰

No one worked more tirelessly to popularize the cause of soil analysis than did John Pitkin Norton of Yale. Enjoying the financial assurance of family wealth, Norton was committed to agricultural reform and thought soil analysis the key to a new scientific farming, but he also saw it as a way to interest farmers in the importance of agricultural research.²¹ Ironically, Norton identified himself publicly with Liebig’s opponents. Where Liebig emphasized inorganic minerals, a second school of agricultural chemistry emphasized the role of the soil’s organic acids. Its leading lights in Europe were Mulder (with whom Norton studied in 1847) and Jöns Jacob Berzelius; in the United States, Samuel Dana and Charles T. Jackson. These figures developed a version of soil analysis in the 1830s and 1840s that stressed the soil’s organic matter. But the role of organic compounds in plant

¹⁹ Rossiter, *Emergence of Agricultural Science*, 40-46 (quotation on p. 46); for original, see Liebig, *Familiar Letters on Chemistry*, 171; Pawley, “Accounting with the Fields,” 463, 471-473.

²⁰ Rossiter, *Emergence of Agricultural Science*; David B. Danbom, “The Agricultural Experiment Station and Professionalization,” 246-255; Charles E. Rosenberg, “Rationalization and Reality in the Shaping of American Agricultural Research, 1875-1914,” *Social Studies of Science* 7, no. 4 (November 1977): 401-422.

²¹ Rossiter, *Emergence of Agricultural Science*, 91-108.

growth was poorly understood at the time. Liebig's approach, according to Rossiter, was therefore the more useful in light of contemporary knowledge, and consequently even those who were publicly critical of him often ended up adopting it in practice. Thus Norton, who so assiduously spread the "gospel of soil analysis" in the United States, came to discuss soils and fertilizers in terms of their mineral constituents rather than their organic content. In this way he and other leading scientific voices helped forge the close popular association between soil analysis and Liebig's mineralism.²²

The growing American enthusiasm for soil analysis registered itself not only on the high plane of pure scientific research, but on the more practical terrain occupied by agricultural societies. Increasingly, professional chemists appeared on the scene as lecturers, writers, and consultants. In December 1843, for example, Dr. D. Pereira Gardner, formerly professor of chemistry and botany at Hampden Sidney College in Virginia, advertised for a proposed series of twenty lectures on agricultural science. Four of these were to focus on soil analysis. Success in this initial effort led to an appointment as "consulting chemist" to the American Institute's Farmers' Club. Gardner subsequently advertised for a second course of lectures, this time promising "full instruction in the ANALYSIS of soils," including hands-on practice. Around the same time he began offering inexpensive commercial soil analyses. Farmers were thereby invited to send in their soil samples for professional testing at a fee.²³

In later years such "five-dollar" analyses were criticized as quackery and charlatanry, but in the mid to late 1840s perfectly reputable figures did as Gardner.²⁴ In 1850, for example, an assistant to New York state agricultural surveyor Ebenezer Emmons charged five dollars for a "complete quantitative analysis of a soil," the sample and fee to be forwarded through the secretary of the state agricultural society.²⁵ In the same year Dr. Thomas Antisell advertised five-dollar analyses, yet it would have been difficult to challenge his credentials. A member of the Royal Dublin Society and of the Royal College of Surgeons in England, he was also entrusted with a geological survey of Southern California in the mid-1850s and served as a Patent Office chemical examiner. In 1849 the American Agricultural Association of New York employed him as its consulting chemist, a position previously held by Gardner.²⁶ A year later, the popular and respected *American Agriculturist* hired Antisell to give "analyses of soils, and an occasional article on Agricultural Chemistry and Geology," and in the 1860s he joined the Division of Chemistry in the newly created Department of Agriculture.²⁷

If the appearance of "consulting chemists" who advertised their services to farmers and were often connected with agricultural societies provides one index of the boom in agricultural chemistry,

²² Ibid., 109, 117–118; Gates, *Farmer's Age*, 362–363.

²³ *American Agriculturist* 2 (1843): 376; 3 (1844): 71, 127, 256.

²⁴ See, for example, Samuel W. Johnson's article, "Agricultural Charlatanry," *Cultivator* 1 (1853): 35–36.

²⁵ Ibid. 7 (1850): 184; Pawley, "Accounting with the Fields," 476.

²⁶ For Antisell's advertisements, see *American Agriculturist* 9 (1850): 199; for his credentials, see Thomas Antisell, *A Manual of Agricultural Chemistry, with Its Application to the Soils of Ireland* (Dublin: Hodges and Smith, 1845); *American Journal of Science and Arts* 26 (1858): 126; 29 (1860): 112; for notices of Antisell's and Gardner's work with the American Agricultural Association, see *Transactions of the New York State Agricultural Society* 8 (1848): 592; *American Quarterly Journal of Agriculture and Science* 1 (1845): 352; see also the respectful notice given in the *Journal of the Franklin Institute* 13 (1847): 106–113, to one of Gardner's scientific papers.

²⁷ *American Agriculturist* 9 (1850): 11; Dupree, *Science in the Federal Government*, 152–153.

another was the movement in several states to hire official state chemists. As early as 1839 Massachusetts state geologist Edward Hitchcock called for the establishment of a state chemist under the direction of a Board of Agriculture. Shortly thereafter the Agricultural Committee of the General Court's Senate submitted a majority report recommending the creation of just such a board with powers to appoint a salaried chemist.²⁸ But it seems that nothing much followed because no board was organized until 1851, and even then only on the private initiative of the state's several county agricultural societies rather than by legislative act. Likewise no state chemist position materialized, even when Board member John Adams Nash, at that time an instructor of agriculture at Amherst College, brought the issue back up at the Board's meeting in January 1853. A committee consisting of Nash, Hitchcock and several others took up the matter and reported back a few months later that while it was "fully impressed with the importance" of soil analyses, it was not yet prepared to recommend "any distinct action."²⁹ By this time it was becoming apparent that a much larger and better funded institutional structure was needed in order to further agricultural knowledge.

In Maryland, too, legislative attempts to enact the position of state chemist predated the impetus of Liebig's mineral theory. In 1840 D.W. Niall, chairman of the House of Delegates' Committee on Agriculture, submitted an "An Act to Provide for the Appointment of an Agricultural Chemist for the State of Maryland." As in Massachusetts, the idea for such an office was essentially an extension of the state geological survey. According to Niall, Maryland was suffering an "appalling" drain of population and capital that could easily be forestalled if farmers only understood how to utilize available marl and lime deposits to renovate "exhausted lands," a statement that precisely mirrored Hitchcock's prescription of a state chemist to help "check the tide of emigration that sets so strongly to the great West." Niall's bill therefore required Maryland's official chemist not only to analyze soils from around the state, but also to lecture widely to farmers. Although no action was apparently taken at the time, in 1847 the effort was renewed and the following year the legislature passed a very similar if somewhat more detailed law creating the post of state chemist at a salary of \$1,500 per year plus expenses.³⁰ The latter effort's success is indicative of the revived interest in agricultural chemistry that followed the spread of Liebig's mineral views. The years roughly from 1848 to 1851 thus witnessed calls for official agricultural chemists in several states, including Ohio, Virginia and Mississippi.³¹

The collapse of soil analysis fervor, foreshadowed by an always present undercurrent of skepticism, finally came in 1852. In that year David A. Wells of the Lawrence Scientific School at Harvard, the same Wells who emerged as a leading American economist after the Civil War, published the results of a study commissioned by the Ohio Board of Agriculture. At the behest of the Board, Wells analyzed Scioto Valley soils of well known fertility. To his surprise, their mineral

²⁸ *New England Farmer* 17 (1839): 101, 300–301, 308–309.

²⁹ *New England Farmer* 5 (1853): 116, 284; *Transactions of the Agricultural Societies of the State of Massachusetts* (1852): 398–399; on Nash, see Bailey, ed., *Cyclopedia of American Agriculture*, vol. 4, 370, 383–384; Robert S. Fletcher and Malcolm O. Young, eds., *Amherst College Biographical Record of the Graduates and Non-Graduates, Centennial Edition, 1821–1921* (Amherst, MA: The College, 1927), <http://www3.amherst.edu/~rjyanco94/genealogy/acbiorecord/>.

³⁰ *Monthly Journal of Agriculture* 2 (1847): 337; 3 (1848): 315–316; *New England Farmer* 17 (1838): 101; *American Farmer*, 4 (1848): 15.

³¹ *Ohio Cultivator* 6 (1850): 375; *Southern Planter* 9 (1849): 124–125; 10 (1850): 107–108; *DeBow's Review* 2 (1852): 538.

profile was all but identical to that of New England soils of well known sterility. Wells therefore concluded that mineral content could not in and of itself explain the capacity of a given soil to produce large crops. Instead, the physical condition of the soil, the solubility of mineral nutrients, and other factors affecting nutrient uptake by plants were more important. Wells thus punctured a gaping hole in the inflated promise of mineral soil analysis.³² Those who had doubted all along, such as the editor of the *Ohio Cultivator*, M.B. Bateham, immediately seized on his results to confirm their views. Over the next two or three years the once muted voices of other skeptics grew into a blaring chorus of disgruntlement. In 1853, for example, a letter-writer to the *New England Farmer* alluded to the great expectations attached to soil analysis before averring, “I have little confidence in the analyses of soils *in the present state of the science.*” By 1856 most seemed to agree that soil analyses’ utility to farmers had “been altogether over-estimated.”³³

In 1854 Samuel W. Johnson, at that time studying in Munich, helped build the new consensus with an influential essay entitled, “On the Practical Value of the Analyses of Soils.” Appearing first in the *Cultivator*, the essay made the rounds of the agricultural press and was frequently referenced.³⁴ Johnson rehearsed a litany of damning reasons why recommendations based on analyses of particular soil samples were bound to fail. To begin with, any farm was likely to comprise many types of soil, often intermixed within a small area. Furthermore, soil that had been plowed a great deal might vary at every few inches of depth. But even assuming uniformity, Johnson continued, any accidental discrepancy in the sample analyzed, such as the presence of bird droppings, would completely invalidate the results. Moreover, contemporary chemical analysis was not sensitive enough to accurately measure the very minute quantities involved. Still further, even if analysis could perfectly gauge the quantity of a mineral, it could not determine its quality, particularly its solubility and readiness for plant uptake. Johnson then referred to Wells in asserting that “so much depends upon the *physical* condition of the soil, that analysis alone, can form no safe basis for judgment.” He therefore concluded that “*soil analysis, at best, is a chance game.*” Yet he did not mean to disparage agricultural chemistry as a science, only to point out that, at present, farmers could not expect immediate practical benefit. Instead, a program of sustained institutional research was necessary in order slowly to build up understanding of such a highly complex set of natural processes. Although soil analysis of an individual farm was “rarely economical,” farmers would certainly gain in the future from “the general principles which may be developed from numerous analyses,” that is, from sustained basic research.

Such views were frequently echoed by an agricultural press that, increasingly critical of soil analysis, was quick to deny that science itself was at fault. Nevertheless, much blame was cast at the experts, for the relationship among farmers, scientists, and other agricultural improvers was never free of tensions. On the one hand, agricultural experts could look on farmers as aides to science. They urged farmers to develop a “spirit of inquiry” and to conduct experiments and report their findings. Lecturers frequently voiced some variation on the sentiment that science and practice

³² Rossiter, *Emergence of Agricultural Science*, 121–122.

³³ *Cultivator* 4 (1856): 244; *New England Farmer* 5 (1853): 125 (emphasis in original); *Ohio Cultivator* 8 (1852): 353–356.

³⁴ *Cultivator* 2 (1854): 233–235 (emphasis in original).

“must endeavor to cooperate for the elucidation of truth.”³⁵ Thus the pioneering American geologist and agricultural surveyor, Amos Eaton, wrote that he intended “merely to collect, digest and systematize the opinions of those of our own practical farmers, who have been successful in their agricultural operations.”³⁶ At other times, however, the experts struck a condescending pose, suggesting that farmers had much to learn from scientists but that scientists had little to learn from farmers. Surveying contemporary practices, John Pitkin Norton thought that “the majority of the farmers in our states are not yet prepared to advance very rapidly.”³⁷ Similarly, Dr. Ariel Hunton of Hyde Park, Vermont, felt that although farmers were the most moral members of the community, “they are deficient in the science of agriculture.”³⁸ Meanwhile an official at the Patent Office seemed to render the farmers all but irrelevant when he announced that “the most exalted intellects are becoming farmers, as it were, in the retiracy of their studies,” going so far as to conclude that science had become “the palladium of agriculture.”³⁹ Another lecturer explained that farmers were “indebted to science and scientific men” for the improvements they now enjoyed. Examples of this kind could be multiplied *ad infinitum*.⁴⁰

Within the ranks of the self-appointed experts, a tension always existed between those interested in basic research and those interested in technological applications.⁴¹ The former hoped to build scientific institutions insulated from public pressures for particular results, but the latter—agricultural supply dealers, farm journal editors, and expert consultants—had to contend directly with a marketplace of ordinary farmers whom they hoped to educate but not alienate. After 1852 that inherent tension came to the surface as all agricultural reformers publicly sought to extricate themselves from the soil analysis imbroglio. “*The professors of chemistry are at fault,*” the editor of the *Ohio Cultivator* charged, “*in that they do not as yet sufficiently understand the science they attempt to teach, in its application to practical agriculture.*” Whereas scientists “in the retiracy of their studies” had once come in for praise, the *Cultivator* now condemned as a fool “the chemist who shall undertake to sit in his laboratory, and without practice to direct the labors of the field.” Fee-charging “consulting chemists” came in for particular resentment. “Sad though it be,” the *New England Farmer* noted, “we must believe that learned men will still be found, base enough to deceive their fellow-men.”⁴² In an 1853 letter to the *Cultivator*, Dr. G. B. Smith asserted that there was “ten times as much quackery” in the science of agriculture as in its practice and lamented the fact that “the lecturer pockets his fee, and the farmer the loss.”⁴³ Thus fissures began to appear in the once tight-knit agricultural reform community. The *Prairie Farmer* aptly characterized the new situation when it weighed in on the

³⁵ *Working Farmer* 1 (1849): 108, 137; 2 (1859): 123.

³⁶ Quoted in Pawley, “The Balance-Sheet of Nature,” 141. On the long standing esteem among American agricultural reformers for the “practical,” see Cohen, *Notes from the Ground*, chap. 1.

³⁷ *Working Farmer* 2 (1850): 240.

³⁸ *The Plough, the Loom, and the Anvil*, 6 (1853): 91.

³⁹ *Monthly Journal of Agriculture* 1 (1845): 52.

⁴⁰ *Working Farmer* 1 (1849): 154; additional examples in Fullilove, “The Archive of Useful Knowledge,” 243–244.

⁴¹ This distinction may lack strict conceptual coherence, but as a matter of time frame it was real enough.

⁴² *Ohio Cultivator* 9 (1853): 129 (emphasis in original); *Cultivator* 1 (1853): 266; *New England Farmer* 5 (1853): 205.

⁴³ Reprinted in *Ohio Cultivator* 9 (1853) 82–83.

developing controversy surrounding Professor James Jay Mapes under the headline, “Trouble among the Fraternity.”⁴⁴

JAMES JAY MAPES EMBATTLED

Because of his public stature, inveterate self-promotion, and frequent endorsement of soil analysis, James Mapes became a prime target for attack.⁴⁵ Numerous references to Mapes’s views attest to his standing. In 1851, for example, the report of a special Massachusetts commission charged with investigating the subject of agricultural education cited Mapes in arguing for the importance of instruction in chemistry. The report quoted a letter in which Mapes claimed to have produced an excellent crop on his own farm after following the fertilizer prescriptions dictated by a soil analysis. According to the report, Mapes further stated, “*in no instance* has the experiment failed to produce desired crops, of superior quality, where manuring has been founded on the chemical constituents of the soil.”⁴⁶ Such obvious exaggeration was ripe for criticism after 1852, and precisely because Mapes had been such a respected and widely referenced spokesman for soil analysis beforehand.⁴⁷

Born May 29, 1806, Mapes descended from an old Long Island family and was the son of a prominent Clintonian merchant-banker who had commanded militia forces around New York City in the War of 1812 (Figure 3.2).⁴⁸ At an early age he developed an interest in chemistry and, largely self-taught, achieved considerable expertise. Never shy of self promotion, in the 1830s he went into business as one of the country’s first technical consultants and became a frequent expert witness in patent cases. Among his clients was the New York Senate, for which he conducted widely recognized chemical analyses of beer and wine. Mapes could also lay claim to the title of inventor. Around 1832 he developed a new sugar-refining system, parts of which continued in use until century’s end, and at one time or another he contributed improvements in dyeing, distilling, color making, steel tempering and various tools and machine processes.

By the 1840s Mapes was becoming active in New York City’s associational life. He received an honorary degree from Williams College in 1840, an appointment as lecturer at the National Academy of Design, and later the title of professor from the American Institute of the City of New York. He held active and honorary memberships in several scientific societies, including the New York Lyceum of Natural History, the National Institute at Washington, the Scientific Institute of Brussels, the Royal Society of St. Petersburg, and the Geographical Society of Paris. He was also an

⁴⁴ *Prairie Farmer* 13 (1853): 341.

⁴⁵ See, for example, *Cultivator* 1 (1853): 266, 307.

⁴⁶ *Report of Commissioners Concerning an Agricultural School, January 1851*, 5-6 (emphasis added).

⁴⁷ For favorable references to Mapes regarding his advocacy of soil analysis, see *American Farmer* 6 (1851): 351; *Maine Farmer*, 15 Jul 1852, 1; for criticism of Mapes regarding such advocacy, see *Southern Planter* 13 (1853): 120-122.

⁴⁸ The following discussion of Mapes’s life is compiled from World Biographical Information System Online, American Biographical Archive, Series I, 1068, pp. 176–187; *Family Record* (1897): 33–35; John Howard Brown, *Lamb’s Biographical Dictionary of the United States* (James H. Lamb Co., 1903), 351–352; Mark R. Finlay, “James Jay Mapes,” in *American National Biography Online*; Williams Haynes, *Chemical Pioneers: The Founders of the American Chemical Industry* (New York: D. Van Nostrand Company, 1939), 74–87; Ethan Robey, “The Utility of Art: Mechanics’ Institute Fairs in New York City, 1828-1876” (Ph.D. diss., Columbia University, 2000), 135–138.

accomplished miniaturist painter whose portraits were hung at exhibitions of the National Academy. Beyond such scientific, artistic and entrepreneurial activities, Mapes appears to have had broader reform ambitions, particularly in the realm of technical education. From 1840 to 1842 he edited the monthly *American Repertory of Arts, Sciences, and Manufactures* and in 1844 he became president of the Mechanics' Institute of New York. There he put together night classes and conversational meetings for ambitious mechanics. Around the same time he organized the New York Farmers' Club under the auspices of the American Institute. The Club quickly grew in importance, drawing the regular attendance of many leading agricultural reformers, including Solon Robinson, Daniel Jay Browne and Robert Livingston Pell, and having its proceedings reported widely in both the agricultural and daily press.

Increasingly prominent, Mapes had to this point enjoyed little success in business, leading him in 1847 to leave the city and settle on a farm near Newark, New Jersey located in what is now the western division of Weequahic Park. There he established a nursery business, grew fruits and vegetables for the urban market, conducted experiments, and tried out new implements including several of his own invention. In 1849 he issued the first volume of the *Working Farmer*, a successful monthly agricultural journal he continued to edit until near his death. At his farm Mapes also took in students for brief courses in modern agricultural principles. Among these students, several achieved considerable renown in their own time. Patrick T. Quinn, Mapes's farm manager for most of the 1850s, became a fixture of New Jersey's important agricultural institutions in the 1870s, 1880s and 1890s; George E. Waring, Jr. won national fame in the last third of the nineteenth century as perhaps the country's leading engineer of urban sewage and sanitation; and Henry Steel Olcott, like Waring an assistant editor of the *Working Farmer* who achieved the rank of colonel during the Civil War, would co-found the international Theosophist movement late in the century.⁴⁹ Mapes's leading role in the agricultural reform community was further confirmed by his extensive lecturing and active participation in the New York Farmer's Club. In later years the focus of controversy and even ridicule, Mapes was clearly a man of many talents and considerable ability, and, further, a man who enjoyed the support of influential friends such as Samuel F. B. Morse and Horace Greeley. When Mapes died in 1866, Greeley's *Tribune* published a lengthy obituary that summed up his legacy in fulsome terms: "Prof. Mapes was essentially a genius, and was not without the errors of genius; but now that he is dead, we believe it will be generally felt and acknowledged that American agriculture owes as much to him as to any man who lives or has ever lived."⁵⁰ However bizarre the theory of the progression of primaries appears today, in other words, we must acknowledge that Mapes was no ordinary crackpot.

⁴⁹ For Waring, see Richard Skolnick, "George E. Waring, Jr.: A Model for Reformers," *New-York Historical Society Quarterly* 47 (July 1963): 257-287; Albert Shaw, *Life of Col. Geo. E. Waring, Jr.: The Great Apostle of Cleanliness* (New York: Patriotic League, 1899); Martin Melosi, *Pragmatic Environmentalist, Sanitary Engineer George E. Waring, Jr.* (Washington: Public Works Historical Society, 1977); For Quinn, see New Jersey State Agricultural Society, *The History of the New Jersey Agricultural Society: Early Attempts to Form a Society, Proceedings, Fairs, Activities and Accomplishments, 1781-1940* (Trenton, 1947), 41, 57-58; *Annual Report of the New Jersey State Agricultural Experiment Station* 4 (1883): 5.

⁵⁰ Reprinted in *American Farmer* 1 (1866): 84.

Mapes was strongly and very publicly devoted to Liebig, whom he took every opportunity to cite as authority for his own views.⁵¹ It is not surprising, then, to find Mapes on the front lines of the campaign to convince farmers that in soil analysis lay their salvation. “Have you had an analysis made of your soil?” was, in one way or another, the constant refrain of the *Working Farmer’s* first three volumes.⁵² Himself a chemist, Mapes offered his own services and, through his advertisements section, those of others. Characteristic of his ever-present entrepreneurialism, Mapes charged the going rate of five dollars for the analysis itself, but innovated by offering to include a detailed letter of advice for an additional twenty-five dollars. Sometimes he published these letters in the *Working Farmer* in a bid, it would seem, both to enlighten his readers and to solicit new clients.

But Mapes went further. Drawing on Liebig’s mineral theory and his strong emphasis on plants’ phosphatic content, Mapes became in 1852 perhaps the first large-scale American manufacturer of superphosphates, producing the brand-name “Improved Super-phosphate of Lime.” Superphosphates were destined to become the world’s foremost artificial fertilizer for more than a century to come, but in the 1850s they were quite new. Reports of British successes with them appeared regularly in the American agricultural press from the mid-1840s, typically followed by calls for Americans to do similarly. Accordingly, by decade’s end many farmers had experimented with producing their own superphosphates and at least two Baltimore houses had offered them for limited sale. But not until Mapes and a newly arrived Englishman, Charles B. DeBurg, introduced their products almost simultaneously in 1852, did a bona fide American superphosphate industry come into existence. Mapes used bones and bone black leftover from slaughterhouses and sugar refineries as his primary source of phosphatic material, whereas by this time the leading British firm of John Bennet Lawes was already shifting toward coprolites, apatite and other nonrenewable mineral sources.⁵³ This fact would acquire great significance for Mapes when he introduced his progression of primaries theory several years later.

Equally significant was the fact that the value of superphosphates, or bi-phosphates, as they were also called, was closely identified with Liebig’s mineral theory and consequently with the soil analysis craze. Liebig, after all, had argued that plants’ nitrogen needs were fully supplied by the atmosphere, which was essentially inexhaustible, whereas their equally important phosphatic requirements came from the ground, which was quickly “worn out.” Further, Liebig’s endorsement of the manufacture of superphosphate by the acidulation of bones was widely known.⁵⁴ Thus when the Baltimore firm of Kettlewell and Davison began marketing a limited quantity of its “Renovator” fertilizer in 1850, its advertisement explained that “recently, science has shown the far greater

⁵¹ For instance, when Mapes reprinted one of Liebig’s *Familiar Letters on Chemistry* in the *Working Farmer* he prefaced it by recommending that it “be studied by rote”; *Working Farmer* 5 (1853): 43.

⁵² *Ibid.*, 2 (1851): 241.

⁵³ The best history of the early American fertilizer and superphosphate industry is Richard A Wines, *Fertilizer in America: From Waste Recycling to Resource Exploitation* (Philadelphia: Temple University Press, 1985), 96-111; see also K.D. Jacob, “History and Status of the Superphosphate Industry,” in *Superphosphate: Its History, Chemistry, and Manufacture*, United States Department of Agriculture and Tennessee Valley Authority (Washington, DC: G.P.O., 1964), 19-94; K.D. Jacob, “Predecessors of Superphosphate,” in *ibid.*

⁵⁴ Harry A. Curtis, “Liebig and the Chemistry of Mineral Fertilizers,” in *Liebig and After Liebig*, ed. Forest Ray Moulton, 64-70.

advantage of bone dust (bi-phosphates) dissolved in sulfuric acid.”⁵⁵ The theoretical underpinnings of superphosphates mattered because the consuming public needed to be educated to appreciate the value of a brand new (and brand name) artificial fertilizer. Indeed, many fertilizer makers sought to associate their products with scientific discoveries. The Lodi Manufacturing Company promoted its “New and Improved Poudrette” by reference to leading European chemists, including Berzelius and Liebig.⁵⁶ Similarly, the George Bommer New York Manure Company advertised a patented “Chemical Manure,” while another fertilizer maker simply called itself the Liebig Manufacturing Company.⁵⁷ Thus, when the currency of mineral soil analyses collapsed, superphosphate manufacturers had some explaining to do.

The storm of withering criticism that descended on Mapes over the next several years centered on the quality of his brand-name fertilizer, but often touched on his advocacy and solicitation of soil analyses.⁵⁸ Although no one questioned the basic value of superphosphates when properly manufactured, the controversy sometimes turned on rather arcane details of fertilizer application. In one riposte, for example, the *Genesee Farmer* argued that superphosphates worked best when drilled with the seed, whereas Mapes’s advertised additions of Peruvian guano and sulfate of ammonia would prove “injurious to the germination of the seed when drilled with it.”⁵⁹ Such matters could hardly have been considered settled under the prevailing circumstances of general uncertainty. Only a few years earlier, in fact, a fertilizer dealer noted that, “in reference to the application of Guano, there appears to be so much diversity of opinion, that it is difficult to offer any particular method to be adopted as an invariable rule.”⁶⁰

More damning for Mapes, undoubtedly, were the well publicized analyses of commercial superphosphates made by Samuel W. Johnson in 1853 and again in the late 1850s. Particularly in the latter trials, Johnson held no punches. “Of all the many fraudulent and poor manures that have been from time to time imposed upon our farmers during the last four years,” he railed, “there is none so deserving of complete exposure, and sharp rebuke, as that series of trashy mixtures known as ‘Mapes’ Superphosphates of Lime.”⁶¹ But again, since the status of agricultural chemistry remained very much up in the air among the general public, such assertions might be brushed aside as interested or simply erroneous. With so much disenchantment, accusation, and hand-wringing going around, and no institutional authority to appeal to, the field was wide open for any number of competing theories. “From all quarters comes the cry,” wrote one frustrated observer, “we want a systematic theory of agriculture.”⁶² In fact, agricultural writers often cited the very prevalence of

⁵⁵ *American Farmer* 6 (1850): 105–107.

⁵⁶ *New and Improved Poudrette of the Lodi Manufacturing Company* (n.p., 1853), 2–3.

⁵⁷ *American Farmer* 4 (May 1849): 379; Nelson, *U.S. Fertilizer Industry*, 45.

⁵⁸ Although several historians have noted the controversy that arose concerning Mapes’s superphosphate, none have looked at Mapes’s response; see Rossiter, *Emergence of Agricultural Science*, 149–156; Wines, *Fertilizer in America*, 101–103; A. L. Demaree, “The Farm Journals, Their Editors, and Their Public, 1830–1860,” *Agricultural History* 15, no. 4 (October 1941): 185.

⁵⁹ *Genesee Farmer* 14 (1853): 281.

⁶⁰ *Remarks on the Origin and Application of Guano. For Sale by Allen & Needles, Dealers in Oil and Guano, 22 and 23 South Wharves, Above Chestnut Street, Philadelphia* (n.p., 1849?), 6.

⁶¹ *Transactions of the Connecticut State Agricultural Society* (1860): 41.

⁶² *Cultivator* 9 (1852): 365.

competing views among acknowledged experts as a prime reason why no stock could be put in soil analysis.⁶³ The same doubts might easily be extended to agricultural chemistry in general.

And indeed, this is precisely what Mapes did. Responding in 1859 to a correspondent's question as to "whether the quality of a fertilizer can be ascertained by the analysis as usually made," Mapes answered, "distinctly, No. Analysis as now made, merely records the constituents of a manure without the slightest note of condition."⁶⁴ Mapes thus appropriated the vocabulary of "condition" that Wells and Johnson had applied to soil's physical characteristics. But in accordance with the progression of primaries, Mapes now referred to the basic form of the underlying elements of plant nutrients. Crucially, this move allowed Mapes to defend the quality of his "Improved Superphosphate of Lime." Because that product's primary raw material was animal bones, all of its phosphates came in the most "progressed" possible form, the form they could only have acquired after moving steadily up the food chain.

The progression of primaries thesis remained forever short of hard evidence, but in the aftermath of an exploded paradigm speculative rhetoric enjoyed freer play. Mapes thus illustrated his point by reference to the phenomenon of isomerism, or cases in which two or more compounds are composed of the same elements in the same proportions yet possess dissimilar properties. Liebig had discussed such occurrences in his *Familiar Letters on Chemistry*, arguing that differences in compound structure explained differences in properties.⁶⁵ But this account no longer sufficed for Mapes. Frequently he gave as an example the apparent fact that "one pound of potash taken from the ashes of a burned haystack will fertilize more plants than will one hundred pounds of potash taken freshly from the feldspar rock."⁶⁶ Similarly, superphosphates manufactured from phosphatic rock would prove practically useless for higher order plants, whereas those produced from bones formed a highly effective fertilizer.⁶⁷ At a meeting of the American Institute's Farmers' Club in December 1856, Mapes detailed the case of "James' Powder," an English patent medicine long used to great effect by officials of the East India Company. When several new manufacturers entered the field, the Company sent out for bids and acquired a new supplier. Yet the medicine it now received proved ineffective and the Company refused to pay. In the ensuing law suit, chemical analyses confirmed that the products of the new and original manufacturers were identical. But testimony revealed, according to Mapes, that "the new manufacturers had calcined the phosphate of lime-rock from Estramadura," while "the Messrs. James' [sic] made their medicine by calcining bones of oxen." It was this difference in the raw materials, Mapes concluded, that accounted for the variation in the resulting medicines. The latter, having come from a more "progressed" source, was the only one fit for humans.⁶⁸

Such examples of chemistry's apparent failure to explain observed phenomena served a dual rhetorical purpose, for Mapes not only sought to clear the field for his own views, but to emphasize his credentials as a "practical farmer" rather than as merely a chemist. In this he was responding to a

⁶³ *Ohio Cultivator* 9 (1853): 129.

⁶⁴ *Working Farmer* 11 (1859): 80.

⁶⁵ Liebig, *Familiar Letters on Chemistry*, 55–60.

⁶⁶ *Working Farmer* 10 (1858): 121.

⁶⁷ Mapes, "Agriculture," in *The American Annual Cyclopaedia and Register of Important Events of the Year 1861*, 2.

⁶⁸ *Transactions of the American Institute of the City of New York* (1856): 333–334.

prevalent sentiment that the farmers had been usurped by theoreticians. One journal, for instance, noted disapprovingly that “there was a time when it was actually believed that science was to do everything, and practical ability nothing,” while another asserted flatly that “the true science of agriculture is to be drawn alone from intelligent practical experience.”⁶⁹ Mapes therefore boldly arrayed himself on the side of the farmer while completely eliding his own role in the soil analysis craze. “We rather think that the farmers heave [sic] nearly or quite caught up with the books,” he chided, “and if the chemists don’t look out, they will find that those practical farmers will send them back to their laboratories, to re-investigate some of the dogmas.” Real-world farming, after all, required a great deal of hands-on experience. Consequently “no chemist, in his laboratory, can advise the farmer in the field, unless he observes for himself the operations of the farmer.”⁷⁰ Going further, Mapes sought to preempt his skeptics with a meditation on the contingent nature of scientific knowledge and a warning against succumbing to orthodoxy. Scientific research, he explained, was as bound by “conventionalities” as any other human activity:

Fifty years ago many of the facts in chemistry now clearly understood, were entirely unknown, and every student of nature who studied conventionally, would have discarded any observation of his own which did not agree with the universally received chemical knowledge of that day. Now, as then, chemists suppose their science an exact one, and perhaps now, as then, they are mistaken. It is this deference to admitted conventionalities that renders new observation so difficult of dissemination, for the votary of each science, in turn, objects to every novelty exactly in proportion as it seems to contradict his assumed status of perfection.

The natural world, Mapes continued, constantly offered up phenomena which could not be subsumed by any present scientific rubric. Therefore he counseled chemists to “chasten their chemistry by the truths observed, instead of defining the truths by their chemical knowledge.”⁷¹

Striking a populist note, Mapes reaffirmed his conviction that farmers should observe their operations carefully and report in detail their experiences in order to direct the investigations of scientists.⁷² In common with virtually all agricultural reformers, Mapes always advocated formal technical education. But he was also a leading exponent of a more collective, democratic mode of self-education. Since his time at the Mechanics’ Institute early in the 1840s, Mapes had advocated the establishment of “conversational meetings.” Such meetings would be organized to allow participants to propose topics and to discourse on them, but, critically, no one would be allowed to engage another in debate. Instead, each speaker would deliver only the facts of the case as they were known to him, allowing the audience to draw its own inferences. In this manner, Mapes argued, meetings could be kept orderly and informative, and members would benefit greatly by sharing the experiences of others. Mapes organized the New York Farmers’ Club in precisely this way. “No means can be so well devised, so well calculated to disseminate useful instruction as by conversational meetings,” he boasted. “They enable practical and scientific men to compare notes,

⁶⁹ *Michigan Farmer* 12 (1854): 234; *Ohio Cultivator* 9 (1853): 83.

⁷⁰ *Working Farmer* 12 (1860): 7, 49.

⁷¹ *Ibid.* 13 (1861): 2.

⁷² *Ibid.* 12 (1860): 49.

and thus to arrive at the truth.”⁷³ Such a forum explicitly called on participants themselves to be the ultimate judges of truth claims, a structure that suited Mapes well in his controversy with Johnson, who implicitly claimed the authority of European training.

Of course, Mapes had no intention of renouncing science altogether, but he did seek to exploit the space between working farmers and research scientists in order to make room for his own views—and, not incidentally, his own products. The progression hypothesis, he thus asserted, “shows truths in nature which both the laboratory and the microscope have failed to perceive,” and thus allows the “practical agriculturist” to make better decisions regarding which fertilizers to use.⁷⁴ Johnson responded sarcastically that the theory was useful only “to account for the great value of Mapes’ superphosphates!”⁷⁵ In later years Johnson would continue his crusade against fertilizer frauds and help initiate the wave of state fertilizer inspection laws that began in the late 1860s.⁷⁶ For his part, Mapes fought back even from the grave, as a 1927 advertisement by the Mapes Formula and Peruvian Guano Company attests (Figure 3.3). According to the advertisement, “the good farmer of today knows, as Prof. Mapes did eighty years ago, that the crop is the best judge of fertilizer values. He knows that two fertilizers of the same analysis may give widely different results because of the different materials from which they are formulated.”⁷⁷

The survival of the Mapes brand for so long suggests that it may not have been such a bad product after all, Johnson’s repeated efforts to discredit it notwithstanding.⁷⁸ Certainly, Mapes had his supporters. One of the most prominent of these was Henry Flagg French, a New England lawyer, agricultural writer, and future assistant Secretary of the Treasury. The son of a New Hampshire attorney general, French was educated at elite academies and at Harvard before going into private legal practice and occupying a succession of local public offices that culminated in his appointment to the court of common pleas in 1856.⁷⁹ At the same time he became a leader in the agricultural reform movement, founding the Rockingham County Agricultural Society and serving frequently on the executive committee of the New Hampshire State Agricultural Society. He also helped edit, and frequently contributed to, the influential *New England Farmer*.⁸⁰ He further solidified his status as an agricultural expert by authoring a well-received treatise on farm drainage based on a tour of Europe that he undertook as a representative of the United States Agricultural Society.⁸¹ In 1859 French sold his Exeter farm and moved to Boston to resume private practice, this time in partnership with the future Union general Benjamin F. Butler.⁸² Despite having relocated to the city,

⁷³ *Working Farmer* 1 (1849): 98; see also James Jay Mapes, “Inaugural Address, Delivered Tuesday Evening, Jan. 7, 1845, before the Mechanics’ Institute, of the City of New York” (New York: Institute Rooms, 1845).

⁷⁴ *Transactions of the American Institute of the City of New York* (1856): 336.

⁷⁵ *Transactions of the Connecticut State Agricultural Society* (1860): 47.

⁷⁶ Rossiter, *Emergence of Agricultural Science*, 158–159.

⁷⁷ The advertisement is reproduced in Haynes, *Chemical Pioneers*, between pages 76 and 77.

⁷⁸ This is the apparent conclusion of Wines, *Fertilizer in America*, 96–101.

⁷⁹ Ezra S. Stearns, William Frederick Whitcher, and Edward Everett Parker, eds., *Genealogical and Family History of the State of New Hampshire*, vol. 4 (New York: The Lewis publishing company, 1908), 1799, 1801.

⁸⁰ Stearns, Whitcher, and Parker, *Genealogical and Family History of the State of New Hampshire*, 4; *Transactions of the New Hampshire State Agricultural Society*, 5 (1855): 6.

⁸¹ Henry Flagg French, *Farm Drainage* (New York: Orange Judd & Company, 1859); French’s book is positively reviewed by G. M. Kern in the *North American Review* 89 (1859): 358–383; *New York Times*, 16 Jan 1858, 2.

⁸² Benjamin Franklin Butler, *Private and Official Correspondence of Gen. Benjamin F. Butler During the Period of the Civil War*, ed. Jessie Ames Marshall, vol. 1 (Norwood, MA: The Plimpton Press, 1917), 67.

however, French's passion for agricultural improvement did not diminish. In 1864 he was named to the Board of Trustees of the newly incorporated Massachusetts Agricultural College and was entrusted with the disposal of the land scrip it received under the Morrill Act. Later that year he was elected the College's first president, but resigned in 1866 after a dispute with the board of trustees.⁸³ Thereafter he resumed his practice before being named assistant Secretary of the Treasury in 1876, a position he held until failing health caused him to retire in 1885.

That French was a man of some importance is significant in light of the sympathetic reception he accorded Mapes's theory of the progression of primaries. French never endorsed Mapes unequivocally on this point, but as late as 1876—ten years after Mapes's death, when his reputation needed no special defense—French still referred to the progression hypothesis as “certainly plausible.”⁸⁴ The reasons why are instructive. Like Mapes himself, French put the theory in the context of disappointed hopes for chemical soil analysis. “A few years ago,” he wrote in 1859, “all the world was talking of soil analysis. The theory was beautifully simple.” Alas, it turned out that “the plant knows more than the chemist! There *are* differences which the chemist cannot detect.”⁸⁵ French had noted earlier that hay fed to cows and returned to the land as manure performed admirably as a fertilizer, whereas simply spreading out the hay and plowing it under did no such service. “It is not enough, then,” he concluded, “that we apply to the soil merely the elements of which the required crops are composed. There must be reference always *to the form* in which those elements exist.”⁸⁶ From the perspective of an educated and engaged, but ultimately lay farming public, Mapes's theory of “isomeric” substances that seemed chemically identical but were in fact decisively different did indeed appear to explain some of the failures of soil analysis.

Yet the evident crisis in agricultural chemistry alone was not enough to make the Mapes hypothesis “plausible.” For this the mechanism Mapes proposed had to accord with prevalent notions of the ordering of nature. To the extent that Mapes described such a mechanism, it resolved into the “eternal law” of “progression.” In common with so many of his contemporaries, French found this notion highly appealing. Referring to the proto-Darwinian ideas presented by Robert Chambers in *The Vestiges of Creation*, he began one article by asserting that, whether his readers believed that humans were created directly by God or evolved from lower organisms, “we all believe in *progress*, and that nature usually walks onward to higher and higher results.”⁸⁷ If the mechanisms of evolution were controversial, progress was not. Indeed, the notion that a progressive tendency inhered in nature itself was remarkably common in the nineteenth century.⁸⁸ Speaking before the Plymouth Agricultural Society in 1855, for example, the physician, chemist and geologist Charles T. Jackson stated flatly that “Progress is a law of nature.” He then continued: “from the earliest dawn of creation, there has been a constant series of improvements in progress. Geology reveals that the

⁸³ *Addresses Delivered at the Massachusetts Agricultural College, June 21st, 1887, on the 25th Anniversary of the Passage of the Morrill Land Grant Act* (Amherst, MA: J.E. Williams, 1887), 44–45; Edward Wilton Carpenter and Charles Frederick Morehouse, *The History of the Town of Amherst, Massachusetts* (Amherst, MA: Press of Carpenter & Morehouse, 1896), 543–545.

⁸⁴ *Transactions of the Massachusetts Horticultural Society* (1876) Part I, 113.

⁸⁵ *New England Farmer* 9 (1859): 410.

⁸⁶ *Ibid.* 7 (1856): 271.

⁸⁷ *Ibid.* 9 (1859): 410.

⁸⁸ Ronald E. Martin, *American Literature and the Universe of Force* (Durham, N.C: Duke University Press, 1981), chap. 2–3; Pawley, “The Balance-Sheet of Nature,” 137.

lower order of sensitive beings gave way to those of a higher grade, until the last term of physical creation was attained in the creation of man, whose improvement, as a rational creature, and an immortal soul, is still destined to be onward and upward.”⁸⁹ Apparently following similar logic, Mapes at one point suggested that the very large species of past ages had been “formed as mere machines for the progression of primaries,” and, having served this purpose “by the mastication and digestion of food, its assimilation and their decay, have gradually become extinct.”⁹⁰ French also sought to frame natural progress and the plausibility of Mapes’s theory within grand geological time. “Every little shell of the seashore is composed of matter in a condition somewhat different from that in which it before existed. It was before part of a rock; it has advanced to be part of an animal. It is chiefly lime now, as it was before; but lime of somewhat different properties.”⁹¹

The belief in progress, in fact, seemed to stir many of Mapes’s backers. J. Payne Lowe, for several years an assistant editor and frequent contributor to the *Working Farmer*, espoused the progression of primaries in at least one article in the *Democratic Age*, a monthly journal featuring the masthead slogan, “Statesmanship, Science, Art, Literature, and Progress.”⁹² The editor of *Tiffany’s Monthly* drew the connection explicitly when he prefaced the reprinting of Mapes’s article, “Isomeric Compounds,” by noting its “bearing on the great law of Progress.”⁹³ Similarly, Henry A. Meigs, for many years secretary of both the American Institute and of the Farmer’s Club, commented after one Mapes disquisition that “we are all familiar with the doctrine of progression in all things.” He then added, revealingly if rather absurdly, “our common potato is from a very little tuber, not fit to eat, originally, and of a family somewhat poisonous—the *solanums*—yet it has progressed so much in my time as to be, to me, one of the most delicious and wholesome articles of food.”⁹⁴ Such statements imbued the material world with an interior teleology defined in anthropomorphic terms and supported the goal of humanity’s complete mastery over nature. In today’s science an improper attribution of moral meaning to natural processes, it was precisely this metaphysics that made the progression of primaries appealing to many nineteenth-century Americans.

Despite the failures of soil analysis, then, agricultural reformers continued to express great confidence, buoyed by a pervasive faith in the immanence of progress. In 1855, a full three years after Wells’s study, a rank-and-file member of the agricultural reform community urged farmers to “summon chemistry, geology, philosophy, mathematics, to our aid, and press onward to develop new resources and principles.”⁹⁵ Yet vague invocations of science and the spirit of progress were not really enough. As Johnson put it forthrightly, “science should carry herself modestly, as befits her youth, and not talk too loudly on all occasions of old-foggyism vs. progress.”⁹⁶ The *Maine Farmer*, therefore, called for a thorough course of experiments to evaluate Mapes’s claims. The editor

⁸⁹ Jackson’s remarks are reprinted in the *Working Farmer* 12 (1860): 33; in the midst of the campaign to promote his own theory, Mapes clearly recognized its affinity to Jackson’s earlier statement.

⁹⁰ *Transactions of the American Institute of the City of New York* (1856): 335.

⁹¹ *New England Farmer* 9 (1859): 410.

⁹² *Democratic Age* 1 (1859): 187; see also p. 252, where the editor, the well known author and antislavery advocate, C. Edwards Lester, affirms of Mapes that “no man in America has rendered a higher service to the cause of Scientific Agriculture”; Lowe’s article is reprinted in the *Working Farmer* 11 (1859): 41-42.

⁹³ *Tiffany’s Monthly* 3 (1857): 80-88, quotation on 80.

⁹⁴ *Transactions of the American Institute of the City of New York* (1856): 336-337.

⁹⁵ *Pennsylvania Farm Journal* 5 (1855): 88.

⁹⁶ *Cultivator* 2 (1854): 235.

explained that “the subject of fertilizers and their particular action, wise as we think we are in regard to them, is yet in its infancy and need[s] the most patient scrutiny and investigation.”⁹⁷ Agnosticism concerning both Mapes and his critics was the order of the day.

INSTITUTIONAL AUTHORITY

By the late 1850s, then, everyone agreed that agricultural science remained in its “infancy.” Uncertainty would remain for many years. In the preface to the 1868 edition of his textbook, *The Elements of Agriculture*, first written in 1853 just as the controversy over soil analysis began, Mapes’s one time student George Waring noted that, in “the intervening years . . . the veil which hangs about the true theories of agriculture has grown harder to penetrate.” As a result, Waring felt that the second edition, though much revised, had to be presented with “more hesitation” than the first.⁹⁸ Decades later the early historian of American agriculture, Liberty Hyde Bailey, noted that “the principles of chemistry as applied to farming afforded a central idea around which all other agricultural questions could be crystallized.”⁹⁹ But they did not immediately provide answers, only more questions in need of more research. In 1858 Horace Greeley could not deny the proposition “that what is termed Agricultural Science—Soil Analysis, Special Fertilizers, and all that—is quackery and humbug.” Yet he insisted that “the more urgent your proofs that no Science of Agriculture now exists, the more obvious the truth that one is urgently needed.”¹⁰⁰

The first question, then, was how to move forward. The agricultural reform community had long advocated for government sponsorship of agricultural education and research. Given the prevailing atmosphere of uncertain knowledge, the creation of institutions with the wherewithal and authority to settle basic questions appeared all the more urgent. In an article advocating a federal department of agriculture to supervise a system of state-level experimental institutions, Freeman Cary of the Farmers’ College near Cincinnati argued that until systematic research was introduced, the proliferation of the agricultural press would only add “to the already labyrinthian modes and perplexities” besetting farmers. As Cary explained in an earlier piece, general farming practices could not progress until “science herself is divested of many of her crudities, and many of her applications, as yet of doubtful propriety, are more fully tested by experiment by men capable of such a task. . . . Even chemistry, with all her vaunted discoveries in the arts, can as yet point to but few practical triumphs.” The existing institutions of agricultural reform, he continued, had taken farmers about as far they could go. The further study of agricultural science “can not be done by farmers, nor societies, nor clubs, nor lyceums, without proper teachers, without apparatus, without text books, where problems long and complicated, and extending to numerous and varied experiments, and often through a series of years, are to be demonstrated.”¹⁰¹

⁹⁷ *Maine Farmer* 29 (11 Jul 1861): 1.

⁹⁸ George Edwin Waring, *The Elements of Agriculture: A Book for Young Farmers*, Second and Revised, (New York: The Tribune Association, 1868), 7–8.

⁹⁹ Bailey, *Cyclopedia of American Agriculture*, vol. 4, 379.

¹⁰⁰ *Cincinnati* 3 (Nov 1858): 482–483.

¹⁰¹ *Ibid.* 1 (Jan 1856): 10–12; 2 (Jan 1857): 6; for similar reasoning, see Wayne E. Morrison, ed., *New York State Agricultural College, Ovid, Seneca Co., N.Y.: A History* (Ovid, NY: Wayne E. Morrison & Co., 1978), 11.

As Cary's reference to "applications as yet of doubtful propriety" indicated, the status of agricultural technology was at the center of the problem. Farmers now found themselves adrift in a rapidly expanding market of agricultural "improvements" that included everything from artificial fertilizers to mechanical reapers to systems of tile drainage. As Henry French put it, "the market is full of scientific *manures*, as well as of scientific principles."¹⁰² It was imperative that criteria be established for evaluating such technologies, for "the novelty and excitement attendant upon the introduction of new seeds, implements or systems of culture, have too many charms to be resisted," especially when it came to young farmers imbued with "the 'go ahead' spirit."¹⁰³ Thus when Justin Morrill spoke in favor of his land grant bill in April 1858, he inveighed against "unsustained speculations" of "the laboratory" before arguing that Americans needed "a careful, exact, and systematized registration of experiments—such as can be made at thoroughly scientific institutions, and such as will not be made elsewhere." With such institutions in place, Morrill promised, "the discoveries of Columbus-struck amateurs will not be trumpeted forth until they have received the sanction of a body less sanguine than the vendors of a patent."¹⁰⁴

Passage of the Morrill Act and creation of the Department of Agriculture (USDA) in 1862 followed a long campaign of advocacy, one that drew as much momentum from the enthusiasm for agricultural chemistry and soil analysis as from the subsequent disappointments. But the crisis of expertise that occurred in the mid-1850s demonstrated that institutions of agricultural education and research should serve not only as founts of *new* knowledge, but also as centers of *authoritative* knowledge able to discipline a potentially unruly market of scientific and technological claims. Thus Senator Joseph Wright of Indiana, in arguing for making the USDA as powerful as possible, stressed the critical importance of legitimacy and authority in the dissemination of information. "I care not whether it is gathered from the State societies or from individuals," Wright declared, "we want it indorsed [sic] from the national Government."¹⁰⁵ A decade later the USDA's chief clerk endeavored to show that the Department was living up to this standard. The work of its Chemical Division, he explained, was "of a most practical character. It embraces a thorough inquiry into the constituent elements of superphosphates and other commercial manures, and it is intended to furnish the farmer with a measure of their value which will serve him *as a guide* to the selection of such manures as are adapted to his soil and the crops he wishes to cultivate."¹⁰⁶ Here was the federal government playing the role of consumer advocate, attempting to regulate the market by providing a reliable, expert, and disinterested source of information.

Pioneering agricultural scientists aligned themselves closely with this civic mission. As Rossiter shows, they hoped to convince the public to fund basic research by undertaking campaigns to expose commercial fertilizer frauds.¹⁰⁷ In doing so they began to establish themselves as independent professionals with both the knowledge and the standing to make public pronouncements on the value of commercial products. This was clearly what Johnson's friend Evan

¹⁰² *New England Farmer* 5 (May 1853): 205.

¹⁰³ *Farm Journal and Progressive Farmer* 6 (1856): 324–325.

¹⁰⁴ Cong. Globe, 35th Cong., 1st Sess., 1694.

¹⁰⁵ *Ibid.*, 37th Cong., 2nd Sess., 1692.

¹⁰⁶ James M. Swank, *The Department of Agriculture: Its History and Objects* (Washington: G.P.O., 1872), 55 (emphasis added).

¹⁰⁷ Rossiter, *Emergence of Agricultural Science*, 149–171.

Pugh envisioned during his tenure as president of the Pennsylvania Agricultural College. Pugh's ideas were strongly influenced by his experiences in Europe, particularly his visit in 1854, along with Johnson, to the world's first agricultural experiment station at Möckern near Leipzig.¹⁰⁸ The Möckern station, which in these early years was dominated by local landowners,¹⁰⁹ proved attractive to Pugh precisely because it followed a course of experimentation directed by the imperatives of farmers. The station was "remarkable for its practical bearing," Pugh noted in an article for the *Pennsylvania Farm Journal*, before explaining the need for experimental as well as educational institutions. The former were designed to "grind out original facts from uninvestigated nature, and shape them into science that they can be brought before the agriculturist and the student of the agricultural school." The basic problem was an absence of "known facts in the agricultural world sufficient to found a rational answer" to pressing questions.¹¹⁰ Accordingly, under Pugh's leadership from 1859 until his death in 1864, the Agricultural College of Pennsylvania defined itself as an "educational," "practical," and "experimental" institution, but also as an institution for "*protecting the industrial interests* of the State, and most especially the agricultural interest, from the sale of bad or worthless or too high priced material (as manures, seeds, plants, and implements used in agricultural practice)." Indeed, the former three objects were in service to the last, for as long as farmers remained "unacquainted with the principles of agricultural science," they would continue to fall prey to "quacks and impostors."¹¹¹

Pugh thought that farmers needed institutional help in order to drive "bad manures . . . from the market," but as he acknowledged, fertilizers were not all that needed authoritative testing in the 1850s.¹¹² As a variety of new implements appeared on the market and gained in popularity, agricultural reformers began to call for more rigorous trials of their relative value. From the 1840s through the 1860s field trials for plows, reapers and other implements grew increasingly elaborate, evolving from a kind of popular sporting event into highly technical affairs. This movement to provide impartial analysis of complicated new technologies paralleled the situation in the commercial fertilizer market. There were significant differences. Field trials could be organized by agricultural societies as occasional one-off events, whereas fertilizer testing and scientific investigation had to be carried on continuously in specialized institutions. In part this was because the mechanical principles involved in agricultural machinery were better understood than the chemistry behind plant fertilizers. For many farmers, however, this distinction meant little. In both cases they needed outside authorities to provide advice on the relative merits of various products.

Early agricultural fairs typically featured a plowing match with awards for machine and operator. The plowing match thus functioned as both product competition and participant sport. It soon became a veritable fair institution carried on with the requisite pomp and ceremony, as demonstrated by the American Institute's Plowing Exhibition held on October 16, 1843. As the day

¹⁰⁸ Ibid., 130.

¹⁰⁹ Mark R. Finlay, "The German Agricultural Experiment Stations and the Beginnings of American Agricultural Research," *Agricultural History* 62, no. 2 (Spring 1988): 41–50.

¹¹⁰ *Pennsylvania Farm Journal* 5 (1855): 6, 36.

¹¹¹ *The Agricultural College of Pennsylvania* (Philadelphia: William S. Young, 1862), 46–48, <http://www.archive.org/details/agriculturalcoll01penn>.

¹¹² Ibid., 48.

began the Institute's judging committee set out from New York City, accompanied by "a large number of citizens, and military and navy officers," and two marching bands. Traveling by ferry and railroad, the contingent made its way to Paterson, New Jersey, where it met up with the local committee and, forming a procession, adjourned to the Passaic hotel. There the two committees merged and chose officers for the day. The grand procession then moved to the field. After brief opening remarks by American Institute president General James Tallmadge, the competition commenced. It generated so much interest that the marshals were barely able to keep "the vast collection of sturdy yeomanry attending the exciting exhibition" from swarming the field and disturbing the plowmen's work. The committee of judges then examined each plot carefully, but the winner was evident to all and was crowned by both official decision and popular acclaim. The first premium for plow rather than plowman was awarded to Cornelius Bergen of Brooklyn after his "Self-Sharpening Plough" and nine others were tested with a dynamometer to determine their draft. The committee's subsequent report noted that Bergen's had a better draft than did the winner at the Andover, Massachusetts competition the previous October, at that time characterized as "the most lengthy and scientific trial of ploughs ever yet held in this country." After Tallmadge officially closed the exhibition with a final address, the committee returned to the Passaic Hotel "and with an appetite sharpened by the operations of the day, made havoc among the substantial dishes prepared by the goodly host."¹¹³

The plowing match, as a standard feature of agricultural fairs, was both crowd pleaser and implement trial. Organizers attempted to set judgment criteria that were both objective and rigorous, as evidenced by the use of the dynamometer and reference to the "scientific trial" at Andover, but in the end observers on the sidelines were just as ready to pronounce results as the judges in the field. By the 1850s, however, the rapid development of more complex machinery, such as mowers and reapers, raised new challenges. Even plow design had evolved significantly (Figure 3.4). "The great and increasing variety of machines," noted the New York State Agricultural Society in 1852, "evidences the urgent necessity . . . for a complete and satisfactory trial."¹¹⁴ The following year the president of a local agricultural society reported "quite an excitement amongst the farmers of the county as regards labor-saving implements, in regard to which is the cheapest, most durable, and the best worker."¹¹⁵ In 1855, therefore, leading agricultural reformers in the hay and grain growing states of New York and Pennsylvania sent a circular to several agricultural journals proposing a uniform point scale for reaper and mower trials. This was "necessary," they argued, in order "1st, that a correct decision may be obtained; 2nd, that the grounds of the award may be understood by those who wish to buy machines; and 3rd, that the awards of different committees may be understandingly compared."¹¹⁶ Although the highly elaborate scale they proposed never achieved general acceptance, others concurred with the underlying premise. After the 1856 implement competition at the annual exhibition of United States Agricultural Society (USAS), the Committee on Discretionary Premiums complained that it could not make proper decisions without systematic trials. The committee, which included Mapes protégés George Waring and Henry Olcott, therefore proposed a "Great National

¹¹³ *American Institute Report on Agriculture* 3 (1844): 34–37.

¹¹⁴ *Transactions of the New York State Agricultural Society* 12 (1853): 9.

¹¹⁵ *Ibid.* 12 (1853): 365.

¹¹⁶ *Pennsylvania Farm Journal* 5 (1855): 235.

Trial in the Field” that would adjudicate between the claims of the tried and true, on the one hand, and the novel and innovative, on the other.¹¹⁷ With this plan the committee responded to a common grievance, voiced by farmers, reformers and manufacturers alike, against awarding premiums on the basis of visual examination alone. Indicating that he was no knee-jerk enemy of product-testing, Mapes commended the proposed national field trial, arguing that “awarding premiums . . . by mere inspections without trial” was “worse than useless.”¹¹⁸ Another writer opined that implement trials “as heretofore conducted . . . have been little more than farces.” He therefore called on the faculty of the new Farmers’ High School of Pennsylvania to test farm implements and pronounce on their merits.¹¹⁹

It was probably unrealistic to expect any of the handful of young agricultural colleges to engage in systematic implement testing, for this was a larger undertaking than might at first be apparent. The actual organization in 1857 of the Great National Trial proposed by the Committee on Discretionary Premiums the year before illustrates just how big an undertaking it was. Because different implements were designed for different tasks and different crops, they could not all be tested at the same time and place. While most kinds of implements were to be assessed at the September USAS fair in Louisville, Kentucky, the agricultural press focused much of its attention on the “Great National Trial of Mowers and Reapers” to be held at Syracuse during the July harvest. The organizers promised to provide each machine with “at least four acres of grain and three acres of grass” in measured plots.¹²⁰ With over ninety entrants reported at one point, probably somewhere between 300 and 650 acres had to be allotted (depending on how many machines competed as both mowers and reapers), and all within a span of distance reasonably traversable by the judges’ committee. Ultimately only about forty distinct machines arrived, several contending in both categories. Nevertheless it was an event of unprecedented scale, as duly reported by the agricultural press. The *New England Farmer* noted that “there have been trials in abundance, in various sections of the country, where committees have given decisions after seeing two or three machines cut an hour or two each. But it was reserved for the United States Agricultural Society to bring into competition the best machines in the republic, and to submit them to a thorough and accurate trial, before a jury composed of nineteen practical men, coming from sixteen different States.”¹²¹ The *Valley Farmer* characterized the occasion as “the most important trial ever held in this country.”¹²² In due course the manufacturers who earned premiums featured the fact in their advertisements (Figure 3.5), fulfilling the New York *Evening Post’s* prediction that “the publicity which [the trial] is sure to give to the subject of machinery in agriculture cannot fail to be of great benefit to both farmer and inventor.”¹²³ The scale of the enterprise ensured that it was not repeated until after the Civil War, when the New York legislature appropriated the substantial sum of \$45,000 for a “Second

¹¹⁷ *Farm Journal and Progressive Farmer* 6 (1856): 355.

¹¹⁸ *Working Farmer* 9 (1857): 8.

¹¹⁹ *Farm Journal and Progressive Farmer* 6 (1856): 28.

¹²⁰ *Maine Farmer*, 11 Jun 1857, 1.

¹²¹ *New England Farmer* 9 (1857): 420.

¹²² *Valley Farmer* 9 (1857): 269.

¹²³ Reprinted in *Spirit of the Times* 27 (1857): 297.

Great National Field Trial” featuring nineteen distinct implement and machine classes. The report of that trial’s results, replete with charts, illustrations and figures, ran to over two hundred pages.¹²⁴

The “Great Field Trial” episodes and the early efforts at fertilizer testing by the country’s agricultural colleges indicate both the need and the difficulty of establishing authoritative institutions to provide structure for an emerging market of new-fangled agricultural products. Taming the fertilizer market perhaps gave the greatest difficulty. As Richard Wines observes, “extensive fraudulent practices and the widespread suspicion of these practices poisoned the entire fertilizer industry” for years until effective inspection regimes finally began to take shape in the 1870s and 1880s.¹²⁵ Among the problems endemic to the fertilizer trade was the potential variability of any given product over time and the impossibility of assessing a product’s real value without elaborate chemical tests. Implements were less prone to these difficulties, but the difference was a matter of degree rather than kind. The quality of individual implements could also vary significantly, especially as a result of the licensing system in which patents were farmed out to regional manufacturers. And while a purchaser might readily assess a mower’s capabilities with a simple field trial, its long-term durability, ease of repair, and performance in varying field conditions remained matters of speculation.¹²⁶

If purchasers thus tempered their enthusiasm for novel products, businessmen recognized the impediment to what Wines calls “market stability.”¹²⁷ As a group, therefore, businessmen supported the structure provided by public field tests, fertilizer inspection regimes, and agricultural research and education, for they recognized the usefulness of institutions that could provide the tensile strength for market growth. In the 1870s, for instance, the fertilizer manufacturer Levi Stockbridge argued that it was the “bounden duty of government” to make sure everyone was playing by the same rules.¹²⁸ On the other hand, as individual operations, purveyors of new farming technologies lashed out against adverse assessments of their own products. Thus a Pennsylvania maker of Kirby’s American Harvester devoted eleven pages of its 1859 catalog to a careful explication of the Kirby’s strong performance at the Great National Field Trial, while simultaneously the firm vigorously disputed in the local papers the fairness of a smaller-scale trial organized by a local agricultural society.¹²⁹ Similarly Richard Lamb Allen, a mainstay of New York’s agricultural

¹²⁴ *New York Times*, 18 Sep 1866, 5; *Second National Trial of Mowers, Reapers, Horse Powers, Etc., at Auburn, 1866* (Albany: Benthuyesen, 1867).

¹²⁵ Wines, *Fertilizer in America*, 126-135, quotation on 128.

¹²⁶ See, for example, the comments of an agricultural editor regarding another proposed implement trial in the *Cultivator and Country Gentleman* 27 (15 Mar 1866): 169.

¹²⁷ Wines, *Fertilizer in America*, 132–133.

¹²⁸ Quoted in Marcus, *Agricultural Science and the Quest for Legitimacy*, 42. Stockbridge later donated money from his manufacturing operation to help establish a government experiment station (84). In 1885 the National Fertilizer Association, an industry group, asked of the Association of Official Agricultural Chemists, an organization of state bureaucrats, only that it adopt a uniform method of analyzing and labeling commercial fertilizers to be used in every state (53-54).

¹²⁹ *Independent Republican* (Montrose, PA), 19 Aug 1858, 2; 9 Sep 1858, 2; *Second Annual Descriptive and Illustrative Catalogue of Agricultural Implements & Machines: Manufactured at the Tioga-Point Agricultural & Junction Iron Works* (Elmira, N.Y.: Daily Advertiser Steam Book and Job Press, 1859).

institutions throughout the antebellum era, protested the treatment accorded to his machine by the Great Trial's judging committee.¹³⁰

Although product trials and agricultural research institutions were often framed as consumer protections, they were part and parcel of the deeper reform effort to greatly *expand* the adoption of new technologies. In other words, such regulating and structuring institutions were meant to domesticate the agricultural technology market in order to ensure orderly growth. Reformers, scientists and farmers all relied on private enterprise to develop and distribute the practical applications of new knowledge. Commercial purveyors of novel technologies therefore remained integral, if sometimes uneasy, members of the reform alliance. That this was the case is evidenced by businessmen's contributions to the establishment of agricultural colleges. In New York, for example, the Allen brothers, who operated a large agricultural supply warehouse and manufactory, were centrally involved in efforts to found an agricultural college from the 1830s on.¹³¹ Levi Stockbridge was not only a fertilizer maker but an early professor at the Massachusetts Agricultural College.¹³² The founding of the Maryland Agricultural College in 1856 was made possible in part by the stock subscriptions of various agricultural supply companies. These subscribers included the guano import firm, F. & Brothers Barreda (250 shares); George Page & Co., a manufacturer of saw mills, steam engines, horse powers, tobacco presses, grist mills, and so on (100 shares); R. Sinclair, Jr. & Co., a Baltimore agricultural supply merchant (100 shares); the famous reaper makers, Obed Hussey and C.H. McCormick (50 shares each); E. Whitman & Co., a large Baltimore agricultural implements and supply firm (30 shares); and John Kettlewell, a maker of artificial fertilizers (10 shares).¹³³ This show of support from area businessmen is all the more significant given that the college had its genesis in planters' specific desire to "test the many brands of commercial fertilizers and new types of farm machinery coming into the market."¹³⁴ Indeed, when the college opened its doors in 1859, it immediately began analyzing fertilizers offered for sale in Baltimore and Washington, DC.¹³⁵

¹³⁰ Richard Lamb Allen, *Protest Against the Report and Awards on the Field Trial of Reapers and Mowers, and Harvest Implements by the United States Agricultural Society, at Syracuse, July, 1857* (New York, 1858).

¹³¹ The Allens were prominent upstate agricultural improvers who at one point or another had their hands in virtually every facet of the reform movement. Lewis Falley Allen was named a commissioner to receive stock subscriptions in the charter for a New York agricultural college in 1837; *Farmers' Register* 4 (1 Mar 1837), 690. For Allen's advocacy of agricultural colleges, see, *American Agriculturist* 3 (Feb 1844): 52. For additional biographical information, see Ulysses Prentiss Hedrick, *A History of Agriculture in the State of New York* (Albany: Printed for the New York State Agriculture Society, 1933), 383; Richard Lamb Allen, *Last letters of Richard L. Allen* (New York: Dodd & Mead, 1871), 3-8; Donald B. Marti, "Agricultural Journalism and the Diffusion of Knowledge: The First Half-Century in America," *Agricultural History* 54, no. 1 (January 1980): 35; World Biographical Information System Online, American Biographical Archive, Series I, 17, 417.

¹³² Marcus, *Agricultural Science and the Quest for Legitimacy*, 42.

¹³³ *Report of the Register of the Maryland Agricultural College, to the Board of Trustees; Act of Incorporation, with Amendments Thereto: List of Officers, and Names of Stockholders, with Number of Shares Held by Each* (Baltimore: Samuel S. Mills, 1858), 23-29; for the advertisements of some of these firms, see *DeBow's Review* 5, nos. 5 & 6 (May-June 1861), advertiser section; *American Farmer* 13 (Jul 1857): 39; 14 (Jun 1859): 391, 394.

¹³⁴ George H. Callcott, *A History of the University of Maryland* (Baltimore: Maryland Historical Society, 1966), 139, quoted in Lewis E. Winston Jr., "Benjamin Hallowell: Educational Leader of Virginia, Maryland, and Pennsylvania, 1799-1877" (Ed.D. diss., Virginia Polytechnic Institute and State University, 1998), 55.

¹³⁵ Alfred Charles True, *A History of Agricultural Education in the United States, 1785-1925*, reprint of 1929 ed., United States Department of Agriculture Miscellaneous Publication No. 36 (New York: Arno Press, 1969), <http://www.archive.org/details/historyofagricul29true>, 66-67.

In short, the simultaneous crisis of expertise and market expansion in commercial agricultural technologies of the 1850s drove reformers, scientists, and businessmen alike to seek public, authoritative institutions able to bring form to an inchoate situation. It was in this context that reformers began to plan large-scale agricultural institutions able to conduct original research, test products, and educate farmers. This effort drew on both a longer heritage of agricultural schooling advocacy and a broader movement for technical training known as “industrial education.” The concrete development of this institutional agenda forms the subject of the next chapter.

CHAPTER 4

FROM “PRIVATE ENTERPRISE” TO “GOVERNMENTAL ACTION”

THE STRUGGLE TO BUILD INSTITUTIONS OF AGRICULTURAL EDUCATION AND RESEARCH

This chapter tells a story of persistent disappointment. Throughout the antebellum period agricultural reformers strove to build institutions of agricultural education and research, yet until the late 1850s their efforts came to very little. The main reason for this disappointing record was inadequate funding. Time and again reformers severely underestimated the costs involved in establishing agricultural schools, leading to the collapse of their efforts large and small. Moreover, as reformers came to insist that such institutions not only educate farmers but conduct original research, the costs involved only increased. Particularly after the discrediting of soil analysis in the early 1850s brought about a general reassessment of the state of agricultural science, reformers realized that education could not move forward without a parallel program of credible scientific investigation. As a result, the small-scale private initiatives of the 1840s gave way to state-level lobbying for public funding in the early to mid-1850s and, when state funding proved unreliable, to efforts at the federal level that eventuated in the Morrill Land Grant Act and the creation of the Department of Agriculture in 1862. This chapter details the struggles of private and state-level initiatives while the next gives the federal story.

Although I deal in this chapter primarily with the nuts and bolts of antebellum efforts to establish agricultural colleges, it is worth pausing at the outset to consider the broad structural context in which those efforts occurred. Many historians have noted that agricultural education and research in the United States did not really begin to take off until the end of the nineteenth century, if not later. They cite “only a few scattered private endeavors in agricultural education” during the 1830s and 1840s, suggest that farmers “were generally apathetic on the subject of agricultural and mechanical colleges,” and point to “anemic” enrollments to argue that the land grant colleges “were created by reformers, not practitioners, and for an ideal, not for an established need.”¹ There are good reasons to dispute these claims of general farmer indifference.² As this chapter shows, at least

¹ Donald B. Marti, “The Purposes of Agricultural Education: Ideas and Projects in New York State, 1819-1865,” *Agricultural History* 45, no. 4 (October 1971): 279; Gould P. Colman, *Education and Agriculture: A History of the New York State College of Agriculture at Cornell University* (Ithaca, N.Y.: Cornell University, 1963), 31; Eldon L. Johnson, “Misconceptions About the Early Land-Grant Colleges,” *The Journal of Higher Education* 52, no. 4 (August 1981): 336, 338.

² Mary Summers gives a powerful critique of this literature in “Conflicting Visions” (unpublished doctoral dissertation manuscript in author’s possession), chap. 4. According to Summers, both the conventional and radical academic views hold that “there never was a mass movement for agricultural education. The shared model of politics that results in such a premise is that political movements exist only as a reflection of public opinion. If you can show that there was widespread prejudice against a particular idea, then there was never a movement for it. Given such a definition, there was *not* a movement for agricultural education in this country, but neither was there a movement for abolition, or women’s rights, both of which were closely associated in the 1850s with the causes of agricultural science and education. Nor was there in the post-war period a Granger or a Farmers’ Alliance movement, both of which were also usually led by promoters of scientific agriculture” (emphasis in original).

two pioneering agricultural colleges garnered considerable enthusiasm and financial support from local farmers in the 1850s, while a large number of rural academies initiated courses in agricultural chemistry in the same period. Moreover, in the 1870s and 1880s many Grange organizations subjected their state land grant colleges to intense scrutiny, demanding that they teach practical farming rather than move toward general university education; later the Farmers' Alliance did likewise.³ More broadly, the vast scope of the agricultural reform movement—with its dozens of journals and hundreds of local societies and fairs—was sustained by a rural middle class that evinced a strong commitment to educational reform and farm modernization in general (Chapter 2).

It remains a fact that relatively few students chose to pursue agricultural degrees, but this does not require resort to farmer “apathy” as an explanation. The structural impediments to a system of agricultural education and research provide sufficient cause. Education scholars Nancy Beadie and Kim Tolley have begun to elaborate a conceptual framework of interrelated education and labor markets for understanding the development of educational institutions in the nineteenth century.⁴ In the case of agricultural schooling, the challenges to establishing a viable system were varied but all stemmed from the relationship between education and working life. Reformers initially intended that agricultural colleges would directly train farmers' sons in the practices of scientific agriculture. Many realized, however, that colleges could never reach very many of the nation's farmers. Beyond the sheer numbers, there was the question of individual means. Even middle-class farmers generally could not afford both to send their sons to college and to provide them with a farm. It was one or the other—landed capital or intellectual capital—but rarely both (daughters, of course, were another story). For this reason, as early as the 1840s many reformers suggested alternative means of reaching farmers, particularly through the common schools and traveling lectureships. As James Mapes put it, “the plowmen cannot be talked to over the walls; the instructors must come out and go among them.”⁵

It appears, however, that reformers were partially preempted by rural academies, many of which began offering courses in agricultural chemistry from about the mid-1840s. These courses were typically open to the public and given during the winter term when farmers were most free to attend. In conjunction with reformers' efforts to establish traveling lectureships, the evidence suggests that these academy efforts laid foundations for the winter farmers' institutes that became

³ M. Elizabeth Sanders, *Roots of Reform: Farmers, Workers, and the American State, 1877-1917* (Chicago: University of Chicago Press, 1999), 316–317; Edwin C Rozwenc, *Agricultural Policies in Vermont, 1860-1945* (Montpelier, VT: Vermont Historical Society, 1981), 20–21; Charles Postel, *The Populist Vision* (Oxford: Oxford University Press, 2007), 45–48; Alan I. Marcus, *Agricultural Science and the Quest for Legitimacy: Farmers, Agricultural Colleges, and Experiment Stations, 1870-1890* (Ames: Iowa State University Press, 1985), 36–38; Summers, “Conflicting Visions,” chap. 4.

⁴ Nancy Beadie, “Toward a History of Education Markets in the United States: An Introduction,” *Social Science History* 32, no. 1 (2008): 47–73; Nancy Beadie, “Tuition Funding for Common Schools: Education Markets and Market Regulation in Rural New York, 1815–1850,” *Social Science History* 32, no. 1 (2008): 107–133; Kimberley Tolley, “Music Teachers in the North Carolina Education Market, 1800–1840: How Mrs. Sambourne Earned a ‘Comfortable Living for Herself and Her Children’,” *Social Science History* 32, no. 1 (2008): 75–106; Nancy Beadie and Kimberley Tolley, “Leaving Home to Teach: The Diary of Susan Nye Hutchison, 1815-1841,” in *Chartered Schools: Two Hundred Years of Independent Academies in the United States, 1727-1925*, ed. Nancy Beadie and Kimberly Tolley (New York: RoutledgeFalmer, 2002), 161–185.

⁵ *Working Farmer* 13 (Dec 1861): 270; see also F.H. Fowler, “Early Agricultural Education in Massachusetts,” in *Fifty-Fourth Annual Report of the Secretary of the Massachusetts State Board of Agriculture* (Boston: Wright & Potter Printing Co., 1907), 374; *New England Farmer* 5 (Jan 1853): 16, 34–35, 49.

popular at the end of the century and for the later development of the extension system.⁶ As Beadie and Tolley have shown, antebellum academies provided a multi-level curriculum, including college-level courses, and a flexible schedule that allowed rural youth to intersperse work and study. They were thus “the prevailing institution of higher schooling in eighteenth- and nineteenth-century America.”⁷ By offering courses in agricultural chemistry in addition to traditional courses with a bearing on farming such as botany, geology, mineralogy and surveying, rural academies may have satisfied some of the demand for higher agricultural education.

A formal agricultural degree led to a career as a specialist, not as a farmer.⁸ Initially, however, there were few employment outlets. “In a period of limited opportunities,” Earle D. Ross wrote long ago, specialists were attracted to the Department of Agriculture (USDA) “in spite of low salaries and unfavorable conditions.”⁹ Unlike mechanical engineers, industrial chemists, and mining experts, agricultural graduates did not enjoy robust demand for their skills from private industry. They also faced obstacles as entrepreneurs because many of the period’s biological innovations, such as pest-resistant crop varieties, could not be patented. By century’s end this situation had begun to change, in part because developing food industries and fertilizer manufacturers found increasing use for agricultural experts. More important, however, was the proliferation of new government institutions, including land grant universities, federally funded experiment stations, and other state and federal agricultural agencies.¹⁰ The USDA, for example, expanded rapidly after its elevation to cabinet status in 1889. Just as increased public funding for schools helped create the teaching jobs that made schooling itself attractive (particularly for women), public funding for new agricultural institutions at century’s end suddenly made advanced agricultural studies a viable option.

The “land grant idea” of general university education combined with experimental research and extension work therefore did not coalesce until the early twentieth century. Several of the factors for this delay can be discerned in the early experience of the Rensselaer School, now the Rensselaer Polytechnic Institute, which one historian calls the country’s “first college of agriculture.”¹¹ Founded in 1824, the school’s original mission was to teach “the application of science to the common purposes of life.”¹² For founder and patron Stephen Van Rensselaer, who at the time was chairman of both the New York Board of Agriculture and the Committee of Agriculture of the United States House of Representatives, the “common purposes of life” included

⁶ Sanders, *Roots of Reform*, 321; for one account of the winter farmers’ institutes, see, *A Brief History of the State Board of Agriculture, the State Fair, District and Agricultural Societies, and Farmers’ Institutes in Ohio* (Columbus, OH: Fred. J. Heer, 1899).

⁷ Nancy Beadie and Kimberley Tolley, “A School for Every Purpose: An Introduction to the History of Academies in the United States,” in *Chartered Schools: Two Hundred Years of Independent Academies in the United States, 1727-1925*, ed. Nancy Beadie and Kimberley Tolley (New York: RoutledgeFalmer, 2002), 4.

⁸ Colman, *Education and Agriculture*, 50, 61.

⁹ Earle D. Ross, “The United States Department of Agriculture During the Commissionership: A Study in Politics, Administration, and Technology, 1862-1889,” *Agricultural History* 20, no. 3 (July 1946): 138.

¹⁰ *Experiment Station Record* 16 (Apr 1905): 738.

¹¹ Ray Palmer Baker, *A Chapter in American Education: Rensselaer Polytechnic Institute, 1824-1924* (New York: Charles Scribner’s Sons, 1924), 3, http://www.rpi.edu/library/archives/e-collections/Baker,RP_1924/index.html; see also Palmer Chamberlain Ricketts, *History of Rensselaer Polytechnic Institute, 1824-1914* (New York: John Wiley and Sons, 1914), 1-107.

¹² Letter of Stephen Van Rensselaer to Samuel Blatchford (5 Nov 1824) and Minutes of the Board of Trustees (29 Dec 1824) in “Early Documents of Rensselaer,” September 14, 2010, http://www.lib.rpi.edu/dept/library/html/Archives/early_documents/.

farming as a matter of course. Over the years the Rensselaer School turned out a steady flow of uniquely qualified graduates in a period when few schools offered advanced scientific training. Several of these graduates would become important actors in the agricultural reform movement, including the geologists James Hall, Ebenezer Emmons and George Hammell Cook, the entomologist Asa Fitch, and the chemist Eben Norton Horsford.¹³ Nevertheless, around 1835 agricultural science began to decline at Rensselaer as civil engineering and industrial chemistry took precedence and after 1850 it emerged almost wholly as an engineering school. The reason for the shift is not difficult to fathom. The nation's rapid development in the antebellum period generated strong demand for qualified engineers to build roads, bridges, steam engines and so on, while industries from tanning to textiles required competent chemists. Neither the public nor the private sectors, however, were prepared to receive graduates in the field of agricultural science.¹⁴ By the postbellum period this situation had changed enough to allow a few programs of advanced agricultural study and research to emerge, yet employment options remained limited. During the 1870s Cornell University, founded as a land grant institution out of the wreckage of the ill-fated New York State Agricultural College, *graduated* in some years a fifth of its students in engineering while it *enrolled* no more than eight percent in its agricultural program.¹⁵

In the 1850s, despite the generally recognized need for agricultural research, even the best trained agricultural scientists struggled to find employment. Eben Horsford, who was the first American to study with the famous German chemist Justus von Liebig, found so little support at Harvard in his ambition to replicate Liebig's research laboratory in the United States that he eventually moved entirely into industrial chemistry.¹⁶ Such leading postbellum agricultural scientists as Samuel W. Johnson and William H. Brewer bounced around throughout the 1850s. Johnson's father worried that his son could not make a living in his chosen profession, the institutional framework for which barely existed.¹⁷ Indeed, in 1851, Johnson attempted to invent that framework out of whole cloth when he proposed "county agricultural institutes" that would fund laboratories staffed by salaried agricultural chemists (such as himself). Johnson noted that "there are certain manufacturing establishments in our country, that pay competent men \$2,500 annual salary, and

¹³ See, in addition to the school histories cited above, Margaret W. Rossiter, *The Emergence of Agricultural Science: Justus Liebig and the Americans, 1840-1880* (New Haven: Yale University Press, 1975), 51-52.

¹⁴ An important partial exception was the proliferation of geologic surveys. According to one count, Amos Eaton's graduates at the Rensselaer School, along with surveyors trained by William Maclure at the Owenite New Harmony settlement, were integrally involved in almost half of the 55 geologic surveys made nationwide between 1830 and 1860. See Markes E. Johnson, "Geology in American Education: 1825-1860," *Geological Society of America Bulletin* 88, no. 8 (August 1977): 1192-1198.

¹⁵ Nancy Beadie, "From Academy to University in New York State: The Genesee Institutions and the Importance of Capital to the Success of an Idea, 1848-1871," *History of Higher Education Annual* 14 (1994): 27; Colman, *Education and Agriculture*, 57, 69, 78.

¹⁶ Rossiter, *Emergence of Agricultural Science*, 87.

¹⁷ *Ibid.*, 129; Elizabeth A. Osborne, ed., *From the Letter-Files of S. W. Johnson* (New Haven: Yale University Press, 1913), 69. In later years, when several colleges and universities, in addition to the new land grant institutions, began to form scientific departments, it was often difficult to find qualified personnel, leading ambitious administrators to poach the few available agricultural scientists from other institutions (Colman, *Education and Agriculture*, 47-49). However, while this situation benefitted a few professors, it did not amount to enough employment to draw many students into agricultural study. Indeed, it was also difficult to find engineering professors, but the problem there was competition from the private sector; Stanley M Guralnick, *Science and the Ante-Bellum American College* (Philadelphia: American Philosophical Society, 1975), 135.

even more.”¹⁸ But his plan illustrated precisely why farming differed from manufacturing. Individual farmers, unlike industrial corporations, were not in a position to hire their own expert researchers, and this is why Johnson proposed that they associate together in county agricultural societies for the purpose. As reformers’ experiences in the 1840s and 1850s would show, however, the government was a much more likely form of associative action when it came to building institutions of agricultural education and research.

FALSE STARTS: PATRICIAN AGRICULTURAL EDUCATION AND MANUAL LABOR SCHOOLS IN THE EARLY 1800S

Proposals for agricultural education began to appear during the Early Republic if not earlier. Reflecting the patrician status of the period’s reformers, they tended to fall into two categories. On the one hand, reformers envisioned agricultural instruction alongside the classical college curriculum for the sons of the elite. On the other hand, they embraced the idea of manual labor schools, modeled on the famous Fellenberg school in Hofwyl, Switzerland, for youth of moderate means. By the late 1830s, however, these ideas were losing ground. The manual labor concept proved ineffective and fell out of favor, while state support for patrician agricultural colleges failed the test of democratic politics.

The earliest efforts at institutionalizing formal agricultural education aimed to establish professorships at America’s leading colleges. None, however, resulted in much. In 1792 Samuel Latham Mitchill, a renowned figure in the early national period both scientifically and politically as well as a leading member of the New York Society for the Promotion of Agriculture, Arts and Manufactures, became professor of natural history, chemistry and agriculture at Columbia College. Mitchill held this position for fifteen years but does not appear ever to have lectured on agriculture.¹⁹ In the first decade of the 1800s the Massachusetts Society for the Promotion of Agriculture obtained state funding to support a professorship in natural history at Harvard with special emphasis on observation of vegetation and harmful insects. This fund, however, ultimately went to the establishment of a botanic garden.²⁰ About a decade later the University of Pennsylvania created a Faculty of Natural Sciences that was to include a professor of horticulture and agriculture, but the position was never filled.²¹ Then in 1822 the Agricultural Society of Albemarle voted to contribute \$1,000 toward the establishment of a chair of agriculture at the University of Virginia. Despite the

¹⁸ *Cultivator* 8 (Aug 1851): 264.

¹⁹ Colman, *Education and Agriculture*, 20; Keir B. Sterling, “Mitchill, Samuel Latham,” *American National Biography Online* <http://www.anb.org/articles/13/13-01154.html>; William H. Brewer, “Agricultural Progress,” in *The First Century of the Republic: A Review of American Progress*, ed. Theodore Dwight Woolsey (New York: Harper & Brothers, 1876), 184.

²⁰ Massachusetts Society for Promoting Agriculture, *Centennial Year, 1792-1892, of the Massachusetts Society for Promoting Agriculture* (Salem, MA: Salem Observer Office, 1892), 34, 45, <http://www.archive.org/details/centennialyear1700massrich>.

²¹ Simon Baatz, “*Venerate the Plough*”: *A History of the Philadelphia Society for Promoting Agriculture, 1785-1985* (Philadelphia: The Philadelphia Society for Promoting Agriculture, 1985), 28.

endorsement of James Madison, however, nothing ever came of the plan, nor of a later attempt to revive it.²²

Similar proposals for agricultural professorships at existing colleges continued, but by the second decade of the nineteenth century reformers were more likely to call for separate agricultural institutions. These calls retained a distinctive elite flavor. Frequently their leading theme was that too many young men were attempting to enter the legal, medical and clerical professions. As early as 1811, “A Farmer” contended that the professions had become “overstocked,” but that state supported agricultural schools might convert the “idlers” into “good practical farmers.”²³ Similar statements permeated the movement for agricultural education for the next three decades. As late as 1845 Horace Greeley could still write that because “the Country is greatly overstocked with Lawyers, Doctors, etc. . . . the soil is the only sure recourse.” This vision of agricultural education as preparation for a profession akin to the law or the ministry reflected the wealth and standing of leading reformers in the early republic, some of whom believed that “many wealthy merchants” would gladly have their sons trained as scientific farmers.²⁴ Even such a workingman’s advocate as Greeley thought at first of agricultural graduates as a sort of vanguard that would set examples for the “the less informed many.”²⁵ Such elitist rhetoric contrasted sharply with the later push for agricultural schooling that wrapped itself in the rhetoric of democratic access and public service.

In 1819 Simeon De Witt gave a full exposition of the patrician reformers’ vision in a pamphlet entitled, *Considerations on the Necessity of Establishing an Agricultural College, and Having More of the Children of Wealthy Citizens, Educated for the Profession of Farming*.²⁶ De Witt, who as president of the New York Society for the Promotion of the Useful Arts (SPUA) was closely connected to New York’s reform-minded landlords such as Stephen Van Rensselaer and Robert Livingston, argued that the sons of the rich, disdaining anything but a traditional legal, medical, or clerical profession, too often sunk into lives of urban dissipation and ruin. Since no gentleman’s son would abide apprenticeship under a common farmer, De Witt proposed a grand state college to teach both the theory and practice of modern agriculture at the appropriately elevated level. To be sure, De Witt intended these lessons for the wealthy to trickle down to the average farmer. He also envisioned, as a secondary purpose of the college, agricultural improvement through experimentation. But it was easy to read his pamphlet as a plea for propping up the privileged classes—at state expense—so that they would not sink in competition with “the descendants of the industrious mechanics” and “those extraordinary geniuses, that not unfrequently rise from the mansions of obscurity.”²⁷ Appearing just at the emergence of a new political discourse emphasizing democracy over privilege, such rhetoric

²² *Plough Boy* 4 (3 Dec 1822): 205; H. G. Good, “Early Attempts to Teach Agriculture in Old Virginia,” *The Virginia Magazine of History and Biography* 48, no. 4 (October 1, 1940): 341–346; Charles W. Turner, “Virginia State Agricultural Societies, 1811-1860,” *Agricultural History* 38, no. 3 (July 1964): 172–176.

²³ *Agricultural Museum* 2 (20 Mar 1811): 294.

²⁴ *Ibid.*, 14 Feb 1844, 1; see also the notice for the “Dutchess Agricultural Institute,” 21 Feb 1846, 2.

²⁵ *Ibid.*, 6 May 1845, 2.

²⁶ *Transactions of the Society for the Promotion of Useful Arts, in the State of New-York*, vol. 4, pt. 2 (Albany, NY: Websters and Skinners, 1819); Liberty Hyde Bailey, ed., *Cyclopedia of American Agriculture*, vol. 4: Farm and Community (New York: The Macmillan Company, 1911), 386–387.

²⁷ Simeon De Witt, *Considerations on the Necessity of Establishing an Agricultural College, and Having More of the Children of Wealthy Citizens, Educated for the Profession of Farming* (Albany: Websters and Skinners, 1819), quotations on pp. 5 and 25–26.

formed an easy target, particularly for New York's future Jacksonians connected with Martin Van Buren. Reformers soon found themselves branded, at best, as dilettantes, at worst, as arrogant aristocrats.

While the New York legislature declined to consider De Witt's plan, it did establish a well-funded state Board of Agriculture headed by Stephen Van Rensselaer and other members of the SPUA. In 1822 the Board brought on Jesse Buel as recording secretary. Buel was the son of "unassuming" New England farmers who made his fortune as a printer and newspaper publisher, in the process acquiring a judgeship and considerable land holdings. In the early 1820s he retired to a farm near Albany where he devoted the rest of his life to scientific farming and tireless advocacy of agricultural education.²⁸ Though a self made man who wrote of reaching "farmers and mechanics," Buel perpetuated an elite vision of "polite education, combined with a practical knowledge of agriculture."²⁹ In 1833 he authored the New York State Agricultural Society's proposal for a college which suggested tuition charges of \$150 a year, a figure comparable to the costs of attending Harvard or Yale.³⁰ "If it should be said that this would be a school only for the children of the opulent," a sympathetic committee of the state assembly explained, "the unanswerable argument is, that it is the same in regard to our colleges, and must be so of necessity."³¹

Others, however, did not perceive the "necessity." Labor leader George Henry Evans labeled the committee's report "an aristocratic production," adding that while he favored a state agricultural and mechanical school, he was "not in favor of such an institution for the exclusive benefit of the rich."³² Opponents of the plan also included many of the state's Jacksonian Bucktails, who in the mid-1820s attacked and ultimately killed the Board of Agriculture.³³ A decade later the legislature did charter an agricultural college, but it refused to provide public funding, instead naming Buel and others as commissioners to solicit \$100,000 in stock subscriptions. Absurdly, the charter barred individuals from purchasing shares totaling more than \$1,000 and the corporation from paying dividends exceeding five percent per year, as if the absence of such safeguards would open the door to wanton profiteering.³⁴ The school's opponents need not have feared, however, for the commissioners' fundraising efforts were quickly doomed by the Panic of 1837.³⁵ For nearly two decades reformers would struggle without success to win public aid for a similar venture.

Other reformers, meanwhile, pursued a very different kind of institution: the manual labor school, based on Philipp Emanuel von Fellenberg's establishment on his Hofwyl estate in Switzerland. Fellenberg combined academic instruction with agricultural and mechanical labor in a

²⁸ Harry J. Carman, "Introduction," in *Jesse Buel, Agricultural Reformer: Selections from His Writings*, ed. Harry J. Carman (Ayer Publishing, 1972), xv–xxvi; Summers, "Conflicting Visions," chap. 2.

²⁹ *Plough Boy* 4 (10 Dec 1822): 218.

³⁰ Marti, "The Purposes of Agricultural Education," 278.

³¹ *New York Farmer* 6 (Apr 1833): 100.

³² *Workingman's Advocate* 4 (13 Apr 1833): 1.

³³ Donald B. Marti, "Early Agricultural Societies in New York: The Foundations of Improvement," *New York History* 48 (October 1967): 326–327.

³⁴ As late as 1844, however, Horace Greeley continued under the illusion that an agricultural college would "fully recompense the stockholders" (*New York Daily Tribune*, 14 Feb 1844, p. 1).

³⁵ Bailey, *Cyclopedia of American Agriculture*, vol. 4, 389–390; Carman, *Jesse Buel, Agricultural Reformer*, xxiv–xxv.

way that aimed to provide students both with technical training and a means of their own support.³⁶ In the 1820s and 1830s the Fellenberg system appealed to a broad range of educational reformers in the United States, from the radical to the conservative. Evangelical abolitionists were particularly drawn to the idea. Theodore Dwight Weld became a leading exponent of manual labor schooling after spending time at the Oneida Institute, a multiracial evangelical seminary in Whitesboro, New York where students labored three hours a day in exchange for room, board, and tuition. Weld subsequently helped found Oberlin College as a manual labor institution, the motto on its seal reading “Learning & Labor.”³⁷ Radical abolitionists, however, were hardly the only ones to embrace the concept. Indeed, many manual labor institutions were founded in the South.³⁸ Another champion was Robert Dale Owen, who had himself been educated at Hofwyl and who based his “state guardianship” plan of universal free education on his experiences there. This and other plans for state supported manual labor schools enjoyed the backing of many workingmen’s advocates, including George Henry Evans.³⁹

For agricultural reformers, who in common with labor leaders sought to develop new forms of vocational training, the manual labor idea appealed as a means for students both to finance their own education and to learn the practical skills of a successful farmer.⁴⁰ After visiting Fellenberg’s school in the 1820s, for example, the Pennsylvania gentleman farmer Anthony Morris determined to found a similar institution near Philadelphia, where he hoped to provide the sons of “moderate farmers and mechanics” with instruction in “theoretical and practical agriculture, the sciences connected with it, and the mechanic arts.” Morris quickly obtained the endorsement of the Pennsylvania Society for the Promotion of Agriculture, but his school seems to have lasted only a single term.⁴¹ Similar efforts also ran into problems and by the mid-1840s manual labor schools had largely fallen out of favor. The system’s self-financing promise proved elusive because students lacked either the skills or the desire to work effectively.⁴² Moreover, in at least one case the host community opposed the very idea of a self-financing institution because it vitiated one of the chief

³⁶ Herbert Galen Lull, *The Manual Labor Movement in the United States*, Bulletin of the University of Washington 8 (Seattle, 1914); Joseph J. McCadden, *Education in Pennsylvania, 1801-1835 and Its Debt to Robert Vaux* (Arno Press, 1969 [1937]), 58-72; *Rural Magazine and Literary Evening Fireside* 1 (1 Jun 1820): 206.

³⁷ Paul Goodman, “The Manual Labor Movement and the Origins of Abolitionism,” *Journal of the Early Republic* 13, no. 3 (October 1, 1993): 355–388; *First Annual Report of the Society for Promoting Manual Labor in Literary Institutions: Including the Report of Their General Agent, Theodore D. Weld. January 28, 1833* (New York: S. W. Benedict & Co., 1833); Grant Forssberg, “The Origins of Knox College” <http://www.knox.edu/about-knox/we-are-knox/our-history/perspectives-on-knox-history/origins-of-knox-college.html>.

³⁸ Lull, *The Manual Labor Movement in the United States*, 381-386; one planned Fellenberg school even earned the endorsement of James Monroe; Good, “Early Attempts to Teach Agriculture in Old Virginia,” 347-350.

³⁹ Robert Dale Owen, *Threading My Way: Twenty-Seven Years of Autobiography* (London: Trübner & Co., 1874), 121–149; John Rogers Commons et al., *History of Labour in the United States*, vol. 1 (New York: Macmillan, 1918), 247–248; McCadden, *Education in Pennsylvania*, 67–68.

⁴⁰ Marti, “The Purposes of Agricultural Education,” 273–274.

⁴¹ McCadden, *Education in Pennsylvania*, 59–61; *American Journal of Education* 3 (1828): 505–508, 568–571; *American Farmer* 9 (15 Feb 1828): 378.

⁴² *Report of the Commissioner of Agriculture* (1865) 144–147; *Cincinnatus*, 2 (Jun 1857): 246; Lull, *The Manual Labor Movement in the United States*, 375; Burt Eardley Powell, *The Movement for Industrial Education and the Establishment of the University, 1840-1870*, Semi-Centennial History of the University of Illinois (Urbana, IL: University of Illinois, 1918), 118; Colman, *Education and Agriculture*, 13, 17; Jim Weeks, “A New Race of Farmers: The Labor Rule, the Farmers’ High School, and the Origins of The Pennsylvania State University,” *Pennsylvania History* 62, no. 1 (January 1, 1995): 5.

benefits of hosting a college: paying customers for local goods and services.⁴³ Similar logic seems to have been at work in Easton, Pennsylvania when town voters petitioned the state legislature to deny public funds to Lafayette College, at that time operated on manual labor principles. Such an appropriation, they argued, would amount to a tax payer subsidy for “a private manufacturing establishment.”⁴⁴ Nevertheless, manual labor in the form of daily practical farm work remained an integral part of virtually all proposals for agricultural education.

Perhaps equally damaging to the popularity of manual labor schools was their growing association with charity for the lower classes. One historian argues for a cultural mismatch of class values at the very heart of the concept, for it aimed to dignify manual labor while providing the educational means out of it.⁴⁵ Just as patrician agricultural colleges were pitched too high, then, manual labor schools were pitched too low. Agricultural education in the United States, reformers soon realized, could not gain public support on a two-tiered class plan.

NEW DIRECTIONS: AGRICULTURAL INSTITUTES AND MULTI-PURPOSE ACADEMIES

With state support for elite agricultural colleges not forthcoming and manual labor schools failing to finance themselves, agricultural reformers turned in the 1840s to other options. The most obvious, perhaps, was simply to expand the reach of agricultural societies, fairs, and journals. The whole reform movement, after all, had always been a didactic enterprise centered on the concept of “emulation”—a kind of collegial rivalry in pursuit of improvement—which formed an essential principle of educational reform in the Early Republic (Chapter 1).⁴⁶ Fairs, in particular, were lauded as sites where farmers met to observe each other and, stimulated by the “spirit of emulation,” learned best practices. “The Fair is eminently an occasion of *thought*,” asserted one farm journal. “It is not simply the husbandman’s fruits and cattle and machinery that we see at the Exhibition,” but “the *very process* by which he succeeded.”⁴⁷ As Horace Greeley put it, “the great end of all such exhibitions is an improvement of the breed of farmers—of men.”⁴⁸ The agricultural press, meanwhile, provided “all desirable notoriety to what is done and doing” so that “practical farmers”

⁴³ Nancy Beadie, *Education and the Creation of Capital in the Early American Republic* (Cambridge: Cambridge University Press, 2010), 249–253.

⁴⁴ Jeffrey A. Mullins, “‘In the Sweat of Thy Brow’: Education, Manual Labor, and the Market Revolution,” in *Cultural Change and the Market Revolution in America, 1789-1860*, ed. Scott C. Martin (Rowman & Littlefield, 2005), 170–171.

⁴⁵ Mullins, “‘In the Sweat of Thy Brow.’”

⁴⁶ Marti, “Early Agricultural Societies in New York,” 314; J. M. Opal, *Beyond the Farm: National Ambitions in Rural New England* (Philadelphia: University of Pennsylvania Press, 2008), 7–77, 101, 111–117.

⁴⁷ *Cincinnatus* 2 (Oct 1857): 407 (emphasis in original).

⁴⁸ *Working Farmer* 2 (1850): 130; for similar examples, see *American Agriculturist* 1 (Dec 1842): 278; *Cincinnatus* 3 (1858): 454, 489; James Jay Mapes, *Address, Delivered at the Opening of the 18th Annual Fair of the American Institute, at Niblo’s Garden, Tuesday, Oct. 7, 1845* (New York: James Van Norden & Co., 1845), 3; Charles Flint, ed., *Abstract of Returns of the Agricultural Societies of Massachusetts, 1858* (Boston: William White, 1859), 2; see also Wayne Caldwell Neely, *The Agricultural Fair* (New York: Columbia University Press, 1935), 155-184.

could benefit “by reading the results obtained by other practical farmers.”⁴⁹ Several farm journals even published article series explaining basic scientific concepts.⁵⁰

Most reformers nevertheless believed that formal agricultural education was also necessary. During the 1840s and early 1850s they commonly argued that small-scale private efforts—what education scholars have begun to refer to as “venture schools”—had to show positive results before state legislatures would agree to public support. In 1845, for example, one would-be founder of an agricultural institute in New York explained that because “such schools are here an experiment . . . it now seems obvious that if any early progress is made in their establishment in our State, it must be effected by private enterprise.”⁵¹ Almost a decade later Samuel W. Johnson still believed that “while appeals to Legislatures have been made in vain for the endowment of agricultural schools . . . it remains to private or corporate enterprise to open the way.” Vermont’s Frederic Holbrooke agreed, enjoining his fellow New England reformers not to look “too high for aid,” but rather to seek it “among our enterprising liberal private citizens.”⁵² The *Country Gentleman* summed up this line of thinking when it argued that “it is by gradual steps, and not by any miraculous providence or superhuman legislative effort, that agricultural education is to be secured for the farmers of our country.”⁵³

The story of Daniel Lee, a reformer of widely recognized ability who at various times edited the *Genesee Farmer*, the *Southern Cultivator*, and the Patent Office’s annual agricultural report, exemplifies both the legislative disappointments that drove reformers down the path of “private enterprise” and the substantial barriers to success. As a member of the New York Assembly in 1844 and 1845, Lee pushed vigorously for agricultural schooling. At first he introduced a bill for a “State Agricultural School” capitalized at up to \$100,000, accompanying it with a lengthy committee report in which he drew attention to the state’s declining wheat yields.⁵⁴ When the bill failed to pass, Lee offered a more economical proposal to subsidize the conversion of his alma mater, the Fairfield Medical College in Herkimer County, into an agricultural institution. Since Fairfield already possessed both campus buildings and laboratory facilities, it would require only a modest subsidy of \$5,000 for each of three successive years.⁵⁵ Again, however, the legislature declined to go along, so after finishing his term in the Assembly, the indefatigable Lee formed an agreement to open the private Western New York Agricultural School on the Wheatland estate of his friend, General Rawson Harmon, near Rochester. By the fall of 1846 Lee was reporting that a dozen or so students

⁴⁹ *Centennial Year, 1792-1892, of the Massachusetts Society for Promoting Agriculture*, 93; *Working Farmer* 1 (1849): 137.

⁵⁰ For example, the *Working Farmer* published a monthly “Course on Scientific Reading for Farmers” in its first volume. The practice became so common that the *Farm Journal and Progressive Farmer* promised in its initial issue (1856) to be strictly an “agricultural news journal” rather than “a teacher of elementary chemistry or kindred sciences, which can be better taught in books.”

⁵¹ *Cultivator* 2 (Apr 1845): 119; on venture schools, see Beadie, “Toward a History of Education Markets in the United States.”

⁵² *Cultivator* 2 (Jun 1854): 170; *New England Farmer* 5 (Aug 1853): 355.

⁵³ *Country Gentleman* 4 (Sep 7, 1854), 151.

⁵⁴ *New York Daily Tribune*, 5 Feb 1844, p. 2, 4; 9 Feb 1844, 2; 23 Feb 1844, 2; 24 Feb 1844, 8; 23 Mar 1844, 3.

⁵⁵ *Ibid.*, 7 May 1845, p. 2; E. Merton Coulter, *Daniel Lee, Agriculturist: His Life North and South* (Athens, GA: University of Georgia Press, 1972), 3–6; *Genesee Farmer* 6 (May 1845): 69.

“work daily in the Laboratory at the analysis of soils, fertilizers, and other substances.”⁵⁶ Already by the following year, however, the school was defunct. Reflecting on the experience, Lee wrote that “an Agricultural School, to be perfect in all its details, requires the expenditure of more money than any one or two men of ordinary means can afford.” The problem, he continued, was not a shortage of interested students, but a lack of accommodations, for “it was idle to suppose that men of literary and scientific attainments will throw away their time on a school where only 15 or 16 students can be furnished with rooms and other necessities.”⁵⁷ Future efforts would prove Lee correct that the expense of buildings, laboratories, and experimental farms required more capital than reformers could likely gather from private sources.

Lee’s analysis notwithstanding, many reformers continued to insist that “we must commence in a small way at first, with a few students.”⁵⁸ In a typical pattern that mirrored Lee’s effort, one or more reformers collaborated to establish an “institute” on the property of a substantial local farmer. Students were invited to board with the farmer’s family while local reformers conducted courses and demonstrations. Examples include, in addition to Lee’s Wheatland establishment, the Eden Hill Farm Institute⁵⁹ and the Mount Airy Agricultural Institute⁶⁰ near Philadelphia, the Bridgeport Agricultural Institute⁶¹ and the Cream Hill Agricultural School⁶² in Connecticut, the Aurora Agricultural Institute in New York’s Finger Lakes region, the Oakwood Agricultural Institute near Buffalo, and the Orange County Scientific and Practical Agricultural Institute⁶³ and the Westchester Farm School⁶⁴ just north of New York City. These ventures were necessarily limited to a handful of students and rarely succeeded in getting off the ground. Indeed, it appears that only the Cream Hill school lasted for more than two or three years.

A more successful if more limited class of experiment in agricultural education occurred when established academies added courses or lectures on agricultural chemistry and other sciences with a bearing on farming. The agricultural press noticed approvingly several such schools, including Ovid and Cortland Academies in upstate New York and the Powers Institute in western Massachusetts.⁶⁵ Yet many other local academies took similar steps without attracting much attention. Thus an 1847 advertisement in the *New Hampshire Sentinel* for the Kimball Academy

⁵⁶ *New York Daily Tribune*, 5 Feb 1846, p. 3; 16 May 1846, 1; 14 Oct 1846, 3; Alfred Charles True, *A History of Agricultural Education in the United States, 1785-1925*, reprint of 1929 ed., United States Department of Agriculture Miscellaneous Publication No. 36 (New York: Arno Press, 1969), <http://www.archive.org/details/historyofagricul29true>, 71; Coulter, *Daniel Lee, Agriculturist*, 7–8.

⁵⁷ *Genesee Farmer* 8 (Jan 1847): 10.

⁵⁸ *New England Farmer* 4 (Apr 1852): 185.

⁵⁹ Bailey, *Cyclopedia of American Agriculture*, vol. 4, 378; *Farmers’ Cabinet* 7 (15 Aug 1842): 25.

⁶⁰ *American Agriculturist* 7 (Mar 1848): 102; *American Farmer* 4 (Jul 1848): 18; *Pennsylvania Farm Journal* 4 (Jun 1854): 191; Hyatt, *Lime and Marl: Their Agricultural Uses. With Explanations of Their Properties and Management, the Soils to Which They Are Applicable, and the Precautions to Be Observed in Their Use. Especially Adapted to the Wants of Practical Farmers*; *New York Daily Tribune*, 21 Feb 1846, p. 2.

⁶¹ *American Agriculturist* 2 (Sep 1843): 183–184; *Cultivator* 10 (Jul 1843): 120.

⁶² True, *History of Agricultural Education*, 38; Rozwenc, *Agricultural Policies in Vermont*, 51.

⁶³ *Cultivator* 2 (Apr 1845): 119; *Genesee Farmer* 6 (Jun 1845): 89.

⁶⁴ *Working Farmer* 8 (1856): 26; 9 (1857): 48, 171.

⁶⁵ See below for Ovid and Cortland. For Powers, see Fowler, “Early Agricultural Education in Massachusetts,” 338-339; *New England Farmer* 11 (May 1859): 230-231; *Cultivator* 9 (Jan 1861): 28; *New England Farmer and Horticultural Register* 48 (31 Jul 1869): 3.

emphasized that “every needed facility will also be furnished for classes in Agricultural Chemistry and Engineering.”⁶⁶ In the same year the Erie Academy in western Pennsylvania advertised its chemistry course as “indispensible to the study or intelligent reading of Agricultural Chemistry.”⁶⁷ On the other side of the state the Coatsville Male and Female Academy in Chester County likewise advertised “a course on Agricultural Chemistry, by a professional teacher and lecturer.”⁶⁸ The Clermont Boarding Academy for Boys gave notice of a winter course on “the application of Chemistry to Agriculture” as early as 1844 and as late as 1895, suggesting that such academic offerings enjoyed significant longevity.⁶⁹ A few established colleges did similarly. Trinity College (CT),⁷⁰ Amherst College (MA),⁷¹ Williams College (MA),⁷² Union College (NY),⁷³ and Miami University (OH)⁷⁴ each experimented with courses on agricultural science before 1850, while Yale and Harvard⁷⁵ established scientific schools that employed the country’s first formally trained agricultural chemists. Summing up the trend, the editor of the Bangor *Daily Whig and Courier* noted, “It most fortunately and necessarily happens that the demand for greater enlightenment among farmers, induces the Academies and Colleges of our country to furnish the requisite facilities for supplying this knowledge.”⁷⁶

From 1843 to 1858 the New York Board of Regents tracked instruction in agricultural chemistry among incorporated academies under its supervision.⁷⁷ Over these years the number of academies that claimed to offer courses in agricultural chemistry during at least one term climbed rapidly. In 1843 only the Lowville Academy in Lewis County offered such a course. Over the next five years an average of 3.6 institutions did likewise in any given year. But in the succeeding five-year period that average rose to 11.4, and in the next five years, from 1854 to 1858, the figure reached 26.4. This increase far outpaced the growth in the total number of academies over the same fifteen-year span. Overall, seventy-five different New York Regents’ academies experimented at least once with courses in agricultural chemistry, amounting to a substantial proportion of the two hundred or so academies that existed for part or all of this period. While many academies claimed to offer such special classes only once, several did so in most years. The completeness of the data is suspect but suggests, if anything, underreporting. For example, the East Bloomfield Academy appears on the list

⁶⁶ *New Hampshire Sentinel*, 3 Feb 1847, p. 3; see also the advertisement for the Melville Academy, 11 Aug 1836, which promises “occasional lectures” on various scientific subjects including agricultural chemistry.

⁶⁷ *Erie Observer* 6 Nov 1847, p. 3.

⁶⁸ *Presbyterian Banner and Advocate* (Pittsburgh, PA), 26 Sep 1857, 4.

⁶⁹ *Friends Weekly Intelligencer* 1 (7 Sep 1844): 192; *Friends’ Intelligencer and Journal* 23 (22 Jun 1895): 398.

⁷⁰ True, *History of Agricultural Education*, 43; Bailey, *Cyclopedia of American Agriculture*, vol. 4, 368–369.

⁷¹ Fowler, “Early Agricultural Education in Massachusetts,” 344; Edward Wilton Carpenter and Charles Frederick Morehouse, *The History of the Town of Amherst, Massachusetts* (Amherst, MA: Press of Carpenter & Morehouse, 1896), 538–551.

⁷² Guralnick, *Science and the Ante-Bellum American College*, 132–133.

⁷³ *Documents of the Senate of the State of New York*, 74th Sess., vol. 3 (1851), 25; A. C. True, “Notes on the History of Agricultural Pedagogy in the United States,” in *Proceedings of the Twenty-Eighth Annual Meeting of the Society for the Promotion of Agricultural Science*, 1907, 90; *Annual Report of the Regents of the University of the State of New York* 72 (1859): 38.

⁷⁴ See main text on Farmers’ College below.

⁷⁵ Rossiter, *Emergence of Agricultural Science*.

⁷⁶ *Bangor Daily Whig and Courier*, 8 Nov 1851, p. 2. The editor continued: “The Academy at Hamden is now prepared, as we understand, to give students the requisite instruction in Agricultural Chemistry, Physiology, Geology, &c.”

⁷⁷ This paragraph and the next are based on data from the annual reports of the Regents of the University of the State of New-York for the years from 1843 to 1858 (the fifty-sixth through the seventy-first reports).

of agricultural chemistry providers in every year from 1846 to 1856 except for 1853 and 1854, and similarly anomalous gaps occur in other cases as well. The data also take no account of academies that did not report to the Regents. Nor is it clear why the Regents stopped recording courses in agricultural chemistry after 1858. Since they continued to tally offerings in more obscure subjects such as zoology and mineralogy, it seems likely that many academies were simply folding agricultural topics into general chemistry instruction. In any case, academies throughout the Northeast continued to highlight offerings in the subject.

Figure 4.1 maps the locations of Regents academies teaching agricultural chemistry in the decade from 1849 to 1858. It should be immediately apparent that interest in the subject was geographically widespread. Closer inspection suggests that the relevant academies served commercial farming districts within range of major transportation routes. Revealingly, almost none of the academies appeared in any of the major towns along the Erie Canal, but rather in second-tier hinterland towns such as Homer or Prattsburgh. Clusters are discernible around the railroad junction of Batavia in the Genesee wheat country, in the dairy region south of the Erie Canal between Syracuse and Rome, and along the planned Watertown and Potsdam Railroad in far upstate St. Lawrence County, another dairy region. The only significant exceptions to this pattern were two academies in Albany, likely explained by the headquartering of the New York State Agricultural Society there.⁷⁸

A closer look at some of these academies demonstrates the intimate links between agricultural reformers and educational institutions that developed in at least some localities. The Lowville Academy in Lewis County on the western edge of the Adirondacks may have been teaching agricultural science as early as 1839, when new principal David Porter Mayhew convinced the school's trustees to invest in "a laboratory for experimental instruction in chemistry." Though Mayhew undoubtedly devoted most of his teaching to the general principles of chemistry, he evinced a strong personal interest in agricultural applications. In 1853, when the Lewis County Agricultural Society offered premiums to teachers and students "for the encouragement of the study of Agriculture in our common schools," Mayhew sat on the judging committee. A few years later he joined the brand new Michigan Agricultural College as its Professor of Natural Science, a position that Lowville locals believed "eminently fitted to his tastes."⁷⁹ Moreover, Mayhew conducted meteorological measurements in accordance with a long standing Regents policy designating selected academies to record regular observations of the weather. Anyone who has ever read a farmer's diary will immediately recognize the 1855 compilation of these reports as potentially of great interest to

⁷⁸ Also relevant may have been the nearness of the Rensselaer School in Troy. In 1851 the Rensselaer graduate George Hammell Cook became principal of the Albany Academy, which a few years later began to report courses in agricultural chemistry; *Celebration of the Semi-Centennial Anniversary of the Albany Academy, Albany, June 23, 1863* (Albany, NY: J. Munsell, 1863), 27.

⁷⁹ Quotations in *Lowville Academy Semi-Centennial Anniversary, Celebrated at Lowville, NY, July 21st and 22nd, 1858* (Lowville, NY: Home Committee, 1859), 67, 85; see also *Cultivator* 9 (Aug 1852): 267; William James Beal, *History of the Michigan Agricultural College and Biographical Sketches of Trustees and Professors* (East Lansing, MI, 1915), 398. It is difficult to say if instruction in agricultural chemistry continued after Mayhew's departure, but in 1905 the *Cornell Countryman* noted that W. J. Morse, who concentrated on agronomy and agrostology at the College of Agriculture, was "well fitted" for these specializations by his preparation at Lowville Academy (3 [Jun 1907]: 320).

farmers.⁸⁰ Mayhew also introduced the study of agricultural science to the young Samuel W. Johnson, who would go on to great prominence in the field. In 1846, Johnson later recalled, “I . . . became fascinated with Chemistry through the brilliantly illustrated lectures of the Principal, David Porter Mayhew.” A year later Johnson published his first article in which he tried to account for gypsum’s fertilizing properties on the basis of the chemistry textbook given him by Mayhew. After studying with leading figures in the United States and Europe Johnson even contemplated opening “a school of Ag. Science in connection with Lowville Academy.”⁸¹

In the winter of 1845-1846, just as Johnson was about to discover his love of chemistry, the principal of the Cortland Academy in Homer, Samuel Buell Woolworth, initiated a “regular course of instruction on Agricultural Chemistry and Geology.” Woolworth was universally regarded as an exceptional educator, but this particular venture was almost certainly influenced by the academy’s board of trustees, which included several farmers, each of whom served as an officer of the Cortland County Agricultural Society at one point or another.⁸² As was common among academies of the period, Woolworth’s winter lecture series was open not only to students but to the general public. Two years later a representative of the state agricultural society reported that the talks were packing the academy lecture hall. Local farmers were so gratified, in fact, that they presented Woolworth with a silver cup and commended his “willing[ness] to become a laborious pioneer in the noble enterprise of imparting chemical and geological science to farmers.” They also recommended that other academies institute similar lecture series.⁸³

Woolworth’s efforts are perhaps especially significant given the wider role he played in New York’s education system. In 1847 he helped organize the New York State Teachers’ Association, in 1852 he became the principal of the State Normal School, and in 1856 he joined the Board of Regents as secretary and treasurer, a position he held for the next twenty-five years.⁸⁴ He was thus very much in the mainstream of educational circles and, not surprisingly, his agricultural lectures at Cortland were not unique. As I discuss later in this chapter, Samuel Johnson’s future colleague at Yale, William H. Brewer, lectured to both farmers and students at the Ovid Academy in the mid-1850s. The Union Academy in Hopewell Township, New Jersey, invested \$1,500 in its chemical apparatus for demonstrations to go along with its regular courses and winter lectures on agricultural chemistry.⁸⁵ In February 1852 Emily Dickinson wrote to her brother about the current lecture offerings at the local lyceum, noting that John Adams Nash, principal of the Mount Pleasant

⁸⁰ Franklin B. Hough, *Results of a Series of Meteorological Observations Made in Obedience to Instructions from the Regents of the University, at Sundry Academies in the State of New-York, from 1826 to 1850 Inclusive* (Albany: Weed, Parsons and Company, 1855), 256.

⁸¹ Osborne, *From the Letter-Files of S. W. Johnson*, 9–10, 66; Rossiter, *Emergence of Agricultural Science*, 128; *Cultivator* 4 (Aug 1847): 240–241.

⁸² Trustees were identified in *The Cortland Academy Jubilee Celebrated at Homer, N.Y., July 7 & 8, 1846* (Syracuse, NY: Stoddard & Babcock, 1846), 35; and H.C. Goodwin, *Pioneer History: Or, Cortland County and the Border Wars of New York* (New York: A.B. Burdick, 1859), 319. Presidents of the county agricultural society are listed in Hamilton Child, *Gazetteer and Business Directory of Cortland County, N.Y., for 1869* (Syracuse, NY: Journal Office, 1869), 68–69; other society officers were identified in the annual county reports included in the annual *Transactions of the New York State Agricultural Society*.

⁸³ *Genesee Farmer* 6 (Dec 1845): 179; 7 (Jun 1846): 136; 8 (Jan 1847): 11; *Cultivator* 3 (May 1846): 160; *Transactions of the New York State Agricultural Society* 7 (1847): 52.

⁸⁴ *Annual Report of the Regents of the University of the State of New York* (1881): 647, 663.

⁸⁵ *Journal of the Senate of the State of New Jersey*, 57th Sess., (1851): 157.

Institute, “is giving a course of Agricultural ones, twelve in all.”⁸⁶ Nash, who was also a member of the Massachusetts Board of Agriculture and an “Instructor of Agriculture in Amherst College,” published a textbook entitled *The Progressive Farmer* the following year.⁸⁷ In fact, at least fourteen agricultural textbooks appeared in American publication between 1842 and 1861, further indicating a demand for such instruction. Like Nash, the author of one of these taught chemistry at an academy.⁸⁸ In short, then, the links between rural academies and agricultural reform were numerous.

Many reformers believed that public lectures would awaken farmers to the need for specialized agricultural institutions. In the winter of 1852-1853 the Massachusetts Board of Agriculture discussed at length how to advance the state’s farming practices through public lectures, ultimately appointing a committee that included Amherst College president Edward Hitchcock and political economist Amasa Walker to recommend lecturers for the lyceum circuit. Hitchcock, who was at the time deeply involved in efforts to establish a state agricultural college (see below), also called for winter “Farmers’ Institutes” that could serve as “*ambulatory agricultural school[s]*.”⁸⁹ Shortly thereafter a correspondent to the *New England Farmer* argued that lyceum lectures were the best way to reach farmers because everyone in small towns attended them, if for no other reason than to see an outsider. In this way, he explained, many people and especially youth would be exposed to scientific agriculture, and thus “the commonwealth will soon have the solid capital (the capital of intellect) necessary to establish and sustain . . . *an agricultural school*.”⁹⁰ Another correspondent praised a lecture on vegetable chemistry at the Concord lyceum, while still a third letter writer supported the idea of a winter lecture course and commended the county of Worcester for engaging talks from James Mapes.⁹¹ For his part, Mapes argued that were state-sponsored “travelling teachers of known practical, as well as scientific knowledge” to be dispatched into the countryside, “in a few years the farmers will read and will send their sons to agricultural schools and colleges endowed by themselves.”⁹²

Though typically bombastic, Mapes’s prognostication was not entirely farfetched, as events discussed later in this chapter demonstrate. Yet there were serious obstacles in the way of expanding formal agricultural education beyond the academies. Recent scholars of the nineteenth-century academy have stressed its centrality to the period’s education as a “school for every purpose.” These academies depended on tuition in an “education market” where common schools, venture schools, and even colleges offered similar kinds of classes. In order to compete, they provided students the

⁸⁶ Emily Dickinson, *The Letters of Emily Dickinson*, ed. Thomas Herbert Johnson and Theodora Van Wagenen Ward (Harvard University Press, 1986), 180. Dickinson and her family were avid participants in the annual fair, known locally as the “cattle show.” In 1856 Dickinson won second prize for her rye and indian bread and the next year served on the judging committee for the same category (314).

⁸⁷ John Adams Nash, *The Progressive Farmer* (New York: C.M. Saxton, 1853).

⁸⁸ Bailey, *Cyclopedia of American Agriculture*, vol. 4, 383–384; Asahel K. Eaton, *A Text-Book on Agricultural Chemistry, for the Use of Academies, Schools, and Agriculturists* (Utica, NY: H. H. Hawley & Co., and G. Tracy, 1847); *Annual Report of the Regents of the University of the State of New York* 61 (1848): 157. Bailey lists thirteen agricultural textbooks, including Nash but missing Eaton.

⁸⁹ *New England Farmer* 4 (Oct 1852): 473; 5 (Jan-Feb 1853): 19, 44, 91 (quotation on p. 91; emphasis in original); Fowler, “Early Agricultural Education in Massachusetts,” 374. For similar proposals in Ohio, see *A Brief History of the State Board of Agriculture, the State Fair, District and Agricultural Societies, and Farmers’ Institutes in Ohio*, 25-26.

⁹⁰ *New England Farmer* 5 (Jan 1853): 49 (emphasis in original).

⁹¹ *Ibid.* 5 (Jan 1853): 16, 34–35.

⁹² *Working Farmer* 2 (Nov 1850): 193.

opportunity to pursue a broad diversity of subjects. It was this market imperative, combined with the endless entreaties of agricultural reformers, that lead so many academies to add agricultural chemistry to their lists of offerings in the 1840s and 1850s. The same imperative dictated flexibility in admitting students of widely varying ages for brief and discontinuous periods. Interspersing study with work, farm boys and girls typically attended school in the winter before returning home to help with planting and harvest in the spring and summer.⁹³ This was why agricultural reformers scheduled institutes and lecture series in the winter months. For the same reason, however, rural youth who might take an interest in agricultural subjects as provided for by academies, did not necessarily have the luxury of completing a formal college curriculum or of pursuing technical instruction systematically. In the 1850s, for example, Genesee College and its associated academy attempted to organize their popular common course offerings in scientific subjects into a coherent degree program. But whereas individual lectures remained well attended, the greater rigor of the full scientific course drew far fewer students.⁹⁴ As the New York Regents put it, the academies “open to those whose proposed employments in life do not demand the discipline and culture of the college, a system of education more extended and comprehensive than the common schools can furnish.”⁹⁵

In this respect the experience of upstate New York farmer Benjamin Gue is suggestive. In December 1847, just short of his eighteenth birthday, Gue noted that “after husking corn and threshing most of the buckwheat I finished my work for this year and went to Canandaigua to school for the winter”; four months later he found himself “back again on the farm ready to begin work for the summer.”⁹⁶ He did not return to school until two years later, this time to the East Bloomfield Academy. The contingency of his decision to do so comes through in the following entries:

Sat. Dec. 1, went over to the centre with John Sheldon to see about going to school, but did not succeed in finding a place to suit us, partly agreed to go to school to Canandaigua with Tommy.

Sun. Dec. 2, was cold, stayed at home and made up my mind to go to East Bloomfield and enter the Normal Department.

Mon. Dec. 3, went out to Bloomfield and found there was a vacancy in our town in the Teaching Department.

Tues. Dec. 4, was stormy, went down to the Town Superintendent and got the appointment for the Normal School.⁹⁷

As Nancy Beadie has shown, rural students who attended school in this way often continued their studies at home, in at least some cases using published curricula to guide their choices. Again, Gue’s

⁹³ Beadie and Tolley, “School for Every Purpose”; Beadie, “Tuition Funding for Common Schools”; Beadie, “From Academy to University in New York State,” 20.

⁹⁴ Beadie, “From Academy to University in New York State,” 23.

⁹⁵ *Annual Report of the Regents of the University of the State of New York* 70 (1857): 18.

⁹⁶ Benjamin Gue, *Diary of Benjamin F. Gue in Rural New York and Pioneer Iowa, 1847-1856*, ed. Earle D. Ross (Ames, IA: Iowa State University Press, 1962), 19, 28.

⁹⁷ *Ibid.*, 56.

experience seems to fit the profile.⁹⁸ In the winter between his stints at Canandaigua and East Bloomfield, he attended lectures, participated in debating societies, and read “Todds [sic] Student Manual,” noting that it was “the best book for students I ever read.”⁹⁹ Unfortunately he rarely discussed the particulars of his academic studies, but he did mention instruction in chemistry at the Canandaigua Academy, which from 1854 to 1857 reported to the New York Regents that it taught agricultural chemistry. The East Bloomfield Academy, meanwhile, reported teaching agricultural chemistry in the very year Gue attended (1849).¹⁰⁰ Given his interest in agricultural reform—as evidenced by numerous references to name-brand implements, repeated comment on fertilizing his fields, and a vivid description of his visit to the 1849 New York State Agricultural Fair in Syracuse (Chapter 1)—it is not hard to imagine that Gue applied his limited knowledge of chemistry to the ongoing discussion of soils and fertilizers in the contemporary farm press. He did not, however, pursue his studies at college. Yet Gue clearly valued a college education, for after migrating west in the 1850s, he played a central role in the founding of the Iowa State Agricultural College as a lawmaker and president of the board of trustees.¹⁰¹

THE RISE AND FALL OF FARMERS’ COLLEGE

One rural academy did attempt to expand its agricultural offerings in the antebellum period, resulting in the formation of Farmers’ College of Hamilton County near Cincinnati. For a brief moment in the 1850s it appeared as if Farmers’ College had indeed established the country’s first bona fide collegiate department of agriculture, complete with laboratory facilities, experimental farm, botanical garden, and even a well-received monthly journal. Within a very short time, however, the school’s finances began to founder. As operating expenses exceeded income from tuition and investments, the trustees were forced to cannibalize the school’s endowment, quickly leading to a downward spiral of budget cuts and property sales that left the college struggling to keep its doors open after 1858. The rise and fall of Farmers’ illustrates the financial obstacles to institutionalizing agricultural education, particularly after the crisis of expertise of the 1850s led to greater emphasis on original research. Even with able leadership and community support, the demands of modern scientific investigation proved too costly for a local private college to sustain.

The moving force behind Farmers’ College was the educator and agricultural reformer Freeman G. Cary, by all accounts a man of unusual energy and charisma. The son of recent New England migrants to the Cincinnati area, Cary grew up in a farming family that achieved considerable prominence by participating in a variety of reformist political causes.¹⁰² In 1827 he

⁹⁸ Nancy Beadie, “Internal Improvement: The Structure and Culture of Academy Expansion in New York State in the Antebellum Era, 1820-1860,” in *Chartered Schools: Two Hundred Years of Independent Academies in the United States, 1727-1925*, ed. Kimberley Tolley and Nancy Beadie (New York: RoutledgeFalmer, 2002), 105–106.

⁹⁹ Gue, *Diary of Benjamin F. Gue*, 51.

¹⁰⁰ *Ibid.*, 19, 23; *Annual Report of the Regents of the University of the State of New York, 1849–1858*.

¹⁰¹ Benjamin F. Gue, *Biographies and Portraits of the Progressive Men of Iowa* (Des Moines, IA: Conaway & Shaw, 1899), 147–148.

¹⁰² Freeman’s younger brother and close collaborator, Samuel Fenton Cary, would become a leading temperance politician, Union general, and Greenback Party vice presidential candidate; his father delivered abolitionist lectures at the Hall of Free Discussion in nearby Cumminsville; Betty Ann Smiddy, ed., *A Little Piece of Paradise: College Hill, Ohio*, 2nd

entered Miami University where he came under the influence of its president, Dr. Robert Hamilton Bishop. Two years later Bishop opened a short-lived agricultural department.¹⁰³ The experiment could not have failed to impress the young Cary who after graduating returned home and became an advocate of agricultural schooling as well as an active member of the Hamilton County Agricultural Society. In 1833 he opened the Pleasant Hill Academy on the family farm and within a decade was enrolling 120 students annually. When his mentor Bishop was eased out of Miami University by its Old Light trustees in 1844, Cary invited him to Pleasant Hill and together they transformed the academy into a college. According to one future alumnus, Cary's charisma "carried the farmers by storm" and within the year four hundred stockholders, mostly farmers and mechanics from the surrounding counties, had raised \$13,000. In 1851 Cary led a second campaign that secured \$100,000 in scholarship stock subscriptions for a permanent endowment fund.¹⁰⁴

The expanded school was rechristened Farmers' College of Hamilton County both for the composition of its student body and for its avowed focus on agricultural subjects. From its inception, Farmers' endeavored to provide a "business education" with a "direct relation to the practical duties of life" and especially to "agricultural pursuits."¹⁰⁵ While there does not appear to have been much positive instruction in practical agriculture to begin with, the faculty did include a professor of "Chemistry and its application to Agriculture and the Arts."¹⁰⁶ A flexible curriculum and the granting of diplomas for abridged periods of study reflected Farmers' origins as a multi-purpose academy and supported the boast that "no Institution of learning in the West has a firmer hold upon the workingmen than Farmers' College."¹⁰⁷ By the early 1850s the college enrolled at times more than eighty students in a year while a preparatory department continued the work of the original academy. If Murat Halstead's memoir from nearly fifty years later can be trusted, three quarters of the student body came from farm families. Among several distinguished alumni from this period was none less than a future United States president, Benjamin Harrison.¹⁰⁸

In 1853 Cary and the board of trustees determined to establish a full scale agricultural department, planning for an experimental farm, a botanical garden, and laboratory facilities. The

ed. (Cincinnati: College Hill Historical Society, 2008), 26-28, 31, 99-102, http://www.selfcraft.net/HannaFord//a_little.htm; Gail Deibler Finke, *College Hill*, Images of America (Arcadia Publishing, 2004), 10, 24; Carl M. Becker, "Freeman Cary and Farmers' College: An Ohio Educator and an Experiment in Nineteenth Century 'Practical' Education," *Bulletin of the Historical and Philosophical Society of Ohio* 21, no. 3 (July 1963): 154.

¹⁰³ Carl M. Becker, "The Patriarch of Farmers' College: Dr. Robert H. Bishop," *Cincinnati Historical Society Bulletin* 23 (1965): 105. Bishop was perhaps inspired by a report of a committee of the Hamilton County Agricultural Society calling for a local agricultural school; *New York Farmer* 2 (1829): 191-193, 206-208.

¹⁰⁴ Julianna Chaszar, "Leading and Losing the Agricultural Education Movement: Freeman G. Cary and Farmers' College, 1846-1884," *History of Higher Education Annual* 18 (1998): 42n14; Becker, "Freeman Cary and Farmers' College," 153-156; *A Plea for the Farmers' College of Hamilton, Ohio and for a Reformation in Collegiate Instruction: Being a Report to That Institution, Made July 17, 1850* (Cincinnati: The Ben Franklin Printing House, 1850), 15; A. B. Huston, *Historical Sketch of Farmers' College* (Published by the Students' Association of Farmers' College, n.d.), 38-48.

¹⁰⁵ *Farmers' Cabinet* (Amherst, NH), 44:2 (28 Aug 1845): 3; *Plea for Farmers' College*, 14; "Farmers' College v. Cary," in *Reports of Cases Argued and Determined in the Supreme Court of Ohio*, vol. 35, new series (Cincinnati, 1880), 650-651; a subsequent legislative act expressly authorized the college to establish a professorship of agriculture.

¹⁰⁶ Chaszar, "Leading and Losing the Agricultural Education Movement," 27; an 1847 legislative act authorized the raising of new capital specifically to endow an agricultural professorship; "Farmers' College v. Cary," 650-651.

¹⁰⁷ Huston, *Historical Sketch of Farmers' College*, 50-51.

¹⁰⁸ Becker, "Freeman Cary and Farmers' College," 160-165; Chaszar, "Leading and Losing the Agricultural Education Movement," 25-30; Murat Halstead, "The Story of Farmers' College," *The Cosmopolitan* 22 (January 1897): 284.

energetic Cary resigned his position as president of the college in order to oversee the development of the new division. For a third time, it seems, Cary was able to “carry the farmers by storm,” quickly securing another \$100,000 in scholarship stock subscriptions. An 1853 map of the proposed new grounds shows the locations of separate experimental fields for grasses and grains, a “Fruit Department,” vegetable patch, nursery, park, and botanical garden. It is not clear exactly how much of the plan was realized, but a laboratory building known as “Polytechnic Hall” was definitely completed.¹⁰⁹

In the Fall of 1856 the agricultural department accepted its first class of students. The college catalog proudly heralded the event, boasting that the department constituted “THE FIRST COMPLETE INSTITUTION OF THE KIND ORGANIZED ON THE CONTINENT OF AMERICA!” It then enumerated the department’s educational goals:

To show the various methods by which to reclaim waste, and to restore exhausted lands; to increase production at the least possible expense to the virgin fertility of the soil; to demonstrate, by experiment, the best modes of culture of grains, grasses, grapes, fruits, and garden vegetables; as also to show the habits and explain the culture of plants and flowers, both native and exotic. Particular attention will be given to Natural History, in all its branches: especially in relation to the growth, habits, and characteristics of domestic animals; also, to the development, habits, and characteristics of the various destructive insects, with a view to the prevention of their ravages of our fruits, and flowers, and forests.¹¹⁰

The catalog thus honed in on farmers’ pressing needs to maintain soil fertility, develop new crop varieties appropriate to local conditions, and combat the pest infestations that increasingly plagued American agriculture.¹¹¹ It also indicated that Farmers’ College aimed not only to provide agricultural education for its students, but to conduct original research of wider public utility. The experimental farm would thus constitute a testing ground and “theater” of observable improvements.

That Farmers’ College intended to play a broad social role was in keeping with its original mission. Cary, Bishop and the school’s trustees had always understood it as an institutional manifestation of local, regional and national development aspirations. At the laying of the corner stone Bishop foreshadowed the college’s research agenda, arguing that scientific farming would increase production and raise land values.¹¹² An 1850 report to the board of trustees similarly situated curricular innovations within the context of economic development. The United States was, the report said:

a country teeming with *undeveloped* resources, inexhaustible in its *latent* wealth, a virgin soil adapted to the production of all the necessaries and luxuries of life, and of the

¹⁰⁹ Smiddy, *A Little Piece of Paradise*, ii; Chaszar, “Leading and Losing the Agricultural Education Movement,” 32–33.

¹¹⁰ Quoted in Bailey, *Cyclopedia of American Agriculture*, vol. 4, 373.

¹¹¹ For a groundbreaking synthetic treatment of American agriculture that emphasizes the rapid turnover of crop varieties and the deteriorating pest problem over the course of the nineteenth century, see Alan L. Olmstead and Paul Webb Rhode, *Creating Abundance: Biological Innovation and American Agricultural Development* (Cambridge: Cambridge University Press, 2008).

¹¹² Becker, “Patriarch of Farmers’ College,” 109.

great staples of commerce, *lying idle*, to be cultivated, lands to be surveyed and cleared, roads and bridges to be constructed, ships to be built and navigated, systems of finance to be contrived, manufactories to be established, mines to be wrought; in a word, ‘all the means which science has provided to aid in the march of civilization,’ to be employed.

Yet instead of supplying the requisite training, the report continued, America’s colleges concerned themselves with “Greek and Latin verbs,—as though Homer and Demosthenes, Virgil and Horace, were the substratum of republican government, and lay at the foundation for developing the resources of this new and vast continent.”¹¹³ The committee in charge of planning the agricultural department likewise offered “developing the resources of the country” as sufficient justification for the educational novelty it proposed.¹¹⁴ In thus positioning itself as an agency of progress and development, Farmers’ College claimed a role in the grand project of American nation building.

Freeman Cary elaborated on the development theme further in the pages of the *Cincinnatus*, a monthly agricultural journal published by the faculty of Farmers’ College beginning in 1856. Combining evangelical faith, free labor beliefs, and developmental nationalism, Cary’s views exemplified the ideology of the progressive rural Whigs who drove agricultural reform. For these reformers, agricultural improvement was self-evidently the basis of national advancement. “From the very nature of our soil and climate,” Cary assumed that the United States would remain an agrarian nation for generations to come.¹¹⁵ He therefore reasoned that “a correct and intelligent system of agriculture lies at the very foundation of our individual, social, and national prosperity.”¹¹⁶

But what exactly was the “correct and intelligent system”? As I argue in Chapter 3, the 1850s witnessed a crisis of agricultural expertise that cast doubt on the entire enterprise of scientific agriculture, leading reformers to call for authoritative institutions to carry forward a much expanded research program. In doing so, reformers also revised their understanding of agricultural education. While they continued to promote technical training for young farmers, they increasingly stressed the importance of original research. “It is difficult for agricultural education to go further,” argued one reformer, “for agriculture has not yet become a fixed science.”¹¹⁷ Daniel Lee similarly believed that the “occult phenomena of tillage and husbandry cannot be successfully investigated by common farmers with their present advantages, and therefore they need institutions designed expressly to develop new truths.”¹¹⁸ Such institutions, another reformer contended, had to be “founded on the most liberal scale” in order to undertake the “Herculean” task of careful and sustained experimentation that now appeared necessary.¹¹⁹ Freeman Cary fully concurred with these views. Not just individual farmers, but even the existing institutions of agricultural reform—the societies, fairs, and journals—could not be expected “to investigate understandingly the laws, numerous and

¹¹³ *Plea for Farmers’ College*, 5-6 (emphasis in original).

¹¹⁴ Quoted in Huston, *Historical Sketch of Farmers’ College*, 52.

¹¹⁵ *Cincinnatus* 1 (Apr 1856): 162.

¹¹⁶ *Ibid.* 1 (Jun 1856): 284.

¹¹⁷ Flint, *Abstract of Returns of the Agricultural Societies of Massachusetts, 1858*, 3.

¹¹⁸ *Annual Report of the Commissioner of Patents, Agriculture* (1852), 9.

¹¹⁹ *Farm Journal and Progressive Farmer* 6 (Sep 1856): 258; for similar views see *Annual Report of the Commissioner of Patents, Agriculture* (1852): 10; *Working Farmer* 3 (1851): 100.

complicated as they are, involved in agricultural science.”¹²⁰ Farmers’ College, he hoped, could take on such a role and ultimately “settle many important inquiries.”¹²¹

Unfortunately for Cary, the costs of such work exceeded even his remarkable fundraising abilities. As early as 1854, Farmers’ began running an annual deficit that could only be met by dipping into its capital stock. Although the school had seemingly secured an impressive endowment, a number of factors reduced the nominal amount raised. The fees of agents employed to solicit stock subscriptions cut into receipts, as did a significant number of unredeemed pledges. Moreover, each share guaranteed its holder a perpetual scholarship, thus undercutting tuition income. There was nothing unusual about these difficulties, which typified the contemporary practice of raising capital from surrounding communities by means of scholarship stocks.¹²² Typical or not, however, the fund that remained ultimately could not cover the capital outlays and operational costs of a research university on a “liberal scale.” As a result, the trustees were forced into a downward spiral of reduced expenditures, including dismissal of faculty and sale of the college property.¹²³ The school’s fate was finally sealed when the Ohio legislature rebuffed its bid to become the beneficiary of the state’s Morrill Act allotment.¹²⁴

A look at Nancy Beadie’s work on the founding of Genesee College will clarify the gap that opened up in the period between an expanded educational agenda and traditional means of educational finance. Much like Farmers’, Genesee College had its roots in an academy. In 1829 the Genesee Conference of the Methodist Episcopal Church began planning a “Seminary” which, despite its name, would be a regular nonsectarian academy. The Conference soon accepted the town of Lima’s bid to support the institution with over \$11,000 from area residents, many of whom were not Methodists. Thus when the Genesee Wesleyan Seminary opened its doors in 1831, it was a joint venture between a local community and a trans-local religious organization. This arrangement generated tensions, but it proved effective. The Seminary was able to draw students from both its immediate vicinity and, thanks to the extended network of Methodist circuit riders, from much farther afield. By 1845 it had the largest enrollment of any Regents academy in New York. The Methodist network also helped the Seminary increase its capital stock in the 1830s by expanding the range of subscriptions for its scholarship shares. Similar to the scholarship stocks issued by Farmers’ College, the Seminary shares obliged purchasers to make annual payments over a period of three to four years. In lieu of dividends, each share conferred on its owner a fully negotiable scholarship (limited or perpetual depending on the terms of the stock). In the case of the Genesee seminary the liability that these scholarships represented was mitigated by New York’s allocation of public funding for academies on a per-pupil basis. By conferring free tuition, the stock subscriptions

¹²⁰ *Cincinnatus* 1 (Jan 1856): 11-12.

¹²¹ *Ibid.* 1 (Nov 1856): 547.

¹²² For the terms of the scholarship stocks Farmers’ issued, see “Farmers’ College v. Cary”; for a similar practice by another institution, see Beadie, “From Academy to University in New York State,” 21.

¹²³ Chaszar, “Leading and Losing the Agricultural Education Movement,” 38; Becker concludes that “after 1858 Farmers’ was almost moribund, though life would linger on for twenty-five years” (“Freeman Cary and Farmers’ College,” 173).

¹²⁴ Huston, *Historical Sketch of Farmers’ College*, 70-74. It appears that Ohio’s Board of Agriculture, fearing that the state’s existing colleges would carve up the Morrill endowment among themselves if any one of them were allowed to press its claims, argued that the terms of the grant required a new, entirely state-run institution; *Ohio Farmer* 14 (1865): 42-43, 84, 98, 100.

tended to ensure high student enrollments, helping the Seminary to achieve Regents status quickly and increasing its share of state subsidies.¹²⁵ These were benefits enjoyed by neither Cary's Pleasant Hill Academy nor Farmers' College.

Emboldened by its success, the Genesee Conference sought to expand the Seminary into a much larger educational institution offering a broad range of degree options, including in agriculture. Although the New York legislature refused to charter a "university," it did incorporate Genesee College, which opened in 1851. In order to raise capital, the trustees issued additional scholarship shares, yet by 1860 only \$129,000 of the \$177,500 pledged had actually been paid.¹²⁶ If this came as a surprise it should not have, because the Seminary had been plagued by a substantially worse payment record. Beadie calculates that 55 percent of the Seminary's subscribers failed to redeem the full face value of their certificates while 25 percent paid nothing at all.¹²⁷ By comparison, the unfulfilled pledges of Farmers' College appear entirely typical. Moreover, the Genesee Seminary and College enjoyed channels for pressing at least some of their debtors that Farmers' did not. As Methodist institutions, they could subject delinquent co-religionists to disciplinary measures within the church organization. Only when these failed did they have to resort to court proceedings that, in at least one case, required Farmers' to wait nearly twenty-five years for a favorable judgment.¹²⁸

In spite of these advantages, only a year after Genesee College opened its doors an inquiry into its financial condition revealed that operational deficits were draining its capital. The discovery led to the hiring of a new treasurer who over the ensuing years methodically streamlined operations by fusing class offerings at the Seminary and the College. Such belt tightening clashed with the original mission to expand rather than contract study options. By 1860 the college still lacked funds to develop new degree programs or hire faculty in the areas projected almost ten years earlier. According to Beadie, the trustees had "learned the impossibility of building a university by customary means." The college survived by trimming its sails and drawing on the resources of the wider Methodist network. Among the outstanding benefits of this affiliation was the ability to mobilize political influence. Methodist channels were essential to winning legislative appropriations of \$6,000 each in 1854 and 1856 and a concession in the 1864 act transferring New York's Morrill Act lands to Cornell, by which Genesee College secured \$25,000 to endow an agricultural professorship.¹²⁹ Farmers' College, on the other hand, could only fall back on the much looser network of agricultural societies, organizations that could not make the same kinds of claims on members as could a religious body. Moreover, it had committed itself to an independent agricultural department, including extensive research facilities, which could not easily be scaled back. Thus the ambition to build a modern research facility had destroyed an initially thriving local institution and with it the idea that "private enterprise" was likely to build a successful agricultural college.

¹²⁵ Beadie, "From Academy to University in New York State," 14, 17; Beadie, *Education and the Creation of Capital in the Early American Republic*, 176–211, 268–270, 280–281.

¹²⁶ Beadie, "From Academy to University in New York State," 17, 19.

¹²⁷ Beadie, *Education and the Creation of Capital in the Early American Republic*, 299. However, it is not clear if these figures take into account the many subscriptions that were redeemed in kind, for example in construction materials and labor (242-3).

¹²⁸ "Farmers' College V. Cary."

¹²⁹ Beadie, "From Academy to University in New York State," 21–27 (quotation on p. 27).

THE NEW YORK STATE AGRICULTURAL COLLEGE AND
THE UNRELIABILITY OF STATE-LEVEL PUBLIC FUNDING

Long before the demise of Farmers' College clinched the case, the numerous failures of "private enterprise" led reformers to accept the fundamental importance of government patronage. By the 1850s most had resolved to again lobby state legislatures. This time around their efforts yielded notable if still partial successes, particularly in Michigan, Pennsylvania, and Maryland, all of which founded lasting state agricultural colleges during the decade. These victories, however, were tempered by some embarrassing defeats. Ironically, on the eve of the Civil War the states with the strongest agricultural organizations—Massachusetts, New York, and Ohio—had achieved the least. Furthermore, even the successful cases were characterized by deep financial instabilities in their early years. As a result, reformers would ultimately turn from the states to the federal government.

Some reformers had never been convinced to abandon the campaign for public funding. In the 1840s, for example, the American Institute petitioned the New York legislature several times for up to \$50,000 in state funds to support an agricultural and mechanical college under its control. The Institute's Farmer's Club, a bi-weekly public forum of leading reformers that received detailed coverage in New York's major dailies, gave prominent place to calls for state supported agricultural schooling. In an 1845 meeting, for example, Thaddeus B. Wakeman, the Institute's corresponding secretary, urged his audience to "set about this system as we have done with our railroads and canals," that is, with state support.¹³⁰ Two years later, Wakeman explicitly protested against a strategy of private rather than public funding. "This has been already tried," he said at the annual convention of the state agricultural society, "and has utterly failed."¹³¹ By the late 1840s others increasingly agreed. An 1848 letter to the New York *Tribune* argued that just as the state had not relied on "individual effort" alone for the establishment of ordinary colleges and academies, it should not do so in the case of agricultural schools either.¹³² Three years later a member of the state Assembly contended that "private enterprise" lacked the resources to conduct scientific research and, just as important, to diffuse the results among the public.¹³³

The move back toward public funding was therefore a response to the failures of private efforts and, by the mid-1850s, to the perceived need for authoritative research institutions on a large scale. But the shift was also fueled by Americans' growing awareness of the proliferation of state sponsored agricultural institutions in Europe. In the 1840s Henry Colman reported at length on the agricultural schools of Ireland, England and France as part of his broader survey of European agriculture. Having left the United States in 1843, Colman had not been around to witness the repeated collapse of the private agricultural institutes and his reports noted but did not particularly emphasize the government funding enjoyed by European schools.¹³⁴ Later reports, however, drew

¹³⁰ Newspaper clipping, 7 Jan 1845, "Scrapbook, 1845-1846," Box 461, Records of the American Institute of the City of New York for the Encouragement of Science and Invention, New-York Historical Society (hereafter, NYHS).

¹³¹ *New York Daily Tribune*, 9 Feb 1847, p. 1.

¹³² *Ibid.*, 28 Jan 1848, p. 1; see also the remarks of James Tallmadge in his closing address at the annual American Institute fair; 26 Oct 1850, 5.

¹³³ *Working Farmer* 3 (Jun 1851): 79.

¹³⁴ Henry Colman, *European Agriculture and Rural Economy from Personal Observation*, vol. 1 (London: Joseph Rogerson, 1844), 179-248; Henry Colman, *European Agriculture and Rural Economy from Personal Observation*, vol. 2 (Boston: Arthur D.

frequent attention to the role of European governments in promoting agricultural education and improvement. James Mapes's *Working Farmer*, for example, reprinted articles from European journals detailing the continent's burgeoning farm school system and other state agricultural development policies. By comparison, Mapes grumbled, the American situation was "very humiliating."¹³⁵ In 1851 a second major report on European agricultural education appeared when Edward Hitchcock, a leading geologist and the president of Amherst College, was assigned by the Massachusetts Board of Agriculture to study the matter. Unlike Colman, Hitchcock stressed the critical importance of state sponsorship, arguing that the "schools usually fail, if they do not receive efficient aid from the government." The report's introduction, written by Board president Marshall P. Wilder, likewise stressed the importance of public funding.¹³⁶ The point received further reinforcement when Henry Barnard, a leading advocate of public schooling, published a second edition of his massive survey of European educational institutions, drawing special attention to its additional coverage of agricultural schools and to the role of European governments in their creation.¹³⁷

Comprehensive and thorough, the Hitchcock report enjoyed widespread influence among agricultural and educational reformers.¹³⁸ Reading it alongside the accounts by Colman, Mapes, Barnard and others, Americans gained a new awareness that European countries were forging ahead with agricultural education, a realization that both gave assurance of the project's feasibility and raised anxiety that the United States was falling behind. Not long after the Hitchcock report's appearance, for instance, a *New York Times* article that clearly bore its imprint complained that whereas American "state legislatures are deaf, and Congress will not hear," in Europe "the subject is better appreciated."¹³⁹ Similarly, the 1851 Patent Office agricultural report, of which more than 140,000 copies were printed, contained a summary of Hitchcock's findings that concluded with the question, "Is it not possible for the United States to have one school worthy of the republic?"¹⁴⁰ Not long afterward William H. Seward, Whig leader and economic nationalist, warned that "even, therefore, if we should continue to neglect agricultural improvement, England, Ireland, France, Spain, Italy, Germany, and Russia, would not."¹⁴¹ In subsequent years the agricultural press reported more and more on the progress of European agricultural schools, typically underscoring the role of government in moving things forward. Horace Greeley, for example, remarked on Prussia's

Phelps, 1848), 412-441; Horace Greeley reprinted long parts of the reports on European agricultural schools in the *New York Daily Tribune*, 26 Dec 1844, p. 4; 24 May 1845, 2; Donald B. Marti, "The Reverend Henry Colman's Agricultural Ministry," *Agricultural History* 51 (July 1977): 531.

¹³⁵ *Working Farmer* 6 (1854): 126; see also 1 (1849): 100, 129-130; 3 (1851): 28.

¹³⁶ *Report of Commissioners Concerning an Agricultural School, January 1851* (Massachusetts?, 1851), 4, 8, 10, 69.

¹³⁷ Henry Barnard, *National Education in Europe: Being an Account of the Organization, Administration, Instruction, and Statistics of Public Schools of Different Grades in the Principal States*, 2nd ed. (New York: Charles B. Norton, 1854), 3, 467; Barnard relied in part on Hitchcock's 1851 report (11). For awareness of the European example among American common school reformers, see Carl Kaestle, *Pillars of the Republic: Common Schools and American Society, 1780-1860* (New York: Hill and Wang, 1983), 72-73.

¹³⁸ Rozwenc, *Agricultural Policies in Vermont*, 53; Harold Whiting Cary, *The University of Massachusetts: A History of One Hundred Years* (Amherst: University of Massachusetts, 1962), 15.

¹³⁹ *New York Times*, 12 Jul 1852, p. 2.

¹⁴⁰ *Annual Report of the Commissioner of Patents, Agriculture*, (1851): 148.

¹⁴¹ William Henry Seward, *The Works of William H. Seward*, ed. George E. Baker, 5 vols. (Boston, New York: Houghton, Mifflin and Company, 1884), vol. 3, 181.

extensive system of “public establishments for agricultural education” before asking, “Ought so shameful a contrast to exist between that monarchy and this republic?” The *Farm Journal and Progressive Farmer* praised the “enlightened governments” of Europe that were following Prussia’s example, while Iowa Republican Joseph B. Grinnell told a meeting of the Cedar Valley Agricultural and Mechanical Association that “the governments of the old world are more liberal patrons of agriculture than ours.”¹⁴²

But even as reformers insisted that state sponsorship was a prerequisite for success, they continued to assume that the planning and day-to-day operation of agricultural schools would be left to them. Thus Hitchcock argued that “those agricultural institutions succeed best which are started and sustained by the mutual efforts and contributions of individuals, or societies, and of the government.”¹⁴³ At a time when the tradition of mixed public-private enterprise in the areas of banking and internal improvements had largely been repudiated, the legal structure of early state agricultural schools institutionalized a partnership between state and civil society.¹⁴⁴ Maryland chartered an agricultural college in 1856 (now the University of Maryland at College Park) as a private joint stock company, but at the same time the legislature tethered the school to the state in several ways. The board of trustees was to be composed of a representative from each county (and the City of Baltimore) so that every political jurisdiction in the state would enjoy a voice in directing the new school. The charter also provided that when \$50,000 in stock subscriptions had been raised, an annual state appropriation of \$6,000 would kick in. Finally, the charter included the very specific requirement that the professor of chemistry “carefully analyze all specimens of soil that may be submitted to him by any citizen of this State, free of charge.”¹⁴⁵

The 1855 charter for the Farmers’ High School of Pennsylvania (later renamed the Agricultural College of Pennsylvania and today the main branch of Pennsylvania State University) went further toward intertwining state and society. The college’s thirteen-member board of trustees included the governor and secretary of the commonwealth as *ex officio* members, along with the presidents of the state agricultural society and of the college. The remaining nine trustees were to be elected by a convention consisting of the state society’s executive committee plus three representatives from each lawfully organized county society. Thus control of the board was vested in the state’s official agricultural organizations. Moreover, the college was required to submit an annual financial report to the state agricultural society, which would, in turn, include that statement in its own legally mandated annual report to the legislature. Since the county societies were bound to the state organization through a similar reporting requirement, the charter of Farmers’ High School helped establish an interconnected system of semi-public agricultural institutions under the direct

¹⁴² *New York Daily Tribune*, 8 Nov 1851, p. 4; *Farm Journal and Progressive Farmer* 6 (1856): 31, 258; *Annual Report of the Iowa State Agricultural Society* 6 (1860): 154; for similar statements, see *New York Times*, 5 Feb 1859, 2; *Pennsylvania Farm Journal* 5 (1855): 4-6, 36-38; *Transactions of the New York State Agricultural Society* 18 (1858): 37; *Working Farmer* 11 (Jan 1859): 19-20; *The Agricultural College of Pennsylvania* (Philadelphia: William S. Young, 1862), 31; Keith R. Widder, *Michigan Agricultural College: The Evolution of a Land-Grant Philosophy* (MSU Press, 2005), 20.

¹⁴³ *Report of Commissioners Concerning an Agricultural School*, 70.

¹⁴⁴ Louis Hartz, *Economic Policy and Democratic Thought: Pennsylvania, 1776-1860*, Studies in Economic History (Cambridge: Harvard University Press, 1948).

¹⁴⁵ *Report of the Register of the Maryland Agricultural College, to the Board of Trustees; Act of Incorporation, with Amendments Thereto: List of Officers, and Names of Stockholders, with Number of Shares Held by Each* (Baltimore: Samuel S. Mills, 1858), 15; True, *History of Agricultural Education*, 66-67.

control of a self-selected group of reformers but formally supervised by state officials.¹⁴⁶ The college's public mission was further reinforced when the state legislature coupled funding in 1857 with new mandates, similar to the ones imposed by Maryland, to test citizens' soil and fertilizer samples and to publish the results of experiments in at least one newspaper in each county.¹⁴⁷ Such provisions justified reformers' assertion that "this is not a mere private enterprise or speculation, intended to benefit corporators or stockholders," but rather "a *State Institution*."¹⁴⁸

However, the initiative for state involvement in agricultural education, as in the case of the laws governing agricultural societies (Chapter 2), came from reformers, not politicians or bureaucrats. Consequently state supervision was not accompanied by firm financial commitment and the early agricultural colleges, though identified with state governments, stood on shaky fiscal ground. In the case of the Farmers' High School of Pennsylvania, for example, the legislature provided no funding whatsoever at first. The initial endowment consisted of \$10,000 appropriated by the state agricultural society from its own funds and a \$5,000 bequest from a wealthy member of the Philadelphia Society for the Promotion of Agriculture. Once the school was located on donated land in Centre County, hometown Republican politico Andrew Curtin helped raise an additional \$10,000 from nearby residents. In May 1857 the legislature did provide \$25,000 and a promise for another \$25,000 the following year if a like amount could be raised from private donations. With \$50,000 in hand and solid prospects for another \$50,000, the board decided to purchase additional land and approved an ambitious main campus building. Disaster struck almost immediately, however, when the Panic of 1857 killed the fundraising drive and with it the matching state grant. The contractors, meanwhile, had greatly underestimated the cost of construction and went bankrupt. Additional contributions from trustees and local citizens amounting to over \$10,000 could not prevent the need to mortgage the college grounds for twice that amount simply to complete a single wing of the main building. When the college opened its doors in the winter of 1859, such basic facilities as the kitchen and dining room remained unfinished. At this point, despite significant student enrollment, the whole venture was near collapse. A bill to rescue the college with a \$50,000 appropriation generated little enthusiasm among legislators and may never have passed at all had it not been for the intervention of Andrew Curtin, now governor, who just happened to come from the town where the school was located. By 1865 the college was still struggling under a mountain of debt.¹⁴⁹

These trials, however, pale in comparison to those experienced by New York's would be agricultural college builders. Confronted with many of the same obstacles that faced their counterparts at Farmers' College and the Farmer's High School, the founders of the New York State

¹⁴⁶ *Pennsylvania Farm Journal* 5 (Mar 1855): 84–85.

¹⁴⁷ True, *History of Agricultural Education*, 69.

¹⁴⁸ *Pennsylvania Farm Journal* 5 (Mar 1855): 94 (emphasis in original); for this journal's status as official organ of the state society, see Stevenson Whitcomb Fletcher, *Pennsylvania Agriculture and Country Life, 1840-1940* (Harrisburg: Pennsylvania Historical and Museum Commission, 1955), 440.

¹⁴⁹ Michael Bezilla, *Penn State: An Illustrated History* (University Park, PA: The Pennsylvania State University Press, n.d.), chap. 1, <http://www.libraries.psu.edu/psul/speccolls/psua/pshistory/bezilla.html>; James Howard Waring, *An Agricultural History of the Pennsylvania State College: Embracing a Brief Historical Sketch of Agricultural Education Both in Europe and in America, the Founding of the Farmers' High School of Pennsylvania, and the Development of the Pennsylvania State College from That Beginning Until the Present Time* (n.p., 1919), 15–16; Fletcher, *Pennsylvania Agriculture, 1840-1940*, 450–454; *Working Farmer* 9 (1857): 170–171.

Agricultural College at Ovid could not obtain public funding at the critical moment and consequently had to shut the institution's doors almost as soon as they had opened. The full explanation for this failure is obscure, but one factor that proved decisive was a division among advocates of "industrial education" that led to a competing project known as People's College. Also important was apparently stiff resistance from the traditional institutions of higher learning. In any case, reformers found New York politics utterly intractable until years of mortifying letdowns and Ezra Cornell's deep pockets paved the way for an effective coalition in 1864.

The story begins toward the end of the 1840s when members of the state agricultural society resumed legislative lobbying for an agricultural college. In 1849 the Assembly ordered a study of the matter and Whig governor Hamilton Fish appointed a commission of leading reformers closely associated with the state society.¹⁵⁰ The following year the commission proposed an annual state subsidy of \$10,000 for a college of up to five hundred students capable of "authentic" research. These recommendations were adopted wholesale by a committee of the state Assembly, according to which "the great mass of the agricultural community, throughout the State, demands the establishment of an Institution."¹⁵¹ The legislature, however, narrowly chose to bury the matter by voting for a second study commission. Horace Greeley found the situation mystifying. "The Assembly," he observed, "seems to have an invincible reluctance to take up the subject. Proper bills to carry out the plan are reported by the proper committees, but the House shrink from coming up to the work."¹⁵²

Less than two years later, in January 1853, the *New York Times* remarked that agricultural colleges had been proposed so frequently without result, "we wonder that the project has not before now been abandoned utterly."¹⁵³ As it turned out, however, 1853 was an auspicious year for the advocates of "industrial universities," a catchall phrase that embraced various plans of agricultural and mechanical higher education. In April the legislature chartered not one but two such institutions within the span of a few days—neither, however, backed by public funding. One of these was the New York State Agricultural College (NYSAC), which, as the *New York Times*, expressed it, was placed "in the hands of its friends."¹⁵⁴ The moving spirit behind the effort was the state agricultural society's president, John Delafield, while former president John Alsop King and long serving secretary Benjamin P. Johnson were trustees. After securing the charter Delafield moved quickly to

¹⁵⁰ Marti, "The Purposes of Agricultural Education," 280; George Brayton et al., "Report of the Committee on Agriculture on so Much of the Governor's Message as Relates to an Agricultural College and Mechanical School, and on the Memorial of the State Agricultural Society on the Same Subject," in *Documents of the State Assembly of New York, Seventy-Fourth Session*, vol. 2 (Albany: C. Van Benthuysen, 1851), 2. The commissioners were Joseph Blunt, closely associated with the American Institute; A. J. Downing, editor of the *Horticulturist*; William Risley, a vice president of the state agricultural society in 1850; Samuel Cheever, a vice president of the state society in 1847; E.C. Frost, a vice president of state society in 1850; Henry Wager, a member of the state society's executive committee in 1849; John P. Beekman, president of the state society in 1844, and John Greig, a former Whig congressman and president of Ontario Agricultural Society who chaired the state society's 1844 "special committee for promoting the introduction of agricultural books in schools and libraries"; *Transactions of the New York State Agricultural Society* 4 (1845): 372.

¹⁵¹ Brayton et al., "Report of the Committee on Agriculture," 1–21 (quotation on p. 2).

¹⁵² *New York Daily Tribune*, 20 May 1851, p. 5; True, *History of Agricultural Education*, 50–51; Bailey, *Cyclopedia of American Agriculture*, vol. 4, 391.

¹⁵³ *New York Times*, 8 Jan 1853, p. 4.

¹⁵⁴ *Ibid.*, 5 May 1853, p. 4.

raise funds and locate the college on his Oaklands estate in Seneca County, but his sudden death in October led to the project's temporary abandonment.¹⁵⁵

Around the same time a charismatic minister and educational reformer named Amos Brown took over a failing academy in the town of Ovid, only a few miles from Delafield's home. Though not particularly knowledgeable about either science or agriculture, Brown planned to revive the Ovid Academy in part by instituting courses in agricultural science. The trustees, most of whom were farmers, enthusiastically agreed and committed to fund the salary of a competent teacher. Brown then hired a recent graduate from Yale's scientific school named William H. Brewer who had studied with John Pitkin Norton and would go on to a distinguished career in agricultural science. In order to advertise the new plan, Brewer addressed two local county fairs in the fall of 1852 and later gave winter lecture courses to area farmers, indicating again the prevalence of such talks as well as the significance of the county fairs as channels of communication with rural residents.¹⁵⁶ Evidently Brewer's public lectures and Brown's management were a wild success, for within three years the academy was enrolling over three hundred students. Local excitement spilled over into renewed interest in the state agricultural college. When town residents gathered to dedicate the academy's new dormitory, they called for the revival of the agricultural college and its relocation to Ovid. Within a year Brown had not only convinced the NYSAC's trustees to go along with the plan, but had secured a twenty-one-year, interest free loan of \$40,000 from the state and raised \$47,000 in private subscriptions, many of them in small denominations from area farmers. With the chairman of the board of trustees, John Alsop King, now in the governor's mansion, the future suddenly looked bright for the New York State Agricultural College.¹⁵⁷

The other industrial school approved by the legislature in April 1853 was People's College, a project that drew on the legacy of manual labor education and originated with New York's workingmen's associations rather than with its agricultural reformers. The plan was first proposed around 1848 by Harrison Howard and other members of the Mechanics' Mutual Protection, an organization of journeymen that formed in the 1830s to protest New York's convict labor system. By 1850 Horace Greeley had come on board and convinced Howard to include agricultural education in his proposal. This was in many ways a natural addition, not only because it promised to broaden the plan's base of support, but because links between mechanics' organizations and agricultural reformers already existed. For instance, the printer Daniel K. Minor, best remembered today for his *American Railroad Journal*, maintained a presence in both camps. In 1834 Minor sat on the committee that drafted the protest of the "State Convention of Mechanics" against competition from convict labor. At the same time, he published the *New York Farmer*, one of the country's

¹⁵⁵ True, *History of Agricultural Education*, 50–53; Bailey, *Cyclopedia of American Agriculture*, vol. 4, 391–393; Marti, "The Purposes of Agricultural Education," 281–282.

¹⁵⁶ Amos Brown to William H. Brewer, 23 Jul 1852, 5 Aug 1852, 18 Aug 1852, 10 Jul 1854, William H. Brewer Papers, 1852-1909 (microfilm, one reel), Cornell University Library (hereafter, CUL). See also the advertisement of 29 Dec 1853 in the *Elmira Gazette*, quoted in Morrison, *The New York State Agricultural College, Ovid, Seneca Co., N.Y.*, 85.

¹⁵⁷ Daniel W. Lang, "Origins of the American Land Grant College Movement," *Higher Education Perspectives* 2 (March 2006): 35–38; Walter Gable, "The Ovid Academy and the Seneca Collegiate Institute," *Seneca Count, NY* <http://www.co.seneca.ny.us/dpt-genserv-historian-seneca.php>; Ulysses Prentiss Hedrick, *A History of Agriculture in the State of New York* (Albany, NY: Printed for the New York State Agriculture Society, 1933), 419–420; Morrison, *New York State Agricultural College*, 93–110.

earliest agricultural journals, and in the 1840s he was a part owner and heavy promoter of the commercial fertilizer known as poudrette.¹⁵⁸ Another link came in the person of James Mapes. As president of the New York Mechanics' Institute in 1844, Mapes introduced night classes and conversational meetings to assist mechanics in improving their skills; the following year he helped establish the American Institute's Farmer's Club and quickly became a well known agricultural editor and lecturer (Chapter 3).¹⁵⁹ In their various public roles Minor and Mapes consistently championed the dignity of labor and the duty of government to foster economic opportunity.¹⁶⁰ While there is no evidence that either participated actively in the movement for People's College, Mapes's friend Greeley and other agricultural reformers certainly joined the effort. Theodore C. Peters, editor of the *Wool Grower* and member of the state agricultural society, helped draft the prospectus and sat on the board of trustees.¹⁶¹

Greeley's involvement with People's College did not automatically turn him against the competing state agricultural college, but it did make him strangely hostile to government aid, a position difficult to square with his Whiggish enthusiasm for state sponsored improvement of virtually every variety. At the beginning of 1849 Greeley was still characteristically in favor of public funding. "We have long recognized it as a high and holy duty of a civilized government, to provide for the general dissemination of learning," he explained; he then asserted that "the time has arrived when the State is called upon to make provision for the advancement of Agricultural Science, and of knowledge in the Mechanic Arts." By the beginning of 1852, however, Greeley was arguing just the opposite: "As to an Agricultural and Mechanical College . . . we are warmly in favor of it, but not of its endowment by the State."¹⁶² What accounts for the bizarre about-face? Greeley gave two reasons. The first was his fear that a public institution would become a dumping ground for patronage hacks. On closer inspection, however, he does not appear to have been very troubled by this possibility. At one point he suggested that a government school might tolerably guard against such abuses, while elsewhere he favored a federal agricultural bureau even if staffed purely by patronage appointees.¹⁶³

Instead, the patronage scare seems to have been mainly a rhetorical smoke screen for a stronger objection to the monopolization of public funds by sectarian and liberal arts colleges committed to the classical curriculum. Toward the end of 1850, James Tallmadge spoke at the annual fair of the American Institute, noting the "painful" fact that "with an expenditure of \$254,800 in this State for the last twelve years only, for Colleges, not a single Institution has been established for the elucidation of Agriculture and the Mechanic Arts." Greeley subsequently alluded to this talk in advising legislators to "hesitate before they make any further appropriations of the public money to aid institutions which have already received so large a share of the bounty of the

¹⁵⁸ *Mechanics' Magazine and Register of Inventions and Improvements* 4 (Sep 1834): 134; *American Railroad Journal* 1 (17 Nov 1832): 736; *Laws of the State of New York*, 62nd Sess. (1839): 350–352; *American Institute Report on Agriculture* 3 (1844): 137.

¹⁵⁹ See chapter 4.

¹⁶⁰ Minor's *American Railroad Journal* included the subheading, "Advocate of Internal Improvements," while the title page of Mapes's *Working Farmer* announced "the Importance of the Establishment of a Home Department of Agriculture at Washington."

¹⁶¹ Daniel W. Lang, "The People's College, the Mechanics' Mutual Protection and the Agricultural College Act," *History of Education Quarterly* 18, no. 3 (Autumn 1978): 295–304.

¹⁶² *New York Daily Tribune*, 3 Jan 1849, p. 2; 7 Jan 1852, 4.

¹⁶³ *Ibid.*, 12 Nov 1851, p. 6; 7 Jan 1852, 4; 8 May 1852, 4; 3 Mar 1856, 4.

State.”¹⁶⁴ He raised the pitch considerably a year later when he editorialized that the traditional colleges “swarm among us like the frogs of Egypt, and State gratuities are the slime wherein they are bred.” About the same time he attended a public meeting of People’s College supporters where Theodore C. Peters proposed “that without enunciating any abstract principles on this subject, we unanimously reiterate our deliberate and full conviction, that State endowments for colleges and high schools, are utterly inexpedient in a community like ours, leading, as they have hitherto done, to favoritism in the distribution of some \$60,000 annually, for the benefit of those who are abundantly able to educate themselves or their children.”¹⁶⁵

There is considerable indirect evidence that existing classical colleges initially resisted agricultural and mechanical schools. In 1853 the *New York Times* explained the repeated failure of bills for such institutions by noting that the proposed charters did not limit them strictly to technical subjects, thus potentially creating state-sponsored competitors for the classical colleges. Indeed, the *Times* refused to endorse agricultural colleges unambiguously until it was reassured that they would not pursue the traditional liberal arts curriculum.¹⁶⁶ Later, the presidents of Williams and Hobart Colleges each insisted that People’s College stick to the “specific purposes” of a “professional school.”¹⁶⁷ Outside New York, Freeman Cary complained bitterly that “the literary world have no sympathy with the great movement” for “industrial universities.”¹⁶⁸

Greeley’s rhetoric, then, was apparently a tactical effort to rally support for People’s College behind a populist appeal against elitism and sectarianism, a particularly ironic move given his support for elite agricultural education only five or six years earlier. Certainly his statements could not be taken at face value as “abstract principles.” The *Tribune* thought it “but reasonable that the Federal Government should do a little” to improve American farming by creating a bureau of agriculture, and in the summer of 1855 Greeley found himself “abundantly gratified” by his inspection of the French national agricultural college at Guignen.¹⁶⁹ Within the state of New York, however, he continued to “strenuously object to any partial appropriation of the public money for the special benefit of a limited class.” An agricultural school, he insisted unconvincingly, was little different from a “sectarian and merely local” college or academy, and it should therefore “be established by the money of those who feel the want,” that is, by donations from the “limited class” of farmers, not by a general state appropriation. Yet just three months later Greeley argued, in support of a federal agricultural bureau, that “where great *common benefits* are judiciously sought, it is but just that they should be sought *at the expense of the community*.” He also reported favorably on Maryland’s and Pennsylvania’s public support for their newly chartered agricultural schools.¹⁷⁰ By the end of the year, in fact, he had abandoned all pretense of a principled stand against public subsidies to the “limited class” of farmers. Soon the *Tribune* was gushing over the proposed Morrill Land

¹⁶⁴ *Ibid.*, 26 Oct 1850; 8 Jan 1851, 4.

¹⁶⁵ *Ibid.*, 7 Jan 1852, p. 4; 18 Feb 1852, 6.

¹⁶⁶ *New York Times*, 8 Jan 1853, p. 4; 17 Aug, 1853, 4; 15 Jul 1859, 4.

¹⁶⁷ *Public Exercises at the Laying of the Corner Stone of the People’s College* (New York: John F. Trow, 1858), 24, 44, <http://www.archive.org/details/publicexercisesa00mont>.

¹⁶⁸ *Cincinnatus* 3 (Aug 1858): 338. See also Mary Summers, “Conflicting Visions,” chap. 4, for charges that literary elites in Illinois tried to gain control of Illinois Industrial University.

¹⁶⁹ *New York Daily Tribune*, 8 May 1853, p. 4 (emphasis added); 30 Jul 1855, 5.

¹⁷⁰ *Ibid.*, 18 Jan 1856, p. 4; 3 Mar 1856, 4 (emphasis added).

Grant Act and shamelessly calling it “The People’s College Bill.”¹⁷¹ The whole episode suggests just how much tactical advantage and how little real principle was at the heart of so many of the period’s blanket statements on the proper functions of government.

People’s College, still a paper institution at this point, was in fact moving aggressively to position itself as the Morrill bill’s beneficiary. The person leading this effort was none other than Amos Brown, who, after losing the confidence of the New York State Agricultural College’s trustees sometime in 1856, jumped ship to become president of People’s College. Meanwhile People’s had acquired a patron named Charles Cook. A builder of canals and railroads, Cook enjoyed both wealth and a robust set of political connections in Albany. When Brown solicited funding for the NYSAC in 1856, Cook realized the college’s promotional potential and decided to back People’s College as a way of boosting his own speculative town site of Havana in Schuyler County. Cook then convinced Brown to join him and immediately dispatched the educator to Washington to lobby for the Morrill bill. In 1862 Brown was again in the capital to help the bill finally become law. In return for these efforts, Brown obtained endorsements from Republican luminaries such as Benjamin Wade and William Pitt Fessenden, not to mention Justin Morrill himself, who advised New York that its land grant was “due” to Brown “and to the institution of which he is the head.”¹⁷²

Cook’s arrival on the scene and Brown’s move from Ovid to Havana had serious repercussions for both institutions. The immediate effect in Ovid was a sudden deflation of local enthusiasm for the NYSAC. In February 1857 John W. Chickering, a teacher at the Ovid Academy, wrote to his friend Brewer who was then studying in Europe that as a result of the college trustees’ abandonment of the locally popular Brown, “not another dollar has been raised, while interest has died away.” This assessment finds some confirmation in the remark of a local newspaper that “sufficient justice was not done” to Brown during the ceremonial laying of the college corner stone.¹⁷³ Chickering also referred to the board of trustees as a collection of “fossils” and to the seventy year-old college president, Samuel Cheever, as “the old hippopotamus.” Nevertheless he advised Brewer to accept the professorship of agricultural chemistry in the new college, “even if it never amounts to anything,” primarily because the trustees would likely fund another year of Brewer’s European studies.¹⁷⁴ Brewer in fact accepted the post, but by 1859 Brown had elicited his agreement to move to People’s College. This defection came close on the heels of the departure of two other professors for the University of St. Louis. “There is a general feeling that this will be a very severe stroke to the college,” Brewer reported to Brown.¹⁷⁵

The college’s problems in fact ran much deeper. The trustees had purchased a school site of nearly seven hundred acres in 1856 at a cost of \$45,000, using up more than half of their expected funds. Consequently they had to scale down their construction plans, yet even by focusing on only a

¹⁷¹ Ibid., 25 Nov 1856, p. 4; 5 May 1857, 4; 19 Jan 1858, 2; 26 Apr 1858, 6.

¹⁷² Colman, *Education and Agriculture*, 33; Lang, “Origins of the American Land Grant College Movement,” 38–40, 43–44; Barbara H. Bell, “Charles Cook: The Father of Schuyler County,” *The Crooked Lake Review*, no. 85 (April 1995).

¹⁷³ Morrison, *New York State Agricultural College*, 32.

¹⁷⁴ J[ohn]. W[hite]. Chickering to Brewer, 1 Feb 1857 and 27 May 1857, William H. Brewer Papers, CUL; on Chickering, see *Obituary Record of the Graduates of Bowdoin College and the Medical School of Maine for the Year Ending 1 June 1914* (Brunswick, ME: The Record Press, n.d.), 243–244.

¹⁷⁵ Brewer to Amos Brown (draft), 31 Aug 1859; Brewer to Samuel Cheever, 25 Jun 1857; Amos Brown to Brewer, 22 Sep 1857, William H. Brewer Papers, CUL.

single wing of the original blueprint, as their counterparts in Pennsylvania were doing, they could not avoid mortgaging college land.¹⁷⁶ In June 1860, with the first term set to commence on December 5, the new college president, Major Marsena Rudolph Patrick, reported to John Alsop King, the chairman of the board of trustees, “We seem to be hanging still in doubt.” By November both the architect and the contractor had still not been paid in full, delays that further damaged the college’s local reputation.¹⁷⁷ As was the case at Farmers’ College and Genesee College, moreover, many subscription pledges remained outstanding. The trustees had counted on these pledges with confidence in part because they were backed by a bond guaranteeing their redemption. But the bond signers refused to honor their commitment until the college exhausted all legal means of compelling the subscribers to fulfill their obligations. The trustees pointed out that taking local farmers to court would hardly cast the college in a favorable light, particularly given the recent financial panic, but the bond signers held firm.¹⁷⁸ Desperate for funds as the opening of the first term approached, several trustees advanced \$5,000 on the ultimate redemption of the outstanding pledges while John Seeley, another trustee and a local attorney, began serving processes on the delinquent subscribers.¹⁷⁹ Two years later Seeley resigned his post as college legal counsel rather than continue these actions, telling King, “I have already involved myself in personal controversies and quarrels without number by reason of the collections I have already made . . . I cannot endure the thing any longer.”¹⁸⁰

Despite these difficulties, the vigorous and competent Major Patrick, who would go on to serve with distinction during the Civil War, somehow succeeded in opening the school as planned in December. The institution’s finances, however, continued to deteriorate. In January 1861 the trustees learned that Amos Brown had arrived in Albany in order to lobby the legislature for public funding of People’s College. Hoping “to fasten our college to his,” they, too, petitioned the legislature for assistance. Trustee William Kelly harbored little hope that either party would succeed, but explained to King, “The necessities of our College are so considerable and are likely to become so extremely pressing, that we must needs make every possible effort to get the means to keep the machinery in action.” The following month Kelly summarized the report of the NYSAC’s Committee of Finance. “The conclusions . . . are by no means cheerful,” he wrote. “They have nearly or quite enough means in hand to pay all our liabilities sustained on or before the first of April next, but beyond that date we have no source of revenue but *students* fees.” At least \$8,000 was needed “*beyond* our means.” Thus the legislature remained the only hope, but as Kelly expected, it refused to help.¹⁸¹

The administration of Patrick, who had kept the college open and even increased enrollment, remained the one bright spot. But after the firing on Fort Sumter in April, Patrick left to

¹⁷⁶ Diedrich Willers, *The New York State Agricultural College, at Ovid, and Higher Agricultural Education: An Historical Paper Read at a Meeting of the Seneca County Historical Society, Held at Romulus, Sept. 5, 1906* (Geneva, N.Y., 1907), 6-7; “Resolution of the New York State Agricultural College Trustees,” 21 May 1860, John Alsop King Papers, NYHS; see also William Kelly to King, 4 Jun 1860 and 8 Jun 1860.

¹⁷⁷ M.R. Patrick to King, 20 Jun 1860; S.E. Hewes to King, 30 Jun 1860 and 21 Nov 1860, Box 2, John Alsop King Papers, NYHS.

¹⁷⁸ M.R. Patrick to King, 20 Jun 1860; William Kelly to King, 6 Sep 1860 and 7 Nov 1860, Box 2, John Alsop King Papers, NYHS.

¹⁷⁹ William Kelly to King, 7, 21 and 30 Nov 1860, Box 2, John Alsop King Papers, NYHS.

¹⁸⁰ John Seeley to King, 5 and 22 Aug 1860, Box 2, John Alsop King Papers, NYHS.

¹⁸¹ William Kelly to King, 2 Jan, 18 Feb, 9 Mar and 25 Mar 1861, Box 2, John Alsop King Papers, NYHS (emphasis in original).

serve the Union war effort and school operations were suspended indefinitely.¹⁸² From there the situation rapidly degenerated. As early as December 1860 the school had defaulted on one of its loans and in June 1861 it defaulted on another. The college property was temporarily saved from the auction block by a small state appropriation in May 1862, yet William Kelly noted that the measure passed with difficulty due to “the jealous and perhaps vindictive feelings of parties who think our college should yield the field of agricultural instruction to the People’s College.” Meanwhile a local “evil genius” had bought up many of the remaining outstanding mortgages and was endeavoring to dismember the college’s land holdings in order to turn a profit.¹⁸³

The passage of the Morrill Land Grant Act provided a final glimmer of hope, but Amos Brown and Charles Cook proved better managers of the political process than even such seasoned politicians as John Alsop King.¹⁸⁴ In 1863 they got the state legislature to allot New York’s entire Morrill Act grant to People’s College. Almost immediately, however, the two men fell out and the entire project soon collapsed. Cook had always been more interested in People’s potential to boost Havana than in its educational goals. His involvement with the school led to the resignation of many of its original trustees, including Harrison Howard, T.C. Peters, and Washington Hunt, who were replaced by Havana boosters. When the legislature named People’s the state’s Morrill grant beneficiary, Cook began acting erratically, at first agreeing, then refusing, then again agreeing and again refusing to convey the money and land he had promised to the school’s trustees as required by the terms of the legislature’s act. The only explanation for this bizarre behavior was a sudden stroke that impaired Cook’s mental functions. In any case, Brown was soon forced out as president, whereupon he and several of People’s trustees aided Ezra Cornell, who had already secured the agreement of King and the NYSAC trustees, to transfer New York’s Morrill grant to Ithaca.¹⁸⁵ Cornell, a bona fide agricultural and educational reformer, provided his university with a generous endowment and expert management of its Morrill grant, thus assuring its future.¹⁸⁶ In the meantime, People’s College ceased to exist and the New York State Agricultural College at Ovid was converted into a state mental asylum.¹⁸⁷

While the situation in New York was in some ways unique, it did not even represent the worst case of state neglect. Massachusetts, for example, repeatedly failed to make even a start at an agricultural college despite a long tradition of able and well-funded agricultural organizations. In the 1840s the state legislature chartered two farm schools, neither of which went beyond the paper stage despite including among their incorporators such prominent reformers and champion institution

¹⁸² William Kelly to King, 9 Mar 1860, John Alsop King Papers, NYHS; Willers, *The New York State Agricultural College, at Ovid, and Higher Agricultural Education*, 10-11; Morrison, *New York State Agricultural College*, 38-40.

¹⁸³ William Kelly to King, 3 May 1862; King to F.S. Winston (copy), 3 Jun 1860; “Summons for Relief by Romine Barnum,” 27 Jul 1861; Kelly to King, 28 Feb and 20 Nov 1862, Box 2, John Alsop King Papers, NYHS.

¹⁸⁴ King to William Kelly (draft), 24 Nov 1862; Kelly to King, 25 Jun, 9 Aug and 26 Nov 1862, Box 2, John Alsop King Papers, NYHS.

¹⁸⁵ Lang, “Origins of the American Land Grant College Movement,” 44–48; Lang, “The People’s College, the Mechanics’ Mutual Protection and the Agricultural College Act,” 306–317; Bell, “Charles Cook”; Morrison, *New York State Agricultural College, Ovid, Seneca Co., N.Y.: A History*, 43–44, 80; Carl Lotus Becker, *Cornell University: Founders and the Founding* (Ithaca, NY: Cornell University Press, 1943), 160–161.

¹⁸⁶ Summers, “Conflicting Visions,” chap. 4; Emily Pawley, “‘The Balance-Sheet of Nature’: Calculating the New York Farm, 1820-1860” (Ph.D., University of Pennsylvania, 2009), 108.

¹⁸⁷ Willers, *The New York State Agricultural College, at Ovid, and Higher Agricultural Education*, 24.

builders as Edward Hitchcock, president of Amherst College and co-founder of the Association of American Geologists, and Marshall P. Wilder, variously the president of the Massachusetts Horticultural Society, the Norfolk Agricultural Society, the United States Agricultural Society, and the American Pomological Society. In 1850 another bill was defeated, after which the General Court ordered a commission to study the issue, leading to Hitchcock's report on European agricultural schools. A subsequent bill incorporating Hitchcock's recommendations was also voted down. Five years later the legislature agreed to charter a "Massachusetts School of Agriculture" but provided no funding. Years of machinations followed as several towns jockeyed to host the institution while opponents in the legislature tried to kill the project entirely. Not until the state accepted the stipulations of the Morrill Act was an agricultural college finally founded. Even then, according to the official historian of what is now the University of Massachusetts at Amherst, no other college in the state "faced more problems."¹⁸⁸

As we have seen, those agricultural colleges that did get off the ground in the 1850s, however briefly, suffered from deep financial instabilities that were only partially remedied, if at all, by state legislatures. One of the problems was that reformers consistently underestimated capital and operational costs. In the fall of 1857 the New York reformer Henry C. Vail, who was just about to wind down his own fleeting experiment with agricultural education, reported on the progress of the Pennsylvania Farmer's High School. Vail hoped for the school's success but criticized the trustees for spending too much on the main building, thus likely leaving insufficient funds for operations.¹⁸⁹ He correctly foresaw that the building plans in Pennsylvania, as they would prove in New York, were wildly unrealistic; both schools ended up finishing only a single wing at greater expense than initially budgeted for the entire building. Summing up such experiences in 1865, Henry French praised the Morrill Act's requirement that each state's land grant fund support operating expenses only.¹⁹⁰

Overextension of capital resources also sank Farmers' College. In 1858 the school's president, Charles N. Mattoon, warned the backers of People's College of the financial obstacles that confronted them. To begin with, the initial outlay for buildings, apparatus and other improvements, substantial enough for a liberal arts college, were particularly large for an institution that aspired to support scientific research. Second, sufficient working capital was essential. Tuition would prove "but a drop in the ocean" (presumably because of the liabilities from scholarship stocks), while private donations and income from student labor on the model farm could not be counted on. Mattoon therefore saw "but one hope" for People's College: "the Legislature of the Empire State must allow you to make heavy drafts of ten and twenty thousand per year upon the treasury till you are fairly under way." He added, with an almost audible sigh, "In this direction we have as yet supplicated in vain."¹⁹¹

Making little headway at the state level, would-be agricultural college builders soon turned to the federal government. In 1854, just as the financial troubles of Farmers' College were becoming

¹⁸⁸ Cary, *University of Massachusetts*, 23; Fowler, "Early Agricultural Education in Massachusetts"; Carpenter and Morehouse, *History of the Town of Amherst*, 532–542.

¹⁸⁹ *Working Farmer* 9 (Oct 1857): 170-171. For Vail's Westchester Farm School, see Appendix.

¹⁹⁰ *Report of the Commissioner of Agriculture*, (1865): 140.

¹⁹¹ *Cincinnatus* 3 (Dec 1858): 558–563.

evident, Freeman Cary organized a well attended three-day conference on “Industrial University Education.” The participants, who included Supreme Court Justice and perennial Whig presidential hopeful John McLean, resolved “to direct public attention to the importance of individual and governmental action.”¹⁹² Three years later Cary proposed that the Agricultural Division of the Patent Office be reorganized as an independent federal agency able to contract with Farmers’ and similar institutions to conduct experiments.¹⁹³ Then, in the winter of 1858-1859, Cary traveled to Washington to lobby for the Morrill bill. There he met not only Amos Brown of People’s College, but the president of the recently opened Michigan Agricultural College, Joseph R. Williams, and the founder of the Maryland Agricultural College, Charles B. Calvert. Each understood that the federal government could potentially supply a level of funding that state governments and private donations were unlikely to meet. The next chapter considers the consequences of this shift to the national political arena.

¹⁹² *Prairie Farmer* 14 (Oct 1854): 365; *Michigan Farmer* 12 (Sep 1854): 283; Powell, *The Movement for Industrial Education and the Establishment of the University*, 77–78.

¹⁹³ *Cincinnati* 2 (Jan 1857): 4.

CHAPTER 5

NATIONAL MEANS, SECTIONAL ENDS

FEDERAL AGRICULTURAL POLICY, 1836-1862

By the 1840s and 1850s agricultural reformers confronted a number of issues that appeared to require institutions that could not be established without the help of the federal government. Although their ideas about precisely what these institutions should be remained somewhat inchoate throughout the period, several concerns stood out. The promise and challenge of agricultural science, particularly with regard to soil maintenance, called for a new kind of sustained scientific research. At the same time the increasing intricacy of new technology, the crisis of expertise of the mid-1850s, and the sheer size and dispersion of the rural population appeared to demand an authoritative source of reliable information. Reformers therefore focused on two types of institution. First, they sought to found agricultural colleges. Initially they thought of such schools largely in terms of vocational training for farmers' sons. By the 1850s, however, they increasingly expected original research as well. Numerous attempts to found private and state agricultural colleges had taught reformers that only the federal government could guarantee the level of resources necessary for long-term success. The second kind of institution reformers worked toward was a federal agricultural department. Such an agency, they believed, would command the necessary respect to coordinate the country's numerous agricultural societies and to supply farmers with reliable information on farming practices and up-to-date statistics on market conditions. In both cases reformers encountered a national government whose ability to respond to their demands was determined by the terms of sectional conflict over the future of slavery.

A thumbnail sketch of the main plot developments recounted in this chapter will outline the sectionalization of federal agricultural policy. Whether at the state or federal levels, agricultural reformers could not command government resources until they built organizations that could effectively lobby legislatures. From the 1830s to the 1850s reformers successfully established permanent presences in many state capitals, yet their effectiveness, though significant, remained limited. Starting in the late 1830s they therefore also began to lobby the federal government. The first big push came in 1841-1842 and comprised an attempt to direct a portion of the Smithsonian fund for the founding of a national agricultural college. After this effort quickly fizzled no new opportunity appeared until the end of the decade. Meanwhile, however, a kind of de facto agricultural bureau developed almost accidentally within the Patent Office, the brainchild of a Patent Commissioner unusually interested in agricultural reform.

When the federal executive was reorganized in 1849 by the creation of the Department of the Interior, reformers advocated for a formal federal agricultural bureau. Southerners, however, were alarmed by the ad hoc administrative growth of the Patent Office's "Agricultural Division" and stymied the effort. In response, reformers organized a national agricultural society that met annually in Washington and lobbied Congress through the 1850s on the need for a department of agriculture. Recognizing the need for federal funding of agricultural education, the organization also lobbied for the Morrill land grant bill, introduced in 1857, which proposed to distribute portions of the public

domain to the states for the purpose of establishing agricultural and mechanical colleges. Southerners found this measure highly disturbing and denounced it in fiery terms. Federal agricultural policy had thus become highly sectionalized and, concomitantly, Republicanized, with only shrinking factions of southern Know Nothings and northern Democrats defying sectional division. Agricultural reformers, in the meantime, had built up such a strong institutional presence in national and state capitals that they managed to have Congress pass the bill; only a presidential veto saved the day for the South. Thus, although reformers lost the Morrill bill in 1859, they demonstrated that with a Republican in the White House future success was all but certain.

The campaign for federal agricultural institutions illustrates the ways in which the issue of slavery engulfed all others as the decade of the 1850s progressed. At the same it shows that basically unrelated matters of economic development—in this case, agricultural reform—continued to be very important to specific constituencies which, particularly in the North, became too well organized to be put off indefinitely. As political questions, slavery and economic development had been kept effectively independent during the heyday of the Second Party System, but in the 1850s they tended to converge in two places. One of these was the western territories, where Americans had to make the fundamentally economic decision of whether to allow a system of slave labor to take hold. Historians have examined with great care the resulting clash of pro- and anti-slavery forces because, without doubt, this episode was singularly important in the political realignment that led to the Civil War. But they have devoted far less attention to the other place where slavery and economic development converged: Washington, DC, that is, in the realm of federal policy. It was only when agricultural reformers arrived in the national capital to demand the creation of novel federal institutions that they encountered stiff resistance from most southern political leaders. Pro-slavery ideologues such as James Murray Mason feared that new national bureaucracies, including an agricultural department and land grant schools, would bring the “industrial pursuits of our people . . . within the vortex of Federal action,” thus potentially subjecting slave property to federal regulation. On the other hand, northern economic nationalists such as Justin Morrill argued that “guidance of the industry of the country” was fundamentally what the federal government was there to do.¹

In this context northern and some border-state agricultural reformers came into the Republican orbit even when they did not hold anti-slavery convictions. Slavery, David Potter wrote in *The Impending Crisis*, “structured and polarized many random, unoriented points of conflict on which sectional interest diverged.”² But in the case of agricultural policy, sectional interests did not actually diverge at all. Unlike the tariff and even the Homestead and Pacific Railroad Acts, there was nothing inherently sectional about federal agricultural agencies, which would in fact prove by century’s end to be especially important for the South. Instead, the political imperative of slavery, when it met an organized lobby able to force its priorities onto the national agenda, created a sectional antagonism where otherwise none would have existed.

¹ Virginia Mason, *The Public Life and Diplomatic Correspondence of James M. Mason: With Some Personal History* (Roanoke, VA: The Stone Printing and Manufacturing Co., 1903), 68; Cong. Globe, 37th Cong., 2nd Sess., Appendix, 259.

² David Morris Potter, *The Impending Crisis, 1848-1861*, ed. Don E. Fehrenbacher (HarperCollins, 1976), 43.

THE PATENT OFFICE, THE SMITHSONIAN BEQUEST,
AND THE FIRST NATIONAL AGRICULTURAL SOCIETY

Attempts to enlist the federal government in the cause of agricultural reform date back to George Washington's presidency. Washington had long maintained a keen and well known interest in improving American farming practices. In 1786 he initiated an extended correspondence, subsequently published, with the British agricultural reformers Arthur Young and John Sinclair. Ten years later, shortly after Sinclair was given charge of the newly created British Board of Agriculture,³ Washington used his last State of the Union message to ask Congress to establish a similar national institution for the study and diffusion of agricultural knowledge. "In proportion as nations advance in population and other circumstances of maturity," he explained, "the cultivation of the soil [becomes] more and more an object of public patronage." He then commended

the establishment of boards (composed of proper characters) charged with collecting and diffusing information, and enabled by premiums and small pecuniary aids to encourage and assist a spirit of discovery and improvement. This species of establishment contributes doubly to the increase of improvement by stimulating to enterprise and experiment, and by drawing to a common center the results everywhere of individual skill and observation, and spreading them thence over the whole nation.⁴

More of a clearinghouse of information than a modern research institution, the board would encourage the production of new knowledge by offering inducements—i.e., encouraging emulation—for individuals to conduct experiments at their own expense. As we have seen, agricultural reformers would come to realize that advanced experimentation could only be carried out within institutions established especially for that purpose.

Washington's proposal seems like a classic Enlightenment-era plan to align the energies of individual citizens with the central mission of national improvement. Though it never went anywhere, it did come to form a useful weapon in the rhetorical arsenal of later agricultural reformers, who rarely failed to invoke the "illustrious farmer of Mount Vernon." Whether contrasting Americans' peaceful pursuit of prosperity with the violence of European power politics, or condemning energies misdirected toward territorial conquest and filibustering expeditions, agricultural reformers of the late antebellum period portrayed Washington as a modern Cincinnatus, not only in the conventional republican sense that he had voluntarily given up power when he could have been king, but in the more liberal sense that he preferred agricultural improvement to military exploits. Thus, in an 1847 edition of Washington's correspondence with Young and Sinclair, the editor highlighted Washington's statement that he knew "of no pursuit in which more real and

³ Henry Barrett Learned, *The President's Cabinet: Studies in the Origin, Formation and Structure of an American Institution* (New Haven: Yale University Press, 1912), 295–301; Alfred Charles True, *A History of Agricultural Education in the United States, 1785-1925*, reprint of 1929 ed., United States Department of Agriculture Miscellaneous Publication No. 36 (New York: Arno Press, 1969), <http://www.archive.org/details/historyofagricul29true>, 7.

⁴ George Washington, "Eighth Annual Message," *The American Presidency Project*, December 7, 1796, <http://www.presidency.ucsb.edu/sou.php>.

important service can be rendered to any country, than by improving its agriculture.”⁵ Such sentiments corroborated the Whig and Republican views that government’s very purpose was the forwarding of economic development rather than geopolitical intrigue.

As I discuss fully in Chapter 1, a widespread network of local and state agricultural societies did not begin to establish itself as a permanent institutional presence until the 1840s. By that time a kind of back door federal agricultural agency had also arisen within the Patent Office. The bureaucratic entrepreneur behind this development was Henry Leavitt Ellsworth, the son of Chief Justice Oliver Ellsworth and a “man of large ideas” interested in more than just the routine examination and registration of patents. Ellsworth became Superintendent of Patents in 1835 and Commissioner of Patents a year later when, at his suggestion, the Patent Office was reorganized, enlarged and professionalized in order to better handle the steady rise of inventions. But Ellsworth was most interested in scientific agriculture. In 1817 he helped establish the Hartford County (CT) Agricultural Society and became its secretary—always the most demanding position in any organization of the period. Later he bought large tracts of land in the West, convinced that the entire area would soon become a great agricultural region. Eventually settling in Indiana, he conducted and reported on a variety of experiments aimed at increasing crop yields. As a result of these activities, Ellsworth was already “one of the best-known figures in agriculture” when he took charge of the Patent Office in 1835.⁶

In his new position Ellsworth immediately began to collect and distribute potentially valuable varieties of seeds and plants. Most of these he obtained from returning consuls and naval officers who had been on the lookout for additions to American agricultural production in accordance with an 1827 Treasury Department circular to that effect. In his report for 1837 Ellsworth suggested making the Patent Office the central repository for these seeds and plants, which, he argued, lay neglected in scattered customs houses.⁷ “Of late,” Ellsworth explained, “inventors have directed their attention, with peculiar interest, to the improvement of the implements of *agriculture*.” As a result, “the Patent Office is crowded with men of enterprise, who, when they bring their models of their improvements in such implements, are eager to communicate a knowledge of every other kind of improvement in agriculture, and especially new and valuable varieties of seeds and plants.” Ellsworth then discussed cases where new varieties of wheat and corn, coupled with careful seed selection, increased yields by as much as twenty percent. By using the Patent Office as a central repository, he argued, the seeds of improved crop varieties could be

⁵ Franklin Knight, ed., *Letters on Agriculture from His Excellency, George Washington, President of the United States, to Arthur Young, Esq., F.R.S., and Sir John Sinclair, Bart., M.P.* (Washington: Published by the Editor, 1847), 12; for similar sentiments, see *American Agriculturist* 5 (Dec 1846): 362.

⁶ Quotations in A. Hunter Dupree, *Science in the Federal Government: A History of Policies and Activities to 1940* (Cambridge, Mass: Belknap Press of Harvard University Press, 1957), 47; and Paul Wallace Gates, *The Farmer’s Age: Agriculture, 1815-1860*, Economic History of the United States 3 (New York: Holt, Rinehart and Winston, 1960), 330; Alfred Charles True, *A History of Agricultural Experimentation and Research in the United States, 1607-1925: Including a History of the United States Department of Agriculture*, United States Department of Agriculture Miscellaneous Publication No. 251 (Washington: G.P.O., 1937), 23-24; Mary Summers, “Conflicting Visions” (unpublished doctoral dissertation manuscript in author’s possession), chap. 3.

⁷ True, *A History of Agricultural Experimentation and Research in the United States*, 24; Learned, *The President’s Cabinet*, 308-309.

distributed widely, greatly improving national agricultural productivity.⁸ The House Committee on Agriculture took up the recommendation in March 1838 and quickly returned a favorable report along with a bill appropriating the \$5,000 Ellsworth proposed for the project. Although the bill failed, the following year Congress granted \$1,000 from the Patent Office fund for the collection of agricultural statistics and other purposes. Most of this went to seed distribution, which reached thirty thousand packages in 1840 and twice that amount seven years later.⁹ Where exactly all these packages went is not entirely clear, but there is evidence to suggest that many of them were channeled through state and local agricultural organizations.¹⁰ As Alan Olmstead and Paul Rhode have recently shown, this government-sponsored program to diffuse new crop varieties would prove critical in two ways: first, in sustaining American agricultural yields in the face of mounting pest infestations; second, in acclimating traditional staple crops to the cold winters of the northern Midwest and the arid conditions of the Great Plains.¹¹

At the same time that he initiated the seed-distribution program, Ellsworth began to fill the annual Patent Office reports with agricultural information. Of greatest significance was his attempt to compile national farming statistics from correspondence with prominent reformers around the country. As with the seed program, this effort both relied on and strengthened the country's existing network of agricultural reform societies. Communications, sometimes directed through members of Congress, linked local organizations to the national government, increasing the relevance of both.¹² By the mid-1840s agricultural statistics and articles culled from correspondence and the agricultural press accounted for over eighty percent of the annual Patent Office report, which ran to several hundred pages and was in such great demand that Ellsworth could not keep up with requests for copies. Registering his approval, John Quincy Adams commented that Ellsworth had turned the annual volume into "a calendar of mechanical and agricultural inventions and discoveries more sought after than any other annual document published by Congress." He was so engrossed, in fact, that after two hours of "continual instigation to further enquiry" he "was finally obliged to break off so as not to lose the whole day."¹³

⁸ *Annual Report of the Ohio State Board of Agriculture* 21 (1867): 476–477; Ohio, *Acts of a General Nature and Local Laws and Joint Resolutions Passed by the General Assembly of the State of Ohio* 53 (1856):208; Robert Leslie Jones, *History of Agriculture in Ohio to 1880* (Kent, OH: Kent State University Press, 1983), 288–289. On the period's novel agricultural implements, see Peter D. McClelland, *Sowing Modernity: America's First Agricultural Revolution* (Ithaca, NY: Cornell University Press, 1997).

⁹ True, *A History of Agricultural Experimentation and Research in the United States*, 24–27.

¹⁰ Cat Spring Agricultural Society, *Century of Agricultural Progress, 1856-1956: Minutes of the Cat Spring Agricultural Society* (Cat Spring, Tex, 1956).

¹¹ Alan L. Olmstead and Paul Webb Rhode, *Creating Abundance: Biological Innovation and American Agricultural Development* (Cambridge: Cambridge University Press, 2008).

¹² For example, the annual report for 1850 (published in 1851) featured, among many others, communications with the Delaware County (PA) Scientific Institute, which functioned as its county's agricultural society; with Theophilus P. Huntington of the Hampshire County (MA) Agricultural Society; Robert Evans, an incorporator of the Erie County [PA] Agricultural Society, and Jeremiah E. Dodge, president of the Grant County [WI] Agricultural Society; *Annual Report of the Commissioner of Patents, Agriculture* (1850): iii; *Transactions of the Wisconsin State Agricultural Society* 4 (1858?): 337; *Laws of the General Assembly of the Commonwealth of Pennsylvania* (1863): 639; *Transactions of the Agricultural Societies of the State of Massachusetts for 1851* (Boston: Dutton and Wentworth, 1852), 277.

¹³ Quoted in Learned, *The President's Cabinet*, 312, and Gates, *Farmer's Age*, 331; see also Summers, "Conflicting Visions," chap. 3.

After Ellsworth left the government in 1845, the Patent Office steadily if unevenly expanded its agricultural functions. In 1848, for example, Congress voted a special appropriation of \$1,000 to make chemical analyses of crops. The following year the transfer of the Patent Office to the newly created Department of the Interior was accompanied by a semi-formal recognition of its new role. Respected agricultural editor Daniel Lee was invited to take charge of what was now unofficially designated the “Agricultural Division of the Patent Office,” and the “agricultural portion” of the annual Patent Office report was printed and bound separately from the “mechanical portion.” By 1850 the Patent Office’s agricultural budget, which came out of the fund generated by patent fees, had risen to \$5,000. Within only a few years, however, Congress began to appropriate much larger sums directly from the Treasury, reaching as high as \$75,000 in 1857. The following year a five-acre “propagating garden” was created in Washington, D.C. in order to supply the seed and plant distribution program with grapevines, Chinese tea seeds (possibly “China Tea,” a wheat variety), and other promising new crops. As a result of the enlarged budget, the Agricultural Division hired more personnel, so that in 1860 it was staffed by a superintendent, four clerks, a curator and gardener, and several assistants.¹⁴

As with the major state agricultural societies, the largest appropriations came in the form of separately budgeted printing and binding costs for the annual agricultural report. The disparity between direct and indirect funding, however, was much larger in this case, for by the early 1850s Congress was voting enormous printing runs of this document. In 1851 the House and Senate ordered a combined 145,420 copies; in both 1855 and 1856 the number climbed to 267,920 and in 1859, after a slight dip in the intervening years, it peaked at more than 300,000.¹⁵ Over the ten years from 1851 to 1860 the federal government published nearly 2.2 million copies of the annual agricultural report at an expense exceeding \$950,000. Whereas editions averaging about 150,000 a year from 1851 to 1854 cost, on average, about \$67,000, in the next six years (1855 to 1860) the editions averaged more than 260,000 while printing costs nearly doubled to about \$133,000 annually (Table 5.1). To this must be added the high costs borne by the Post Office as Congressmen used their franking privileges to mail hundreds of thousands of these heavy reports to their constituents. Echoing John Quincy Adams, Congressman Eben Newton (W-OH) justified ever larger printing runs by contending in 1852 that a mere “four hundred volumes for each Congressional district” were hardly enough, for there was “more call for this document than all others of a public character.” Jerediah Horsford (W-NY) seconded Newton when he told the lower chamber that “many, and probably most of the members of this House, who represent rural districts, are almost daily reminded of the estimate placed upon these reports by their constituents.”¹⁶

Despite such apparent success, the Patent Office’s agricultural functions always remained rather makeshift and precarious. The so-called “Agricultural Division” had no official existence and was never sanctioned by Congress, as hostile southerners frequently pointed out.¹⁷ Nor were

¹⁴ True, *A History of Agricultural Experimentation and Research in the United States*, 26–34; Gates, *Farmer’s Age*, 334–336; James M. Swank, *The Department of Agriculture: Its History and Objects* (Washington: G.P.O., 1872), 12–20.

¹⁵ *Annual Report of the Commissioner of Patents, Agriculture* (1858): 25.

¹⁶ Cong. Globe, 32nd Cong., 1st Sess., Appendix, 494, 746.

¹⁷ In 1845, for instance, John Calhoun and Ambrose Sevier of Arkansas led a successful effort to kill funding for the Patent Office’s agricultural work in that year; see Summers, “Conflicting Visions,” chap. 3.

agricultural reformers themselves satisfied. When the Agricultural Division was run by someone whom they could call their own, such as Ellsworth or Lee, reformers were generally supportive. At other times, however, they could be harshly critical. Solon Robinson, perhaps the country's most popular agricultural writer, called the first post-Ellsworth report a "bundle of trash."¹⁸ Similar criticisms would dog Daniel Lee's successor. Reformers were also offended by the lack of official recognition of the importance of their movement implied in the subordination of the Agricultural Division to the Patent Office.¹⁹ Thus, after noting the popularity of the annual agricultural report in 1852, Congressman Horsford argued that it was never intended "that these reports should supersede the necessity of an institution on a more liberal scale."²⁰

Even as Ellsworth was turning the Patent Office into a de facto federal agricultural agency, other reformers were pushing their own ideas. In 1838, shortly after the Committee on Agriculture issued its report favoring the Patent Office's proposal to initiate agricultural work, Congress received two petitions urging the creation of a federal department to forward agricultural, mechanical, and scientific purposes. Although signed by many of the same individuals, most of whom appear to have been wealthy farmers from nearby Prince George's County, Maryland, the two petitions proposed very different things. The first called for an Agricultural and Mechanical Department, headed by a cabinet-level secretary, with a scope vast and deep. The department would have the "power to forward to each literary institution, and to each teacher in the Union, blank reports, to be filled by each teacher . . . describing the soil, minerals, natural products, crops, buildings, [and] agricultural and mechanical implements, of his school district." Teachers would relay not only these facts, but also the prospects for local economic development. The department, in turn, would supply schools with thermometers, microscopes and barometers with which to record weather conditions and investigate the habits of destructive insects. "By adopting this course," the petition concluded, "we shall have a professor of agriculture and the mechanic arts in every teacher in the Union." Such an ambitious plan was characteristic of the grand nation-building schemes of earlier reformers. In its utterly unrealistic proposal that research be entrusted to school children—or, perhaps, their slightly older teachers—it also illustrated the still fuzzy policy notions circulating within the agricultural reform community. The second petition was considerably more restrained in its suggestions, envisioning a government bureau charged with creating a "national museum and repository of agricultural improvements." Although the Senate ordered the printing of both petitions, the Committee on Agriculture never bothered to report back on either.²¹

In the winter and spring of 1840 Congress received another set of petitions signed by, among others, the Treasurer of the Columbian (Washington, DC) Horticultural Society, John F. Callan, who would soon help lead the initial effort to create a national agricultural society. The first of this batch centered on a recommendation that the Committee on Agriculture issue an annual

¹⁸ Quoted in Gates, *Farmer's Age*, 331.

¹⁹ *Working Farmer* 3 (Nov 1851): 202; *American Agriculturist* 18 (Apr 1859): 104.

²⁰ Cong. Globe, 32nd Cong., 1st Sess., Appendix, 746.

²¹ *Memorial of Edwin Green, and Others, Praying the Establishment of an Agricultural and Mechanical Department of the Government*, S. Doc 418, 25th Cong., 2nd Sess., Serial Set Vol. No. 318, Session Vol. No.5; *Petition of Grafton Tyler, and Others, Praying the Establishment of a Department of the Government to Promote the Interests of Agriculture, of Science, and of the Mechanical and Fine Arts*, S. Doc 419, 25th Cong., 2nd Sess., Serial Set Vol. No. 318, Session Vol. No.5.

report on farming conditions throughout the country. Within less than a month, however, the same group submitted a second, much more detailed petition calling for a “Department of Agriculture and Education.” The language of this document indicates that it was closely modeled on the ambitious petition of 1838. It was, however, even more grandiose, expanding the responsibilities of both the proposed department and its teacher-agents, and including a design sketch of “a primary school for the States,” complete with green house, sugar house, vegetable and flower garden, fruit orchards, cow pasture, sheep-fold, “piggery,” rabbit warren, hen house, apiary, mulberry bushes and cocoonery, and even an “agricultural grounds for experiments.” Despite the evident impossibility of the plan, the petition counted among its signatories the president of Georgetown College. Perhaps recognizing its overreach, the same group submitted still a third petition several months later, this one retreating to the initial call for an annual agricultural report, but one to be issued by a department created especially for the purpose rather than by the House Committee on Agriculture. After waiting almost two years, the agricultural committee reported back tersely that it was “inexpedient to grant the prayer of the petitioners.” A month later, the same committee reported adversely on a memorial from the Iowa territorial legislature asking Congress to match the \$1,200 it had conditionally appropriated “for the encouragement of agriculture and household manufactures within the Territory.” Chairman Edmund Deberry, a North Carolina Whig, explained that, in addition to again deeming the proposal “inexpedient,” the committee “doubt[ed] the constitutional power of Congress to appropriate money for that purpose.”²²

In the meantime, however, agricultural reformers had found another avenue through which they hoped to establish national institutions. In the summer of 1838 the federal government took possession of a \$500,000 bequest left by the wealthy English chemist James Smithson “to found at Washington . . . an Establishment for the increase and diffusion of knowledge among men.”²³ The first to recognize the fund’s potential for American agriculture was German immigrant Charles Lewis Fleischmann. Born in Bavaria, Fleischmann had attended the newly created Royal Agricultural and Technical School at Schleissheim before coming to the United States in 1832 where, after stints as a brewery designer and railroad engineer, he joined Ellsworth’s Patent Office as a draftsman. In April 1838 Fleischmann, “doubtless with the approval of Ellsworth,” presented Congress with “a tightly constructed and informative memorial” arguing for government action to bring American agriculture up to the European level. When the Smithsonian funds arrived shortly thereafter, Fleischmann submitted a second memorial calling for their application to the founding of a national agricultural school. This proposal quickly gained popularity among reformers. In 1840, for example,

²² *Memorial of Joseph L. Smith, and Others, Praying That the Committee on Agriculture Be Instructed to Make an Annual Report on the Agricultural Interests of the Union*, S. Doc 61, 26th Cong., 1st Sess., Serial Set Vol. No. 356 Session Vol. No. 3; *Petition of Joseph L. Smith and Others, Praying the Establishment of a Department of the Government, to Be Called the Department of Agriculture and Education*, S. Doc. 181, 26th Cong., 1st Sess., Serial Set Vol. No. 357 Session Vol. No. 4; *Memorial of Joseph L. Smith and Others, Praying That the Committee on Agriculture Be Instructed to Make an Annual Report on the Agricultural Interests of the Union*, S. Doc. 519, 26th Cong., 1st Sess., Serial Set Vol. No. 360 Session Vol. No. 7; *Joseph L. Smith, Et Al. -- Department of Agriculture*, H. Rpt. 595, 27th Cong., 2nd Sess., Serial Set Vol. No. 409, Session Vol. No.3; *Legislature of Iowa, for an Appropriation to Promote Agriculture*, H. Rpt. 782, 27th Cong., 2nd Sess., Serial Set Vol. No. 410, Session Vol. No.4.

²³ Quoted in Dupree, *Science in the Federal Government*, 66.

the New York State Agricultural Convention petitioned Congress to use a part of the Smithsonian fund for an agricultural school.²⁴

Reformers quickened their efforts the following year by attempting to form a national organization that could lobby Congress. Discussion among groups of reformers had been underway for some time when, in April 1841, Solon Robinson issued a call for a meeting in Washington later that year. According to Robinson, “the object of all state and county societies has been of a local nature . . . and they have been too weak in numbers to command legislative aid.” The meeting, therefore, would organize a national agricultural society capable of advocating for a “National Agricultural School” financed by the Smithsonian fund. “When once organized,” Robinson declared, “we will soon stand, a united force of many thousands, whose voice will be heard in the halls of Congress” and “will overwhelm our political rulers.”²⁵ The editors of the *Western Farmer and Gardener*, where Robinson’s call first appeared, organized support for the proposed society among agricultural activists in lower Ohio and upper Kentucky.²⁶ Agricultural reformers elsewhere, particularly in the vicinity of the capital, also backed the idea, including such long-time friends of improvement as John Stuart Skinner of Maryland and James Garnett of Virginia.²⁷ One very important supporter was Ellsworth, who not only served as an officer in the new organization, but provided it with the Patent Office’s facilities for its meetings and advocated its cause in his official capacity. “The formation of a National Agricultural Society has enkindled bright anticipations of improvement,” he wrote in the 1841 report. “A munificent bequest is placed at the disposal of Congress, and a share of this with private patronage, would enable this association to undertake, and, it is confidently believed, accomplish much good.”²⁸ It would not be the last time that the Patent Office played a central role in agricultural reformers’ efforts to lobby Congress.

From the beginning, however, several important reformers expressed strong reservations about the feasibility of forming a national society.²⁹ Particularly significant were the objections of Edmund Ruffin, the famous Virginia agricultural improver and southern separatist. Ruffin argued that although the objects of the national association were noble, the inherently dishonorable nature of Washington politics would inevitably doom the effort to failure:

We doubt whether the novel attractions and political excitement of the place would not divert the attention of many of the most disinterested and independent members from their designed labors; and taking the whole body, there would probably be more exertion made by members of the society in using the opportunity for seeking office, or other private benefits to themselves individually from the public purse, than to promote the interest of agriculture and the common weal. If the individuals

²⁴ Paul W. Gates, “Charles Lewis Fleischmann: German-American Agricultural Authority,” *Agricultural History* 35, no. 1 (January 1961): 13–15.

²⁵ *Western Farmer and Gardener* 2 (May 1841): 172–173; for previous discussion, see *Cultivator* 6 (1839): 147; 7 (1840): 190; 8 (1841): 52, 86. See also Mary Summers, “Conflicting Visions,” chap. 3.

²⁶ *Western Farmer and Gardener* 2 (1841): 126–127, 171–173, 185–186, 198–199, 209, 276.

²⁷ *Cultivator* 9 (Jun 1842): 94; *Farmers’ Register* (Petersburg, VA) 9 (Apr 1841): 248–249; *Farmer’s Cabinet and American Herd Book* 6 (1841–1842): 135, 197–198; *American Agriculturist* 1 (1842): 4.

²⁸ *Annual Report of the Commissioner of Patents* (1842): 5.

²⁹ Both sides are presented in *Farmers’ Register* 9 (Apr 1841): 248–250; good wishes despite reservations are expressed in *Cultivator* 8 (Jun 1841): 89.

would not so act, they would form a rare exception to the general course of things in the corrupt political atmosphere of the city of Washington.³⁰

Because Ruffin's friend James Garnett was closely associated with the effort, he was careful to express his hope that, despite his fears, all would go well. But Ruffin's intense distrust of the national capital's "corrupt political atmosphere" appears significant in light of his future secessionism.

The national agricultural society was able to hold two annual meetings before dissipating. The absence of state subsidies and a regional base in which to hold fairs and solicit members help explain this rapid demise, as does the still undeveloped state of the country's railroad system, which made an annual journey to Washington a real commitment. The Smithsonian fund, meanwhile, went to other purposes.³¹ In 1849, however, a second opportunity arose with the creation of the Department of the Interior and consequent reorganization of the executive branch. The new institutional focus on domestic needs, reformers believed, would mean attention to agricultural improvement. Strengthened in the interval by the rapid growth of agricultural societies and publications throughout the country, reformers organized a much broader and more effective lobbying campaign than they had at the beginning of the decade.

THE CAMPAIGN FOR A FEDERAL BUREAU OF AGRICULTURE, 1849-1852

Agricultural reformers had long supported creation of a "Home Department," hoping that it would provide the institutional structure within which a bureau of agriculture could be created. During the 1840s, the National Convention of Farmers, Gardeners and Silk Culturists, a yearly gathering sponsored by the American Institute of the City of New York during its popular fairs, provided a forum in which reformers could advocate for such a department. In 1845, for example, the third meeting of the convention proposed "that an earnest appeal be made to Congress to adopt the recommendation of our father, (WASHINGTON) and establish a 'Home Department' for the encouragement and support of the agricultural interests of our country." The following year the convention renewed its call, this time drafting a memorial to Congress that quoted at length from Washington's 1796 State of the Union message.³² By the end of the decade agricultural reformers had grown increasingly hopeful that an Interior Department, when created, would count among its functions the promotion of agriculture. Indeed, although the legislation for the executive reorganization originated in the House Ways and Means Committee, the Committee on Agriculture submitted its own report in support of the change.³³

Reformers anticipated likely success because they believed that they had become sufficiently organized and powerful to lobby effectively for their favored measures. Thus early in 1850 Andrew Jackson Downing, a leading horticulturalist and pastoral landscaper, announced that the agricultural press "*begins* to feel that it is of some account in the *commonwealth*" and "rouses the farming class to a

³⁰ *Farmers' Register* 9 (Apr 1841): 250; see also *ibid.*, 10 (1842): 20-21; 65-66.

³¹ On the ultimate disposition of the Smithsonian fund, see Dupree, *Science in the Federal Government*, 66-90.

³² *American Farmer* 1 (Nov 1846): 138; *Proceedings of the National Convention of Farmers, Gardeners and Silk Culturists* (New York: Joseph H. Jennings, 1846), 11-15; *Monthly Journal of Agriculture* 1 (Jul 1845): 18; *Working Farmer* 1 (Aug 1849): 73.

³³ *Home Department*, H. Rpt. 66, 30th Cong., 2nd Sess., Serial Set Vol. No. 545 Session Vol. No. 1.

sense of its rights in the state.”³⁴ Thus emboldened, agricultural reformers articulated their demands with considerable militancy, enjoining Congress to “listen to the public voice,” insisting that “something should be done for agriculture,” and urging farmers not to “rest until their reasonable demands are complied with.” Time and again declaring that farmers constituted the vast majority of voters, reformers deplored politicians’ conventional praise for agriculture—“so often showered upon us as an opiate to lull us to sleep”—and demanded action instead of rhetoric.³⁵ “If we prove not recreant to our own best interest,” they told themselves, “we shall have all that we require.”³⁶

One of the first to act energetically was Frederick Holbrook, a Whig state senator and future wartime Republican governor of Vermont. Holbrook was both an actual farmer and an active participant in the agricultural reform movement. Already a vice president of the Vermont Agricultural and Horticultural Society, he would soon help found the Vermont State Agricultural Society and serve as its president for over a decade. He also contributed to the plow designs manufactured under various partnerships by Joel Nourse, who happened to be the publisher of the *New England Farmer*, of which Holbrook became associate editor in 1851. Holbrook, in other words, was closely associated with all facets of the agricultural reform movement and was well qualified to act as its spokesman. In the fall of 1849 he penned an article calling for an agricultural bureau in the new Interior Department. Shortly thereafter he convinced his colleagues in the Vermont legislature to appoint a joint committee to study the question. Holbrook’s article then formed the basis of the committee’s official report, subsequently endorsed by both Vermont chambers and forwarded to Congress.³⁷

Rhetorically, the Vermont report draped itself in the familiar mantle of Washington’s message to Congress and preemptively rejected “the bug-bear of ‘constitutional objections.’” It also struck an evangelical note when it argued that if agricultural reformers could be called “enthusiasts,” this was only because “the magnitude and importance of the thing very properly awaken them to enthusiasm.” Unlike the earlier petitions to Congress, it predicated its recommendation for a federal agricultural bureau squarely on the concrete issue of soil fertility. The nutrient depletion that now plagued the seaboard states, it argued, would soon come to the West, making the problem truly a national one. The report further acknowledged the changing structure of the American agricultural economy by noting the increased importance of fresh fruit, market vegetables, and other once insignificant crops. These were often particularly susceptible to destruction by insects, making entomological investigations a high priority. The report concluded with six suggestions for what the proposed bureau should do. Most of these defined the bureau as an authoritative clearinghouse of agricultural information, a consensus view among agricultural reformers. Thus the bureau would,

³⁴ *Horticulturist* 4 (Apr 1850): 441.

³⁵ *Maine Farmer* 17 (20 Dec 1849): 1; 18 (10 Jan 1850): 1; *New England Farmer* 2 (Jan 1850): 30; *Working Farmer* 1 (1849): 49.

³⁶ *Valley Farmer* 2 (1850): 76.

³⁷ Mary Rogers Cabot, “Governor Frederick Holbrook,” in *Annals of Brattleboro, 1681-1895*, vol. 2, 2 vols. (Battletoro, VT: E.L. Hildreth, 1922), 788–796; Jacob G. Ullery, *Men of Vermont: An Illustrated Biographical History of Vermonters and Sons of Vermont* (Battletoro, VT: Transcript Publishing Company, 1894), 198; *Cultivator* 4 (Dec 1847): 384; *Journal of Agriculture* (Boston) 1 (1851): 274; on Holbrook’s authorship of the report, see *Cultivator* 6 (Dec 1849): 362–363.

apart from conducting its own investigations, maintain a constant correspondence with agricultural societies throughout the country and across the Atlantic.³⁸

The Vermont report was particularly important because it bore the imprimatur of a state legislature, enjoyed wide circulation, and ably represented the views of the agricultural reform movement. Many farm journals reprinted it in whole or in part.³⁹ The report inspired agricultural reformers in other states to press for state legislative resolutions instructing members of Congress to work toward establishing an agricultural bureau. In an address of December 1849, for example, Professor E. D. Sanborn urged the New Hampshire legislature to follow Vermont's lead and in March of the following year Daniel Lee, chief of the Patent Office's Agricultural Division, sent a letter to the editor of the *Michigan Farmer* asking him to obtain similar resolutions from the Michigan state legislature. In short order both assemblies complied.⁴⁰ By May 1852 not only New Hampshire and Michigan, but Tennessee, Rhode Island, Pennsylvania, Florida, Alabama, Indiana, New Jersey and possibly other states had sent Congress resolutions favoring an agricultural bureau. Congress also heard directly from agricultural societies throughout the country.⁴¹

Reformers' expectations were bolstered by the incoming Whig presidential administration. Interior Secretary Thomas Ewing's first annual report on December 3, 1849 argued that the existing appropriation for the Patent Office's agricultural activities was "wholly inadequate" and thus proposed the establishment of a separate agricultural bureau. The next day Zachary Taylor relayed the recommendation to Congress in his State of the Union message, requesting that agriculture receive "the encouragement which it merits."⁴² The agricultural press immediately responded with praise for Ewing's "enlightened" report and Taylor's "sound, common-sense, patriotic" address.⁴³ After Taylor's death, the Fillmore administration repeated and expanded on the recommendation, adding proposals for an official mineralogist and chemist and for the conversion of Mount Vernon into a national model farm. Fillmore devoted significant space to the matter in both his first and second annual messages to Congress and Interior Secretary Alexander H. H. Stuart offered further

³⁸ *Resolutions of the Legislature of Vermont, Relative to the Establishment of an Agricultural Bureau.*, H. Misc. Doc. 2, 31st Cong., 1st Sess., Serial Set Vol. No. 581 Session Vol. No. 1.

³⁹ *Working Farmer* 1 (1850): 164–165; *New England Farmer* 2 (1850): 30.

⁴⁰ *Transactions of the New Hampshire State Agricultural Society* (1853): 40; *Michigan Farmer* 8 (1 Mar 1850): 72; *Transactions of the State Agricultural Society of Michigan* (1851): 258; on Lee's appointment to the Patent Office, see *American Farmer* (Rochester, NY) 7 (1850): 248.

⁴¹ *Resolutions of the Legislature of Alabama, in Favor of the Establishment of a Bureau of Agriculture*, S. Misc. Doc. 28, 32nd Cong., 1st Sess., Serial Set Vol. No. 629 Session Vol. No. 1; *Resolutions of the Legislature of New Hampshire, in Relation to the Establishment of a Bureau of Agriculture in the Department of the Interior*, S. Misc. Doc. 9, 32nd Cong., 1st Sess., Serial Set Vol. No. 629 Session Vol. No. 1; *Resolutions of the Legislature of Florida, in Favor of the Establishment of a Bureau of Agriculture*, S. Misc. Doc. 21, 31st Cong., 2nd Sess., Serial Set Vol. No. 592 Session Vol. No. 1; *Resolutions of the Legislature of Rhode Island, in Favor of the Establishment of a Bureau of Agriculture*, S. Misc. Doc. 73, 31st Cong., 1st Sess., Serial Set Vol. No. 563 Session Vol. No. 1; *Resolution of the Legislature of Pennsylvania, in Favor of the Establishment of a National Board of Agriculture*, S. Misc. Doc. 107, 31st Cong., 1st Sess., Serial Set Vol. No. 563, Session Vol. No.1; *Resolution of the Legislature of Tennessee, in Favor of the Establishment of an Agricultural Bureau*, S. Misc. Doc. 65, 31st Cong., 1st Sess., Serial Set Vol. No. 563, Session Vol. No. 1; *Minutes of the Votes and Proceedings of the Seventy-Fourth General Assembly of the State of New Jersey* (Freehold, NJ): Orrin Pharo, 1850), 494–497; *Transactions of the New York State Agricultural Society* 9 (1849): 145; *Maine Farmer* 18 (21 Feb 1849): 2; *American Farmer* 7 (Mar 1852): 311.

⁴² "Report of Secretary of the Interior," *American Quarterly Register and Magazine* 3 (Dec 1849): 155–156; Zachary Taylor, "Annual Message," *The American Presidency Project*, December 4, 1849, <http://www.presidency.ucsb.edu/sou.php>.

⁴³ *American Agriculturist* 9 (Feb 1850): 56; *American Farmer* 5 (Jan 1850): 247.

detail in his annual reports. Indicating both the administration's consistent support for the measure and its stalled progress, however, Fillmore mentioned the bureau only in passing during his final State of the Union message while Stuart dropped the matter entirely from his report of that year.⁴⁴

The Fillmore administration's waning interest signaled that despite reformers' concerted lobbying efforts, Congress was unlikely to act. Several reasons account for the failure. With a Whig in the White House, congressional Democrats were of course hostile to the creation of a new federal agency that would serve as a source of patronage. It could not have helped that the agricultural bureau was slated for the Interior Department, where "Butcher Ewing" earned a reputation for aggressively clearing out existing federal employees to make room for political loyalists.⁴⁵ Agricultural reformers had hoped to staff the proposed agency strictly with experts. They argued that "those who compose this bureau should be above political contamination" and that therefore "no changes should be made with a change in the presidency."⁴⁶ Democrats, however, refused to bite, undoubtedly aware that most agricultural reformers were Whigs. Thus in July 1850 the House Committee of Agriculture took up the issue and split along strictly partisan lines. Chairman Nathaniel Littlefield (D-ME) and the committee's remaining four Democrats requested to be discharged from further consideration of the numerous petitions on the subject, including one that Littlefield had himself presented. The committee's four Whigs, however, submitted a minority report that included a draft bill prepared by Daniel Lee proposing an agricultural bureau funded at a modest \$15,000.⁴⁷ Although the Democrats gave no reason for their opposition to the measure, only two months earlier Democratic Senator Daniel Dickinson had fought a budget amendment to rebuild the national greenhouse and botanical garden which were about to be displaced by the new Patent Office building. The \$5,000 appropriation, Dickinson alleged, exemplified "the begetting sin of this Government—patronage."⁴⁸

Yet the failure of the agricultural bureau cannot be assigned entirely to partisanship. In April 1850, two months before Democrats on the House Agriculture Committee decided to bury the issue, Daniel Sturgeon, Chairman of the Senate Committee on Agriculture and a Democrat from Pennsylvania, introduced a bill that was very similar to the one prepared by Lee for the House Whigs' minority report. Evidently, then, Lee was in contact with both Democrats and Whigs. The inference is reinforced by the fact that in the next session of Congress Representative James Duane Doty, a Democrat from Wisconsin, gave notice that he would reintroduce the Sturgeon bill. Two weeks later New York Whig Representative Henry Bennett announced that he would soon

⁴⁴ *Message from the President of the United States, to the Two Houses of Congress, at the Commencement of the Second Session of the Thirty-First Congress*, S. Exec. Doc. 1, 31st Cong., 2nd Sess., 10, 30–32, Serial Set Vol. No. 587 Session Vol. No. 1; *Message from the President of the United States, to the Two Houses of Congress at the Commencement of the First Session of the Thirty-Second Congress*, H. Exec. Doc. 2, pt. 1, 32nd Cong., 1st Sess., 15, Serial Set Vol. No. 634 Session Vol. No. 2; Cong. Globe, 32nd Cong., 1st Sess., 13–14; *Message from the President of the United States to the Two Houses of Congress, at the Commencement of the Second Session of the Thirty-Second Congress*, S. Exec. Doc. 1, vol. 1, part 1, 32nd Cong., 2nd Sess., 17, Serial Set Vol. No. 658, Session Vol. No.1.

⁴⁵ R. Owen Williams, "Ewing, Thomas," *American National Biography Online*.

⁴⁶ *Minutes of the Votes and Proceedings of the Seventy-Fourth General Assembly of the State of New Jersey* (1850), 496; *Working Farmer* 1 (1849): 73.

⁴⁷ *Agricultural Bureau*, H. Rpt. 407, 31st Cong., 1st Sess., Serial Set Vol. No. 585 Session Vol. No. 3; *Maine Farmer*, 18 (4 Apr 1850): 1.

⁴⁸ Cong. Globe, 31st Cong., 1st Sess., 734 .

introduce a somewhat differently named agricultural bureau bill. In the next Congress, both the Democrat Doty and the Whig Bennett gave notice of their intentions to again present such bills, although only Doty seems to have actually done so. And Doty apparently conferred not only with Lee and Sturgeon but also with Eben Newton, an Ohio Whig and fellow Agriculture Committee member, on the language and extent of the bill.⁴⁹ At about the same time Democratic Party leader Stephen Douglas favored an agricultural bureau in addresses before both the New York and Maryland State Agricultural Societies.⁵⁰ Thus, at least among northern members of Congress, both Democrats and Whigs supported such an agency.

On the other hand, the *Southern Planter* attacked the “perniciousness of this scheme,” suggesting that as with other proposals to expand domestic federal functions, support for the agricultural bureau had sectional determinants.⁵¹ Southern hostility to a federal agricultural bureau appears most clearly in discussions over the printing of the Patent Office’s agricultural report. In March 1850, the House debated whether to issue the mechanical and agricultural portions of the report separately and how many copies of each to turn out. The debate began with the recommendation from the Committee on Printing to issue 30,000 of the former and 70,000 of the latter. The previous year the House had ordered 90,000 copies of the combined report.⁵² Therefore there was nothing especially new in the amount, only in the proposal to publish the two sections of the report separately.⁵³ Frederick Stanton (D-TN) saw in this “the germ of the agricultural bureau,” but he “was not especially hostile” because the Tennessee legislature had just passed resolutions in favor of such an agency.⁵⁴ Yet other southerners felt differently. Robert McLane (D-MD), Thomas Bayly (D-VA) and Robert Toombs (W-GA) all spoke against a large printing, contending that the reports constituted a form of patronage for Congressmen to bestow on chosen constituents. When other Representatives argued that the agricultural report was a source of valuable information on improved modes of farming, Abraham Venable (D-NC) asserted that “this Government was never intended to be the great schoolmaster of the people.” He then continued: “Nothing is more true, than that the people should depend upon themselves, and not upon the Government, for their education and their individual prosperity.” In this, of course, he directly contradicted the urgent arguments of the agricultural reform movement, not to mention of the entire public school movement. Venable concluded by charging that “this is an entering-wedge to an agricultural department.”⁵⁵

Northern Representatives responded that farmers demanded the agricultural report. According to John Alsop King, a strong supporter of an agricultural bureau and former president of the New York State Agricultural Society, “this practice of printing the Patent Office report, has not originated in this House, but has arisen out of the loud demand made for it by the people,” for it

⁴⁹ *A Bill to Establish an Agricultural Bureau in the Department of the Interior*, S. 203, 31st Cong., 1st Sess., April 18, 1850; Cong. Globe, 31st Cong., 1st Sess., 769; 2nd Sess., 102, 145; 32nd Cong., 1st Sess., 80, 102, 225; Cong. Globe, 32nd 32nd Cong., 1st Sess., Appendix, 494; *Valley Farmer* 4 (Mar 1852): 101–102.

⁵⁰ *American Farmer* 7 (May 1852): 391.

⁵¹ *Southern Planter* 12 (Feb 1852): 50.

⁵² House Journal, 30th Cong., 1st Sess., v. 43, 17 Mar 1848, 577-580.

⁵³ This would, however, substantially increase the cost by doubling the amount of binding.

⁵⁴ Cong. 31st Cong., 1st Sess., 474.

⁵⁵ *Ibid.*, 31st Cong., 1st Sess., 503–504.

was “a question looking to the farming interest” (504). Cullen Sawtelle (D-ME) similarly sought to represent the “agricultural interest” and was therefore “prepared to give his vote for printing the largest number of copies of this report” (504). Joseph Casey (W-PA) added that “I will go with gentlemen for the erection of an Agricultural Bureau” (505). Ultimately the House agreed to John Wentworth’s (D-IL) proposal for an even larger printing than originally contemplated—100,000 copies of the agricultural portion and 50,000 of the mechanical portion. At fifty cents a copy this would have amounted to a \$50,000 appropriation for agriculture, far more than the \$15,000 proposed for a separate agricultural bureau.⁵⁶ The support from both Democrats and Whigs, among northern representatives, also indicates that the large printing run was intended for constituents rather than as patronage for a party press.

Two months later, when the Senate debated its own proposed printing of 30,000 additional copies of the report, southern talking points were much the same. Jefferson Davis sought to expose bureaucratic creep in the Patent Office. “An agricultural bureau is growing up in it,” he alleged, “and the proposition is in the minds of many that it should have a distinct organization, and be separated from the department. This I hold to be no part of the functions of this Government” (916). Davis’s fellow senator from Mississippi, Henry Foote, objected to a large edition of the agricultural report because he distrusted the Patent Commissioner. According to Foote, the Commissioner had previously leaked the mechanical portion of the report for private printing by Horace Greeley, “a philosopher and philanthropist of the strong Abolition stripe” (919). James Murray Mason (D-VA) argued that the Constitution authorized a Patent Office strictly to secure patents and not to publish speculative reports (921). A few southern senators, however, refused to see things this way. Thomas Jefferson Rusk (D-TX), George Badger (W-NC) and John Berrien (W-GA) believed that the agricultural report was valuable, raised the overall level of agriculture, and was in high demand by farmers (918-919).⁵⁷

An analysis of the House and Senate votes on the printing of the agricultural report reveals a number of things. First, northern members of Congress supported a large printing run by overwhelming majorities in both chambers regardless of party. A correlate to this is that although Democrats split roughly evenly, that split was accounted for almost entirely by sectional status. Second, among southern members of Congress the measure enjoyed significant support from those representing the Whig Party and the Upper South. In the Senate seven of the eight southern Whigs to vote on the measure voted for a large edition; in the House ten of twenty-five southern Whigs supported a large edition. When all Upper South members of both parties are considered, four of seven Senators and thirteen of twenty-eight Representatives favored a large run (Table 5.2). In other words, southern Whigs and the Upper South were genuinely divided on the matter. Third and most revealing, southern supporters of the measure were older than southern opponents. The average age of southern Senators supporting the measure was 55, while the age of southern Senators opposing was 49. In the House, the difference was narrower when all southern Representatives are considered: 44 for supporters and 42 for opponents. But when the Upper South is isolated the disparity grows, with the age of supporters remaining at 44 while that of opponents declined to 38

⁵⁶ *Ibid.*, 31st Cong., 1st Sess., 473–475, 503–506.

⁵⁷ *Ibid.*, 31st Cong., 1st Sess., 916–922.

(Table 5.3).⁵⁸ Southern leaders such as Jefferson Davis and James Mason clearly identified the Patent Office's agricultural doings as an alarming expansion of federal powers. Thus it appears that the younger generation of southern politicians was more insistent on viewing every issue from the perspective of its implications for southern autonomy and consequently for the security of slavery.

The debates over the Patent Office's agricultural report help explain why little action was taken on the several bills for an agricultural bureau even after Democrat Franklin Pierce became president: Southerners—southern Democrats especially—sought to prevent the expansion in federal powers such a bureau would entail. Because these southerners also tended to be the up-and-coming politicians from their section, things did not bode well for agricultural reformers' future efforts. Yet southerners were unable to halt expanding editions of the Patent Office's agricultural report. Copies, it seems, were simply too much wanted by Congressmen and Senators for distribution to constituents. Thus when Robert Toombs argued in 1854 that the report was a worthless document he would gladly be rid of, numerous southern Senators rose to claim his share of copies. By the mid to late 1850s the total number of copies ordered by Congress floated around 250,000 with a cost in the neighborhood of \$125,000. Even Mississippi Democrat Otho Singleton had to admit, "I have much larger applications for this work than I can answer. I find that not only the wealthy planters, but the poor men are taking an interest in it."⁵⁹

Yet if southerners had largely conceded this issue, they were determined to go no further. In the early and mid-1850s they were apparently successful in preventing legislation for an agricultural bureau from ever making it to the floor of either chamber. Each bill for such a bureau was immediately referred to committee upon introduction, never to be heard from again. Northern congressmen made four major speeches in favor of an agricultural bureau in the spring and summer of 1852, all when Congress had resolved itself into Committee of the Whole to discuss other matters.⁶⁰ In response, congressmen sympathetic to agricultural reform worked indirectly to increase budgets for the Patent Office's Agricultural Division.⁶¹ By the late 1850s, however, agricultural reformers had greatly strengthened their lobbying powers. Thus, when Justin Morrill introduced a bill to provide land grants for agricultural colleges in 1857, the stage was set for a dramatic showdown that would lay bare the sectionalization of federal agricultural development policy. Understanding Congress's passage of the Morrill land grant bill in the winter of 1859 therefore requires following the efforts of agricultural reformers through the 1850s to build an effective national lobby.

⁵⁸ Ibid., 31st Cong., 1st Sess., 506, 922.

⁵⁹ Ibid., 33rd Cong., 1st Sess. 1146; 35th Cong., 1st Sess., 2241–2242.

⁶⁰ Cong. Globe, 32nd Cong., 1st Sess., Appendix, 491–495, 585–588, 746–748, 892–894; Cong. Globe, 32nd Cong., 1st Sess., 225; 33rd Cong., 1st Sess., 48. Congressman Eben Newton (W-OH) claimed that colleagues on the House Committee on Agriculture told him that an agricultural bureau was unconstitutional (Cong. Globe, 32nd Cong., 1st Sess., Appendix, 494).

⁶¹ Among the strongest supporters of such measures was James Hepburn Campbell, a Pennsylvania congressman and confidant of Henry Charles Carey, who argued "for protecting all the industrial classes, and for standing by the American farmer, laborer, and mechanic, and giving them that encouragement which it was intended they should receive from Government" (Cong. Globe, 34th Cong., 1st Sess., 958). See Sarah T. Phillips, "Antebellum Agricultural Reform, Republican Ideology, and Sectional Tension," *Agricultural History* 74, no. 4 (Autumn 2000): 818. For Campbell's ties to Carey, see their correspondence in Box 12 of the Henry Charles Carey Papers, Edward Carey Gardiner Collection, Historical Society of Pennsylvania.

THE UNITED STATE AGRICULTURAL SOCIETY

As the campaign for an agricultural bureau stalled in 1851 and 1852, reformers refused to scale down their demands. On the contrary, they escalated them, calling not just for a bureau but for a full-fledged department headed by a cabinet-level secretary.⁶² To lobby Congress more effectively in pursuit of this ambitious goal, reformers attempted to build a national agricultural society. The resulting organization, however, was never truly national. Instead, it was dominated by Whig reformers from New England and the Mid-Atlantic states north of the Potomac.

Southern fears of expanding federal powers could not have been allayed by reformers' growing boldness. North Carolina Congressman Abraham Venable's charge that reformers sought an "entering-wedge" for still more federal largesse was entirely justified by the statements of reformers themselves. As early as April 1849 James Mapes was calling for both an agricultural agency in the new Interior Department and for "a portion of the public domain . . . for the purpose of establishing and endowing Agricultural Colleges."⁶³ The following year Samuel Sands, editor of the Baltimore-based *American Farmer*, asserted emphatically, "*The conservation of the agricultural interests, require more than just the establishment of an Agricultural Bureau. THEY REQUIRE ALSO, AN APPROPRIATION OF A PORTION OF THE PUBLIC DOMAIN, FOR THE PROMOTION OF AGRICULTURAL EDUCATION.*"⁶⁴ Prominent western minister George Duffield argued that the states "should be induced" to found agricultural colleges, adding that "the establishment of an Agricultural Bureau will soon awaken attention to and give interest to such schools."⁶⁵ In New York, similarly, the presidents of the Jefferson and Oswego county agricultural societies linked a federal agricultural agency to institutions of agricultural education.⁶⁶ By 1851 the *Michigan Farmer* seemed to believe that if the bureau were created land grant agricultural colleges would follow as a matter of course, concluding with a rhetorical "why not?"⁶⁷ Even when reformers were not dreaming of federally-sponsored colleges, they were envisioning the proposed bureau as the keystone of a national system of state and local agricultural organizations. It would form "a nucleus—a central office, or general agency" to which "the State Societies could be rendered valuable adjuncts . . . and in turn the County Societies could be induced to furnish local information."⁶⁸ Any way one looked at it, it was clear that reformers imagined a federal bureau as the beginning of something bigger.

By early 1851, however, some reformers had grown frustrated with the lack of congressional action. It had been, after all, over a year since Zachary Taylor publicly threw his administration's support behind an agricultural bureau, yet virtually no progress had been made. Reformers therefore began to call for a "National Agricultural Congress" as early as January.⁶⁹ That this call grew out of the stalled campaign for a federal agricultural agency is manifest. One of its primary movers was Daniel Lee, who as head of the Patent Office's Agricultural Division was so closely involved in

⁶² See, for example, *Cincinnatus* 1 (Aug 1856): 355.

⁶³ *Working Farmer* 1 (Apr 1849): 33–34.

⁶⁴ *American Farmer* 5 (Mar 1850): 311 (emphasis in original).

⁶⁵ *Michigan Farmer* 8 (1 Mar 1850): 73.

⁶⁶ *Transactions of the New York State Agricultural Society* 12 (1852): 427–435, 494–500.

⁶⁷ *Michigan Farmer* 9 (1 Jan 1851): 17.

⁶⁸ *Horticulturist* 4 (1850): 544; *Working Farmer* 3 (1852): 241.

⁶⁹ *Journal of the United States Agricultural Society* 1:1 (Aug 1852): 5.

legislative efforts at that very time. In the summer of 1851 Lee sent a circular letter to leading journals and reformers in which he asked, “Cannot a Congress of Agriculturists, composed of delegates from state and county societies, establish a National Board or Bureau of Agriculture?”⁷⁰ Answering that he was “*ready for it*,” the President of the Massachusetts Board of Agriculture, Marshall Pinckney Wilder, noted that “no chagrin or mortification at failures shall ever drive me from the path of duty.”⁷¹ The editor of *The Plough, the Loom, and the Anvil* stated explicitly that a national convention of farmers was necessary in order to organize an effective lobby:

Although there are three million farmers in the Union, yet, the professional influence of each being isolated, and all remaining without union or concert of action, they are now no nearer the attainment of a National Board or Bureau of Agriculture, than they were when President Washington so earnestly recommended the measure. Indeed, the time will never come when a Congress of politicians will do what ought to be done for the great farming interest of this country, unless this interest is organized in some way to give expression to its views.⁷²

The president of the Kenosha County (WI) Agricultural Society articulated much the same opinion. “If we remain divided and isolated our moral force will be lost,” he averred. “We must bring the science of combination to bear upon our purpose.” Politicians would never act on their own and instead had to “be pressed into it by public sentiment.” Fortunately the country’s agricultural organizations had now grown strong enough “to induce Congress to do something for us.”⁷³

If everyone agreed on the perfidy of politicians, however, there remained some ambiguity as to whether a national agricultural organization was supposed to lobby for a federal agency or function as a private substitute. Lee himself seemed to contemplate the latter when he argued that “it is a foolish waste of time and of energies, to go to a political Congress for any assistance whatever.”⁷⁴ The *Cultivator*, on the other hand, hoped that a national convention “might secure the passage of the bill now before Congress, for organizing an Agricultural Bureau at Washington—an object, we believe, very generally desired.”⁷⁵

Over the course of 1851 and the beginning of 1852 the proposal for a national agricultural convention gained momentum. In May 1852 the presidents of leading state agricultural organizations issued a circular letter calling for a general meeting the following month in Washington, DC. According to their appeal, “the objects of this Convention are to organize a National Agricultural Society, to which the various Agricultural Societies may be auxiliary.” In spite of these national ambitions, however, the only southern organizations to join the call were the Maryland State Agricultural Society and Georgia’s South Central Agricultural Society, whereas the North was represented by the American Institute, the Boards of Agriculture of Massachusetts and Ohio, and the state societies of New York, Pennsylvania, Vermont, New Hampshire, Rhode Island,

⁷⁰ *American Farmer* 7 (Aug 1851): 70–71.

⁷¹ *Genesee Farmer* 12 (Oct 1851): 245 (emphasis in original).

⁷² *The Plough, the Loom, and the Anvil* 4 (Aug 1851): 97.

⁷³ *Transactions of the Wisconsin State Agricultural Society* 2 (1852): 122.

⁷⁴ *Genesee Farmer* 12 (Aug 1851): 177–178.

⁷⁵ *Cultivator* 9 (Mar 1852): 120.

and Indiana.⁷⁶ The decision to meet in Washington reflected not only national ambitions but the intention to lobby legislators. Agricultural reformers had been employing a similar tactic at the state level for years by convening their annual meetings in state capitals when legislatures were in session. Thus when the convention commenced on June 24 several congressmen were in attendance, including supporters of a federal agricultural bureau such as James Doty and national party leaders such as Stephen Douglas and John Bell. It was probably no coincidence that on the day the convention opened Representative Jeridiah Horsford delivered a major speech in favor of an agricultural bureau. Horsford, a New York Whig, was closely connected to the agricultural reform movement through his son, Eben Newton Horsford, who was the first American to have received a Ph.D. under the revered German agricultural chemist, Justus von Liebig.⁷⁷

Although most delegates strongly supported vigorous lobbying of Congress for a federal agricultural agency, the matter engendered heated debate. Convention president Marshall P. Wilder expressed his conviction of the need for “proper Governmental aid” in his opening address, and William Jessup of Pennsylvania drew applause when he declared the “right” of “the agricultural interests of the nation . . . to demand an agricultural department of this Government to protect, sustain, and promote their interests.” Yet several delegates objected. When the Committee on Business reported a resolution calling on Congress to establish an agricultural department or bureau, Ramsay McHenry of Maryland maintained that such an agency was unconstitutional. Democrats Stephen Douglas and Senator Thomas Rusk of Texas also opposed the resolution, arguing that a government agency would immediately fall prey to patronage considerations. Rusk therefore proposed federal funding for a semi-private agricultural department within the Smithsonian Institution. When the delegates reconvened the next day, debate grew increasingly acrimonious. Charles B. Calvert, president of the Maryland State Agricultural Society and an ardent Whig, demanded not just a bureau but a department headed by a cabinet-level secretary, arguing that farmers needed institutional representation in politics. He thereby explicitly rejected Rusk’s proposal to depoliticize such an agency by attaching it to the Smithsonian. John Alsop King, formerly a Whig Congressman from Long Island and president of the New York State Agricultural Society, insisted that a federal department was the “*one thing*” the convention had to work toward. Several southerners and western Democrats, however, remained opposed. Democratic Representative John Larne Robinson of Indiana thought that, besides being unconstitutional, an agricultural department was not something farmers actually wanted. Stephen Douglas charged that the convention was becoming “a partisan political organization.” In the end, the delegates adopted a tepid resolution requesting “Congress to take action upon the subject of agriculture, and afford such efficient aid as in their wisdom shall be best calculated to advance the great interests of that branch of industry.”⁷⁸ Some reformers were disgusted by the “truckling” weakness of this “mere suggestion.”⁷⁹

⁷⁶ *The Plough, the Loom, and the Anvil* 4 (Jun 1852): 753–754; *Michigan Farmer* 10 (1 Jul 1852): 201; *American Farmer* 7 (Jun 1852): 436; *Working Farmer* 4 (Jul 1852): 117; *Horticulturist* 6 (Jun 1852): 205.

⁷⁷ James Grant Wilson and John Fiske, eds., *Appleton’s Cyclopaedia of American Biography*, vol. 3 (New York: D. Appleton & Company, 1888), 265–266.

⁷⁸ *Journal of the United States Agricultural Society* 1:1 (Aug 1852): 7–20 (emphasis in original).

⁷⁹ *Working Farmer* 4 (Aug 1852): 123.

The delegates did agree to form the United States Agricultural Society (USAS). Almost immediately the USAS consolidated itself into an organization representing the policy preferences of Whig agricultural reformers in Massachusetts, New York, and Maryland, and to a lesser extent in Delaware, Ohio, Pennsylvania, and the rest of the North. Within only a few months Wilder, Calvert, King and a few other Whigs such as Frederick Holbrook of Vermont and Chauncey P. Holcomb of Delaware were firmly in control of the organization. As president, Wilder acted with particular energy and shrewdness to make the USAS into a viable organization. In January 1853 he wrote to King regarding deliberations by the inner core of members on how to strengthen the infant society. In order “to create an interest as extensive as possible and thus to act in the end on the National Government,” he explained, the USAS would employ agents to go about the country soliciting subscriptions. Wilder made it a point to further promote the USAS in the public eye by having it sponsor “national” agricultural fairs in collaboration with state and local societies. In the planning of these exhibitions, he explained to King, it was critical that the “Executive Committee should show a bold front, else we may by and by find the power departing from us . . . from the circumstance of the exhibition being at a distance from us.”⁸⁰ By 1856 Wilder, though typically careful to avoid open partisanship, stated matter-of-factly in his presidential address that the USAS represented “the conservative and progressive elements of the American System.” Thus the society had become a vehicle of Whig economic nationalism.⁸¹

Although the USAS always remained committed to unionism and explicitly disavowed any “sectional or party purposes,” its pretensions to being a truly national organization were belied by the composition of its active membership. Of the 152 delegates who made the first convention’s initial roll call, only four came from the Lower South. Forty-five delegates represented the Upper South, but almost two-thirds of these came from nearby Maryland and Delaware, whose agricultural organizations strongly supported a variety of government initiatives in aid of agriculture. Virginia’s state agricultural society, on the other hand, studiously ignored both the convention and the USAS. Despite its proximity to the capital, Virginia sent only ten delegates to the convention, none of whom made much of an impression in the official proceedings.⁸² Georgia’s South Central Agricultural Society, which had signed onto the initial call for the national convention, sent no delegates whatsoever and instead issued its own call for an “Agricultural Congress of the slave-holding states” to meet in Macon in October. “Mindful of the calumnies which some of our political brethren of the North have so long been propagating against us,” the Georgia organization intended its southern gathering “to establish and fortify a public opinion within our borders in antagonism to that without, in relation to ourselves and our institutions.”⁸³ In subsequent USAS meetings the militant South entirely disappeared from the picture. No delegate count was recorded for the first annual meeting in January 1853, but a committee comprised of a delegate from each state “represented in the minutes” included only one member from the Lower South, Senator Rusk of

⁸⁰ M. P. Wilder to John A. King, 10 Jan 1853 and 2 May 1856, Box 1, John Alsop King Papers, New-York Historical Society (hereafter, NYHS).

⁸¹ *Journal of the United States Agricultural Society* 4 (1856): 16–17.

⁸² *Ibid.* 1 (1852): 6–7.

⁸³ *Southern Literary Messenger* 18 (Oct 1852): 613–614. The following year the southern convention proposed a uniquely southern agricultural university, *Southern Cultivator* 12 (Jan 1854): 28–29.

Texas. The January 1857 meeting included no delegates at all from the Lower South and only two from Virginia. Of the remaining thirty-seven southern delegates that year, thirty hailed from Maryland, six from Kentucky, and one from Delaware (Figure 5.1). Meanwhile the Northeast continued to dominate both delegate and member counts. In 1857 it boasted 77 of 142 total delegates and by 1860 it accounted for 220 of 297 life members.⁸⁴

Strongly influenced by the aims of Maryland's and Delaware's agricultural reformers and led by the future Constitutional Unionist Wilder, the USAS took an accommodationist stance toward slavery. Nevertheless, it found itself entirely cut off from the Deep South and increasingly attached to northern Republicans. In order to develop into an established institution, for example, the USAS sought to forge ties with agricultural societies around the country.⁸⁵ In practice, however, this meant Whiggish organizations from the Border States on north. Thus from its formation until the outbreak of the Civil War, the USAS held only two of its "national fairs" in the South. The first was in Louisville in conjunction with the South-Western Agricultural and Mechanical Society, which obtained a commitment from the city to guarantee the USAS a \$30,000 fund. The SWAMC was likely dominated by former Whigs; in any case its president endorsed government support for agricultural institutions on the eve of southern Democrats' bitter resistance to the Morrill land grant bill. The second southern USAS fair occurred in Richmond by invitation of the Virginia Central Agricultural Society, an organization of town merchants that broke from the state society when the latter decided to hold its fair in Petersburg that year.⁸⁶ Neither local organization promised durable contacts with southern planters. Thus, although the renowned Virginia reformer and southern nationalist Edmund Ruffin agreed to participate in the Richmond fair as a judge, he appears neither to have attended a single USAS meeting nor to have published a single essay in its journal or otherwise communicated with the organization.⁸⁷ Given his skepticism of the earlier effort to found a national agricultural society, this snub is hardly surprising. Indeed, Ruffin's intense distrust of Washington politics clashed directly with the USAS's avowed goal of establishing an institutional presence in the capital.

The absence of national reach in its membership did not, of course, prevent the USAS from attempting to influence lawmakers and officials in Washington. The Maryland and Delaware contingents of the organization, benefitting from their proximity to the capital, were particularly active. Among the issues they pursued was opposition to the 1854 reciprocity treaty with Canada. Certain Chesapeake wheat growers vehemently opposed the accord because they feared competition from Canadian grain in the New England market. Chauncey P. Holcomb, corresponding secretary of the New Castle County (DE) Agricultural Society, expressed particularly deep resentment. In an 1855 pamphlet signed "A Middle State Farmer," Holcomb protested that eastern wheat producers, who for years had accepted the manufacturers' argument that protective tariffs benefitted agriculture, were completely stunned to witness those same "New England manufacturers . . . attempt to get cheaper bread from the Canadians." The shock was all the greater because the

⁸⁴ *Journal of the United States Agricultural Society* 1:2 (1852): 13; 4 (1857): 10–11; 7 (1860): 86–88, 192, 388.

⁸⁵ See, for example, Wilder to King, 10 Jan 1855 and 5 Feb 1856, John Alsop King Papers, Box 1, NYHS.

⁸⁶ *Journal of the United States Agricultural Society* 5 (1857): 39–40; *American Farmer* 13 (Oct 1857): 133; *Monthly Bulletin of the United States Agricultural Society* 1:5 (Jun 1858): 36; 1:7 (Aug 1858): 49–50; David R. Goldfield, *Urban Growth in the Age of Sectionalism: Virginia, 1847-1861* (Baton Rouge: Louisiana State University Press, 1977), 100.

⁸⁷ *Monthly Bulletin of the United States Agricultural Society* 1:8 (Sep 1858): 60.

farmers “had put forth their best efforts to improve their husbandry, had ditched, and drained, and limed and marled and invoked science, and spent their money freely in purchasing guano and other fertilizers.” Holcomb therefore threatened that mid-Atlantic farmers would withdraw their support for industrial protectionism if the treaty were not repealed. At the USAS annual meeting in February, Holcomb offered a resolution that read, in part, “we object to being restricted to purchasing only American fabrics, or freighting our produce only in American ships, unless these interests are willing for a *home* ‘reciprocity,’ and consent to be fed by American producers; if we are not to have an equality of benefits, we must insist upon an equality of another sort.” Charles Calvert of Maryland supported Holcomb but other USAS members objected, arguing that the resolution was “only calculated to advance the interest of the Middle States.” After considerable discussion the society finally settled on a vague “object[ion] to the doctrine of free trade for agriculture and protection for other interests.”⁸⁸

If Maryland and Delaware members of the USAS could do nothing to repeal the reciprocity treaty, they enjoyed more success in influencing national guano policy, or at least in reinforcing it. In 1850 Millard Fillmore spoke to this burning issue in his annual message to Congress. “Peruvian guano has become so desirable an article to the agricultural interests in the United States,” he explained, “that it is the duty of the Government to employ all the means properly in its power for the purpose of causing that article to be imported into the country at a reasonable price.” Three years later Franklin Pierce felt compelled to discuss the matter as well. American farmers, particularly in the Chesapeake region where guano was used extensively, protested angrily at the high prices exacted by the Peruvian government monopoly that controlled the most sought-after deposits. In February 1854 the USAS appointed a five-person committee that included members from Maryland, Delaware and Virginia to discuss with the administration the high cost of this potent natural fertilizer. Meeting with Assistant Secretary of State Dudley Mann, the committee obtained assurances that the government would make “arrangements” that would result in lower prices.⁸⁹ Though the USAS was hardly alone in pressuring government officials on the “guano question,” it could credibly claim to have done so with particular effectiveness.

The USAS’s primary goal of a federal agricultural agency, however, remained unfulfilled. Each year its annual meetings passed resolutions calling for a department of agriculture or something similar.⁹⁰ In February 1854, for example, the USAS adopted a resolution that the federal government

⁸⁸ Middle State Farmer [Chauncey P. Holcomb], *The Agricultural Interest, as Affected by the Reciprocity Treaty, the Tariff, and the Coast-Wise Trade* (Philadelphia: T.B. Peterson, 1855), 7-8; *Journal of the United States Agricultural Society* 3 (1855): 16, 25-26; *American Farmer* 10 (1855): 299-302, 337. Five years later, Delaware agricultural reformers’ resentment was undiminished. In an address before the Kent Count (DE) Agricultural Society, Henry Ridgely alleged that New England manufacturers, “who for years had held out to us the promise of a home-market, then told us that they were our customers no longer” (Henry Ridgely, *Address Delivered by Henry Ridgely, M.D.: Before the Agricultural Society of Kent County, Delaware, in Dover, on Thursday, the 6th of October, 1859* [Dover, DE: Delaware State Reporter Book and Job Printing Office, 1859], 12).

⁸⁹ Gates, *Farmer’s Age*, 327–329; Richard A. Wines, *Fertilizer in America: From Waste Recycling to Resource Exploitation* (Philadelphia: Temple University Press, 1985), 51–68; Jimmy M. Skaggs, *The Great Guano Rush: Entrepreneurs and American Overseas Expansion* (New York: St. Martin’s Press, 1994), 11–15; Fillmore, “First Annual Message”; Franklin Pierce, “First Annual Message,” *The American Presidency Project*, December 5, 1853, <http://www.presidency.ucsb.edu/sou.php>; *Journal of the United States Agricultural Society* 2 (1854): 20; Cong. Globe, 33rd Cong., 1st Sess., 1370–1371; *Trade Between the United States and the Republic of Peru*, H. Rpt. 347, 33rd Cong., 1st Sess., July 31, 1854, Serial Set Vol. No. 744, Session Vol. No. 3; *American Farmer* 11 (Apr 1856): 306.

⁹⁰ *Journal of the United States Agricultural Society* 1:2 (1853): 15, 17–18; 2 (1854): 28–29; 5 (1857): 24, 29, 43, 66.

purchase Mount Vernon and establish there a national agricultural college with an experimental farm, a proposal that had been floating around within the agricultural reform movement for some time. The society appointed a committee to present the resolution to Congress. In May the Senate Committee on Agriculture, headed by Florida Whig Jackson Morton, reported favorably on the resolution, recommending that Mount Vernon be purchased and “converted into an experimental farm, connected with an agricultural school.” Senator Rusk, a USAS member, then successfully moved to print two thousand extra copies of the report and the USAS subsequently thanked Morton for his report.⁹¹ Nothing more, however, came of the effort.

Prospects looked better two years later when, for the first time in many years, the House Committee on Agriculture was no longer controlled by a Democrat. The *New York Tribune* noted that the committee “is cast more strongly than usual” and that “this cast is understood to have relation to the project of creating a distinct Agricultural Bureau in the Department of the Interior.”⁹² In August 1856 chairman David Holloway, an Opposition Party member from Indiana who had attended the USAS meeting in February,⁹³ introduced a well-conceived bill for an agricultural department, accompanied by a report signed by six of the nine committee members, including Galusha Grow (D-PA), the primary sponsor of Homestead legislation. According to the report, “the people—the *sovereign people*—are now demanding that this great interest [i.e., agriculture] shall receive the attention and patronage of government.” Registering the influence of reformers’ lobbying efforts and of the USAS in particular, the report added that, “for the last four years, petition after petition has been received from the people; agricultural societies in the counties, State boards of agriculture, the United States agricultural society, and State legislatures, have passed resolutions recommending the establishment of an agricultural department.”⁹⁴ Still, the bill was never even taken up for debate, much less voted on. Clearly frustrated, USAS president Wilder asked plaintively the following year, “Why has it hitherto been so difficult, nay, *impossible*, to get a bill through Congress for the establishment of such a department?”⁹⁵

Despite these setbacks and disappointments, the USAS worked continuously to make its presence felt on Capitol Hill. Members of Congress and the administration were always present at USAS annual meetings, held in January or February while Congress was in session. Most, although certainly not all, were northern Whigs and Republicans, including Horace Greeley, Henry Wilson, William Fessenden, Israel Washburn, Schuyler Colfax, Justin Morrill, Edwin B. Morgan, Hamilton Fish, David Walbridge, and John Wentworth.⁹⁶ In January 1858 Republican Senator James Harlan of Iowa attended the annual meeting and offered a resolution calling on the USAS president to meet with the relevant House and Senate committees “with the view of perfecting a proper plan of cooperation by Congress with this Society, in aiding the objects of its organization.”⁹⁷ The continued involvement of John Alsop King was perhaps most indicative of the growing ties between national

⁹¹ Ibid. 2 (1854): 11–12, 23–28; 3 (1855): 32; *Report of the Senate Committee on Agriculture*, S. Rpt. 262, 33rd Cong., 1st Sess., 2, Serial Set Vol. No. 707, Session Vol. No.2; Cong. Globe, 33rd Cong., 1st Sess., 1145.

⁹² *New York Daily Tribune*, 5 Mar 1856, p. 4.

⁹³ *Journal of the United States Agricultural Society* 4 (1856): 8.

⁹⁴ Cong. Globe, 34th Cong., 1st Sess., 1923–1924; *American Farmer* 12 (Oct 1856): 97–101.

⁹⁵ *Journal of the United States Agricultural Society* 5 (1857): 24 (emphasis in original).

⁹⁶ Ibid. 3 (1855): i; 4 (1856): 7–8; 5 (1857): 10–11.

⁹⁷ *New York Daily Tribune*, 15 Jan 1858, p. 3.

agricultural reform and the Republican Party. King, the son of Federalist leader Rufus King, parlayed his father's historic opposition to territorial slavery during the Missouri Crisis into victory in the 1856 race for New York governor. During the campaign King heavily stressed northerners' opposition to slavery in the territories and, somewhat paradoxically, the inviolability of the Missouri Compromise. As governor, King could hardly be expected to take an active role in the USAS. Yet as a Republican leader of national stature and a trustee of the newly chartered New York State Agricultural College, King was a uniquely prominent agricultural reformer. Perhaps for this reason Wilder, who had only the previous year asked King to succeed him as USAS president, begged King to remain a nominal member of the executive committee, for his name had "always given character to the Society and will help us more now than ever."⁹⁸ Given that Maryland slaveholders such as Charles Calvert were key USAS members, Wilder's insistence that the name of a prominent anti-slavery Republican earned the society public support indicates his understanding that its constituency was almost entirely northern.

The USAS also gained the services of two Washington insiders, Benjamin Brown French and Benjamin Perley Poore. French, a charter USAS member who became its treasurer in 1855, served as clerk of the House of Representatives, Commissioner of Public Buildings, and in other capacities through several succeeding administrations. He was also the brother of Henry Flagg French, a New England lawyer and agricultural reformer who participated regularly in USAS meetings and exhibitions. French therefore had a strong commitment to the organization's goals and even noted his backing of "a *Department of Agriculture*, not a Bureau," in his diary.⁹⁹ Poore was a prominent journalist and political writer who worked as the Washington correspondent for the *Boston Journal*. He became USAS secretary in 1857, although, like French, his involvement with the USAS dated to its founding. In 1858 the society established a permanent Washington office for Poore, taking a step toward maintaining a year-round presence in the capital. Poore turned the society's annual publication into a quarterly journal and later into a monthly bulletin. In these ways the USAS increasingly resembled a modern special interest organization, complete with central staff and regular printed communications to members.¹⁰⁰

Thanks in part to these connections, the USAS was able to repair its relationship with the Patent Office's Agricultural Division, which had grown strained after the departure of the respected Daniel Lee in 1852. Agricultural reformers considered Lee's replacement, Daniel Jay Browne, a relative lightweight. They disparaged his agricultural reports as haphazard anthologies "thrown together for the most part as though they had been put into press with a pitch-fork."¹⁰¹ Seed dealers, meanwhile, had been grumbling for years about lost business resulting from the Patent Office's seed distribution program.¹⁰² Acting on such complaints and hoping to boost its own standing, the USAS made a bid in 1853 to have Congress reassign the annual agricultural appropriation from the Patent

⁹⁸ Wilder to King, 29 Dec 1856; Box 2, Wilder to King, 15 Jan 1856 in folder marked "Undated misc. MSS, newspaper clippings, ect.," Box 1, John Alsop King Papers, NYHS.

⁹⁹ Benjamin French, *Witness to the Young Republic: A Yankee's Journal, 1828-1870*, ed. Donald B. Cole and John J. McDonough (Hanover, NH: University Press of New England, 1989), 246 (emphasis in original).

¹⁰⁰ *Journal of the United States Agricultural Society* 3 (1855): 23; 5 (1857): 3; 7 (1859): 7, 10; Joseph P. McKerns, "Benjamin Perley Poore," *American National Biography Online*.

¹⁰¹ *Cincinnatus* 3 (Feb 1858): 78.

¹⁰² Gates, *Farmer's Age*, 332-333.

Office to the USAS itself.¹⁰³ When this move failed, however, the USAS had to come to grips with the fact that the Patent Office was an important player in the reform movement, for it annually controlled up to fifteen thousand copies of its own agricultural report in addition to hundreds of thousands of seed packages, all of which constituted useful tools in the effort to build a national constituency for expansion of federal agricultural policy. The agricultural report, in particular, was valuable not only for the attractions of its handsome binding and color plates, but for its frequent exhortations on the need for national agricultural institutions. As Representative Jerediah Horsford explained, “the agricultural part of the Patent Office reports, like leaven, are [sic] beginning to move some of the people.”¹⁰⁴ Secretary Benjamin Perley Poore seems to have played an essential role in mending the rift between the USAS and the Patent Office. In 1856, for example, he detailed the latter’s agricultural activities in a dispatch to the *Boston Journal* in order to demonstrate “the value of the ‘Agricultural Bureau’ to the yeomanry of our land.” Division chief Daniel J. Browne, he added, was “admirably qualified for his task.” The following year Browne joined the USAS Executive Committee, and when Poore took charge of the USAS’s monthly bulletins in 1858, he made sure to report favorably on the Patent Office’s doings and to defend its record.¹⁰⁵ These efforts at reconciliation would pay handsome dividends when the Senate came to consider the Morrill land grant bill in February 1859.

THE CAMPAIGN FOR THE MORRILL LAND GRANT ACT

As detailed in Chapter 4, agricultural reformers had for years been pushing for a new kind of institution of higher learning that would specialize in scientific agriculture. Since the 1820s a number of private initiatives had appeared, virtually all of them failing quickly. In the 1850s reformers laid the foundation for several state-supported agricultural colleges. These were, in reality, joint private-state efforts, because legislative appropriations were typically contingent on a set amount of funds raised from private individuals. Local governments and booster groups often chipped in important support raised in a variety of ways, including donations, stock shares, bond issues, and special taxes. Although a few states succeeded in opening colleges with an emphasis on agriculture before the outbreak of the Civil War—notably Michigan, Pennsylvania, and Maryland—the overall effort, even in these relatively successful cases, was characterized by deep financial instability. As a result, some institutions had to raise tuition, thereby discouraging enrollment and threatening the very basis of their claims to state and local aid in the first place.

In light of these difficulties and the longstanding practice of using land grants to endow a variety of educational projects, reformers came to propose that the federal government finance state agricultural institutions out of the public domain. It is not clear precisely when and by whom the idea was first broached, but by about 1850 it was being discussed among both agricultural reformers

¹⁰³ *Journal of the United States Agricultural Society* 1:2 (1853): 7, 13, 16–17; Lyman Carrier, “The United States Agricultural Society, 1852-1860: Its Relation to the Origin of the United States Department of Agriculture and the Land Grant Colleges,” *Agricultural History* 11, no. 4 (October 1937): 285–286.

¹⁰⁴ Cong. Globe, 32nd Cong., 1st Sess., Appendix, 746.

¹⁰⁵ *New England Farmer* 8 (Aug 1856): 364–365; *Journal of the United States Agricultural Society* 5 (1857): 3; *Monthly Bulletin of the United States Agricultural Society* 1:2 (Mar 1858): 13.

and advocates of “industrial education” interested in founding modern institutions of higher learning focused on technical and scientific subjects rather than on classical studies. The first definite proposal to achieve widespread attention, a plan for the federal government to grant lands to the states for the founding of “industrial universities,” emanated from Illinois.¹⁰⁶ That the West took an early lead in the movement is not surprising given the lack of accumulated capital among its citizens, the scarcity of its states’ resources, and the region’s consequent predisposition to look to the federal government for developmental help.¹⁰⁷ The details of the Illinois plan appeared in the 1851 Patent Office Agricultural Report and were endorsed in 1853 by the Illinois legislature, which urged “passage of a law of Congress donating to each State in the Union an amount of public lands not less in value than *five hundred thousand dollars* for the liberal endowment of a system of Industrial Universities, one in each State of the Union, to co-operate with each other, and with the Smithsonian Institution at Washington, for the more liberal and practical education of our industrial classes and their teachers.”¹⁰⁸

The Illinois proposal quickly became the basis of discussions among agricultural reformers. In January 1856 the USAS appointed a committee to take the measure under consideration, consisting of Smithsonian director Joseph Henry, A. Homer Byington of Connecticut, and J. D. B. DeBow of Louisiana, editor of the leading southern economic journal, *DeBow’s Review*. Two days later the committee’s northern members, Henry and Byington, returned a majority report expressing “entire and hearty concurrence in the objects” of the Illinois resolution and offering a similar declaration for USAS approval. The Louisianan DeBow, however, was torn. As one of the country’s leading economic modernizers, he recognized and supported a role for government in economic development. As a southerner, however, he could not support the expansion of a national government that might very soon fall into the hands of a hostile North. Thus in 1857 he wrote:

We have long desired to see the States of the South alive to the importance of establishing, under appropriate laws, Bureau’s [sic] for the encouragement of Agriculture in their midst, aiding at the same time local societies, and promoting the establishment of agricultural professorships. This is the line of legitimate action, and would obviate any dependence upon the National Government for matters peculiarly within the powers of the States.¹⁰⁹

Siding with the South, DeBow submitted a minority report in which he argued that the USAS should not endorse the Illinois plan because “a large number of States represented here do not admit the

¹⁰⁶ Burt Eardley Powell, *The Movement for Industrial Education and the Establishment of the University, 1840-1870*, Semi-Centennial History of the University of Illinois (Urbana, IL: University of Illinois, 1918).

¹⁰⁷ In this respect the Illinois proposal exemplified Gerschenkron’s hypothesis that late developing countries and regions would rely more heavily on state financing; Alexander Gerschenkron, *Economic Backwardness in Historical Perspective, a Book of Essays* (Cambridge,; Belknap Press of Harvard University Press, 1962).

¹⁰⁸ *Journal of the United States Agricultural Society* 4 (mislabelled as v. 3): 23 (emphasis in original).

¹⁰⁹ *DeBow’s Review* 13 (Dec 1857): 639.

constitutional power of Congress over the public lands, in the manner and to the extent which is claimed.”¹¹⁰

Because the two reports were received towards the end of the last day of the meeting, the USAS left a final decision to its next annual gathering in January 1857, when John Jones of Delaware re-introduced the matter. In a subtle dig at the Canadian reciprocity treaty, Jones stated that, in spite of its reputation as the “granary of the world,” the United States actually imported breadstuffs. More to the point, he highlighted declining American wheat yields in order to argue that “it behooves all who are concerned for their country, and its greatest interest, agriculture, to use every means likely to restore the nation to an ability to support itself.” European governments, Jones added, had already appropriated large sums in order to establish agricultural schools. He therefore moved to adopt the majority report from the previous year calling on the USAS to back the Illinois plan. As discussed above, there were virtually no delegates from the Lower South at the 1857 meeting (see Figure 1) and DeBow does not appear to have attended. Nevertheless, several delegates believed that the society should not become involved in the movement for industrial colleges. Benjamin Perley Poore argued that the initiative had no chance of passing Congress and that a USAS endorsement would therefore only serve to render the organization ridiculous. George E. Waring, on the other hand, believed that the country was not yet ready for such institutions. Instead, he suggested that the government could best aid farmers by purchasing textbooks on agricultural science and placing them in the common schools. Since Waring had recently authored just such a textbook, his sincerity in this particular instance has to be questioned. In any case, the USAS eventually agreed to Jones’s motion, albeit by a slim margin, and thus lent its name to the cause of public land for technical higher education.¹¹¹

Significantly, Justin Morrill, who in December would introduce the land grant bill in the House of Representatives, was present at both the 1856 and 1857 USAS meetings that discussed the Illinois plan.¹¹² In later years Morrill professed to have worked out the idea for the land grant bill on his own. While the Illinois plan must certainly have figured into this thinking, Morrill had long taken an interest in agricultural reform. In the 1840s he subscribed to A. J. Downing’s journal, the *Horticulturist*, and in 1847 he authored a prize-winning essay for the Orange County (VT) Agricultural Society. Morrill was also familiar with the movement for technical education. Only twelve miles down the road from his home in Stafford, Vermont stood the pioneering Norwich Academy. In 1841 the Academy’s founder, Captain Alden Partridge, memorialized Congress on the need for new institutions of higher learning specializing in science and technology in order to properly qualify, among others, “efficient and active cultivators of the soil.” Although Morrill seems not to have gotten along with Partridge personally, his mentor was on the Academy’s board of trustees and he must have been familiar with its innovations in the field of technical schooling.¹¹³ Morrill could

¹¹⁰ *Journal of the United States Agricultural Society* 4 (1856): 22-23, 78-80 (emphasis in original).

¹¹¹ *Ibid.*, 5 (1857): 61–66; George E. Waring, *The Elements of Agriculture: A Book for Young Farmers, with Questions Prepared for the Use of Schools* (New York: D. Appleton, 1854).

¹¹² Carrier, “United States Agricultural Society,” 283; *Journal of the United States Agricultural Society* 4 (1856): 7; 5 (1857): 10.

¹¹³ Coy F. Cross, *Justin Smith Morrill: Father of the Land-Grant Colleges* (East Lansing, MI: Michigan State University Press, 1999), 12-13, 79; Hal S. Barron, *Those Who Stayed Behind: Rural Society in Nineteenth-Century New England* (Cambridge: Cambridge University Press, 1984), 33, 144 fn 11; Alden Partridge, *Memorial of Alden Partridge, Praying Congress to Adopt Measures with a View to the Establishment of a General System of Education for the Benefit of the Youth of This Nation*, H.Doc. 69,

therefore claim a personal engagement with the questions of agricultural improvement and technical education that predated the Illinois plan. This is significant not so much for establishing intellectual priority—suggestions to finance agricultural colleges with public land were so common that, as one historian wryly comments, “one need not ask how Morrill got the idea for his bill, but how he could have avoided it.”¹¹⁴ Rather, Morrill’s earlier involvement with the agricultural reform movement signals his knowledge of and commitment to its aims. Indeed, as one of his very first actions in Congress, Morrill offered a resolution requesting the Committee on Agriculture, of which he was a member, “to inquire into the expediency of establishing a Board of Agriculture under the direction of the Secretary of the Interior; and, also, of establishing one or more national agricultural schools upon the basis of the naval and military schools.”¹¹⁵ Thus, although the Morrill land grant bill clearly drew on the wider movement for “industrial” education and was meant to benefit both farmers and mechanics, its motive thrust came from the agricultural reform movement and, in fact, it was known as the “Agricultural Colleges Bill” throughout its legislative history.

Morrill introduced the land grant bill in December 1857. Although it would ultimately undergo several changes, its basic features were already in place. The proposed legislation would furnish states with portions of the public domain in order to found colleges in which the “leading object” would be “such branches of learning as are related to agriculture and the mechanic arts.” Each state was entitled to 20,000 acres (later increased to 30,000 acres) for each of its Congressional representatives and senators. The bill thus favored the more populous eastern seaboard states. It also seemed to favor the white citizens of the slave states because they would benefit from the three-fifths clause; indeed, the states of the Lower South with very high slave populations would benefit most of all. No state would be allowed to own land in another, so states with no public domain within their borders would receive scrip that buyers could then redeem for actual land. Proceeds from sales, excepting ten percent that could be applied to purchasing grounds for an experimental farm, had to be converted into a permanent endowment by investment in treasury bonds or some other safe stock yielding at least five percent annually. By this measure Morrill ensured that states did not use up all of their funds erecting colleges they could not then afford to operate. The rule also meant that states (or local governments or private donors) had to put up their own resources in order to take advantage of the bill’s provisions. Several other conditions bound states further; one of these, as we shall see, would draw the particular ire of southerners. It stipulated that each land grant school was required to produce an annual report “recording any improvements and experiments made” and to mail copies of this report to its sister schools in other states, to the Smithsonian Institution, and to “the agricultural department of the Patent Office.”¹¹⁶

Reformers mobilized quickly to support Morrill’s bill. No one did more, perhaps, than Joseph R. Williams, former Whig politician and Republican editor of the *Toledo Blade* turned

26th Cong., 2nd Sess., 2, Serial Set Vol. No. 383, Session Vol. No.2; Edwin C Rozwenc, *Agricultural Policies in Vermont, 1860-1945* (Montpelier, VT: Vermont Historical Society, 1981), 52; on Partridge’s pioneering role in technical education, see Earle Dudley Ross, *Democracy’s College: The Land-Grant Movement in the Formative Stage* (Ames, IA: The Iowa State College Press, 1942), 11-12.

¹¹⁴ John Y. Simon, “The Politics of the Morrill Act,” *Agricultural History* 37, no. 2 (April 1963): 104.

¹¹⁵ Cong. Globe, 34th Cong., 1st Sess., 530.

¹¹⁶ *Ibid.*, 35th Cong., 1st Sess., 1697.

president of the Michigan Agricultural College, which had only the previous April become the first state agricultural school in the country to open its doors.¹¹⁷ Towards the end of 1857 Williams joined the Michigan Board of Education in petitioning Congress for 500,000 acres of the public domain to endow the new state college. This memorial arrived only days before Morrill introduced his own legislation. Williams then got behind the Morrill bill, writing a circular letter that made the rounds of the agricultural journals in January and urged reformers to exert themselves on the bill's behalf.¹¹⁸ Other reformers worked to secure backing from agricultural societies and state legislatures.¹¹⁹ At its sixth annual meeting in January, the USAS passed a resolution calling on Congress to enact "the main features" of the proposed legislation.¹²⁰ That same month the Rhode-Island Society for the Encouragement of Domestic Industry requested its state legislature to pass a similar resolution. Within a few weeks, the legislature did just that.¹²¹ In March, Delaware improver John Jones, who had called up the resolution in favor of the Illinois plan at the previous year's USAS meeting, reported to the New Castle County Agricultural Society on the measure's importance.¹²² At least two more state societies and one legislature petitioned Congress on the matter before the bill was even reported back from committee.¹²³ Altogether, according to Paul Gates, Congress would receive forty-five petitions calling for the Morrill bill's enactment, including thirteen from state legislatures.¹²⁴ These efforts amply indicated the agricultural reform movement's capacity to mobilize supporters at the local, state, and federal levels.

Neither the widespread public support nor the disproportionate benefits for the slave states impressed southern Democrats, who vigorously opposed the bill from the beginning. When Morrill asked that it be referred to his own Committee on Agriculture, John Letcher (D-VA) instead moved its referral to the Committee on Public Lands, chaired by Williamson R. W. Cobb (D-AL). Morrill pleaded not to allow the measure to be "strangled" by a hostile committee, but Letcher's motion succeeded, thus burying the bill for several months.¹²⁵ In April 1858 Cobb finally submitted the

¹¹⁷ For a brief biography, see Michigan State University's University Archives and Historical Collections website, which features biographies of its past presidents.

¹¹⁸ *Resolutions of the Legislature of Michigan, in Favor of a Donation of Land for the Endowment of the Michigan Agricultural College*, S.Misc.Doc. 157, 35th Cong., 1st Sess., Serial Set Vol. No. 936 Session Vol. No. 3; *Memorial of Members of the Board of Education of the State of Michigan and of the Faculty of the Agricultural College of That State, Praying a Donation of Land for the Agricultural College*, S.Misc.Doc. 7, 35th Cong., 1st Sess., Serial Set Vol. No. 934 Session Vol. No. 1; *Ohio Cultivator* 16 (15 Jan 1858): 25; *Maine Farmer* 26 (4 Feb 1858): 1.

¹¹⁹ *American Farmer* 8 (Jan 1858): 227; *Working Farmer* 10 (Feb 1858): 36–37.

¹²⁰ *New York Times* 19 Jan 1858, p. 2.

¹²¹ *Transactions of the Rhode-Island Society for the Encouragement of Domestic Industry* (1858), 15–17; *Resolution of the Legislature of the State of Rhode Island and Providence Plantations, in Favor of a Donation of Public Lands to the Several States and Territories to Aid and Encourage Scientific Education in Agriculture and the Mechanic Arts*, S.Misc.Doc. 183, 35th Cong., 1st Sess., Serial Set Vol. No. 936 Session Vol. No. 3.

¹²² *American Farmer* 13 (May 1858): 372.

¹²³ *Resolutions of the Legislature of the State of New Jersey, Asking for a Donation of Public Lands for Agricultural Colleges*, H.Misc.Doc. 118, 35th Cong., 1st Sess., Serial Set Vol. No. 963 Session Vol. No. 3; *Preamble and Resolution of the Kentucky Agricultural Society, in Relation to the Appropriating of a Portion of the Public Domain for School Purposes*, H.Misc.Doc. 82, 35th Cong., 1st Sess., Serial Set Vol. No. 963 Session Vol. No. 3; *Resolutions of the State Agricultural Society of New York, for the Distribution of a Portion of the Public Lands to the States and Territories, for the Benefit of Agricultural Colleges Therein*, H.Misc.Doc. 99, 35th Cong., 1st Sess., Serial Set Vol. No. 963 Session Vol. No. 3.

¹²⁴ Gates, *Farmer's Age*, 379.

¹²⁵ Cong. Globe, 35th Cong., 1st Sess., 32–33, 36–37, 52.

committee's majority report opposing passage.¹²⁶ The report laid out the rhetorical strategy pursued by southern Democrats and their northern allies throughout the congressional debates that carried into the winter of 1858-1859. The main tack was constitutional: only by a strict construction of the founding document, southern Democrats argued, could the slippery slope to tyranny be avoided. Again and again southerners warned that a federal government unbound by a loose reading of the Constitution would quickly grow into an all-encompassing leviathan that would threaten individual states' ability to sustain their own institutions. Although neither Cobb nor any other member of Congress referred directly to slavery, the Republican Party press would soon draw the connection.

Most of the southern case against the land grant bill was actually cribbed from an earlier debate over a measure that would have provided land grants for states to build asylums for the "indigent insane."¹²⁷ That proposal, known as the Dix bill after reformer Dorothea Dix, passed Congress in 1854 only to be vetoed by Democratic President Franklin Pierce, who was widely criticized in the North for his acquiescence in southern demands. Pierce reasoned that if the federal government had the power to provide for the indigent insane, it had the power—in fact, the obligation—to provide for all needy Americans. Yet he could find no "authority in the Constitution for making the federal government the great almoner of public charity throughout the United States." Such responsibilities for "the social relations [and] internal arrangements of the body politic" lay squarely with the "independent and sovereign States," which had "scrupulously measured such of the functions of their cherished sovereignty as they chose to delegate to the general government." Since these did not explicitly include care of the indigent insane, the bill was unconstitutional.¹²⁸ To many contemporary observers, Pierce's discussion of the states' "internal" social arrangements amounted to an unmistakable if oblique reference to slavery. Indeed, one southern Senator argued ominously that were the bill to pass, it would "lead to dangerous projects of sectional advancement."¹²⁹

Supporters of the Dix Bill pointed to Article 4, Section 3 of the Constitution, which states that "Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States." Pierce replied that this clause applied only to the land cessions made by the states upon entering the Union and not to further territorial acquisitions, an interpretation similar to the one articulated by Chief Justice Roger Taney in the Dred Scott decision a few years later. Invalidating Congress's power to legislate for the territories, Taney contended that the power delegated to Congress in Article 4, Section 3, was "confined, and was intended to be confined, to the territory which at that time belonged to, or was claimed by, the United States . . . and can have no influence upon a territory afterwards acquired from a foreign Government." If Democrats like Pierce and Taney denied Congress the

¹²⁶ *Lands for Agricultural Colleges, &c.*, H.Rpt. 261, 35th Cong, 1st Sess. (Washington, April 15, 1858), Serial Set Vol. No. 965, Session Vol. No.2.

¹²⁷ Gates, *Farmer's Age*, 374–375.

¹²⁸ Franklin Pierce, *Message from the President of the United States, Returning to the Senate the Bill Entitled "An Act Making a Grant of Public Lands to the Several States for the Benefit of Indigent Insane Persons," with a Statement of the Objections Which Have Required Him to Withhold from It His Approval*, S. Ex. Doc. No. 56, 33rd Cong., 1st Sess., 2–3, Serial Set Vol. No. 698, Session Vol. No. 8.

¹²⁹ Quoted in David L. Lightner, "Ten Million Acres for the Insane: The Forgotten Collaboration of Dorothea L. Dix and William H. Bissell," *Illinois Historical Journal* 89, no. 1 (Spring 1996): 28.

constitutional power to make land grants for purposes of social reform, they acknowledged its power to do so under the principle of “prudent proprietorship.” Thus the grants for railroads and schools that Congress had already handed out were justified because these enhanced the prices of adjoining tracts. “All such grants of land are, in fact, a disposal of it for value received,” Pierce explained, before adding that “they afford no precedent or constitutional reason for giving away the public lands.”¹³⁰

Opponents of the Morrill bill employed identical reasoning. At one point in the debate, in fact, Senator George Ellis Pugh, a Democrat from southern Ohio later to earn notoriety for defending Clement Vallandigham against charges of sedition, read Pierce’s veto message aloud word for word.¹³¹ The majority report of the House Public Lands Committee likewise reiterated Pierce’s logic. According to the report, the public domain was “a source of revenue” that could not be parceled out “without a consideration,” unless the grant was aimed at raising the value of adjoining lands and thereby upping the government’s earnings. Although the objects of the Morrill bill were worthy, the constitutional constraint was paramount, for by denying the federal government “all authority to act in relation to the domestic affairs of the several States,” it “established the only solid foundation for the perpetuation of the federal Union.” Thus as long as the Constitution was assiduously adhered to, the “various, and even conflicting, habits, customs, and local interests in the different States will be protected by their legislatures, and are in no danger of being overridden by the federal government.” As in Pierce’s veto message, contemporaries could plainly read the allusions to slavery between the lines and the veiled threats of disunion. The report concluded that constitutional “limitation is the anchor of our safety.”¹³²

Accompanying the Public Lands Committee majority report was a minority report signed by the committee’s only two Republicans, one of whom, Henry Bennett of New York, had supported creation of an agricultural bureau in the early 1850s. The Republicans’ statement rehashed many of the by now familiar claims of agricultural reformers. Agriculture constituted the “mainspring of national prosperity” yet had not benefitted from scientific advancement nearly as much as had the other two branches of industry, manufactures and commerce. Moreover, the threat of continuing soil depletion was “patent to every one paying the slightest attention to the subject.” European countries had already established public institutions to address such problems, yet “the fostering care” of American government had thus far been withheld. The minority report also denied any constitutional hurdle. “In the opinion of the undersigned, there is no limit to the uses and purposes to which the public domain may be applied but the discretion of Congress.” Furthermore, the bill did not really propose to present *gifts* of land to the states, but rather to make the states “trustees” of portions of the public domain for a specified purpose. This would require each state to accept the bill’s conditions and to appropriate additional funds, in return leaving it to shape its own establishment.¹³³ This notion of trusteeship, returned to several times in the subsequent debate, may have originated with the USAS. David Walbridge (R-MI), one of the minority report’s two authors, was present at the 1857 USAS meeting that, in adopting the Illinois plan for industrial universities,

¹³⁰ Pierce, *Dix Bill Veto Message*, 7–8; Taney, *Scott V. Sandford (TANEY, C.J., Opinion of the Court)*, 60 U.S. 393 (n.d.).

¹³¹ Cong. Globe, 35th Cong., 2nd Sess., 714–715.

¹³² *Lands for Agricultural Colleges, &c.*, 1–2.

¹³³ *Ibid.*, 6–14.

added that states should hold land grants “in trust” and be bound by “such conditions and restrictions in the terms of the grant, as shall, in the wisdom of Congress, be needful, in order to secure this trust forever to the uses aforesaid.”¹³⁴

Against southern Democrats’ intention to prevent the bill from ever coming to the floor, Morrill’s supporters employed a clever parliamentary maneuver to engineer a quick vote. With Morrill delivering a forceful speech on the bill’s behalf and opponents wrong footed, the House approved the measure by the slim margin of 104 to 101 on April 22, 1858.¹³⁵ A breakdown of the voting reveals an almost direct clash between future unionists and secessionists. Seventy-eight southern Representatives voted on the measure, only thirteen casting yes votes. Of these thirteen, eight were Know Nothings, all of them from the Upper South. By this time the Know Nothing party was little more than a vehicle for former southern Whigs and was led by future Constitutional Union Party presidential candidate, John Bell. That left a mere five southern Democrats in support of the proposition. These included a Marylander, Delaware’s lone Congressman, and Francis P. Blair, an “Independent Democrat” from Missouri and future Republican with ties to Maryland’s agricultural organizations.¹³⁶ Only the two Georgia Democrats, James Seward and Augustus Wright, inexplicably bucked the trend. Republicans, of course, voted yes almost unanimously, just six of eighty-four breaking party ranks. Each of these six Republican dissenters represented a state of the Northwest, which overall supported the bill by the small margin of 26 to 21, whereas the Northeast went 65 to 16 in favor. This reflected western ambivalence regarding legislation that aided regional development but favored the populous East in its allocation of grants and threatened to facilitate land speculation through the scrip provision.¹³⁷ Northern Democrats, who mostly opposed, provided the balance of support with thirteen critical yes votes.¹³⁸

Restricting the voting analysis to the Northeast provides added evidence that popular rural support for the bill was broad and significant. Other than Galusha Grow, who may have believed that it would somehow interfere with his pet project of homestead legislation, only Democrats opposed the bill in the Northeast. All of these Democrats came from New York and Pennsylvania. One group clustered in and around New York City and represented that area’s close ties to southern cotton. The second group was scattered about Pennsylvania and represented the Buchanan administration’s special influence in that state. By this time most Pennsylvania Democrats who had reason to join the Republicans, whether because of anti-slavery conviction as with David Wilmot and Galusha Grow, or because of protectionist commitments as with Simon Cameron and William “Pig Iron” Kelley, had already done so, suggesting that remaining Democrats in the state were hardcore party loyalists. In this context the decision of three Pennsylvania Democrats to break ranks

¹³⁴ *Journal of the United States Agricultural Society* 4 (1856): 79; 5 (1857): 11, 66.

¹³⁵ Cross, *Justin Smith Morrill*, 79–83; Cong. Globe, 35th Cong, 1st Sess., 1692–1697.

¹³⁶ Maryland’s overall House contingent of two Democrats and three Know Nothings went four to one in favor of the bill.

¹³⁷ After the South seceded, this would become the major point of debate when the bill again came under consideration in 1862.

¹³⁸ Cong. Globe, 35th Cong, 1st Sess., 1742; Kenneth C Martis, *The Historical Atlas of Political Parties in the United States Congress, 1789-1989* (New York: Macmillan, 1989), 110-111. 393-395. Martis lists Francis Spinner of New York as a Republican, but this appears to be a misprint as he provides no discussion of the designation even though the Congressional Biographical Directory lists Spinner as a Democrat for all three of his terms and his two votes against the land grant bill would seem to confirm this.

with the administration and vote *for* the Morrill bill is intriguing. These Congressmen represented the fifteenth, sixteenth, and seventeenth congressional districts which comprised a band of counties that bisected the state north to south from Potter on the New York border through Centre and down to Bedford, Fulton, Franklin, Adams and York on the Maryland border. As might be guessed, this region almost equidistant from Philadelphia and Pittsburgh was overwhelmingly agricultural. Overall the region was eighty-three percent rural with only four towns exceeding 5,000 residents and none reaching 9,000. The fact that the nascent Pennsylvania Farmers' High School, the certain beneficiary of Pennsylvania's grant should the bill pass, was already located in Centre County undoubtedly nudged Allison White, who represented the fifteenth district, but cannot explain the votes of John Ahl and Wilson Reilly of the sixteenth and seventeenth districts. It would therefore seem that these Democrats believed that federally funded agricultural colleges were popular among their farmer constituents. The agricultural reform movement had sunk roots deep in the northeastern countryside.¹³⁹

Both the Republican Party press and the agricultural reform community immediately took notice of the Morrill bill's passage in the House. Horace Greeley, who represented both groups, "rejoice[d] in Mr. Morrill's success" and assumed that "the concurrence of the Senate is hardly doubtful." The *Chicago Tribune*, however, was less sanguine, noting that "the Slaveocracy of course voted against it." Thus it believed that "the farmers can look for nothing from this Congress or its Administration. The only product regarded now as of national importance is cotton—the only live stock, young niggers."¹⁴⁰ In spite of the limited northern Democratic support, therefore, the measure had become thoroughly identified with the Republican Party and, to a much lesser extent, with the dying remnants of Upper South Whiggery.

The House's action, which easily made for the most progress since the Taylor and Fillmore administrations, invigorated reformers, who now renewed their efforts to support the bill. "Let the officers of the various Societies," enjoined Samuel Sands of the Baltimore-based *American Farmer*, "take immediate action upon the subject, and appeal to their Senators in behalf of the measure."¹⁴¹ Similarly, the *Valley Farmer* commanded farmers to tell members of Congress "that there is no subject more important than this. If you speak, they will listen!"¹⁴² Particularly strong advocacy came from reformers directly connected with nascent agricultural schools.¹⁴³ Joseph R. Williams of the Michigan Agricultural College again led the way. In October he gave the concluding address at the annual fair of the New York State Agricultural Society, which had itself already petitioned Congress on the subject. Perhaps no event provided a better opportunity to spread the message, for the 1858 exhibition was "considered a great success" even by the standards of perhaps the largest and most

¹³⁹ Kenneth C. Martis, *The Historical Atlas of United States Congressional Districts, 1789-1983* (New York: Free Press, 1982), 90–91, 248, 264; 1860 Federal Population Census, 412–438.

¹⁴⁰ *New York Daily Tribune*, 23 Apr 1858, p. 4; *Chicago Tribune* 27 Apr 1858, 2.

¹⁴¹ *American Farmer* 13 (1858): 366. By asking reformers to appeal to Senators, Sands was really asking them to obtain resolutions from state legislatures instructing Senators to support the bill. In the antebellum period Senators were not popularly elected but rather chosen by state assemblies which felt it their right to direct them on specific matters. Because the agricultural reform movement had already built up considerable organizational strength in many states, it could pursue a strategy that leveraged local pressure into national influence.

¹⁴² *Valley Farmer* 10 (Apr 1854): 113–114.

¹⁴³ *American Farmer*, 13 (Jun 1858): 403; *Cincinnati* 3 (1858): 83–86; 273–274; *Michigan Farmer* 16 (May 1858): 128–130; Gates, *Farmer's Age*, 377–378.

established agricultural fair in the country.¹⁴⁴ The speech gained further circulation through numerous reprintings in the agricultural press and separate publication in pamphlet form.¹⁴⁵

Williams began by praising the great strides made in agriculture over the previous generation (32-34). He quickly turned, however, to a catalog of unsolved problems, including soil depletion, pest infestations, unsound veterinary practices and the general lack of education among farmers (34-42). In a conventional effort to lend weight to these concerns, Williams tried to quantify their economic costs.¹⁴⁶ He estimated the country's annual losses resulting from declining yields of wheat, corn and hay to easily surpass \$300 million (35). He claimed that an additional million dollars were lost annually in New York alone when horses were unnecessarily "destroyed by quackery" (37). He cited B. P. Johnson's figure of a \$15 million shortfall in New York as a result of the wheat midge (41). On the other hand, Williams noted, hybridized flowers represented "an instance where research, purely scientific, has often doubled the value of the earnings of the farmer or gardener" (38). Having thus established the stakes of agricultural knowledge, Williams asked, "Are facilities for sufficient education within reach of the youth of the rural population?" (42) The answer, of course, was no. A "deplorable hiatus in our educational systems" remained between the common schools and institutions of higher learning. Not only were there not enough colleges, but the existing ones were inappropriate for farmers' sons because their concentration on classical studies both ignored science and ruined students for physical labor (43-44). "A new order of institutions has therefore become an absolute necessity," he declared (44).¹⁴⁷ European governments had already addressed the "yawning deficiency" by establishing literally hundreds of agricultural schools. In the United States several states, including his own, were in the process of doing likewise, but their prospects for success were far from certain. Registering the hard financial lessons reformers had learned in the previous years (Chapter 4), Williams argued that action at the national level was essential. Only the federal government could supply "more liberal aid than private individuals or capricious State Legislatures would be likely to afford" (56).¹⁴⁸

In the winter of 1858-1859, just before the Senate took up the bill, other leading agricultural reformers were able to lobby legislators in person thanks to a crafty move by the Patent Office's Agricultural Division. Convening an "Advisory Board of Agriculture" in aid of its mandate to gather agricultural statistics, the Agricultural Division brought leading reformers to Washington at government expense. Only three of the twenty-two invited reformers represented slave states, and none represented the Deep South.¹⁴⁹ Ten invitees had close ties to the USAS, signifying the importance of the society's rapprochement with the government agency. These included such veterans of the agricultural bureau campaign as former USAS President Marshall P. Wilder, former

¹⁴⁴ *Transactions of the New York State Agricultural Society* 18 (1858): 32–60; *New York Times*, 9 Oct 1858, p. 5.

¹⁴⁵ *Michigan Farmer* 16 (1 Dec 1858): 349–355; *American Farmer* 12 (Dec 1858): 722–734; *Valley Farmer* 10 (Dec 1858): 1–5; Joseph R. Williams, *Address Delivered Before the N.Y. State Agricultural Society* (Albany: C. Van Benthuysen, 1858).

¹⁴⁶ On the relationship between accounting discourse, quantification, and agricultural reform in antebellum New York, see Emily Pawley, "Accounting with the Fields: Chemistry and Value in Nutrimint in American Agricultural Improvement, 1835–1860," *Science as Culture* 19, no. 4 (December 2010): 461–482; Emily Pawley, "'The Balance-Sheet of Nature': Calculating the New York Farm, 1820-1860" (Ph.D., University of Pennsylvania, 2009).

¹⁴⁷ *Transactions of the New York State Agricultural Society* 18 (1858):32–47.

¹⁴⁸ *Ibid.* 18 (1858): 44–60 (emphasis in original).

¹⁴⁹ Gates, *Farmer's Age*, 378–379.

House Agriculture Committee chairman David Holloway, the western favorite Dr. J. A. Kennicott, Ezekiel Holmes of Maine, B. V. French of Massachusetts, and Frederick Holbrook of Vermont, as well as Freeman Cary, head of Farmer's College in Ohio. Additional uncompensated attendees included serving USAS President Tench Tilghman and Secretary Benjamin Perley Poore, Charles Calvert of the embryonic Maryland Agricultural College, former Census Bureau chief Joseph C. G. Kennedy, the Smithsonian's Joseph Henry, Amos Brown of the People's College in New York, and Justin Morrill.¹⁵⁰ According to correspondence published by the *American Farmer*, "all . . . were in favor of donations of lands . . . for the establishment of Agricultural Colleges."¹⁵¹ Meeting January 3 to 11, the better part of the group immediately reconvened as the annual USAS meeting and assembled for an additional three days. Delegates, who as in other years included several members of Congress, then heard a powerful address in favor of the Morrill bill delivered by Freeman Cary.¹⁵² Thus just two weeks before the Senate took up the bill the capital was practically swarming with leading advocates of agricultural education. Cary, for example, wrote to Morrill in early February with a list of politicians he had contacted and promised "to leave nothing undone that is in my power to accomplish the passage of your bill."¹⁵³ Not amused, Southern Democrats called for an investigation.¹⁵⁴

Prodded by reformers' lobbying, on February 1 Benjamin Wade (R-OH) exhorted the bill's "friends" not to let it languish until the end of the session when "it would be easy to talk it to death." Wade reminded his colleagues that "many of the Senators here are instructed by their States to use their influence to procure the passage of this bill" and that "it has been favored by almost every agricultural society that has met and had it under consideration." Republican Jacob Collamer of Vermont and Know Nothing leader J. J. Crittenden of Kentucky also urged action.¹⁵⁵ Southern Democrats, on the other hand, spared no hyperbole in their denunciations. According to James Murray Mason (D-VA), the measure was "one of the most extraordinary engines of mischief, under the guise of gratuities and donations, that I could conceive would originate in the Senate . . . for it is an unconstitutional robbing of the Treasury for the purpose of bribing the States." Clement Clay (D-AL) regarded it "as one of the most monstrous, iniquitous, and dangerous measures which have ever been submitted to Congress." Jefferson Davis, who eight years earlier had opposed the creation of a federal agricultural bureau, sought to discredit the entire agricultural reform project when he stated, "I have seen the growth of this proposition to do something for the agricultural interest, and I believed it was always delusive, not to say fraudulent."¹⁵⁶

Southerners and their northern Democratic allies were particularly offended by what might seem one of the bill's more innocuous provisions: the requirement that the proposed land grant institutions prepare annual reports and share them with the Smithsonian Institution and the Patent

¹⁵⁰ *Advisory Board of Agriculture*, H.Exec.Doc. 56, 35th Cong., 2nd Sess., Serial Set Vol. No. 1006 Session Vol. No. 7; *Journal of the United States Agricultural Society*, 4 (1856): 7–8, 254–269; 7 (1859–1860): 9, 18, 86–88, 192, 388.

¹⁵¹ *American Farmer* 14 (Mar 1859): 275.

¹⁵² *Journal of the United States Agricultural Society* 7 (1859): 18–19, 89–97.

¹⁵³ Quoted in Julianna Chaszar, "Leading and Losing the Agricultural Education Movement: Freeman G. Cary and Farmers' College, 1846–1884," *History of Higher Education Annual* 18 (1998): 36.

¹⁵⁴ *Cong. Globe*, 35th Cong., 2nd Sess., 256, 268; *DeBow's Review*, 26 (1859): 237, 608.

¹⁵⁵ *Ibid.*, 35th Cong., 2nd Sess., 712–713.

¹⁵⁶ *Ibid.*, 35th Cong., 2nd Sess., 718, 722, 786.

Office's "agricultural department." This provision, they insinuated, opened the door to coordination and control from a central office in Washington, setting a dangerous precedent. The development of the Patent Office's Agricultural Division already illustrated this trend, for that agency, Evan Pugh charged, was never sanctioned by anyone. As the central node of a new system of agricultural colleges, the agency was sure to grow still larger. Thus James Mason of Virginia thundered sarcastically, "The agricultural department of the Patent Office! I know of no such department; but it is perfectly homogeneous with this bill. The bill has a right to anticipate that there will be such a department. The bill has a right to anticipate that, if this sort of policy is commenced under the auspices of the Federal Government, an agricultural department will be necessary to supervise it." Mason had prefaced his remarks by stating that, since he could not change Senators' minds and the bill was sure to pass, he would speak directly to his constituents. He therefore freed himself to paint as lurid a picture as possible:

If these agricultural colleges should be built as functionaries of the General Government; as appendages to a department of the General Government; endowed by the General Government; required to make reports from time to time to each other, and to the Smithsonian Institution, and to an agricultural department here, it requires no prophet, it requires none peculiarly conversant with the working of any Government, more especially this, to see that in a very short time the whole agricultural interests of the country will be taken out of the hands of the States and subjected to the action of Congress, by direction or indirection, either for the promotion of it in one section or the depression of it in another.

The South's "agricultural interests," of course, were deeply connected to slavery. Implicitly, then, Mason alluded to the Republicans' anti-slavery stance when he alleged that the land grant bill represented just one part of a "*general* system of bringing the domestic affairs of the States within the range of congressional legislation."¹⁵⁷

No other southern Senator revealed the fears that lay at the root of southern hostility quite so openly, but several pointed in the same direction. Benjamin Fitzpatrick (D-AL) saw in the bill an attempt "to establish a new theory in . . . the relations of this Government towards the States." According to James Green (D-MO) it was "the introduction of a swallowing-up system that will conglomerate every power in this Government, gather it all in one common focus, and every farm will belong to the Federal Government, every manufactory will belong to the Federal Government." Clement Clay, who claimed to be an "ambassador from a sovereign State" rather than a U.S. Senator, recalled the House Public Land Committee's majority report when he stated with alarm that the measure would "unlimit all the limitations of the powers of Congress."¹⁵⁸

Northern Republicans ridiculed southerners' legal formalism and instead emphasized the twin substantive benefits of improved national agriculture and democratic access to higher education. Jacob Collamer frankly defined Article 4, Section 3 of the Constitution as "a simple, unqualified, unlimited grant of power to dispose of the public lands." Collamer refused to split legal

¹⁵⁷ Ibid., 35th Cong., 2nd Sess., 716, 719 (emphasis added).

¹⁵⁸ Ibid., 35th Cong., 2nd Sess., 187, 724, 852.

hairs by discussing doctrines such as “prudent proprietorship” or otherwise “feel[ing] round in the various modes in which this power has been exercised, to ascertain the limitations of it, for it clearly has none.” This forthright statement drew praise from the *New York Tribune’s* Washington correspondent, who deplored southern constitutional “absurdities.”¹⁵⁹ When Virginia’s Mason evoked the ominous specter of Congress one day “fasten[ing] upon the southern States that peculiar system of free schools in the New England States,” James Harlan of Iowa mocked him. “It may be that it is a blessing to Virginia that she is now more largely represented by adult white people who are unable to read and write, in proportion to her population, than any other State of the Union,” said Harlan. “It is a blessing, however, that the people of my State do not covet. . . . They prefer that the mind of the laborer should be developed.” James Simmons (R-RI) likewise stressed the great value of education for ordinary working people.¹⁶⁰

On February 7 the Senate finally approved the measure by a close vote of twenty-five to twenty-two.¹⁶¹ Sixteen Republicans cast yes votes while the remaining three were absent; no Republican Senator opposed the bill. Yet it could not have passed without the help of two other, crucial blocs. The first was comprised of old line Whigs from the Upper South such as J. J. Crittenden of Kentucky and John Bell of Tennessee. Back in 1850 when the Senate voted for the first time to print separately the agricultural portion of the annual Patent Office report, there were fourteen southern Whig Senators from throughout the South and of the eight who voted on the measure, only one opposed. In 1858 the remnants of southern Whiggery, now organized in the American Party, still overwhelmingly supported federal aid to agriculture. But only five such Senators remained and all but one of them represented the Upper South. Nevertheless, these four Upper South Know Nothings delivered critical votes in favor of the Morrill bill.

The second group of key votes came from northern Democrats, who backed the bill 5 to 4. Among the supporters was soon-to-be Republican Lyman Trumbull. An additional five northern Democratic Senators missed the ballot but registered their choices by pairing off. This group approved the measure 4 to 1 with Stephen Douglas among those in the affirmative. Southerners recognized the importance of these northern Democratic votes without which the bill would not have passed. For this reason, presumably, Clement Clay of Alabama twice attempted to marshal party discipline by portraying the matter as a classic Democratic issue. When the Senate first took up the measure briefly in May 1858, Clay declared that “it is a bill which the Democratic party of this country has been committed against for thirty years past.” Amos Brown, in Washington to lobby on the bill’s behalf, noted that “the South . . . are [sic] as much as possible working it into a party question.”¹⁶² On the day of the final vote Clay again sought to embarrass pro-development northern Democrats when he commented that among the bill’s “supporters are found a few—I am glad to say very few—members of the Democratic Party who profess to be the advocates of State rights.”¹⁶³ But Clay’s effort stood little chance of success, and not just because by 1858 the Second Party

¹⁵⁹ *New York Daily Tribune*, 4 Feb 1859, 5.

¹⁶⁰ Cong. Globe, 35th Cong., 2nd Sess., 720–722.

¹⁶¹ *Ibid.*, 35th Cong., 2nd Sess., 857.

¹⁶² Amos Brown to William Brewer, 19 May 1858, William H. Brewer Papers, 1852-1909 (microfilm, one reel), Cornell University Library (hereafter, CUL).

¹⁶³ Cong. Globe, 35th Cong., 1st Sess., 2230; 35th Cong., 2nd Sess., 851.

System had already collapsed. As we have seen, several northern Democrats actively supported the campaign for a federal agricultural bureau in the years 1849 to 1852. Though the agricultural reform movement as a whole leaned heavily toward the Whigs, at the local level it maintained an assiduously nonpartisan stance. Indeed, much of the movement's lobbying strength derived ultimately from this political inclusivity at the grassroots.¹⁶⁴

More important than southern Democrats' chidings was the general thrust of their legalistic case, which seemed intended to roll back the practice of using the public domain to finance national development projects. Over the previous ten to fifteen years northern Democrats, especially in the western states, had grown increasingly development minded. In order to get around the Democratic Party's traditional adherence to strict construction of the Constitution, leaders such as Stephen Douglas exploited the federal government's control of the public domain to sponsor development schemes through the granting of land, particularly for railroads but also for schools and occasionally for other things.¹⁶⁵ During the Morrill bill debates southerners asserted repeatedly that land grants were equivalent to disbursements directly from the Treasury. According to the House Public Lands Committee majority report, for example, there was "no difference between an appropriation in lands or one in money." James Mason and George Pugh reiterated the argument in the Senate.¹⁶⁶ If land grants were really the same thing as Treasury funds, then they were equally subject to a strict constitutional review. True, President Pierce, Chief Justice Taney, and the Morrill bill opponents left room for railroad and school grants under the principle of "prudent proprietorship," but clearly southerners were attempting to hem in the funding tool favored by northern developmental Democrats. This was especially significant because of the simultaneously pending homestead bill, perhaps the most popular policy proposal in the West. By choosing to argue the equivalence of land grants and general funds, therefore, southern Democrats seemed to be exacting a great deal from their northern counterparts. Democrats in rapidly developing areas of the Northwest—what Marc Egnal has recently identified as the "lakes economy"—were particularly vulnerable because they faced a Republican Party that was clearly identified with developmental initiative. In fact, many western developmental Democrats, such as John Wentworth of Illinois, had already switched over to the Republicans. But Democratic leaders like Stephen Douglas, whom Republicans refused to welcome into their ranks, were simply in a bind.

Republican newspapers sought to capitalize on this dilemma by outing western Democrats who had previously expressed support for the Morrill bill but then voted with the South. Thus the Washington correspondent for both the *Chicago Tribune* and the *New York Tribune*, reporting on one of the procedural votes that preceded the final vote in the Senate, observed that Jesse Bright (D-

¹⁶⁴ Hence this toast at a county fair dinner: "Cattle Shows & Agricultural Exhibitions – The Festivals of Industry to which all are welcome, without distinction of sect or party – Democrats may com, if they raise fine fruits, and Republicans if they raise fat oxen; Whigs who can hold the plough, and Free Soilers who can handle the spade – We are glad to see the Know Nothings if they come for information – all that we decidedly object to are the 'Do Nothings.'" Undated toast in "Manuscript Toasts, 1838-1858," Folder 2, Middlesex Agricultural Society Records, Concord (MA) Free Public Library.

¹⁶⁵ Yonatan Eyal, "Trade and Improvements: Young America and the Transformation of the Democratic Party," *Civil War History* 51 (September 2005): 245–268; Marc Egnal, *Clash of Extremes: The Economic Origins of the Civil War* (New York: Hill and Wang, 2009), 101–122; see also Yonatan Eyal, *The Young America Movement and the Transformation of the Democratic Party, 1828-61* (Cambridge: Cambridge University Press, 2007).

¹⁶⁶ *Lands for Agricultural Colleges, &c.*, 3; Cong. Globe, 35th Cong., 1st Sess., 2230; 35th Cong., 2nd Sess., 715, 718.

IN), Graham Fitch (D-IN), and George Jones (D-IA), “all of whom had heretofore supported the bill, if not pledged themselves solemnly to it, turned traitors, and voted with its enemies.”¹⁶⁷ Other Democrats were criticized for abstaining, as when the *New York Tribune* reported that “Mr. Douglas, who was a friend of the bill last Winter, did not vote, and there were many dodges.”¹⁶⁸ Therefore it is not surprising that several northern Democrats deserted their party to vote for the bill and thus constituted the balance of deciding votes in both the House and the Senate.

Republican newspapers rejoiced in the Senate’s passage of Morrill’s “beneficent measure.”¹⁶⁹ Almost immediately, however, they turned to discussing ominous signs of a presidential veto. Anticipating the worst, the *Chicago Tribune* opined, “There is no interest so deserving, no measure so needful or just, but they must go to the wall if they conflict with the remorseless purpose of slavery.”¹⁷⁰ According to the *Pittsburg Daily Gazette*, “this is a measure opposed to all Democratic theories, for it contemplates the improvement of our own country, rather than the conquest and spoilation of others.”¹⁷¹ Indeed, some observers close to the action had been expecting a veto for months. In May of the previous year, shortly after the House vote, Amos Brown wrote to William Brewer that a veto was likely should the bill pass the Senate. “The South are very hostile to the measure,” he explained.¹⁷² Sure enough, President James Buchanan vetoed the bill as “both inexpedient and unconstitutional.” In a move sure to infuriate Republicans, Buchanan backed his position by citing the interpretation of Article 4, Section 3 of the Constitution given by Taney in the *Dred Scott* case.¹⁷³

Predictably, Republican newspapers roundly condemned the president. “The simple truth,” charged Horace Greeley, “is that he is a tool of the Slave Power, its creature, its instrument, and the Slave Power is radically hostile to educated labor, holding that the mind and the muscle employed in productive industry ought ever to be distinct and separate.”¹⁷⁴ By highlighting southern obstruction of popular education, Greeley cast the Slave Power in a particularly ominous light. The *Chicago Tribune* insisted that nothing but “the remorseless negative of slavery” could explain the president’s decision, for the measure enjoyed the support “of every unprejudiced mind in the United States not absorbed in the breeding of negroes.”¹⁷⁵ The *Philadelphia Press*, meanwhile, drew connections to southern opposition to other favored Republican policies, specifically the homestead bill and the tariff. “Here was a farmer’s bill, pure and simple,” its Washington correspondent exclaimed, “but it has met the same fate which is threatened upon the interests of the manufacturers!” As for the

¹⁶⁷ *Chicago Tribune*, 5 Feb 1859, p. 2; *New York Daily Tribune*, 2 Feb 1859, 4.

¹⁶⁸ *New York Daily Tribune*, 8 Feb 1859, p. 4; see also *Chicago Tribune*, 11 Feb 1859, 2, which reported that “Mr. Douglas and a few other Democrats . . . dodged off before their names were called.”

¹⁶⁹ *North American and United States Gazette* 8 Feb 1859, p. 2; *New York Daily Tribune*, 8 Feb 1859, 4.

¹⁷⁰ *Chicago Tribune*, 11 Feb 1859, p. 2.

¹⁷¹ *Pittsburgh Daily Gazette*, 25 Feb 1859, p. 1; the last part of the quotation was a reference to John Slidell of Louisiana, who was closely identified with Cuba filibustering and was also said to be the man responsible for the expected veto. See also *New York Daily Tribune*, 17 Feb 1859, 4 and 28 Feb 1859, 4; *Philadelphia Press*, 22 Feb 1859, 2.

¹⁷² Amos Brown to William Brewer, 19 May 1858, William H. Brewer Papers, CUL.

¹⁷³ Cong. Globe, 35th Congress, 2nd Session, 1412–1413.

¹⁷⁴ *New York Daily Tribune*, 28 Feb 1859, 4.

¹⁷⁵ *Chicago Tribune*, 1 Mar 1859, 2.

homestead bill, the president was determined to “apply the knife” to that, too.¹⁷⁶ The South, in other words, was again impeding northern development. Similarly, the Boston *Daily Advertiser* prefaced its point-by-point refutation of Buchanan’s veto message by highlighting an apparent trend:

The executive veto has denied us the benefit of any regular system of river and harbor improvements, and still confines us to the unsatisfactory and inefficient plan of special legislation for this purpose. The humane provision sought for the insane throughout the land was defeated, after it had passed the ordeal of Congressional debate, by the executive veto; and now the agricultural college bill, a measure which promised the largest immediate return of important benefits to every State in the Union, the future influence of which upon the development of our material resources seemed likely to have an importance beyond what can now be imagined—this measure too, which looked to no single section but embraced every part of the country in its beneficent operation, has been defeated also by the same means.”¹⁷⁷

By April a Republican from Springfield, Illinois was writing to the abolitionist *National Era* with a full-throated critique of slaveholder obstructionism: “The homestead bill, the most beneficent measure ever offered to our people, the agricultural college bill, the improvement on the lakes, were lost to the nation because they did not directly enure to the interests of the South. . . . Now, this thing must have an end.”¹⁷⁸

Indeed, the defeat of the Morrill bill soon fit easily into the Republicans’ larger critique of the slave labor system and of its threat to free labor society. In September Abraham Lincoln echoed Greeley’s view when he told an audience at the Wisconsin state agricultural fair that according to “the ‘mud sill’ theory it is assumed that labor and education are incompatible,” whereas “free labor insists on universal education.”¹⁷⁹ As Eric Foner notes, Lincoln was at precisely this time discovering the powerful appeal of free labor ideology for northern audiences.¹⁸⁰ Stressing the opportunities for social mobility in northern society, free labor rhetoric easily absorbed the contemporary zeal for education as a means of economic advancement. In this spirit Joseph Williams had closed his influential Morrill bill speech at the 1858 New York state fair with an appeal to “remember that the proud spectacle of *an educated people*, dominant over the continent, will never be realized, unless some additional means are devised to educate the whole youth of the rural population.”¹⁸¹ The defeat of the Morrill bill, which promised democratic access to advanced vocational training, thus seemed to exemplify the Slave Power’s hostility to northern progress. The South, the New York *Tribune*

¹⁷⁶ *Philadelphia Press*, 22 Feb 1859, p. 2 and 28 Feb 1859, 2; see also the *New York Daily Tribune*, 4 Feb 1859, 5, where the sectional aspects of the homestead bill, the tariff, and land grant bill are discussed in succession.

¹⁷⁷ *Boston Daily Advertiser*, 2 Mar 1859, p. 2.

¹⁷⁸ *National Era* 21 Apr 1859, p. 1.

¹⁷⁹ Abraham Lincoln, *The Works of Abraham Lincoln: Speeches and Debates, 1856-1859*, ed. John H. Clifford and Marion M. Miller, vol. 2 (New York: Newton & Cartwright, 1908), 289–290.

¹⁸⁰ Eric Foner, *The Fiery Trial: Abraham Lincoln and American Slavery* (New York: W. W. Norton & Company, 2010), 112–117.

¹⁸¹ *Transactions of the New York State Agricultural Society* 18 (1858): 44–60 (emphasis in original).

contended, “sneers at free laborers, free lands, free schools, free speech, free presses and free men.”¹⁸²

If Republican editors found in the defeat of the Morrill bill a good opportunity to disparage slaveholders and the administration, agricultural reformers were bitterly disappointed. “Let us ask for a few acres of the public domain and the Constitution is flung in our faces,” commented Henry Ridgely in an address before the Kent County (DE) Agricultural Society in October.¹⁸³ But in terms of their political influence, reformers could count Congress’s passage of the bill a tremendous step forward. As congressional Republicans repeatedly reminded their colleagues, the agricultural reform movement exerted influence at every level of government, building support in Washington by direct lobbying while, at the same time, it orchestrated legislative resolutions at the state level to instruct Senators and hold representatives accountable. Beyond dispute, these efforts had made the difference.

PASSAGE OF THE LAND GRANT AND DEPARTMENT OF AGRICULTURE BILLS

The conclusion of antebellum reformers’ struggle for federal agricultural institutions is rather anticlimactic. After Buchanan’s veto there was little reason to press the matter until Lincoln’s election, and the secession crisis and outbreak of war turned 1861 into a lost year. In December, however, President Lincoln suggested the propriety of establishing a federal agricultural agency.¹⁸⁴ With most southerners gone, passage was certain if only Congress would take up the matter. In January several members of Congress heard USAS president William B. Hubbard again pronounce the “absolute necessity” of a federal department of agriculture. The USAS subsequently appointed committees to lobby Congress for both the department and the land grant bill.¹⁸⁵ It helped also that USAS leader Charles Calvert was now in the House of Representatives and a member of its Committee on Agriculture. On February 11, 1862 that committee reported unanimously in favor of a bill that proposed, in essence, to take the Agricultural Division of the Patent Office and re-designate it as an independent department headed by a Commissioner who, though not a member of the Cabinet, would report directly to the president. A brief discussion followed before the House passed the bill with minor amendments by an overwhelming majority of 122 to 7.¹⁸⁶

In the Senate there was a good deal more debate even if no one doubted that some kind of official federal agricultural agency would ultimately result. The bill under consideration differed from the House version only in tightening up language designed to ensure that any future expansion of the department would require congressional approval.¹⁸⁷ Senator James Simmons (R-RI), chairman of the Committee on Patents and the Patent Office, which reported the bill, took charge of shepherding it into law. A conscientious if lukewarm supporter of the measure himself, Simmons

¹⁸² *New York Daily Tribune*, 4 Feb 1859, p. 5.

¹⁸³ Ridgely, *Address Delivered by Henry Ridgely*, 9.

¹⁸⁴ Abraham Lincoln, “First Annual Message,” *The American Presidency Project*, December 3, 1861, <http://www.presidency.ucsb.edu/ws/index.php?pid=29502>.

¹⁸⁵ *Journal of the United States Agricultural Society* 10 (1862): 13–14, 22–24.

¹⁸⁶ *Cong. Globe*, 37th Cong., 2nd Sess., 751, 855–857.

¹⁸⁷ *Bills and Resolutions*, 37th Cong., 2nd Sess., H.R. 269; S. 249.

was determined to satisfy agricultural reformers' claims, repeatedly noting that they had been demanding a separate federal agricultural department for years.¹⁸⁸ He drew particular attention to the efforts of the USAS. "The president of the society was before us this morning," Simmons said at one point, "urging us to pass the bill."¹⁸⁹

Debate centered on how extensive to make the new agricultural agency. Unionist Senator Joseph Wright of Indiana offered a substitute bill that envisioned a much larger department comprising four subdivisions, the most important of which was a "Bureau of Agricultural Mechanics, Manufactures, Commerce, and Statistics." Wright insisted that an office to collect reliable, annual statistics on internal trade was essential. Lincoln made a similar point by framing his suggestion in terms of "an agricultural and statistical bureau." Another Senate proposal would have transferred to the new agency the entire Bureau of the Census, renaming it the Bureau of Agricultural Statistics.¹⁹⁰ The report of the House Committee on Agriculture had gestured in this direction as well. "Very many of the statistics of the Census bureau belong to this department," the report stated, "and ultimately your committee think that entire bureau may be transferred to the agricultural department."¹⁹¹ If this apparent equation of agricultural statistics with all statistics seems odd, we must again recall that the domestic economy was still primarily agrarian, so that the collection of figures on internal trade was largely a matter of enumerating the production and market prices of various crops. This, perhaps more than anything, indicates the nature of the American economy around midcentury. Thus it is not surprising that Joseph C. G. Kennedy, the Superintendent of the 1860 Census (and also of the 1850 Census until the Pierce administration replaced him with DeBow), served as the first corresponding secretary of the USAS. Under Kennedy, the 1860 Census featured the first separate volume on agriculture.¹⁹²

Several senators objected to such an ambitious project, particularly as financing the war seemed far more pressing. The most trenchant criticisms came from Finance Committee chairman and fiscal hawk, William Pitt Fessenden. Fessenden vindicated agricultural reformers' claims when he admitted that the \$60,000 annual appropriation for the Patent Office's Agricultural Division, though largely wasted on ordinary, defective, or otherwise useless seeds, proved nevertheless worthwhile because the few successes easily repaid the outlay in increased national product. Fessenden also acknowledged that some kind of official recognition for the Agricultural Division was overdue. But he hoped that Congress would adopt the most sparing plan, for he was certain that patronage politics, bureaucratic entrepreneurship, and the agricultural lobby would quickly combine to expand the new agency's size and budget. Indeed, the history of the Agricultural Division already exemplified the apparent inevitability of this process. Better, therefore, particularly given the current war needs, to start small by keeping the agricultural agency within the Interior Department. Such arguments nearly swayed the Senate, which barely rejected an amendment to downgrade the

¹⁸⁸ Cong. Globe, 37th Cong., 2nd Sess., 1690.

¹⁸⁹ Ibid., 37th Cong., 2nd Sess., 2014.

¹⁹⁰ Ibid., 37th Cong., 2nd Sess., 1690–1692, 1756; Lincoln, "First Annual Message."

¹⁹¹ *Department of Agriculture*, H.Rpt. 21, 37th Cong., 2nd Sess., 4, Serial Set Vol. No. 1144 Session Vol. No. 3.

¹⁹² "Directors, 1840-1865," U.S. Census Bureau http://www.census.gov/history/www/census_then_now/director_biographies/directors_1840_-_1865.html; Kennedy, *Agriculture of the United States in 1860*; *Journal of the United States Agricultural Society* 1:1 (Aug 1853): 19.

proposed agency to a bureau within the Interior Department. But once the final vote on the original bill took place, many more Senators fell into line, so that it passed easily, 25 to 13. The House quickly concurred in the changes and President Lincoln signed the bill into law on May 20, thus creating the Department of Agriculture.¹⁹³

The Land Grant Act followed soon after. The only material change in the law as it was passed and vetoed in 1859 was an increase in the land allotted to each state from 20,000 to 30,000 acres per member of Congress. The bill also now specified that the land grant colleges' annual reports should include "industrial and economical statistics," thus emphasizing its inherently economic intent. Though passage was never really in doubt, a small band of western Senators concerned about land speculation put up a determined resistance and succeeded in winning some concessions, the most important of which limited the amount of land scrip that could be located in any single state to one million acres. Unlike during the Senate debates of 1859, when southern Democrats such as Jefferson Davis had attacked the agricultural reform movement's basic institutional aims, the western Senators were careful to get on record, in the words of one, that "the establishment of agricultural colleges in our country must meet the approval of all thinking men." Agricultural reforms' political arrival was further underscored when Benjamin Wade noted that "most of the free States" had passed legislative resolutions instructing their Senators to support the bill. On June 10 the Senate voted 32 to 7 to pass the law and a week later the House did likewise by a count of 90 to 25.¹⁹⁴

Congressional Republicans had thus created the basic framework for a matrix of institutions that would fundamentally reshape American agriculture—that would, in fact, reshape agriculture the world over.¹⁹⁵ In subsequent years a series of further measures greatly expanded the scope of government agricultural institutions by elevating the USDA to cabinet-level status, adding new bureaus with extensive authority to set quarantines and conduct research, establishing a system of federally funded state experiment stations, and ultimately developing an extension service that reached into virtually every rural county in the United States. Justin Morrill's goal of providing "guidance" to the national economy had achieved very concrete institutional form.

Meanwhile the USAS, having accomplished its goals, promptly disbanded. Its members had always regarded the organization as a means of establishing federal agencies which, they assumed, would be headed by agricultural reformers such as themselves. Indeed, through the 1860s and 1870s all Commissioners of Agriculture came from the ranks of prominent antebellum reformers.¹⁹⁶ At the same time, however, new farmers' organizations appeared to advocate on all sides of the issues raised by the continuing transformation of American agriculture and to influence state and federal agricultural bureaucracies. At both the state and federal levels agricultural agencies focalized these activities. In some cases, new farmers' organizations were founded by bureaucrats, as was the case

¹⁹³ Cong. Globe, 37th Cong., 2nd Sess., 1755–1757, 2014–2017, 2216.

¹⁹⁴ *Ibid.*, 37th Cong., 2nd Sess., 2187, 2248–2250, 2275–2277, 2328–2329, 2394–2396, 2440–2443, 2625–2634, 2769–2770 (1862); quotations on pp. 2187, 2395, 2276, respectively.

¹⁹⁵ For the ways that officials from the USDA helped shape world agriculture not only through the science behind the "Green Revolution" but through social policy, see Daniel Immerwahr, "Quests for Community: The United States, Community Development, and the World, 1935–1970" (Ph.D. diss., University of California, Berkeley, 2011).

¹⁹⁶ Ross, "The United States Department of Agriculture During the Commissionership," 136.

with the Grange and, years later, with the Farmer's Bureau.¹⁹⁷ Years before the Progressive Era, these developments foreshadowed and helped initiate the interest-group politics with which we are now familiar.

¹⁹⁷ Oliver Hudson Kelley, *Origin and Progress of the Order of the Patrons of Husbandry in the United States: A History from 1866 to 1873* (Philadelphia: J. A. Wagenseller, 1875), 3; Grant McConnell, *The Decline of Agrarian Democracy* (Berkeley: University of California Press, 1959).

CONCLUSION

AGRICULTURAL REFORM AND THE MAKING OF NORTHERN ECONOMIC NATIONALISM

When it came to the domestic institutions embodied in the proposals for a federal Department of Agriculture and the Morrill Act, southern Democrats clashed bitterly with northern Republicans. But things went very differently when the agricultural reform movement made demands on American foreign policy. In this instance southerners cooperated easily with northerners to address the country's agricultural needs, even in the face of several diplomatic scrapes that, on at least one occasion, nearly led to armed conflict. At stake was a cheap source of guano, the mid-nineteenth century's miracle fertilizer. High prices exacted by the Peruvian state guano monopoly raised outcries of protest from many American farmers. Agricultural reformers thus mobilized "a powerful organized effort . . . in Washington." In 1856, for example, some sixty to seventy agricultural reformers attended a "Guano Convention" in the capital to demand federal action.¹ By that time Congress had delved into the "guano question" no less than nine times while two presidents had addressed the matter directly in their annual messages.² Unable to force Peru into altering its leading revenue policy, the government finally achieved a measure of success when it shifted focus to the exploration of new deposits by passing the Guano Islands Act (1856).

Though only partially effective, such congressional and executive efforts amounted to the implementation of a definite state policy. The government's capacity to act in this case contrasts strikingly with the sectional paralysis that kept a federal agricultural agency buried for well over a decade and that eventuated in Buchanan's veto of the Morrill bill.³ Antebellum guano policy thus illustrates southern Democrats' dichotomous attitude toward the federal government. In domestic matters, southern Democrats were strict constructionists determined to limit federal power; in foreign matters, they were advocates of strong national capacity and action. This situation produced policy gridlock precisely on those issues that mattered most to northerners oriented toward the domestic economy rather than to export markets. Not only the Morrill Act and the Department of Agriculture, but the tariff and other domestic development policies were stymied by southern Democrats' restrictive view of federal powers at home. In contrast, coastal merchants found little to complain about and tended to support slaveholder prerogatives. Clashes over federal development policy thus helped to structure national political coalitions.

¹ *Farmers' Cabinet* 52 (10 Nov 1853): 2; *Journal of the United States Agricultural Society* 2 (1854): 20; *DeBow's Review* 20 (Jun 1856): 745; *Southern Planter* 16 (Aug 1856): 244.

² Kenneth E. Shewmaker, "'Untaught Diplomacy': Daniel Webster and the Lobos Islands Controversy," *Diplomatic History* 1, no. 4 (October 1, 1977): 323-325; Jimmy M. Skaggs, *The Great Guano Rush: Entrepreneurs and American Overseas Expansion* (New York: St. Martin's Press, 1994), 11-15; Millard Fillmore, "First Annual Message," December 2, 1850; Franklin Pierce, "First Annual Message," *The American Presidency Project*, December 5, 1853, <http://www.presidency.ucsb.edu/sou.php>.

³ Sarah T. Phillips, "Antebellum Agricultural Reform, Republican Ideology, and Sectional Tension," *Agricultural History* 74, no. 4 (Autumn 2000): 800.

The seriousness with which federal officials approached the guano problem, and their responsiveness to merchants' interests, is exemplified by an episode known as the Lobos Islands Affair, which very nearly involved the United States in hostilities with Peru. As it became clear by the early 1850s that direct negotiations over guano prices were going nowhere, American merchants turned to searching out new guano deposits. In 1852 a group backed by New York merchant Alfred Benson convinced Secretary of State Daniel Webster that the Lobos Islands, a small but guano-rich archipelago off the Peruvian coast, were unclaimed. Webster ordered naval protection for Americans seeking to exploit the deposits and Benson fitted out a large fleet of guano ships. It quickly turned out, however, that Peru had valid claims to the islands and had declared their guano deposits strictly off limits. With the American merchant fleet heavily armed and already underway, an international clash appeared inevitable. Last minute diplomacy averted the crisis yet left the American guano market no better supplied.⁴ "If we could fight Peru alone we should lay her by the heels to-morrow," opined one press correspondent, "but as England is her close creditor and fast ally, we must keep the peace or fight both."⁵

Alfred Benson, however, was far from through. In 1855 he formed the American Guano Company, reportedly capitalized at \$10 million, to mine guano on the remote Pacific islands of Baker and Jarvis.⁶ Benson then got the Pierce administration to send two naval vessels to inspect the islands and, acting through William Seward, petitioned Congress to have his company's claims to the islands confirmed.⁷ Benson also began to publicize the new discoveries. He sent samples to the Patent Office's Agricultural Division for analysis and promoted his product to prominent agricultural reformers. As we saw in Chapter 2, the strongest demand for guano came from the Chesapeake area. The Richmond-based *Southern Planter* thus "congratulate[d] the farmers of Virginia upon the bright prospect before them of obtaining guano at a much more reduced price than at present."⁸ Meanwhile other entrepreneurial American merchants were laying claims to additional guano islands in the Pacific and Caribbean. By this time an international race was underway. Prodded by Benson's discoveries, the influential Farmers' Club of the American Institute resolved at a meeting in June 1855 that "it is the duty of the American Government to assert its sovereignty over any and all barren and uninhabitable guano islands of the ocean which have been or hereafter may be discovered by citizens of the United States."⁹

⁴ Skaggs, *Great Guano Rush*, 17–34; Shewmaker, "Untaught Diplomacy."

⁵ *Pittsburgh Daily Gazette*, 17 Aug 1852, p. 2.

⁶ The \$10 million capitalization may seem incredible, but while the figure might very well have been inflated, the capital costs of guano mining were indeed significant. Guano islands were typically small, barren, and isolated, especially in the Pacific. Everything had to be shipped in, including food, water and building materials. Construction included not only shelters for sometimes scores of workers but loading facilities such as railroad tracks, wharves, and off shore moorings. Moreover, the waters around these rocky outcroppings were so treacherous that some marine insurers came to explicitly proscribe covered ships from traveling to guano islands, thus further adding to costs. Cong. Globe, 34th Cong., 1st Sess., 1740; Skaggs, *Great Guano Rush*, 59-60, 71, 78, 155-157, 166, 172-173; Eugene Gaussoin, *Memoir on the Island of Navassa* (Baltimore: J.B. Rose & Co., 1866), 5; *Hunt's Merchant Magazine* 34 (Apr 1856): 436.

⁷ Skaggs, *Great Guano Rush*, 53–55.

⁸ *Southern Planter* 16 (May 1856): 144; for Benson's communications with the Patent Office, see Courtney Fullilove, "The Archive of Useful Knowledge" (Ph.D., Columbia University, 2009), 247–250; see also *New York Times* 16 May 1855, p. 4; *Journal of the United States Agricultural Society* 5 (1857): 11, 61; *Transactions of the American Institute of the City of New York* 17 (1858): 179.

⁹ *American Farmer* 11 (Jan 1856): 203–204; *Prospectus of the American Guano Company* (New York: John F. Trow, 1855), 6–7.

Within little more than a year Congress did just what the Farmers' Institute proposed by passing the Guano Islands Act, a bill aimed at securing cheap guano for American farmers by doing three things. First, it provided for the addition to American territory of any island containing guano and claimed by an American citizen so long as it did not already belong to another country. Second, it gave the claimant, at the pleasure of Congress, the exclusive right to exploit the island's deposits. It also explicitly authorized the president to call on the U.S. Navy to protect Americans operating under these provisions. Finally, the guano itself was subjected to price limits and would be treated as part of the coastal trade, thus mandating its initial shipment to American ports aboard American vessels. Favored with such protections, seaboard merchants took immediate notice. By 1859 the *Journal of the American Geographical and Statistical Society* was reporting that the law had led to "a vast amount of exploration and discovery." All told the State Department would recognize seventy claims to guano islands throughout the Pacific and Caribbean.¹⁰

To the extent that historians of the United States have considered the Guano Islands Act, they have seen it in the context of American empire. After all, the islets claimed under the law, several of which remain in American possession, marked the first additions of overseas territory. The fact that William Seward, an empire builder if ever there was one, sponsored the bill certainly bolsters the traditional view.¹¹ But the Guano Islands Act fits awkwardly into a story of territorial expansion. The law was carefully worded to limit American responsibility for any islands claimed under its authority, even providing for the relinquishment of such territories once guano deposits were exhausted.¹² On the other hand, it certainly promoted commercial expansion and in this regard there can be little doubt that Seward hoped to aid American merchants in general and Alfred Benson in particular.

But the guano bill was also agricultural policy. And from this perspective what appears most significant is the bisectional collaboration that made it possible. Joining Seward in drafting the bill and shepherding it through the Senate was the arch-southerner James Murray Mason, who at that very moment was threatening secession and who would later denounce the Morrill bill in almost apocalyptic terms.¹³ The willingness of these two sectional champions to work closely together is striking. At one point in the Senate's discussion, in fact, Mason seemed to engage in a deliberate provocation. In his view, guano mining was so unpleasant that the Peruvian government had

¹⁰ *Journal of the American Geographical and Statistical Society* 1 (June 1859), 188; *United States Statutes at Large*, 11 (1855-1859), 119-120; Christina Duffy Burnett, "The Edges of Empire and the Limits of Sovereignty: American Guano Islands," *American Quarterly*, 57 (Sept. 2005), 788.

¹¹ On Seward's empire building, see Ernest N. Paolino, *The Foundations of the American Empire: William Henry Seward and U.S. Foreign Policy* (Ithaca, NY: Cornell University Press, 1973). One historian quips that if Alaska is "Seward's Icebox," the guano islands are surely "Seward's Outhouse" (Skaggs, *Great Guano Rush*, 51).

¹² Christina Duffy Burnett, "The Edges of Empire and the Limits of Sovereignty: American Guano Islands," *American Quarterly* 57, no. 3 (September 2005): 780-782.

¹³ David Morris Potter, *The Impending Crisis, 1848-1861* (HarperCollins, 1976), 262; Cong. Globe, 34th Cong., 1st Sess., 1696-1700, 1739-1743; 36th Cong., 1st Sess., 1352-1354, 1424-1427, 2nd Sess., 1340, 1406, 1409, 1411. The absence of sectional confrontation in the case of the Guano Islands Act cannot be attributed to a lack of interest. Several Senators noted that it codified a policy both important and unprecedented, and in 1860 Congress returned to the matter to pass a supplementary bill. In both instances debate centered on how to craft effective legislation and Senators from each section could be found on all sides of the issue. For example, when Senators from Maine and Virginia worried about the monopoly privileges that the bill conferred on discoverers, Seward and Mason defended the provision as indispensable. Without it, they argued, no merchant would risk the capital to find and exploit new deposits (1698-1699, 1739-1741).

“resorted at last, as the whole world now seems to be resorting, Abolitionists and all, to the great hordes of China . . . and has been driven at last to bring shiploads of Coolies under pretenses.”¹⁴ Mason was certainly right to imply that the Chinese miners on Peru’s guano islands labored under conditions little short of slavery. These workers faced a doubly cruel fate, mistreated by employers and nature in almost equal measure. The environment was unbearably hot and literally toxic as prolonged exposure to guano led to coughing up blood, fainting spells, and even temporary blindness. In these conditions employers forced miners to labor twenty hours a day with only two inadequate meals and they administered punishments ranging from whippings to attacks by dogs. Festering sores from constant handling of picks and shovels left some workers unable to use their hands, yet instead of being given rest and medical treatment, they were yoked to wheelbarrows to serve as beasts of burden. Visitor after visitor described the conditions as nothing short of hell on earth.¹⁵

Seward, who had studied the guano question thoroughly, must have known these facts well. Yet neither he nor any other Republican Senator responded to Mason’s implication that the effectiveness of the Guano Islands Act might ultimately depend on unfree labor. In fact, there is good reason to believe that had the Civil War not intervened, American guano firms, many of which were based in Baltimore, would have used slaves. The Baltimore merchant Edward O. Cooper and his son Edward Kernan Cooper, for example, contracted with the state of Maryland to provide convict labor for their guano mining operation on Navassa Island in the late 1850s and, after the Civil War, employed hundreds of black laborers whom the *New York Times* described as “slaves under our flag” at so late a date as 1891.¹⁶ Because the Guano Islands Act treated the commerce under its purview as part of the coasting trade, there appears to have been nothing in American law to have prevented use of slaves, though the British Navy may have posed an obstacle.¹⁷ In any event, the condition of guano workers aside, Seward understood that his legislation aimed mainly at improving slave agriculture. “Every one knows,” he said, that “it is more especially in these southern States that the article is demanded.”¹⁸ Presumably, then, economic nationalism trumped antislavery conviction in this case.

James Murray Mason’s role is no less remarkable. In light of his violent opposition to federal support of agricultural education, Mason’s statement that guano entrepreneurs needed “the arm of Government . . . extended over them” may appear puzzling, as might his insistence on federal price

¹⁴ Cong. Globe, 34th Cong., 1st Sess., 1740. In the 1850s southerners helped develop a political language that portrayed “coolieism” as even worse than slavery; Moon-Ho Jung, “Outlawing ‘Coolies’: Race, Nation, and Empire in the Age of Emancipation,” *American Quarterly* 57, no. 3 (2005): 684-685, 690-692 (I thank Dael Norwood for this citation).

¹⁵ Arnold J. Meagher, *The Coolie Trade: The Traffic in Chinese Laborers to Latin America 1847-1874* (Xlibris Corporation, 2008), 224-227; Skaggs, *Great Guano Rush*, 159-161. According to the eleventh edition of the *Encyclopedia Britannica* (1910-1911), “in 1860 it was calculated that of the four thousand coolies who had been fraudulently consigned to the guano pits of Peru not one had survived. The greater number of them had committed suicide” (v. 7, p. 77).

¹⁶ Skaggs, *Great Guano Rush*, 99-104, 174-177; Gaussoin, *Memoir on the Island of Navassa*, 6; *New York Times*, 14 May 1891, p. 9. The workers’ contracts stipulated that failure to obey all company orders would result in total forfeiture of wages; a company store, the only source of supplies on the island, frequently left workers with a negative balance after their terms of labor expired; workers were subjected to corporal punishment; finally, workers were sometimes kept on the island against their will past the maximum fifteen-month term of labor.

¹⁷ Joseph Blunt, *The Shipmaster’s Assistant and Commercial Digest* (New York: E. & G. W. Blunt, 1854), 521.

¹⁸ Cong. Globe, 34th Cong., 1st Sess., 1697-1698.

controls.¹⁹ The puzzle disappears, however, when one looks at the span of Mason's political career, which nicely illustrates southern Democrats' dichotomous approach to national power. The great grandson of George Mason, James was heir to a long tradition of anti-federalism. He was also an outspoken advocate of slavery and, after election to the Senate in 1847, quickly allied himself with the likes of John Calhoun and Robert Barnwell Rhett.²⁰ A member of the influential group of southern Democratic Senators known as the "F-Street Mess," Mason emerged as one of the most powerful figures in the upper chamber. In 1849, speaking against the proposal for a new Department of the Interior, he spelled out his views on the proper federal sphere. "Was not the Government devised, planned, and organized," he asked rhetorically, "to manage the exterior, the foreign relations of the States?" Mason feared that an Interior Department would bring the "industrial pursuits of our people . . . within the vortex of Federal action," but the "industrial pursuits" he had in mind were only domestic.²¹ When it came to commercial activities beyond American shores, he favored the vigorous exercise of national power. As chairman of the Senate Foreign Relations Committee throughout the 1850s, he struck an aggressive stance in the controversy with Britain over coastal fisheries and repeatedly pushed diplomatic efforts to expand foreign markets.²²

In accordance with such views, Mason presided over State Department reforms in the 1850s that created the position of Assistant Secretary of State and professionalized the diplomatic and consular services. Other southerners joined him in this effort. No less a firebrand than John C. Calhoun had recommended expanding the country's diplomatic corps, including support staff in Washington. When the reforms were carried through in 1855 and 1856, Mason led the effort in the Senate while the future chairman of the Louisiana secession convention did so in the House. Significantly, the leading role that such southern nationalists took in these administrative reforms paralleled the role that southerners such as Abel Upshur, Matthew Maury and James Dobbin played in naval reform. Moreover, just as the new Navy was designed to enhance executive power by streamlining its command structure, Mason consistently argued that the president must have "supreme control, free from the intervention of legislation, over the diplomatic service."²³

This kind of state building contrasts sharply with the southern hostility toward the Morrill Act and the Department of Agriculture. But as one southerner insisted in an essay urging a more assertive and capable American diplomacy, "whatever may be the width of our political *domestic differences*, our *foreign* policy has generally been [the] subject of *agreement*." He added that "the Ambassador represents no financial differences, no constitutional constructions."²⁴ Thus whereas

¹⁹ Ibid., 34th Cong., 1st Sess., 1699.

²⁰ Robert W. Young, *Senator James Murray Mason: Defender of the Old South* (Knoxville: University of Tennessee Press, 1998); see also Mason's entry in *American National Biography Online*.

²¹ Virginia Mason, *The Public Life and Diplomatic Correspondence of James M. Mason: With Some Personal History* (Roanoke, VA: The Stone Printing and Manufacturing Co., 1903), 68.

²² Young, *Senator James Murray Mason*, 65–66.

²³ Cong. Globe, 33rd Cong, 2nd Sess., 244–248, 916–919; 34th Cong, 1st Sess., 1797–1799 (quotation on p. 1798); Elmer Plischke, *U.S. Department of State: A Reference History* (Westport, CT: Greenwood Press, 1999), 125–127; Matt Karp, "Slavery and American Sea Power: The Navalist Impulse in the Antebellum South," *Journal of Southern History* 77 (May 2011): 283–324.

²⁴ William Henry Trescot, *A Few Thoughts on the Foreign Policy of the United States* (Charleston, SC: John Russell, 1849), 23–24 (emphasis in original).

many southerners feared that anything but strict and vigilant limitation of federal domestic powers might threaten slavery, they believed that international commercial expansion served their slave-based agricultural export economy very well.²⁵ There was more to this belief than pure interest. Even non-cotton areas of the South seemed to subscribe to the view that international trade drove economic prosperity. In 1857 the *Southern Planter*, which was edited by Edmund Ruffin's son, publicly opposed a federal Department of Agriculture, arguing that "the indirect action of Congress in extending our commerce as our expanding enterprise requires has aided us more than its direct action could have done."²⁶ From this perspective the imperial boldness of the Guano Islands Act made perfect sense.

This story may not surprise southern historians. Numerous scholars have argued in a variety of ways that slaveholders' principled case against a strong federal government was highly instrumental and easily abandoned when federal power seemed to serve slaveholder interests. This was particularly the case when it came to the projection of national power overseas.²⁷ But what were the political consequences of a national state that could promote economic development abroad but not at home at a time when the domestic economy had become more important than international trade? If, as agricultural editor James Mapes boldly proclaimed, "ere long our internal commerce will represent an amount equal to the foreign commerce of the world," what did that mean for the federal government?²⁸

Juxtaposing southern Democrats' aggressive, "Cuba-stealing" foreign policy with their domestic obstructionism, Republican newspaper editors sought to imbue the Slave Power concept with concrete meaning. While the Morrill bill "contemplates the improvement of our own country," they alleged, the slaveholder-ruled Democratic Party preferred "foreign intrigues, which result in nothing."²⁹ Privately, Henry Carey's good friend Stephen Colwell denigrated southern leaders' unbounded confidence in export markets. "Heaven help the South if such minds are to shape their policy or legislation," he noted to himself.³⁰ Thus just as southern Democrats came to speak of strict construction when what they wanted was protection for slavery, many northern Republicans came to speak of the Slave Power when what they wanted was federal promotion of the domestic economy. The battle over the Morrill Act demonstrates this dynamic with particularly clarity because, unlike the tariff or even internal improvements, there was nothing sectional about its actual

²⁵ On the South's export orientation, see Brian Schoen, *The Fragile Fabric of Union: Cotton, Federal Politics, and the Global Origins of the Civil War*, Studies in Early American Economy and Society (Johns Hopkins University Press, 2009).

²⁶ *Southern Planter* 17 (Jan 1857): 7.

²⁷ Don E. Fehrenbacher, *The Slaveholding Republic: An Account of the United States Government's Relations to Slavery* (Oxford, 2002); Matt Karp, "Slavery and American Sea Power"; Matt Karp, "Sectional Rights, National Power: Jefferson Davis and the U.S. Army, 1849-1860" (paper presented at the Annual Meeting of the Society of Historians of the Early American Republic, July 2011); see also John H. Schroeder, *Shaping a Maritime Empire: The Commercial and Diplomatic Role of the American Navy, 1829-1861* (Westport, CT, 1985); for other examples of southern statism, see Gautham Rao, "The Federal Posse Comitatus Doctrine: Slavery, Compulsion, and Statecraft in Mid-Nineteenth-Century America," *Law and History Review* 26 (Spring 2008); Richard Franklin Bensel, *Yankee Leviathan: The Origins of Central State Authority in America, 1859-1877* (Cambridge, 1990), 94-237; John Majewski, *Modernizing a Slave Economy: The Economic Vision of the Confederate Nation* (Chapel Hill, 2009), 53-162.

²⁸ *Working Farmer* 7 (Jun 1855): 73.

²⁹ *Pittsburgh Daily Gazette*, 25 Feb 1859, p. 1; *New York Daily Tribune*, 28 Feb 1859, 4.

³⁰ Isaac R. Davis to Colwell, 11 Jun 1852, Stephen Colwell Papers, 1838-1866, University of Pennsylvania, Rare Book and Manuscript Library Collection. Colwell's note appears in pencil on the back of the letter.

provisions, nor was it saddled with a prehistory of Jacksonian-era partisanship. If anything, it offered more to a southern economy where declining soil fertility and adverse environmental factors appear to have been worse than in the North.³¹ As Benjamin Wade noted, the bill had “been favored by almost every agricultural society that has met and had it under consideration.”³² Although several of these societies represented slave states while Democrats were active in reform organizations both North and South, the fierce opposition from southern Democrats ensured that Buchanan’s veto redounded almost entirely to the benefit of the Republican Party.

The significance of the Morrill Act debates, however, extends more widely. Getting legislation for agricultural colleges through Congress represented a signal triumph for the agricultural reform movement with regard to its specific agenda. But the movement also comprised a much broader nationalist ethos and developmental program. As we have seen, northeastern agricultural reformers strongly tended to favor public education and the tariff. Internal improvements have received relatively little attention in this study, but of course, in an agrarian economy, transportation policy was agricultural policy. Not surprisingly, agricultural reformers overwhelmingly favored state-supported transportation infrastructure.³³ More generally, they relentlessly advocated a vision of scientific and technological progress as essential to American destiny. The movement thus institutionalized expression of the Republican developmental synthesis throughout the northern countryside and ineluctably shaped the ways that northerners thought about state and economy. By promoting a vision of government-backed national development, the reform movement helped set the stage on which political abolitionists could cast the Slave Power in the role of tyrant.³⁴

If the Slave Power discourse of the 1850s thus returned northerners to positions they had taken up previously during the Missouri Crisis, there was also a crucial difference. In 1820 there were no broadly organized movements advancing claims on the national state. Instead there was a network of leading individuals engaged in labyrinthine personal power struggles.³⁵ But by the 1850s the growth of the domestic economy and of the agricultural reform movement had substantially changed the northern countryside, reorienting the North’s majority toward a program of domestic development. In this context slaveholders’ defense of their sovereign prerogatives did not amount to

³¹ John Majewski and Viken Tchakerian, “The Environmental Origins of Shifting Cultivation: Climate, Soils, and Disease in the Nineteenth-Century US South,” *Agricultural History* 81, no. 4 (October 1, 2007): 522–549; Steven Stoll, *Larding the Lean Earth: Soil and Society in Nineteenth-Century America* (New York: Hill and Wang, 2002), 73, 78–79.

³² Cong. Globe, 35th Cong., 2nd Sess., 712.

³³ Albert Lowther Demaree, *The American Agricultural Press, 1819-1860*, Columbia University Studies in the History of American Agriculture 8 (New York: Columbia University Press, 1941), 75; Eric Carlos Stoykovich, “In the National Interest: Improving Domestic Animals and the Making of the United States, 1815-1870” (Ph.D. diss., University of Virginia, 2009), 40–41.

³⁴ For the ways in which political abolitionists converted Congress into a theater for the performance of slavocratic tyranny, see Corey Brooks, “Building an Antislavery House: Political Abolitionists and the U.S. Congress” (Ph.D. diss., University of California, Berkeley, 2010).

³⁵ The outburst of sectional feeling manifested during the Missouri Crisis occurred in an isolated, undeveloped capital city south of the Mason-Dixon Line where northern members of Congress confronted the aristocratic pretensions of the master class face to face. In this context emotions flared quickly and explosively but negotiation and conciliation were also possible. Defending a clear and immediate interest where northerners were not, moderate slaveholding southerners such as Henry Clay and James Monroe engineered a compromise. Padraig Griffin Riley, “Northern Republicans and Southern Slavery: Democracy in the Age of Jefferson, 1800-1819” (Ph.D., University of California, Berkeley, 2007), especially 281–420; Robert Pierce Forbes, *The Missouri Compromise and Its Aftermath: Slavery & The meaning of America* (Chapel Hill: University of North Carolina Press, 2007), chap. 2–3.

a contest of wills among politicians in Congress or even to a fight over republican principles. This time around, slaveholder anti-federalism faced a broad developmental mandate instantiated in concrete policy proposals and backed by a massive organized movement.

“HAVE WE GOT A GOVERNMENT?”

The careers of several northern agricultural reformers illustrate the complicated ways in which the institutions of agricultural reform effectively promoted a logic of national development that inevitably led to clashes with southern anti-federalism. To varying degrees, each of the figures I discuss below began from an ideological position based on the Whig American System coupled with hostility to slavery and special attention to agricultural reform. By 1860, their view of things represented the mainstream of northern attitudes toward economic development, the role of state policy, and the importance of scientific agriculture.

The politician and reformer John Alsop King acquired his basic political outlook from his father, the eminent Federalist Rufus King, who had famously sought to undo the three-fifths clause and to ban territorial slavery in order to break the power of the slave states over the federal government.³⁶ The younger King lived the life of a country gentleman on a working estate in Jamaica village, Queens County, New York, still an agricultural region in the antebellum period. There he promoted a variety of local internal improvements, the most important of which was the Brooklyn and Jamaica Railroad, for which he secured the charter as an assemblyman in 1832 and subsequently served as president. But King appears not to have been an aristocrat by inclination. Keenly interested in agriculture, he is said to have “applied himself industriously, spending long hours plowing, sowing, reaping and helping to erect fences and out-buildings.”³⁷ Politically he allied himself with the Seward wing of the New York Whig organization rather than with its merchant conservatives. As we saw in Chapters 4 and 5, he also played a prominent role in numerous agricultural institutions, including the New York State Agricultural College and the agricultural societies of Queens County, New York State, and the United States.

In his public statements King consistently identified the institution of slavery with the weakening of the North’s ability to enact favorable development policies. As early as 1840 his opponents accused him of abolitionism for his stand in favor of the “rights of petition,” a charge that may have contributed to the defeat of his bid for reelection to the Assembly the following year.³⁸ Unbowed, King opposed the annexation of Texas, arguing in 1844 that at issue was “whether

³⁶ Robert Ernst, “Rufus King, Slavery, and the Missouri Crisis,” *New-York Historical Society Quarterly* 46 (October 1962): 374–376.

³⁷ Robert Ernst, “John A. King, Republican Patriot,” *New York History* 79 (April 1950): 131–134 (quotation on 134); *Union League of New York: Proceedings in Reference to the Death of Hon. John A. King, July 11th, 1867* (New York, 1867), 4; David Gary, “Mundane Radicalism: Enlightenment Thinking and Free Labor Politics on Rufus King’s Long Island Farm,” unpublished manuscript in author’s possession, 25, 52–53.

³⁸ For the abolitionism charged, see John C. Smith to John Alsop King, Mar 1840, Box 1, John Alsop King Papers, New-York Historical Society; for King’s Sewardite credentials, see his draft letter to Seward, 12 Nov 1841, Box 1; also W.S Smith to King, 6 Jan 1848, Box 1, and O. Browne to King, 5 Nov 1852, Box 1, King Papers.

by making new slave-holding states, the justly acquired power of the free states shall be impaired.”³⁹ That year New York Whigs very nearly made him their candidate for Lieutenant Governor. What prevented them from doing so was not his being on the wrong side of slavery but his being on the wrong side of anti-rentism. The holder of the Blenheim leasehold, King had come under attack by tenants who challenged his title and refused to pay further rent for land they believed they had paid for quite enough. While neither Democrats nor Whigs did much of substance to support the anti-renters’ claims, both parties attempted to harness the issue for electoral gain in classic Jacksonian fashion. King’s identification with the landlords—as well, perhaps, as his Federalist heritage—thus formed a serious political liability. Very shortly, however, he resolved the matter by selling out to his tenants, thus opening the door to a political comeback.⁴⁰ Elected to Congress in 1848, he rose to new prominence by linking northern development with antislavery during debates over the Compromise of 1850. “Upon principles of public policy,” he explained, “the North is opposed to the extension of slavery; and, as its varied labor is affected by the legislation of Congress, in which the united vote of one great section of this country is too often found in opposition to the protection of its labor and industry, in interest, too, the North is opposed to the extension of slavery.”⁴¹

Evidently King believed that slavery stood in the way of the tariff. But his statement must be scrutinized, because it is easy to read the words “labor” and “industry” to mean workers and manufacturers. In fact, as the opening reference to “varied labor” indicated, King was talking as much about agriculture as about what we would call industry, for he fully subscribed to the principle of integrated rural-urban growth. Speaking before his local farm organization less than two years earlier, for instance, he delivered a concise brief for the Republican developmental synthesis. Western Long Island’s unsurpassed soil fertility followed from the availability of nearby urban fertilizers, he explained, while the region’s farmers, through “great sagacity and persevering industry,” had effectively responded to the “inducement” of “a great and steady market” by

³⁹ Notes for “mass meeting” at Hempstead, NY, dated October 1844, Box 1, John Alsop King Papers, New-York State Historical Society (hereafter, NYHS).

⁴⁰ John Alsop King to Blenheim tenants (printed circular), Jul 1844; King to James C. Forsyth, 23 Aug 1844; Charles P. Kirkland to King, 15 Sep 1844, Box 1, King Papers, NYHS; Charles W. McCurdy, *The Anti-Rent Era in New York Law and Politics, 1839-1865*, Studies in Legal History (Chapel Hill: University of North Carolina Press, 2001), 61, 95, 169–170, 179, 226, 232; Thomas Summerhill, *Harvest of Dissent: Agrarianism in Nineteenth-Century New York* (Urbana, IL: University of Illinois Press, 2005), 34, 44, 62–63, 76, 90, 139. King receives little sustained attention in either McCurdy’s or Summerhill’s account, but altogether he comes off as a proprietor determined to protect his financial stake in the Blenheim Patent but not dogmatically committed to defeating the anti-renters. In any event he succeeded in resolving the issue quickly by offering his lands for sale on terms acceptable to the great majority of his tenants, whereas other landlords held out bitterly for decades. King’s success at burying the hatchet with anti-renters is attested by his good showing in anti-rent counties when he ran for governor in 1856 (Summerhill 255n95–96). For more on the political parties’ treatment of the anti-rent issue, see Reeve Huston, *Land and Freedom: Rural Society, Popular Protest, and Party Politics in Antebellum New York* (New York: Oxford University Press, 2000).

⁴¹ John Alsop King, *Speech of Mr. John A. King, of New York, on the Admission of California; Delivered in the House of Representatives, June 4, 1850* (Washington: Gideon & Co., 1850), 6. In this case Rufus King’s legacy became an asset. When a correspondent wrote to John King, “it is not my horror of black slavery . . . but it is the enervating effect which the institution has on all that makes our nation great and glorious that makes me anxious to guard our virgin soil from its withering blight,” King noted his response that “I stood where my father stood on the question of slavery”—i.e., against it. Edward H. Leaman to King, 15 May 1850, Box 1, John Also King Papers, NYHS. King also made sure to have articles published setting out his father’s antislavery, anti-Southern position during the Missouri Crisis.

adopting a “new system of agriculture.” As a result they now commonly took two crops per season instead of one.⁴²

By 1856 King was a leading New York Republican and a delegate to the party’s national convention, as he would again be four years later. In between he served as New York’s Republican governor.⁴³ Known as a moderating figure, he was chosen to attend the Peace Convention in 1861. Constituents and friends advised him with one voice to stand firm for the North in that meeting. “Suffer me to say,” one correspondent wrote, “that in the interior of the state, among the masses, there is no disposition ‘to back down’ or surrender our republican principles.” Another insisted on the fundamental importance of preserving the 1860 Republican platform, which began with a litany of complaints against slavocratic aggressions and ended with a checklist of developmental policies. “The people have approved its principles, and a President has been elected upon the issues raised by it—how then can we now, under menace, repudiate it?”⁴⁴ King’s friend James A. Hamilton, another son of an illustrious Federalist but, unlike King, a former Democrat, insisted first and foremost on the integrity of the national governing authority. While he was initially willing to compromise on the matter of slavery, he adamantly demanded a southern repudiation of the idea that the Constitution was a compact among sovereign states rather than the founding document of an integrated nation. The important question, he believed, was “have we got a Government?”⁴⁵

King’s fellow agricultural reformer, Lewis Falley Allen, expressed a harder line in almost the same terms. “No-*sir-ee*, we don’t back down a hair,” Allen insisted. “The question whether we have got a government capable of taking care of itself, and that government *a free* one, as our fathers intended it, may as well be settled now, as ever.”⁴⁶ Though Allen couched his stand in terms of freedom, like Hamilton he demanded a national government that could *do* things. Allen and his brothers were prominent upstate agricultural improvers who at one point or another had their hands in virtually every facet of the reform movement. They engaged in orchard cultivation and stock breeding, founded a highly successful farm journal (the *American Agriculturist*), ran a large agricultural supply business, manufactured plows and other implements, and participated actively in numerous agricultural organizations. Lewis Allen, in fact, had helped kick start the modern agricultural reform movement by leading the first mass meeting to demand renewed public funding of agricultural

⁴² John A. King, *An Address, Delivered October 6th, 1848, at the Seventh Annual Exhibition of the Queens County Agricultural Society, at Jamaica, Long Island* (Jamaica, NY: Charles S. Watrous, 1849), 8–12. For some indication of the fertilizer trade, see William E. Morris to King, 7 Feb 1853, Box 1, John Also King Papers, NYHS. Morris, the president of the Long Island Railroad Company, writes to explain that there have been complaints about the smell of stable manure at the South Ferry railroad depot, leading to suggestions that “ashes, lime and street-dirt only ought to be forwarded during the summer months and that in the fall, winter and spring all kinds to be forwarded.”

⁴³ Ernst, “John A. King, Republican Patriot,” 142–146.

⁴⁴ Henry Fitzhugh to King, 19 Feb 1861; Henry J. Leaman to King, 17 Feb 1861, Box 2, John Also King Papers, NYHS.

⁴⁵ James A. Hamilton to King, 16 Feb 1861, Box 2, John Also King Papers, NYHS. Manufacturer George Vail wrote to King on February 14 to inform him of the hardship his workers were suffering as a result of the suspension of business engendered by the secession crisis, yet, while he hoped for a peaceful resolution, he refused to concede “any principles worthy of speaking of.” After the firing on Fort Sumter, Hamilton insisted on overturning the Three-Fifths and Fugitive Slave Clauses as well as on “a most explicit declaration that the Constitution was formed by the People not by the States” (Hamilton to King, 9 May 1861). On Hamilton’s Democratic Party connections, see James Alexander Hamilton, *Reminiscences of James A. Hamilton: Or, Men and Events, at Home and Abroad, During Three Quarters of a Century* (New York: C. Scribner & Co., 1869).

⁴⁶ Lewis F. Allen to King, 7 Jan 1861, Box 2, John Also King Papers, NYHS.

societies and by frequently contributing to the pioneer agricultural journal of western New York, the *Genesee Farmer*.⁴⁷ The Allens were also thoroughgoing utilitarians and developmentalists. Only a couple of months before writing to King to stand firm at the Peace Convention, Lewis Allen had written him to celebrate enlargement of the state canal system.⁴⁸ Several years later Richard Allen advised his son, “Look thoroughly to the substructure, the foundations of society . . . See all that is attractive, but treasure up for future use only what is useful.”⁴⁹

The Allens’ views on slavery, whatever they may have been, did not prevent them from briefly setting up shop in New Orleans or from selling as many as 10,000 plows annually to southern customers.⁵⁰ Yet they had little regard for the southern way of doing things. The very first lines of a series of “Letters from the South,” written by Richard Allen for publication in the *American Agriculturist*, made that abundantly clear:

After leaving Baltimore, there is soon visible a striking deficiency in the cultivation, in comparison with that of the north; though this difference is less apparent in Maryland than farther south, as the manufacturing spirit already developed in that State is manifest in new and thriving villages occasionally springing up. The increased demand and value of agricultural products, necessarily induces attention to the cultivation of the soil.⁵¹

Like King, Allen articulated the logic of the Republican developmental synthesis and stressed the importance of the tariff for agriculture. Lacking cities and manufacturing, he suggested, southern farming remained backwards.

Allen made this point even more explicitly in his third letter. “Scanty and penurious” as was the soil of the Northeast, “what an augmentation of wealth, population, and resources, has the union of the mechanic arts with their well suited agricultural labor, given to the middle and northern portion.” On the other hand, the commercial torpor of Charleston, Savannah and Augusta, as well as the undeveloped state of their hinterlands, were directly attributable to the lack of local

⁴⁷ Ulysses Prentiss Hedrick, *A History of Agriculture in the State of New York* (Albany, NY: Printed for the New York State Agriculture Society, 1933), 383; Richard Lamb Allen, *Last Letters of Richard L. Allen* (New York: Dodd & Mead, 1871), 3–8; Donald B. Marti, “Agricultural Journalism and the Diffusion of Knowledge: The First Half-Century in America,” *Agricultural History* 54, no. 1 (January 1980): 35; Donald B. Marti, “Early Agricultural Societies in New York: The Foundations of Improvement,” *New York History* 48 (October 1967): 326; Emily Pawley, “‘The Balance-Sheet of Nature’: Calculating the New York Farm, 1820-1860” (Ph.D., University of Pennsylvania, 2009), 57; World Biographical Information System Online, American Biographical Archive, Series I, 17, 417; Lewis F. Allen, *Rural Architecture Being a Complete Description of Farmhouse, Cottages, and Outbuildings* (New York: C.M. Saxton, 1852); Lewis F. Allen, *American Cattle: Their History, Breeding and Management* (New York: Taintor Bros. & Co, 1868); Richard Lamb Allen, *Domestic Animals: History and Description of the Horse, Mule, Cattle, Sheep, Swine, Poultry, and Farm Dogs, with Directions for Their Management, Breeding, Crossing, Rearing, Feeding, and Preparation for a Profitable Market* (New York: O. Judd company, 1847); Richard Lamb Allen, *The American Farm Book or Compend of American Agriculture; Being a Practical Treatise on Soils, Manures, Draining, Irrigation, Grasses, Grain, Roots, Fruits* (N. Y.: C. M. Saxon, 1850).

⁴⁸ Lewis F. Allen to King, 10 Nov 1860, Box 2, John Alsop King Papers, NYHS.

⁴⁹ Allen, *Last Letters of Richard L. Allen*, 57.

⁵⁰ A. B. [Anthony Benezet] Allen to King, 5 Aug 1850, Box 1, John Alsop King Papers, NYHS. See also Lewis F. Allen to King, 10 Nov 1860, Box 2, where Allen writes: “Of the election! Is it not grand? The North has vindicated its love of freedom and the sequel will prove that the alarm for their rights, of our ardent southern friends, is groundless”—these words seem to indicate that while Allen opposed the Slave Power, he was not much concerned about slavery.

⁵¹ *American Agriculturist* 5 (Dec 1846): 362.

manufactures. The situation could not, after all, be blamed on a lack of internal improvements, because railroads had already been built. The underlying problem, Allen hinted obliquely, must be slavery. Charleston's few manufacturers had recently emigrated to points north and west where they could "follow their legitimate pursuits, under those advantages which are elsewhere afforded. It is not necessary to specify what these are—every intelligent man can perceive them at a glance."⁵²

Allen had every reason to be circumspect. Not only did the *Agriculturist* profit from a significant southern readership, but just as he was embarking on his letter-writing tour toward the end of 1846 Allen announced the opening of a "Southern Agricultural Warehouse" in New Orleans, where he planned to sell northern-made implements (including those produced by his brother). Allen was therefore careful to compliment the technological savvy and progressive spirit of the planters he visited. In the fourth of his letters he noted hopefully that "there is a manifest and increasing attention to the subject of introducing new and improved agricultural implements, among the most intelligent planters in this section, and such seem disposed to give them a fair trial." He immediately followed, however, with a less promising observation: "The want of personal skill and attention on the part of many proprietors . . . renders this trial and their unquestionable adaptedness to the object proposed, less satisfactory to them than their intrinsic merits fairly entitle them to." Perhaps Allen was finding that improved implements in the hands of slaves, who had nothing to gain from their use, did not display the same "intrinsic merits" as they did in the hands of northern farmer-proprietors. His brother, in any case, believed that when the "present exhausting system of farming in Louisiana has ruined the land, and its present occupants, northern farmers will then come and grow rich."⁵³

In important ways, then, the Allens anticipated Frederick Law Olmsted's better known missives on southern agriculture. Indeed, the Allens show that the northern critique of the southern economy depended on assumptions and beliefs developed first in the discourse of agricultural reform.⁵⁴ As did many northern reformers, the Allens grounded their negative assessment of the South as much in development policy as in slavery's perverse labor incentives. Richard Allen thus argued, for instance, that the commercial prospects of New Orleans were limited given its insignificant manufacturing base and "the mighty efforts that the principal Atlantic cities are making (and which are fully sustained by the respective States they represent) to draw off to their own ports the rich products of the Mississippi valley." Though he still projected growth for the Crescent City, within only a few months of setting up shop there he gave up on his southern warehouse and joined his brother in New York.⁵⁵

As long as development policy remained at the state level, of course, there was little cause for sectional conflict. But as we saw in chapters 3, 4 and 5, agricultural reformers' calls for new kinds of institutions steadily drew them toward the federal government, which alone possessed the resources and authority to accomplish their ends. This was also true of the tariff, which unlike other features of the longstanding Whig plan for domestic development, remained uniquely a national

⁵² Ibid. 6 (Feb 1847): 60–61.

⁵³ Ibid. 5 (Dec 1846): 376, 384; 6 (Mar 1847): 94.

⁵⁴ Eric Foner, *Free Soil, Free Labor, Free Men: The Ideology of the Republican Party Before the Civil War* (Oxford: Oxford University Press, 1995), chap. 2.

⁵⁵ *American Agriculturist* 6 (Apr 1847): 124; Allen, *Last Letters of Richard L. Allen*, 8.

issue. True, Henry Clay's American System called for a national bank, but after Jacksonians killed and buried the one that existed, many Whigs came to accept a variety of alternative means of currency regulation, including the so-called Suffolk System in New England and the enactment of "free banking" laws in New York and elsewhere. Similarly, while Whigs and Republicans continued to pursue federal subsidies of internal improvements, private and state-level alternatives existed. In some cases, too, the constitutional stratagem of land grants worked effectively. Only the tariff remained unavoidably national.⁵⁶ Southern opposition to this measure helped lead northern manufacturers as well as agricultural reformers into Republican ranks.

THE MAKING OF NORTHERN ECONOMIC NATIONALISM

Southern Democrats' hardening constitutional stance during the 1850s seemed to define the United States as little more than a trade federation. Conversely, Republicans viewed the United States as an integrated nation-state with a "general government" authorized, via democratic procedures, to act across a wide range of circumstances. One of the figures who helped develop this perspective was a New York attorney and Republican Party organizer named Joseph Blunt. Like John Alsop King, Blunt played a leading role in efforts to establish a state agricultural college in New York.⁵⁷ Like King, also, his attitudes toward slavery were annealed in the heated atmosphere of the Missouri Crisis. In an 1819 pamphlet opposing slavery's westward expansion, Blunt minced no words. He dismissed slaveholders' pretensions to paternalism as plainly nonsensical. "Do we believe that men will not abuse uncontrolled power?" he asked incredulously. More portentously, he argued that "the law must interfere in the most energetic manner" to prevent slavery's growth. Though he followed by incongruously contending that no interference was intended in the existing states, his basic perspective became evident from his opening statement that slavery constituted "a system which is repugnant to the fundamental principles of a republic."⁵⁸

Blunt soon issued another broadside against the enemies of republican government. This time, however, his target was the Holy Alliance, specifically the Laybach Circular, which announced a policy of forceful intervention in any country where monarchy came under threat. Blunt argued that were this policy allowed to stand unopposed, violent upheavals on the model of the French Revolution would become inevitable. The Holy Alliance's intent "to put down the spirit of revolution without extirpating its causes" was doomed to failure because the historical diffusion of wealth and education throughout the common ranks had "rendered the actual situation of society inconsistent with its existing civil institutions." At the bottom of this analysis was Blunt's contention that monarchies are "unsuitable to modern societies" because they "extinguish the desire of innovation" and sequester "the mass of real property . . . beyond the reach of commerce." The only

⁵⁶ Though states theoretically could have subsidized manufacturers directly, no such system was seriously considered, probably because direct bounties smacked too much of handouts to special interests; see, for example, Andrew Shankman, "A New Thing on Earth: Alexander Hamilton, Pro-Manufacturing Republicans, and the Democratization of American Political Economy," *Journal of the Early Republic* 23, no. 3 (October 1, 2003): 323–352.

⁵⁷ In 1849 he chaired the special government committee named by Governor Hamilton Fish to draw up a plan for such an institution (see below and Chapter 4).

⁵⁸ Joseph Blunt, *An Examination of the Expediency and Constitutionality of Prohibiting Slavery in the State of Missouri* (New-York: C. Wiley & Co, 1819), 3, 6, 14.

legitimate end of government, he averred, was “the welfare of the subjects,” which he parsed as “all the improvements of modern times; the manufacturing, mechanical, and scientific arts; the literary institutions; the interests of commerce; and more than all, the free institutions of this republic.” Altogether, then, Blunt regarded the state as an agent of economic and social development.⁵⁹

Blunt proceeded to pursue this view of things by developing a nationalist theory of the Constitution aimed at legitimizing federal action. Thus in his “Historical View of the Formation of the Confederacy,” he asserted categorically that from the very moment Americans declared the severance of ties with Britain, “they were free and independent, not as isolated states, but as the UNITED STATES OF AMERICA.” By “force of circumstances,” he continued, the colonists had become “a nation, one and indivisible, and instituted a general government, long before the state constitutions, or the articles of confederation, were framed.” Such forceful declarations of American nationality aimed to pull the rug out from under anti-federalists who regarded the Constitution as a compact among sovereign states. In Blunt’s formulation this was impossible since the states had never had any sovereignty to begin with. It must have been something like this view that James Hamilton had in mind when he wrote to John Alsop King to insist that conciliation with the South could only proceed from “a most explicit declaration that the Constitution was formed by the People not by the States.”⁶⁰ For his own part, Blunt went so far as to argue that the very first colonists were “men migrating here to found a nation.” Nothing less than the “voice of nature,” he intoned, “decreed the independence of the United States.”⁶¹

It is easy to see these arguments as purposeful legal and ideological cover for the developmental program known as the American System. Indeed, shortly after arguing that an embryonic national entity arrived on the first ships just as surely as did capitalism, Blunt joined two veterans of the Missouri controversy, James Tallmadge and Henry Meigs, to found the American Institute of the City of New York. Initially intended as an advocate of tariff protectionism and of the Adams administration, the American Institute quickly emerged as much more than a partisan publicity machine.⁶² Blunt helped formulate its crucial early decision to establish an annual fair in New York City, which it shrewdly intended not only as an exhibition but as a lever of developmental innovation. “The emulation excited by competition on such a theatre,” Blunt’s report for the executive committee argued, “would improve the quality of the goods” made by American

⁵⁹ “The Principles of the Holy Alliance; or Notes and Manifestoes of the Allied Powers,” first appeared in the *North American Review*, 16 (Oct 1823): 340-375; reprinted in Joseph Blunt, *Speeches, Reviews, Reports, &c.* (New York: James Van Norden, 1843), 29–68. Blunt soon reiterated this position when he defended Cherokee sovereignty on the basis of the Cherokees demonstrable “capacity of self-improvement” (“Relations between the Cherokees and the Government of the United States,” in *Speeches, Reviews, Reports, &c.*, 138).

⁶⁰ James A. Hamilton to King, 9 May 1861, Box 1, John Alsop King Papers, NYHS.

⁶¹ “Historical View of the Formation of the Confederacy” in Blunt, *Speeches, Reviews, Reports, &c.*, 121–129.

⁶² *Niles’ Weekly Register* 34 (26 Apr 1828): 150; 34 (10 May 1828): 181; Charles P. Daly, “Anniversary Address Before the American Institute, ‘on the Origin and History of Institutions for the Promotion of the Useful Arts,’ Delivered at the Hall of the New York Historical Society, on the 11th of November, 1863,” in *Report of the American Institute of the City of New York for the Years 1863, ‘64* (Albany, NY: Comstock & Cassidy, 1864), 45-77.

manufacturers.⁶³ The fair would thus effectively simulate a competitive national market where none existed yet in order stimulate the progress of American industrial knowhow.

Thanks in part to Blunt's efforts, the American Institute's fairs quickly became annual extravaganzas for the celebration of "improvement in those arts and sciences which tend to increase the independence and the strength of our glorious republic." In 1843, for instance, the fair managers put on a spectacular "grand aquatic gala" which involved blowing up a ship with the new Colt submarine battery while simultaneously conducting a trial of Francis's life boat "and other life preserving contrivances." Boat races and a demonstration of the Mores telegraph were also incorporated. "It is conceded by every one," the managers reported with undisguised satisfaction, "that the scene was never equaled, in magnificence, splendor, and success, by any exhibition within the waters of the United States." The following year the annual exhibition featured multiple fireworks displays and drew as many as 240,000 visitors. By 1857, when the fair was held in the New York Crystal Palace, expenditures and receipts indicate that attendance may have approached half a million (Appendix C).⁶⁴

Seen by historians as a pivotal site where entrepreneurial master craftsmen began to construct free labor ideology, the American Institute is rarely understood as a cog—if an important one—in the wider agricultural reform movement.⁶⁵ When New York reinstated public funding of agricultural societies in 1841, the Institute became New York City's representative in the system. It thus received government aid for its annual fairs and benefitted from state printing of its hefty reports, which turned into compendia of agricultural material subscribed to mostly by state and local agricultural societies.⁶⁶ The Institute's fairs also grew more farming-oriented. In 1843 the fair managers reported that exhibition of "agricultural articles" had increased "tenfold" in the preceding few years. Indeed, whereas in 1835 only about five percent of fair premiums went to agricultural categories including both farm products and farm implements, a decade later the proportion stood at more than thirty-three percent and separate sites for a plowing match and a cattle exhibition complemented the main display.⁶⁷ The Institute also organized an annual "Convention of Farmers, Gardeners and Silk Culturists" to meet during its exhibitions. By 1859 nearly forty-five percent of fair premiums went to agricultural categories and an additional cash prize of \$1,000 was awarded to

⁶³ "Report to American Institute Proposing Annual Fairs" in Blunt, *Speeches, Reviews, Reports, &c.*, 73. See also *Niles' Weekly Register* 42 (18 Aug 1832): 440-441; 47 (11 Oct 1834): 81; *American Agriculturist* 1 (Aug 1842): 129. The Allens' *American Agriculturist* enjoyed close ties with the American Institute.

⁶⁴ *American Institute Report on Agriculture* 2 (1843): 103-104; 4 (1844): 18. See also the scrapbooks in Box 461, Records of the American Institute of the City of New York for the Encouragement of Science and Invention, NYHS; for contemporary reports on fair attendance and my own independent verification from manuscript records at the NYHS, see Appendix C.

⁶⁵ Sean Wilentz, *Chants Democratic: New York City & the Rise of the American Working Class, 1788-1850* (New York: Oxford University Press, 1984), 274-276; Sven Beckert, *The Monied Metropolis: New York City and the Consolidation of the American Bourgeoisie, 1850-1896* (Cambridge: Cambridge University Press, 2001), 64, 67, 73-74.

⁶⁶ See the subscription book for the American Institute's annual transactions, a standalone volume in the Records of the American Institute, NYHS. Subscribers included major official bodies such as the Massachusetts Board of Agriculture and relatively informal farmers' clubs from as near as Rockland County, New York and as far as Pleasant Prairie, Wisconsin.

⁶⁷ *American Institute Report on Agriculture* 2 (1843): 2; 3 (1844): 34-37; 5 (1847): 13.

Joseph Fawkes for his celebrated steam plow.⁶⁸ The Institute had thus become fully integrated into the wider agricultural reform movement.

In 1845 the American Institute established a Farmer's Club that quickly became a major forum for discussion among agricultural reformers throughout New England and the Mid-Atlantic states. Among the regular attendees were numerous influential agricultural editors, including Anthony Benezet Allen of the *American Agriculturist*, Solon Robinson of the New York *Tribune's* agricultural department, Samuel Fleet of the *Farmer and Mechanic*, John S. Skinner of first the *Monthly Journal of Agriculture* (a Greeley publication) and then *The Plough, the Loom and the Anvil* (a Carey mouthpiece), and finally James Mapes of the *Working Farmer*. Other notable regulars included Daniel J. Browne, who would head the Patent Office's Agricultural Division through most of the 1850s, and John Adams Nash, an instructor of agriculture at Amherst College. Not surprisingly, the Farmer's Club received generous press coverage and seems to have inspired literally hundreds of similar groups around the country.⁶⁹

Conversation at the Farmers' Club frequently turned toward the advocacy of new government-backed agricultural agencies, particularly a "Home Department of Agriculture" and a state farmer's college. As early as 1844, in fact, the American Institute worked with Daniel Lee, editor of the *Genesee Farmer* and Browne's predecessor at the Patent Office's Agricultural Division, to petition the New York Assembly for a state agricultural college under its aegis. Over the next few years the Farmer's Club vigorously pursued the matter.⁷⁰ Highlighting the significance of an organized and persistent campaign, Thaddeus B. Wakeman reminded Club members, "The Institute applied for the State geological survey, and got it—yet Clinton had previously tried to obtain it in vain."⁷¹ In 1847 Ambrose Stevens, a member of the state agricultural society's executive committee, endorsed the Institute's efforts and added that there appeared to be momentum in Albany to get a bill passed. "Now is the time!" he counseled. "If our farmers were all united, all would be right—such is the sentiment!—*About ninety members of our present Legislature* having joined the State Society this year—last year there were *but five!*"⁷² Two years later Governor Hamilton Fish appointed a special commission, composed of members of the state society and chaired by Joseph Blunt, to report a bill for an agricultural college. As we saw in Chapter 5, this effort ultimately failed, but like the initial failure of the Morrill bill, it signaled the arrival of an organized agricultural lobby able to exert significant political influence.

As with the Morrill bill, too, the American Institute's campaign signaled a deeper mediating role between state and society. Advocacy of government agricultural agencies instantiated the nationalist vision spelled out by Joseph Blunt. The Institute thus formed a platform of economic

⁶⁸ *Transactions of the American Institute of the City of New York* (1859): 36–37.

⁶⁹ An 1862 circular letter from the American Institute claimed that its Farmer's club had "caused to be organized and modeled more than five hundred Farmer's Clubs in the State of New-York alone, besides many similar organizations in other States"; "Scrapbook, 1857-1869," Box 461, Records of the American Institute, NYHS. The Institute's book of subscriptions for its annual *Transactions* listed several of these clubs.

⁷⁰ *New York Tribune*, 5 Feb 1844, pp. 2, 4; 9 Feb 1844, p. 2; 14 Feb 1844, p. 2; 6 Jan 1845, p. 2; 30 Jan 1845, p. 2; 6 Jan 1847, p. 2; 9 Feb 1847, p. 1; 26 Apr 1847, p. 2; Henry Meigs, *An Address, on the Subject of Agriculture and Horticulture* (New York: James Van Norden & Co., 1845), 3; see also the scrapbooks in Box 461, Records of the American Institute, NYHS.

⁷¹ Newspaper clipping, 7 Jan 1845, "Scrapbook, 1845-1846," Box 461, Records of the American Institute, NYHS.

⁷² *New York Tribune*, 6 Feb 1847, p. 2 (emphasis in original).

nationalism that comprised an expansive reading of constitutional federal powers in the service of domestic development. Thanks to the existence of hundreds—perhaps thousands—of agricultural societies and farmer’s clubs within the loosely articulated agricultural reform movement, this kind of nationalist developmentalism reverberated throughout the northern countryside.

In many ways such economic nationalism can be accommodated within the terms of Fonerian free labor ideology. Approaching the subject from a labor history perspective, however, free labor interpreters have stressed a different though very important story of how the destruction of slavery conditioned the particular patterns of American industrial labor conflict.⁷³ Yet a realistic depiction of northern society before and after the Civil War must contend seriously with the issues confronting the farmers and rural business operators who comprised the better part of the northern economy. For this group, the emergence of wage labor was only one among many concerns. Education, internal improvements, market conditions, production technologies, environmental factors and scientific farming practices—these were no less important. The patterns of farmer organization also differed from those of either labor or industry. If free labor ideology retains robust explanatory power, then, that is partly a reflection of the capaciousness of the word “labor,” which encompassed a great variety of economic activities in mid-nineteenth-century America. Consequently analysis cannot stop at the factory gates or even at the city’s edge. Nor can it adopt a single image—the Midwestern grain farm—as a stand-in for the entire northern countryside.

No less than labor, “slavery” comprised a term of protean semantic breadth that continued to live in the public imagination long after the institution itself had been destroyed. A foil against which wage work could appear free, it was also a foil against which nature’s technological exploitation became the very essence of progress. Thus on the eve of the Civil War Henry Carey’s nephew, Henry Carey Baird, could write, “Man passes from slavery towards freedom in proportion as pursuits become diversified, and the tax of transportation decreases; as steam and machinery are called to his aid in production, the best soils brought under control and cultivated, and agriculture becomes a science.”⁷⁴ It may be tempting to dismiss such rhetoric as the obfuscations of an industrial spokesman. But Baird cannot be written off so easily. Emerging as a leader of the Greenback Party after the Civil War, he argued for the continuing relevance of an American nationalism founded on the ideal of proprietary independence, promoted by federal stewardship of the economy, and animated by that classic farmer’s issue, easy credit.⁷⁵

This basic perspective endured amid the multifaceted economic debates of the post-bellum period, emerging again and again in the demands of Greenbackers, Bellamy Nationalists, Farmers’ Alliance Populists, and finally New Deal Democrats. But over the same period the troubling aspects of agricultural modernization already discernible in the antebellum reform movement became increasingly apparent. The production and technology fetish, the only partial recognition of

⁷³ Foner, *Free Soil, Free Labor, Free Men*; Eric Foner, *Reconstruction, America’s Unfinished Revolution, 1863-1877*, New American Nation Series (New York: Harper & Row, 1988); Richard Franklin Bensel, *The Political Economy of American Industrialization, 1877-1900* (Cambridge: Cambridge University Press, 2000); David Montgomery, *Beyond Equality: Labor and the Radical Republicans, 1862-1872* (New York: Knopf, 1967); Wilentz, *Chants Democratic*; Beckert, *The Monied Metropolis*.

⁷⁴ Henry Carey Baird, *Protection of Home Labor and Home Productions Necessary to the Prosperity of the American Farmer*, YA Pamphlet Collection (Library of Congress) (New York: New York Tribune Office, 1860), 15.

⁷⁵ See, for instance, Henry Carey Baird, “Money and Its Substitutes. Commerce and Its Instruments of Adjustment,” *The Atlantic Monthly* 37, no. 221 (March 1876): 345–359.

environmental consequences, the nostalgic and self-serving apotheosis of the family farmer beside the hardnosed but equally self-serving apotheosis of “business principles,” the effacement of a growing population of permanent farm laborers—these features of the reform movement, too, endured.⁷⁶ For better or for worse, then, farmers—perhaps more than any other class—indelibly shaped the emergence of the American federal state.

⁷⁶ Charles Postel, *The Populist Vision* (Oxford: Oxford University Press, 2007); M. Elizabeth Sanders, *Roots of Reform: Farmers, Workers, and the American State, 1877-1917* (Chicago: University of Chicago Press, 1999); Grant McConnell, *The Decline of Agrarian Democracy* (Berkeley: University of California Press, 1959); Richard Walker, *The Conquest of Bread: 150 Years of Agribusiness in California* (New York: New Press : Distributed by Norton, 2004).

APPENDIX A: TABLES

Table 1.1: Membership of the Middlesex (MA)
Agricultural Society by Decade

<i>Decade</i>	<i>New Members</i>
1820-1829	441
1830-1839	62
1840-1849	276
1850-1859	238

SOURCES: Bound manuscript membership book, 1819-1861, Series III, Box 2, Item 1, Records of the Middlesex Agricultural Society, 1820-1892, Concord Free Public Library, Concord, MA.

NOTES: The membership book records the names of members and the date on which they received their “diploma.” The figures for the 1850s are probably understated, as the dates are listed less precisely for this decade and many members are listed with no date at all, suggesting that they had joined but had not yet received their diplomas, or simply that more recent records were poorly kept.

Table 1.2: Distinct Agricultural Journal Titles
per 100,000 Free Rural Inhabitants by Decade

<i>Decade</i>	<i>Distinct Titles</i>	<i>Per 100,000 Free Rural Inhabitants</i>
1820-1829	19	0.195
1830-1839	90	0.707
1840-1849	141	0.857
1850-1859	181	0.851

SOURCES: S. C. Stuntz, *List of the Agricultural Periodicals of the United States and Canada Published During the Century July 1810 to July 1910*, ed. Emma B Hawks (Washington, D.C: U.S. Dept. of Agriculture, 1941); Historical Statistics of the United States, 1789-1945 (Washington, DC: G.P.O., 1949).

NOTES: The column “Distinct Titles” measures the number of different agricultural journal titles to appear in that decade; titles that persisted from one decade to the next were counted once in each decade. The rate in the right-most column was determined by dividing the number of distinct titles in a decade by the free rural population as calculated from the federal population census at decade’s end and then multiplying by 100,000. The free rural population was estimated by subtracting the entire slave population from the entire rural population for each census. This procedure somewhat underestimates the free rural population and therefore somewhat overestimates the ratio of agricultural journals to free rural inhabitants.

Table 1.3: Voting on Ohio's "Act to Encourage Agriculture"

	<i>Public Funding to Agricultural Organizations</i>	
	In favor	Opposed
Identifiable Democrats	5	9
Identifiable Whigs	16	2
All votes	39	20

	<i>Final Passage</i>	
	In favor	Opposed
Identifiable Democrats	4	9
Identifiable Whigs	17	1
All votes	33	21

SOURCES: *Journal of the House of Representatives of the State of Ohio* 64 (1846): 706, 720; *Annual Reports for 1875, Made to the Sixty-Second General Assembly of the State of Ohio at the Regular Session, Commencing January 3, 1876*, vol. 1 (Columbus: Nevins & Meyers, 1876), 298-300.

NOTES: To determine the probable party affiliations of assemblymen, I matched the partisan majorities for governor in 1844 in each county, as recorded in *Annual Reports for 1875* cited above, to those assemblymen whose district corresponded to one county or set of counties. Counties with multiple assemblymen were thus excluded because county-level voting figures from the governor's race could not be broken down by Assembly districts within counties. Since voting in the period was by ticket, a Whig majority for governor in a county corresponding precisely to an Assembly district almost certainly meant the assemblyman from that district was also a Whig.

Table 1.4: Agricultural Organizations by Region in 1858

<i>Region</i>	<i>Agricultural Organizations</i>	<i>Organizations per 100,000 Total Inhabitants</i>	<i>Organizations per 100,000 Free Rural Inhabitants</i>
Midwest	411	5.29	6.11
Northeast	279	2.63	4.10
Southern Interior	112	1.71	2.85
Southern Seaboard	85	1.45	2.68

SOURCES: *Report of the Commissioner of Patents, Agriculture* (1859): 91; 1860 Federal Population Census.

NOTES: Free rural population was estimated by subtracting urban and slave populations from total population, a procedure that underestimates the real figure for the South (since many slaves lived in cities) and thus overestimates the region's rate of agricultural organizations relative to the free rural population. The regional categories are as follows. Midwest: Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, Wisconsin. Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont. Southern Interior: Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Missouri, Tennessee, Texas. Southern Seaboard: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia. The territories and Pacific states were excluded.

Table 1.5: Contributors from Concord Residents to the Purchase of Fairgrounds by the Middlesex Agricultural Society in 1853

<i>Name</i>	<i>Contribution</i>	<i>Age in 1853</i>	<i>Occupation</i>	<i>Value of Real Estate in 1850</i>
Samuel G. Wheeler	\$100	unknown	unknown	Unknown
Samuel Hoar	\$50	unknown	Farmer	Unknown
Joseph D. Brown	\$25	39	Farmer	\$7,500
E.R. Hoar	\$25	37	Judge	\$5,000
John S. Keys	\$25	31	Lawyer	\$5,000
Rufus Meriam	\$25	53	Farmer	\$10,000
John B. Moore	\$25	36	Farmer	\$10,000
N. Ball	\$10	unknown	unknown	Unknown
George M. Barrett	\$10	58	Farmer	\$10,000
Nathan Barrett	\$10	56	Farmer	\$14,000
George M. Brooks	\$10	29	Lawyer	Unknown
John Brown, Jr.	\$10	35	Merchant	\$3,000
Simon Brown	\$10	51	Farmer	\$5,000
James P. Brown	\$10	43	Farmer	\$5,000
Stedman Buttrick	\$10	58	Farmer	\$4,750
C. C. Damon	\$10	48	Manufacturer	\$10,000
Jacob B. Farmer	\$10	51	Farmer	\$3,300
C. W. Goodnow	\$10	unknown	unknown	Unknown
Charles A. Hubbard	\$10	33	Farmer	\$3,500
Henry L. Shattuck	\$10	30	Merchant	\$2,000
Cyrus Stow	\$10	66	Farmer	\$5,000
Cyrus Warren	\$10	64	Farmer	\$8,000
E. Wood, Jr.	\$10	37	Farmer	\$8,000
Walcott & Holden	\$10	unknown	unknown	Unknown
Marshall Miles	\$5	36	Farmer	\$2,300
Augustus Tuttle	\$5	59	Farmer	\$6,000
F. A. Wheeler	\$5	38	Farmer	\$8,000
Gardner Wheeler	\$5	31	Farmer	\$6,000
Edwin Wheeler	\$5	35	Farmer	\$4,000

SOURCES: "Report of the Committee to Purchase Land, &c.," dated 4 Oct 1853, Middlesex Agricultural Society Records, 1803-1892, Series V, Box 5, Folder 3, Concord Free Public Library, Concord, MA; 1850 manuscript population census records for Town of Concord accessed through Ancestry.com.

NOTES: Two men named Samuel Hoar appear in the census records, both middling farmers. F.A. Wheeler was identified on the 1860 Census. Gardner Wheeler appears in the household of Cyrus Wheeler, the value of whose farm is the figure given.

Table 2.1: U.S. Fertilizer Production, 1850-1880 (tons)

	1850	1860	1870	1880
Fish scrap	10,000	21,500	43,500	52,000
Bonemeal	5000	10,000	30,000	--
Poudrette	5000	10,000	25,000	70,000
Superphosphate	--	32,000	153,000	727,000
Total	53,000	164,000	321,000	1,390,000

SOURCE: Lewis B Nelson, *History of the U.S. Fertilizer Industry*, ed. J. Harold Parker (Muscle Shoals, AL: Tennessee Valley Authority, 1990), 42-45, 100.

NOTE: Figures for superphosphate are for the years 1859, 1869 and 1879.

Table 5.2: Printing and Binding Costs for the Annual Patent Office Agricultural Report, 1851-1860

Year	Number of Pages	Cost per Copy (Cents)	Total Copies	Total Printing Costs
1851	688	40.6	142,500	\$57,794
1852	456	26.4	142,500	\$37,598
1853	456	51.3	150,000	\$76,910
1854	560	57.8	167,920	\$96,989
1855	550	61.7	267,920	\$165,412
1856	600	68.9	267,920	\$184,695
1857	568	45.3	242,920	\$110,019
1858	568	44.4	222,940	\$99,084
1859	604	46.0	326,550	\$150,129
1860	504	36.1	240,000	\$86,639
1851-1854		<i>Annual Mean</i>	150,730	\$67,323
1855-1860		<i>Annual Mean</i>	261,375	\$132,663
1851-1860		<i>Total</i>	2,171,170	\$955,251

SOURCES: Compiled from the periodic reports of the Superintendent of Public Printing from the 33rd through the 37th Congresses. I want to thank James Green of the Library Company of Philadelphia for putting me on to these documents and explaining to me the different costs involved in printing and binding.

Table 5.3: House and Senate Votes on a Large Edition
of the Patent Office Agricultural Report

HOUSE OF REPRESENTATIVES			SENATE		
	<i>For</i>	<i>Against</i>		<i>For</i>	<i>Against</i>
Region					
Northeast	67	6	Northeast	13	4
Northwest	30	7	Northwest	9	2
Upper South	13	28	Upper South	4	3
Lower South	2	24	Lower South	9	9
Party					
Democrat	38	48	Democrat	17	13
Whig	70	16	Whig	16	1
Free Soil	4	1	Free Soil	2	0
Democrats					
Northern Democrats	33	11	Northern Democrats	11	2
Southern Democrats	5	37	Southern Democrats	6	11
Whigs					
Northern Whigs	60	1	Northern Whigs	9	0
Upper South Whigs	8	7	Upper South Whigs	3	0
Lower South Whigs	2	8	Lower South Whigs	4	1

SOURCES: Cong. Globe, 31st Cong., 1st Sess., 506, 922

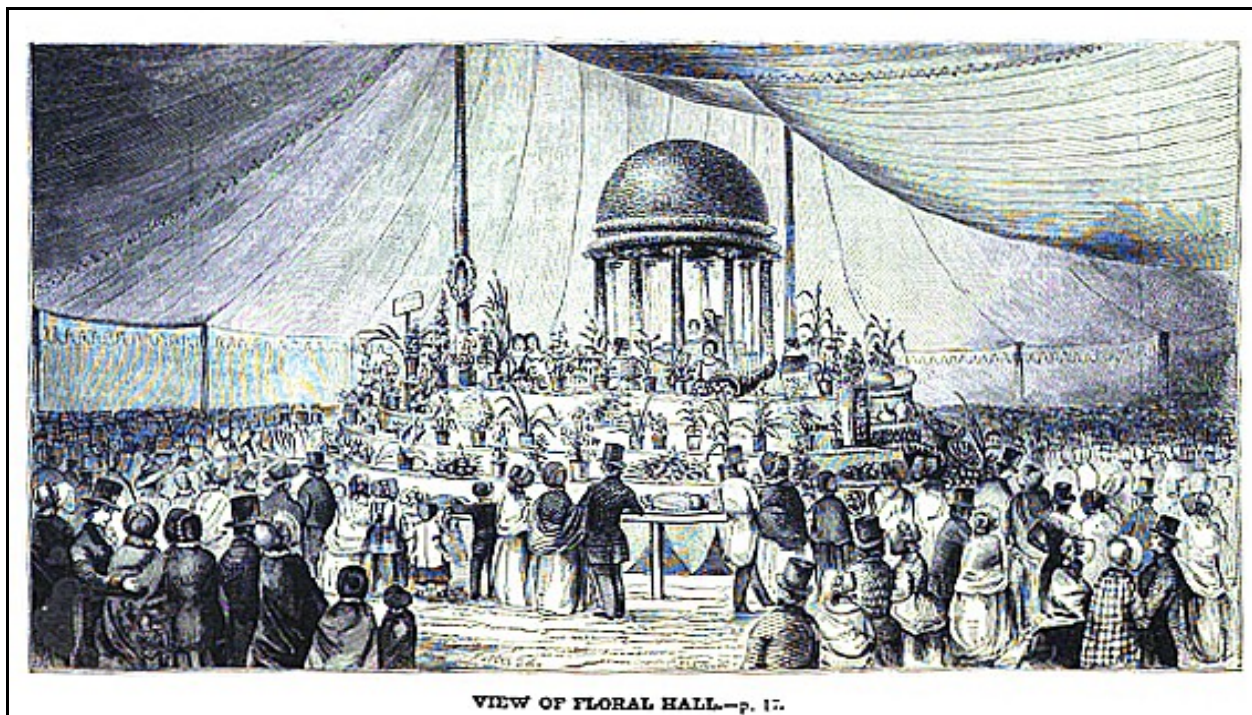
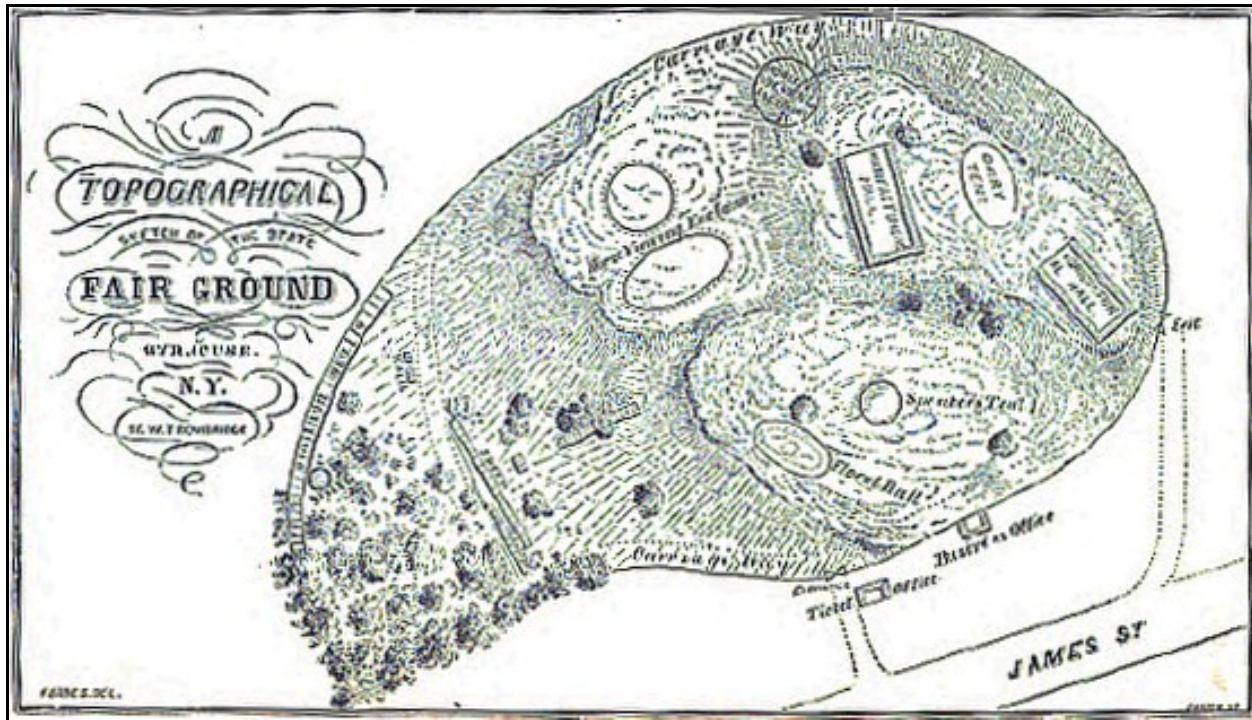
Table 5.4: Average Age of Southern Members of Congress for and
Against a Large Edition of the Patent Office Agricultural Report

	<i>For</i>	<i>Against</i>
All southern Representatives	44	42
Upper South Representatives	44	38
All southern Senators	55	49
Upper South Senators	59	54

SOURCES: Cong. Globe, 31st Cong., 1st Sess., 506, 922; Biographical Directory of the United States Congress, 1774-Present (bioguide.congress.gov).

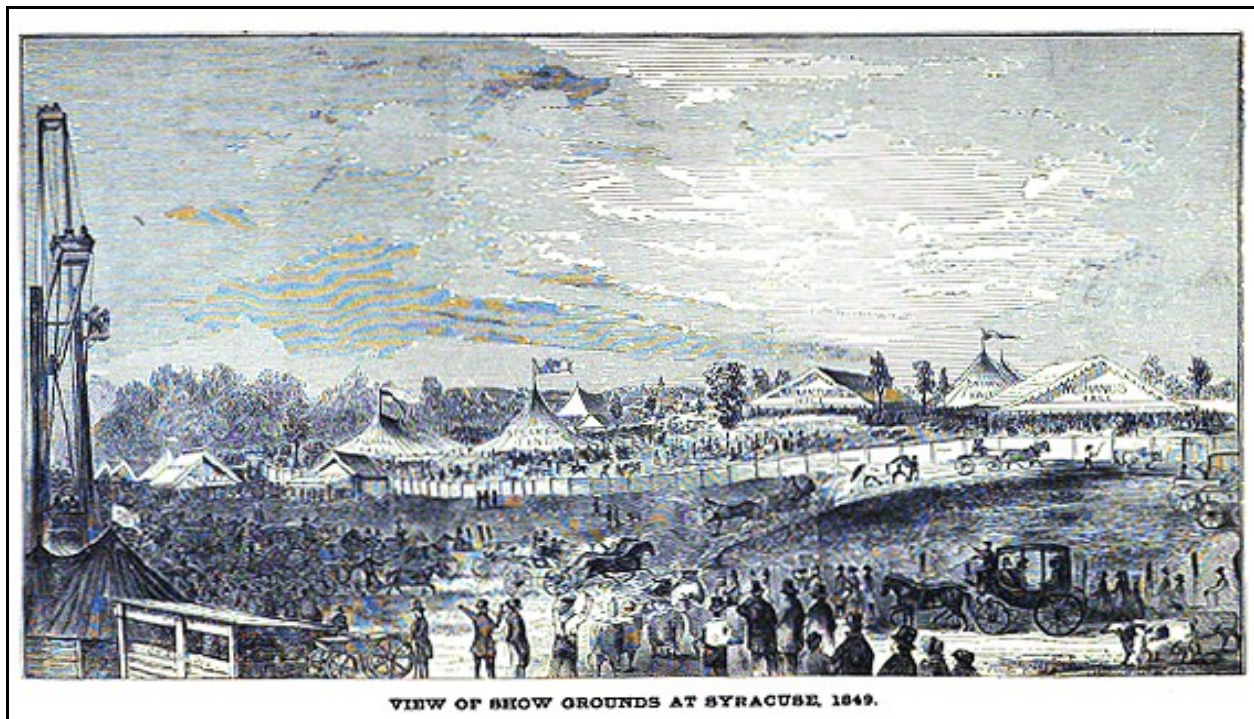
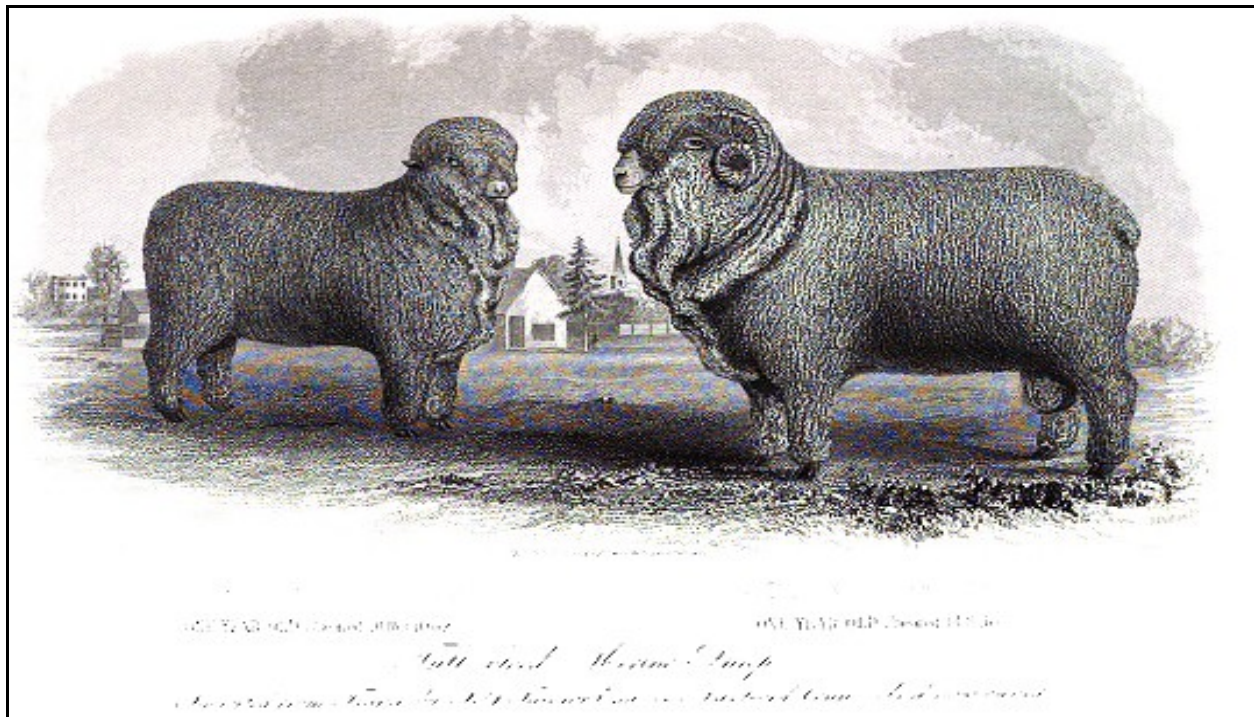
APPENDIX B: FIGURES

Figures 1.1 & 1.2: The 1849 Syracuse Fairgrounds and Floral Hall



SOURCE: *Transactions of the New-York State Agricultural Society* 9 (1850): 14-15, 16-17 (public domain).

Figures 1.3 & 1.4: Merino Sheep and Exterior View of the Syracuse Fairgrounds



SOURCE: *Transactions of the New-York State Agricultural Society* 9 (1850): 92-93, frontispiece (public domain).

Figure 2.1: Promoting New Technology

NOTICE To Farmers.

In Store a large assortment of *AGRICULTURAL IMPLEMENTS*, namely :

Plows, Hoes, Shovels, Rakes, Picks and Grubbing Hoes, Garden Engines, Kintzy's Straw Cutters, Cumming's Fodder Cutters, Ohio Grind Stones, Hay and Manure Forks, Pruning Knives and Saws, Butter Churns, Tubs, Buckets, &c., &c.

ALSO, Peruvian Guano, Jordan's Ammoniated Phosphate of Lime, Allen & Needles' Phosphate of Lime, Baugh's Bone Dust, Allen & Needles' Excrementum, a new and superior Fertilizer.

ALSO, Clover, Timothy and Garden SEEDS.

☞ For sale at the lowest prices, by

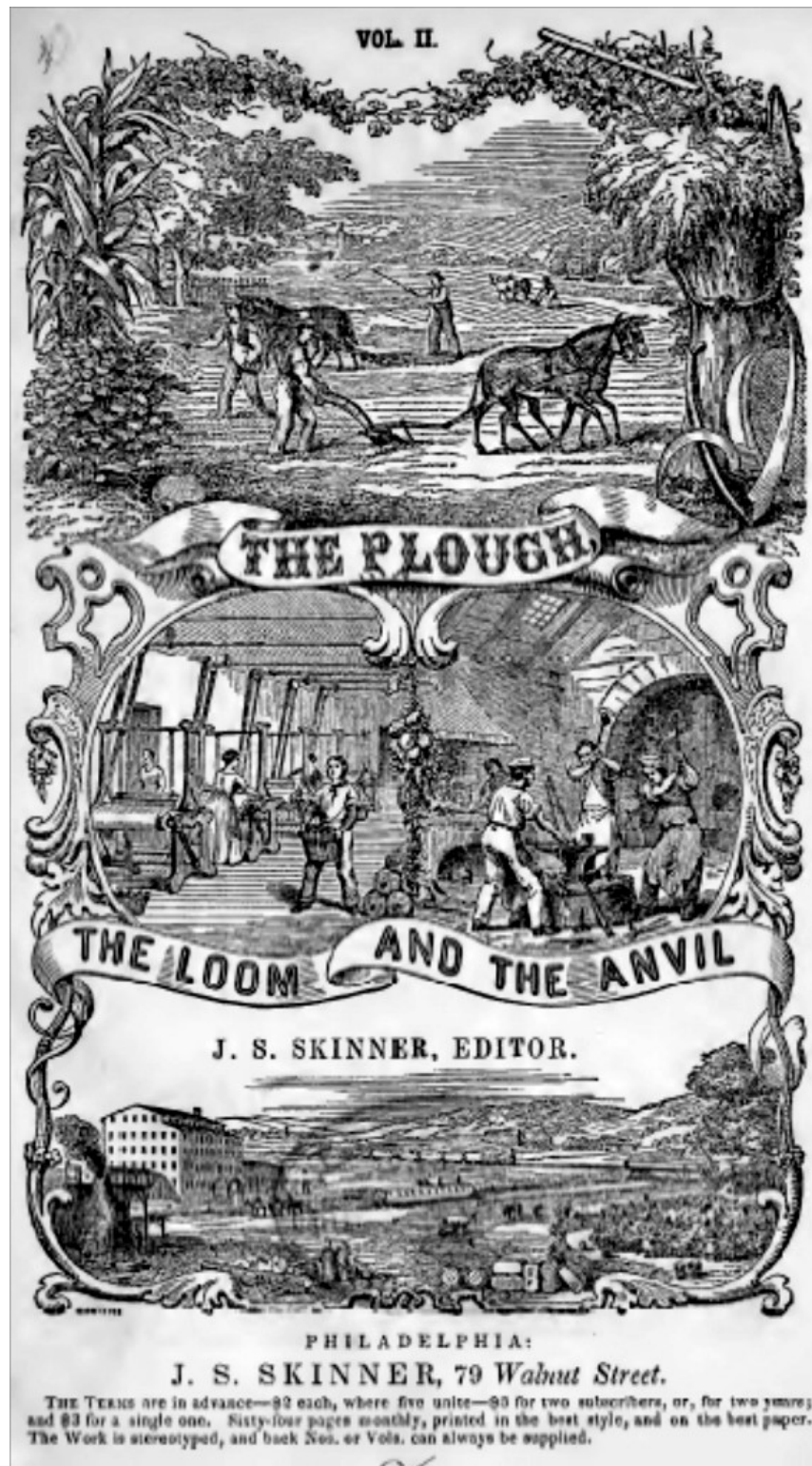
J. L. STICHTER,
5th and Penn Street, Reading.

J. Lawrence Getz, Printer, Reading, Pa.

SOURCE: Courtesy of the Library Company of Philadelphia.

NOTE: Among various brand name implements and fertilizers, a notice for "Allen & Needles' Excrementum, a new and superior Fertilizer."

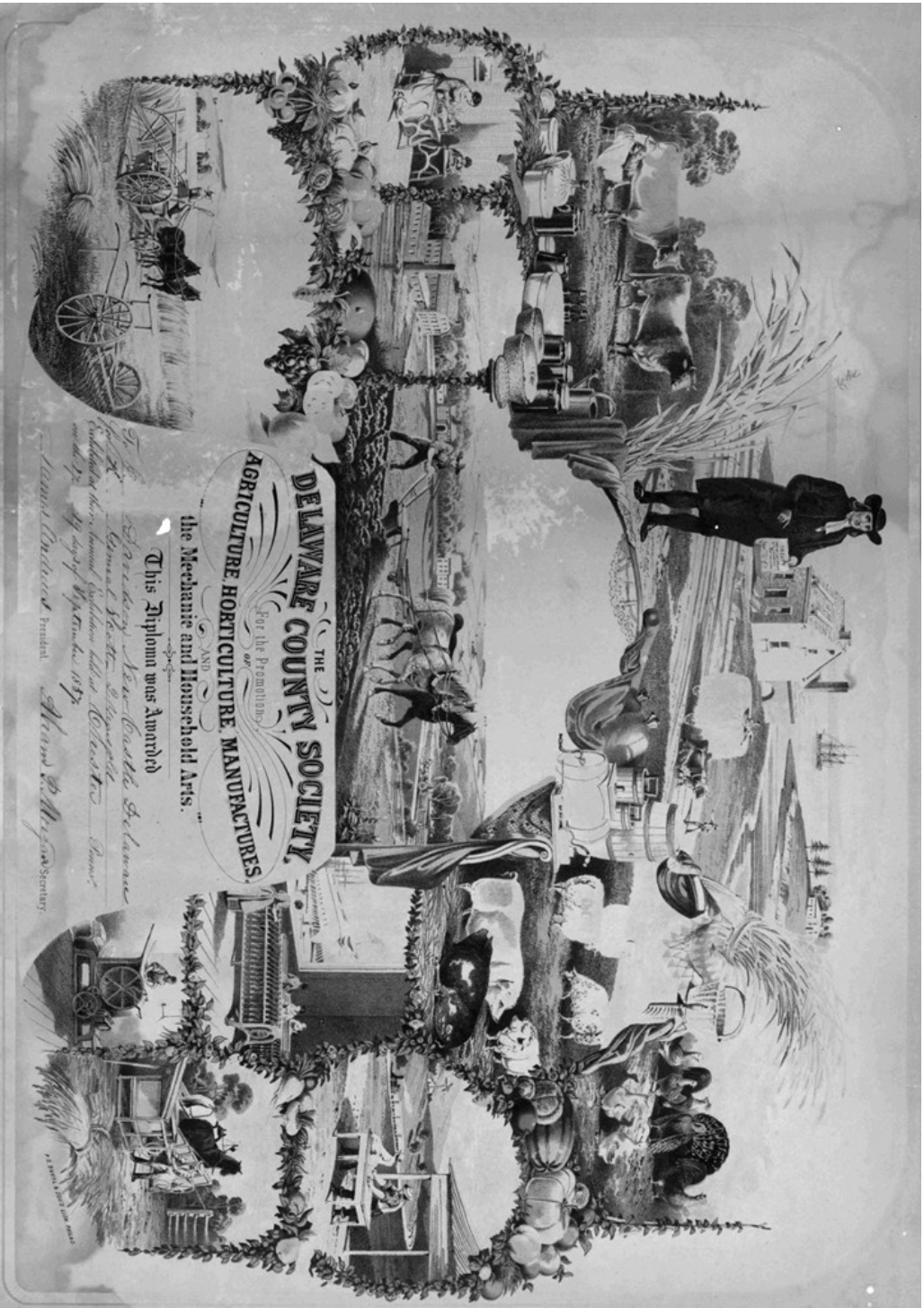
Figure 2.2: Envisioning a Diverse National Economy



SOURCE: *The Plough, the Loom, and the Anvil* (public domain).

NOTE: See especially the bottom portion of the frontispiece, in which a diverse economy is portrayed as occupying proximate space.

Figure 2.3: Envisioning a Diverse National Economy II



SOURCE: Courtesy of the Library Company of Philadelphia.

NOTE: This award “diploma” from the Delaware County (Pennsylvania) Society for the Promotion of Agriculture, Horticulture, Manufactures, and the Mechanic and Household Arts, attempts to display the full range of a diversified, progressive domestic economy, including modern farming implements, improved livestock breeds, a water-powered factory, a printing press, and a railroad.

Figure 3.1: Frontispiece to M. M. Rodgers's *Scientific Agriculture* (1848)

SOURCE: M. M. Rodgers, *Scientific Agriculture, or the Elements of Chemistry, Geology, Botany and Meteorology, Applied to Practical Agriculture* (Rochester: Erastus Darrow, 1848). Courtesy of the Library Company of Philadelphia.

NOTE: The image appeared in both the original 1848 edition and in the 1850 edition that was published simultaneously by Erastus Darrow in Rochester, C. M. Saxton in New York, and J. P. Jewett in Boston.

Figure 3.2: James Jay Mapes



SOURCE: "Scientific Identity," Portraits from the Dibner Library of the History of Science and Technolgoey, Smithsonian Institution (www.sil.si.edu/digitalcollections/hst/scientific-identity). The portrait was drawn and engraved by John Sartain.

Figure 3.3: "Mapes Manures" Advertisement (1927)

**What Prof. Mapes Did in 1847
The Good Farmer Does in 1927**

"I'll go to the crop", said Prof. James J. Mapes, originator of Mapes Manures. "I'll ask the crop to tell me what fertilizer it needs". Although famous as an expert chemist, Prof. Mapes knew that he could not depend on chemical analysis alone. So, in 1847, he bought a farm to check up, in the field, what he had learned in the laboratory.

The good farmer of today knows, as Prof. Mapes did eighty years ago, that the crop is the best judge of fertilizer values. He knows that two fertilizers of the same analysis may give widely different results because of the different materials from which they are formulated. So he buys his fertilizer on the basis of crop results, not on analysis alone.

That is why Mapes users are so loyal to Mapes Manures. And that is why more good farmers every year are becoming Mapes users. We go to the crop; we ask it what materials it likes best; we put these materials into Mapes Manures. Mapes Manures are made to grow good crops—not to sell at a price. They are first made right, then priced as low as possible.

If you are not a Mapes user, try Mapes this year. Compare the crop yield; compare the crop quality; compare the crop profits with the result from any other fertilizer you can buy. Mapes "costs little more — worth much more".

**MAPES
Manures**

Just Mail This Coupon Today

Write today for a list of the crop brands and prices of Mapes Manures. You'll be surprised at the little difference in cost between Mapes brands and other brands. Mapes' costs little more—worth much more". Please tell us what crops you plan to fertilize so that we can be of the greatest possible service to you in selecting the right brand to suit your special needs.

The Mapes Formula and Peruvian Guano Co., Dept. 13,
270 Madison Ave., New York, N.Y.

Without obligating me in any way, please send me your list of crop brands and prices.

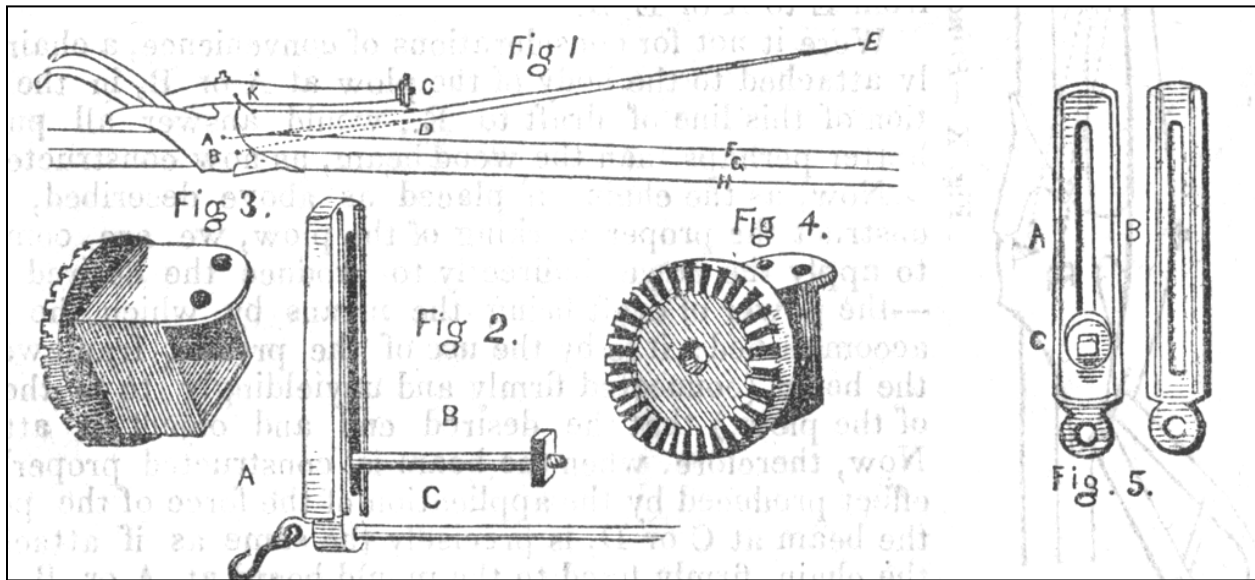
I use..... tons of fertilizer on the following crops:

My name is.....

P. O..... State.....

SOURCE: Williams Haynes, *Chemical Pioneers: The Founders of the American Chemical Industry* (New York: D. Van Nostrand Company, 1939), 77.

Figure 3.4: Diagramming the Plow's Line of Draft

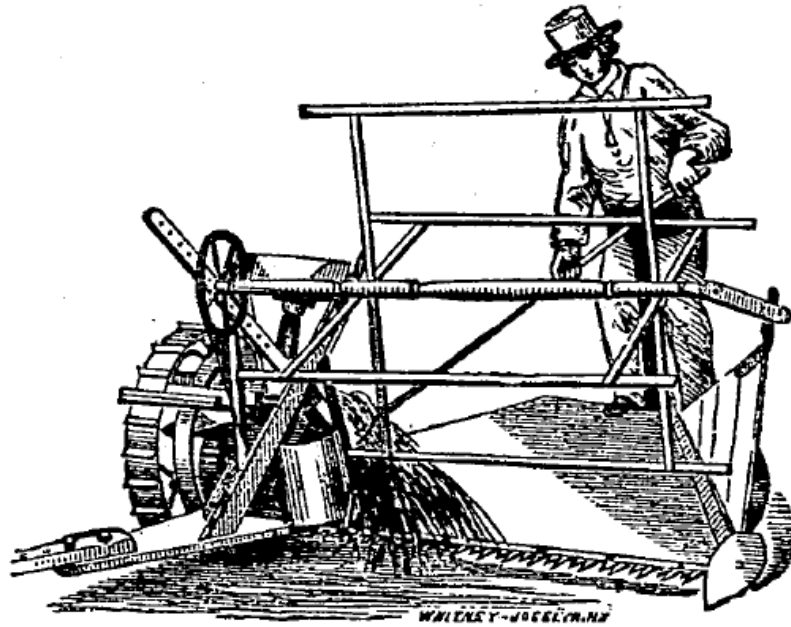


SOURCE: 1851 *Annual Catalogue, Containing Engravings, Descriptions, and Prices, of Agricultural Machinery, Farming Implements, &c., Manufactured at the Albany Agricultural Works, and for Sale by Emery & Co., at the Albany Agricultural Warehouse and Seed Store, 369 & 371 Broadway, Albany, N.Y.* (Albany: C. Van Benthuysen, 1851). Courtesy of the Library Company of Philadelphia.

NOTE: The 1851 Emery Brothers' "Retail List of Plows" included forty-nine different entries, each a unique plow design, at prices ranging from \$3.50 to \$16.50. A two-page essay on the "Principles Involved in the Construction and Operation of the Plow" explained that "from the complex construction of plows, as also the manner in which circumstances oblige us to apply the motive power, many different theories and misconceptions have arisen as to the proper mode of application of the draft to effect the desired operation." Accompanying illustrations such as this one diagrammed "line of draft" and depicted a clevis attachment that could be adjusted to suit different depths of plowing and other conditions.

Figure 3.4: Advertisement for a Mower

For the Harvest of 1858.
The best Combined Reaping and Mowing Machine
in use, as endorsed by the United States
Agricultural Society.



Manny's Patent with Wood's Improvement.

IT is with much pleasure and renewed confidence, that I offer my machine to the Farmers for the coming harvest, with all its improvements and increased high reputation as a combined Machine and single Mower. The large sale the past season, and great success at the National Trial of Harvest Implements at Syracuse in July last, where it was awarded one Gold and two Silver Medals, is conclusive to every unprejudiced farmer that it is the most approved machine of the kind in use, and the subscriber begs to say that they will be perfect and complete in workmanship and material, and are offered to them on terms accommodating and suited to the times. With each machine will be furnished two scythes, two extra guards, two extra sections, one extra pinion, and wrench.

Warranted capable of cutting from 10 to 15 acres of grass or grain per day, in a workmanlike manner.

Price of Machines as heretofore The Combined Machine varies in price according to width of cut and its adaptation in size and strength to different sections of the country, from \$125 to \$150, delivered here on the cars.

Price of Single Mower, steel Bar,..... \$115.00

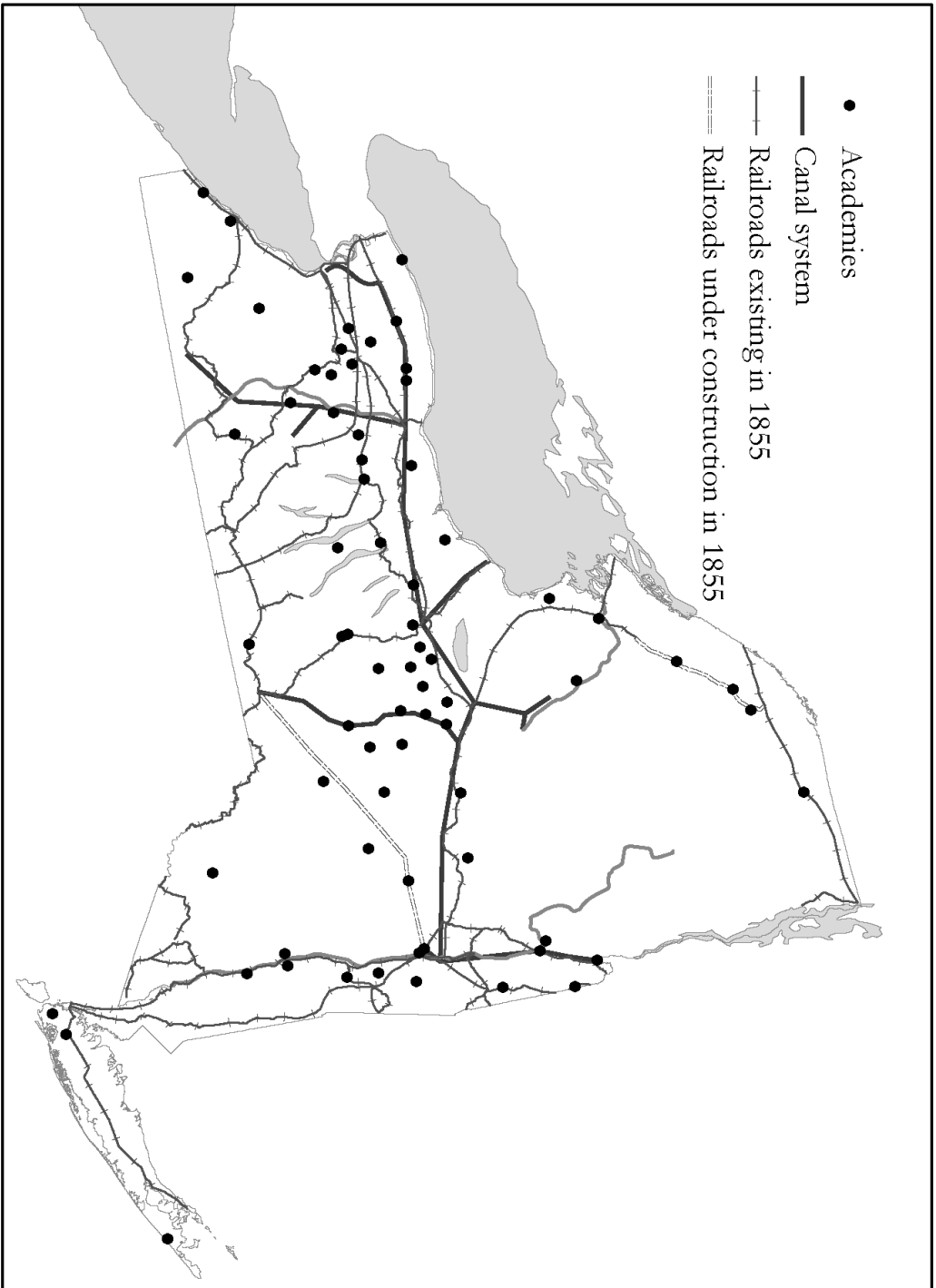
WALTER A. WOOD,

Manufacturer and Proprietor,

April 22—w4ms&mtf

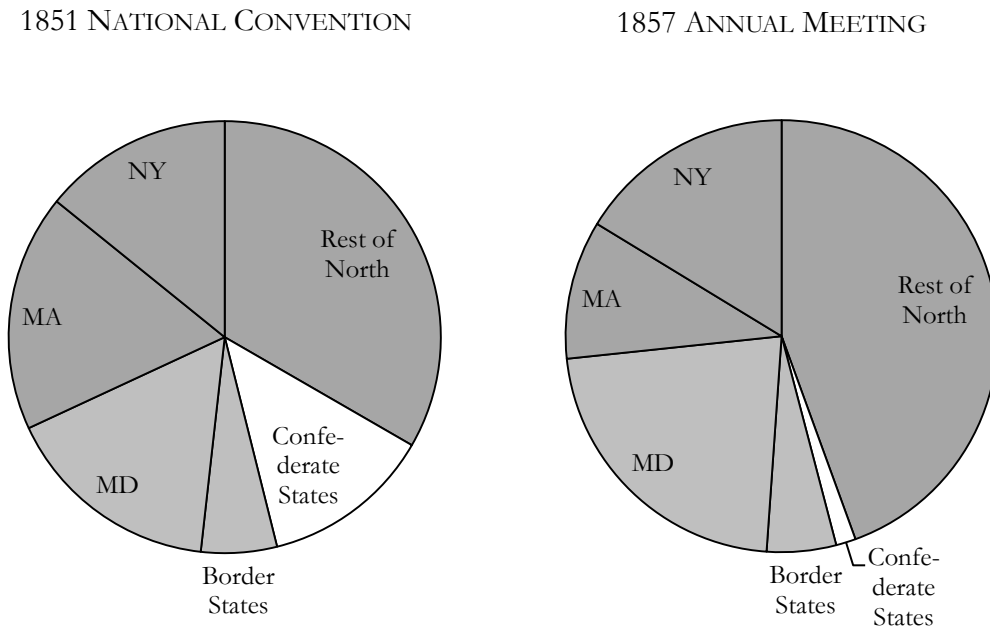
Hoosick Falls, N. Y.

Figure 4.1: New York Regents' Academies Teaching Agricultural Chemistry, 1849-1858



SOURCES: Data on academy locations comes from the annual reports of the Regents of the University of the State of New-York for the years from 1843 to 1858; data on boundaries and geological features comes from the National Historic Geographical Information System (www.nhgis.org); Natural Earth (www.naturalearthdata.com); pre-digitized data on the locations of railroads comes from Railroads and the Making of Modern America (railroads.unl.edu); for additional data on planned railroads and canals I consulted several period maps from the David Rumsey Historical Map Collection (www.davidrumsey.com).

Figure 5.1: Delegates to the United States Agricultural Society by State and Section



SOURCE: *Journal of the United States Agricultural Society* 1 (1851): 6; 4 (1857): 10-11.

APPENDIX C: ESTIMATING ATTENDANCE AT THE ANNUAL FAIRS OF THE AMERICAN INSTITUTE

How many people typically attended an American Institute fair? According to the American Institute itself, the 1844 fair was graced by as many as a quarter million visitors.¹⁰⁶⁰ This enormous figure, however, may represent a highly inflated estimate. Fortunately the records of the American Institute at the New-York Historical Society provide some basis for independent verification. Using the accounts, reports, and vouchers of the ticket, printing, and finance committees appointed by the fair's board of managers, I have made an estimate of the attendance at the Twenty-Ninth Annual Fair held in the fall of 1857 at the New York Crystal Palace.

To begin with, it should be remembered that the American Institute fairs lasted much longer than a typical agricultural fair. The 1857 exhibition opened September 15 and continued until November 6, open each day of the week except Sundays, for a total of forty-six days. A typical state agricultural fair lasted only three or four days. On the other hand, the facilities available within New York City were not nearly as extensive as the multi-acre fenced fair grounds of the state fairs. Indeed, the Twenty-Ninth American Institute exhibition included a separate three-day cattle show and market fair in another location. The main American Institute fair, however, also included a variety of agricultural features, such as horticultural displays and demonstrations of agricultural machinery.

Estimating the attendance at the 1857 fair is tricky because the records of ticket receipts are incomplete. The information that exists includes the total receipts from ticket sales for each day of the fair and the actual number and type of tickets collected for only some days of the fair. The detailed information on tickets collected categorizes tickets in the following manner: "whole or pay," half-price children's tickets for thirteen cents, 15-cent tickets, "reds," and "ladies." Regular tickets cost twenty-five cents, but I have not been able to discover exactly what "whole or pay" means. Since simply multiplying this figure by a quarter often generates a figure almost equal to the day's total take, it seems this category includes at least some types of discount or free tickets. Neither have I been able to discover the price of "ladies" and "red" tickets. The latter may refer to exhibitor's tickets, although these appear as yellow, orange, and pink in addition to red in the American Institute scrapbooks. An ambiguity in the figures, then, is whether they include authorized but non-paying attendees, though it appears from further information given below that they did not.

Even if these types of visitors are included, a potentially large group of visitors remains unaccounted for. The American Institute issued tickets to members, judges, and invitees, each of whom was entitled to bring along his or her entire family. Like the exhibitor and employee tickets, these also entitled holders to multiple reentries for the entire course of the fair. Although officially nontransferable, it seems likely that these passes were indeed frequently transferred. Instructions on the back of the exhibitor's ticket, for example, direct ticket collectors to confiscate tickets presented by anyone other than the person named on the front, suggesting an attempt to guard against this practice. It seems difficult to imagine, however, that ticket collectors could have put names to faces

¹⁰⁶⁰ *American Institute Report on Agriculture* 3 (1844): 8; *Monthly Journal of Agriculture* 1 (Jul 1845): 18.

among the thousands of exhibitors, employees, members, judges and guests. A printing committee's invoice from a local printer records an order for 8,850 special tickets of this kind.

I employed the following method to arrive at an estimate for the number of tickets collected at the gates for the entire fair. Using the twenty-three days for which I found complete data, I divided each day's sales figure by the total number of tickets (across all categories) in order to arrive at an average daily yield per ticket collected. These daily ticket yields ranged from a low of \$0.16 on Monday and Tuesday, October 26 and 27 to a high of \$0.24 on Wednesday, October 14. Both the mean and the median yields for all twenty-three days came to \$0.20. Because attendance invariably conformed to weekly patterns (Fridays, for example, were the most popular days), I also calculated average yields for each of the three whole weeks for which there is complete data. This again came to an average of \$0.20 per ticket collected. Therefore it appears that while the total attendance on a given day was highly susceptible to the influence of factors such as weather and day of the week, the distribution of the different kinds of tickets was generally steady. On this basis I then divided the total revenue generated from ticket sales for the entire fair by the average ticket yield of \$0.20 to obtain a figure of just short of 128,000 for the total number of tickets likely collected for the entire fair. Some confirmation of this figure can be had by reference to the complete ticket account book of Frederick George Wood, who appears to have been one of the ticket collectors. For the entire course of the fair, Wood collected 49,400 whole and half tickets bringing in \$11,907. Extrapolating from the total ticket sales results in about 106,000 whole and half tickets, to which have to be added the fifteen-cent, "ladies," and "red" tickets.

According to the American Institute's annual reports, the number of paying tickets should be multiplied by four or five to obtain the true attendance. The report of 1844, discussing the previous year's exhibition, explains the matter in detail:

The amount actually received at the door of Niblo's Garden, was \$9,678, which would pay for the entrance of 38,712 persons. To this number must be added, those who either of right or by courtesy were admitted free—to wit: the members of the Institute and their families,—the contributors, who were provided also with some additional tickets,—United States, State, and Corporation Officers,—the Judges, and Delegates from other Institutions, and distinguished men from all parts of the Union—Charitable Schools, &c. And to these must likewise be added, the very large number who gain admittance by the transfer or loan of tickets, and other deceptive modes, which, from the peculiar arrangement of the premises it was impossible to guard against. A comparison was made on several days, between the estimated number of persons who passed into the garden, and the receipts at the door on the same days. It was found that not more than one out of five paid for admission, which accorded with the opinion previously expressed by the door-keepers. This conclusion is reached upon the best authority of which the case admits, and would prove that 154,848 persons had visited or attended the Fair.

Subsequent Institute reports made similar claims. The managers of the 1851 fair, for instance, contended that 88,000 tickets sold represented an actual attendance of “over 300,000 persons.”¹⁰⁶¹ If this ratio is indicative, then the 1857 fair may have been seen by something like 500,000 people. Whatever the real figure, it is likely on the same order of magnitude as those reported by the Institute itself and by other observers. Elaborate efforts at quantification aside, perhaps the most obvious evidence that the American Institute fairs were major events was simply the fact that they were held in the New York Crystal Palace.

¹⁰⁶¹ *American Institute Report on Agriculture* 3 (1844): 425–426; *Transactions of the American Institute of the City of New York* 10 (1852): 221.

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