David R. Coker, Pedigreed Seeds, and the Limits of Agribusiness in Early-Twentieth-Century South Carolina

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On October 22, 1965 a crowd of some three hundred people gathered in Hartsville, South Carolina to witness the dedication of a local site as a registered national historic landmark [Rogers and Nelson, 1994, p. 269]. The site was unusual in some ways, as it did not memorialize some local bigwig's boyhood home or stand tribute to some long-forgotten military skirmish. Rather, the site was that of an old farm, the original experimental farm of a local seed breeder named David R. Coker. The plaque put up on the site that day carried the following inscription:

> In 1902, in the field directly across from this marker, David R. Coker began the first successful commercial cotton improvement program in the United States based on scientific plant breeding. Subsequently, he founded Coker's Pedigreed Seed Company, and through this organization extended his efforts with equal success to include most of the principal southern field crops. In this undertaking, his close associate was George James Wilds, dedicated plant breeder. Under Mr. Coker's direction, ably supported by a staff of loyal scientists, these farms became a center of scientific endeavor. Combined with his signal success in plant breeding and his crusading zeal for improved agricultural methods, Mr. Coker's inspiring example of selfless devotion to Southern farmers resulted in his becoming widely acclaimed as the South's foremost agricultural statesman [Rogers and Nelson, 1994, p. 269].

Even after discounting the puffery expected on such memorials, the Department of the Interior's marker contained more than an element of truth. The subject of the tribute, David R. Coker—"Mr. D.R.," as he was known locally—was one of the more important and interesting, if little remembered business figures in the early-twentieth-century South. Not only was Coker one of the first practitioners of modern agribusiness in the Southeast, but, in addition, he seems in many ways an exemplar of the Chandlerian model of "visible-

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hand," market organization and coordination [Chandler, 1977].[1] That he also articulated and actively promoted a systematic, if flawed and ultimately ineffectual program for rural reform in the South adds to his historical importance. In this paper I shall attempt to do several things: trace Coker's business career, outline his various attempts to organize and coordinate markets, and briefly lay out and critique his program for the reform of southern "rural civilization." My hope here is bring Coker to the attention of business historians and to open up a discussion on Mr. D.R.'s place in southern economic history.

David Robert Coker, the third of seven children born to James Lide and Sue Stout Coker, was born in the town of Hartsville in Darlington County, South Carolina on November 20, 1870.[2] The Cokers were a prominent merchant/planter family of Welsh ancestry, which had resided in the area around Hartsville in the so-called Pee Dee region of South Carolina since the 1740s. This region is difficult to define precisely, but essentially includes the areas in northeastern South Carolina in the Great and Little Pee Dee River basins in the upper coastal plain. The heart of the Pee Dee lay in present-day Marion, Marlboro, and Darlington counties, but at least ten present-day South Carolina counties lay wholly or partly in the region. The Pee Dee, a poor, hardscrabble part of South Carolina during most of the twentieth century, played a prominent role in the South's first cotton boom in the early nineteenth century. Indeed, both the area's early economic success and its later problems were tied closely, perhaps inextricably, to cotton, which crop figured prominently in the trajectory of the Coker clan as well.

James Lide Coker had helped his father Caleb Coker, a prosperous storekeeper/ planter, run a large cotton plantation near Hartsville prior to the Civil War, but the transformation of agricultural and social relations in South Carolina after Appomattox led the family more and more into mercantile concerns. Indeed, by December 1865 James Lide Coker in partnership with his father had established a business in Hartsville that would remain the heart of the Coker family's enterprises for decades afterward: the mercantile firm known as J.L. Coker and Company.

James Lide Coker's second son, David Robert Coker, received his early academic training at St. David's Academy in nearby Society Hill, before enrolling at the University of South Carolina in 1887 at the age of sixteen. After taking his A.B. degree from USC in 1891, the young man returned to Hartsville to work in

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[1] In his emphasis on specialty production of a premium crop (Upland long-staple cotton), Coker can also be seen in some ways as a representative of "Scrantonian" strategies [Scranton, 1997].

[2] Most of the evidence employed in this essay is derived from materials found in the David R. Coker Papers, South Caroliniana Library, University of South Carolina, Columbia, S.C. This huge collection — over 64,000 items— is particularly useful for the period from August 1916 until the time of Coker's death in November 1938. Hereinafter this collection will be cited as DRCP. For biographical material on David R. Coker specifically and the Coker family generally, see Dictionary of American Biography, 2 (New York, 1929), 280-81; Rogers and Nelson [1994]; Simpson [1956].

the family's thriving store. David Coker had a knack for business, and soon became a partner in the firm, along with his father and his brother-in-law Joseph J. Lawton.

Throughout his youth, Coker had displayed an avid interest in agriculture, gardening, and horticulture, and when health problems forced him to withdraw temporarily from the mercantile business in 1897, he began to act on this interest by establishing, ostensibly for therapeutic purposes, an embryonic experimental farm at Hartsville. Coker seems to have come by this interest naturally or, more precisely, genetically: his father James Lide Coker—known in the area as "the Major" because he had achieved that rank with the C.S.A. during the Civil War—had studied at Harvard with Asa Gray and Louis Agassiz in the late 1850s, and had conducted crop experiments in the Hartsville area off and on since that time.

The younger Coker's first significant field results involved sweet corn, but by 1898 he was conducting serious field experiments on the crop with which his name was later so closely linked—cotton—publishing his early results in 1899 in the South Carolina Agricultural Experiment Station Bulletin [Simpson, 1956, p. 132].[3] Although Coker was to play a prominent role in the firm of J.L. Coker and Company (and other family enterprises) for the rest of his life, and it was primarily for his field experiments and the plant-breeding business resulting therefrom that he merits remembrance today.

This said, it would be a serious mistake to attempt to isolate David Coker's principal business concerns from those of the family as a whole. Indeed, Mr. D.R.'s later success in plant-breeding and cotton trading, such as it was, was underpinned and reinforced, if not predicated upon the capital, contacts, and connections of kith and kin. It was not just the family-owned mercantile firm, J.L. Coker and Company, that provided this economic platform either. Siblings, in-laws through marriage, and family allies and retainers controlled an array of enterprises in Hartsville and environs, enterprises ranging from agriculture to commerce, from finance to industry, all of which would later prove invaluable to David Coker's own agribusiness activities. At the turn of the century, the Coker family extended—or what some sociologists would refer to as the Coker family's identity-inflected network—owned and operated a paper mill, a paper-products mill (forerunner of today's Sonoco Products Company), a fertilizer mill, two cotton-oil mills, and a cotton mill among other activities. The family operated its own railroad line (the Hartsville Railroad), founded a local college for women in 1908, known eponymously and not surprisingly as Coker College, and came to control banks and trust companies, as well as the Hartsville newspaper [Rogers and Nelson, 1994, pp. 16-17, 39-40, 101-102; Simpson, 1956, pp. 98-99, 103, 107-08].

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[3] Coker later explained that what he was trying to do in these experiments was to conduct "a scientifically accurate test of fertilizer on cotton varieties." See David R. Coker, "A Personal Letter to Southern Farmers," November 20, 1926, in Pedigreed Seed Company, Catalogue, 1927, p. 1.

The family's stock of cultural capital proved no less helpful. David's younger brother William C. Coker took a Ph.D. in botany at The Johns Hopkins University, establishing excellent contacts at the Department of Agriculture while in the Washington area, before joining the faculty at the University of North Carolina in 1902. One of William C. Coker's Washington contacts in particular, the eminent plant physiologist Herbert John Webber, was to work closely with David Coker on a variety of plant-breeding projects, and for a time was general manager of Mr. D.R.'s most important business, the Pedigreed Seed Company.[4]

The Cokers also maintained excellent political contacts in Columbia, the state capital, and later in Washington as well— David Coker's second wife, for example, was the daughter of Daniel C. Roper, a key Democratic operative under Woodrow Wilson and FDR. The fact that Mr. D.R. spent over twenty years on the Board of Trustees of the University of South Carolina and as a Director of the Richmond branch of the Federal Reserve Bank was not unrelated to this point.

In the end, however, despite such extra-local contacts and connections, it is clear that David Coker's agribusiness initiatives, for better or worse, were embedded, deeply embedded, in the economy of the Pee Dee. If such embeddedness gave Coker some important entrepreneurial advantages, it also limited and circumscribed both his freedom and his mobility at least to some degree. In any case, once Coker began his crop-breeding experiments, he began down a path from which he never deviated again.

Scientific crop-breeding was in its infancy at the turn of the century [Kloppenburg, 1988, pp. 66-90; Stoskopf et al., 1993, pp. 1-25; Jensen, 1994, pp. 179-94]. The "rediscovery" of Mendel by American scientists gradually gave rise to modern genetics, and botanists and plant physiologists throughout the country at once intensified and systematized their efforts to improve seed stocks. David Coker's efforts to breed and select cotton at his Hartsville experimental farm should be viewed in this context. Though no scientist himself, Coker's instincts and networks brought him into contact time and again with professional botanists and physiologists, most notably the aforementioned Herbert John Webber, who helped him to formalize his breeding experiments with cotton and other crops.

Cotton is a notoriously difficult plant to improve through breeding, both because many of its traits are inheritable and because random or at least unplanned environmental interactions, particularly cross-fertilization of varieties, impede even careful and well-designed field experiments [Lee, 1987, pp. 134-39; Stoskopf et al., 1993, pp. 466-68]. Coker's early work in cotton-breeding, arguably the work for which he is still best known today, focused on breed-

[4] In other words, Coker's contacts at the Department of Agriculture, and his relationships with private breeders and with personnel affiliated with state experiment stations and land-grant institutions afforded him access to "information networks" such as those that Naomi Lamoreaux, Kenneth Sokoloff, Peter Temin, Daniel Raff, and Zorina Khan among others have found to be central to innovation and technological change. For biographical details on H.J. Webber, see Dictionary of American Biography, Supplement Four (New York: 1974), pp. 862-63.

ing so-called Upland long-staples fixed with desirable characteristics. Fixing characteristics perceived as desirable in cotton —long staples, large bolls, a high lint/seed ratio, uniform, strong fibers, high yields, and early maturity— proved a laborious and protracted process for Coker and his staff, particularly since Coker himself was heavily involved in day-to-day operations of J.L. Coker and Company, the family mercantile business in Hartsville, even as he oversaw breeding work at his experimental farm.

The density of Coker's networks and the importance of such networks to his improvement efforts are captured nicely in the story of Coker's first great breeding successes: the development of the so-called Hartsville and Webber varieties of cotton in the first decade of the twentieth century. These Upland long-staple cottons were developed between 1902 and 1910 by selectively breeding Upland varieties that were themselves originally the result of natural or at least unplanned crosses of Egyptian and Upland varieties.[5] The idea behind the breeding experiments seems to have originated with H. J. Webber, who, while working as a breeder for the USDA, presented some of his ideas on selective breeding to a group in Washington, D.C. which included William C. Coker. Will Coker, working at the time on his doctorate in botany at Johns Hopkins, struck up an acquaintanceship with Webber, discussed plant-breeding with him, and quickly brought Webber's work to the attention of his brother, David, and his father, James Lide Coker, in Hartsville. Mr. D.R. and "the Major" both were excited about Webber's work and invited him down to Hartsville to inspect their own operations. The rest is history, as they say. Webber visited Hartsville in 1901, exchanged ideas with the Cokers about breeding, and entered into a long-term friendship and on-and-off crop-breeding collaboration with the family, one result of which collaboration was the development of the Hartsville and Webber cottons [Simpson, 1956, pp. 132-36; Rogers and Nelson, 1994, pp. 16-23].

Webber's key contribution here was to add a much-needed scientific overlay to David Coker's admittedly keen intuition. Simply put, Webber believed that in order to minimize unwanted environmental interactions, particularly unwanted cross-fertilization with other varieties, field tests must be conducted under carefully controlled conditions predicated on the "plant-to-row principle," that is to say, the seed of each individual test plant in a separate row. The "plant-to-row" principle, embodied in the breeding strategy known formally as single-line selection, represented a significant improvement over a practice known in the literature as simple mass selection. According to this rudimentary procedure—a procedure still common in many parts of the South in the late nineteenth century—a farmer would merely save seed from his/her best plants in one year for use in subsequent years, combining the same in a casual way with seed acquired from neighbors, seed dealers, furnishing merchants, and the like. Not surprisingly, this ad hoc procedure often led to natural, if unpre-

[5] For details on the development of these varieties by Coker and others in his employ, see Pedigreed Seed Company, Catalogue, 1927.

dictable crossings of one type or another, and, hence, to greater and greater variability [Kloppenburg, 1988, pp. 51-52, 78-79].

The "plant-to-row" technique was explicitly designed to minimize such unplanned variability. Planting in this way would in principle allow the breeder at once to identify plants with desirable traits, select the plants so identified for further breeding tests, and isolate such plants from others with traits deemed less desirable. Multiple iterations of this process would over time "fix" the desirable traits identified. Once fixed, the breeder could sell or otherwise distribute pure, uniform seed to those interested in that seed's characteristic traits.

Buying into Webber's scheme, David Coker, in conjunction with his brother Will and another Hopkins-trained breeder (Daniel N. Shoemaker), began employing the "plant-to-row" procedure systematically. Over time, Mr. D.R. mastered this procedure, as well as other more complex hybridization techniques.[6] In so doing, Coker and his team of breeders succeeded in breeding not only the popular Hartsville and Webber Upland long-staple cottons, but other plants as well: additional varieties of cotton, most notably, the Cleveland Five and Coker 100 short-staples, and the Wilds long-staple; small-grains, particularly varieties of oats, sorghum, and rye; corn, bred specifically for southern climatic and soil conditions; tobacco; and diverse legumes such as velvet beans and peas.[7] In these efforts, Coker was also aided, beginning in 1908, by the Cornell-trained botanist George J. Wilds, who worked as a crop- breeder for Coker for over forty years. Indeed, "aided" may be too weak a verb: many of Coker's breeding successes owed a great deal to Wilds, who, upon Coker's death, succeeded to the presidency of the Pedigreed Seed Company, a post he held until his own death in 1951 [Rogers and Nelson, 1994, pp. 146-50, 152-55, 242-49; Simpson, 1956, pp. 167-70, 196-200, 215-18].

The business of crop-breeding does not begin and end with successful field tests, of course. Successful field tests must be "sold," as it were, by developing a market for seed. In many ways, it was in the marketing end of the breeding business that Coker's key contributions lay. Other breeders in Mississippi and the Gulf area were also developing important new varieties of cotton, and, even in Hartsville, Coker had to share credit for his successful breeding efforts with other members of his team, men such as Webber, Wilds, J.B. Norton, and S. Pressly Coker, Mr. D.R.'s first cousin. In the marketing realm, however, David Coker's personal contributions are clear. Here, he demonstrated considerable entrepreneurship, leveraging his wealth, contacts, business acumen, and promotional skill in a relatively comprehensive and sophisticated way to attempt to develop a market for premium cotton throughout the South.

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[6] Note that prior to the advent of hybrid corn in 1935, the term "hybridization" was applied very broadly to denote the "cross-breeding or sexual combination of two varieties of a plant or animal." After 1935, the term took on the narrower modern definition, i.e., a combination of two inbred lines. See Kloppenburg [1988, p. 68].

[7] Coker was constantly publicizing and promoting the use of better seed in the South. See, for example, *Hartsville [S.C.] Messenger,* August 22, 1907; *Sunday News and Courier* [Charleston, S.C.], June 14, 1908.

That his seed business was seldom profitable, that his efforts at market development ultimately failed, or at least never succeeded much beyond the immediate Hartsville area, tells us much about both the limits of Coker's top-down approach to development and the intractability of the economic problems plaguing the early twentieth-century South [Simpson, 1956, pp. 204-06; Rogers and Nelson, 1994, pp. 117, 152-53, 155, 195-99, 230, 246, 248, 255].

After successfully breeding the Hartsville and Webber varieties, Coker quickly realized that in order to capitalize financially on these premium cottons he would have to devote more time and attention to marketing matters. In 1913 he spun off his breeding operations from J.L. Coker and Company, setting up the Pedigreed Seed Company, over which concern he himself presided [Rogers and Nelson, 1994, p. 39]. From the start Coker worked hard to publicize and promote his seeds, and to establish and organize both the agricultural infrastructure and the distribution channels necessary for producing and marketing premium cottons. The latter tasks were difficult to say the least. Private seed breeders and sellers had poor reputations at the time all over the United States, largely the result of the gap between the promotional claims breeders and sellers made about particular seeds and farmers' actual experiences with the same [Kloppenburg, 1988, pp. 71-84]. Such general problems were exacerbated in Coker's case because the South's agricultural sector in the early twentieth century was nothing if not poor, inefficient, and hidebound, hardly a setting propitious for the production of long-staple cottons, which required much greater care in cultivation and handling than did short-staple varieties [Fite, 1984, pp. 30-119; Daniel, 1985, pp. 3-61; Wright, 1986, pp. 81-123].

Coker attacked these problems head on, mobilizing the full panoply of assets at his disposal to establish a viable market for premium cotton produced with his company's pedigreed seeds. Not only did Coker promote better cultivation practices through demonstration work, speeches, articles in the agricultural press, publication of seed catalogues, participation in prize competitions, and the like, but he also pushed hard to improve handling and ginning practices, and to bring about standardized cotton grading in the South.[8] Coker's seed customers could get crop financing from the J.L. Coker Company and they could sell high-grade, Upland long staples to Mr. D.R.'s cotton-buying firm, the Coker Cotton Company. Nor was that all. Coker attempted to manage risk by organizing a cotton-futures market in Hartsville and used his business, professional, and political contacts to establish "downstream" links with textile mills in the Carolinas, in New England, and in Europe. Indeed, Coker courted mill treasurers incessantly, pushing and promoting the use of premi-

8 See, for example, David R. Coker, "Circular letter to the Farmers of Darlington County," 1915, DRCP; David R. Coker to [U.S. Congressman] A.F. Lever, September 18, 1916, DRCP; Coker to Lever, January 27, 1917, DRCP; David R. Coker to Bright Williamson, June 20, 1917, DRCP; David R. Coker to J.J. Wingard, November 2, 1917, DRCP; David R. Coker to W.G. Smith, May 9, 1918, DRCP; Coker to Smith, May 11, 1918, DRCP.

um, long-staple cotton for fine-goods production—at a premium price.[9] The Pedigreed Seed Company's trademark—a red heart emblazened with the words "Blood Will Tell"—became the company's mantra, repeated over and over again to recalcitrant farmers and reluctant mill men [Rogers and Nelson, 1994, pp. 153-54]. Tell what, one might ask, however? And to what end?

Clearly, in focusing on a specialized niche in the industry and by integrating production, financing, and marketing, Coker's business strategy seems precociously Chandlerian, particularly in the context of the agricultural South. If the strategy never did much for Coker's own bottom line—as suggested earlier, neither the Pedigreed Seed Company nor the Coker Cotton Company was ever very profitable—it did seem to pay developmental dividends to that part of the Pee Dee around Hartsville, which became relatively prosperous as a result of its Upland long-staples in the first part of the twentieth century. Beyond Hartsville and environs, Coker's developmental impact is more difficult to gauge, though it would be hard to argue, given the state of southern agriculture during the 1920s and 1930s, that Coker or his pedigreed seeds had had a significant developmental impact on the southern economy or even on South Carolina.

Coker himself feared as much—indeed, in his more candid moments, admitted as much—and over the last two decades of his life increasingly concerned himself with broader reforms intended at once to save "rural civilization" and to modernize, if not to remake altogether the South's agricultural economy. Although many of these ideas were already in the air—one thinks immediately of the so-called Country Life movement of the early twentieth century—Coker added some original themes, variations, and, alas, hobby horses of his own [Bowers, 1974]. Thus, his public-health campaigns, and pleas for land reform and diversification out of cotton; his promotion of better roads, greater cooperation among farmers, bankers, merchants, and manufacturers, and his pitches for rural schools. And, going even further, his rather quaint and muddle-headed schemes, with Wilmington banker Hugh MacRae and others, to resettle Scandinavian farmers in "Jeffersonian" subsistence agricultural communities throughout the rural South [Conkin, 1959].[10]

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[9] David R. Coker to Russell B. Lowe, September 30, 1920, DRCP; David R. Coker to John Murray, February 26, 1921, DRCP; David R. Coker to J.E.M. Ulrych Whitmore, February 26, 1921, DRCP; David R. Coker to Vechten Waring, February 12, 1923, DRCP; Corn, Schwartz and Co., to David R. Coker, March 3, 1923, DRCP; Henry G. Lord to David R. Coker, June 29, 1923, DRCP; Coker to Lord, August 3, 1923, DRCP.

[10] The Coker Papers are replete with materials relating to David R. Coker's ideas on the ruform of "rural civilization" in the South. See, for example, David R. Coker to Clarence Poe, December 9, 1918, DRCP; David R. Coker, "Cotton Letter No. 10," January 7, 1921, DRCP; David R. Coker to Director of Extension, October 26, 1925, DRCP; David R. Coker to Hugh MacRae, October 12, 1928, DRCP; David R. Coker to E.C. Branson, November 28, 1928, DRCP. On his resettlement schemes, see, for example, David R. Coker to D.W. Alderman, September 24, 1917, DRCP; Hugh MacRae to Richard I. Manning, September 21, 1923, DRCP; Hugh MacRae to David R. Coker, December 26, 1923, DRCP. Note that the Coker Papers also contain a great deal of material relating to Coker's activities with the South Carolina Land Settlement Commission. On the work of the commission, see Rogers and Nelson [1994, pp. 140-46].

Unfortunately, the agricultural crisis in the South in the 1920s and 1930s proved more powerful than Coker's pedigreed seeds, his arsenic-and-molasses recipe for boll weevil control, and even for his cherished Danish "folk schools" [Rogers and Nelson, 1994, pp. 118-33, 140-46, and passim]. When Mr. D.R. died suddenly of a heart attack on November 28, 1938, both the southern agricultural economy he strove to improve, and the rural civilization he tried to mend were dying too. Coker's limited, if well-intentioned, top-down approach to development—an approach blaming much, probably too much, on the "ignorance" and "extravagance" displayed by farmers from classes other than his own—ultimately proved insufficient even in the Pee Dee, much less the rest of the South. In the last analysis, David R. Coker was an important plant breeder, agribusinessman, and social reformer. He was a well-intentioned conservative modernizer with a coherent, if class-bound view of the world. Over the course of his 68 years of life, he undoubtedly was a positive force in the Pee Dee area and did a great deal of good, particularly in and around the town of Hartsville. He was, however, no match for what David L. Carlton has referred to as the "complex of interlocking rigidities" that by 1938 had destroyed the agricultural regime that was born, like David R. Coker, just after the Civil War.[11] To this regime, to this South, and to Mr. D. R.: r.i.p.

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[11] David L. Carlton, book review, *South Carolina Historical Magazine* 96 (October 1995): 340.

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