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THE HEIRS OF JAMES C. MALIN: A GRASSLAND HISTORIOGRAPHY

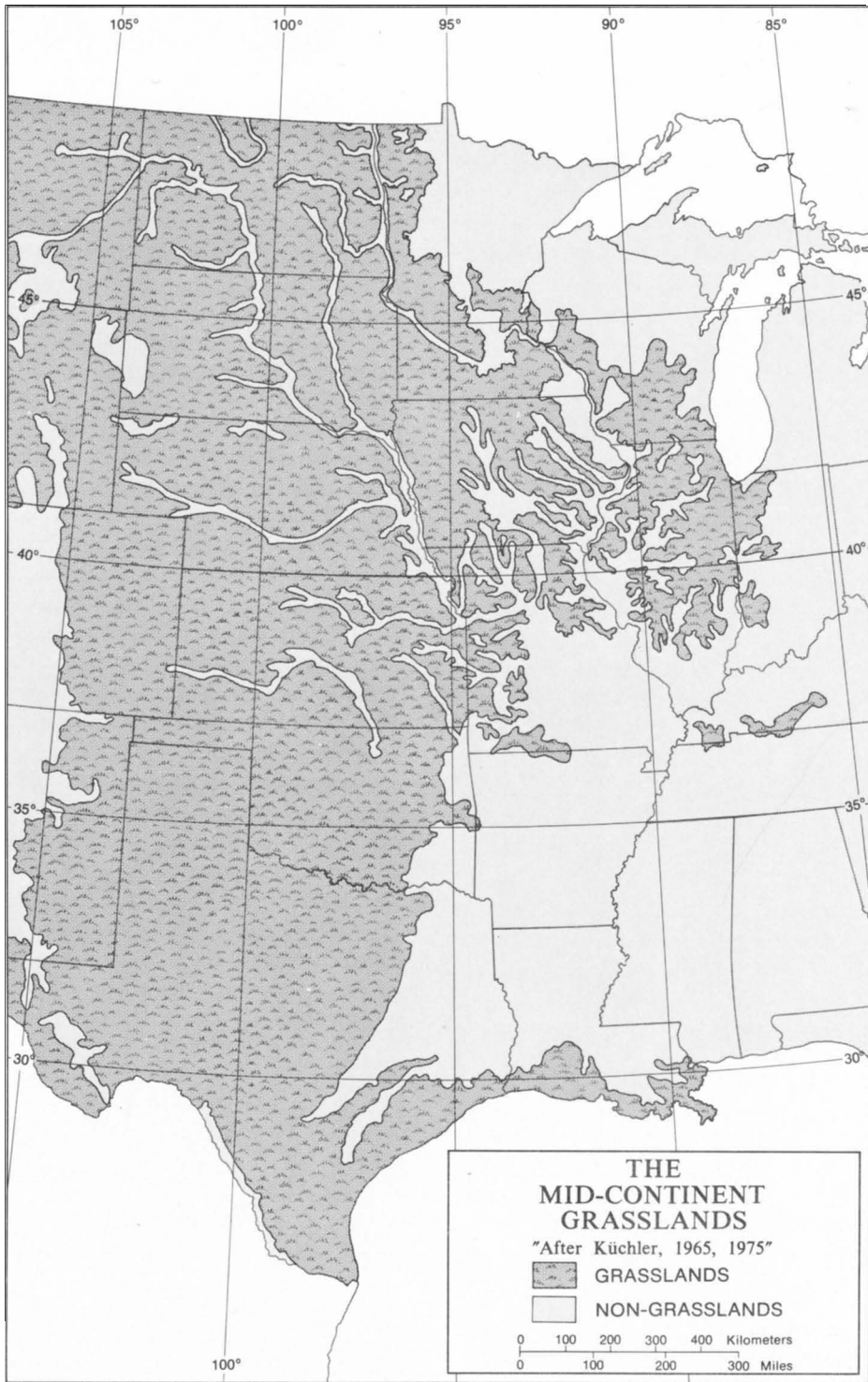
ALLAN G. BOGUE

In the early pages of his important novel of western life, *Zury, The Meanest Man in Spring County*, Joseph Kirkland brought the Proudler family to the blazed tree that marked the location of the Illinois land that was to be their new home, the "woods behind" and the "prairie before" them. Herbert Quick halted young Jacobus Vandemark on the bluffs above Dubuque, where the first great rolling sweep of the prairie grassland lay spread before him, and reported that a great surge of emotion coursed through the boy. John Ise pictured the covered wagon of his parents, Rosie and Henry Ise, on the afternoon when the stocky veteran of the Civil War and his bride reached the plains-country homestead that he had been developing in Osborne County, Kansas. Such rendezvous of man, woman, and grassland, fanciful or real, were duplicated in actuality thousands of times during the settlement of the great western interior of the country. Of the three,

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the later experiences of the Ise family most closely follow the scenario of western settlement that the mass media have implanted in the minds of most Americans.¹

Henry Ise acquired his first land by homesteading. He and his family endured drought, grasshoppers, and the departure of relatives and neighbors. Henry and Rosie were threatened by debt and by prairie fire, blizzard, and dust storms. They feared the depredations of lawbreakers, suffered the inevitable farm accidents, lost a child to death, and watched in helpless sympathy as another suffered crippling paralysis. Yet, amid the hardships, they broke land, built fences, acquired title, and got still more land. A stone addition was joined to the original log cabin and then, after a good year, they built a two-story house. The stock of farm machinery increased, a windmill appeared at the farmstead, and ultimately, a handsome barn was built. When the mortgage was paid off after years of worry, the family held a celebration; Henry and one of his daughters went to the World's Fair in Chicago in '93. And during these family trials and triumphs, the community settled up around the Ises, the railroad came, elevators rose beside it, and the days of pioneering faded into memory.



The story of the settling-in process is only part of the history of the grassland since Euro-Americans began to develop an intensive agriculture there. Pioneer farmers confronted the eastern fringes of the grassland in the early nineteenth century. The initial confrontation was still under way on its western rim during the second and third decades of the twentieth century. By that time generations of farmers farther east who had never broken an acre of virgin prairie or plains country had contributed their life histories to the collective record of the grassland. The unique environment of the grassland, coupled with the excesses of the economic system, periodically forced farmers and policy makers to reassess the potential of portions of this great region. So traumatic indeed were the "dirty thirties" that the re-evaluation threatened to become a regional postmortem.

Actually, grassland farmers were involved in a number of processes that changed through time and space in various respects and at varying rates: (1) Farmers passed through a life course typical of farm experience, and the amount of family labor available and their plans for the next generation influenced their decision making. (2) Whether immigrant or of families long established in America, frontier farmers were culture bearers, carrying values and unique knowledge that might help or hinder them in adjusting to the demands of a strange environment and a changing industry. (3) Pioneer farmers were engaged in creating new farms from virgin land with all that this involved in the way of land clearing, sod breaking, fencing, and the erection of farm buildings. (4) Frontier farmers also adjusted to the natural environment as they assessed the degree to which the cropping patterns and management practices with which they were familiar were also effective in their new homes. (5) In general, American farmers became increasingly involved in an exchange economy in which they emphasized the farm enterprise, or combinations of enterprises, that gave them the greatest comparative advantage (or perhaps

least disadvantage), and they bought an increasing variety of foods, clothing, and production goods. (6) Since transportation facilities and marketing opportunities and prices changed through time, the farmer's optimal combination of enterprises might also change periodically. (7) Farm technology also changed after 1820 as agricultural inventors sought to adapt the innovations of an industrial age to the service of the farmer—first primarily in the form of horse-powered machinery, and after 1900, utilizing the power of the steam and internal combustion engines and electricity. (8) Finally, farmers were members of neighborhoods, communities, and a larger society that supplied them with economic goods, services, and markets, helped to shape their goals, and provided social contacts, services, and sanctions as well. Agricultural historians, whatever their geographical focus, have displayed more interest in some of these processes than others, but it is important to remember that the complete regional history will deal adequately with them all.

It is my purpose to consider some of the developing trends and research opportunities in the agricultural history of the central and northern grasslands in the United States since World War II. Agricultural practices were by no means identical throughout this region. The farmer of the tall-grass prairie regions has always faced environmental and institutional challenges that are different from those confronted by his counterpart in the short-grass country of the high plains, and indeed, sub-regional variations have been apparent even within the prairie or high plains. But the comparative insights that such differences provide seem valuable, and there are prestigious precedents for considering the grassland as a unit in some respects. Although there is much that we still do not understand, and although scholars have as yet left many chapters in the agricultural history of the region unwritten, a considerable bibliography has accumulated and the discussion will necessarily be highly selective.²

JAMES C. MALIN

Two professional historians, beyond all others, have set the bounds within which most recent historical writing about the grassland rests. Although the contributions of both have been important, one of these authors, Walter Prescott Webb, has received much more attention than the other. James C. Malin is not as well known to scholarly and public audiences, perhaps because of his methods of presentation, his attacks on sacred cows, and his personal shyness.

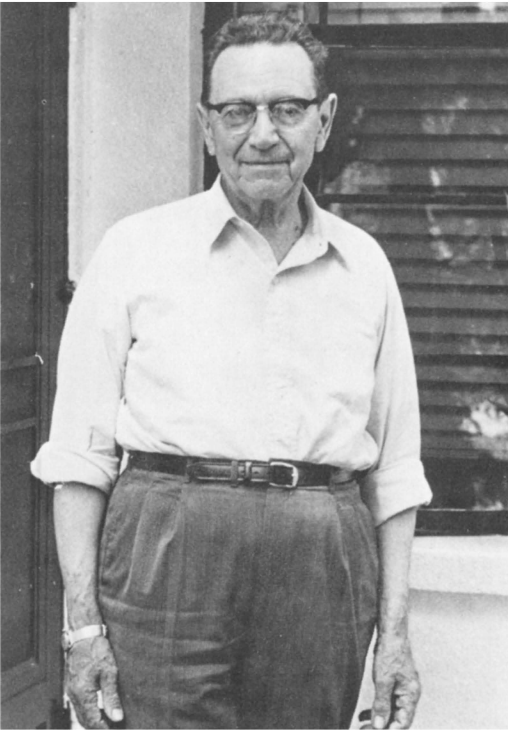
Webb's classic statement, *The Great Plains*, pictured a great region of grassland that was essentially different from the forest lands of the eastern United States and the immediate valley of the Mississippi. When pioneers with woodland pioneering skills met the full challenge of grassland conditions at the 98th meridian, a dramatic stalemate occurred, wrote Webb. But, with the Texan cattlemen leading, the settlers surged beyond this middle border after the industrial revolution placed the railroad, the six-shooter, the windmill, and barbed wire at their service, and in the process, they significantly altered various institutions brought from their woodland homes. Hamlin Garland had already written of a "middle border" and Herbert Quick emphasized the woodsman's difficulties in understanding the grassland in *Vandemark's Folly*, but Webb's elaboration of these themes was masterful, if highly selective. In 1938 the officers of the Social Science Research Council made *The Great Plains* the subject of a scholarly symposium at Sky Top, Pennsylvania, and selected Fred A. Shannon to prepare a critique that would serve to focus the discussion. Shannon gagged at the boldness of the Texan's generalizations. He preferred to picture the settlement process as one of continuous adaptation, frontier by frontier, and concluded that much of the detail in Webb's presentation was distorted.³ On grounds literary, historical, and personal, Webb refused to accept the validity of the critique; essentially the conference ended in stalemate.

Was Webb's thesis that settlers experienced a

kind of culture shock in the vicinity of the 98th meridian credible or was frontiering merely a long story of adaptation that was not substantially altered on entering the grassland or at a particular point within the grasslands? From our perspective we can see that the disagreements between Webb and Shannon were variations on a thematic argument that has involved frontier studies and history generally since 1930. Are differences or changes in life experience or institutions more worthy of the historian's attention than continuities? Or—put somewhat differently—when have changes in ideas or institutions been so important that they should be emphasized rather than the continuities in human experience? The Turnerians argued that the frontier experience was sufficiently different from life in long-settled regions to work a fundamental change in the character of Americans and their way of life. Webb and Shannon disagreed about whether one frontier was different enough from its predecessors to make it worthy of special attention.

The organizers of the Sky Top conference might have done more to advance social science if they had invited James C. Malin to prepare the critique on *The Great Plains* rather than Fred A. Shannon. But at the time Malin probably did not yet command the full body of knowledge that ultimately would have made him the ideal choice. Born on the northern plains, reared within fifty miles of Dodge City, and educated in Kansas, Malin completed his doctorate under the direction of Frank Heywood Hodder, who emphasized a wide-ranging and eclectic approach to historical problems. Malin took Webb seriously. He dismissed the oversimplifications and exaggerated emphases in the Texan's analysis as the understandable shortcomings of an explorer, striding boldly into new territory and mapping the terrain as he went. He was impressed also by Webb's willingness to draw from the work of scholars in other disciplines. In this tendency he saw the promise of a more perceptive regional history than any that had been done before.

While of this turn of mind, Malin accepted



JAMES C. MALIN, 1964

Courtesy of the Kansas State Historical Society, Topeka, Kansas.

an invitation to deliver the commencement address at the high school in his home community in Edwards County, Kansas. His presentation was published by the Lewis Press in 1933 as, "The Evolution of a Rural Community: An Introduction to the History of Wayne Township, Edwards County, Kansas." In preparing this talk Malin considered the problems of adaptation that the settlers faced in Edwards County, and he used the evidence in the Kansas manuscript agricultural census rolls and the files of the county newspapers. Webb's general thesis held tremendous implications for the historian of western agriculture, but his book seldom assessed the individual farmer's problems or responses. Malin's intensive local research allowed him to provide a different kind of picture. From the beginning in 1933, Malin moved into regional studies of the central

grassland, unmatched in breadth and depth by Webb or any subsequent author. On the one hand, he examined the evolution of ideas about grassland regionalism both within the scientific community and among members of the general public, and on the other, he intensively investigated the adaptations that farmers made to the plains country environment at a subregional level. He may indeed have been the first American historian to coin the admonition, so prevalent a generation later, that history needed "to be written from the bottom up."

With the publication in 1947 of *The Grassland of North America: Prolegomena to Its History*, Malin reached an important milestone in his scholarly career. This photo-offset book, published at his own expense after he balked at the editorial restraints of established presses, was divided into two parts. In the first half, he presented the evidence from ecology, climatology, geology, geography, and the soil sciences that he considered essential to an understanding of grassland regionalism, along with a summary of the observations on these matters by early explorers in the plains country. The second part of the monograph is entitled "Historiography." Here, after chapters in which Malin dealt with the problems of using the theoretical ideas of natural and social scientists in historical research and the significance of the revolution in communications, he discussed the ideas of fourteen American lay and scientific figures under the title "Pioneering toward Grassland Regionalism." A short chapter follows, concerned with the ways in which regional conceptions were related to the development of tillage and harvesting machinery unique to the grassland environment. At this point Malin had reached the chronological setting in which Webb's *Great Plains* appeared, and here he reviewed the controversy between Shannon and Webb. A series of chapters presenting appropriate methodology for the study of social change complete the book. Three of them summarize the ideas concerning population, agriculture, land tenure, operator turnover, and farm organization that Malin had developed during the previous decade and a

half. *The Grassland of North America* provides a convenient summary of Malin's research on agricultural development and farming as it stood in the mid-1940s; thereafter he turned for the most part to other subjects in his writing.

Systematic study during the mid-1930s of the census returns in a sample of townships in the various rainfall belts of Kansas allowed Malin to generalize about the processes of settlement with a precision unmatched to that time. He discovered that settlers in Kansas demonstrated similar patterns of persistence, whether they lived in the generally humid climate of eastern Kansas or in the more arid regions of western Kansas. During the first few years, any particular census cohort of settlers showed a high rate of loss. After ten years there usually remained only some 30 to 50 percent of the new settlers of a decade earlier or their direct descendants in the male line. Thereafter, attrition was less marked. Usually the outflow of settlers was relatively constant, irrespective of good times or bad. But in times of depression, the replacement flow of new settlers normally diminished. Thus there was an absolute decline of farm operators in some areas during particular years of the nineteenth century. Malin was not primarily interested in comparing the behavior of native-born and foreign-born farmers; he believed the latter to be highly persistent in the first generation, although conforming to the native-born patterns in the second and third generations. Most settlers, he discovered, came to Kansas from noncontiguous states, a fact suggesting that they encountered major problems in adapting their farm practices to the subhumid climate of the central and western part of the state. The proportion of farm operators who were direct descendants of earlier settlers was very small at any given time. At one point Malin presented data that he interpreted as demonstrating "a relatively normal age distribution" among frontier settlers; elsewhere he described frontier male farm operators as "conspicuously middle-aged."

In discussing the size of farms, Malin empha-

sized the tendency of farm operators to enlarge their holdings in times of prosperity and for smaller units to proliferate in times of depression. Various other considerations were reflected in the changing size of farms as well, he believed, including climate, changing systems of communication and transportation, and mechanization; the availability of financing became important later, particularly after 1910. He did not detect a persistent tendency toward the development of larger farms from the settlement period onward throughout Kansas and was skeptical of the argument that the federal system of land disposal had provided plains country settlers with land units that were too small for effective operation. He observed that census estimates of farm size were difficult to evaluate because the pioneers typically used the federal lands and those of nonresidents as grazing commons. Farms in Kansas did not become permanently larger until farm mechanization and the stabilization of population in the western communities was well under way.

Even in eastern Kansas, where the environmental setting clearly allowed the corn-livestock patterns of agriculture to which many of the Kansas settlers were accustomed, Malin found that the combination of farm enterprises had changed over time. Although the proportion of land planted to corn stabilized fairly early, the proportions of supplementary crops changed markedly through the nineteenth and early twentieth centuries. This tendency was more evident in central Kansas, where climatic differences from year to year made it very difficult to decide upon the best long-run combination of crops. Malin discounted reports of early bumper yields as real estate "booming." He believed that the farmers themselves made the fundamental evaluations of regional agricultural capabilities and cropping combinations before the research activities of the USDA and the Kansas State Experiment Station provided much assistance. The adaptation process, Malin believed, was a kind of "folk movement."

Malin argued that "few" Kansas farmers of the nineteenth century could have produced much to sell. He suspected that the "evils and

abuses" of the economic system that contributed to the growth of farm protest movements were probably much exaggerated and he demonstrated how little loss in dollar income would have resulted, even if middlemen misappropriated a substantial proportion from the sale of farm crops. "In overall effect," he concluded, "the hazards of weather on crops and prosperity were greater than the hazards of price." But he also wrote that "inadequate capital resulting in small badly equipped farms was almost as serious an obstacle to successful occupancy of the plains as the difficulties of adaptation." Malin argued that tenant mobility was not much different from that of owner operators, although somewhat greater. In general he was prepared to accept the economist's view that tenancy allowed the most effective combination and management of land, labor, and capital possible at a particular time, rather than the view of the progressive reformer who held that tenancy was a sign of rural pathology.

Malin was not infallible. His quantitative data suggest that he perhaps overemphasized the normality of the frontier population structure, and some of his other readings of quantitative data are arguable. He probably understated the contribution of the agricultural scientist to agricultural adjustment in the grassland after 1910. The significance of some materials in *The Grassland of North America* are not adequately emphasized. Taken as a whole, however, the book is a *tour de force*. It is also true that Malin was selective in his treatment of the history of the evolving agriculture of the plains, as our summary of the various processes involved in farming shows.⁴

POST-MALIN SURVEYS

Malin termed his summative volume on the grasslands "prolegomena" and such it was. Yet no historian since has accepted the challenge implicit in the word. Gilbert C. Fite has come closest to providing a general history of the agricultural settlement of the central and northern grasslands in *The Farmer's Frontier: 1865-1900*. But there were other agricul-

tural frontiers in the United States during the same period, and Fite could therefore devote only about half of his thin volume to the prairie and plains frontiers of the late nineteenth century. In accepting the Turnerian organization and premises of the series in which this book appeared, Fite may well also have inhibited himself from exploring the unique problems of agriculture in the grasslands.⁵

Fite's book is an excellent summary of the progress of settlement during the late nineteenth century and of the general behavior of pioneer farmers. It is particularly effective in describing the vulnerability of the pioneers to the vagaries of prices and precipitation. Fair weather and adequate agricultural prices might allow one poor settler to establish himself comfortably on the basis of several good crops, while another, who began his labors during a period of drought and depression, might work just as long and hard as his successful counterpart but fail utterly. Fite's description of government relief efforts at the state and local level went well beyond the work of others, and he caught the optimism of the boom-time settler well. He described major adaptive efforts, including the search for appropriate crops, the adoption of summer fallowing, the growing understanding of the crucial importance of wheat as a crop in the central plains and beyond, and efforts to irrigate crops where surface or underground water supplies seemed to promise success. He commented perceptively about the operation of the land laws and the implications of debt.

Fite used the federal agricultural census manuscripts illustratively rather than in the systematic manner demonstrated by Malin. Indeed, his book is primarily one of generalization, enlivened by specific illustrations or cogent quotations to him illustrated the typical. There are no turnover estimates to be found in these pages, nor foreclosure nor interest rate nor tax series. In his summary chapter, Fite noted that "the basic problem was one of working out and adapting proper farm organization patterns to fit natural conditions on the Great Plains."⁶ Given his assignment, he could

not develop this hypothesis as a central theme. Few, however, who teach the history of the American West recommend other books in agricultural history to students more frequently than *The Farmer's Frontier*.

Other authors have made significant contributions to our understanding of grassland agriculture. For the reader who wishes a capsule treatment of settlement in the plains country, Robert G. Athearn and W. Eugene Hollon provide a choice in books that are essentially regional surveys. The authors of the more recent state histories of the region have generally included useful but all too brief reviews of agricultural development. Summary articles such as John T. Schlebecker's review of the changing agriculture of western Nebraska, 1906-1966, are highly useful. *The Great Plains in Transition* (1955) by sociologist Carl F. Kraenzel shows the influence of Webb as well as an apparent ignorance of Malin's work. Highly episodic and written with prescriptive intent, Kraenzel's book contains much interesting historical material and some useful citations to sources. Despite the perception, scope, and liveliness of some of these works, progress in developing our understanding of the growth of intensive agriculture in the grasslands rests to a considerable extent upon the work of authors who have published more specialized articles and monographs.⁷

PROBLEMS OF PERCEPTION

The pioneer farmers' initial perceptions of the grassland are much better understood today than they were a generation ago. At that time only Malin had addressed this issue in detail, particularly in his study of the adoption of winter wheat in central Kansas. But in his presidential address to the Association of American Geographers in 1968, Walter M. Kollmorgen examined "geographic perceptions colored by eastern conditions, which led to misguided efforts to project westward certain basic man-land relations that proved inoperative in the drier grasslands." This scholar argued that the incursion of settlers into regions that would

have been better left as the domain of the cattleman were based on mistaken geographic perceptions concerning rainmaking, irrigation, and dry farming. Kollmorgen showed that reputable scientists and public officials, as well as mere boomers, argued that cultivated soil absorbed greater amounts of water than earth under grassland cover and that tree covers enhanced the moisture available. Even the federal government, he noted, supported rainmaking experiments during the early 1890s. Some government scientists, as well as real estate promoters, greatly overestimated the irrigable potential of the high plains. The feasibility of dry farming was also greatly exaggerated, Kollmorgen argued. Federal approval of the Kinkaid Act and other enlarged homestead legislation suggested that nothing more was needed to guarantee the success of settlers in the high plains than somewhat enlarged holdings.⁸

Kollmorgen's address is one example of many research projects undertaken during the 1960s and 1970s by historical geographers concerning Americans' perceptions and images of the grasslands during the nineteenth century. Martyn J. Bowden and others have investigated contemporary geography texts, newspapers, correspondence, diaries, travelers' accounts, narratives of exploration, and surveyors' reports and concluded that during the 1840s and 1850s, many people in eastern educational and elite circles believed that the trans-Missouri West was a Great American Desert. But midwesterners and common folk generally did not share this image and continued to regard the area as a region of prairie-plains that could be settled in the same way that the great prairie triangle east of the Missouri was being settled. This finding considerably qualifies the contentions of Webb, Henry Nash Smith, and other scholars that the conception of the plains as a desert markedly restrained the westward flow of settlement during the mid-nineteenth century. Not all historians of the West had fallen into this trap—Bernard de Voto, Malin, and others dissented, but their voices were surely in a minority.⁹

According to Bowden, the western state officials, railroad officers, and promoters who boomed the central and high plains regions after 1870 exaggerated the degree to which the desert image or myth had formerly held sway, in their efforts to emphasize the striking climatic changes that attended cultivation. In general, treatment of the Great American Desert theme has not enhanced the reputation of historians for perceptive and thorough research. However, David M. Emmons's study of the boomer literature of the central great plains shows the influence of the research by geographers and is a gracefully written and detailed account of the promotional efforts, literature, and arguments that apparently influenced the thinking of many western settlers during the 1870s and 1880s.¹⁰

THE MOBILITY OF FARM POPULATIONS

Malin's view that midwestern settlers were highly mobile was corroborated in the 1930s by A. D. Edwards, an economist of the U.S. Department of Agriculture, who conducted a study of the rural impact of drought and depression in Haskell County, Kansas. During the 1950s and 1960s, Mildred Throne, William L. Bowers, and Allan G. Bogue provided additional corroborative evidence. In research dealing with counties or townships in the prairie regions of Illinois and Iowa, they reported turnover rates among farmers similar to those found in Kansas by Malin and Edwards. They also found some tendency for persistence to increase within census cohorts after the initial ten years, although to a lesser extent than Malin suggested was the case.¹¹

In varying degree, these scholars examined those personal characteristics that seemed associated with early departure. Persons least likely to be found in succeeding enumerations, they suggested, tended to be younger, possessed less property, and were more typically unmarried than those who remained. Although such differences were usually discernible, they were not striking; in retrospect, these authors should perhaps have been impressed by the smallness

of the differences between movers and stayers, rather than by the fact that there were differences. Malin and later scholars were less in agreement concerning the relation of ethnicity to migration. Bogue discovered impressive rates of turnover among some of the foreign-born farmers in Bureau County, Illinois, in the mid-nineteenth century. In investigating such matters in Trempeleau County, Wisconsin (adjacent to if not appropriately considered part of the midcontinent grassland region), Merle Curti discovered high turnover among the foreign-born groups there.¹²

More recently scholars have turned their attention to settler mobility in the central regions of Kansas and Nebraska. Richard G. Bremer's study of agricultural change in the Loup River country of Nebraska includes a chapter on farmer mobility and consolidation that presents farmer persistence data covering the years 1890–1970. Since manuscript census returns of the sort used by Malin in Kansas were not available to Bremer, he used local assessment records to develop cohorts of farmers at five-year intervals from six precincts, selected to reflect the ethnic composition and topographical and social conditions of the region. In his work, the striking turnover rates again appear for each successive list of farmers, but Bremer improved the methods of his predecessors by estimating loss in his cohorts due to death. This factor, however, did not generally affect the turnover rate substantially during the first decade in which the cohort was under study. Nor did Bremer find persistence much affected by drought, economic boom, or depression. He did discover that there was some tendency for persistence to increase among the farmers over extended periods of time—a phenomenon linked in part, but by no means solely, to the aging process among his farm operators. Bremer terminated his discussion of mobility with an implicit vote for Malin's central contention that "migration tendencies may not be explained solely in environmental terms" and concluded that "intensive further exploration into this problem area is greatly needed."¹³

D. Aidan McQuillan has examined the role of ethnicity in farming and tenure practices in nineteenth-century Kansas. In the article most relevant to this discussion, he contrasted the mobility of native Americans, Swedes, Mennonites, and French Canadians in carefully selected townships in the central region of the state. Using the Kansas state census manuscripts and the 1880 federal census, McQuillan prepared turnover data extending from 1875 to 1925. He found that the immigrants were "slightly more stable than the Americans." But "the mobility rate for both immigrants and Americans was high. . . . The differences between the foreign-born and native-born were always very small," as were "differences among the three immigrant groups." He noted that "the Swedes were slightly less mobile and French Canadians slightly more mobile than Mennonites," and suggested that the higher proportion of second-generation farmers among the French Canadians might explain the greater mobility of that group.¹⁴

McQuillan also investigated the personal determinants of migration. He calculated the average capital assets, age, and family size of migrants and persisters within his various sample and control groups. Then he was able to compare the group means in 210 different instances. Most of the comparisons demonstrated the familiar fact that wealthier and older farmers and those with most children were least apt to move. But the differences between the means were usually small and only 51 of the calculations yielded differences that were significant at the .05 level. McQuillan's efforts to use regression analysis in determining the relevant importance of the various variables in influencing migration were, he reported, relatively unsuccessful.

LAND AND TENURE ISSUES

Once in the grasslands, the settler must acquire a farm. Popular media, historical fiction, and local myth have exaggerated the degree to which settlers acquired land directly from the federal government and particularly

the importance of the Homestead Act. The major federal laws invoked by settlers in the tall-grass country before 1860 were the cash-auction and private-entry procedures of the Land Act of 1820 and the preemption laws, particularly that of 1841, although the flood of military land warrants authorized in the years from 1847 to 1855 changed the picture somewhat. Even prominent historians have overemphasized the significance of the homestead laws thereafter, and, to a lesser degree, the importance of the timber culture acts. Of course, the more serious students of the American land-disposal system have always emphasized its complexity and have described the special grant policies of the federal government in some detail—the wagon road, canal, railroad, and state grants, as well as the swamp land, agricultural college, timber culture, and desert land acts and the use of script or other miscellaneous methods of land disposal. Indeed, Paul Wallace Gates suggested in a much reprinted article of 1936 that the Homestead Act was crudely grafted upon an incongruous land system that was more attuned to the wishes of land speculators and other special-interest groups than to those of the family farmer. So persuasive was the article and so greatly did some readers exaggerate its thesis that Gates returned to the subject at the time of the centennial observances of the Homestead Act in 1962 to point out that the 160-acre unit was appropriate in size for much of mid-America and that settlers patented a relatively high proportion of entries there, as well as in California, prior to the mid-1870s. The proportion of successful entry-persons ranged as high as 67 percent in Dakota Territory in that period, while "slightly less than 50 per cent of the original homesteads were carried to patent" in the country generally.¹⁵

In works published before 1960, Gates argued strongly that the presence of large-scale land speculators on the frontier had unfortunate economic and social results, making it more difficult for settlers to obtain farms and contributing to the early development of class structure in the pioneer communities.

This position has inspired revisionary activity on various fronts. The more precise calculation of speculator profits has suggested that the financial returns to speculators in the short run might be very high but that over longer periods they were probably similar to the returns on other forms of frontier investment. Gates's contention that land speculation produced tenancy in western communities prematurely lost much of its force when Seddie Cogswell, Jr., and Donald Winters found little connection between speculative activity in frontier areas of Iowa and later rates of tenancy there. Revisionists emphasized that the advertising of land speculators enhanced the flow of immigration, thus creating a market for the products of actual settlers, and that speculators also paid their share, and perhaps more, of the taxes that supported frontier governments and schools. But the subject is still controversial. The older view pervades Everett Dick's anecdotal social history of the public lands, which appeared in 1970. The position taken by Yasuo Okada in his important study, *Public Lands and Pioneer Farmers: Gage County, Nebraska, 1850-1900*, published the following year, is much closer to the view Gates held before 1960 than to the revisionists. In 1978 Reginald Horsman concluded an address on the historiography of the public domain in the Midwest with the admonition that "the time has come to revise the revisers."¹⁶

To be revised is always the fate of revisionists, but their position on land speculation is based in part on quantitative evidence. Can antirevisionists demonstrate that quantitative evidence supports the old views? To some degree Okada has tried to do this, but much of his evidence merely demonstrates the presence of speculation rather than its overall impact on development. When further refined, his quantitative evidence showed that speculation accounted for between 27 and 44 percent of the variation in tenancy found from township to township, and he did not show that the relationship was persistent. Nor is the older view convincing in terms of simple economic theory. Investment capital should have flowed to the

type of investment that promised the capitalist a return superior to that derived from other uses for funds. Had land speculation been extremely lucrative, additional investors should have been attracted until competition for buyers forced the speculators to cut their offering price to levels at which they received returns comparable to those available in other fields of investment.¹⁷

Gates has retreated somewhat since 1960 from his earlier positions on speculation, tenancy, and the land-disposal system in general. In 1964 he described American land policy as "liberal, generous and enlightened . . . whatever its weaknesses." Although his magisterial survey of the American land laws, published by the Public Land Law Review Commission in 1969, reiterated his earlier positions in some respects, he attributed tenancy largely to the passing of land from one generation to the next rather than to speculation, except in Illinois and Iowa. In 1977 he noted that the varied methods of alienation within the federal land-disposal system provided a "flexibility" that allowed farmers to develop economic units on the high plains despite the limited size of the unit available under the homestead laws.¹⁸

Gates has repeatedly called for detailed studies of the operation of the land laws at the local level. Some progress has been made in this respect since the 1940s. Several scholars have analyzed particular kinds of land alienation—homestead, timber culture, forest lieu land, script entries, and so on. Some of these studies have mainly involved comparison of entries and patent totals at the state level; others are based on intensive examination of the pattern of land entry and proof in more restricted areas. Primarily such authors have evaluated the success of the law under study, calculating the proportion of settler failures and trying to assess the degree to which it allowed or encouraged land speculation. Contributing to a somewhat broader perspective are the few studies that trace relationships between the various types of land-disposal laws and elements of the farm-development process. C. Barron

McIntosh, for instance, has studied the use of timber culture entries in the Sandhills of Nebraska and concluded that the timber culture acts primarily fostered the use of dummy entrymen by cattlemen rather than allowing farmers to develop an additional holding in connection with their homestead entries. Still more broadly focused is Okada's study of Gage County, Nebraska, in which he considered the various types of alienation and tried to link them to settlement processes generally. The purpose and design of his study promise rich rewards to others who may take a similar approach to the study of other grassland areas.¹⁹

There were periods in the history of many grassland communities when most of the landholders had obtained their land from the federal government under one or more of the federal disposal acts, from a state or territorial government, or from a railroad land grant. But discussion of such land alienation policies disregards the secondary land market. The evidence on farmer turnover suggests that many pioneers in a region must have acquired their land from other farmers. Persisting operators like Henry Ise often enlarged their holdings. The processes by which the grassland farmers expanded holdings, exchanged them, sold them, or passed them on to sons or other relatives has been too little studied. As we have seen, Malin offered some hypotheses and evidence about these matters. Was the cyclical rise and fall in farm size that he detected prior to 1900 in Kansas and the long-term increase thereafter typical of other grassland states? How were these trends related to the plans of individual farmers? In many cases their operations must have gone through stages dictated by a family cycle or life course in which young operators began with minimal holdings of land, added to them to utilize the growing pool of family labor, and ultimately dissipated them as they assisted sons or sons-in-law to establish themselves. Of the farmer landholders listed in the federal censuses of 1860 and 1870 in an Iowa township, 43 percent were involved in six or more land transactions during their years of residence there, while 18 percent of them

participated in more than ten. Much study is needed of the initial government land market and even more of the private market in farm land.²⁰

ENVIRONMENTAL ADAPTATION

During the last forty years of the nineteenth century recurrent droughts made it clear that rain did not necessarily follow the plow and that one year's precipitation was no promise for the next. The farmers of the grasslands, therefore, adopted a number of ameliorative strategies: (1) environmental modification; (2) the use of irrigation or reclamation; (3) moisture conservation practices; and (4) changes in crop and livestock combinations, including the introduction of plant varieties from elsewhere that were particularly suited to the semiarid environment.

Rainmaking, or "pluviculture," found supporters during the dry years of the 1880s and 1890s and various promoters emerged to demonstrate that bombardment with dynamite or gunpowder could break drought as well as the stillness of a plains country day. Others were prepared to release rain-producing gases into the atmosphere if appropriate financial arrangements could be made. Somewhat to its embarrassment the Department of Agriculture was charged by Congress with experimentation in this challenging field and its chief investigator, Robert Dryenforth, became known to derisive plainmen as Robert Dryhenceforth. There are enough references to rainmaking in the standard bibliography of agricultural history in the Great Plains to justify a separate subsection. In contrast, there are so few dealing with dry farming, which was attempted by legions of farmers, that they are included in a miscellaneous category. This imbalance reveals the attention that the bizarre phenomenon of pluviculture has received from historians.²¹

Potentially more valuable than rainmaking were efforts to effect environmental modification through tree planting. Thomas R. Wessel and Wilmon H. Droze have shown that interest in tree planting was a continuing theme in the

plains country from the late nineteenth century to the 1930s. The settlers themselves tried to establish shade trees, grass, and hedges. Some of the land grant railroads sought to demonstrate the feasibility of planting trees, and western state and territorial governments approved legislation encouraging the practice. Nebraska's efforts, including the proclamation of Arbor Day, were particularly notable. Western agricultural colleges and experiment stations developed experimental plantings. With the passage of the Timber Culture Act in 1873, the federal government gave active support to this movement. Although accusations and evidence of fraud in the operation of the Timber Culture Act brought its repeal in 1891, federal interest in afforestation did not end. The Division of Forestry of the Department of the Interior, the Forest Service of the U.S. Department of Agriculture, and that department's dry-land experiment stations all invested resources in the search for the varieties of trees and cultural practices that would enable settlers to develop timber lots, windbreaks or shelterbelts, and shade-protected farmsteads. In the mid-1920s the Bureau of Plant Industry of the USDA began to supervise tree-distribution programs under a section of the Clarke-McNary Act, and Congress approved an appropriation for the study of erosion-control plantings in the South Dakota Sandhills at the conclusion of the decade.²²

The dust storms of the spring of 1934, which repeatedly dropped a gritty mantle of plains country loess upon the national capitol, prefaced a number of notable innovations in the resource policies of the Roosevelt administration. In July, the president announced an ambitious project that he promised would produce a shelterbelt of trees stretching from northern Texas to the Canadian border. This project, he suggested, would check soil erosion and modify the effect of the plains country climate. Decried by skeptical experts and congressmen, the shelterbelt program subsisted largely on WPA funds under the supervision of the Forest Service until 1942, when oversight was transferred to the Soil Conserva-

tion Service. During the first ten years of the project some 220 million trees were cultivated, of which 82 percent survived. By 1944 the beneficial effects of the program were generally recognized.²³

Native Americans of the Southwest had successfully irrigated crops long before Euro-American settlement. The Mormon example was available from the 1840s onward, and the far-flung diversions of water by the miners in California and other western mining regions carried a similar message. Agricultural irrigation activity had begun in eastern Colorado and along the North Platte by the late 1850s. There is record of irrigation in Kansas by 1870, and farmers in the valley of the Arkansas were directing water onto small patches of cropland by the 1880s.²⁴

Irrigation activity never dominated intensive agriculture in the grasslands east of the mountains as it did in the mountain and intermontane regions of the West. It became most important initially in the foothills on the western rim of the grasslands and in the upper valleys of the rivers that rose in the Central Rockies, particularly the Arkansas and the South and North Platte. In Colorado, the activities of the Union Colony Association in the valley of the Cache La Poudre River in 1870, headed by Nathan C. Meeker, agricultural editor of the *New York Tribune*, started a period of irrigation fever in the territory and new state in which cooperative groups and corporations developed a variety of projects and others died stillborn. Kansans of the western Arkansas Valley shared this enthusiasm and developed various small water diversions during the 1880s, only to discover that the activity of the Coloradans had exhausted their water supply. Similarly, there was minor activity in the southwestern corner of Nebraska during this decade. Wyoming was still mostly cattle country at the time, and the few thousand farmers in that territory did not develop comparable irrigation projects. Although the achievements of the early irrigators were not highly impressive, except perhaps in Colorado, the legislators and constitution makers in

various western states and territories laid the foundation of systems of water law and administration during the 1870s and 1880s.

The disastrous years of the late 1880s and early 1890s brought interest in irrigation to a new high in the western grasslands and the arid West. Skillful editors, such as William E. Smythe and Joseph L. Bristow, trumpeted the gospel of the irrigation movement. The promoters organized regional and national irrigation congresses; land speculators and land-grant railroads added irrigation to the lures that they used to attract settlers into the region. Irrigation prophets of the 1890s saw a bright future not only for irrigation based on stream diversion and the impoundment of water in reservoirs but for well irrigation based on aquifers, particularly those with artesian properties, as in southwestern Kansas and in the James River valley of South Dakota. But among the central and northern plains states, only Nebraska had as many as one thousand irrigation farmers in 1900; and only in that state did the number expand substantially during the first thirty years of the twentieth century.²⁵

While reinforcing the trend toward irrigated agriculture in Colorado, Wyoming, and Montana, the irrigation boom of the 1890s also set the stage for the passage of the National Reclamation Act of 1902. Several early projects of the Bureau of Reclamation, notably on the North Platte and the Belle Fourche, augmented the agricultural resources of the western plains country. Interest in well irrigation persisted in the plains states but the promise of artesian wells was found to be limited. Some farmers, as A. Bower Sageser has demonstrated in Kansas, practiced petty irrigation on the basis of wind-mill pumping and, later, the use of the internal combustion engine. The impetus of the "dirty thirties," great improvements in pumping equipment, and the use of cheap natural gas as a power source brought about a transformation of irrigation agriculture on the Texas high plains, and the example was noted farther to the north. The problems of the Bureau of Reclamation during its first quarter century

constrained its staff from beginning more than one additional project within the basin of the Missouri between 1907 and 1933. The dam building that was authorized during the New Deal years and thereafter had significant implications for some grassland farmers. A technological development of the early 1950s, the center-pivot sprinkler, had great influence also. The availability of this innovation encouraged the spread of well-based irrigation in the more humid regions of the grassland and intensified its use farther to the west.

Although there is a large bibliography on the general subject of reclamation, historians have thus far provided uneven treatment of irrigation agriculture in the grasslands. As yet there is no monograph dealing with the central and northern plains comparable to Donald E. Green's treatment of irrigation on the Texas high plains between 1910 and 1970, a volume that also includes a useful summary of the early years of irrigation on the high plains as a whole. However, Henry C. Hart's *The Dark Missouri* is a mine of information about the development of water use planning and management by government agencies in the Missouri Valley to the mid-1950s.²⁶ Scholars have also described the evolution of water law. Westerners believed that changes were essential if they were to exploit fully the agricultural potential of this region. In a series of excellent articles, Robert G. Dunbar has traced the development of the Colorado system of prior appropriation of irrigation water and irrigation district supervision and administration and the extensive degree to which this system spread to other states. Most recently Dunbar has written a splendid account of the development of ground water appropriation law, showing that "the English rule of absolute ownership proved as unsatisfactory to water users in the dry climates of the West as had the riparian doctrine." Relatively few historians have treated the revision of water law in the West, which Webb regarded as one of the best examples available of institutional innovation in that region. A considerable number of legal scholars have contributed articles to state law journals on

the subject of state water rights, however, that vary in historical content.²⁷

John Wesley Powell's contribution to an understanding of western aridity and his dramatic fall from revered prophet to reviled pariah has been described and redescribed, although perhaps still not as perceptively as his apparent importance justifies. Powell met his greatest defeat as a government scientist and bureaucrat when he failed to persuade the Congress that his plans for the survey of western irrigation resources were appropriate, and part of his problem lay in his refusal to tell plains representatives and promoters what they wished to hear about the irrigation potential of their region. Of the two great publicists of the movement of the 1890s, Smythe and Bristow, we have as yet only a biography of Bristow, in which but one chapter is devoted to the Kansan's activity on behalf of irrigation. Timothy J. Rickard has argued recently that plainsmen believed that they would become part of a great irrigated western empire but were unable to reclaim sufficient acreage to serve as "a base for a new economic system." High failure rates among the irrigators, uncertain markets, engineering problems, and administrative difficulties all thwarted the predictions of the visionaries of the 1890s and the early twentieth century. Noting that the national irrigation movement "ended with very little success in 1914," Rickard concluded, "In the Great Plains, where wet periods followed dry ones, where water supplies could not be economically exploited, and where there was great reluctance to admit that traditional humid-area methods could not be adopted or at least adapted, the utopian connotations of irrigation were even sooner rejected."²⁸

In his history of Nebraska, James C. Olson suggested that the observer on the Platte, the Loup, or the Republican valley, or especially a person looking eastward from the top of Scotts Bluff, must conclude that "irrigation has supplied at least part of the answer to the problems involved in the occupation of the Plains by an agricultural population." However, in a concise review of the current history of

"The North Platte Oasis," L. Carl Brandhorst emphasized the frequency with which water supplies have proven inadequate in that irrigated district, the high variability of yields, and the additional production needs and cost factors experienced by irrigation farmers there. John Wesley Powell's predictions and the "boasts" of the Bureau of Reclamation remain unfulfilled, Brandhorst maintained, even in this highly touted region. R. Douglas Hurt has described the increased use of irrigation in the more humid areas of Kansas as well as the intensification of agriculture that center-pivot irrigation has allowed in the western part of the state. He has also noted the problem of dropping water tables that has accompanied the increased use of well irrigation.²⁹ In addition to these works, there is a need for studies that bring out the unique character of farming beside the "ditch."

Denied irrigation water because of location, lack of resources, or other reasons, many western farmers put their faith in the development of tillage methods that would use available moisture supplies most efficiently—practices that were dubbed "dry farming," or euphemistically, "scientific farming." Malin's article "Adaptation of the Agricultural System to Sub-Humid Environment: Illustrated by the Wayne Farmers' Club of Edwards County, Kansas" and his later book *Winter Wheat in the Golden Belt of Kansas* are classic treatments of the problem of adaptation in the central plains down to the 1890s. The latter included a particularly useful discussion of the development of the listing process. A major monograph on the subject of dry farming as practiced during the 1890s and thereafter did not appear until Mary W. M. Hargreaves's *Dry Farming in the Northern Great Plains: 1900-1925* was published in 1957. This well-researched and sober narrative describes the geographic character of the region beyond the 100th meridian in the northern plains, the emergence of Hardy W. Campbell and other apostles of dry-farming techniques, and the promotional forces that supported the dissemination of their ideas, as well as the modifications and countersuggestions

developed by Ellery C. Chilcott of the U.S. Department of Agriculture and other dry-land scientists. Hargreaves examined in detail the general development of settlement in the eastern counties of Montana and the western counties of the Dakotas down to 1925, but her analysis of on-farm activity lacked the richness of Malin's treatment, in part because farm-by-farm agricultural census information is not available for the student of twentieth-century agriculture in most western states.³⁰

We know the promotional story of the semi-arid plains country after 1900, including James J. Hill's energetic admonitions, presented to the farmers at fairs and other farm gatherings in the "empire of the two northers," urging them to "rotate your crops; diversify into livestock; fertilize your lands with the manure the livestock will produce; select better seed; and learn how to prepare the ground and cultivate your land in the most scientific manner." What the settlers actually did is less clear. In a retrospective paper in 1976, Hargreaves concluded that for most settlers as late as the 1920s, dry farming was merely "farming in a semiarid region without irrigation!" She maintained that "fallow practice was rare. . . . Cultivation even on cropland was scanty. . . . New crop varieties and improved strains were developed slowly and accepted reluctantly. Efforts to introduce sorghums, alfalfa, and corn in the northern plains had little success." However, the combination of livestock enterprises with wheat growing was increasingly common.³¹

Drought on the northern high plains between 1917 and 1921 turned the major thrust of settlement into the central and southern plains, Hargreaves suggested, and both regions had become disaster areas by the mid-1930s. But the dry-farming region demonstrated its recuperative and productive power after 1940 when moisture again became adequate and operators there drew upon the hard-won experience of the farmers of the area and the accumulated wisdom of the dry-land agricultural experiment stations. Improved fallowing practices, including stubble-mulching; light seeding; the use of fertilizers (and later, herbicides);

improved plant varieties, including alfalfa strains; and judicious diversification in livestock enterprises in an agricultural economy that was characterized by great advances in mechanization and the development of increasingly large farm units proved that the region had the capacity to be much more than simply a country of ranches. The recurrent years of drought after 1950—"the filthy fifties"—reaffirmed the fragile basis of cropland agriculture in the high plains, but also, according to R. Douglas Hurt, demonstrated that the conservation techniques available to plains-country farmers and the programs of emergency aid available from state and federal governments were sufficient to prevent rural tragedy of the sort experienced during the 1930s.³²

Farmers also tried to adapt to the grassland environment by making changes in farm economy, and in so doing they faced various decisions and difficulties. There was the problem of finding the right crop or combination of crops, or of crops and livestock. They had to estimate whether conditions would be more favorable for wheat or for corn—a question that became more difficult as settlers pushed westward through the central plains country because the yearly variations in precipitation there somewhat obscured the fact that wheat was a more reliable crop under subhumid conditions year after year than was corn. Whether Mary E. Lease had this problem in mind when she admonished farmers "to raise less corn and more hell" is unclear, but the question "wheat or corn?" was a long-standing one. The problem was complicated by the loss of experience through operator turnover and the tendencies of newcomers to try to duplicate the agricultural practices with which they had been familiar elsewhere.

How large a role were grain crops other than wheat and corn, such as oats, barley, and rye, to play in the grasslands farm enterprise? Was flax a useful alternative, particularly on new breaking? To what extent were the grain crops to be combined with livestock production and dairying, given the demand for pasture and hay that such operations required? Although

farmers in the prairie regions of Illinois and Iowa preferred corn over other crops at a relatively early date, certainly by the 1870s, and combined corn with hog and beef cattle enterprises, farmers farther west remained undecided for decades on the issue of the proper combination of farm enterprises. In their study of Sherman County in the northwest corner of Kansas, Kollmorgen and Jenks reported that "dry farming was not introduced in this section until the late 30's and farmers still needed to learn that the Corn Belt could not be stretched to western Kansas."³³

Of particular interest is a recent essay by Bradley H. Baltensperger, who studied the agricultural adjustments of settlers in three restricted areas of the Republican Valley, between the 97th and the 102d meridian, during the period from 1870 to 1900. The initial agricultural activities of the settlers, he argued, were shaped primarily by promotional literature about the region and by their experience in their former homes, mostly located in the corn belt to the east. Using corn-wheat ratios, acreage in the sorghums and in broom corn, interest in rainmaking, and irrigation activity as evidence, Baltensperger showed that the settlers demonstrated increasing tendencies to adjust their farm operations as the locale shifted from east to west. Baltensperger's findings are important and his research techniques can be amplified and used in studies of other areas and later periods of grassland development.³⁴

The adaptation of cropping patterns to the grassland environment involved not only the effort to adjust crop combinations but the search for better varieties of particular crops. The emergence of Turkey Red hard winter wheat as the dominant grain in the "Golden Belt of Kansas" has been described by various authors. Two agricultural scientists, K. S. Quisenberry and L. P. Reitz, have recently reviewed the literature and discussed the emergence of Turkey Red as the preeminent variety of the central Kansas plains and the development of related and descendant strains to the early 1970s. In its comprehensive and considered

evaluation of evidence, this article is a model of its kind, but Quisenberry and Reitz say little of the cultural and social concomitants of adaptation or of its economic implications for the individual farmer.³⁵

Crop improvement and adaptation occurred in various ways. Western settlers, both native-born and foreign-born, brought supplies of seed with them. Local farmers and seedsmen tried to acquire grain and grass varieties that would yield well in their localities. From almost the day of its beginnings in the U.S. Patent Office, the Department of Agriculture was concerned with the importation of seeds and plants. Initially, most seed importation was carried out through American consular offices or the activation of other governmental agencies abroad, but after the department acquired cabinet status in the late nineteenth century, this activity was enlarged and by the turn of the century the secretary was dispatching special agents abroad. In his short history of plant importation (1950), Nelson Klose estimated that about 180,000 species or varieties of domestic plants had been recorded under official aegis. The wheat, sorghum, alfalfa, brome grass, wheat grass, and other crops that grassland farmers grow today owe much of their character to the "plant explorers."

The domestic plant breeder's work has also been vitally important. At the turn of the century, plant breeding was for the most part a matter of plant selection—the development of varietal strains that were segregated and propagated by open pollination. As the promise and techniques of hybridization become increasingly understood, the plant scientists learned to combine the characteristics of parent stocks so as to manipulate protein content, accentuate resistance to drought, disease, and insects, shorten the growing period, and increase yields. Historians have only skimmed the surface of this fascinating story; the most illuminating book available, A. R. Crabb's *The Hybrid-Corn Makers*, was written by a journalist and lacks formal documentation.

To what extent did government activity assist in the adjustments of the dry-country

farmer? One can hardly dispute Malin's notion of folk process, as far as the nineteenth century is concerned. Adjustment in the twentieth century appears to have been a different matter. The contributions of the plant scientists were significant. Government researchers, both state and federal, performed a valuable service when they criticized the easy fantasies of the promoters and zealots concerning tillage practices and machinery and circulated information about developments that had apparently produced beneficial results. M. L. Wilson's research in farm-organization and management practices in Montana during the 1920s was apparently outstanding; we need to know more about the work of farm-management specialists in other grassland states. Paul Bonnifield has carried Malin's skepticism of the wisdom of federal government programs during the 1930s well beyond that of the senior scholar and argued that government scientists developed few, if any, of the adaptive cultural practices and innovations in agricultural machinery that emerged during the drought of the 1930s. Those contributions, he believed, should be credited to the farmers themselves. New Dealers were in error, maintains Bonnifield, when they argued that much of the plains region should be retired from cropland agriculture.³⁶

Various authors have emphasized the efforts of American settlers to transplant the agriculture of their old homes to the grassland, as we have seen. To what extent was the same phenomenon apparent among foreign-born farmers? The grassland provides us with one of the most striking instances of the transfer of a uniquely appropriate crop to a region by a cultural group: the importation of Turkey Red wheat into central Kansas by the Mennonites. But did immigrants pursue patterns of agriculture over extended periods of time that were substantially different from those of native-born farmers? Terry G. Jordan has compared the relative degree to which native-born and foreign-born settlers avoided the prairies in selecting farm sites, and Allan G. Bogue, Seddie Cogswell, Jr., Donald L. Winters, and D. Aidan McQuillan have all compared the farming patterns of the

foreign-born with those of the native-born. John G. Rice, and particularly Robert Ostergren, reached a new dimension in such research when they linked the subregional Scandinavian backgrounds of immigrant farmers in Minnesota to their farming practices in the new land. These exploratory studies indicate that it is difficult to identify long-run contrasts in the major aspects of agriculture that are clearly traceable to residual cultural influences, although some short-run or minor differences between native-born and foreign-born farmers have been identified.³⁷

FARMING AS BUSINESS

Recent historical literature reflects a growing understanding that the survival of farmers on the plains has been an exercise in coping with risks that are much greater than those encountered in the eastern regions of the United States. This idea would not have surprised members of the defeated legions who trailed their battered covered wagons out of Kansas in the 1870s or the 1890s, but it does have some analytical power. Many of the changes in farm economy discussed above were designed to minimize the risk of drought. One economic historian has used quantitative evidence to show that the amounts of crop land devoted to fallow and nonfallow cropping regimes in Saskatchewan have been proportional to the risk of drought in the immediate area; this argument can probably be made about regions of the Great Plains below the 49th parallel as well. Farmer-supported efforts to develop government crop-insurance programs resulted in a viable federal program during the 1930s, and various aspects of the farm price-support programs of that decade and thereafter have served the same purpose. The practice of suitcase farming, recently studied by Leslie Hewes, was prevalent in the high-risk region of western Kansas and eastern Colorado. A large proportion of the suitcase farmers carried on their wheat-farming operations in conjunction with farm operations in more humid areas. If the nonresident enterprise failed in a

particular year, these farmers presumably did better at their other base of operations.³⁸

Agricultural historians have usually preferred to describe the institutional structure of land laws and transportation developments and the general characteristics of farming operations in the plains country rather than to treat farming as a changing business in which the operator's success or failure hinged upon his skill in combining crop enterprises, livestock production, and labor-cost factors in the face of changing price and climatic conditions. Typically, Malin showed the way when he emphasized the small scale of the average western farmer's investment and returns during the late nineteenth century. In general, since World War II, writings on the agricultural history of the tall-grass country have included more of this kind of economic analysis than has been true in studies of agricultural development in the short-grass regions. The writings of Allan G. and Margaret Beattie Bogue on agriculture in the prairies of Illinois and Iowa and of Hiram M. Drache and Stanley N. Murray about farming in the Red River Valley give a clearer picture of the financial side of farming than is available for the western grasslands. However, none of these authors has made full use of the range of simple tools of quantitative analysis that are available. Moreover, Drache's interesting book on the bonanza farms is difficult to place within the overall context of farming in the Red River Valley. Although filled with quantitative exhibits, it also fails to disentangle farming as the business of producing food and fiber from farming as real-estate speculation.³⁹

Drache carried his interest in big farming forward in a later study of which the most relevant section describes the business operations of Tom Campbell and the Campbell Farming Corporation on the Crow Reservation in Montana during the 1920s and early 1930s. This work is a paean in praise of bigness, mechanization, and cost accounting. At a symposium on Great Plains agriculture held in Bozeman, Montana, in 1976, Terry L. Anderson criticized Drache's discussion of the wheat king by pointing out that it ignored the sub-

vention Campbell obtained when his creditors allowed him to wind up his first years of bonanza operation with a substantial write-off of debts outstanding. Less lyrical but perhaps more illuminating, since it analyzed a broader range of farm businesses, was Robert E. Ankli's presentation in Bozeman in which he argued that "no size of farm was adequate" in the drought-stricken wheat regions of the northern Great Plains and Canadian prairies during the 1930s unless long-run average yields could be made.⁴⁰

One of the more important cost factors in western settlement and farming—land credit—has been studied extensively in recent years. Borrowing by note and mortgage on farm land is an important element of credit to which historians gave little systematic attention before 1947, although many noted that foreclosures have been a potent source of agricultural unrest in the history of the United States, particularly among plains farmers of the 1880s and 1890s. In 1955 Allan Bogue examined the use of land mortgage credit from Illinois to western Kansas and Nebraska during the second half of the nineteenth century in *Money at Interest*, a three-part study focused on (1) the mortgage business of an eastern investment group; (2) the J. B. Watkins Land Mortgage Company of Lawrence, Kansas; and (3) borrowing at the local level in townships located in eastern Nebraska and western Kansas. This study developed the details of the mortgage business more fully than anyone had done before, noted the recurrent waves of foreclosure that affected farmers during the 1850s, 1870s, and 1890s, and charted the behavior of interest rates. Noting the unsatisfactory aspects of the credit system, including the gouging by local agents, and the suffering entailed in the boom-and-bust agriculture of the frontiers, Bogue also pointed out the striking decline of interest rates during the last thirty years of the century and the fact that the relatively short duration of mortgages allowed adjustments in interest rates. He did not place primary blame for the disaster of the late 1880s and early 1890s in the plains country on the money lenders, who in general

appeared almost as much betrayed by the fickleness of climate and the imperfections of the economic system as the settlers themselves.⁴¹

Since the publication of Bogue's work, other scholars have produced studies of western money lending in this period. Most of these authors, including W. Turrentine Jackson, Glenn H. Miller, Jr., William G. Kerr, and Larry McFarlane, have not appreciably altered the picture drawn in *Money at Interest*. The data gathered by Okada conform to the general patterns verified by other authors, but he interpreted his findings more pessimistically. Admitting that mortgages were relatively short in duration, he stressed the fact that they might be renewed several times, and also emphasized the higher interest rates specified in secondary instruments. His unqualified argument that commission mortgages drew interest before due ran counter to the findings of others, and at times he argued from extreme cases. He was perhaps on firmer ground when he qualified the emphasis on the local sources of western mortgage funds found in some recent studies.⁴² Clearly, there will continue to be differences of opinion in this area of research.

None of the authors of mortgage studies have analyzed commission charges intensively. They have discussed interest charges solely in current rather than constant dollar rates and have paid little attention to the changing relations between prices paid and prices received by farmers. Additional case studies and, particularly, examination of the use of chattel credit would be highly desirable.

Our knowledge of farm finance in the past is much clearer than our understanding of agricultural labor. In a book on late-nineteenth-century agriculture that antedates the beginning of our survey, Fred A. Shannon devoted nine pages to the subject of agricultural labor, depending primarily on two government publications. In a later survey of agriculture during the Civil War by Paul W. Gates, most of the chapter on labor and machinery treats the latter topic. More recently, in a study that focuses on the Old Northwest (thus touching

only the eastern part of the grasslands), David E. Schob has presented much information concerning the individual laborer. But he also left various important issues unresolved. No one has approached the topic from the standpoint of the management of the complete labor pool available to the farmer, including his own contributions, and the relation of that pool to the changing seasonal working regimes and the rural family life course, although Robert M. Finley has made an interesting beginning with the argument that farming a 160-acre homestead required more labor inputs than individual settlers possessed. It is encouraging to note that the contributions of farm women are finally receiving attention. Although much of the recent activity has involved the publication of diaries or other source material, the work of Mary W. M. Hargreaves, Julie R. Jeffrey, and Glenda Riley provides the foundation for an analytical approach to women's work and its place in the larger context of the farm economy. More controversial is John Mack Faragher's effort to demonstrate that the role of the farm wife in the mid-nineteenth-century West illustrated an extreme case of sexual exploitation. Faragher's argument will not be sustained completely, but it does suggest the utility of analysis in which the relations between rural family life and labor management are examined.⁴³

Nor have historians fully developed the story of farm technology in the grasslands. Although Webb emphasized the problem of fencing and the importance of barbed wire, our understanding of its importance to the farmer is still inadequate. Rodney O. Davis has expertly shown the way in which an institutional solution to the fencing problem, the local herd law, was used for a time in Kansas. Various authors have elaborated on the basic work of Clarence Danhof in the prairie regions, but the authors of the most elaborate studies of barbed wire are much more concerned with matters of manufacture and design than its significance on the farm. Scholars have discussed the development of farm machinery in the horse-power era more fully than the mechanically powered equipment of the twentieth century. R. Douglas

Hurt has provided us with a good description of the dry-land farming equipment that came into use during the 1930s. However, we have not fully explored the implications of mechanization. Bonnifield has recently argued that the dust-bowl conditions on the central and southern plains were not attributable to a big plow-up during World War I but rather to the utilization of tractor-powered machinery during the 1920s.⁴⁴

CONCLUSION

In one of Walter P. Webb's most iconoclastic writings, he confided to the readers of *Harper's Magazine* in 1957 that the West is essentially a desert, "virtually an oasis civilization" based on inadequate water resources, with a history that is both "brief" and "bizarre." Writing of research opportunities in western economic history some eight years later, Gerald D. Nash noted, "We have books about log cabins and sod houses, but none about . . . savings and loan associations . . . which enabled millions to acquire homes in the west." Historians of the grassland since 1947 have perhaps overdone the bizarre and the exotic. We still know too little about the changing economy of the individual farm from subregion to subregion during the various periods of the grassland's history and particularly since 1900. But there has also been much wide-ranging and highly significant publication since Malin published *The Grassland of North America*. Geographers rather than historians have tended to pick up the challenges in that book; Kollmorgen, Bowden, McIntosh, Brandhorst, McQuillan, Baltensperger, Rickard, Jordan, Rice, Ostergren, Hewes, and others cited here represent a discipline that numbers far fewer members than does history. Particularly in matters of environmental perception, it is they who are truly Malin's heirs. Economists also have been well represented in these pages. Historians, however, have not surrendered the field. Nor should they, because even a cursory examination of the achievements since 1947, plus a rereading of Malin's *Grassland*, should convince them that there is still much to be done.⁴⁵

NOTES

1. Joseph Kirkland, *Zury, The Meanest Man in Spring County: A Novel of Western Life* (Boston: Houghton Mifflin, 1887), pp. 9-11; Herbert Quick, *Vandemark's Folly* (Indianapolis: Bobbs-Merrill, 1921), pp. 111-13; John Ise, *Sod and Stubble: The Story of a Kansas Homestead* (New York: Wilson-Erickson, 1936), pp. 1-9.

2. I refer the reader particularly to the following bibliographical guides, published by the Agricultural History Center, University of California, Davis: Earl M. Rogers, comp., *A List of References for the History of Agriculture in the Mountain States* (1972); *A List of References for the History of Agriculture in the Great Plains* (1976); *A List of References for the History of Agriculture in Iowa* (1979); and Douglas E. Bowers and James B. Hoehn, comps., *A List of References for the History of Agriculture in the Midwest, 1840-1900* (1973). See also Rodman W. Paul and Richard W. Etulain, *The Frontier and the American West* (Arlington Heights, Ill.: AHM Publishing Corp., 1977), and note the "Recent Articles" section published in the *Western Historical Quarterly*.

3. Walter P. Webb, *The Great Plains* (Boston: Ginn, 1931). For recent secondary comment, see Gregory M. Tobin, *The Making of a History: Walter Prescott Webb and the Great Plains* (Austin: University of Texas Press, 1976); Necah Stewart Furman, *Walter Prescott Webb: His Life and Impact* (Albuquerque: University of New Mexico Press, 1976); and Fred A. Shannon, *An Appraisal of Walter Prescott Webb's The Great Plains: A Study in Institutions and Environment*, Social Science Research Council Bulletin 46 (New York, 1940). Hamlin Garland used the term "middle border" in the titles of his autobiographical books, beginning with *A Son of the Middle Border* (New York: Macmillan, 1917); for examples of the contrast between forest and grassland man in Herbert Quick's work, see *Vandemark's Folly*, pp. 96-97, 226, and 230. The latter book was published in 1921 after serialization; Furman places Webb's first statement of the idea in 1922. Tobin notes Webb's acknowledgment of Quick's autobiography published in 1925. This is not to disparage Webb's accomplishment but

merely to show that the fundamental idea was in the air during the early 1920s, much as the frontier concept was part of the intellectual milieu during the early 1890s.

4. James C. Malin, *The Grassland of North America: Prolegomena to Its History* (Lawrence, Kans.: James C. Malin, 1947; currently available, Gloucester, Mass.: Peter Smith, 1967, fifth printing with *Addenda and Postscript*). Although this volume presents an excellent summary of Malin's agricultural research, the following are basic to a full understanding of his work: "The Turnover of Farm Population in Kansas," *Kansas Historical Quarterly* 4 (November 1935): 339-72; "The Adaptation of the Agricultural System to Sub-Humid Environment: Illustrated by the Activities of the Wayne Township Farmers' Club of Edwards County, Kansas, 1886-1893," *Agricultural History* 10 (July 1936): 118-41; "Local Historical Studies and Population," in *The Cultural Approach to History*, edited by Caroline Ware (New York: Columbia University Press, 1940), pp. 300-7; "An Introduction to the History of the Bluestem Pasture Region of Kansas: A Study in Adaptation to Geographical Environment," *Kansas Historical Quarterly* 11 (February 1942): 3-28; *Winter Wheat in the Golden Belt of Kansas: A Study in Adaptation to Sub-humid Geographical Environment* (Lawrence: University of Kansas Press, 1944). Three articles, initially published in *Scientific Monthly* during 1950, 1952, and 1953, appear in the *Addenda to The Grassland of North America* (1967) and present some refinements in his thinking after the initial publication. For commentary, see Thomas H. LeDuc, "An Ecological Interpretation of Grasslands History: The Work of James C. Malin as Historian and as Critic of Historians," *Nebraska History* 31 (September 1950): 226-33; Robert G. Bell, "James C. Malin and the Grasslands of North America," *Agricultural History* 46 (July 1972): 414-24. The quoted passages are found in Malin, "Local Historical Studies," in *The Cultural Approach*, pp. 300, 305; *The Grassland of North America*, pp. 289, 307; "Adaptation of the Agricultural System," p. 140.

5. Gilbert C. Fite, *The Farmers' Frontier, 1865-1900* (New York: Holt, Rinehart and Winston, 1966).

6. Fite, *Farmers' Frontier*, p. 233.

7. Carl F. Kraenzel, *The Great Plains in Transition* (Norman: University of Oklahoma Press, 1955); Robert G. Athearn, *High Country Empire: The High Plains and Rockies* (New York: McGraw-Hill, 1960); W. Eugene Hollon, *The Great American Desert: Then and Now* (New York: Oxford University Press, 1966). Among state histories, see Carl Abbott, *Colorado: A History of the Centennial State* (Boulder: Colorado Associated University Press, 1976); T. A. Larson, *History of Wyoming* 2d ed. (Lincoln: University of Nebraska Press, 1978); James C. Olson, *History of Nebraska* (Lincoln: University of Nebraska Press, 1955); Michael P. Malone and Richard B. Roeder, *Montana: A History of Two Centuries* (Seattle: University of Washington Press, 1976); Elwyn B. Robinson, *History of North Dakota* (Lincoln: University of Nebraska Press, 1966); William F. Zornow, *Kansas: A History of the Jayhawk State* (Norman: University of Oklahoma Press, 1957). Note also the sketch by John T. Schleebecker, "Agriculture in Western Nebraska, 1906-1966," *Nebraska History* 48 (Autumn 1967): 249-66; and Earle D. Ross, *Iowa Agriculture: An Historical Survey* (Iowa City: State Historical Society of Iowa, 1951).

8. Walter M. Kollmorgen, "The Woodsman's Assaults on the Domain of the Cattleman," *Annals of the Association of American Geographers* 59 (June 1969): 215-39. For the quotation, see p. 216.

9. Martyn J. Bowden, "The Great American Desert and the American Frontier, 1800-1882: Popular Images of the Plains," in *Anonymous Americans: Explorations in Nineteenth-Century Social History*, edited by Tamara K. Hareven (Englewood Cliffs, N.J.: Prentice-Hall, 1971), pp. 48-79; and "Desert Wheat Belt, Plains Corn Belt: Environmental Cognition and Behavior of Settlers in the Plains Margin, 1850-99," in *Images of the Plains: The Role of Human Nature in Settlement*, edited by Brian W. Blouet and Merlin P. Lawson (Lincoln: University of Nebraska Press, 1975), pp. 189-201. The notes in these two articles include citations to other illustrations of the genre that are not cited here. See also G. Malcolm Lewis, "Changing Emphases in the Description of the Natural Environment of the American Great Plains Area," *Transactions and Papers of the Institute of British Geographers* 30 (1962):

75-90; "The Great Plains Region and its Image of Flatness," *Journal of the West* 6 (January 1967): 11-26; and "The Recognition and Delimitation of the Northern Interior Grasslands during the Eighteenth Century," in *Images of the Plains*, pp. 23-44; Bradley H. Baltensperger, "Agricultural Adjustments to Great Plains Drought: The Republican Valley, 1870-1900," in *The Great Plains: Environment and Culture*, edited by Brian W. Blouet and Frederick C. Luebke (Lincoln: University of Nebraska Press, 1979), pp. 43-59; Leslie Hewes, "The Great Plains One Hundred Years after Major John Wesley Powell," in *Images of the Plains*, pp. 203-14. Henry Nash Smith's *Virgin Land: The American West as Symbol and Myth* (Cambridge, Mass.: Harvard University Press, 1950) has been highly influential but, as Bowden notes, was based on an overly selective set of sources. Bowden cites illustrative historians in "The Great American Desert," pp. 48-49.

10. David M. Emmons, *Garden in the Grasslands: Boomer Literature of the Central Great Plains* (Lincoln: University of Nebraska Press, 1971).

11. A. D. Edwards, *Influence of Drought and Depression on a Rural Community: A Case Study in Haskell County, Kansas*. U.S. Farm Security Administration Social Research Report 7 (Washington, 1939); Mildred Throne, "A Population Study of an Iowa County in 1850," *Iowa Journal of History* 57 (October 1959): 305-30; William L. Bowers, "Crawford Township, 1850-1870: A Population Study of a Pioneer Community," *Iowa Journal of History* 58 (January 1960): 1-36; Allan G. Bogue, *From Prairie to Corn Belt: Farming on the Illinois and Iowa Prairies in the Nineteenth Century* (Chicago: University of Chicago Press, 1963), pp. 8-28.

12. Merle Curti, *The Making of an American Community: A Case Study of Democracy in a Frontier County* (Stanford, Cal.: Stanford University Press, 1959), pp. 65-77, 140-43, 218.

13. Richard G. Bremer, *Agricultural Change in an Urban Age: The Loup Country of Nebraska, 1910-1970*, University of Nebraska Studies: new series no. 51 (Lincoln, 1976), p. 139.

14. D. Aidan McQuillan, "The Mobility of

Immigrants and Americans: A Comparison of Farmers on the Kansas Frontier," *Agricultural History* 53 (July 1979): 576-96. Quotations appear on p. 585. See also "Territory and Ethnic Identity: Some New Measures of an Old Theme in the Cultural Geography of the United States," in *European Settlement and Development in North America: Essays on Geographical Change in Honour and Memory of Andrew Hill Clark*, edited by James R. Gibson (Toronto: University of Toronto Press, 1978), pp. 136-69.

15. The most recent comprehensive summary of United States land disposal policies is Paul W. Gates, *History of Public Land Law Development* (Washington: U.S. Government Printing Office, 1968), which contains a comprehensive bibliography. The articles that best illustrate his view of the homestead law are "The Homestead Law in an Incongruous Land System," *American Historical Review* 41 (July 1936): 652-81; "The Homestead Act: Free Land Policy in Operation, 1862-1935," in *Land Use Policy and Problems in the United States*, edited by Howard W. Ottoson (Lincoln: University of Nebraska Press, 1963), pp. 28-46; "Homesteading in the High Plains," *Agricultural History* 51 (January 1977): 109-33. The quoted passage is on p. 37 of the latter article.

16. Gates, "The Role of the Land Speculator in Western Development," *Pennsylvania Magazine of History and Biography* 66 (July 1942): 314-33; this article was reprinted in Gates, *Landlords and Tenants on the Prairie Frontier: Studies in American Land Policy* (Ithaca: Cornell University Press, 1973), pp. 48-71, along with other essays of interest to the agricultural historian of the grasslands; Allan G. Bogue and Margaret B. Bogue, "'Profits' and the Frontier Land Speculator," *Journal of Economic History* 17 (March 1957): 1-24; Robert P. Swierenga, "Land Speculator 'Profits' Reconsidered: Central Iowa as a Test Case," *ibid.* 26 (March 1966): 1-28, *Pioneers and Profits: Land Speculation on the Iowa Frontier* (Ames: Iowa State University Press, 1968), "Land Speculation and Its Impact on American Economic Growth and Welfare: A Historiographical Review," *Western Historical Quarterly* 8 (July 1977): 283-302; Seddie Cogswell, Jr., *Tenure, Nativity, and Age as Factors in Iowa*

Agriculture, 1850-1880 (Ames: Iowa State University Press, 1975); Donald L. Winters, *Farmers Without Farms: Agricultural Tenancy in Nineteenth-Century Iowa* (Westport, Conn.: Greenwood Press, 1978); Homer E. Socolofsky has distilled many years of research and publication on the Midwest's most notorious landlord in *Landlord William Scully* (Lawrence: Regents Press of Kansas, 1979); Everett Dick, *The Lure of the Land: A Social History of the Public Lands from the Articles of Confederation to the New Deal* (Lincoln: University of Nebraska Press, 1970); Yasuo Okada, *Public Lands and Pioneer Farmers: Gage County, Nebraska, 1850-1900* (Tokyo: Keio University, 1971); Reginald Horsman, "Changing Images of the Public Domain: Historians and the Shaping of Midwest Frontiers," in *This Land of Ours: The Acquisition and Disposition of the Public Domain, Papers Presented at an Indiana American Revolution Bicentennial Symposium, Purdue University . . .* (Indianapolis: Indiana Historical Society, 1978), p. 80.

17. Okada, *Public Lands and Pioneer Farmers*, pp. 103, 176, includes three townships in which his proxy for speculation (agricultural college and state internal improvement entries) did not appear. Inclusion of these observation points raises Pearson's r to .66 and r^2 to .44. Only examination of the alienation history in these townships can answer the question of whether it was appropriate to include them. But doing so still leaves more than half of the variance unexplained.

18. Gates, "The Homestead Law in Iowa," *Agricultural History* 37 (April 1964): 78; *Public Land Law Development*, p. 771; "Homesteading in the High Plains," p. 109.

19. Homer E. Socolofsky, "Land Disposal in Nebraska, 1854-1906: The Homestead Story," *Nebraska History* 48 (Autumn 1967): 225-48, "Success and Failure in Nebraska Homesteading," *Agricultural History* 42 (April 1968): 103-8; Lawrence B. Lee, "The Homestead Act: Vision and Reality," *Utah Historical Quarterly* 30 (Summer 1962): 215-34; C. Barron McIntosh, "Forest Lieu Selections in the Sand Hills of Nebraska," *Annals of the Association of American Geographers* 64 (March 1974): 87-99, and "Use and Abuse of the Timber Culture Act," *ibid.* 65 (September 1975): 347-62. See also McIntosh, "Patterns

from Land Alienation Maps," *ibid.* 66 (December 1976): 570-82, for an interesting analysis of settlement in general in the Sandhills of Nebraska. For an examination of a state grant, see Agnes Horton, "Nebraska's Agricultural College Land Grant," *Nebraska History* 30 (March 1949).

20. Bogue, *From Prairie to Corn Belt*, pp. 50-53.

21. Rogers, *References for . . . The Great Plains*, pp. 21, 24; of the specialized items, see Walter Kollmorgen and Johanna Kollmorgen "Landscape Meteorology in the Plains Area," *Annals of the Association of American Geographers* 63 (December 1973): 424-41; Hollon, *Great American Desert*, 154-55; Clark C. Spence, *The Rainmakers: American "Pluviculture" to World War II* (Lincoln: University of Nebraska Press, 1980).

22. Thomas R. Wessel, "Prologue to the Shelterbelt, 1870 to 1934," *Journal of the West* 6 (January 1967): 119-34; W. H. Droze, "Changing the Plains Environment: The Afforestation of the Trans-Mississippi West," *Agricultural History* 51 (January 1977): 6-22.

23. Thomas R. Wessel, "Roosevelt and the Great Plains Shelterbelt," *Great Plains Journal* 8 (Spring 1969): 57-74; Allan J. Soffar, "The Forest Shelterbelt Project, 1934-1944," *Journal of the West* 14 (July 1975): 105. By 1944 the project "had evolved into a complete and valuable program."

24. See the state histories listed in note 7.

25. A. Bower Sageser, *Joseph L. Bristow: Kansas Progressive* (Lawrence: University Press of Kansas, 1968). See also Sageser's "Windmill and Pump Irrigation on the Great Plains, 1890-1910," *Nebraska History* 48 (Summer 1967): 107-18. Smythe's career is described briefly by Martin E. Carlson, "William E. Smythe: Irrigation Crusader," *Journal of the West* 7 (January 1968): 41-47, and by Lawrence E. Lee, "Introduction," in *The Conquest of Arid America* by William E. Smythe (Seattle: University of Washington Press, Americana Library, 1969), pp. xvii-xliii.

26. Donald E. Green, *Land of the Underground Rain: Irrigation on the Texas High Plains, 1910-1970* (Austin: University of Texas Press, 1973); Henry C. Hart, *The Dark Missouri* (Madison: University of Wisconsin Press, 1957). For the best succinct account of

the federal government's role in reclamation, see Gates, *Public Land Law Development*, pp. 635-98.

27. Robert G. Dunbar, "Water Conflicts and Controls in Colorado," *Agricultural History* 22 (July 1948): 180-86, "The Origins of the Colorado System of Water-Right Control," *Colorado Magazine* 27 (October 1950): 241-72, "The Search for a Stable Water Right in Montana," *Agricultural History* 28 (October 1954): 138-49, "The Significance of the Colorado Agricultural Frontier," *Agricultural History* 34 (July 1960): 119-25, "The Adaptation of Groundwater-Control Institutions to the Arid West," *Agricultural History* 51 (October 1977): 662-80. For the quotation, see p. 680. Illustrative of the law journal approach are William J. Burke, "Western Water Law," *Wyoming Law Journal* 10 (Spring 1956): 180-87, and Wells A. Hutchins, "Western Water Right Doctrines and Their Development in Kansas," *University of Kansas Law Review* 5 (May 1957): 533-83.

28. William C. Darrah, *Powell of the Colorado* (Princeton: Princeton University Press, 1951), particularly pp. 299-314; Wallace Stegner, *Beyond the Hundredth Meridian: John Wesley Powell and the Second Opening of the West* (Boston: Houghton Mifflin, 1954), pp. 295-345. Important additional perspectives are provided by William Lilley II and Lewis L. Gould, "The Western Irrigation Movement, 1878-1902: A Reappraisal," in *The American West: A Reorientation*, University of Wyoming Publications no. 32, edited by Gene M. Gressley (Laramie: University of Wyoming, 1966), pp. 57-74; and Thomas G. Alexander, "The Powell Irrigation Survey and the People of the West," *Journal of the West* 7 (January 1968): 48-54; Timothy J. Rickard, "The Great Plains As Part of an Irrigated Western Empire, 1890-1914," in *The Great Plains: Environment and Culture*, edited by Blouet and Luebke, pp. 91, 93-94.

29. Olson, *Nebraska*, p. 329; L. Carl Brandhorst, "The North Platte Oasis: Notes on the Geography and History of an Irrigated District," *Agricultural History* 51 (January 1977): 166-72; R. Douglas Hurt, "Irrigation in the Kansas Plains since 1930," *Red River Valley Historical Review* 4 (Summer 1979): 64-72.

30. Mary W. M. Hargreaves, *Dry Farming in*

the Northern Great Plains, 1900-1925 (Cambridge: Harvard University Press, 1957). Full references to the Malin works cited appear in note 4.

31. Albro Martin, *James J. Hill and the Opening of the Northwest* (New York: Oxford University Press, 1976), p. 553; Mary W. M. Hargreaves, "The Dry-Farming Movement in Retrospect," *Agricultural History* 51 (January 1977): 160-61.

32. R. Douglas Hurt, "Return of the Dust Bowl: The Filthy Fifties," *Journal of the West* 18 (October 1979): 85-93.

33. Walter M. Kollmorgen and George F. Jenks, "A Geographic Study of Population and Settlement Changes in Sherman County, Kansas," *Transactions of the Kansas Academy of Science* 54 (December 1951): 459. Italics added by Allan G. Bogue.

34. Baltensperger, "Agricultural Adjustments to Great Plains Drought: The Republican Valley, 1870-1900," pp. 43-59.

35. Thus far historians have devoted most attention to the winter wheat of the central plains: Malin, *Winter Wheat*; Homer E. Socolofsky, "Kansas Wheat History," in *Marketing Kansas Wheat* (Topeka: Kansas State Board of Agriculture, 1959), pp. 36-61; K. S. Quisenberry and L. P. Reitz, "Turkey Wheat: The Cornerstone of an Empire," *Agricultural History* 48 (January 1974): 98-110; Robert G. Dunbar, "Turkey Wheat: A Comment," *ibid.*: 111-14. Of the other midwestern crops, corn development is treated in A. R. Crabb, *The Hybrid-Corn Makers: Prophets of Plenty* (New Brunswick, N.J.: Rutgers University Press, 1947), and Henry A. Wallace and William L. Brown, *Corn and Its Early Fathers* (East Lansing: Michigan State University Press, 1956). For the story from the standpoint of the plant scientist, see Paul C. Mangelsdorf, *Corn: Its Origin, Evolution and Improvement* (Cambridge, Mass.: Harvard University Press, 1974). There are brief treatments of other crop developments in Walter Ebeling, *The Fruited Plain: The Story of American Agriculture* (Berkeley: University of California Press, 1979). The story of plant importation is told briefly in Nelson Klose, *America's Crop Heritage: The History of Foreign Plant Introduction by the Federal Government* (Ames: Iowa State College Press, 1950); John T. Schlebecker, "Pliant

Prairie," *Montana, the Magazine of Western History* 8 (Winter 1958): 30-41 is a study of the adoption of sorghum in western South Dakota that could serve as a model in other needed investigations.

36. Karl S. Quisenberry, "The Dry Land Stations: Their Mission and Their Men," *Agricultural History* 51 (January 1977): 218-28; Merrill G. Burlingame, "National Contributions of the Montana Extension Service, 1893-1930," *ibid.*: 229-43; the various components of the *Addenda and Postscript* in the 1967 edition of Malin's *Grassland of North America* present his considered views on the relation between history, the environmental complex of the grasslands, and public policy; Paul Bonifield, *The Dust Bowl: Men, Dirt, and Depression* (Albuquerque: University of New Mexico Press, 1979); Harry C. McDean, "Federal Farm Policy and the Dust Bowl: The Half-Right Solution," *North Dakota History* (Summer 1980): 21-31. This review of literature is focused primarily on the central and northern plains and does not emphasize the Dust Bowl story, but see also Donald E. Worster, *Dust Bowl: The Southern Plains in the 1930s* (New York: Oxford University Press, 1979).

37. Terry G. Jordan, "Between the Forest and the Prairie," *Agricultural History* 38 (October 1964): 205-16; Bogue, *From Prairie to Corn Belt*, pp. 211-12, 236-38 (summarizing material from an earlier article); Cogswell, *Tenure, Nativity, and Age*, pp. 75-78; Winters, *Farmers Without Farms*, pp. 77, 88, 135; D. Aidan McQuillan, "Mobility of Immigrants and Americans," p. 591; John G. Rice, "The Role of Culture and Community in Frontier Prairie Farming," *Journal of Historical Geography* 3 (April 1977): 155-75; Robert Ostergren, "A Community Transplanted: The Formative Experience of a Swedish Immigrant Community in the Upper Middle West," *ibid.* 5 (April 1979): 189-212. The literature is discussed in Robert P. Swierenga, "Ethnicity and American Agriculture," *Ohio History* 89 (Summer 1980): 322-44.

38. Leslie Hewes, *The Suitcase Farming Frontier: A Study in the Historical Geography of the Central Great Plains* (Lincoln: University of Nebraska Press, 1973), "Early Suitcase Farming in the Central Great Plains," *Agricultural History* 51 (January 1977): 23-

37; see Kenneth Norrie, "Dry Farming and the Economics of Risk Bearing: The Canadian Prairies, 1870-1930," *ibid.*: 134-48, for both a theoretical and substantive exploration of the risk factor in farm decision making in the Canadian plains region.

39. Allan G. Bogue, *From Prairie to Corn Belt*; Margaret Beattie Bogue, *Patterns from the Sod: Land Use and Tenure in the Grand Prairie, 1850-1900*, Illinois State Historical Library Collections no. 34 (Springfield, 1959); James W. Whitaker, *Feedlot Empire: Beef Cattle Feeding in Illinois and Iowa, 1840-1900* (Ames: Iowa State University Press, 1975); Hiram M. Drache, *The Day of the Bonanza: A History of Bonanza Farming in the Red River Valley of the North* (Fargo: North Dakota Institute for Regional Studies, 1964); Stanley N. Murray, *The Valley Comes of Age: A History of Agriculture in the Valley of the Red River of the North, 1812-1920* (Fargo: North Dakota Institute for Regional Studies, 1967). See also relevant sections in Clarence H. Danhof, *Change in Agriculture: The Northern United States, 1820-1870* (Cambridge: Harvard University Press, 1969).

40. Hiram M. Drache, *Beyond the Furrow: Some Keys to Successful Farming in the Twentieth Century* (Danville, Ill.: Interstate Printers and Publishers, 1976), pp. 95-166, and "Thomas D. Campbell—The Plover of the Plains," *Agricultural History* 51 (January 1977): 78-91; Terry L. Anderson, "Bonanza Farmers and Subsistence: A Response," *ibid.*: 104-08; Robert E. Ankli, "Farm Income on the Great Plains and Canadian Prairies, 1920-1940," *ibid.*: 92-103.

41. Allan G. Bogue, *Money at Interest: The Farm Mortgage on the Middle Border* (Ithaca: Cornell University Press, 1955).

42. Two writers have challenged the adequacy of Bogue's work: O. Gene Clanton, *Kansas Populism: Ideas and Men* (Lawrence: University Press of Kansas, 1969), p. 259; and Lawrence Goodwyn, *Democratic Promise: The Populist Movement in America* (New York: Oxford University Press, 1976), pp. 610, 629. These writers prefer the analysis of western lending presented by Raymond C. Miller in his unpublished doctoral dissertation, "The Populist Party in Kansas" (Ph.D. diss. University of Chicago, 1928), who alleged that interest rates

were excessive but did no research in county records or business manuscripts. Neither, apparently, did Clanton or Goodwyn, and Clanton misrepresented the depth and scope of the research in *Money at Interest*. Other treatments based on research in primary sources are Glenn H. Miller, Jr., "The Hawkes Papers: A Case Study of a Kansas Mortgage Brokerage Business, 1871-1888," *Business History Review* 32 (Autumn 1958): 293-310; Margaret B. Bogue, *Patterns from the Sod*, 185-222; Jay Ladin, "Mortgage Credit in Tippecanoe County, Indiana, 1865-1880," *Agricultural History* 41 (January 1967): 37-43; Robert F. Severson, Jr., James F. Niss, and Richard D. Winkelman, "Mortgage Borrowing As a Frontier Developed: A Study of Mortgages in Champaign County, Illinois, 1836-1895," *Journal of Economic History* 26 (June 1965): 147-68; W. Turrentine Jackson, *The Enterprising Scot: Investors in The American West after 1873* (Edinburgh: Edinburgh University Press, 1968); Larry McFarlane, "British Investment in Midwestern Farm Mortgages and Land, 1875-1900: A Comparison of Iowa and Kansas," *Agricultural History* 48 (January 1974): 179-98; Russell Berry, "British Investment in Iowa and Kansas, 1875-1900: Comment," *ibid.*: 199-201; William G. Kerr, *Scottish Capital on the American Credit Frontier* (Austin: Texas State Historical Assoc., 1976). Okada, *Public Lands and Pioneer Farmers*, pp. 146-59. Real estate taxes as a farming cost remain virtually unstudied, but see Bogue, *From Prairie to Corn Belt*, pp. 187-92, and Robert P. Swierenga, *Acres for Cents: Delinquent Tax Auctions in Frontier Iowa* (Westport, Conn.: Greenwood Press, 1976), primarily a study in investment but emphasizing the farm finance aspects of tax liens as well.

43. Fred A. Shannon, *The Farmer's Last Frontier: Agriculture, 1860-1897* (New York: Farrar and Rinehart, 1945), particularly pp. 140-45; Paul W. Gates, *Agriculture and the Civil War* (New York: Alfred A. Knopf, 1965), pp. 222-47; David E. Schob, *Hired Hands and Plowboys: Farm Labor in the Midwest, 1815-60* (Urbana: University of Illinois Press, 1975); Mary W. M. Hargreaves, "Women in the Agricultural Settlement of the Northern Plains," *Agricultural History* 50 (January 1976): 179-89; Glenda Riley, "Images of the Frontier-woman: Iowa as a Case Study," *Western Historical Quarterly* 8 (April 1977): 189-202; Julie R. Jeffrey, *Frontier Women: The Trans-Mississippi West, 1840-1880* (New York: Hill and Wang, 1979), particularly pp. 51-78; John M. Faragher, *Women and Men on the Overland Trail* (New Haven: Yale University Press, 1979), pp. 40-65 and *passim*.

44. Rodney O. Davis, "Before Barbed Wire: Herd Law Agitations in Early Kansas and Nebraska," *Journal of the West* 6 (January 1967): 41-52; Clarence H. Danhof, "The Fencing Problem in the Eighteen-Fifties," *Agricultural History* 18 (October 1944): 168-86; Henry D. and Frances T. McCallum, *The Wire That Fenced the West* (Norman: University of Oklahoma Press, 1965); R. Douglas Hurt, "Agricultural Technology in the Dust Bowl, 1932-40," in *The Great Plains: Environment and Culture*, edited by Blouet and Luebke, pp. 139-56.

45. Walter P. Webb, "The American West: Perpetual Mirage," *Harper's Magazine* 214 (May 1957): 28-31; Gerald D. Nash, "Western Economic History As a Field for Research," *Western Economic Journal* 3 (1964-65): 91.