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Stone walls running incongruously through deep woods; fields and pastures becoming overgrown with brush; broken-backed barns tumbling in upon themselves; clusters of day lilies and lilacs guarding empty cellar holes — the remains of thousands of farms are scattered across the Maine landscape, relics of another age when farming was the lifeblood of hundreds of rural communities from the Piscataqua to the St. John.¹

THE TRANSFORMATION OF FARMING IN MAINE, 1940 - 1985

World War II was a watershed for farming in the United States. Since then far-reaching changes in agricultural technologies, in farm structure, in the commercial nexus surrounding farms, and in federal and state government programs have altered the prospects for American agriculture. Farming in Maine shared in these fundamental changes. To some degree, the patterns in modern Maine agriculture were established after World War I. But the rate of change after the Second World War was breathtaking by comparison to the earlier twentieth century. After 1940, for example, the total number of farms in Maine declined by approximately eighty percent, and small-scale, full-time general farming was supplanted, for the most part, by large-scale, specialized farming. These changes in the economy of Maine farms resulted in a fundamental transformation in all of Maine rural society.²

Maine farming reached its heyday between 1870 and the First World War, when there were some 60,000 farms in the state with a total acreage of 6.3 million acres.³ While there were a few thousand specialized commercial farms that produced primarily hay, potatoes, apples, and dairy products, most were general farms. Self-sufficient to a large degree, they also produced some commodities, such as butter and sweet corn, for market.



National forces shaped Maine agriculture during and after World War II. Dramatic changes in farm technology, market structures, and government support brought equally profound changes in Maine's rural economy and indeed in the meaning of rural life. Photos in this article are from the Farm Extension Service collection, University of Maine.

The commodities farmers bought and sold during those years were handled largely through local businesses: the general store, the harnessmaker, the creamery, or the "corn-shop." Thus the farmers' lives were enmeshed in a local web of community, the strands of which included not only business establishments but local schools, churches, fairs, grange chapters, and town meetings. The rural community, in turn, was oriented around the farm. From almanacs to Sunday sermons, this was an era when the rural mentality was still imbued with an awareness of agriculture. From harvest home festivals to barn raisings, community rituals were in tune with the seasons and the farm family's life cycle.⁴

Between World War I and World War II, however, a series of national trends impinged on the traditional role of farming in Maine rural society. Several mid-century developments intensified the competition faced by Maine farmers: long-haul

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transport became cheaper; the federal government subsidized western irrigation; and new technologies favored large-scale monoculture. As the profit margins of small general farms were squeezed ever lower, some 20,000 Maine farms disappeared. Some were simply abandoned or sold to non-farmers; others were absorbed into nearby expanding commercial farms. Despite a modest return to the land during the Great Depression, there were 35 percent fewer farms in the state in 1940 than in 1910. Of the 39,000 farms that survived on the eve of the Second World War, about half were specialized commercial farms. Only a few thousand traditional small, full-time general farms survived; about 20,000 general farms had become part-time operations.⁵ The erosion of farming had a profound impact upon rural towns. As farmers gave up on their farms and moved away to pursue other lines of work, other rural businesses closed, churches were dissolved, and the web of community was generally weakened.⁶

As far-reaching as these changes had been in the decades prior to 1940, they pale in significance when compared to the dramatic transformation that took place in the four decades after 1940. Nationwide, from the early 1940s on into the 1950s there was a rapid and sustained recovery from the farm depression of the 1930s. Accelerated expansion of farm productivity was matched by a nearly continuous high demand. Encouraged by strong federal price supports, farmers increased production sharply during the Second World War, and the wartime momentum was sustained by a postwar consumer spending boom in the United States and the reconstruction programs in Europe and Asia. These were fat years for American farmers, rivaling the golden era of 1911-1918.

The rising income of farmers and the wartime shortage of labor kicked off a burst of spending on technological innovations — mechanical, biological, chemical — that was to continue with little slowdown for over forty years. The number and size of tractors used increased dramatically, and a wide range of increasingly complex and efficient equipment was

drawn behind them. Biologists made far-reaching improvements in crop and livestock genotypes, hormone growth stimulants, and antibiotics. The chemical industry developed not only improved fertilizers but synthetic pesticides, herbicides, and fungicides. The result of the mechanical-biological-chemical revolution was a dramatic increase in most crop and livestock yields, after years of virtual stagnation.⁷

In 1940 most American farms were only partially integrated into national farm-supply, equipment, and labor markets. The bulk of their inputs for production (including land, labor, feed, and seed) were supplied by the farm household or by small, local independent dealers. A sizable part of their diverse output was either consumed on the farm or sold locally. The relative input self-sufficiency of the American farm began to disappear after 1940 as the increasingly complex production technology was supplied by franchisees of major national corporations such as John Deere, Merck, Exxon, and Dow Chemical. On the output side, a comparable trend developed, resulting in a sharp drop in the proportion of output consumed on the farm or marketed to local stores and small independent processing plants. Although some farm commodity markets, such as potatoes, remained highly competitive, contract production for large vertically integrated processors became increasingly common. Such was the case, for example, with broilers. In sum, it was during this era of prosperity for farmers, ironically, that most of them began to fall under the sway of large corporate suppliers and buyers.⁸

The changes in the use of technology and in the purchase of inputs and sale of outputs were accompanied by equally significant modifications in the structure of American farming. Nationally the number of farms declined drastically from 1940 to the early 1950s, a decrease of some 15 percent since 1940. The decline in the number of farms was disproportionately distributed among small, medium, and large sized farms. Those in the middle range bore the brunt of the decline.⁹ For many of them, it was a case of get larger or get out.

By the early 1950s, the transformations in production technology, in farm structure, and in the commercial nexus surrounding farms which had swept the national scene were widely reflected in Maine agriculture. The number of farms fell by some thirty percent (from 39,000 to about 27,000), until they employed less than ten percent of the state's work force. Four commodities (potatoes, dairy products, broilers, and eggs, in that order) accounted for over seventy percent of total farm output. Adding cattle, apples, and blueberries, the top seven commodities accounted for fully eighty-four percent of farm production. (See Figure 1). Most of the farms producing these commodities had become highly specialized. With the exception of milk, the bulk of what they produced went to out-of-state markets.¹⁰ Farm customers, on the other hand, poised on the threshold of a new era of supermarket chains, interstate highways, refrigerated trucks, and giant food processing operations, moved toward dependence upon imports from California and other far-off places.

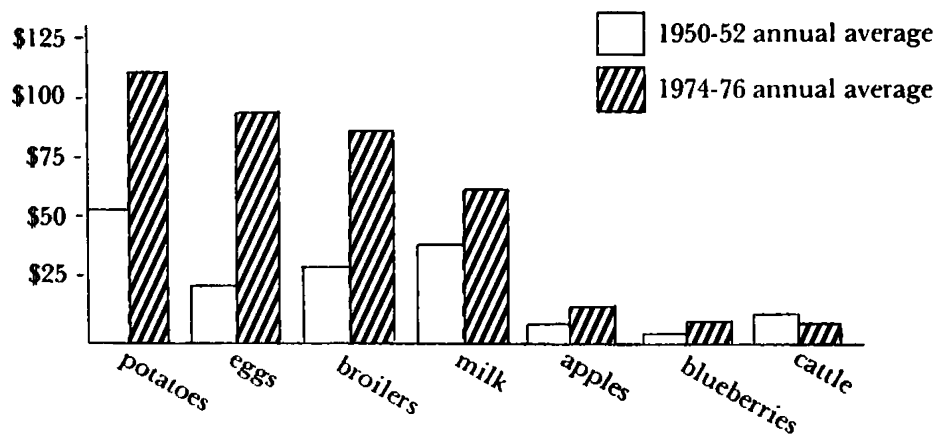


Figure 1. Maine cash farm income by major commodity (million \$)

Source: U. S. Census: Census of Agriculture 1950, 1974

The rise of contract broiler growing epitomizes the impact in Maine of the nationwide transformation of farm marketing during these years. During the latter part of the 1930s some farmers in towns such as Gorham and Union sold significant numbers of live poultry, primarily to out-of-state markets.

When the onset of World War II produced a shortage of trucks, tires, and gasoline that threatened to end the shipment of bulky live poultry from Maine, several shippers reacted to the situation in 1942 and 1943 by setting up small, crudely equipped processing plants in Maine to “New York dress” the birds that they were buying. The processing involved only killing the birds, draining their blood, and removing their feathers. The goal was to compact the product for shipment and add value to it.

Since poultry was one of the few meats not rationed during the wartime emergency, there was a strong demand for it. But processors found that they could not regularly obtain enough birds from individual independent growers to keep their operations running full-time to take advantage of the favorable market situation. To rationalize the supply of birds, processors began placing chicks with farmers, who agreed to raise them to slaughtering size for a cent per bird per week fee. At first most farmers kept the birds in unused buildings or barn space, but eventually many built large broiler houses.

Within a few years a vertically integrated broiler industry evolved in which the processors, under a verbal contract, supplied the growers not only with the chicks over which they retained ownership, but also with feed, litter, and medicine. The growers provided the space to house the birds, along with the necessary feeding, watering, and ventilating equipment, and their own labor. The processor controlled the contractual relationship, determining such matters as how many birds a grower could handle, what facilities and equipment were needed, and the age and weight at which the birds would be marketed. They supervised the contract through periodic visits by their field men.

The number of broilers produced in Maine increased nearly two hundred percent between 1940 and 1945, from 500,000 to 1,452,000; but the greatest growth came in the next five years when there was more than a thousand percent increase in production to 16,916,000. By the early 1950s, well over 20,000,000 birds were processed each year, and Maine



The broiler industry, Maine's postwar success story, responded to growing markets centered in New York City. Close links with consolidated out-of-state supply and marketing networks altered the way Maine farmers did business.

broilers had a ten-percent share of the New York City market, even though they commanded premium prices.¹¹ Unlike Maine farming generally, the broiler industry expanded rapidly. But it grew under the aegis of large consolidated processing combines far removed from the web of community life in rural Maine.

The transformations affecting American farming were also felt, albeit to a lesser degree than in the burgeoning broiler industry, in Maine's apple growing, dairying, and potato production. Apple growing too was set apart from traditional diversified farming and transformed into "highly specialized commercial orchards with increased acreage and size"¹² Milk prices were driven upward by a high level of demand between 1940 and 1953, encouraging many dairymen to enlarge and improve their herds, acquire equipment such as individual drinking cups and milking machines, modernize their barns, and buy more land on which to grow feed.¹³ This was also a prosperous time for Maine potato farmers. They increased

the acreage planted markedly. The federal government encouraged production with incentive payments as a hedge against possible poor wheat and corn crops. Greater use of tractors, pesticides, and mechanical handling of the harvest enabled farmers to produce and market large crops until the price supports were cut off in the late 1940s.¹⁴

In the mid-1950s farmers employed more sophisticated and powerful mechanical and chemical technologies to plant, cultivate, and harvest crops and raise livestock and poultry. As a result, the national balance of growth in supply and demand gave way to a chronic tendency toward oversupply in most farm products. Moreover, the use of these technologies drove up operating costs; farmers often required heavy capital investment in land as well as equipment.¹⁵

Despite their more sophisticated approach to farming and the renewal of federal commodity programs on a massive scale, farmers' incomes and returns on investment remained generally low, especially in comparison to the steadily rising non-farm incomes and returns to capital. This led to a massive shakeout of small and middle sized farms and a more than fifty percent decline in the total number of farms in the nation.¹⁶

As Figure 1 suggests, Maine agriculture also changed significantly in the quarter-century after the early 1950s. Potatoes remained the state's number one commodity, but eggs and broilers nearly caught up, and total poultry production greatly surpassed potatoes. Indeed, Maine's potato production ranking fell from first to fifth position nationally, behind four western states. The relative position of dairying also declined sharply in the face of stagnant local demand. By the mid-1970s, both milk and potato output were below 1950s levels. Most significantly, the post-1950 period showed an acceleration in farm specialization and a decline in the diversified farming that had been the foundation for rural communities in earlier Maine. By the mid-1970s the top four commodities accounted for well over eighty percent of total production and the top seven commodities fully ninety-four percent of all production. Paralleling the increase in specialization, primarily for export

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from the state, seventy percent of the food consumed by Maine residents was now imported.

Maine agriculture in the post-war era followed all the major trends in U. S. farming, but, as Figure 2 shows, with sharper declines in the number of farms, farmers, and farmland, and slower increases in average farm size and asset value. The most dramatic signs of structural transformation were to be found in basic farm figures: only about one-sixth of Maine's pre-war farms (6,436) were still operating, and less than four percent of the state's workforce was in agriculture. Maine's average output per farm and per acre was well above the national averages, largely because of the advent of broiler production, and then egg "factories." But these average figures are misleading, since the distribution of farm sizes in Maine differed considerably from the national pattern. Maine had greater concentrations of farms at both the upper and lower ends of the size distribution: in 1978, 11 percent of Maine farms had sales over \$100,000, as opposed to 9 percent nationally; 39 percent of Maine farms had sales below \$2,500, compared to 25 percent nationally.

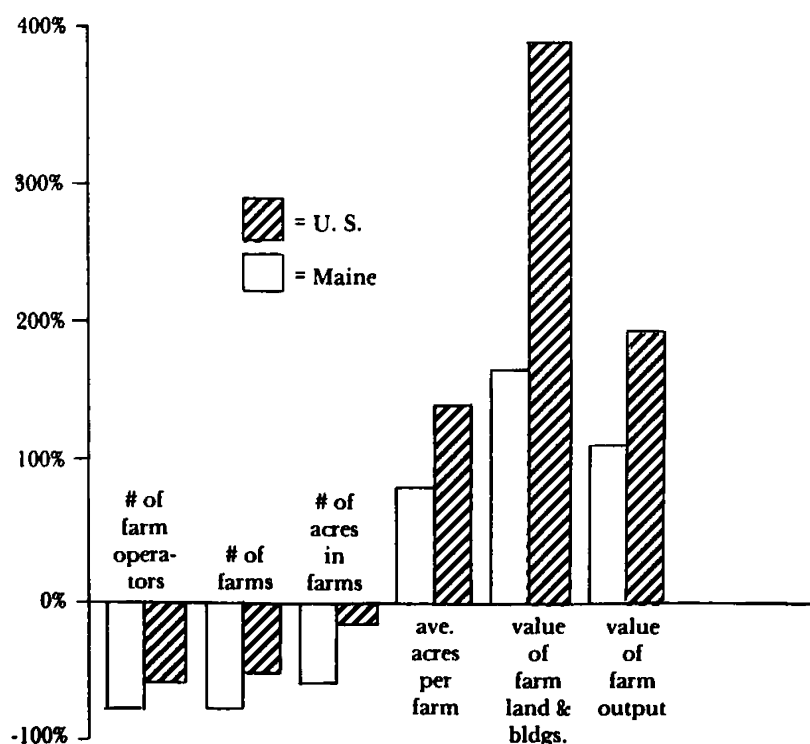


Figure 2. Indices of agricultural change: Maine and the U. S., 1950 and 1974

Source: U. S. Census of Agriculture 1950, 1974

The dramatic concentration of production in Maine on a shrinking number of farms is underscored by Table 1. Among the five major kinds of farms, only orchards increased in numbers after 1959. By 1978, all the others had been reduced to a fraction of their earlier numbers.

Table 1. Number of commercial farms¹

Year	Potato	Orchard	Poultry	Eggs	Broilers	Dairy
1959	2354	158	2243	1161	1102	3257
1964	1908	126	1656	699	886	2069
1969	1683	115	999	349	542	1376
1974	1283	127	663	203	370	1217
1978 ²	1200	203	766	na	319	1100 ³

¹Source: U. S. Census of Agriculture, various years.

²Source: Number of commercial farms, by type, estimated using U. S. Census of Agriculture 1978 preliminary data which includes all farms with sales of \$2,500 or more and is not limited to those defined as commercial in 1959-74.

³Source: Maine Dairy Council 1979 survey of certified dairy farms, estimated for 1978.

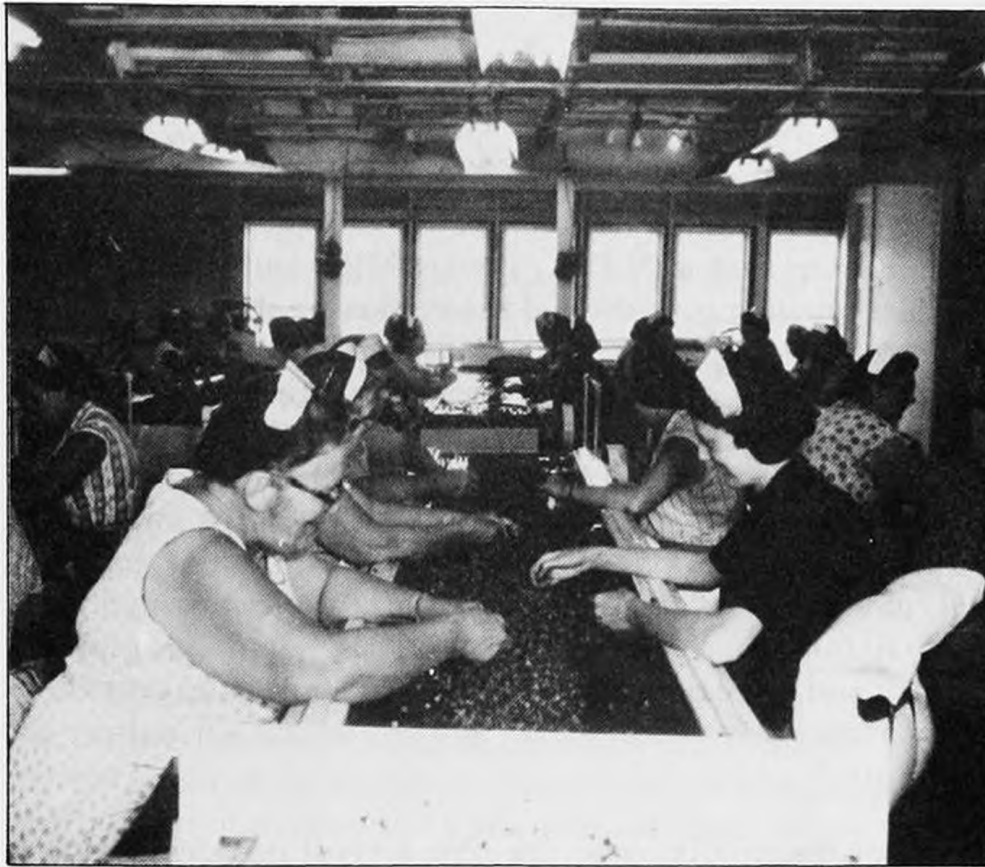
This structural transformation was reflected in many ways. For example, the average commercial dairying operation had about twenty milk cows in the early 1950s; by the mid-1980s it had over eighty. Nearly every farm, even the most marginal, still had a milk cow in 1940; only one non-dairy farm out of twelve has a cow today. Before World War II, only a few farms had more than 100 acres of potatoes, but by 1976, sixty-eight percent of potato acreage was on farms with over 100 acres of them. As late as 1964, there were still 1,700 small egg farms with less than 1,600 layers each. Only one had 100,000 hens. By 1974 only 250 small laying operations remained, and they made only one percent of the total egg sales. The ten largest operations, including most notably DeCoster Egg Farms with over a million layers, made fifty-seven percent of all egg sales.¹⁷



Maine's blueberry crop — an increasingly important industry for eastern coastal counties.

At the base of this structural change was an equally profound technological transformation. The mechanical potato harvester, for instance, dealt with a key labor bottleneck when it was introduced in the mid-1950s.¹⁸ The milking machine, antibiotics, artificial insemination, and scientifically designed feed rations transformed labor productivity and milk yield per cow in dairying.¹⁹ Varietal improvements and new chemical pest and disease controls greatly affected apple production. Nowhere, however, was the impetus to large-scale, mechanized, chemical-intensive technology more visible than in poultry. Caged birds in a totally controlled environment became living machines, processing midwestern feed grain and chemicals into meat and eggs.²⁰

The commercial transformation of Maine's agriculture was inextricably linked to these technological changes. Commercial feeds; chemical fertilizers, pesticides, herbicides, and



Maine farmers specialized in the postwar world.

fungicides; tractors, planters, cultivators, and harvesters — all of these were purchased on a large scale as substitutes for the farm-produced inputs and the more closed nutrient cycle of the past. As horses gave way to tractors, manure to synthetic fertilizers, and cultural methods of pest and weed control to potent chemicals, the purchase of inputs shifted from local independent dealers to franchisees of national suppliers.²¹

On the output side, the postwar world saw an increased degree of specialized production for markets that were regional or national in scope. With some commodities, this shift entailed a greater vertical coordination of production and marketing by shippers and processors, most notably in broiler growing, but also among major apple, blueberry, and egg producers, who established marketing operations to handle the output of other growers as well as their own. Potato marketing, however, remained badly fragmented, with over a hundred

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dealers still functioning in 1978. The milk marketing story, split between farmers selling to the Maine and Boston markets, was even more complicated. Shifting government regulations and price controls and the development of producer marketing organizations such as N.F.O., Yankee Milk, and most recently AgriMark further complicated the marketing scene.²²

A counter trend to the rise of full-time commercial farming was a swelling rank of small, largely part-time farmers who sold to local markets. They utilized direct outlets, such as farmers' markets and roadside stands to sell vegetables, fruit, beef, lamb, wool, honey, and cheese. Although the farms that produced these commodities accounted for no more than ten percent of the state's total farm output, they represented well over half the farms in the state by the 1980s. For many agrarian activists and some policy makers, they symbolize the possibilities of a more diversified, stable, and self-reliant agriculture in the future.²⁸

But essentially, over the past several decades Maine's commercial farming — as its industry — has become almost totally integrated into intensely competitive regional, national, and even international distribution networks, and this competition hurts. Maine's share of the national potato market declined drastically in the face of stiff competition from several western states. Even more dramatic was the collapse in the early 1980s of broiler growing as DelMarVa (Delaware-Maryland-Virginia) producers took over the New York City area market with the help of vigorous advertising campaigns.

Without question, federal farm programs played an important role in these dynamics. For example, potato price guarantees during the Second World War helped bring Aroostook County to its peak of prosperity. Their removal after the war ushered in an era of decline. Likewise, for many years federal marketing orders and price supports for Boston market milk helped insulate many Maine dairymen from the economic consequences of national oversupply. More recently, attenuation of supports in the 1980s has taken its toll.²⁴

The availability of subsidized credit from the Farmers Home Administration was a key factor in the post-war expansion of the poultry industry. In the early 1980s FHA credit was a crutch for marginal potato growers in Aroostook County.²⁵ Throughout this era the majority of commercial farmers participated in various programs of the Cooperative Extension Service, the Soil Conservation Service, or the Agricultural Stabilization and Conservation Service. ASCS funds were particularly important in efforts to stem the severe soil erosion linked to the potato monoculture in Aroostook County.²⁶ Finally, federal funds underwrote nearly half of the research at the University of Maine Agricultural Experiment Station where, over the years, more than half of the research budget was directed toward the major export commodities.²⁷

The dynamics of agriculture were less influenced by the state government. Up to 1980, the major functions of the Maine Department of Agriculture were such things as regulation and inspection of nursery stock and livestock and the oversight of agricultural fairs. The Maine Milk Commission, established in 1935, was the most important regulatory agency; it set prices to insulate small dairies and "Maine Market" producers from predatory out-of-state competition.²⁸

The continued decline in agriculture and a push to modernize the structure of the state government led in the late 1970s to the appointment of a "Food and Farmland Study Commission." In 1980, following a series of recommendations by the Commission, the Maine Department of Agriculture was reorganized and given a much more active role in promoting agriculture in the state. Under the vigorous leadership of a new commissioner of agriculture, Stewart N. Smith, the reorganized department initiated a wide spectrum of new programs that ranged from promotion of direct marketing to encouragement of sheep production, from energy conservation to farm management training programs. However, its attention and resources were necessarily concentrated on the problems of the major export commodities that were in deep trouble: broilers, milk, and potatoes. The virtual collapse of the broiler



Rural society adapted to postwar economic change. Some communities lapsed into rural decay; others experienced a boom in suburban, commercial, and residential development. Still others prospered as farm trade centers.

industry and the continued loss of dairy and potato farms indicated that the state's capacity to counteract national market forces and policies emanating from Washington was very limited.²⁹

The transformation of agriculture in Maine after 1940 reverberated in farm communities from one end of the state to the other. A large proportion of them suffered social and economic distress, reflected in indicators such as high unemployment, an increased welfare case load, and a growing elderly population. Some rural communities — a much smaller number — experienced a boom in commercial and residential development on what had once been farmland.³⁰ Evolution of Maine's farm towns seems to have followed at least four distinct paths since the Great Depression. Some, like Cape Elizabeth,

were situated on the fringe of expanding urban areas, and were almost wholly absorbed into suburbia. The center of gravity of other towns shifted more gradually. They became primarily bedroom villages, but they retained substantial farming and farm commerce. Gorham and Union fit this pattern. A few towns, like Houlton, maintained a substantial amount of farming and continued to be farm trade centers. Finally, numerous farming towns, especially in Penobscot, Piscataquis, Somerset, and Washington counties, became social and economic backwaters. In recent years, the collapse of broiler production transformed some inland Waldo County towns in a similar fashion. Finally, there were a few communities like Turner, a thriving rural town with little in the way of farm related businesses.³¹

By and large, the transformation of farming in Maine since 1940 was a microcosm of what happened to agriculture throughout the nation. From one end of the state to the other, competitive forces pushed farmers to produce for distant markets, utilizing sophisticated technologies to increase their yields. To stay in farming they had to expand their operations. They had to make substantial capital investments in land and equipment and become more adept managers. Even then, many did not survive. Tens of thousands of farm families were forced into other ways of making a living, even if they kept their land, and many did not. Farmland throughout the state reverted to wildland or was converted to housing developments and other uses; the very character of hundreds of rural communities was changed as the farms went under. Indeed, the transformation of farming was a central element in the changing character of Maine and the nation over the past forty years.

NOTES

¹This article is based upon material in a monograph, *The Family Farm in the Web of Community: Four Maine Towns, 1940-1984* (Gorham, Houlton, Turner and Union) (Augusta: Maine State Printer, 1985), that was written as part of a project funded principally by a "Humanities and Public Policy" grant from the Maine Humanities Council. Further support was

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²Clarence Albert Day, *Farming in Maine, 1860-1940*, University of Maine Studies, Second Series, No. 78 (Orono: University of Maine Press, 1963), concludes in 1940. Another study, John Black, *The Rural Economy of New England* (Cambridge: Harvard University Press, 1956) runs only to 1947.

³U. S. Department of Commerce, Bureau of Census, *Historical Statistics of the United States, Part I*, Series K, 17-81 (Washington, D.C.: Government Printing Office, 1976), pp. 459-460.

⁴Day, *Farming in Maine*, chs. IV-XVII.

⁵*Historical Statistics of the United States, Part I*, pp. 459-460; Day, *Farming in Maine*, p. 285. For an excellent picture of rural Maine mid-way between the wars, see Richard H. Condon, "Living in Two Worlds: Rural Maine in 1930," *Maine Historical Society Quarterly* 25 (Fall 1985): 58-87. The situation he describes changed little before World War II.

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⁷Willard W. Cochrane, *The Development of American Agriculture* (Minneapolis: University of Minnesota Press, 1979), pp. 124-129.

⁸*Ibid.*; U. S. Department of Agriculture, *Agricultural Statistics, 1982* (Washington, D.C.: Government Printing Office, 1982), pp. 285, 398-399; Walter Wilcox *et al.*, *The Economics of Agriculture* (Englewood Cliffs, New Jersey: Prentice Hall, 1974), p. 5; William Friedland, "Technology and Agriculture: Labor and the Rate of Accumulation," in *The Rural Sociology of Advanced Societies*, edited by Frederick Buttel and Howard Newby (Totowa, New Jersey: Allenheld, Osmun, 1980), pp. 201-214.

⁹Jim Hightower, *Eat Your Heart Out* (New York: Crown Publishers, 1975), p. 144; John Daly, "Biotechnology: A Powerful Impact Ahead," in U. S. Agency for International Development, *Horizons* (November/December 1982), pp. 31-34; Cochrane, *Development of American Agriculture*, pp. 129-130; Wendall Berry, *The Unsettling of America* (San Francisco, California: Sierra Club Books, 1977), pp. 39-40.

¹⁰Carolyn Britt, *et al.*, *The Past, the Present and the Future Competitiveness of Maine Agriculture* (Augusta: Maine Consortium for Food Reliance, 1980), p. 5; Maine State Planning Office, *Agriculture in Maine: A Policy Report* (Augusta: Maine State Printer, 1979), pp. 1-4.

¹¹Richard F. Saunders, *Contract Broiler Growing in Maine*, Maine Agricultural Experiment Station Bulletin No. 571 (Orono: University of Maine, 1958), pp. 7-12.

¹²Frederick A. Perkins, *Organization and Management of 42 Maine Commercial Apple Farms*, Maine Agricultural Experiment Station Bulletin No. 589 (Orono: University of Maine, 1960), p. 7.

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¹³H. B. Metzger, *Profitable Dairy Farming in Maine: Its Organization, Costs and Returns*, Maine Agricultural Experiment Station Bulletin No. 542 (Orono: University of Maine, 1955), p. 7.

¹⁴William E. Schrumpl, *Costs and Practices in Producing Potatoes in Southern Aroostook County, Maine, 1941*, Maine Agricultural Experiment Station Bulletin No. 432 (Orono: University of Maine, 1942), pp. 269-272; William E. Schrumpl, *Effect of Potato Acreage Reductions on Aroostook County Farm Economics, 1948-1951*, Maine Agricultural Experiment Station Bulletin No. 518 (Orono: University of Maine, 1953), p. 5.

¹⁵Cochrane, *Development of American Agriculture*, pp. 133-134; *Agricultural Statistics*, 1982, p. 385; U. S. Department of Agriculture, *Entrepreneurial Control in Farming*, p. ii; F. Gregory Hayden, "A Geobased National Agricultural Policy," *Journal of Economic Issues* 18 (March 1984): 193.

¹⁶*Historical Statistics of the United States*, Part I, p. 458.

¹⁷*Maine Agriculture in 1940, A Statistical Presentation*, Maine Agricultural Experiment Station, Miscellaneous Publication No. 578 (Orono: University of Maine Press, 1943); William Seekins, *Maine Small Farm Statistics* (Augusta: Maine Department of Agriculture, 1984), p. 16; Britt, *Competitiveness of Maine Agriculture*, ch. 3; Maine State Planning Office, *Agriculture in Maine*, p. 72.

¹⁸Edward F. Johnston, *A History of Potatoes in Aroostook County* (typescript), Cary Library, Houlton, Maine, pp. 13-16; Schrumpl, *Effect of Potato Acreage Reductions*, p. 12; E. S. Micka and R. N. Krofta, *Economic Impacts of a Changing Labor Force in Aroostook County, Maine, Phase I: Effects on Potato Farm Organization*, Maine Agricultural Experiment Station Bulletin No. 681 (Orono: University of Maine, 1970), p. 5.

¹⁹George F. Dow *Use of Machinery and Horses on Maine Farms Keeping Dairy Cows*, Maine Agricultural Experiment Station Bulletin No. 429 (Orono: University of Maine, 1944-1945), pp. 42-45; H. B. Metzger, *Profitable Dairy Farming in Maine: Its Organization, Costs and Returns*, Maine Agricultural Experiment Station Bulletin No. 542 (Orono: University of Maine, 1955), pp. 12-13; Howard B. Metzger, *Organizing Maine Dairy Farms for Optimum Returns*, Maine Agricultural Experiment Station Bulletin No. 666 (Orono: University of Maine, 1968), p. 5.

²⁰Richard F. Saunders, *Contract Broiler Growing in Maine*, Maine Agricultural Experiment Station Bulletin No. 571 (Orono: University of Maine, 1958), pp. 7-18.

²¹Day, *Agriculture in Maine*, p. 72.

²²Stewart N. Smith, "Maximizing Profits Instead of Production," *Maine-ly Agriculture*, October 5, 1984; U. S. Department of Agriculture, New England Crop and Livestock Reporting Service, *Maine Agricultural Statistics*, 1982 (Washington, D.C.: Government Printing Office, 1982), p. 35.

²³Seekins, *Maine Small Farm Statistics*, chs. III, VII.

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²⁴Stewart N. Smith, "The Milk Pricing Dilemma," *Maine-ly Agriculture*, August 24, 1984.

²⁵The role of the Farmers Home Administration in potato production is based upon interviews with farmers and FmHA staff in Aroostook County.

²⁶Based upon interviews with farmers in the towns of Gorham, Houlton, Turner, and Union.

²⁷In 1983, the Federal share of the Experiment Station budget was \$1.9 million of a total of \$4.6 million. Research on dairying (17 percent), potatoes (14 percent), apples (6 percent), poultry (5 percent), and blueberries (5 percent) made up 47 percent of the total budget (55 percent if forestry research is excluded). Personal communication from Mark Anderson, Assistant Director of the University of Maine Experiment Station.

²⁸*Agencies of Government State of Maine, Part I Constitutional and Public Law Agencies* (Augusta: Maine State Archives, 1977), pp. 67-81.

²⁹*Maine: Fifty Years of Change, 1940-1990* (Orono: University of Maine Press, 1983), pp. 20-23.

³⁰Maine State Planning Office, *Economic Distress and the Changing Nature of Rural Maine* (1980), *passim*.

³¹Maine State Planning Office, *A Study of Farmland Conversion in Nineteen Maine Communities* (1982), p. 4; *Family Farm in the Web of Community*, ch. 6.

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