The PALIMPSEST

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The PALIMPSEST

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Peter T. Harstad, Director

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William Silag, Editor

CONTENTS

P. G. Holden and the Corn Gospel Trains
by Rosanne Sizer and William Silag 66

A Road through Summer
by James Hearst 72

Fruit in Iowa: A Brief History
by Rosanne Sizer and William Silag 80

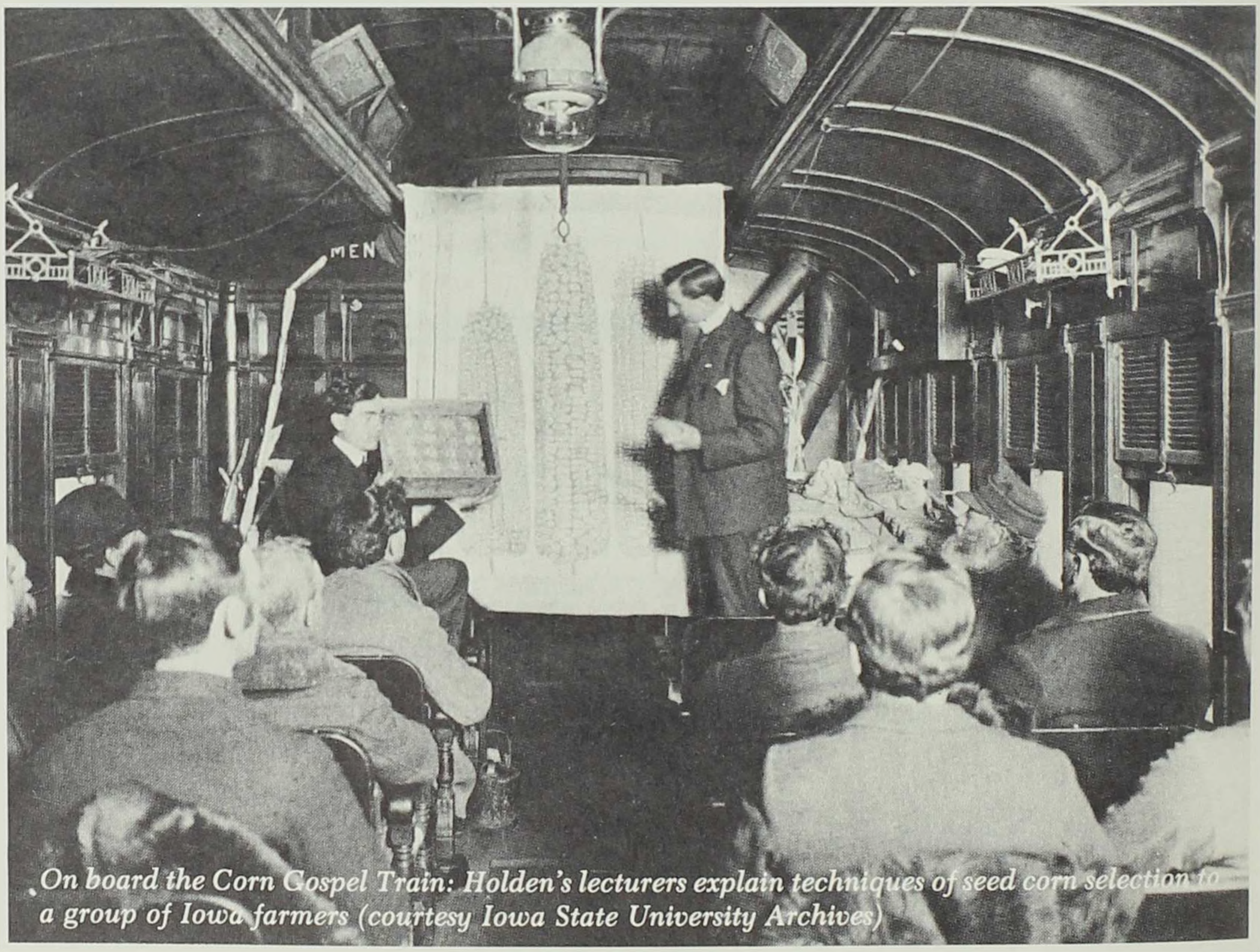
The Ice Harvest
by Stephen Volk 90

Cover: *Joseph Prestele's lithograph of the Hawkeye Plum, one of several varieties developed by Crescent City nurseryman Henry A. Terry during the 1870s and 1880s. The pioneering work of Terry and other nineteenth-century Iowa horticulturists is reviewed in this issue, beginning on page 80. (Robert A. Ryan/Dennett-Muessig Associates)*

The Meaning of the Palimpsest

In early times a palimpsest was a parchment or other material from which one or more writings had been erased to give room for later records. But the erasures were not always complete, and so it became the fascinating task of scholars not only to translate the later records but also to reconstruct the original writings by deciphering the dim fragments of letters partly erased and partly covered by subsequent texts.

The history of Iowa may be likened to a palimpsest which holds the record of successive generations. To decipher these records of the past, reconstruct them, and tell the stories which they contain is the task of those who write history.



On board the Corn Gospel Train: Holden's lecturers explain techniques of seed corn selection to a group of Iowa farmers (courtesy Iowa State University Archives)

P. G. Holden and the Corn Gospel Trains

by Rosanne Sizer and William Silag

Like many young men of his day, P. G. Holden spent his summers working for neighboring farmers near his home in rural Michigan. There wasn't much science to agriculture then, at least as it was practiced on the typical family farm. Most farmers of the 1880s conducted their businesses as their fathers had, without much regard for the experimental work conducted at the nation's agricultural laboratories. By the time Holden reached his teens, he had witnessed a wide range of farming techniques, some good and some bad. What impressed him most, however, was his employers' apparent ignorance about corn. Here was the staple crop of the region, the basis of midwestern agricultural prosperity, yet most of the farmers Holden knew selected and stored their seed corn with a carelessness unmatched in any other area of farm work. At planting time, the typical farmer of Holden's acquaintance simply reached into the crib, pulled out several hundred good-looking

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ears, and — willy-nilly — commenced the planting season.

Perry Greeley Holden became Professor of Agronomy at the University of Illinois in 1896, and for the next several years he conducted experiments in corn breeding, including tests of the effects of different soil treatments on various types of corn. In 1900, he left the laboratory to take a job as the head of field work for the Illinois Sugar Refining Company. Charged with improving growing practices among the company's sugar-beet suppliers, Holden developed the idea of the "short course," an intensive training session designed to help beet growers improve their yields. Turnouts were disappointing, but the short courses kept Holden out in the field, where he could meet and teach the practicing farmer.

While travelling for the sugar refining company, Holden met Eugene D. Funk, who had just inherited a large farm near Bloomington, Illinois. Never at a loss for a plan of action, Holden convinced Funk to organize his new farm as a corn-breeding laboratory and agreed to join him in the work. This collaboration produced the Funk Brothers Seed Corn Company, with P. G. Holden directing extension activities. Holden thus returned to corn culture, his first love, and now spent most of his time on the road describing the superiority of the Funk brothers' yellow dent corn to midwestern farmers.

Early in 1902, Holden visited Iowa to give a short course for the Funk company. In the audience was Iowa State College President W. M. Beardshear, who was so impressed with Holden's performance that he immediately offered him a faculty position. The visitor from Illinois parried a bit, for his few years in private industry had raised his income beyond the $2,000 Beardshear could promise. The college president was determined to have him, however, and with the help of "Uncle Henry" Wallace of *Wallaces' Farmer* and the Iowa Grain Dealers Association, Beardshear raised another $600 from private sources, enough to satisfy Holden's salary demands.

Beardshear, Wallace, and the others got more for their money than an itinerant lecturer. Agricultural education, Beardshear knew, needed individuals like Holden to bring the innovations of the college laboratory to the Iowa farmer. Holden had experience in both scientific research and practical applications, rare in a time before the county agent and the extension service. And Holden, despite his dashing style and showmanship, was not a huckster but a *bona fide* educator with a teaching philosophy that spoke directly to the condition of the Iowa farmer and to the role of the state college his taxes supported. "I had a strong feeling that every person who lives in the state is in reality a pupil or student of the college and that the college must see to it that every one receives some direct help from the college," Holden explained. There was, he continued, "only one way by which this could be done and that was by taking the college to the people. Go to the people, and help them where they are, as they are, under their own conditions with their own problems."

Holden took Ames and Iowa by storm. At the college, his courses in farm crops quickly became student favorites. Rarely had students encountered a teacher with such a convincing combination of scientific theory and practical information. His showmanship did him no harm either. As one student recalled, Holden was "a man who could stand in front of his audience and tell immediately whether he should say ten, a hundred, a thousand, or a million and make it sound like a hell of a lot." From the start he gave frequent lectures outside the classroom in addition to meeting his academic responsibilities. Away from Ames he faced a tougher audience, but in time he captured this one too. Henry A.

Wallace, grandson of Uncle Henry, knew Holden and summarized the professor's aims as follows: "first, arouse in farm folk a desire for improvement; second, test all seed corn ear by ear to make sure it will grow one hundred percent; third, get Reid yellow dent corn into the hands of as many farmers as possible and thus carry the message of better farming, better living, and better corn not merely to one hundred, one thousand, ten thousand, or even one hundred thousand farmers, but to all the farmers in the central Corn Belt."

In 1903, soon after his arrival in Ames, Holden travelled to Orange City to discuss seed selection and cultivation with an audience of farmers from northwestern Iowa. A few of his listeners disputed his claims, insisting that results produced at the Ames experiment station could not be duplicated in the state's northwestern counties. Holden took their doubts as a challenge, and quickly organized an experiment station on the Sioux County Farm near Orange City.

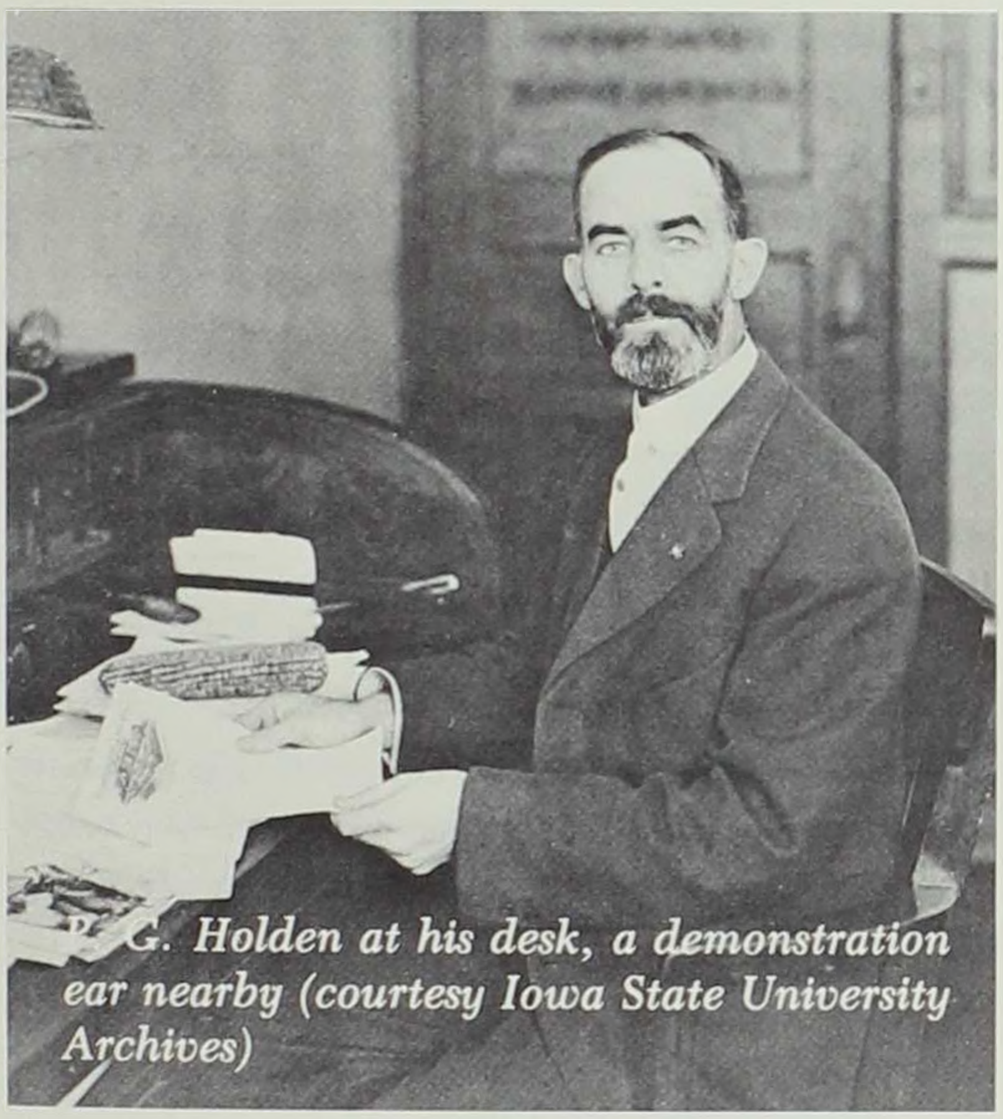
The Sioux County experimental plot was the first of the many demonstration farms and corn shows organized by Holden to teach improved cultivation methods to Iowa farmers. As always, Holden emphasized sound selection of seed corn and encouraged farmers to develop better strains of corn on their own. By way of example, he bought six hundred bushels of Reid's yellow dent corn from the Funk brothers and distributed the seed around the state. The results were excellent, though representatives of some Iowa seed companies and seed-producing counties decried the "Illinois import."

Buoyed by the success of the demonstration plots, Holden moved forward with a new plan to bring the college to the people of Iowa. In the winter of 1903-1904, he began consultations with railroad men, grain dealers, and his friend Henry Wallace to inaugurate a travelling exhibit that would bring the modern science of corn culture to the attention of the state's planters. Ever the showman, Holden dubbed his exhibit the "Seed Corn Gospel Train." It contained three coaches and a baggage car, fully equipped with lecture charts, displays, and a speaker's platform — all of this underwritten by the beneficence of the Rock Island Railroad, *Wallaces' Farmer*, the Iowa Grain Dealers Association, and the Central Iowa Grain Company.

On April 18, 1904, the first Corn Gospel Train began a three-day tour of northwestern Iowa, travelling on Rock Island tracks from Gowrie to Ruthven, then switching to Chicago, Milwaukee & St. Paul tracks in the direction of Estherville. The train made fifty stops in all, with good crowds at all of them. At some stops, the cars could not contain the crowds and windows had to be opened so that listeners forced to remain outside could hear the lectures. All told, three thousand people heard the gospel of seed corn according to P. G. Holden on the train's inaugural tour. The message was direct and to the point. Holden explained to farmers where to look for the best seed corn, how to test it, and various ways to secure a full stand of three stalks to the hill.

Note on Sources

This essay is based primarily on information contained in Everett G. Ritland, "The Educational Activities of P. G. Holden in Iowa" (M.S. thesis, Iowa State College of Agriculture and Mechanic Arts, 1941). To the authors' knowledge, Ritland's biography is the only scholarly study of Perry Greeley Holden and remains the principal source of information on the Corn Gospel Trains as well. Other sources consulted include: Jacob A. Swisher, "The Corn Gospel Trains," *Palimpsest*, 28 (November 1947), 321-333; Earle D. Ross, *Iowa Agriculture: An Historical Survey* (Iowa City, 1951); Richard Crabb, *The Hybrid-Corn Makers: Prophets of Plenty* (New Brunswick, New Jersey, 1947); and Henry A. Wallace and William L. Brown, *Corn and Its Early Fathers* (East Lansing, Michigan, 1956). Joseph Kastner, "The Conundrum of Corn," *American Heritage*, 31 (August/September 1980), is an excellent general introduction to the topic. The authors also wish to thank Toby Fishbein, archivist at the Iowa State University Library, for her help in obtaining photographs of P. G. Holden and the Corn Gospel Trains.



P. G. Holden at his desk, a demonstration ear nearby (courtesy Iowa State University Archives)

This short lecture was followed by a demonstration of a germination box. Taking six kernels of corn from each ear of seed corn — two from the butt, two from the tip, and two from the middle — Holden instructed farmers in the proper method of placing the seeds in the germination box. He concluded with a brief summary of standards for judging the quality of the seeds after germination. The corn that tested out best was the corn to plant. Lecturers aboard the train also provided specifications for testing equipment and left the farmer with very clear directions for beginning scientific testing of his own seed corn.

Subsequent excursions expanded the scope of Holden's gospel trains to include such topics as crop rotation, manure handling, and hog raising, but seed corn remained the principal concern. For three years, from 1904 through 1906, the trains careered the state, eventually traveling eleven thousand miles in ninety-seven of the state's ninety-nine counties. Holden and his assistants spent a total of sixty-seven days on board, gave more than a thousand lectures, and distributed twenty-seven thousand technical bulletins. An estimated 145,700 people heard them speak. Through it all, Holden retained the ebullient charm that had first attracted Beardshear and Wallace. Iowa State College trustee J. B. Hungerford later recalled that "Holden's work showed him to be a live wire, a man of pep. More of the lecturer than the scientist, he had the faculty of imparting enthusiasm to his hearers and enlisted their interest like a true crusader." Everett J. Ritland, Holden's biographer, explained Holden's success as that of a man who "taught the simple things and taught them convincingly." Meeting the farmer in his own community, Holden "resorted to the farmer's vernacular to be effective."

Of course, not everyone in Iowa was taken by Holden's showmanship. The people of Page County, home of prominent seed corn growers Henry Field and Carl Armstrong, were particularly reluctant to embrace the new gospel of corn, since it seemed to favor Funk's yellow dent, an Illinois product, over the varieties produced locally. Iowa newspapers exaggerated the problem here by exploiting what they termed a rift between Holden and Field. Prior to the Corn Gospel Train's arrival in Field's hometown of Shenandoah in the spring of 1904, the Shenandoah *Sentinel* reported that "people hereabouts were mad. They had reason to be," since it looked like Holden was using his position as department head at the State College to advance Funk's corn at the expense of Henry Field's corn. Des Moines papers quoted Holden — incorrectly, to be sure — as saying that he was coming to Shenandoah "to beard the lion in his den," and repeated false rumors that Holden was "armed and prepared for trouble."

P. G. Holden hardly needed a gun to have his way with an audience, and the crowd that heard him in Shenandoah in May 1904 proved to be no exception. Somewhat apologetically, the *Sentinel* admitted afterward

that Holden "had come as a friend" and showed himself to be "a courteous gentleman . . . so absorbed in the corn question that he had no time to quarrel." The paper regretted that more people had not come down to the train to listen to Holden's talk, which contained information "of interest and importance to every corn grower."

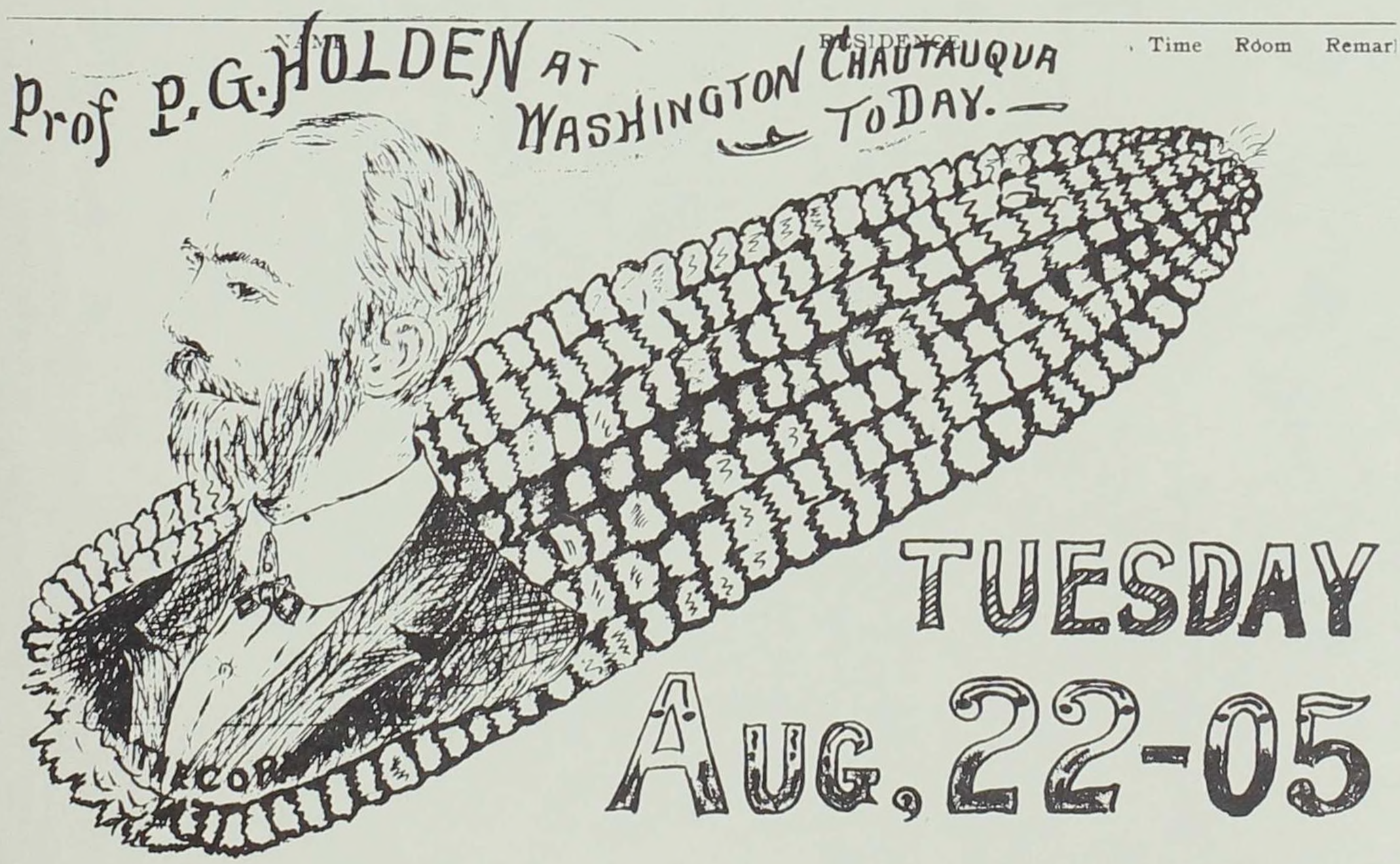
No doubt Holden's spellbinding oratory did much to make the Corn Gospel Trains a success in Iowa. His easy manner assured listeners that he was one of them, not some ivory-tower intellectual. Few men of his time did more to bridge the gap between scientific discoveries and their practical application on the farm. He was an opportunist, too, a publicity-seeker, but no matter. "The great purpose of education is to enable one to do more and to do it better," Holden insisted, and he held firmly to that belief throughout his career. Uncle Henry Wallace, a Holden supporter from the start, claimed that the seed-corn evangelist "probably stirred the imagination of farm boys from 1902 to 1912 more than anyone else who lived in Iowa at that time."

By the time the last Gospel Train ran in 1906, Holden had already undertaken several new projects to bring agricultural education to the people of Iowa. At Red Oak in 1905, he gave the first in a long series of short courses, most of them conducted by professors sent from Ames by Holden to discuss their specialties with general audiences. Hundreds attended the sessions during the winter months in towns all over the state, including Spencer, Storm Lake, Cedar Rapids, and Newton. The short course idea drew a strong response from the state's people. Once they understood that Holden and his staff at Ames sincerely cared about their problems, they deluged the State College with specific inquiries. In the winter of 1906-1907, thirty-seven thousand inquiries arrived in the mailboxes of Holden's staff members in Ames. Such demonstrations of public interest are rare, and Holden knew how to turn this one to his advantage. He had long campaigned for a formal extension service to conduct off-campus educational activities on a regular basis. Having witnessed the success of the Corn Gospel Trains, the various short courses, and the flood of mail to Holden's office, the state's leading opinion-makers voiced their support for the professor's grand proposal. Backed by the Iowa Grain Dealers Association, the *Des Moines Register*, and *Wallaces' Farmer*, Holden drafted the original bill outlining his proposed agency and submitted it to the Iowa General Assembly. In substantially revised form, the bill passed both houses of the legislature as the Extension Act of 1906. Holden's appointment later that year as the Extension Department's first superintendent surprised no one.

In its first six years, the Extension Department exhibited all the characteristics of a Holden enterprise. Initially budgeted at $15,000 per year, the department's staff reached ten thousand Iowans with short courses, farm demonstration plots, corn judging contests, youth programs, and bulletins and press releases in its first year of work. By 1909, the department's budget had risen to $32,000, enough for Holden's staff to draw 167,000 men, women, and children into its activities. As always, Holden upheld the principle of learning by doing; his staff shared his distrust of textbook learning and relied instead on charts, photos, tables, and — most important — the laboratory method. By the time Holden left Iowa in 1912 to help the International Harvester Company form its own extension service, the Iowa Extension Department had become part of the day-to-day world of the state's rural population.

Ironically, the same scientific spirit that motivated P. G. Holden's educational efforts eventually undermined the credibility of the

corn gospel he espoused. In time, certainly by the time he left Iowa, Holden and his disciples began to receive criticism for vulgarizing scientific discovery. The corn show, a showcase for Holden's method of seed selection, came under attack for being a mere beauty pageant, unrelated to the Iowa farmer's real concern for yield and resilience. A study conducted at Ames by H. D. Hughes in 1910 proved that no relationship existed between performance in the corn show and performance in the field. The findings of Hughes and, subsequently, others — including young Henry A. Wallace — led to new methods of cultivation that enabled farmers to increase yields and exercise greater control over the height, moisture content, and shelling percentage of their corn. The nostalgia of the Corn Gospel Train could not compete with the demonstrated efficacy of the new techniques. In a few years, the science of hybridization — the principal threat to good seed corn cultivation, according to Holden — became the basis of the twentieth-century agricultural revolution. Yet even the hybrid pioneers granted Holden his place in the history of Iowa farming. His promotional activities provided important insights into the nature of open-pollinated corn, helped arouse public consciousness about new agricultural techniques, and created a positive atmosphere where the forthcoming scientific discoveries could blossom and win acceptance. □



(above) In August 1905, P. G. Holden brought the Corn Gospel Train to Brighton, Iowa. Holden apparently spent the night at Brighton's Midland Hotel, where desk clerk Adrian W. Auld sketched a likeness in the Midland's guest register. (SHSI)

(SHS; Pratt Collection)

A Road through Summer

by James Hearst

The end of May, the last day of school, we walked home a little drunk with freedom. Our first declaration of independence was to take off our shoes and walk home barefooted. We scuffed in the deep dust of the road, crying out when our tender feet stepped on a stone or we stubbed a toe against a rut. Three of us, brothers, Jim and Bob and Chuck. A whole summer of vacation stretched ahead of us like a wide field with no horizon, a lake of infinitude, time always the present moment. The three months seemed to have no end, intoxicated as we were with this release from the school year.

A row of mailboxes stood on the main road where we turned off on our crossroad toward home. We looked, but our box was empty; someone had been to town and picked up the mail. Usually we would stick the mail through the bib in our overalls so we wouldn't have to carry it, it left both hands free. But today we were spared that chore.

The crossroad slanted down to a cement culvert and then sloped up past the big maple grove to the houses. Grandfather had chosen the top of the slope to build on. We could see clear to Waterloo and the smoke from the John Deere foundries.

At either end of the culvert there were pools of water, dotted with long, soggy grass stems. We stopped to examine them. Sometimes we would see a water snake — thin, whiplike, alert for insects — that wove its way swiftly into the culvert when we stirred it with a stick. Today when we looked we saw no snake so we paddled with our bare feet in the water. We stooped and saw a school of tadpoles darting around in the grass. We poked at them for a while but finally I, being the oldest, said, "We better go on home and get at the chores."

We were always hungry when we came home from school. That day, Mother had baked gingerbread, and we each had a piece and a glass of milk. Then Chuck went to feed the chickens and hunt the eggs. Bob and I went to the barn to fill the mangers with hay and the feed boxes with ears of corn. We gave old Queen ground corn because her teeth were all worn out. Then I jumped on Beauty to go for the cows, and Bob carried swill for the pigs. Vacation or no vacation, the chores had to be done.

Summer settled in with hot, humid days. Everybody said it was good for the corn. The family owned eighty acres of land a mile and a half west of the main farm. The east fence ran right along the side of the schoolyard. A creek ran through it, and the land was mostly in grass for pasture. All the cows and calves, except for a couple of milk cows, stayed in the pasture all summer. Every week I rode over on horseback to count the cows and calves, to see that none were sick or having trouble calving. The heifers hadn't had their calves yet.

One day I stopped to visit with Nels Madsen, who lived across the road from the eighty. Nels said, "Herman and I dammed up a pond in your pasture and we've got a swimming hole eight feet deep at one end. We have a diving board too. Do you think your father would care?"

"Naw, he won't care. How did you make the dam?"

"We cut sods and laid them up like a wall, then put boards against them and braced them with fence posts."

"Will it hold?"

"Has so far. Good place to swim."

When I brought the news home, my brothers could hardly wait to try out the new swimming hole. There were few places for farm boys to swim in those days. The river was five miles away and it took almost an hour to get there with a horse and buggy.

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The sand pit was almost as far, and it was forbidden territory since Andrew Anderson drowned there. Old John Mommer, who owned it, had NO SWIMMING signs stuck all over. He had a mean dog, too, and he kept an eye on the place.

Our cousin, James McAlvin, who was my age, came to spend the summer with us and help on the farm. We called him Cavo. He got his nickname from Chuck's inability, when he was small, to pronounce the name "McAlvin." Chuck said, "McCavo." We shortened it to just Cavo. It was an easy way to keep the two Jameses separate. Cavo had a fertile mind. "Let's hitch Trix to the coaster wagon," he said, "and make fish poles, and all go over to the crick."

Trix was one of the ponies, a good-natured but mischievous little animal. We had a big coaster wagon; it would haul three cans of cream. We removed the tongue and fastened a singletree in its place. Trix was too small for the driving harness, so we made her a breast collar and tugs from some discarded harness in the tool shed. A pair of old hitching straps were long enough for the lines, and she had a riding bridle.

We cut thin maple branches for fish poles. Chuck invented a reel. He found one of Mother's empty spools, put a tenpenny spike through the hole in the spool, and drove the nail into his pole. It was a large spool, one used for holding yarn. Then Chuck bent a small nail into a crank, which he fastened to the edge of the spool. It worked fine. We all imitated it. We dug some white maggots out of the manure pile for bait and put them in a tin can.

There was just barely room on the wagon for four of us. I sat in front and drove, my feet braced on the singletree. Bob was next and then Chuck, they carried the fish poles. Cavo sat at the back and held the bait. He had the most exciting seat; any sudden jerk of the wagon and he fell off.

The Hearst children: (clockwise, from the top) Louise, James, Charles, and Robert (courtesy the author)

There was one hazard. If the wagon wasn't pulled all the time and the tugs kept tight, it rolled up on Trix's heels and she would kick back right in my face. So we solved the problem by driving her at a dead run the mile and a half to the pasture. Away we went, Trix galloping furiously, neck and tail stretched out, heels kicking up gravel in my face, the wagon careening from side to side, four boys hanging on as best they could, whooping and yelling.

One of the neighbors told Father, "You ought to put a stop to it, Charlie. Those boys will kill themselves." But we never did.

When we reached the pasture, we turned Trix loose and settled down to fish along the creek in the pools where the creekbed

curved. We caught shiners, once in a while a bullhead, all small. When we had about twenty on a line, we hung it in the water and went to the swimming hole.

It was bigger than we had hoped, about ten feet across and twenty feet long. Near the dam it was deep, over our heads. We pulled off shirts and overalls and jumped in.

There was a diving board just as Nels said. We dove and swam and splashed for at least an hour. The pond had a mud bottom. It also had bloodsuckers. When we climbed out we searched each other's bodies for them. Usually we found them between our toes, sometimes fat and swollen. We pulled them off, dressed, caught Trix, and galloped for home, trailing our fish behind us.

We cleaned the minnows and Mother fried them and we thought they tasted wonderful.

We were old enough to help shock oats. Father sowed early oats that had short straw, and the bundles were light and easy to handle. One of our neighbors, Nels Johnson, sowed late oats with long straw. He was from Denmark and stubborn about neatness and order. He even swept his dooryard with a broom. It was a pleasure to see his fields of oats when his three boys finished shocking them. Each oat shock stood straight like a little house, each one capped with a bundle broken over it like the slanting sides of a roof. They all looked exactly alike. We tried and tried but we never could make our shocks look like the Johnsons' shocks.

One day Bob found a bumblebee nest. Bumblebees nest underground. There is one hole for entrance and exit, and the honey is stored underneath the surface. Bob said the honey that bumblebees make is sweeter than that of honeybees. We were eager to try it. Bob piled straw over the hole and touched a match to it. Almost immediately the bumblebees started swarming out, shooting up into the air, then leveling off for parts unknown.

When we thought they were all gone, we kicked the ashes away and dug into the ground. The honey is stored in little sacs, not in honeycombs the way honeybees do. Each one is about the size of a little fingernail. We dug them out and ate them. Bob was right, the honey tasted sweeter than ordinary honey. Some of the sacs had the bodies of young bees in them. We tried to avoid eating these, but we probably got a bit of protein with our dessert. We did this whenever we found a bumblebee nest. We never seemed to be stung, but our faces were smeared with honey and ashes.

One of our jobs was to water the horses left in the barn during evening chores. We had a pony stallion named King that we had borrowed for the summer to breed our pony mares. He was a feisty little horse, always looking for a chance to cause trouble.

Our first declaration of independence was to take off our shoes and walk home barefooted.

One evening Cavo came running to me in distress. "I took King to water," he said, " and he broke away from me and ran down the road!"

I nodded. "I should have warned you to watch out for him. While you stand there relaxed as he drinks, he will suddenly jerk away and run out toward the road."

Then I added, "If I catch on quickly enough, I hang on to the halter rope and lie down and let him drag me. He gives up after he's dragged me a few yards, too much work. I get pretty dirty, though. I'll go catch him."

I hurried to the barn and slipped a riding bridle on Dot. She was a large pony or small horse, part Arabian. I jumped on her back

(courtesy the author)

and galloped down the road. About a half mile away I saw King off on the roadside eating grass. The minute King saw me coming, the little stud began to run. But I crowded him against the fence; Dot was twice his size. Then King, aware of the closeness of the mare, commenced to snort. Dot laid back her ears and struck at him.

I slapped her neck. "Let him alone, I'll fix him." I jumped down and grabbed King's halter rope. I tied the reins over Dot's neck, slapped her on the rump, and said, "Go home." She trotted off down the road.

Then I turned to King. "You ornery little cuss! Wait until I find a stick." I saw a mulberry tree about two feet high growing in the fence row. Birds eat mulberries, but the seeds don't digest and they fall out in the droppings as the birds sit on fence posts. There seemed to be mulberry trees in every fence row.

I pulled it up by the roots and jumped on King's back. I held the halter rope in one hand, the switch in the other. I slashed King across the rump. The little stallion stood on his hind feet and squealed his anger. Keeping a tight grip on the rope to keep from sliding off backward, I whacked him across the ears. That brought him down to four legs in a hurry. He headed for home at a gallop and home we went, me whipping him all the way.

Cavo asked, "Will he behave now?"

I shook my head. "Not him, the switch was too small to hurt him." Then in fairness I added, "He needs exercise. He just stands in the stall all day. No wonder he wants to run. If he were a little bigger, I'd ride him after the cows. The trouble is, he's so stubborn you can't make him do anything he doesn't want to do."

One day Father had to go away for an all-day meeting. He said, "If you boys will haul twelve loads of manure for the day, you can quit."

As soon as he was gone I asked our neighbor, Fred Bast, if we could borrow his manure spreader. I drove a team down to get it. Bob, Chuck, and Cavo brought in four more horses from the pasture and harnessed them. Now we had two spreaders. While Chuck drove the loaded one out to the field to spread the load, Bob and Cavo and I loaded the other spreader. By noon we had hauled our twelve loads. After dinner we hitched Tom (our long-legged driving horse) to the buggy, picked a small pail of Whitney crab apples, gathered our fish poles, and drove to Norris' Siding, where the Cedar River formed a backwater along the railroad tracks. It was a four-mile drive, but we were in no hurry, we had the afternoon to spend.

Chuck caught a carp, Bob a snapping turtle, Cavo a sucker, and I just drowned worms. This small catch did not concern us,

we splurged in our idleness. We went swimming, but the bottom was muddy and squishy and we didn't stay in long.

On our way home we crossed the bridge that arches over the Illinois Central tracks. We heard a train whistle, so we stopped in the middle of the bridge and waited. A locomotive hove into sight around a curve, hauling a long train of swaying, banging freight cars.

We waved and the engineer tooted the whistle. We spotted a brakeman walking on top of the cars. As soon as he came within range we threw apples at him. He caught one, held it in his gloved hand and smiled. The conductor stood on the rear platform of the caboose as it whizzed past. We all threw apples at him, too, but the train went faster than we could throw, and the apples all fell short. But he took off his cap and bowed. We yelled and slapped each other on the back. We got home in time for chores. It had been a wonderful afternoon.

"Herman and I dammed up a pond in your pasture and we've got a swimming hole eight feet deep at one end."

One night late in July a thunderstorm rolled in and poured out rain in bucketsful. The next morning in the sunshine everything glistened and sparkled. Mother's hollyhocks lay on the ground, flat as if they had been tramped on. Even the grass was beaten down. Bob said, "Let's go look at the crick, I'll bet it's on a tear."

We rounded up four ponies and rode over to the pasture. Father wanted us to check the cows and calves to see if any had been struck by lightning. One of us hopped off and opened the gate and we all rode through.

Bob was right, the creek was on a tear. Out of its bank, about five yards wide, it came downstream in a flood. In the middle, the swift current even made waves as it flowed past. The dam at the swimming hole was washed out and the fence into Miller's pasture hung by a strand of barbed wire. Oat shocks and boards bobbed past as if sucked into a whirlpool. It was an awesome sight.

We must have been out of our minds to decide to go swimming. But the temptation of adventure proved too strong. Bob jumped in first. The current caught him, turned him upside down, rolled him over and over. He yelled for help. Cavo leaped in, grabbed Bob by the arm, and swam with him to the bank ten rods downstream.

Then Chuck waded in, but before he could turn back the rush of water pulled him under, and when he came to the surface his face showed fright. He couldn't yell, his mouth was full of water. He started to go down again. I dove in and reached him, pulling him up by the hair.

"Take it easy!" I yelled. "Don't fight me!" And I made it to the bank pulling Chuck with me. We four boys stood there, half drowned and thoroughly scared. Cavo and I, older and stronger, felt helpless before this rush of water.

I pointed. "Look how close we are to the barbed wire fence. We could have been hung up on that if we hadn't got out when we did." We looked and shivered. We put on our clothes and rode home, sober, glad to be home.

Both Chuck and I had our birthdays the first part of August, and Mother decided we should celebrate them. "We have worked hard this summer and we need a holiday," she said. "Let's go on a picnic."

Father shook his head. "No picnic now," he said, "we must finish threshing first."

But he didn't know Mother, or else he had

forgotten her determination when she had made up her mind. She said in a firm voice, "Something always comes first to crowd out a holiday. I don't intend to let it happen this time."

As soon as Father and the hired men had rattled out of the yard with hayracks and grain wagon, Mother made her plans.

"Today is Chuck's birthday, and we are all going to Cedar River Park for a picnic. There is a bathhouse there and life guards, and we can all go swimming in the river."

It was nine miles from the farm to Cedar River Park, just beyond Sans Souci, close to Waterloo. The question was how to get there. Our driving horse, old Tom, was lame and out to pasture. Mother said, "James, find a horse we can hitch to the buggy."

I wondered what in the world I would do.

We laughed when we looked down into the bandwagon and saw that none of the bandsmen had pants on.

But then the spirit of Mother's decision excited me. I said, "Jean is in the barn, but she has never been driven single or hitched to a buggy." Jean was a big, iron-gray draft mare.

"You hitch her up," Mother said, "I will drive her."

So we hitched Jean with the driving harness, leather flynets and all. We backed her into the buggy shafts. She was an amiable, docile horse, but she must have felt bewildered in her new position. Mother said, "Louise and Charles and I will go in the buggy and take the picnic things. Cavo, you and Bob and Jim can ride horseback."

Mother and Louise made deviled eggs and sandwiches. The birthday cake had already been baked. At last we were ready to start.

What a cavalcade! Jean, her broad beam and heavy legs looking a bit naked in the driving harness, ambled along with the buggy. Bob rode Dot — half pony, half horse — Cavo rode Trix, and he had his work cut out for him. The hair on Trix's back was slippery as grease. She would gallop steadily as if she meant to go someplace, then suddenly stop and put her neck down and Cavo would slide off down her neck. We all rode bareback; our Western-style saddles were too big for the ponies.

I rode Brownie, a three-year-old that had not been ridden before. In size she was about halfway between Trix and Dot. She didn't like the bit in her mouth, and she backed and pranced but didn't try to throw me.

I said to Jim McAlvin after we had laughed at his tumbles over Trix's head, "Cavo, take a stick and give Trix a good belt across the rump. She knows she is being Miss Smarty Pants." That straightened her out, and we had no more trouble.

Father said he wished he had had a picture of us. Big, clumsy Jean hitched to the top buggy, we three boys on various-sized ponies following behind. It must have been a sight. But we arrived. We tied the horses to the hitch rack. We had brought a rope to tie around Trix's neck. She had the knack of slipping off a bridle or halter.

We carried the baskets to the picnic table, and Mother and Louise spread newspapers on it and set out the food. We were hungry, and the lemonade, ham sandwiches, deviled eggs, and birthday cake hit the spot. There were pickles, too, and apple butter. After we cleaned up, we went to the bath house and bought ice cream cones from the food counter there. We rented a couple of rooms and we all put on swim suits, even Mother, and went in the water.

When three o'clock came, Mother said we

better start for home. It would take almost two hours and we had to be back in time for chores. It was one of the best birthday parties we ever had. We owed it to Mother, who showed us how to improvise to meet a difficult situation. When we told Father he looked at Mother and said, "Katherine, you do beat the Dutch."

Came the middle of August and the Ringling Brothers Circus arrived in Waterloo. Aunt Clara, Cavo's mother, asked us to come to Waterloo to spend the night, so we could get up early the next morning to watch the circus unload. Counting Cavo's sister, Helen, that made six of us young folk, so we boys slept on the floor of the McAlvin living room.

The alarm clock sounded at four-thirty. We got up at five o'clock in the summer on the farm, but here in town it seemed an ungodly hour to get up, put on our clothes, and stumble outdoors. Aunt Clara drove us to the siding in their Chalmers automobile. This was a real treat for us. Uncle Gregg slept late because, being a doctor, he was called out so often at night.

The air was gray, misty, chilly. It made me feel melancholy. It felt more like fall than summer. The days were shorter, too. It reminded me that vacation was almost over. How had it gone by so quickly? It bothered me to have all those days, the whole summer, disappear before I had time to enjoy it all.

Then, appearing out of the mist, I saw a fancy circus wagon pulled by six horses, and behind it an elephant pushing with its head. I forgot my feelings. This was the circus, I could even smell it, and excitement rose in me.

The parade marched down Fourth Street, so we went up to Uncle Gregg's office on the sixth floor of the L & J Bank Building and watched from there. It was nice to be out of the crowds on the curbs and be able to see, and it was pleasant to be out of the sun on such a hot day. We laughed when we looked down into the bandwagon and saw that none of the bandsmen had pants on. They wore their fancy red and yellow coats and ornamental caps, but they knew they were so high above the street no one could see if they had pants on or not. They never thought of people looking down from office buildings, and they were trying to keep cool. It was a long parade, with a steam calliope blasting away at the end of it.

After lunch we all went to the circus. We enjoyed it, but it was kind of an anticlimax after watching the circus unload and the parade. We went back to the McAlvins before we started for home. Uncle Gregg brought some ice cream and we ate that before we left.

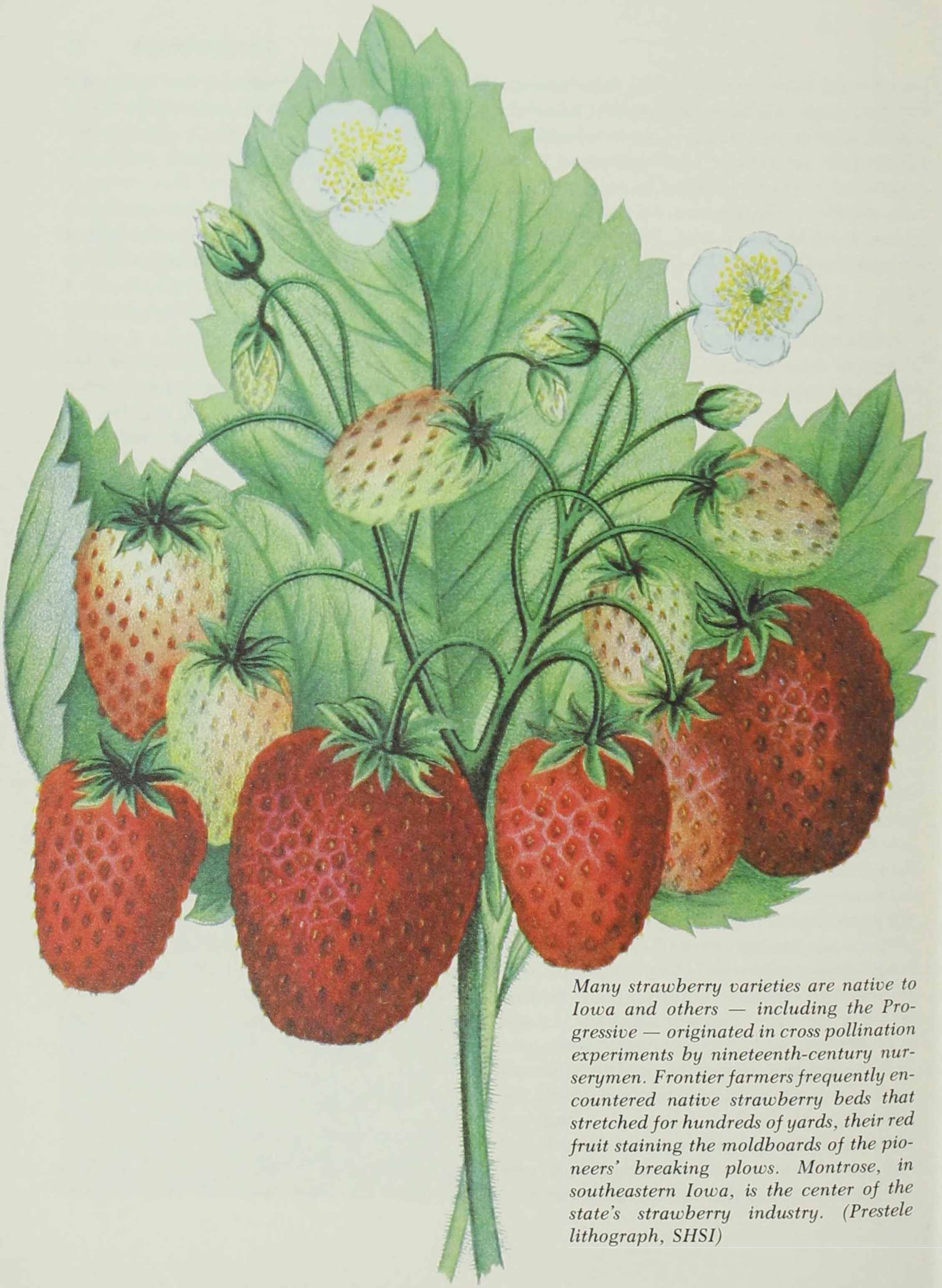
Cavo stayed home. He didn't come back with us. We knew then that summer was almost gone. A few more days of freedom and then school would begin. It seemed too sad to think about. We boys did our chores, ate supper, and went out and lay on the lawn. We lay there until it was time to go to bed. We didn't say anything, we didn't need to. We knew it had all gone — summer, vacation — gone into the past and all we could do now would be to remember it. □

PROTEST

Now as imperceptibly
As evening closing into night,
    As a young heart growing old
Is the wheatfield's sturdy green
    Shading into harvest gold.

The beauty of the color is
Not the thing which I protest,
    Gold is good when green is done —
But the summer in the sheaves
    Marks a season gone.

from Man and His Field: Selected Poems by James Hearst *(Alan Swallow publisher, 1951)*



Many strawberry varieties are native to Iowa and others — including the Progressive — originated in cross pollination experiments by nineteenth-century nurserymen. Frontier farmers frequently encountered native strawberry beds that stretched for hundreds of yards, their red fruit staining the moldboards of the pioneers' breaking plows. Montrose, in southeastern Iowa, is the center of the state's strawberry industry. (Prestele lithograph, SHSI)

Fruits in Iowa
A Brief History

by
Rosanne Sizer and William Silag

In 1882 Iowa State College Professor J. L. Budd travelled to Russia in search of apple trees. The long journey fulfilled Budd's grand plan to help Iowa nurserymen and farmers avoid the periodic disasters wrought by the prairie climate on the state's fledgling orchard industry. Although Iowa claimed a few native varieties of fruit trees — chiefly plums growing on the banks of shallow prairie rivers — the dearth of native varieties encouraged scores of nineteenth-century horticulturists to dabble in botanical innovation. These experiments drew on strains of French and English lineage from the stock of trees carried by frontier settlers from the orchards of New England and the Old Northwest to Iowa. Professor Budd reasoned that few of these varieties survived Iowa's bitterly cold winters and sunny hot summers because the lineage was all wrong. To find fruit for Iowa, he announced in the *Des Moines Register*, he would explore the orchards of the Russian steppes, the gardens of Central Europe, and the plains of Northern China. Funded by a grant from Canadian nurseryman Charles Gibbs, Budd spent several months abroad collecting seedlings to bring home to Ames. He returned with more than a hundred varieties of apples and several dozen types of pears and cherries, planting some of the seedlings in the college gardens and selling the remainder to Iowa nurseries.

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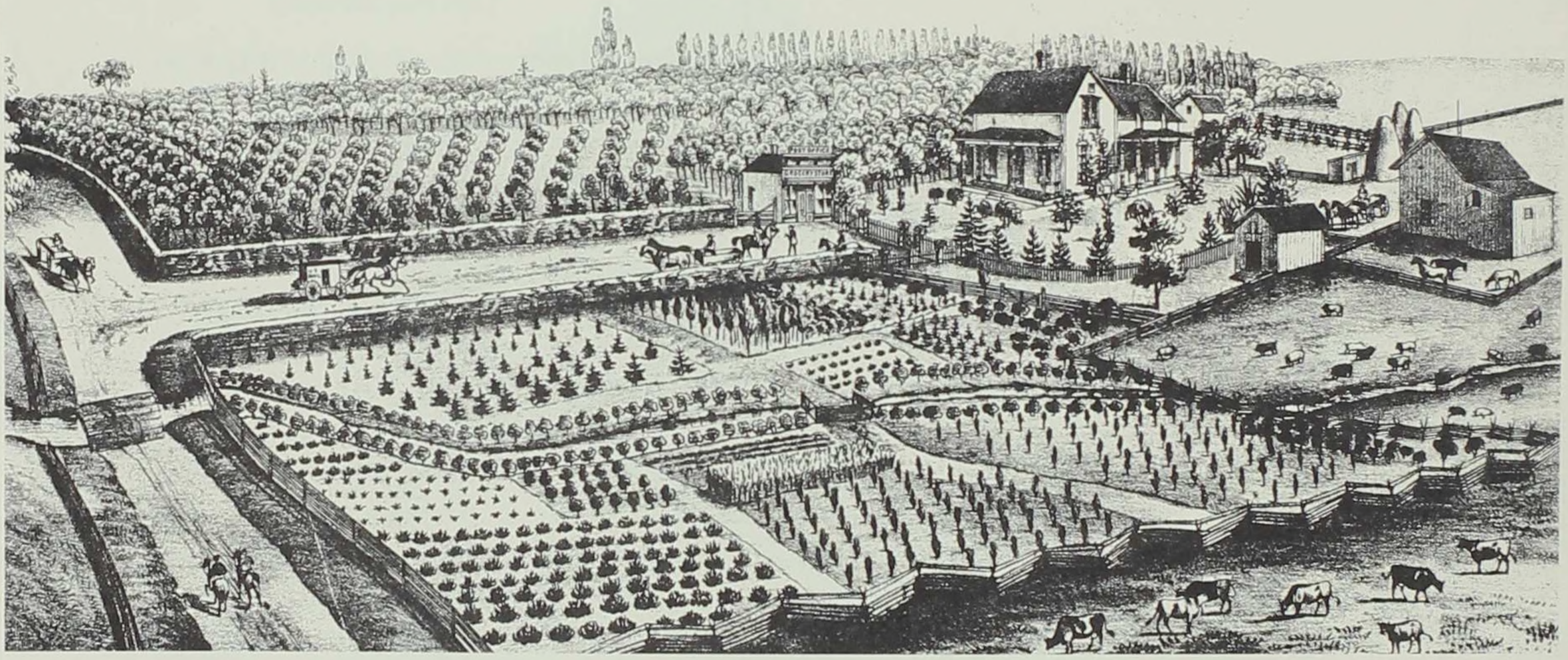
Unfortunately, few of the Russian imports survived the 1880s in Iowa soil. Arctic winds in the winters of 1882-1883 and 1883-1884 killed nearly all of Budd's European transplants, and those that did live to bear fruit five or six summers yielded poorly. The heralded Russian apple trees came in too quickly in the Iowa summer heat, producing hard and often bitter fruit that offered no solution to the dearth of apples in the state's northern counties. Budd himself urged patience on the part of growers and turned back to his laboratory in Ames for further experiments with the imported strains.

Budd's trees were not the first transplants attempted in nineteenth-century Iowa. As early as the 1790s, French settlers along the west bank of the Mississippi planted small orchards to supply the river trade. Julien Dubuque probably planted Iowa's first apple tree, but Louis Henri Tesson should be considered the prairie's pioneer nurseryman. With stock supplied by his father, a St. Louis merchant, Tesson operated a small orchard near what is now Montrose, selling his produce to trappers, Indian agents, and military men. Like Dubuque's trees farther north, the bountiful orchards of Louis Tesson bore apples with a somewhat sour taste, adequate at least for the rough commerce of the pre-territorial era.

In the 1830s, as established farmers arrived in increasing numbers from Ohio, Indiana, and other states with commercial fruit crops, the consumer market along the Mississippi River frontier became larger and more selective. Territorial luminaries — men like Antoine LeClaire and George Davenport — made fortunes selling the produce of fruit trees clumped in scores and hundreds in various parts of the present-day Quad Cities area. Their sweet-tasting apples, produced in quantities that were huge compared to the harvests of their French predecessors, satis-



Isaac H. Page's Orchard Grove Farm (Montgomery County) as it appeared in the 1870s. In addition to his farm, Page operated a nursery, a grocery store, and the local post office. (A. T. Andreas, Historical Atlas of Iowa *)*

fied part of the growing demand for fruit in Iowa. But the pioneer farmer of the 1830s and 1840s wanted more than apples and grapes for his table; he longed for bountiful orchards of his own, orchards capable of cash crops. In southern Iowa particularly, it was not unusual for the frontiersman to have his cherry, apple, and pear trees in the ground even before he had broken the sod for his field crops.

The principal challenge, then, was not in finding a place for fruit trees on the frontier farmstead, but in locating an adequate supply of seedlings to meet the demand. Most of the first plantings involved seedlings carried by the pioneers from their native states, but nurserymen in the Old Northwest were not slow to see the opportunities for themselves in territorial Iowa. Robert Avery left his Indiana home for Burlington in 1836, carrying with him enough stock to open a nursery on the outskirts of the capital city. Throughout the antebellum years, Avery's gardens flourished, providing thousands of seedlings to farmers settling west of the Mississippi. The proprietor and his son probably experimented with grafting and breeding, but the historical record is not explicit on this score; their nursery is typically described as a straightforward business venture. However, historians have had much more to say about the horticultural work of the Averys' chief competitor for the seedling market in southeastern Iowa in the territorial period, young Henderson Lewelling, another former Indiana nurseryman.

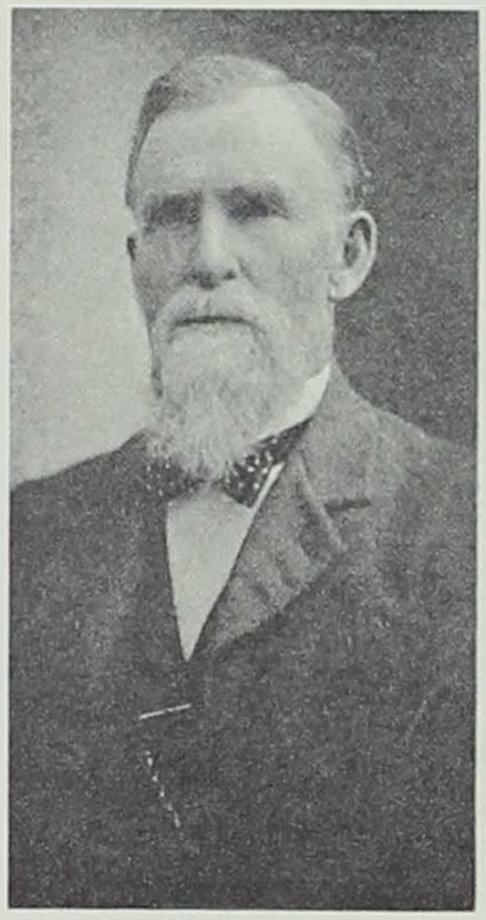
Lewelling has been called "Iowa's Johnny Appleseed," for his plantings along Cedar Creek near Salem yielded thousands of fruit trees. In addition to apples, Lewelling provided his customers with cherries, plums, peaches, grapes, quinces, and several types of berries, among them many varieties developed through grafting by the nurseryman himself. Despite his commercial success among the prosperous Quaker settlers of Henry and Lee counties, however, Lewelling's adventurous spirit convinced him that true fortune awaited him on the Pacific Coast. In April 1847, after ten years in Iowa, Lewelling loaded his wife and children — along with seven hundred grafted fruit trees

— onto seven covered wagons and headed for Oregon. Though he took with him much of the state's horticultural expertise, the restless nurseryman left behind a large body of useful information concerning the adaptability of various fruit strains to Iowa's peculiar climatic extremes.

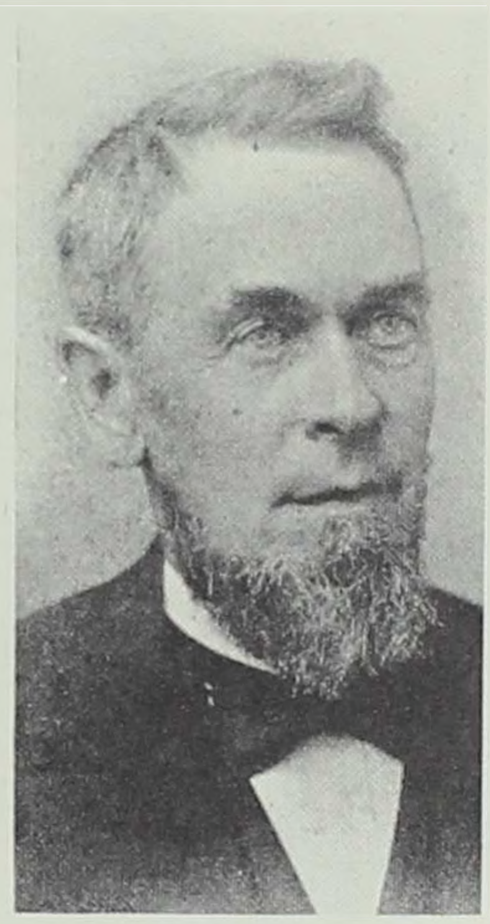
Nurserymen continued experimental work in the early years of statehood, and progress seemed certain. Local horticultural societies displayed their members' accomplishments at annual exhibitions held in communities throughout eastern Iowa in the decade before the Civil War. In 1853, future Iowa governor James W. Grimes won headlines with the prize-winning Golden Drop Plums and Northern Spy Apples he picked from trees at his Burlington residence. The 1854 State Fair in Fairfield — Iowa's first — exhibited a large variety of tree fruit and berries. By 1855, Iowa growers meeting in Burlington presented no less than 276 varieties of apples and 200 varieties of pears grown within the state's borders that year. Most observers believed this sufficient evidence that Iowa consumers would soon enjoy the large and dependable fruit harvests many of them remembered from New England and the Old Northwest.

Months later, the killing temperatures of a "test winter" dashed those expectations almost entirely. Thousands of fruit trees died — including hundreds of apple, plum, and especially pear and cherry varieties. The cold air, which remained below zero for weeks on end, split the trunks of some trees wide open. All but a few of the hardiest varieties exhibited at Burlington failed to blossom the following spring.

Such was the constant problem facing nineteenth-century Iowa nurserymen: though the sun and soil of the prairie rewarded all sorts of experimentation, a single arctic winter could destroy the horticultural advances of



C. G. PATTEN
1832-1921



J. L. BUDD
1835-1904

J. L. Budd (right) imported apple and other fruit-trees from Russia in the early 1880s. Charles G.Patten (left) doubted the adaptability of Budd's imports and advised Iowa nurserymen to concentrate on developing hardier fruit through careful selection of seeds produced in Iowa soil. (SHSI)

a decade. This had occurred in 1843-1844, and it would happen again in 1865-1866 and in 1872-1873. Fruit prices remained high — usually more than one dollar per bushel of apples, for example — throughout the Civil War period, which encouraged fruit growers to keep trying to unlock the secrets of natural selection. Yet only rarely did the experimenters manage to match desirable taste, size, and texture characteristics with the hardiness necessary to guarantee an Iowa fruit harvest each year. In this light, Professor Budd's proposals were hardly outrageous. Budd had been growing fruit commercially in his Benton County orchard since 1859, and he knew full well the constraints of the prairie environment. But if the Tetofski Apple and other Moscow strains survived the cold winters of the Russian steppes, then perhaps they could also withstand the arctic winds that blasted

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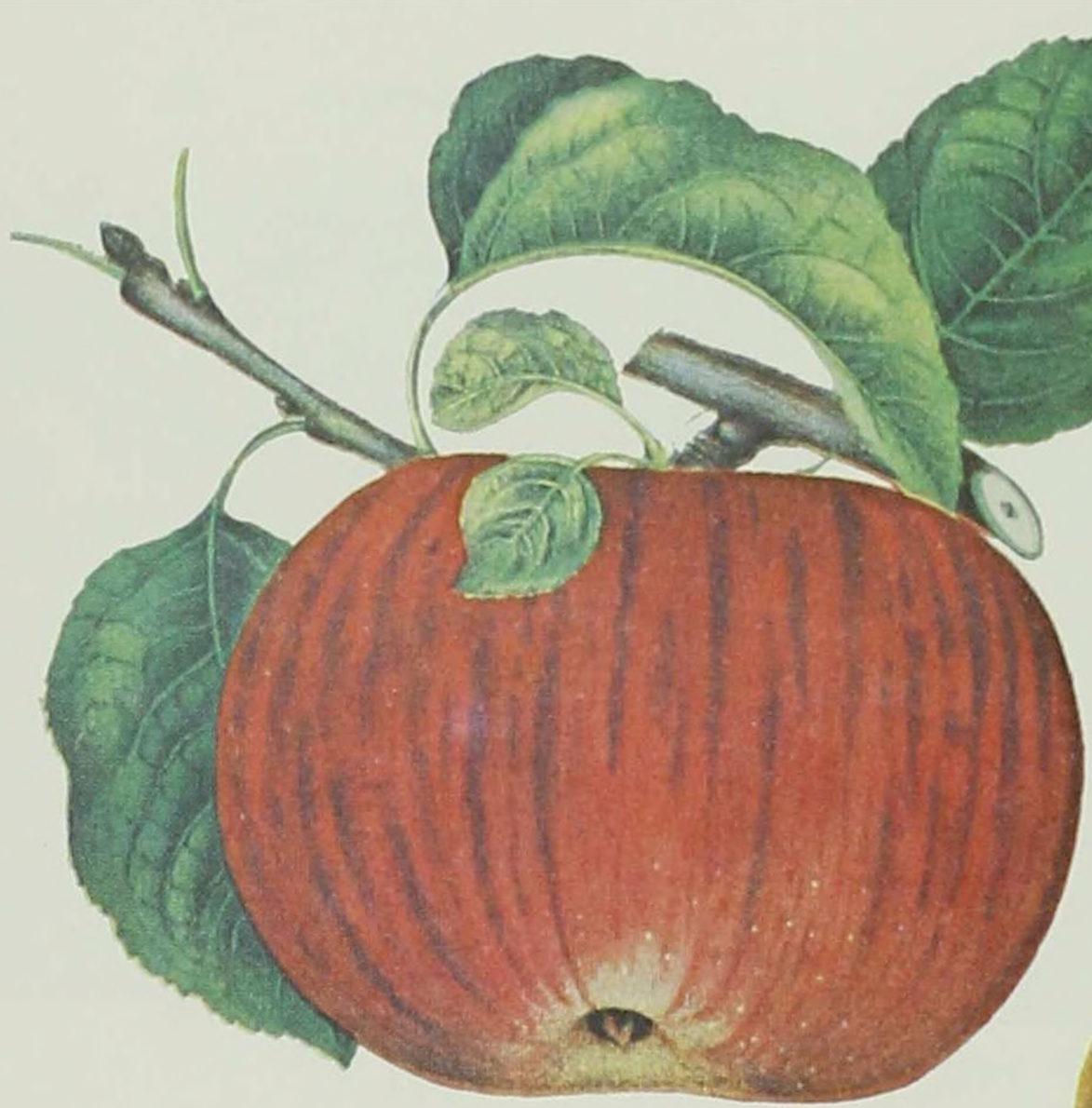
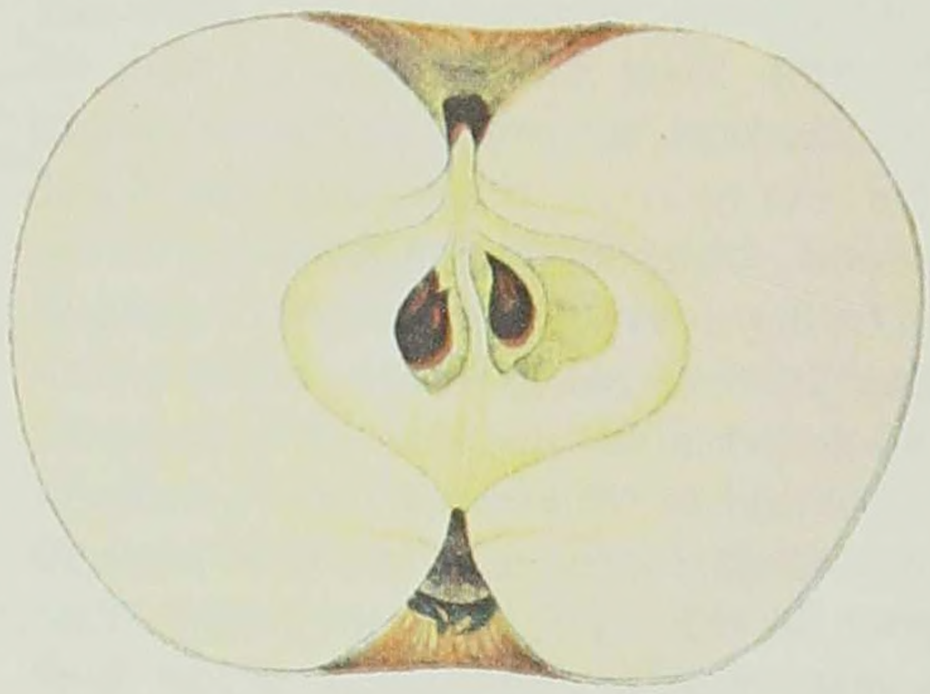


Imported into Iowa: from the Czar's fruit garden and elsewhere



Three transplants: The Windsor Apple (left), which originated in Wisconsin in the 1880s, is hardy and prolific, though less popular among Iowa growers than the Delicious, the Jonathan, or the Wealthy. Hundreds of apple varieties have been attempted in Iowa, dozens of them successfully. By the end of World War II, Iowa ranked sixth among the states in apple production. The black fruit of the Hannibal raspberry (right), a vigorous native American variety, ripens late in the summer. The exotic Zengi (center), one of several persimmons imported from Japan in the 1880s. Iowa nurserymen had limited success with persimmons, which proved better suited to the milder climate of Arkansas and other states to the south. (Prestele lithographs, SHSI)

Jesse Hiatt's Apple Tree

Ironically, the best-known of the Iowa fruits originated in a chance seedling that grew up outside the laboratory. The Delicious apple, now the nation's most popular variety, was a fortuitous fluke of nature. Jesse Hiatt discovered the original Delicious seedling growing — out of the row — in his Madison County orchard in 1870. Hiatt cut down the small plant, but it reappeared the next year in the same place. In deference to its persistence more than anything else, Hiatt began to tend the seedling. Over the years, the young tree withstood summer heat and winter cold better than its older neighbors, and beginning in the 1880s it bore fruit that the usually taciturn Jesse Hiatt declared the finest tasting apple in the world.

For years Hiatt travelled the county fair circuit, showing off his strawberry-colored "Hawkeyes," as he had named them. In 1893 nurseryman C. M. Stark picked one up at a fair in Louisiana, Missouri. After some confusion at the judging tent — Hiatt's apples were packed up before Stark found the grower's name and address — Jesse Hiatt sold Stark the propagation rights to his Hawkeye. In the next twenty years, the Stark Company sold millions of Hawkeyes — renamed "the Delicious" — throughout the nation. Obviously, American consumers agreed with Jesse Hiatt's judgment on the apple's wonderful flavor.

Iowa in mid-winter. Certainly it was worth a try, he reasoned.

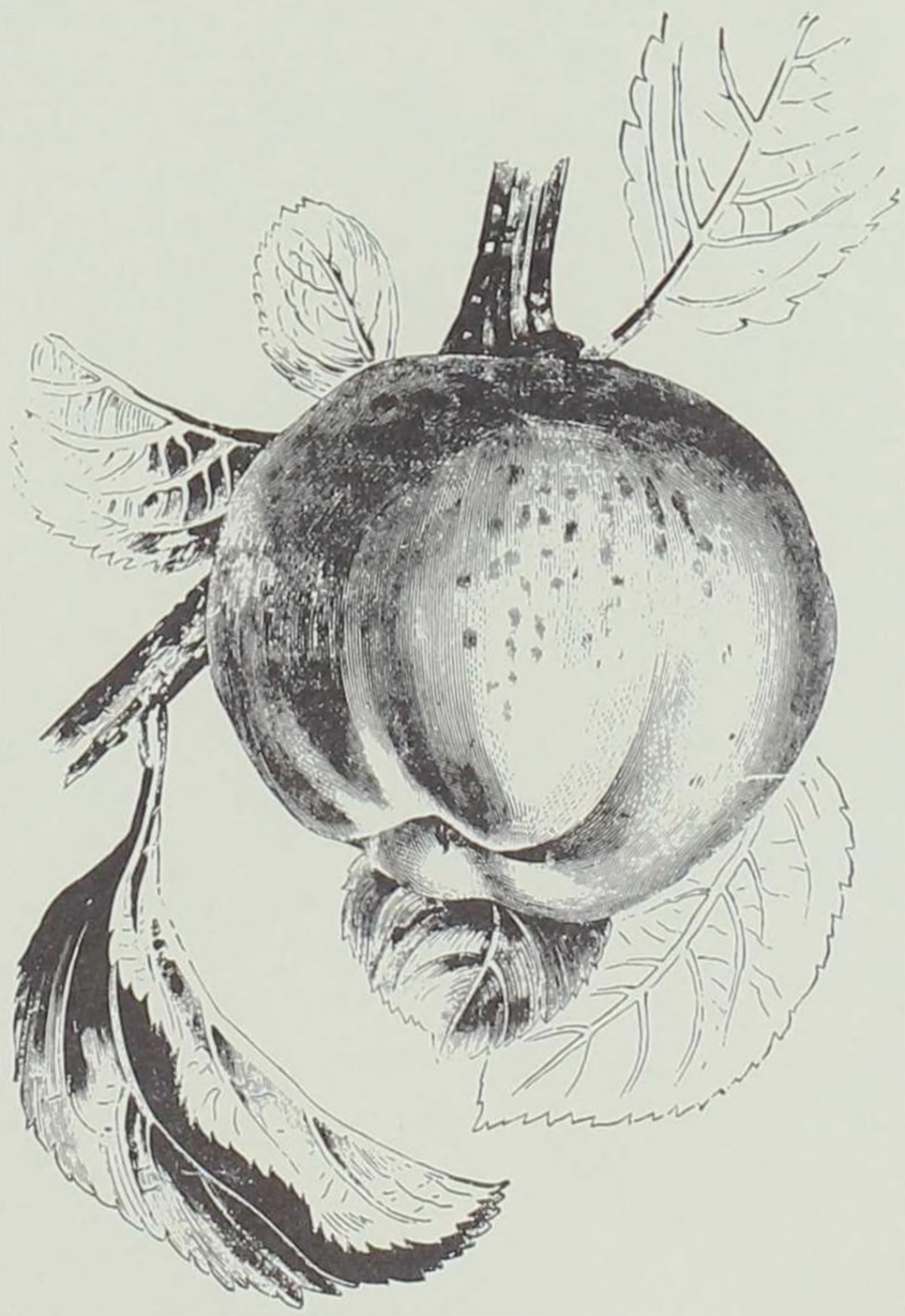
Charles Grandison Patten of Charles City had been skeptical of Budd's foreign excursion from the start. Patten argued that the development of fruit trees suited to the prairie environment depended on breeding hardier strains from seeds produced in Iowa soil. There could be no shortcuts. "Plant the seeds of the best," he advised the state's nurserymen, and — he might have added — "be patient." Patten began breeding fruit by "selection," that is, by planting seeds and replanting their offspring, soon after his arrival in northern Iowa from Wisconsin in 1864. Slowly his labors paid off in varieties that could be planted with confidence in the state's northern counties. The Patten Greening Apple, the first new variety he originated through seed selection, gave area farmers a sturdy green fruit that made up in dependability what it lacked in glamour. In later years, Patten began to cross selected strains by hand pollination, the first Iowa horticulturist to do so. The results were impressive, and included Patten's Plum (a cross of native and imported strains) and Patten's Pear (another cross, this one able to withstand temperatures as low as minus forty degrees Fahrenheit). Wary of imports from "the jungles of the Czar's fruit garden," Patten demonstrated how Iowa growers might best come to terms with their environment.

The controversy surrounding Budd's unsuccessful effort to plant Russian seedlings in Iowa led to a rift within the state's horticultural society between his defenders and proponents of Patten's techniques. This was most unfortunate, for the two men had actually moved quite close to one another in terms of scientific method. Budd's subsequent laboratory work with the Russian fruit in the mid-1880s revealed their utility as parent stock in the breeding of hardier

strains through hybridization, precisely the direction Patten's researches had taken after 1880. Furthermore, and despite the dispute between their respective followers, the rise of the two men to prominence signalled an important forward step in the character of laboratory experments on Iowa fruit. Budd and Patten were primarily researchers; though each man owned a nursery, it may be said that neither sought profit as his chief goal. In Ames, in Charles City, and eventually at experiment stations throughout the state, they provided models for the type of systematic research necessary to give nurserymen and farmers sound advice on planting for maximum yields.

In this scientific enterprise, there was no one "correct" approach. Through grafting, seed selection, hand pollination, and a variety of newer laboratory breeding methods, the horticulturists of the 1880s and after helped enlarge Iowa's annual harvest of apples, pears, plums, cherries, raspberries, and other fruits. Even Budd's much-abused imports contributed to the increased output, as his Russian plums and European Yellow Glass cherries adapted well in certain Iowa counties. By 1910 the state ranked sixth in the nation in apple production, and three out of four Iowa farms had home orchards. After the turn of the century, growers also produced millions of dollars worth of plums, pears, strawberries, and other fruits each year. Such bounty is tangible evidence of the early horticulturists' skill and enterprise, but it is only one measure of their important contributions to the making of Iowa's modern agricultural economy. □

The Tetofski Apple, one of several fruits imported from Russia in the early 1880s by Professor Budd, was better suited to the drier climate of the Dakotas than to the Iowa prairie. Though few of Budd's imports succeeded, they did prove useful to horticulturists seeking hardier strains through fruit breeding experiments. (SHSI)

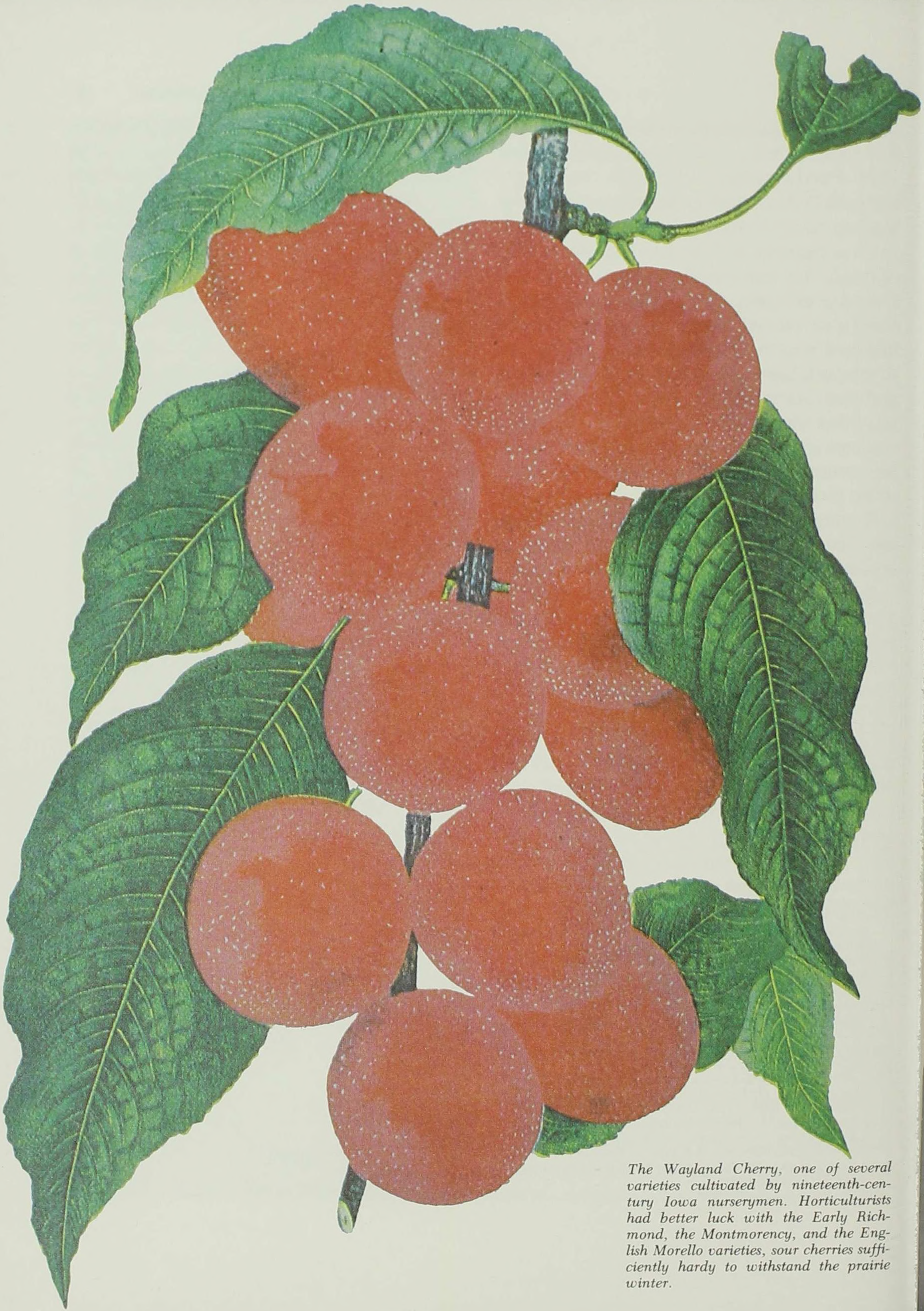


THE TETOFSKI APPLE.

Note on Sources

The best introduction to the topic of fruitgrowing in nineteenth-century Iowa is Kent Pellett, *Pioneers in Iowa Horticulture* (Des Moines, 1941). Pellett's little book is packed with information about early horticulturists and nurserymen. Other sources for this article include: H. B. Lantz, *Tree Fruits for Iowa* (Ames: Agricultural Experiment Station, Iowa State College of Agriculture and Mechanic Arts, 1935); B. S. Pickett, et al., "Growing Fruits, Vegetables, and Flowers," in *A Century of Farming in Iowa, 1846-1946*, ed. Iowa State College Staff Members (Ames, 1946); H. E. Nichols, "Iowa State Horticultural Society," *The Palimpsest*, 47 (July 1966), 257-320.

The Prestele lithographs appeared originally in the annual reports of the United States Department of Agriculture for 1886, 1888, 1889, 1890, and 1892. They are discussed in Joan Liffring, "Iowa's Forgotten Lithographers," *The Iowan*, 12 (Winter 1964), 24-32. The editor wishes to thank Robert A. Ryan of Dennett-Muessig Associates for photographing the Prestele lithographs for publication.



The Wayland Cherry, one of several varieties cultivated by nineteenth-century Iowa nurserymen. Horticulturists had better luck with the Early Richmond, the Montmorency, and the English Morello varieties, sour cherries sufficiently hardy to withstand the prairie winter.

The Prestele Lithographs

From the Bavarian court to the Inspirationist community in Amana and to the federal bureaucracy in Washington, D.C., the Prestele family carried on a tradition of artistic excellence in lithography throughout much of the nineteenth century. Joseph Prestele and his sons — like their more famous contemporaries, the firm of Currier and Ives — presented Americans with stunning, lifelike representations of fruit and flowers long before color photography.

The Prestele tradition in lithography originated in the gardens of the king of Bavaria in the 1820s. King Ludwig, recognizing the artistic talent of one of his gardeners, Joseph Prestele, sent him to the University of Vienna, where he studied art and lithography. In 1837, Prestele joined the Community of True Inspiration, an action that eventually led to his emigration to the United States. In the 1840s and early 1850s Prestele, who had settled in the Inspirationist community in Ebenezer, New York, was commissioned to produce realistic fruit and flower prints for the federal government, the Smithsonian Institution, and numerous private companies. By 1858, he had moved with his family to Amana, where he tutored his sons in the art of lithography while continuing his own artistic endeavors.

Although Joseph Prestele, Sr. died in 1867, his lithographic tradition was carried on by at least two of his sons throughout the latter half of the century. Gottlieb remained in Amana and continued his work there. Much of the fine lithographic work done in the colonies has been attributed to him. William left Amana, resided for a time in Iowa City and Bloomington, Indiana, and finally settled in Washington, D.C., where he worked as a lithographer for the Department of Agriculture. William Prestele's color lithographs, mostly of cultivable fruits, accompanied the department's annual reports on the status of American agriculture.

The Presteles brought fine craftsmanship to lithography, an art form that was increasingly in vogue during the mid to late 1800s. The lithograph, a print made by transferring to paper an inked image drawn with grease on a stone or metal plate, had the advantages of offering a wide range of tonal values and being exceedingly faithful to the original drawing. As true artists, the Presteles took great care with the lithographic process. First, the image was drawn in reverse on a plate of stone with crayon or ink. The plate was then washed with a water-based solution, which covered the entire plate except the water-resistent image. Next, the lithographer applied an ink that adhered to the image area but not to the rest of the plate. Finally, paper was pressed against the plate and, when it was removed, the image was seen in its proper form.

The Presteles' lithographs are vivid images of nature at her best; the colors are vibrant, the proportions are scientifically accurate, and the arrangements are superb. But the lithographs are not really meant to be described; they are meant to be seen and enjoyed.

—*Rosanne Sizer*

THE ICE HARVEST

On the night of October 22, 1921, as ice dealer Hugh Smith and his wife enjoyed a choral performance at Cedar Falls' Cotton Theater, a raging fire consumed Smith's place of business in less than an hour. Lost in the flames were six horses, a variety of tools and equipment, the wooden ice house, and most of the fifty tons of ice stored within it. The unfortunate Smith had only two thousand dollars of insurance to cover a loss estimated at between eight and ten thousand dol-

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ery of a forgotten industry

by Stephen Volk

lars. Worse, the Smith ice house was the only supplier of refrigeration for Cedar Falls' fifteen hundred households. Though some of the ice was salvaged in the rubble, local residents faced a serious problem. In the days before electrical refrigeration, there were few alternatives to the services of icemen like Hugh Smith.

Indeed, sixty years ago the cutting of natural ice was big business in the United States. Nearly every American community of more than a few thousand people boasted at least one ice house, built of double-walled wood or brick and insulated with hay and sawdust. Ice houses varied in size, but they were often as long as five hundred feet. The buildings were frequently so large that clouds formed and rain fell within their cavernous rooms. Beginning around New Year's Day, local harvesting crews aided by itinerant ice cutters walked out onto the frozen surfaces of nearby rivers and lakes to saw countless numbers of uniform ice blocks from the chilly expanse. It was arduous work, but consumer demand for ice meant big profits for the enterprising merchant. Certainly the volume of production bespoke fortunes in the making. At times in nineteenth century America, the nation's shipping industry — on the coasts and on inland waterways — handled more tonnage of ice than any other commodity except cotton.

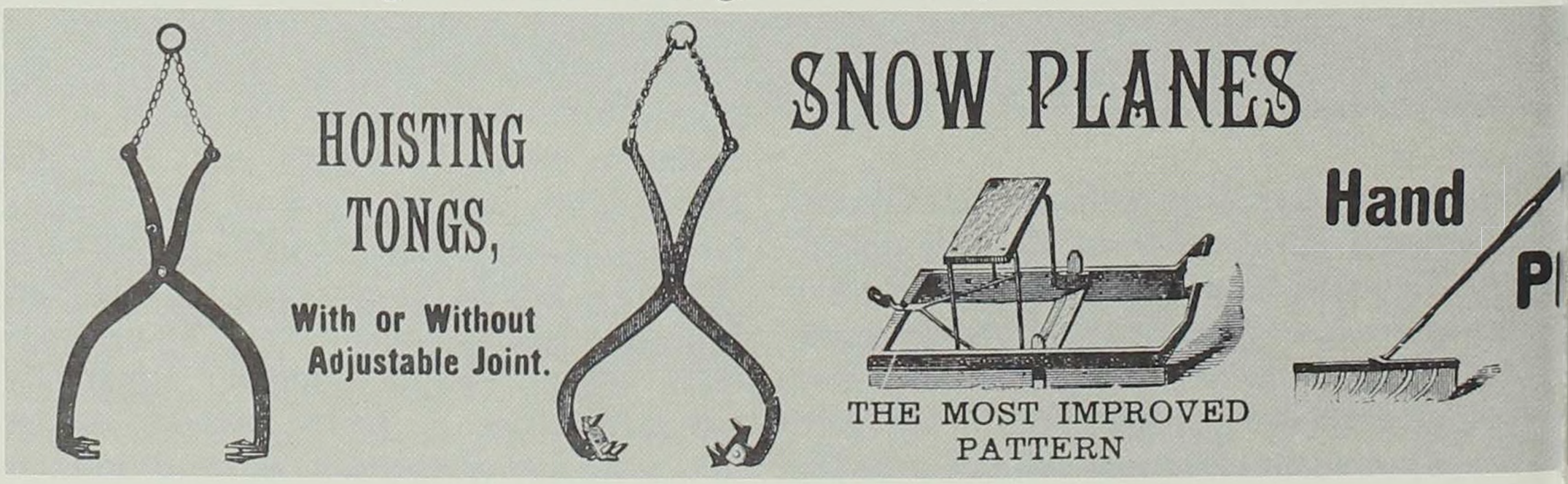
J. M. Overman built the community's first ice house in about 1858. The people of Cedar Falls depended on him and distributor George Clark to fulfill their need for ice. Once Overman and Clark demonstrated the potential of the local market, several other dealers competed for the Cedar Falls trade as well. By 1893, John Riley dominated the community's ice business; his three large ice houses held four thousand frigid tons. Riley's market must have extended beyond the city limits, for he needed just 1,600 tons to fill his orders in Cedar Falls each year. By 1917, Hugh Smith had emerged as the industry leader in Cedar Falls. Indeed, in the early Twenties, Smith's Cedar Falls Ice and Fuel Company had no competitors. The monopolistic aspects of this situation apparently bothered no one; or, rather, bothered no one until the fire of October 22 destroyed the

The ice harvest begins: surveyors have marked boundary lines and now horse-drawn ice cutters trace a grid pattern on the river's frozen surface. Deep cutters and ice plows will follow. (courtesy Cedar Falls Historical Society)

community's sole source of ice.

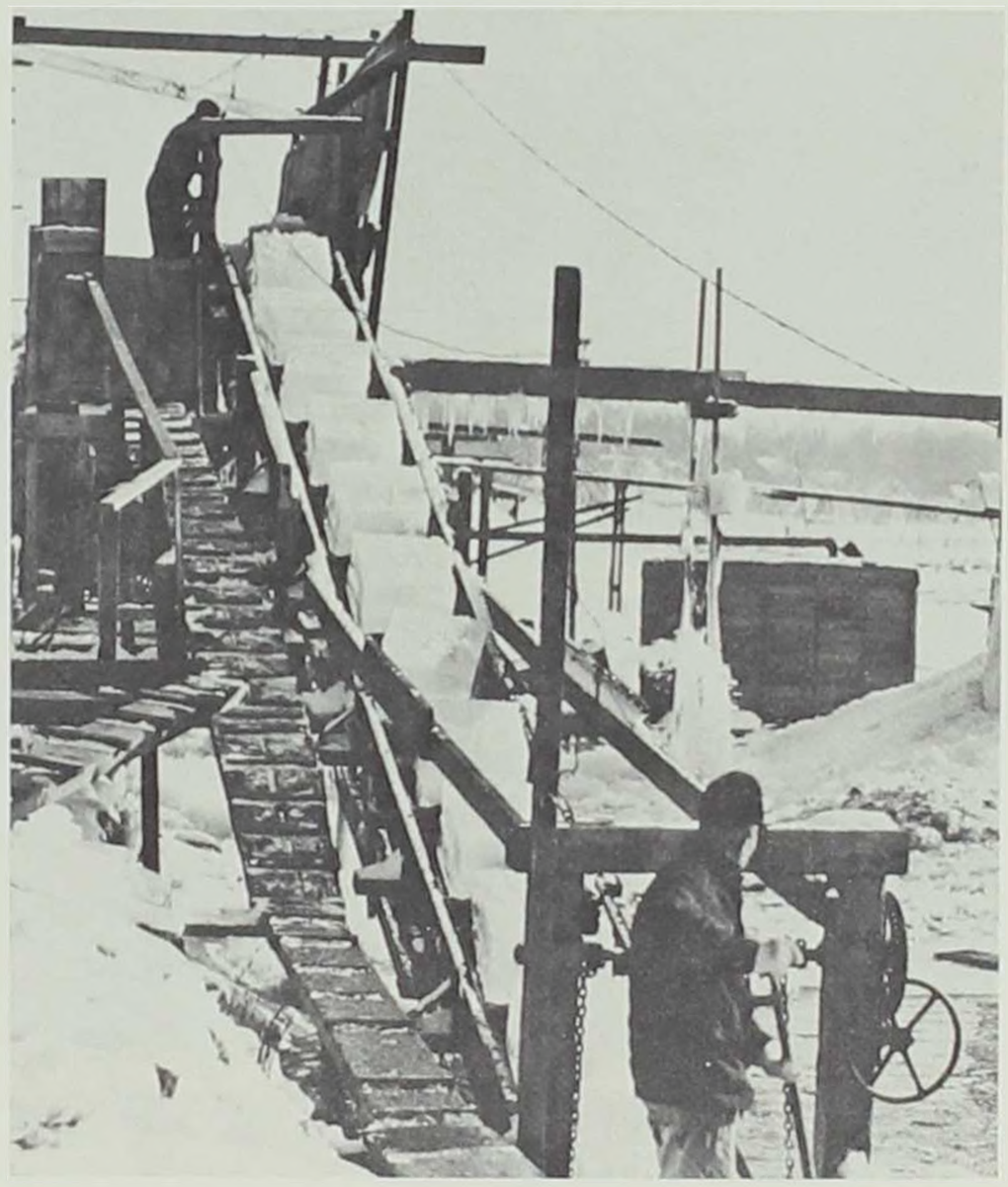
Sympathy and self-interest brought the people of Cedar Falls to Smith's aid even before the charred remains of the ice house had cooled. Two hundred volunteers helped the iceman clear the rubble in the days following the fire. Almost immediately, an expert building engineer was summoned from Chicago to help Smith draw up plans for a structure to replace the gutted frame. Less than a week after the burning of the old building, workers had poured footings for a new ice house. The new circular building was to be constructed of the finest vitrified hollow tile reinforced with steel ties. It was to be one hundred feet in diameter and would rise thirty feet above the ground, large enough to hold six thousand tons of ice.

Speed was essential in reconstructing Hugh Smith's ice house, for the harvesting season was just a few months away. By the first of the year, ice on the Cedar River was



already eight to ten inches thick, and zero-degree weather added constantly to its thickness. A few more days of bitter cold weather would make it right for cutting and storing. Smith had been busy since the fire, however, and it began to look like the new ice house would be finished on time. On January 5, only minor details remained before the plant could commence operations. People in Cedar Falls felt more confident about avoiding an ice famine in the coming summer.

On January 10, preliminary work began. Work crews scraped snow from the river's frozen surface with a horse-drawn snow plane. Next, the icemen surveyed the area to be harvested and marked boundary lines with a hand cutter. Methods for extracting ice varied from company to company and changed over time. In the industry's early years, harvesters commonly used a cutter with two runners about two feet apart, with one blade a guide plane, the other a large-toothed edge penetrating two inches into the ice. This implement criss-crossed the river's frozen surface, tracing a grid pattern on the ice. Another twin-bladed cutter followed, this one cutting more deeply and preparing the way for an iron ice plow with blades reaching to within inches of the bottom of the ice. Final cutting was done with long-bladed saws, spades, and fork bars like the ones pictured on page 90. In later years, motor-driven saws replaced the hand tools in the harvesters' armory.



A chain-driven elevator lifts ice blocks from the river to the door of the ice house. (SHSI)

After a week of cutting, Hugh Smith's business appeared to be back to normal. The iceman expected to be stowing the cakes in his new ice house within days, as soon as his rebuilt hoisting machinery was in place. The ice his crews had cut appeared to be of very good quality, not too thick but adequate for the consumer market. Ice blocks typically measured twenty-two by about thirty-four inches and weighed between two and three hundred pounds each. As always, Smith

Equipment for the ice trade offered by the Knickerbocker Ice Company of Philadelphia in 1894. (courtesy Laurence Lafore)

The ice wagon makes a summertime delivery in Cedar Falls, date uncertain. (courtesy Cedar Falls Historical Society)

watched the weather closely during the harvest, for suddenly-rising temperatures could make a slippery mess of his company's labors. The weather had grown increasingly mild in the week the men had worked, but there was no cause for alarm. The ice would be safely stowed before such intermittent thaws could cause his blocks any real harm.

On January 16, with the uncut ice about a foot thick and machinery "of the latest type" in fine working order, an expanded crew of Smith's men gathered on the ice early in the morning to begin the annual ice harvest in earnest. Sawing during the previous several days had yielded hundreds of hefty blocks of ice, which now rode up the chain-conveyor elevator connecting the river's frozen surface and Smith's imposing new storage building. Though this ice house was much larger than the one destroyed by fire three months earlier, the iceman's new cutting and hoisting apparatus enabled the harvesters to fill the massive circular building in about the same amount of time it had taken to fill the old ice house. Their rapid progress was interrupted briefly on January 19, when the company's motor-driven saw broke. The mishap forced Smith to turn to a horse-driven saw of ancient vintage and dubious efficiency until another power saw could be delivered. Luckily, the ice house was already half-filled with foot-thick ice of exceptionally good quality. Thereafter, the harvest proceeded without interruption. When the ice house was completely filled, construction workers laid the structure's enormous circular roof in place while standing on the top layer of ice.

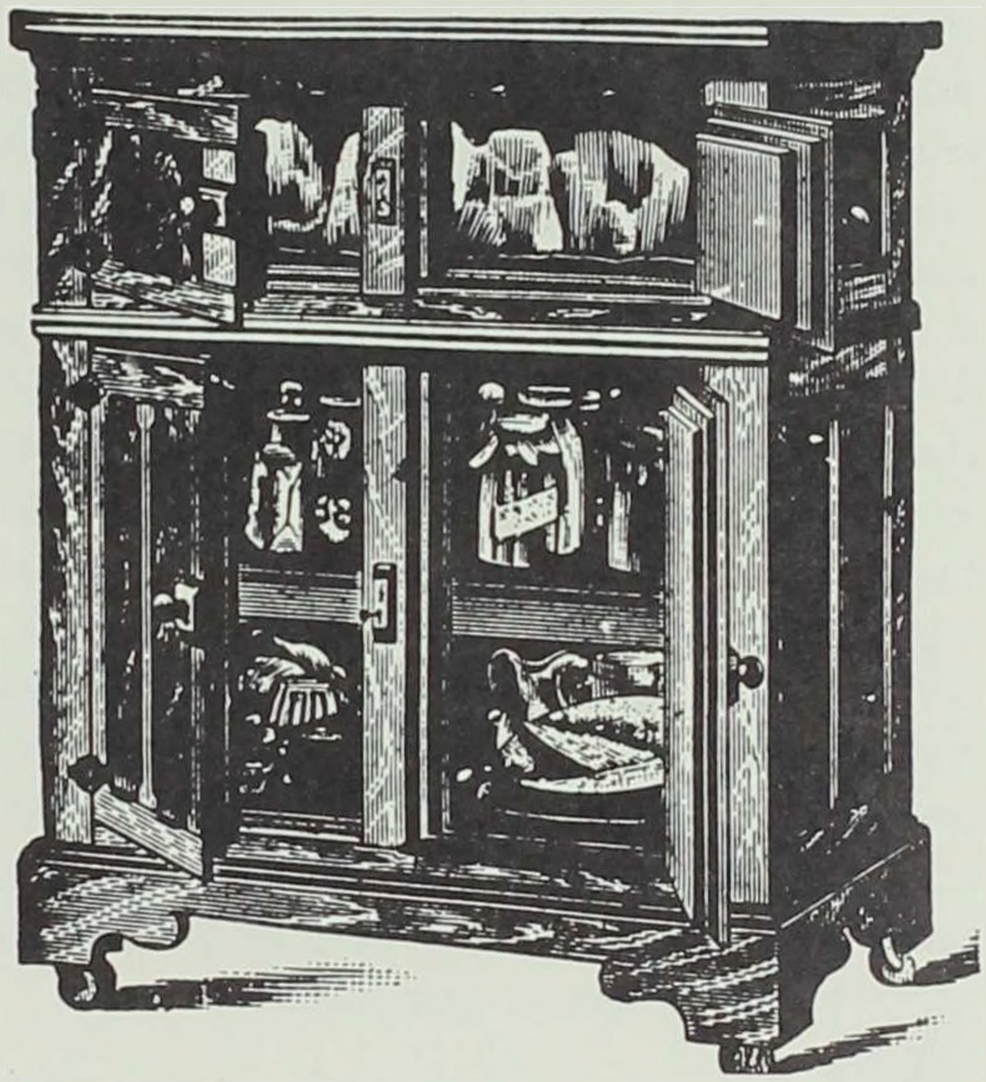
In his recollections, Robert A. Drollet, who worked in the ice business in those years, recalled that harvesting and deliveries to customers constituted only part of the work necessary to keep a large firm like the Cedar Falls Ice and Fuel Company in operation. "Around October first each year," he remembered, "the demand for ice to be delivered to homes was at a low point. The eight routes required in the summer season fell to

where two routes could meet the demand. The drivers from the excess routes were sent to the ice house to carefully inspect all things and to make repairs."

Inspectors looked especially closely at the "adjustable," a hand-operated gallery that bore the load of harvested ice on its way to storage. Often as long as 250 feet, the adjustable hung on cables at the doors of the ice house and was connected to gearing mechanisms by means of a rope and pulley assembly. The adjustable permitted harvesting crews to alter the grade of the hoisting operation according to the height of the ice already stored inside the cavernous chamber. Once they had correctly positioned the adjustable, harvesters relied on the force of gravity to carry each frozen block to its place in the stack.

Drollet noted that during the harvest, five men worked inside the ice house. Using ice tongs, two "switchers" (also called setters) pulled blocks of ice off the adjustable's run and stacked them in the appropriate place. Each switcher had the help of a "backer" (or piker), who aligned the stacked blocks as precisely as possible. Hay or sawdust was used to cover the piles of ice blocks after stacking. Finally, a "bar man" made sure that the rows and columns of stacked ice blocks were firm and even, shaving or smoothing the layers as necessary to maintain a level surface.

Outside the building, elevators powered by electric motors or gas engines carried ice blocks to the adjustable gallery at the door of the ice house. Resting on removable rails, the elevator was an "adjustable" too — it could be raised or lowered to match the gallery's changing position during the course of the harvest. Sawed ice blocks floating in the chilly water were nudged into position at the foot of the chain-driven elevator. Here one of the elevator's wooden steps scooped up the block and carried it upward toward the gallery. Attached to the elevator at intervals of five feet, the wooden steps hoisted ice at a rate of about twenty cakes per minute. Needless to say, switchers inside the ice house moved quickly to keep up with the elevator's rapid movement.



Monroe's stoneware-lined refrigerator, advertised in Harper's New Monthly Magazine, *June 1887 (SHSI)*

Once the ice house was filled, usually no longer than a week after the harvest began, workers closed the doors and tamped sawdust into the cracks to keep out drafts. All openings remained tightly sealed and locked until deliveries began in warm weather. While veterans such as Drollet enjoyed their

Note on Sources

This article is based on information gathered from a variety of sources located at the Cedar Falls Historical Society and at the State Historical Society in Iowa City. Of particular importance were the reminiscences of Robert A. Drollett, Sr., selected issues of the Cedar Falls *Daily Record* dating back to the 1920s, a number of histories of Cedar Falls and Black Hawk County, and several oral histories on file at the Cedar Falls Historical Society.

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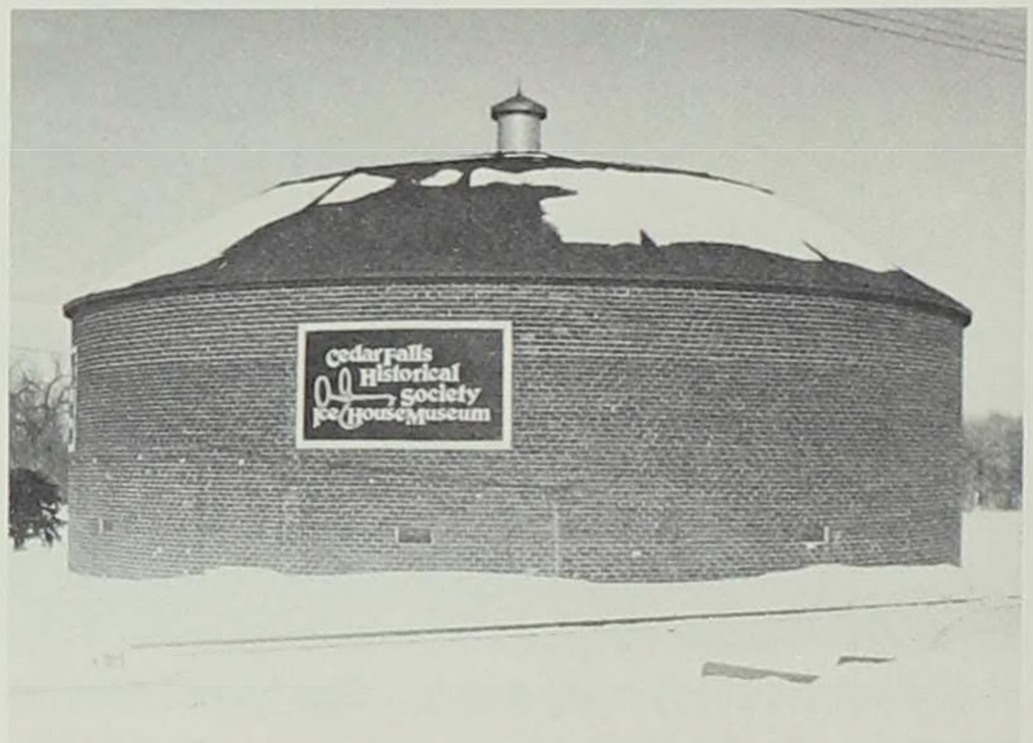
work in the ice trade, they admit it carried many risks. "It was a profitable business," he conceded, "but had many 'ifs' attached. The biggest 'if' was if you did not get the harvest needed for the coming summer. But the profit could be $30,000 or $35,000, as compared to the $3,500 cost of filling the buildings. For the man intending to stay in the ice business in future years, he had to know the importance of building up a reserve in the good years to be able to ride out the lean years." Of course, in any year, there were physical dangers as well. Filling the ice house was strenuous work. Imagine wrestling with cold, slippery blocks weighing two hundred pounds or more and coming at you at the rate of twenty blocks per minute!

Modern refrigeration eventually killed the natural ice business, as it did the family ice house in rural areas. In Cedar Falls, Hugh Smith's circular ice house continued to serve the city's needs until 1934. The building's utility did not end with the passing of the industry it served, however. In 1977 the building — one of the few surviving ice houses in the Midwest — was placed on the National Register of Historic Places. As the Ice House Museum, its mammoth interior is available for public exploration. The horses that pulled the plows, planes, and cutters are gone, but the building itself and the equipment displayed there offer visitors a rare chance to step back into a bygone technological era. □



The round tile building erected in Cedar Falls by Hugh Smith in the winter of 1921-1922 has become the Ice House Museum. The museum welcomes visitors on Wednesday, Saturday, and Sunday afternoons (2-4:30 PM) from May 1 through October 31. Group tours may be arranged for other hours by calling the museum at (319) 266-5149. (photo courtesy Cedar Falls Historical Society)

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