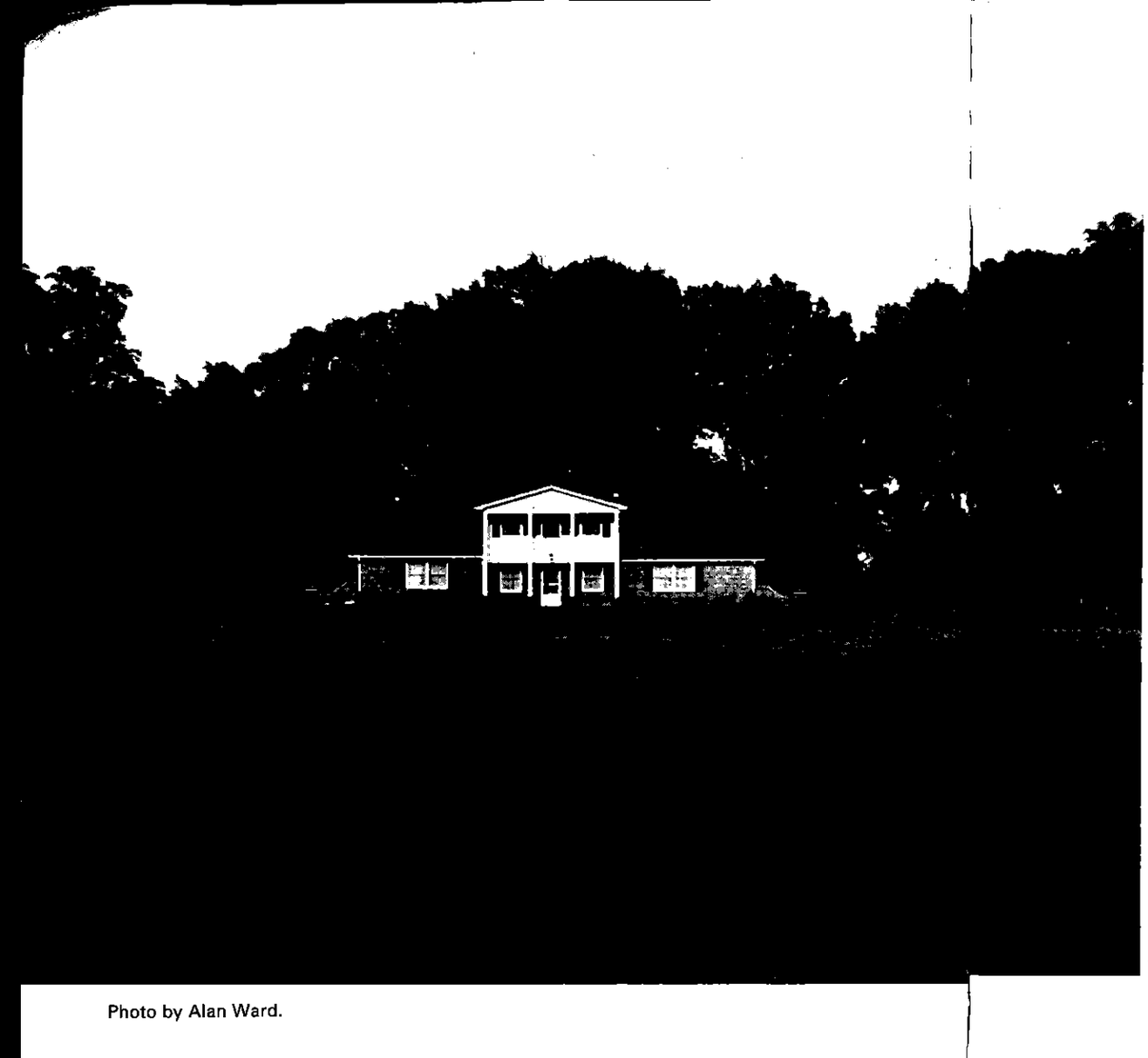

Photo by Alan Ward.

The LAWN

A History of an American OBSESSION

Virginia Scott Jenkins

SMITHSONIAN INSTITUTION PRESS
WASHINGTON AND LONDON

I

The Introduction of Lawns to America

The domestic front lawn is a typically American landscape feature. Lawns can be found in all parts of the country, from New England to Florida and California. Houses in Phoenix have front lawns, as do houses in Chicago and Atlanta. But this has not always been the case. Lawn grasses are not native to this continent. Although some European turf grasses had great success in the temperate climates of the foothills of the Piedmont in Virginia and in the Hudson River Valley of New York, grasses had to be found that would grow in hot humid regions, hot arid regions, cold humid regions, and cold arid regions and that would survive being kept cut short. No one type of grass will do all this. American front lawns are a result of two separate, although equally important, influences: the ability to grow appropriate grass and to keep it irrigated and mown, and the aesthetic desire for a lawn in front of the house.

The existence of lawn grass has been taken for granted by many scholars who have written of the origins of mid-nineteenth-century American suburbs with their detached houses surrounded by grass and trees. Before the invention of the hand-pushed lawn mower, the rubber hose and sprinkler, pesticides, herbicides, and commercial fertilizer, and the introduction of appropriate lawn grasses, lawns as we know

them today were impossible. Lawns were new to most Americans in the nineteenth century. Homeowners were taught to incorporate the new lawn aesthetic into the landscape and had to learn how to take care of their lawns. It was a slow process, but by the mid-twentieth century, front lawns had become thoroughly integrated into the American landscape.

Before the late 1860's, when the first American lawn mowers were patented, grass was cut with a scythe or grazed by sheep or cows. Scythes were difficult to use, and a great deal of skill was needed to achieve a smooth surface. Scything was an expensive operation even when labor was cheap. Cows or sheep were untidy or inconvenient for home grounds and generally impractical as mowers for any areas but large parks.[1]

In areas with hot, dry summers, there was no way to irrigate a lawn to keep it green. Servants, slaves, and children were employed to dig weeds from select lawns, but most home grounds were full of weeds. The grass was cut four or five times during the growing season, and in many areas, such as around public buildings, not that often.[2] West of the Mississippi River and south of Baltimore, closely cultivated turf was rare. In 1888, a book on grasses and forage plants included information for farmers who were interested in achieving "permanent lawn pastures or pastures lying in the vicinity of dwellings or public highways, where the owner has some regard to fineness and beauty of herbage." The author noted that it was extremely difficult to grow a "sward" because of heat and drought.[3]

North America in the sixteenth century was not a pristine wilderness. The landscape had been shaped by generations of Native Americans who managed the land to suit their hunting and farming needs. The impact of the Europeans on the North American landscape, however, was far more dramatic. The invading culture has emphasized managing the environment. Today, Americans move earth, fill swamps, change the course of rivers and streams, manage sand dunes, use chemicals to eradicate plants they do not like, and introduce species of plants they do like from other parts of the world. This is not just an American trait; there is nowhere left on earth that man has not altered in some way.

When the first European colonists reached America, there were no perennial lawn or pasture grasses. The grasses of the East Coast were predominantly annuals such as broomstraw, common along the Atlantic coast north of Virginia; wild rye, dominant in the middle colonies and in

parts of New England; and marsh grass.[4] Native American village sites, which had been regularly cultivated, had extensive grassy areas around them, although the Indians kept no grazing stock. These grasses were annuals and had a much lower nutritive quality than those of northwest Europe.[5] Many colonists commented on the inferiority of New England and Virginia grasses in comparison with pastures in England, and one New England settler wrote in disgust that "it is so devoid of nutritive vertue, that our beasts grow lousy with feeding on it, and are much out of heart and liking."[6]

Studies of the early ecology of New England show that the indigenous grasses largely disappeared after the arrival and spread of European cattle, sheep, and goats.[7] When introduced to the colonies, European livestock decimated the existing grasses, and many of the animals starved to death during the first winters or died from eating poisonous herbage.[8] The grasses and field plants destroyed by the settlers' grazing animals were gradually replaced with various types of European grasses and clover, both deliberately and inadvertently. Seventeenth-century supply lists for settlers included grass and clover seed. In 1635 Maryland settlers were urged to bring a "good store of Claver grasse seede, to make good meadow."[9] By the 1640's, a regular market in grass seed existed in New England's Narragansett country.[10]

East Coast ports were the dump sites for ships' ballast and received repeated introductions of grass and weeds such as dandelions and plantains through discarded bedding, fodder, and manure. John Josselyn in 1672 listed twenty-two European species of weeds that had become common around Massachusetts Bay.[11] Native Americans in both New England and Virginia called the plantain "Englishman's foot" because it seemed to crop up wherever the English walked.[12]

Foreign grasses and weeds spread rapidly, some even ahead of European settlement, and within several generations were believed to be indigenous to America. Guinea grass and Bermuda grass from Africa spread through the southern colonies. Bermuda grass (*Cynodon dactylon*) was first noted in naval stations and ports. By the early nineteenth century, Bermuda grass was an important pasture grass in the southern United States and was used for levee stabilization from Georgia to Mississippi.[13]

Poa pratensis, now known as Kentucky bluegrass, is native to Europe or the Middle East. It was fairly well established in England by the eighteenth century, where it was called June grass or smooth meadow

grass.[14] It was noted in Canada by Swedish botanist Pehr Kalm in 1749. French missionaries may have carried it into the area that is now Illinois in the early seventeenth century. It is possible that the grass spread along the waterways into what is now Kentucky. Alternatively, it may have spread through the Appalachian Mountains in advance of settlement along the Atlantic coast. In the United States, it eventually spread beyond the Mississippi in areas where there was sufficient rainfall. By the late eighteenth century, *Poa pratensis* had at least twenty-seven names. Thomas Jefferson called it blue grass in *Notes on Virginia*, published in 1782.[15] Today, it is one of the top three pasture crops and the most favored American lawn grass.[16]

In California before the eighteenth century, bunchgrasses dominated the landscape and were grazed by deer and antelope. Spanish soldiers and missionaries on the California frontier brought with them the forage plants and weeds of the Mediterranean. More plants were introduced into California and the Southwest during the Mexican years of the nineteenth century and yet more when Anglo-Americans brought plants from the eastern seaboard.[17]

Unlike the first colonists, eighteenth-century farmers could make do with the wild grasses that had been introduced a century before. Few farmers along the Atlantic seaboard deliberately grew pasture grasses, cutting their hay chiefly from natural meadows and marshes. They did not cultivate grass around their houses. The volunteer meadow and marsh grasses, however, were not entirely satisfactory. Visitors noted that pastures in Pennsylvania and New Jersey were so overgrazed that annual grasses could not ripen and reseed themselves.[18] As farmers abandoned worn-out tilled land, perhaps half of the average farm in the northern colonies became overrun with sour grass, briers, and bushes or suffered from erosion. A few progressive farmers deliberately seeded tilled fields with tame grasses to provide farm stock with a necessary and better supply of forage. They generally obtained the seed from hay dust, the unwinnowed material gathered from around haystacks. This hay dust naturally contained weed seeds.

Merchants in East Coast seaports sold imported seed from England, Holland, and Germany, but none supplied grass seed. The Shakers began commercial production of top-quality grass seed in the United States in 1780, and several seed houses and nurseries were established in Philadelphia.[19] There were few other commercial sources of seeds and plants.

In the tidewater area of the southern colonies, the emphasis in plantation agriculture on tobacco and later cotton and the availability of open range for cattle did not encourage the planting of pasture grasses. English and European grasses did not grow well in the South because of poor soil and extreme summer heat. Kentucky bluegrass would not grow in the tidewater South because there was no true winter period for the grasses to lie dormant.[20] African grasses, such as Bermuda grass, that did flourish were considered weeds. Southern farmers did not cut hay for their cattle but provided straw from wheat, rice, and other small grains as roughage in their diet. In the Carolinas and in Georgia, the livestock shifted for themselves at all seasons and little attention was paid to artificial pastures and meadows.[21] Even though there were large numbers of free-range cattle in the South, the lack of forage grasses made it difficult to fatten animals there.[22] Adequate pasturage was an acute problem as the supply of grass in woods and unenclosed meadows was insufficient for the increasing number of livestock.

By the early nineteenth century, European-style agriculture and European farm animals had been a part of the American scene for two hundred years. European and African grasses were common everywhere along the eastern seaboard. Mediterranean grasses were beginning to dominate the Pacific coast. American farmers began to recognize the advantages of cultivated grasses as a source of hay, and they relied less on natural meadows in the older and more settled parts of the country.[23] Grass became an agricultural crop as farmers deliberately cultivated it for their animals. The availability of grass seed for agricultural purposes meant that it was also available for park and residential lawns. As Americans moved west beyond the Mississippi Valley onto the Great Plains, they found the first significant native grasses that would stand up to cropping and trampling by herds of domesticated animals. Buffalo grass provided important, grazable forage to support domesticated livestock. But by the end of the century, after decades of overgrazing by cattle and sheep, much of the Great Plains had also become covered by introduced grasses better adapted to intensive grazing.[24]

Lawns began to appear in England and in France in the eighteenth century. In France, the landscape architect André Lenôtre designed the gardens at the palace of Versailles and included a small lawn called the *tapis vert*, or green carpet.[25] In eighteenth-century English, "lawn" meant a portion of a garden or pleasure ground covered with grass and kept closely mown.[26] The English enclosure movement made possible a

more open landscape with larger fields and fewer fences and hedges. Grazing animals such as cattle and sheep kept pastures and village common grounds in this new landscape closely cropped and also provided fertilizer. Turf grasses grew easily in the English climate, with its frequent rains and moderate range of temperature.[27] Natural, or romantic, gardens were created on the estates of wealthy Englishmen by the landscape gardener Lancelot "Capability" Brown in a new, elite style characterized by a mixture of meadows, water, and trees, with grazing animals and graceful curves.[28] This garden style was part of a reform movement against stilted, formalized conventions in art, literature, and gardening. Brown transformed thousands of acres of the English countryside into magnificent parks, a striking metamorphosis of the landscape matched only by twentieth-century suburban development in the United States.[29]

The first documented American use of the term "lawn" appeared in 1733, referring to a portion of smooth, grassy ground, usually closely mowed, in front of or around a dwelling.[30] According to Charles Morrow Wilson, "lawn" did not become an everyday American word until after the Civil War.[31] It does appear, however, to have been in use in the United States before 1860: both George Washington and Benjamin Latrobe used it to describe the area in front of Mount Vernon, although it was actually a field that lay below the bowling green.[32] James Fenimore Cooper, in the novel *The Water Witch* (1831), calls the grassy area in front of a villa a "lawn."[33] Wilson suggests that many Americans in the northern colonies surrounded their homes with "homestead meadows" or "front meadows," "grass yards," "home greens," and "yardways" and that by the time of the Revolution, grass yards surrounding private homes were seen by visitors as particularly American.[34] It is not clear where Wilson got his information. I have found little evidence that many Americans cultivated grass around their homes before the middle of the nineteenth century.

European immigrants to America in the seventeenth and eighteenth centuries brought with them traditional garden styles. They placed their gardens within enclosures in strict, formal, geometric patterns ideal for maximum production in a small space, a garden scheme that prevailed into the nineteenth century. Although it was used originally for growing herbs and vegetables, it later was adapted to growing flowers or a mixture of flowers with herbs and vegetables. In the Northeast, small flower gardens were popular in front of houses, usually extending just the width of the house and two thirds of that width toward

the front. A path ran down the center and flowers were planted on either side.[35] A yard behind the house would be enclosed by a wall or hedge. This pattern of houses sited close to the street still can be seen in communities all along the eastern seaboard from New England to South Carolina and along the old national road, Highway 40.

Archaeological work on eighteenth- and early nineteenth-century domestic sites has shown that the formal gardens of the few wealthy Americans had long central-axis walks terminating with a garden feature or vista. Americans of the middling sort continued to have small, fenced front gardens or built their houses close to the road with no front yard. Many ordinary people had bare packed-dirt yards or left the native grasses to come and go with no attempts at cultivation. In the southern states, front yards were traditionally of swept dirt, clay, or sand, particularly near the coast.[36] Lawn grasses were too difficult to grow, and high grass harbored insects, snakes and rodents and could be a fire hazard. In some areas, it was common practice to throw domestic trash out the front and back doors, although food debris that would rot and smell might have been carried away from the house. Such homes had a different landscape from what our modern aesthetic leads us to expect. Archaeologists have found trash dumps useful in determining where the front and rear doors would have been in certain sites. Most Americans continued to orient their houses and gardens in traditional ways that did not include front lawns throughout the nineteenth century.

The first attempts at lawns in America were made by wealthy landowners in the late eighteenth century, people who learned of the new English landscape fashion through books, English indentured gardeners, and travel. The new manner stressed irregularity, with wild and rugged backgrounds, carefully manufactured views, jagged masses of rock, and sham ruins.[37] In America, pastures and fields, with copses of trees growing in them or along the streams and rivers, gave much the same effect as the new English landscape aesthetic, making it relatively easy for wealthy Americans to emulate English estates and integrate European garden styles into the New World environment.[38] One of the earliest Americans to copy the new style was a Mrs. Pinckney who, upon returning to South Carolina from a European tour in 1758, renovated her formal garden in the new English manner.[39]

Between the Revolution and the 1820's, America remained under the influence of English taste and conventions.[40] American familiarity with English landscape design came largely from literary sources and

landscape paintings imported from England.[41] Few Americans were able to travel to Europe to experience the new landscapes themselves. Thomas Jefferson, U.S. minister to France from 1785 to 1789, traveled extensively and was favorably impressed by the large expanses of green turf on English country estates.[42] He also explored France, parts of Italy, Germany, Belgium, and Holland and became the best-informed American observer and perhaps the most knowledgeable architect and garden designer in the United States.[43] He purchased English books on gardens and believed that landscape design should be considered one of the fine arts.[44] Despite the work of Mrs. Pinckney and other eighteenth-century gardeners, Jefferson has been credited with being the first to try to create an English-style lawn on his country estate, Monticello, in the Virginia Piedmont in 1806.[45]

George Washington hired English landscape gardeners to care for Mount Vernon, which closely followed English models. The estate had a bowling green in front of the house and a deer park on the river side. Animals were kept from the bowling green and the immediate area about the house by a ha-ha, a ditch used as a sunken fence.[46] (An Englishman named Bridgman is said to have invented the ha-ha, but it was used in seventeenth-century French landscape design at Versailles and elsewhere.)[47] According to a Polish guest at Mount Vernon in June 1798: "The General has never left America; but when one sees his house and his home and his garden it seems as if he had copied the best samples of the grand old homesteads of England."[48] Countless views of the grounds of Mount Vernon and the site of Washington's tomb were reproduced and distributed throughout the United States in the late eighteenth and early nineteenth centuries, and Mount Vernon became highly influential in America as an example of English landscape style.[49]

William Hamilton also preceded Jefferson in his attempts to make his Philadelphia estate, the Woodlands, the equivalent of a European country seat. Hamilton spent several years in England after the Revolution and was influenced by the latest landscape fashions.[50] Jefferson himself remarked in 1803 that the Woodlands was "the only rival which I have known in America to what may be seen in England."[51] Hamilton's house was surrounded by pleasure grounds, with winding paths bordered by shrubs and green lawns kept in what was then a high state of perfection by frequent mowing and trimming.[52] To the north, the late eighteenth-century estate of Chancellor Livingstone on the Hudson

River was landscaped in the English manner, complete with a lawn, magnificent vistas, and informal woods.[53]

Other examples of estates landscaped on the English model include Solitude, the country seat of John Penn of Philadelphia, established in 1784. It was situated on a rise of ground with views of the surrounding countryside and a ha-ha encircling the landscape.[54] Abigail Adams wrote from Philadelphia in 1790 of a flock of sheep complete with shepherd and dog, which was pastured daily on the lawn in front of the house.[55] In Massachusetts, Gore Place, the home of Christopher Gore, was rebuilt after a fire in 1799, and the grounds were laid out in the English style with a mile-long walk encircling them. There was a ha-ha, suggesting that animals grazed on the adjacent fields.[56] General John Hartwell Cocke completed his plantation home Bremo, in Fluvanna County, Virginia, following Jefferson's design in 1819. The resulting Palladian mansion still possesses a ha-ha around a small lawn in front of the house. The rear of the house overlooks pasture lands that stretch away to the James River. These early attempts at lawns in America were the products of families of great wealth and education, who had international connections.[57] Front lawns did not catch the popular imagination and were not copied by middle-class Americans until the development of suburban housing after the Civil War.

Many people, visualizing New England town greens or commons faced by white meetinghouses and churches, assume that village greens rather than aristocratic English estates were the original models for home lawns. On the contrary, colonial and early nineteenth-century town commons were not the lovely green, grassy spaces found in the center of many New England towns today. As towns were organized, they were divided into lots, with one set aside for the meetinghouse. The early settlers usually did nothing to improve the common other than cut trees for firewood, remove stones for building purposes, and clear a section for the erection of the meetinghouse. They had no time to beautify an unproductive lot. Paths and cart tracks crossed the common according to the convenience of people approaching the meetinghouse, cutting the tract into odd-shaped sections. Most commons were barren, unsightly plots until well after 1835. Brush, stumps, stones, rubbish, and stagnant pools were typical features.[58] A visitor to Litchfield, Connecticut, described the common as follows: "There are fragments of old fences, boards, woodpiles, heaps of chips, old sleds bottom upward,

carts, casks, weeds, and loose stones lying along in wild confusion," all overrun by droves of sheep and hogs. In 1851, the Amherst, Massachusetts, newspaper condemned the local common as "a mere higglety-pigglety swamp, with patches of grass, gravel pits, muddy ponds, old frog holes, and swales."[59]

Town commons were also used as public meeting places, as hanging grounds, and, by town herdsmen, as collecting places for livestock. Continual trampling meant that they were frequently muddy or bare, sandy wastes, depending on the geology and the time of year.[60] Some towns made a conscious effort to provide a smooth field for militia drills on the common, but in the great majority of cases, musters were held on farm fields rented for the purpose or in roadways.[61]

The peaceful New England greens were a nineteenth-century creation. John Stilgoe attributes changing attitudes toward town green upkeep to nostalgia for a simpler rural past and a new craving for spatial beauty that came from romanticism and transcendentalism.[62] Town greens became reminders of the Revolution—where militias had trained, troops were raised, and battles fought—and places for patriotic memorials, particularly after the Civil War.

In the 1830's, a few wealthy people began to remodel and tidy up New England villages as they bought up summer homes or began to commute to work in the cities. The movement to improve the appearance of meetinghouse lots was spurred by an economic boom that provided enough capital for the undertaking, until the Panic of 1837 put a damper on many projects. It was not until the late 1840's that such town improvements really began.[63] Many New England town meetings refused to waste money on beautification projects throughout the nineteenth century.[64] Instead, private efforts were organized by village improvement societies, often made up of families whose houses abutted the common and who were concerned about their view. One of the earliest efforts was undertaken by two leading citizens in Canton, Massachusetts, who planted trees on the meetinghouse lot in 1794. Their efforts pleased the parishioners, and the town assumed responsibility for the project eight years later. In contrast, the Grafton, Massachusetts, town meeting finally voted to allow the common to be graded and fenced at private expense in 1840, after years of rejecting the proposal.[65]

Mid-nineteenth-century town beautification projects and the greening of the common took place in conjunction with the new aesthetic ideal of the front lawn. The impetus for the new landscape came from the wealthy, educated elite who were aware of the work of a new, professional group of landscape architects in America and the new public parks in Boston and New York. Wealthy citizens who initiated community beautification projects were also the people who could afford new fashions in home grounds.

The nineteenth-century belief that beautiful surroundings were an important part of civilized society led some Americans to complain about the landscape in rural areas. Ralph Waldo Emerson, in his essay "The Young American," noted that the European aristocracy spent half the year on their country estates and set a good example for their neighbors, but in America, the wealthy moved to the cities permanently, leaving the countryside looking poverty-stricken.[66] In 1850, Nathaniel Parker Willis took a summer trip through Pennsylvania, New York, and Massachusetts. In commenting on the unkempt houses and yards he saw there, he quoted a Fourth of July oration exhorting fellow citizens to beautify the world by planting grass, if only "to keep the plat before your door clean and green."[67] Many foreign visitors to the United States also commented on the scruffy appearance of the land. William Cobbett, who spent a year in America in 1818, was critical of the Long Island countryside. Like Emerson, he attributed the unkempt domestic yards to the lack of example from wealthy citizens who should know better: "We here see the laborer content with a shell of boards, while all around him is as barren as the sea beach. . . . This want of attention in such cases is hereditary from the first settlers. They found land so plenty, that they treated small spots with contempt. Besides, the *example* of neatness was wanting. There were no gentlemen's gardens, kept as clean as drawing-rooms, with grass as even as a carpet."[68] Charles Dickens described the towns and cities that he saw in New England as follows: "The well-trimmed lawns and green meadows of home are not there; and the grass compared with our ornamental plots and pastures, is rank, and rough, and wild: but delicate slopes of land, gently-swelling hills, wooded valleys, and slender streams abound."[69]

Most of the elements of a romantic landscape could be found in America, except for grass. Those travelers all noted the lack of lawns in the northeastern United States, an indication that the wealthy Americans who attempted English-style grounds were few and far between. The domestic front lawn was not part of the ordinary citizen's experi-

ence. It was not easy to grow or to care for. Without lawn mowers, rubber hoses, running water, and seed for the right species, any grass growing near a house was rough pasture rather than a lawn.

In the 1830's and 1840's, cities in the United States began to display many of the physical and social problems of older European urban areas. As in Europe, the industrial revolution contributed to the growth of ugly, dirty, congested cities. Many historians have written about the cultural reaction in America against industrialization and urbanization.[70] As urban areas became less pleasant and less healthy places to live, particularly for children, individuals became more concerned about family health. In addition, prejudice against the immigrant invasion of American cities in the late nineteenth century influenced changing perceptions of the city. Nineteenth-century cities were associated with congestion and crime while rural life was perceived as having a moral, even religious influence on the individual.[71] Concerns about spiritual and physical health in the industrializing cities in the nineteenth century led some Americans to develop new housing patterns. Single-family houses set in their own gardens were seen as moral bastions of the nation in opposition to the corruption of the cities. Nature was considered an important source of inspiration through which one could find God. Those who were too far removed from nature risked losing their humanity.[72] According to one writer, "It is the solitude and freedom of the family home in the country which constantly preserves the purity of the nation, and invigorates its intellectual powers."[73] That new anti-urban bias was an important component of the changing residential landscape during the nineteenth century. Americans reversed the pattern of European and earlier American cities, where the poor lived on the outskirts and the wealthy lived in the urban center. Those who could afford to began moving to small country estates and villages from which the men could commute to work, leaving the poor in the inner city.

The new residential suburbs were outside of and protected from, yet accessible to city centers. As wealth increased and populations grew in the industrial cities, the theory emerged that every man by his own labor could own a suburban cottage on his own piece of land.[74] The new suburban communities were designed to tame and control nature in what was supposed to be a pastoral, idyllic setting appropriate for tender women and children. An architectural pattern book was published in 1856 for "comprehending mechanics and tradesmen of moderate circumstances, the small farmer, and the laboring man generally." The authors held out the promise of a house "standing by itself . . . with a grass-plot on which your children can play, with flowers and shrubs, and shade-trees and fruit-trees of your own planting, and berries and vegetables of your own raising."[75] Takoma Park, the first railroad suburb of Washington, D.C., founded in 1883, was advertised as a healthy place to live and raise children. Prospective residents were assured, in a pamphlet published by the town's founder, that "it is a relief, after the day's toil in the city to return to the cool, quiet, health-giving surroundings of such a spot as Takoma Park."[76]

The pastoral ideal and the environmental interpretation of human behavior, plus health and social concerns, fueled the exodus of the upper and middle class from urban areas and the beginning of suburban development in America. The middle class deliberately reshaped the landscape by surrounding single-family homes with yards in their new communities to strengthen the power of the family.[77] Upper middle-class Americans emulated aristocratic society with their own small, semirural estates. In Europe, the garden was a place where people could be private, retired from the world. Following that tradition, upper middle-class Englishmen of the nineteenth century surrounded their suburban villas with high walls.[78] In contrast, nineteenth-century America held the pastoral faith that all nature was a kind of garden, which meant that walls were not appropriate in the new suburban communities.[79] Andrew Jackson Downing, America's first professional landscape architect, complained in 1841 that "the close proximity of fences to the house gives the whole place a confined and mean character. . . . A wide spread lawn, on the contrary, where no boundaries are conspicuous, conveys an impression of ample extent and space for enjoyment."[80]

The observation of the first National Arbor Day in the 1870's (originating in Nebraska in 1872) and the planting of Centennial trees and groves in 1876 also helped create the characteristic American landscape of unfenced lawns and rows of uniform trees that can still be seen today on thousands of residential streets and along country roads. The designers of the new parks, gardens, cemeteries, and residential developments eliminated fences and walls in favor of "natural" boundaries.[81]

This new idea of open space ran counter to the well-established colonial American and medievel European tradition of the use of artificial or man-made boundaries to establish order.[82] In different regions of America, ha-has, stone walls, post and rail fences, and zigzag rail fences

separating and containing livestock and crops were symbols of good farming practices and good citizenship.[83] Even in urban areas pigs roamed the streets, serving as garbage collectors, and had to be fenced away from the house. As nineteenth-century cities grew, streets were paved and municipal garbage collection was instituted. Farms and farm animals were pushed farther away, and it became possible to do away with fences and walls. Americans gradually adopted the English elite landscape convention of broad lawns and scattered trees because it fit well with the pastoral ideal of America as a garden.

In the South, clean "swept yards" with paths of sand or packed clay surrounded by a simple pattern of planting beds remained the dominant regional convention. Many well-to-do southerners rejected northern taste in landscape design before the Civil War and were too impoverished to create or maintain English-style estates after the war. The landscape of the South remained predominantly rural but changed from that of great plantations to smaller farms with poor tenants or sharecroppers. It took many years for southern cities destroyed during the Civil War to begin to recover. As the southern economy gradually improved in the late nineteenth century, some gardeners who could afford it were influenced by popular horticultural enthusiasms, but traditional practices persisted in rural areas.

In the early nineteenth century, East Coast agriculture began to decline, and many farmers moved west.[84] The worn-out farmland near cities was sold to suburban real estate developers. Steamboat service and railroad travel in the 1840's opened the urban fringes to a much wider cross-section of families than those who could afford to commute by horseback or carriage. The railroads made accessible square miles of countryside that could be cut into one- to three-acre lots.[85] Travelers could see the new country estates from the road, from steamships on the rivers, and from rail cars. An 1867 architectural pattern book instructed readers that "in selecting a country home, we should assert as a fixed condition that a river or railroad must be convenient, and within view, if possible. We build not for ourselves alone; the stranger passing by, whether he be countryman or foreigner, or whether he travels by coach, boat or [railroad] car, is delighted by the sure tokens of the influence of social progress exhibited in the landscape dotted with houses."[86] That same year, Donald G. Mitchell, a Connecticut agricultural reformer, wrote about the necessity of beautifying the railroad right-of-way. He asserted that suburban residents had an obligation to beautify any portion of their property abutting a railroad line and to allow the passengers to glimpse their handsomely arranged lawns and flower beds.[87] The new country seats with magnificent grounds attracted a great deal of public attention, not all of it positive. In 1850, Nathaniel Parker Willis criticized Westchester County, New York, a region of small country seats landscaped in the latest style, declaring its miles and miles of fine houses with lawns and park gates very dull.[88]

Transportation was the key to the development of these suburban residential patterns. By the second half of the century, as the population on the East Coast and in parts of the Midwest continued to shift from predominantly rural to urban and suburban, railroads and steamships, streetcars and trolleys, enabled more people to live farther than walking distance from their jobs. The original, wealthy suburban communities, with houses set in one- to three-acre country seats served by railroads and steamships, were joined by streetcar suburbs offering smaller lots and smaller houses to middle-class families. The small lots had no space for barns and horses, made unnecessary by public transportation.

In 1806, Bernard McMahon, an Irish immigrant, realized that lawns in the English manner were difficult to achieve in the United States. American homeowners had to rely on reference books published in other countries and adapted to other climates. And so he wrote *The American Gardener's Calendar*, the first major book on horticulture and landscaping in the United States, with chapters outlining the chores for each month.[89] McMahon championed a "grand and spacious" grass lawn in front of "the mansion, or main habitation" embellished with masses of shrubs, clumps of trees, flower beds, serpentine gravel walks, and water features to be crossed by Chinese bridges.[90] This was landscape in the grand English tradition. A generation later, Alexander Jackson Davis published *Rural Residences* with pictures of decorative lawns surrounding his villa designs.[91] However, not until Andrew Jackson Downing began to design landscapes in New York's Hudson River Valley in the 1840's did the ideal lawn of the English country estate became a working model for the wealthy Americans who were beginning to move to the urban edges, or, to use John Stilgoe's term, borderlands.

Downing's father and his brother Charles were nurserymen in Newburgh, New York.[92] Downing himself was the first native nurseryman and horticulture writer to have a significant influence on American life.[93] He wrote *A Treatise on the Theory and Practice of Landscape Gardening, Adapted to North America* (1841, based on a book with almost the

same title by the English landscape gardener Humphrey Repton) and *The Architecture of Country Houses* (1850), both of which were popular during his lifetime and after his accidental death in 1852.[94]

Downing's ideal house was the "beautiful, rural, unostentatious, moderate home of the country gentleman" set in a miniature version of an eighteenth-century English estate.[95] Downing promised his readers, "In the case of large landed estates, the capabilities of Landscape Gardening may be displayed to their full extent, as from five to five hundred acres may be devoted to a park or pleasure-grounds. But the principles of the art may be applied, and its beauties realized to a certain degree, in the space of half an acre of ground—wherever grass will grow, and trees thrive luxuriantly."[96] Downing created wide, grassy vistas for wealthy clients who could afford to have them mown by a crew of men with scythes or by horse-drawn mowers. He also urged homeowners of more modest means to beautify their property. In the second edition of his *Treatise*, published in 1844, Downing noted, "We can already, especially in the finer places on the Hudson, and about Boston, boast of many finely kept lawns, and we hope every day, as the better class of country residences increases, to see this indispensable feature in tasteful grounds becoming better understood and more universal." He provided the better class of people with information on the "management of a dressed grass surface . . . still a somewhat ill-understood subject with us."[97] The lawn continued to be somewhat ill understood well into the twentieth century.

Downing's books were used as models by many horticultural writers. In 1853 L. Durand, writing in the *Horticulturist* (a magazine Downing had edited), suggested that lawns of only an acre or so could be mowed once or twice a month by a competent man with a "lawnscythe." He acknowledged, though, that cutting larger lawns with a scythe would be slow, laborious, and expensive, in which case he recommended "that the grass might be fed down by sheep," as in England.[98] The lawns envisioned by Downing and Durand were on large, semirural estates belonging to people with the means to hire competent gardeners.

The first formal experiment in suburban design was Llewelyn Park in Orange, New Jersey, laid out by Eugene A. Baumann in 1853 according to the general principles advocated by Downing.[99] Llewelyn Park was to be an exclusive residential community easily accessible from New York City. The name was deliberately evocative of English country estates set in a park. Many other similar suburban developments followed. (In 1992, the *Merit Geographical Name Server* listed 841 American communities with "Park" in their name, such as Cleveland Park, Garrett Park, Takoma Park, and College Park in suburban Washington, D.C.)

The public park movement that began in the United States in the mid-nineteenth century was another important influence in suburban residential landscape design in addition to the estates of the wealthy. Frederick Law Olmsted's public parks in Boston and New York were intended to bring city dwellers some of the benefits of life in the country. They too were modeled after English country estates and included grassy meadows, clumps or avenues of trees, and lakes.

Olmsted was the first to lay out a genuine American suburban landscape in his 1868 plan for the community of Riverside, Illinois.[100] Here, Olmsted recommended that the developer require each house to be set back a minimum of thirty feet from the sidewalk. Elaborate tree plantings along the streets and front lawns contributed to the effect of parkland. Riverside represented "a culmination of romantic idealism, begun in eighteenth-century England and translated into North American idiom with nineteenth-century technological achievements superimposed."[101] After the Chicago fire of 1871, Midwestern visions of the ideal city included suburban residential areas "where every house could have a goodly expanse of ground about it filled with trees and shrubbery" and, eventually, grass.[102] American landscape architects emulated English aristocratic estates in designing public parks and new suburban residential communities. The ideal of a manor house in a park was translated in American democratic terms to more modest homes on one-acre lots surrounded by lawns and trees.

As the front-lawn aesthetic began to spread among middle-class white Americans, plans for an ideal farming community (published in *Scribner's Monthly* in 1871) included village lots with front lawns that could be used for "ornamental purposes" and that would enhance the appearance of the village. The lots were to be big enough for a kitchen garden, barn, and barnyard with access from the rear.[103] Lawns left to grow long, or small pastures, could be used to support the livestock.[104] In the 1870's, magazine articles encouraged suburbanites to raise chickens to help pay for suburban living, offset commuting costs, and give children a chance to experience some farm-life responsibility.[105] But as suburban lots became smaller, the Edenic myth of a self-sufficient suburban country seat complete with fruit trees, berries, vegetables, milk, and eggs became less and less prevalent. As families gradually

gave up raising their own pigs and cows and were able to purchase their food from the new nationwide marketing and distribution system, they dispensed with fences, and some began to adopt the new landscape aesthetic.

Despite the efforts of Downing and other mid-century horticultural writers, lawns remained a novelty to homeowners many years later. Late nineteenth-century gardening books insisted on what was still a new fashion. The architect Samuel Sloan was particularly disturbed by the lack of care given the grounds around his creations and offered some hints on landscape gardening and lawns "with the hope of encouraging attention to the embellishment of the surroundings of country homes, a matter to the importance of which the popular feeling has not as yet been fully awakened."[106] The Bridgeport, Connecticut, architectural firm of Palliser and Palliser published a pattern book of model homes that covered the question of home grounds. They were considered an important part of the overall look of the house, and the authors warned that "a true appreciation of a country or suburban home will not tolerate slovenly, ill-kept grounds, and no house exhibits its true value unless there is a harmony in its surroundings."[107]

Mid-nineteenth-century architectural pattern books all showed detached houses, many surrounded by lawns. The style was, in part, a necessary convention for presenting individual building designs and may not have been representative of actual house siting. Portraying a house surrounded by lawn may have been easier and less expensive than including elaborate plantings, and a plain lawn might also show the design of the house to best advantage, with no shrubs to hide the foundation. *Village and Farm Cottages,* published in 1856, is unusual for its lavish illustrations, including one of a cottage with corn growing in the front yard. The authors note, "In explanation of the landscape and foliage shown around these houses, a few words seem proper. It certainly is not intended to offer these accessories of the pictures as models of scenery to be sought, or strictly imitated. This would be generally impossible. They show, at least, what may be accomplished by a judicious disposition of trees, shrubbery, and grounds. They will be useful, suggestively, we hope."[108] The artistic convention of a front lawn may have become an accepted norm as middle-class families studied the pattern books and erected their houses to look like the pictures. Many late nineteenth-century architectural pattern books and advertisements showed men and women playing or watching the newly popular outdoor games

of lawn tennis, croquet, and badminton. Croquet was imported from England in the late 1860's, and lawn tennis became popular among the upper class in the late 1870's.[109] The illustrated lawns, viewed from spacious porches or turreted balconies, were uncommonly large, intentionally exaggerating the autonomy of each estate and the independence of each family.[110] Although the illustrations were intended to sell or advertise the building designs rather than to represent reality, they may have inadvertently become reality as they were copied by builders and homeowners.

The ideal house often was pictured in the middle of a manicured lawn or in a romantic, English-style garden.[111] Developers of abandoned farms at the edges of urban areas used grassy lawns as a relatively easy and convenient way to suggest the romantic English garden without the groves and waterways and distant vistas of the real thing, and the practice has continued among suburban developers throughout the twentieth century.[112] But there was no clear pattern of house siting during the nineteenth century. Most Americans, such as urban factory workers, southern tenant farmers and sharecroppers, farmers, and miners, had no front yard at all.[113] Although some upper-class properties were planned and planted according to the works of Olmsted, McMahon, Davis, and Downing, not everyone followed their advice. Some wealthy homeowners adhered to existing landscapes in the traditional style; others combined the old and new styles. Most Americans were too poor to change.[114]

In the late nineteenth century an increasing amount of gardening advice was published for the growing number of suburban middle-class homeowners with the leisure time to pursue fashionable recreations such as gardening and to spend more time out-of-doors.[115] New suburbanites needed information on gardening and home improvements. Editors of periodicals and general- and special-interest magazines devoted space to the new suburban estates.[116] Newspapers tried to increase their circulation by covering topics such as the cultivation of flowers and the care of the lawn.[117] Many newspaper and magazine writers divided the grounds around the house into public and private space and presented a large front lawn as a status symbol for well-to-do families. The front lawn was an extension of the formal public spaces of a house with a green velvety carpet, cast-iron furniture, statues and urns, elaborate plantings, and walkways.[118]

Lawn-keeping did not come naturally and had to be taught by the

arbiters of taste. In 1875, author Peter Henderson was scornful of those who had not yet embarked upon lawn-keeping: "We occasionally see some parsimonious individual, even now, who remembers that in his grandfather's days, grass was allowed to grow for the food of the 'critters', and he leaves it for food for his 'critters' still. . . . We have two or three notable examples of this kind in my immediate neighborhood, but it is gratifying to know that such neighbors are not numerous, for the example of the majority will soon shame them into decency."[119] Henderson may have been guilty of exaggeration or wishful thinking in making his point: in many parts of the country, residential front lawns did not become common until the twentieth century. Nevertheless, the notion of shaming neighbors into decency persisted.

By the 1880's, articles on lawn care began to provide information on the seeds, soil, shrubs, and trees needed to create a correct lawn.[120] Prospective homeowners were instructed on how to lay out their land to satisfy their own needs and at the same time to preserve the ideal of the suburban park. Readers were advised that "a smooth, closely shaven surface of grass is by far the most essential element of beauty on the grounds of a suburban home." They were warned,

> Dwellings, all the rooms of which may be filled with elegant furniture, but with rough uncarpeted floors, are no more incongruous, or in ruder taste, than the shrub and tree and flower-sprinkled yards of *most home-grounds*, where shrubs and flowers mingle in confusion with tall grass, or ill-defined borders of cultivated ground. . . . The long grass allowed to grow in town and suburban grounds, after the spring gardening fever is over, neutralizes to a certain degree all attempts of the lady or gentleman of the house to beautify them, though they spend ever so much in obtaining the best shrubs, trees, or flowers the neighbors or the nurseries can furnish [emphasis added].[121]

It is clear from such warnings that most homeowners had not adopted the new front-lawn aesthetic. Part of the problem was that lawn grass was not easy to grow or to keep manicured. Before the widespread availability of appropriate grass seed, lawn mowers, public water supplies, pesticides, herbicides, and chemical fertilizers, long grass, weeds, and bare spots were more common than smooth, closely shaven lawns.

The gardening books for the suburban homeowner provided instructions on how to start a lawn, but little information was available on how to care for an established lawn. Homeowners with unsatisfactory lawns were advised to start all over again. The lawn may have failed because the grass species was poorly suited to the climate or the geographic area, but it also could have suffered from the owner's ignorance of lawn care. One writer of a book on landscape gardening advised the use of salt and plaster as lawn fertilizers.[122] Readers who followed that advice may have regretted it. *Woodward's Book on Horticulture*, published in 1897, provided advice to suburbanites with withered and dried up lawns and "banks and sloping grades with holes and open places in them, full of weeds," remarking that "much labor and money is expended in this particular line of ornamenting grounds, with little or no satisfactory result."[123] Complaints about poor lawns were common well into the twentieth century and illustrate how different nineteenth-century lawns were from our familiar domestic lawns today.

Edwin Budding, an English textile engineer, developed the first reel lawn mower in 1830 as an adaptation of the rotary shear used to cut the nap on carpets.[124] The machine was not produced in quantity, partially because there was no demand for it. In the 1830's few people in England or the United States needed such equipment. The development of agricultural reaping and cutting machines between 1851 and 1855 coincided with the growing domestic lawn aesthetic and led to the invention of the cylindrical lawn mower that eventually replaced the scythe.[125] The United States Patent Office issued the first three patents for lawn mowers in 1868 to inventors in New York and Connecticut. Others quickly followed, with six patents issued for lawn mowers in 1869 and an additional nine in 1870. Of the thirty-eight patents issued for lawn mowers between 1868 and 1873, one was to an English inventor, two to inventors in Ohio, and two to Chicago inventors. The rest went to inventors in the New England and Mid-Atlantic states, indicating that the lawn was, for the most part, a northeastern concern.[126] Ohio and Illinois were settled by New Englanders who took their appreciation of the lawn with them to a climate that was hospitable to the available lawn grasses, predominantly Kentucky bluegrass. Lawns were slow to come to the rest of the country. In 1881, 47,661 lawn mowers were manufactured in the United States, and the Patent Office had granted 138 patents for lawn mowers, meaning that fewer than one half of one percent of the households recorded in the 1880 census would have owned a mower.[127] As the demand for lawn equipment increased, mowers

became a standard item in hardware stores and in 1890's mail-order catalogs.[128]

The hand-operated rotary lawn mower made small lawns possible. *Gardening for Pleasure*, published in 1875, advises the reader, "Since the introduction of the lawn-mowers, the keeping of the lawn has been so simplified that no suburban residence is complete without one, and there is now no more excuse for tall grass 'going to hay' in the door yard than there would be for cobwebs taking possession of the rooms inside the dwelling."[129] Another horticultural writer noted that the new "hand machines are now so simplified and cheapened that they are coming into general use on small pleasure grounds, and proprietors may have the pleasure of doing their own mowing without the wearisome bending of the back, incident to the use of the scythe."[130] Budding's 1830 patent specification states, "Country gentlemen may find in using my machine themselves an amusing, useful and healthy exercise."[131] Despite the promise of healthy exercise and enjoyment, few gentlemen were interested in doing their own mowing. They hired gardeners to do the job.

The new lawn mowers were in fact heavy, unwieldy, and back-breaking. Cutting a lawn smoothly was easier with one of the new mowers than with a scythe, but it was still hard work. *The Growth of Industrial Art*, published in 1892, includes nine drawings illustrating the evolution of the lawn mower from the scythe to the Revolving Cutter, a rotary push mower, of 1884. A brief history indicates that lawns were for the wealthy, noting that "a smoothly-shaven lawn is as necessary an adjunct to the houses of the rich and tasteful as the moat and precipitous paths used to be to the castles of the feudal barons."[132] Despite the efforts of horticultural writers and arbiters of good taste, late nineteenth-century lawns were limited to the homes of the wealthy and, in a corridor from New England to Illinois, to the few middle-class suburban homeowners who could afford the equipment, time, or hired labor necessary to keep them mowed.

Many of the new suburbs surrounding eastern cities combined the rural ideal with urban amenities. As city-supplied water became more common, rubber hoses and rotary sprinklers made it possible to irrigate lawn grasses during dry weather. The first lawn-sprinkler patent was issued to J. Lessler of Buffalo, New York, in 1871.[133] The combination of the rubber hose, the lawn sprinkler, and piped water made watering

so easy that by the turn of the century, some city councils had even begun to worry about the use of city water on lawns during droughts.[134]

Industrial and scientific expositions were important trade vehicles staged to show the public the latest and most unusual developments, particularly in the areas of horticulture and the art of gardening.[135] In 1876 at the International Exhibition in Philadelphia, the U.S. Department of Agriculture provided a display on the formation and after-treatment of lawns, described as a "selection of grasses forming a thick-set lawn in six weeks from time of sowing; also after management." No lawn mowers were listed among the technological exhibits at the exhibition. One manufacturer exhibited a lawn sprinkler.[136] Lawns were just becoming a subject of general interest and were still unusual.

The culmination of the lawn culture of the nineteenth century was the establishment of twentieth-century country clubs and golf courses, the suburban equivalent of the urban park. Golf course fairways derived ultimately from the work of Capability Brown and other landscape architects. Golf courses provided examples of large-scale landscape design to the middle class that had previously been available only to the rich or to city residents with access to Olmsted's urban parks.[137]

America's first golf course, Saint Andrews in Ardsley, New York, was laid out in a cow pasture in 1888. Five years later, a primitive course was established in Brookline, Massachusetts. By 1902, more than a thousand golf clubs had been organized in the United States.[138] Golfers became particularly interested in the quality of turf grass, and the U.S. Golf Association contributed a great deal of money to lawn research and grass hybridization in the twentieth century. The influence of golf on the aesthetics of the front lawn will be explored in the next chapter.

The revolution in American domestic landscape that began in the nineteenth century was not due simply to the aesthetic criteria of the upper class that trickled down to the rest of society. The interaction between landscape architects, suburban real estate developers, urban reformers, moral improvement societies, the transportation revolution, public parks and golf courses, and advances in printing that provided architectural books and periodicals, builders' trade journals, pattern books of house designs, domestic guides, home magazines, and newspapers to a literate public led gradually to a new residential landscape that included a lawn of certain aesthetic dimensions. Middle-class homeowners, influenced by Jacksonian democracy, romanticism and

transcendentalism, magazine articles and architectural design books, made the single-family detached house with a front yard the most characteristic single feature of European settlement in North America.[139] Still, most Americans of the time were neither middle class nor homeowners. They continued to regard grass as a ground cover, useful for keeping down dust and protecting children and horses from the mud and, in many cases, providing pasturage for the family horse or cow. Americans considered grass utilitarian rather than beautiful.[140] An 1897 horticultural book expressed the hope that some day "our suburbs will not always have so many uncared for, weed-grown lots littered with empty tin cans, badly kept 'yards', and impassable roads."[141] Another writer noted, "There is a good deal to be said for doing away with fences, and in keeping cows out of the streets altogether. Many towns throughout the country are treated wholly or in part in this way, and the result thus obtained is both charming and satisfactory. But in most towns there has, as yet, been no sufficient concert of action among neighbors to secure this desirable result."[142]

Front lawns at the end of the nineteenth century were cultivated by the wealthy and the small, new middle class that emulated them. The home meadows that provided hay for the family horse or cow, scorned by many horticultural writers, slowly gave way to a new aesthetic standard that called for close-cropped grass at all times. These new lawns were examples of conspicuous consumption. They showed the passerby that the homeowner was well-to-do and aesthetically advanced. Thorstein Veblen noted that grazing animals were no longer acceptable on lawns in the late nineteenth century because they were too suggestive of thrift and usefulness. In fact, Veblen suggested that deer or even antelope be substituted for cattle where the predilection for some grazing animal was too strong to be suppressed, since they were not vulgarly lucrative in fact or in suggestion.[143] Where live deer were impossible to maintain, many homeowners substituted life-size cast-iron stags.

It was not easy to grow a lawn in the nineteenth century, despite the invention of the push lawn mower and irrigation equipment. Lawns required a great deal of labor. A homeowner either had to have the time to work on the lawn himself or had to have the money to hire others to do the work for him. In the era before the forty-hour work week, few workingmen had the leisure time to devote to their yards. Teenage boys might be available to do the work in some families. Most middle- or upper-class women would not have exhibited themselves in public pushing a heavy lawn mower across the front yard; their corsets and long skirts would have made that impossible. Front lawns required time, labor, and money. Despite the many books and articles written about home lawns, it was not until the mid-twentieth century that experiments with imported grasses and grass hybridization, improvements in lawn-mower design, irrigation devices, and the introduction of effective fertilizers, herbicides, and pesticides made it possible for most people to grow lawns in most parts of the United States.

The widespread use of chemical lawn-care products and fears of pollution have made some Americans rethink the front-lawn aesthetic. Chemlawn warning sign, Takoma Park, Maryland, 1988, V. Jenkins, photographer.

6

The War Between Man and Nature

Americans have been exhorted to engage in war for the past fifty years. As Gore Vidal points out, a state forever at war is easily controlled by a few.[1] American presidents have waged war against communism, poverty, crime, and drugs. The lawn-care industry was not slow to follow suit, taking advantage of the national war mentality to sell the matériel to fight invaders such as crabgrass, weeds, insects, earth worms, and, ultimately, Mother Nature. American homeowners, told to arm their lawns against attack, invested millions of dollars in defensive and offensive equipment. Synthetic came to be valued over natural because it was predictable and easily controlled. In 1976, Robert W. Schery, director of the Lawn Institute in Marysville, Ohio, stated, "A lawn, of course, is an artificial community of plants, created by people to make their home grounds more beautiful and more habitable."[2] Lawns became less and less natural until some were replaced altogether by synthetic turf or green-painted asphalt. Whose lawn is it—Mother Nature's or ours?

Despite the rhetoric of the past fifty years, the idea of a war against nature is not new. Scholars have found consistent use of land-as-woman symbolism in the writings of white American men throughout American history. The idea of Mother Nature, of a virgin continent flowing

with milk and honey, has been powerful in American culture. Many men have expressed themselves as sexual aggressors in a feminine landscape. John Crowe Ransom complained that the male idea of progress was an increasing, and eventually perfect, command over the forces of nature. Ransom wrote, "Ambitious men fight, first of all, against nature; they propose to put nature under their heel; this is the dream of scientists burrowing in their cells, and then of the industrial men who beg of their secret knowledge and go out to trouble the earth." Annette Kolodny concludes that the brutal images of man against nature reflect the "very pattern of our current ecological crises."[3] Wilderness has also appeared as the villain, with the pioneer as hero relishing its destruction. The image of man and wilderness locked in mortal combat has been extremely powerful in our culture, and the conquest of the wilderness has bolstered our national ego.[4]

On the American front lawn men use power machinery and chemicals, the tools of war, to engage in a battle for supremacy with Mother Nature. Men have made front lawns into engineered spaces with rigid boundaries and hard edges. Good front lawns do not tolerate alien plants or animal life. This battle, openly declared in the late forties, was the ultimate declaration of masculine ownership of the lawn.

As advances in grass hybridization, pesticides, and herbicides became available to Americans, the definition of a good lawn continued to change. People who a generation earlier would have been happy with a grassy lawn with no bare spots now worried about what kind of grass they were growing and what else might be living in the lawn. The lawn industry produced defensive and offensive chemical products for civilian use to repel animal and plant invaders. Horticultural writers and advertisers identified crabgrass and a variety of insects and other creatures as lawn enemies. Americans attempted to exercise complete control over their environment, to beat Mother Nature and produce artificial "natural" beauty.

After World War II all things seemed possible. Homeowners dreamed of "push-button heat via low cost atomic energy and a beautiful green lawn without any energy at all."[5] A USDA leaflet stated matter-of-factly that "in choosing a grass for his lawn, the owner usually has the choice of selecting a grass that will thrive under existing conditions or of selecting the grass that he wants and then modifying the conditions to meet the requirements of that grass."[6] The new lawn grasses available in the early fifties may have been expensive to buy and to maintain, but

according to one writer, "a good many homeowners feel this way: Mother Nature has beaten them to a stand still for so many years that revenge is worth almost any price as long as it comes in the form of a real good, drought-tolerant, weed-resistant lawn."[7] In 1950, a prefabricated, factory-made lawn that promised to become smooth, thick grass appeared on the market. The seed came "planted" in sheets of cellulose to be cut with scissors to the right size and shape. "This wonder method of seeding" was seen not only as "another American success saga; it is good news to thousands of homeowners who now have a weapon with which to outwit their old enemy, Mother Nature."[8] Man appeared to have gained total control of nature and could rearrange the environment in any way that seemed pleasing to him. Science was the key to a man-made utopia that could not be far off.

This notion of controlling nature is central to American thinking. The U.S. Army Corps of Engineers has spent years and millions of dollars building dams, levees, and sea walls to control rivers and the oceans. People have built communities on geological faults, in flood plains, and on fragile beaches and expect to be protected from the effects of earthquakes, floods, and storms. Instead of living with the natural world, people have set themselves up to control it. That attitude was not simply the aftermath of a successful war and the prosperity of the fifties; it has continued to the present.[9] In 1969, a magazine writer stated, "Today's approach to lawnkeeping is that man is master, and while natural elements can make it difficult at times, having a perfectly manicured, evenly green lawn is a highly satisfying experience."[10] In the seventies lawn services promised to help those who were "just fed up with fighting a losing battle against a host of lawn pests."[11] Americans were told that weeds and cockroaches were "among the hardiest forms of pests with which civilized man must cope," and nylon-line weed trimmers were proposed as "a valuable ally in this never-ending struggle against unwanted plants."[12] The trimmers could "be operated from an upright position, so you don't have to stoop to conquer." All you had to do was to "simply squeeze the trigger or start the engine of this remarkable weapon."[13]

Middle-class American readers of popular magazines have been taught not only that they must have a good lawn for a complete home but also to expect that something will go wrong with it. The pests identified in the thirties—Japanese beetles, ants, worms, or weeds—might appear at any time. One magazine article warned new homeowners that "many

a lawn that looks promising at the start sooner or later goes wrong." The reader should not "assume, just because the bare brown area of a fortnight ago is now a verdant green carpet, that you already have a *lawn*. You've just a beginning."[14]

Homeowners learned how to alter the environment to maintain their lawns, through the application of water, fertilizer and lime, replacement of the topsoil, or removal of shade.[15] To make a success of their lawns, they were told to pay close attention to horticultural writers and advertisers and to use all the latest lawn-care products coming onto the market, preferably in advance of any problem. According to a brochure on lawn care published by the Service Department of Northrup, King, and Company, "Successful lawn maintenance is artificial stimulation by means of fertilizers and water to enable grasses to continue growing vigorously through their natural rest periods, in spite of the highly abnormal conditions created by daily use and frequent clippings."[16] Such lessons caused chronic overuse and abuse of pesticides, herbicides, and fertilizer that eventually had widespread repercussions on the environment.

In August 1945, Fred Grau became the director of the USGA Green Section and began evaluating the grass plots at the USDA experimental garden in Beltsville, Maryland, neglected during the war. Fewer than ten people were still working on turf research at four or five experiment stations in the United States.[17] According to Grau,

> We probably never will have the size and scope of gardens that have been developed before the war at the Arlington Turf Gardens before the Pentagon was built on top of them. That was quite a considerable loss to turf in the United States. Tremendous amount of work was being carried on there of untold value to golf courses and other turf interests all over the country. Since we cannot hope to duplicate that again at Beltsville we would like to see this program decentralized and more of it carried out in the areas where the problems exist.[18]

The USDA Division of Forage Crops and Diseases initiated a uniform nursery testing system to compare grass strains and varieties under widely diverse conditions that would eventually include sixty-six nurseries in forty-one states.[19]

By the late forties, nearly half the state agricultural experiment stations in the United States were once again involved in some activity re-

lating to turf grasses.[20] Breeding, including selection and hybridization through crossing individual plants and through polycross techniques, and testing of selected strains of turf grasses were undertaken in cooperation with the USDA and the USGA.[21] In 1947, an experimental turf research program was begun at Tifton, Georgia, sponsored by the USDA, the Georgia Coastal Plain Experiment Station, and the USGA in conjunction with several local golf clubs.[22] The USGA Green Section functioned as a national clearinghouse for turf grass research. Experiment stations in areas of rapid population growth such as New Jersey and Florida found lawn problems particularly relevant. Agricultural Extension workers could expand their jobs by advising on lawn problems as well as on crops and trees. Homeowners, cemetery keepers, athletic field managers, and golf course superintendents all were potential audiences. According to the USGA Green Section, "There are more taxpayers directly interested in Better Turf than in any other single agricultural enterprise."[23] Extension workers gave lectures and demonstrations, wrote mimeographed handouts and articles for local newspapers, and even spoke on the radio about lawn care.[24] Horticultural writers encouraged homeowners to use the state Agricultural Extension services.[25]

A new lawn grass named Ill-a-hee fescue, introduced into the United States from England, was made available to the public in 1946 by the USDA.[26] This grass was drought- and disease-resistant and was said to thrive on thin soils and in the shade. It was recommended for airports, golf courses, and heavily used lawns.[27] Merion bluegrass, discovered at the Merion Golf Club in Ardmore, Pennsylvania, and forwarded to the USGA in 1936, became commercially available in the late forties and was made available to the general public in the early fifties.[28] It was said that this grass would need mowing only half as often as ordinary grass, would stay green all summer, and would fight off crabgrass, other weeds, and disease.[29] Commercial growers in the Pacific Northwest began to sell Merion bluegrass seed in 1954. The price was steep and the initial results disappointing since the grass grew slowly and took about three years to fill in a good lawn.[30] Even so, the demand for Merion bluegrass was so great that the seed had to be rationed for years.[31]

Turfgrass breeding came of age during the decade of the fifties. The new varieties of grasses had significant genetic differences.[32] The American public followed this research through articles in popular magazines. *Science Newsletter* published an article about U-3 Bermuda grass in the experimental turf culture program at the University of California at Los

Angeles.[33] Other research produced new strains of Kentucky bluegrass, zoysia, and red fescue.[34] Writers were ever hopeful about the new lawn grasses and the promise of low-maintenance lawns. One noted, "With the help of drugs and atomic radiation, scientists are creating an assortment of strange new grasses to fit the special needs of sportsmen, farmers, and home gardeners. Maybe they can even abolish crabgrass."[35]

An article in *Better Homes and Gardens* promised readers a perfect lawn based on the work of the USGA and the USDA Bureau of Plant Industry. This dream lawn "will be a smooth, unbroken velvet carpet, green all summer long, as tight and as perfect as bent grass at its superb best, without a weed, unaffected by brown patch or other diseases, shunned by Japanese beetles, and able to survive without artificial watering all summer."[36] Fred Grau, writing for *Scientific Monthly,* stated that "the day of better turf with better grasses is here not only for golf but for (at long last) the homeowner and all others who want and appreciate the best in turf."[37]

The new heat-, drought-, and disease-resistant grasses finally made lawns possible throughout the country. Even southern homeowners could now contemplate lawns: "Southern cities have long concentrated on flowers but now they are attempting to bring their lawns up to the standard of their gardens. They are discovering that lawns comparable with those in the north can be established and maintained when modern methods and materials are used."[38] New homeowners with "clay-bound" houses were advised to try the improved grass suitable for their particular climate. The new grasses were expensive, but some would grow in clay soils.[39]

Two different strains of zoysia grass had been introduced to the United States from North Korea and Manchuria in 1906 and in 1930.[40] Frank N. Meyer, a USDA researcher, began working on *Zoysia japonica* in 1906; he crossed more than fifty varieties before coming up with the strain that bears his name (Meyer zoysia).[41] Zoysia thrives in poor soils and can go for long periods without water, is resistant to insects and disease, crowds out crabgrass, and needs less mowing than most other grasses. Researchers began breeding zoysia grasses at Beltsville in 1945.[42] According to one woman writer, "men who have an aversion to the lawnmower are happy over the prospects of Zoysia which requires less mowing because it grows more slowly."[43] The drawbacks to zoysia were the cost (ten cents for a two-inch plug) and its loss of color in the winter months—it faded "to a dismal tan with the first killing frost."[44]

Advertising made frequent references to the role of the USDA and USGA in developing the new grasses.[45] In 1953, an advertisement showed a picture of the "First Meyer Zoysia lawn" at College Park, Maryland, and promised that Meyer zoysia would make a permanent summer lawn and eliminate crabgrass and summer weeds.[46] A 1954 advertisement for Merion bluegrass called it "the finest lawn grass yet discovered, producing a thick, fine textured deep green turf, like the yielding cushion of a long pile carpet."[47] Despite the claims for the new grasses, homeowners in many areas of the country continued to struggle with raising traditional lawn grass. An article published in 1954 about growing a lawn in Florida did not mention zoysia, but it bemoaned the problems of trying to raise Bermuda, centipede, or St. Augustine grass where "the sun is too hot, the soil too sandy, ants carry it [grass seed] away, and it will not grow."[48]

Zoysia, the miracle grass of the fifties, fell out of favor following a rash of billbug and nematode problems, but then returned to prominence in the seventies.[49] During the eighties, USDA turf specialist Jack J. Murray produced zoysia from seed and worked on seed mixtures of zoysia and fescue that would stay green all year.[50] One horticulture writer noted enthusiastically in 1989 that zoysia was "the South's most refined grass. Soft, lush, and thick as a carpet, it chokes out weeds and fills in bare spots. It tolerates drought, grows in sun or light shade, has few insect or disease problems, and needs little maintenance. It also turns an attractive beige color in winter."[51] Murray's new mixture was not yet commercially available, and zoysia promoters had to make the best of the grass's most obvious drawback.

The efforts of the U.S. Department of Agriculture and the U.S. Golf Association continued to produce new designer grasses for specific parts of the country under different soil and light conditions. In 1973, readers of *Better Homes and Gardens* were asked to "picture an expanse of rich green, elegantly textured, easy-to-care-for lawn grass. Imagine that it's resistant to disease, insects, and drought, that it stands up to everyday use, and that it requires mowing only once in awhile. A pipe dream? Not entirely. Modern lawn grasses are gradually growing toward those goals."[52] Robert W. Schery, director of the Lawn Institute in Marysville, Ohio, which represents the grass seed industry, wrote several articles about the new grasses for popular magazines during the seventies. He assured homeowners that their individual preferences for lawn grasses of a certain color or texture could be satisfied with tailored seed blends.[53]

Another horticultural writer noted that choosing a new lawn grass or a mixture of new hybrids would make lawn care more fun than simply mowing the old-fashioned lawn grasses that came with the house.[54]

Many new cultivars (improved strains developed in laboratories and nurseries as opposed to the pasture or wild varieties), based on ten species, became available. They included grasses customarily started from seed, such as Kentucky bluegrasses, fine fescues, colonial bents, creeping bents, and perennial ryegrasses for the regions north of Washington, D.C., Atlanta, Memphis, and Albuquerque. The South continued to rely on Bahia grasses, Bermuda grasses, centipede grass, St. Augustine grass, and zoysias, usually planted from sprigs, plugs, or sod.[55]

Scientists at Oregon State University, Michigan State University, and the Tifton, Georgia, Research Station worked on hardier, more insect- and disease-resistant grasses that would reduce the need for chemical lawn care. In 1976, there were more than sixty named varieties of bluegrass, with about twenty available within any state as a result of the rapid advances in turf research.[56] Ten years later, these "miracle grasses" were touted as providing a respectable-looking, organically grown lawn without the need for herbicides and chemical fertilizers.[57] Fine fescues were bred for their spreading, low-growing qualities plus summer resistance to disease. They also sprouted quickly and had an attractive dark green color and texture.[58] One new Bermuda grass, named Santa Ana and bred in southern California, was noted for its smog resistance.[59]

Lawn specialists in the seventies and eighties recommended low-maintenance blends or mixtures of grasses, such as bluegrass, fescue, and perennial ryegrass, rather than the monoculture that had been espoused by turf specialists since 1890.[60] Turf authorities at Rutgers University in New Jersey issued standards or requirements for four basic lawn seed mixtures in 1977, including sunny- and shady-lawn mixtures and mixtures for dry, infertile soil and for bent-grass lawns.[61] Some horticulture writers still yearned after a velvety green carpet of a single species, but most acknowledged that monoculture was too costly in terms of time, money, and the potential for abuse of chemicals used to combat insect pests and diseases.[62]

The improvement of grasses was encouraged by new patent protection for breeders' rights, and Americans continued to borrow grasses from other countries, among them the Netherlands and Sweden.[63] In 1986, Jan Weijer, a geneticist at the University of Alberta in Canada, announced the development of ten new strains of grass that would thrive

without fertilizer, watering, or weeding and would need to be cut only once or twice a year. Although the seed would not be commercially available for at least five years, an American pharmaceutical company with investments in grass-seed production offered to buy the rights to the seeds in order to keep them off the market. The bid was rejected by Weijer, but *Newsweek* opined that other companies in the lawn industry would also be disturbed by the new grass.[64]

After World War II, the suburban aesthetic called for lawns to be green all year long. Golf turf was supposed to be "a pleasing color throughout the playing season . . . even though it may not affect playability of the turf."[65] An article in *House Beautiful* in 1948 suggested that the reader should strive for the ideal of a year-round green lawn. It divided the country into seven climatic zones and gave recommendations for homeowners in each, even assuring readers in the Northeast that "a year-round green lawn here is a near possibility, especially during mild winters." If the homeowner followed instructions, he would not have to remake the lawn every other year "as has probably been your custom."[66] Magazine readers were told, "Experiments by *House Beautiful* indicate that lawns can be kept green all year, certainly as far north as Philadelphia and mid-Ohio, probably in the New York and Chicago latitudes except in severe winters, and possibly in many mild winters in the Boston and Milwaukee zones."[67]

Turf specialists at the USDA continued to experiment with grasses that would remain green throughout the year. One Oklahoma couple advocated growing winter wheat on the lawn; when it was harvested in June, the Bermuda grass would take over again.[68] Other magazine articles gave advice to southern readers on how to keep lawns green through the summer months, particularly August.[69] Some homeowners in the South planted annual ryegrass over their summer grasses each fall to give a green cover after frost had turned the summer grass brown. That way, the lawn would stay green all year round.[70] "Turf type" perennial ryegrass appeared on the market in the mid-seventies with the promise of replacing annual ryegrass that had been used to overseed winter lawns in the South on a yearly basis.[71] Perennial ryegrass was said to be "denser, lower growing, hardier, neater mowing, and almost as attractive as bluegrass."[72] One promoter of the new ryegrass told American readers that New Zealanders prized the grass and considered Kentucky bluegrass a weed, not understanding "why Americans use so much of the grass, and then use 'Keep Off The Grass' signs to protect it."[73] By

the mid-eighties, about fifty million pounds of perennial ryegrass was being sold each year.[74] Many homeowners, however, continued to overseed their lawns in the fall with annual ryegrass so that they would stay green through the winter.[75]

One way to keep grass greener was to give it more fertilizer. Before 1940, lawn experts had recommended applying a pound of nitrogen to each thousand square feet of lawn, in two feedings a year, in spring and fall. By the seventies, the recommended amount of nitrogen fertilizer had increased to eight pounds per thousand square feet for bluegrass lawns, distributed throughout the growing season.[76] Homeowners were advised to feed grass at its "favorite" seasons to enable it to compete with weeds.[77] In the eighties some homeowners were feeding their lawns four to six times a year, and golf courses were being fed every few days to keep them green and growing in hot weather as well as throughout the winter.[78] The Lawn Institute, speaking for the industry, continued to urge homeowners to fertilize their lawns.[79] "If you do nothing else to your lawn in the fall it should be fed. . . . Remember, most turf experts say that the average lawn is starving to death. So, feed it."[80] By 1984, nearly a million tons of chemical fertilizer were being applied to American lawns each year. Premixed, premeasured liquid fertilizers with herbicides were touted as the "latest technology in lawn care."[81]

In 1984, the United States applied more synthetic chemical fertilizer to lawns than India applied on all its food crops.[82] Chemical fertilizers release their nitrogen quickly, so much of it ran off into the groundwater, lakes, and streams, causing severe environmental problems. By the mid-eighties this source of pollution was widely recognized, and in some areas campaigns were launched to restrict or stop homeowners from overdosing their lawns with fertilizer as well as herbicides and pesticides.[83] In the mid-Atlantic region, the Chesapeake Bay Foundation has been especially active in that type of consumer education. Despite those efforts, fertilizer continued to be promoted as a shortcut to a healthy lawn, an instant boost for a fast green-up "or for a special event in your garden."[84]

In contrast, high-nitrogen organic fertilizers could be applied only once a year, since they released their nutrients slowly and produced no harmful runoff.[85] Organic materials such as cottonseed meal, blood meal, liquefied seaweed, and composted cow manure once again were recommended as good nitrogen sources.[86] Milorganite, composted sludge sold by the city of Milwaukee, was a popular organic fertilizer,

although homeowners were warned not to use it on their vegetable gardens because it might be contaminated with toxic heavy metals.[87]

An alternative to fertilizer, first explored in the thirties, was to color lawn grass artificially. In 1958, the Winterlawn Sales Corporation in Augusta, Georgia, sold 20,000 gallons of paint to turn brown turf to green.[88] A California company marketed a spray to keep grass looking green year round: "Have a Green Lawn All Winter. Ever wondered how ball parks and large arenas have green grass all winter long? They paint their grass green with Grass Spray. This modern wonder—developed thru years of testing, now Easy to Apply with a Hudson Type Sprayer. Just one treatment of Grass Spray lasts until grass begins to grow in Spring: will not rub, walk, fade or wash off, won't harm children or pets."[89] Other homeowners found grass substitutes such as colored gravel, moss, ivy, sandwort, and fungus.[90] In 1965, new homeowners in one Arizona housing development could choose between real grass and low-maintenance lawns of green gravel. According to *Popular Mechanics*, "Gardening buffs may gnash their teeth in horror, but the effect is realistic enough for the elderly suburbanite who prefers a Saturday afternoon on the golf course, to one spent behind the lawn mower."[91] One family covered their sloping front yard with half an inch of crushed brick sprayed with several coats of clear polymer plastic paint. They recommended using a green polymer paint for "a more natural look."[92]

Popular Mechanics reported in 1965 on plastic grass as a work-saving alternative to lawn grass. The American Biltrite Rubber Company in Boston had developed a green vinyl material called Neo-turf that looked "like a green carpet." Homeowners were told that they could "spread Neo-Turf over a patch of soil, and you have a 'lawn' without weeds, without gophers, that never needs mowing, watering or fertilization."[93] Another product, named Perma-Grass, consisting of massed plastic fibers, was recommended for small lawns, terraces, sundecks, patios, walks around swimming pools, putting greens, or as a skid-proof surface on the deck of a boat.[94] Golf courses in Westchester County, New York, installed Astroturf on their tees in 1968 to the "complete satisfaction" of their golfers.[95] The 3M Company produced a product called Tartan Turf that was used on football fields in the seventies.[96] Lawndale, California, covered traffic medians in the business district with synthetic turf. According to the mayor, Art Griffin, "AstroGrass not only is a great step forward in our beautification efforts, but we feel it makes a significant contribution to driving safety."[97] St. Petersburg, Florida,

followed suit, installing Astroturf at the entrances to the city "to the joy of all who see or maintain it."[98] In the early seventies, a Stanford Research Institute study estimated the potential market for synthetic turf and ground covering in the United States at $75 million a year. The Monsanto Company hoped to sell synthetic turf to homeowners as well as for highway medians, gas stations, motels, and shopping centers. Other competitors included American Biltrite, 3M, Ozite, Chevron Chemical, and Lee and Mohawk.[99] Chevron advertised "Leisure Grass for the Leisure Class" with the promise that "grasslike surfacing of Polyloom II really does look like real grass, only it never grows. So you don't have to water, weed or mow it. Let your imagination run wild and you may discover a use for grasslike surfacing never thought of before. The possibilities are unlimited."[100]

Plastic turf became popular for athletic fields and particularly for indoor stadiums, although many athletes objected to the material because of the number of injuries sustained from falling on it. Plastic grass and green indoor-outdoor carpet were used by homeowners on stairs or indoor patios but never became rivals to living grass lawns.

In the late nineteenth and early twentieth centuries, some American homeowners interested in instant lawns dug turf from pastures and along roadsides to place in their yards. In 1896, Samuel Parsons, Jr., had this vision of the future: "The day will come, I have no doubt, when it will become a general practice to grow sods of pure grass free from foreign admixture of other weeds or plants. When that day arrives we shall see lawns of a beauty for which our present ideas can furnish us no conception."[101] Turf could provide a mature lawn within a few days or could be used to patch bare spots or holes. The major drawback to the use of pasture turf was that it was full of weeds and contained a variety of grasses more or less suited to a lawn.[102] Other problems included availability or accessibility, and transportation costs. Fewer and fewer people had access to cow pastures, and municipalities frowned on people helping themselves to roadside turf.

In 1922, the *Literary Digest* reported that an English company was selling turf by mail. Wooden trays were filled with dirt and planted with grass seed. When an order was received, the requisite number of trays were packed into crates and shipped by railway to the customer. This was an expensive proposition because of the weight. A less expensive way to obtain a "ready-to-wear" lawn was to grow grass on a layer of soil spread over sheets of canvas. The new lawn could be rolled up, sent by

rail, and unrolled where grass was wanted. According to the article, "the roots will penetrate the canvas, enter the prepared soil, and flourish, the canvas rotting away after a time and providing no hindrance to growth."[103] Although canvas may not have been as good a medium for growing a lawn as claimed, the idea of a roll-out lawn persisted. In 1947, a New York company advertised the Tailor Made lawn. This consisted of lightweight cellulose wadding embedded with grass seed and fertilizer. It could be rolled out over a hard-to-seed area such as a slope on which seeds would normally wash off, or it could be cut to fit bare patches. According to the advertisement, the cellulose would hold the seed in place until the plants were well established and then slowly disintegrate.[104] Factory-made cellulose lawns continued to be marketed in the fifties and sixties.[105] In 1979, sod grown on nylon mesh and grass seed on paper were marketed for a quick lawn.[106]

Turf began to be commercially available as the demand for it increased in the fifties. As suburbs were built on farmland on the outskirts of cities, the new residents objected to the smells and hazards of live animals in fields nearby. Many farmers found it profitable to switch from animal raising to turf farming. Turf continued to be expensive to transport; only turf farms close to urban and suburban communities were cost effective. At first, turf farming supplied existing pasture grasses, particularly bluegrass. One lawn-care writer warned that turf should not be used to sod shaded areas since shade-tolerant varieties of grass were not available.[107] Gradually, the new turf farms began to raise the grasses appropriate to their region and provided certified weed-free turf consisting of specific grass or grasses.

Writers began suggesting sod as a real alternative to the traditional sowing of grass seed in the fifties.[108] It was expensive, but one garden book asserted that this practice had become "more common and satisfactory around many new homes which have limited lawn areas."[109] By the sixties, the production of turf had become big business.[110] In 1967 there were approximately one thousand turf farms in the United States. Turf farms advertised mature, pure grass strains that could be walked on immediately, unlike newly seeded lawns that might take weeks or months before they could be used.[111] Commercial turf was recommended not only because it saved labor and time but also because it provided an immediate cover for mud or dust on a construction site, reducing erosion and mess.[112] By 1977, commercially grown sod had come to be preferred over seed for starting a lawn.[113] Garden centers offered rolled-up

strips of sod for small do-it-yourself jobs. The sight of newly seeded lawns with string and rag barriers to keep away people, dogs, and birds has become rare. In addition to home lawns, turf is in demand by highway engineers, stadium managers, and golf course greenkeepers who do not have the time or the labor necessary to start grass from seed.[114]

The period from the end of World War II through the fifties was seen as an era of better living due to science. New chemical products became available for a multitude of different uses, from plastics to drugs. The public's naïveté about the environment and the long-term effects of indiscriminate use of chemicals on lawns was phenomenal. Despite occasional warnings, Americans, believing that if a product could be sold, it must be safe, embraced the new chemical products for the home and yard. An article published in 1949 rejoiced that the lawn owner's "work is lightened by new chemicals at his disposal."[115] A brochure published in 1948 noted that weeds in lawns could be controlled by growing thick turf to crowd them out, by hand-digging, or by spraying them with chemicals. The author noted that "within the last few years the spraying of chemicals has become the most popular of the three methods. Research on chemical weed killers has revealed new products and has opened up new horizons to the discouraged turf enthusiast who for years has practically been at the mercy of lawn weeds."[116] Chemical control of the lawn became commonplace. An advertisement for Plantrons plant food showed a cartoon of a little girl asking an old man, "What makes the grass grow green?" His answer was "Plantrons, honey, plantrons."[117] Nature no longer was credited with having anything to do with the lawn. A lawn-care authority in 1969 matter-of-factly advised homeowners, "If you have a lawn that is less than satisfactory it is probably worth upgrading if it contains at least 40 to 50 percent desirable, perennial grasses. Otherwise, you will be wise to banish the existing turf chemically and start over as for a new lawn."[118] The homeowner could eliminate weeds or get rid of everything growing or living in a certain area and start again.

The new chemical weed and insect killers were offered as weapons against foreign intruders in the home yard. A magazine article on how to have a weed-free lawn told the reader, "It's time to take up arms against the weeds. From now on, when man and nature meet on the lawn, it's dog eat dog." The article went on to note that "your best bet is not these infantry tactics but wholesale slaughter by chemical warfare, utilizing

the impressive arsenal of chemicals now available to every lawn owner beset by weeds."[119]

With new chemical possibilities in weed control, crabgrass was identified as a major problem in many areas of the country. War was declared against crabgrass, using some of the same weapons and rhetoric developed during the recent international conflict. Several articles on lawn weeds compared crabgrass to fifth columnists that "take over a patch of lawn so viciously that the grass just gives up."[120] These references to subversive forces reflected the threat of communism and the Cold War. One writer prided himself on a lawn that "was just too thick to allow for serious invasions by these foreigners."[121]

During the thirties a few horticultural writers began to worry about crabgrass, but the majority of the American public probably could not identify crabgrass before the fifties. Many homeowners may have even welcomed its sturdy green cover during the summer months. However, once it became possible to control it, crabgrass in the front lawn was widely criticized as unacceptable.

Two types of crabgrass plagued American lawns; the most common type, *Digitaria sanguinalis*, was described as large hairy crabgrass, with a range from Philadelphia south to Washington and west to the Rockies and south to northern Texas. *Digitaria ischaemum*, with small, smooth blades, was commonly found in New England along the Atlantic Coast to New York. Both types could be found on the West Coast.[122] One article described crabgrass as "that rank, tough, hard-to-mow grass that sprouts late each spring and spreads and chokes through the good grasses until frost, killing them as it goes. Its light green seedlings make your lawn look nice and thick at first. But in a few weeks they are reaching out like octopuses, have taken on a purplish cast, and are shooting up brownish seed heads that make your lawn look as unkempt as a man with a three-day beard."[123]

A rash of advertisements and articles on crabgrass control appeared in *Better Homes and Gardens*, *House and Garden*, *Home Garden*, *Country Gentleman*, *American Home*, *House Beautiful*, and *Newsweek*. One author looked forward to future possibilities for chemical control of crabgrass, but in the meantime, he advised homeowners to try scorching ripe crabgrass seed heads with a torch or flame gun. The author noted that "this is a rather tricky operation, but if done with great care the permanent grasses will not be seriously injured."[124] I suspect that few homeowners

torched their lawns, or if they did, that they managed to eliminate the crabgrass. An article in *House and Garden* mentioned that some lawn owners tried using a phenyl acetate solution for the control of crabgrass, but concluded that the best method remained to dig it out by hand.[125]

During the late forties the Production Marketing Administration of the USDA, in conjunction with the USGA Green Section, sponsored a series of grass plots at the Beltsville Station to test the chemical control of crabgrass using phenyl mercury acetate products, potassium cyanate, and arsenicals. None of those chemicals proved very helpful.[126] Although most articles during the forties noted that 2,4-D was not effective, one writer suggested that two sprays of a 2,4-D weed killer would provide "easy, sure-fire control for crabgrass, public enemy No. 1 for home lawns."[127] This writer also recommended isopropyl phenyl carbamate, perfected by U.S. Army biological warfare specialists, to rid the lawn of quack grass. In 1949 *Consumers' Research Bulletin* reviewed two types of crabgrass killers on the market. The article warned that these crabgrass killers, made of arsenic or mercury, were not particularly effective, were extremely poisonous, and might cause serious illness or death to people or animals.[128]

Hand weeding and chemicals might control mature crabgrass. Additional efforts were made to destroy weed and crabgrass seeds before they had a chance to sprout in lawn turf. One pamphlet noted that some people used chloropicrin (tear gas) to sterilize weed seeds but that "this material is quite costly, somewhat tricky to use and has little place in the hands of the average home owner."[129] The author also noted that J. H. DeFrance of the Rhode Island Experiment Station had done extensive work with cyanamide for several years with great success. Cyanamide could be used to kill weed seeds in large soil areas, but the author warned that it was quite caustic to some vegetation. An advertisement for the dormant seed killer PAX crabgrass and soil pest control claimed 85- to 100-percent effectiveness in controlling the crabgrass menace.[130]

The big news in 1952 was that chlordane could be used as an effective herbicide against crabgrass. Readers of *Better Homes and Gardens* were told that chlordane could be used to obtain "a lawn free of crabgrass, as well as grubs, ants, moles, and night crawlers."[131] Tests at the University of Wisconsin indicated that chlordane would provide "built-in" protection against all these pests, including crabgrass seeds, but would not be effective against mature crabgrass. Potassium cyanate, or

PC, was also found to be effective against crabgrass and was recommended by several lawn-care authorities.[132]

In the early fifties, O. M. Scott and Sons marketed a new product named Scutl, advertised widely as "a dream come true." Scott's 1951 advertising pointed to the second successful year for Scutl, having "defeated Crabgrass on thousands of lawns last year." Scutl advertisements again appeared in the spring of 1952 but then disappeared from the pages of popular magazines.[133]

The other new chemical control for crabgrass was potassium cyanate. It was hailed as a new, nonpoisonous chemical that would eventually act as a fertilizer, supplying both nitrogen and potash to lawn grasses.[134] An article on PC, with the title "Sudden Death to Crabgrass," noted its effectiveness but warned that the war was not completely over, as crabgrass seeds would continue to germinate in future years.[135] Advertisements for PC placed by the American Cyanamid Company proclaimed the "good news for those who enjoy a lawn of verdant velvet but who detest the tedious task of keeping it free from crabgrass." At first, American Cyanamid did not sell PC as a lawn-care product but marketed the PC found in the new weed killers sold by other companies. According to one of its advertisements, the efficacy of PC had been proven through extensive tests by agricultural experiment stations and turf specialists throughout the country. By 1955, however, the company was selling Lawn and Garden Cyanamid directly to home gardeners.[136]

Associated Chemists, Inc., advertised Weedanol cyanol (PC) crabgrass killer to be sprayed on crabgrass.[137] The American Chemical Paint Company marketed Weedone crabgrass killer, "the wonderful potassium cyanate killer," for beautiful lawns. Weedone was advertised as nonpoisonous to humans and pets and harmless to other plants unless sprayed on them directly. In 1955, Weedone was improved with MCP: "Now—the world famous crab grass killer is deadlier than ever to weeds!" Weedone advertisements a year later noted that the product now contained Sodar, which would "knock out your lawn's worst enemy." The image of war on the front lawn came through strongly in this 1956 advertisement: "Lawn a 'mess' with crabgrass? Now! Kill It so it *Stays killed* with Weedone Crab Grass killer Sodar. Get the jump on your lawn's worst enemy—crab grass. Yes, you can kill it even when its at its ugly, crawling worst—kill it so it stays killed."[138] Du Pont also produced a PC crab-

grass killer as well as a lawn weed killer for broad-leaved weeds. Du Pont's advertisements promised, "Better things for better living . . . through Chemistry."[139]

Sunset magazine announced that another new weapon against crabgrass, a combination of lead arsenate and ammonium sulfate, would be available in 1954. The cost would be high, "but if it knocks out crabgrass in a single season, many a gardener should be willing to pay the price."[140] In 1962, in a full-page advertisement that featured a skeleton hand pushing a blade of crabgrass up through a suburban lawn, the Diamond Alkali Company promoted Dacthal as the "sure-to-kill ingredient" to look for in crabgrass killers.[141]

The war was not yet won, however, and crabgrass continued to provide good copy. The author of a satirical article in the *Saturday Evening Post* accused the homeowner with a crabgrass neurosis of finding "relief by murdering one culm at a time. The sad part is that he is always looking, searching, yearning to find a victim. I once noticed a guest at an outdoor wedding surreptitiously murder a culm with the trowellike toe of his patent-leather pump." The article concluded that homeowners should live and let live.[142] Magazine articles with titles such as "Crabgrass Never Surrenders, But You Can Get Rid of It," discussed problems with crabgrass throughout the nation.[143] After all that was written about chemical controls for crabgrass, some acknowledged them to be "emergency measures, and temporary at best."[144] The author of "Crabgrass Never Surrenders" advised readers to grow a thick turf to crowd out the weed and to hand weed: "A few minutes after dinner on summer evenings, or half an hour or so every Saturday morning will keep a relatively crabgrass-free lawn in a position to grow the good turf that everyone wants."[145] Despite the new chemicals, homeowners were still being advised to hand weed just like their fathers and grandfathers.

Americans were also offered a variety of herbicides with which to combat weeds and grass diseases. The most important was known as 2,4-D. The American Chemical Paint Company developed 2,4-D (dichlorophenoxyacetic acid) for the control of broad-leaved weeds.[146] The herbicide was released to the public in November 1944 and was hailed as one of the great breakthroughs in the turfgrass world.[147] It was tested by the USGA Green Section, by agricultural experiment stations in various states, and by private companies.[148] Products containing 2,4-D could be sprayed on the lawn or dusted on individual broad-leaved plants such as dandelions, plantains, poison ivy, honeysuckle, ragweed,

and wild morning glory. In 1946, the American Chemical Paint Company marketed 2,4-D as Weedone. Ten years later, Weedone was touted as "the original selective weed-killer—the one that revolutionized America's lawn-care habits, making weed grubbing and pulling obsolete."[149]

The Dow Chemical Company advertised 2-4 Dow weed killer in 1947.[150] Sherwin-Williams produced a similar product named Weed-No-More, which was advertised heavily in popular magazines throughout the late forties.[151] In 1947 Swift and Company began marketing a spray herbicide named End-o-Weed, with the claim that it would destroy more than one hundred different lawn weeds without harming the grass. Swift's advertising copy emphasized the ease of using End-o-Weed and promised that it would take only an hour to weed the lawn. Ten years later, Swift and Company advertised a new product, Dacthal W-50, for use against crabgrass with the promise that it "contains no dangerous arsenic or other metallic poisons that can kill birds, harm pets."[152] Other herbicides that appeared briefly on the market containing 2,4-D included Weedanol, Ridz 2-4-D, Knox-Out Weeds, Dr. Salisbury's Selective Weed-Kill, and Tufor.[153]

House and Garden celebrated 2,4-D as a miraculous weed killer in 1947. Readers were told they no longer had an excuse for a weedy lawn "nor for hunting golf balls among dandelion seed heads" but were warned that they must not spray annual flowers, vegetables, trees, or shrubs with 2,4-D.[154] Another article promised readers they could have as good a lawn as they wanted, even one that a golfer would covet as a putting green, with the use of 2,4-D.[155] However, not all lawn authorities immediately adopted the new product. A brochure on lawn care published in 1947 was still recommending applications of sulfuric acid or gasoline to individual dandelion plants.[156]

By 1960, the American Chemical Paint Company had become Amchem Products, Inc., which continued to market Weedone, "the back-saving chemical that can tell the weeds from the grass!" The war image was used in a 1964 Weedone advertisement that stated, "Sprayed or spread it's a man's number one weapon for lawn spoiling weeds, kills most common lawn weeds without harming lawn grasses."[157] The principal ingredient of the defoliant Agent Orange used in the Vietnam War, 2,4-D is today considered to be a likely cause of cancer in humans.[158] It is also associated with birth defects, reproductive problems, neurotoxicity, kidney and liver damage, and is a sensitizer and irritant.[159]

In 1951 Southern gardeners were told the good news that methyl

bromide fumigation would kill nut grass. The bad news was that the "soil must be out of use at time of fumigation, however, since methyl bromide kills all forms of life in it."[160] Luckily, this method of weed control was not widely advertised or recommended. The by-products of antibiotic research during the forties were also applied to grass diseases in the fifties. The antibiotic cycloheximide, marketed as Actidone, provided for further turf-grass disease control.[161]

O. M. Scott and Sons Company produced a herbicide named Scotts 4-X and announced to readers of *Lawn Care*, "Chemical control will definitely come of age this year—for practically all lawn weeds except Crabgrass. . . . The right materials will be available early in 1946 and we know *Lawn Care* readers are going to get as much of a kick out of putting pesky Dandelions to rout as we have." By the end of the year, Scotts 4-X was available to the public and was marketed as one of "a series of products providing beautiful turf with reasonable effort. Weed control with Scotts 4-X is not an end in itself but instead is one step in the whole lawn program. It is possibly the climax that makes everything else worthwhile."[162] Four-X Weed Control was advertised as "a safe, easy, inexpensive way to rid your lawn of weeds . . . another Scott product to help you have a sparkling green lawn." In 1947, Scott combined its lawn food with 4-X and sold it in place of 4-X Weed Control. Scott advertisements promised that weeds would vanish like magic and the resulting lawn would be the envy of the neighborhood.[163]

In the mid-fifties homeowners were encouraged to use broad-spectrum weed killers on their lawns. Advertisements no longer told the consumer which chemicals were in the products; the consumer was simply assured that the weed killer was easy to use and effective. Swift's advertisements for End-o-Weed proclaimed that it killed "over 100 different kinds of weeds—leaves, stems, roots and all."[164] The Thompson Chemicals Corporation marketed Weed-a-Bomb. A 1953 advertisement told readers that Weed-a-Bomb contained Weedicide miracle lawn weed killer. The next year, Thompson advertisements simply stated that Weed-a-Bomb contained a broad-spectrum weedicide, the "easiest lawn weed killer."[165] An advertisement in *Better Homes and Gardens,* with the headline "Willy sprayed . . . Wally didn't," encouraged homeowners to spray and dust, "for a lawn without weeds, a home without insects, for a flower garden without equal."[166] The American Chemical Paint Company also marketed a chemical spray called Trimtone that would slow grass growth so that grass would not have to be cut for about six weeks.

Readers were advised to "use Trimtone on 6 to 12-inch strips around edges of lawn—wherever edging is required or mower won't reach."[167]

Several companies sold applicators for the new herbicides and used war images to market them. An advertisement for the Weed-Wand Wallop claimed that it would kill two thousand weeds for one cent and that it made weed killing fun in lawn or pasture.[168] The Martin Weed Gun came with a supply of 2,4-D sufficient to kill ten thousand weeds.[169] The Killer Kane also killed weeds "as fast as you can walk" with a squirt of 2,4-D weed killer.[170]

In the course of developing agents of chemical warfare against humans during World War II, researchers found some to be lethal to insects.[171] These chemicals were adopted by the lawn-care industry after the war, and Americans were offered a wide variety of pesticides with which to combat animals, insects, and worms on the lawn. The public was warned that lawns needed to be protected from lawn moths, white grubs, fiery skippers, black beetles, cutworms, sod webworms, ants, chiggers, chinch bugs, and earwigs. Worms and ants made the lawn bumpy and therefore unsightly. The larvae of beetles and other insects in the roots killed large patches of grass. Japanese beetles were a problem for many homeowners. An article in *Better Homes and Gardens* in 1944 stated that the Japanese beetle was one enemy against which "Americans need have no scruples in waging bacterial warfare" and that spore dust, packaged bacteria, was available to spread on lawns to kill the beetles.[172]

DDT and sabadilla, combined to make a general pesticide for lawns, and chlordane were widely used by the American public. Readers of *Lawn Care* were told, "Prior to the development of DDT and successor chemicals such as Chlordane, Toxaphene, Benzine Hexachloride, Thiophos, the job of controlling pests in grass was extremely obnoxious, to say the least. This generally involved working with poisonous substances, laboriously mixing and applying sprays or choking dusts. Apprehension followed lest a member of the family or a pet be sickened by one of the toxic ingredients. Some treatments had added hazards of explosion and fire."[173]

DDT was developed during the late thirties in Switzerland and was first tested in the United States in 1942. The results were so impressive that the Army immediately appropriated all available supplies for use against diseases such as louse-borne typhus in Europe and mosquito-borne malaria in the Pacific. DDT was hailed as "Killer of Killers" and

"the atomic bomb of the insect world."[174] DDT became available for civilian use at the end of the war and was widely adopted by those who had seen its effectiveness while in the military. The Entomology Department of the New Jersey Agricultural Experiment Station worked with DDT and sabadilla after the war, demonstrating their value in controlling hairy chinch bug infestations in lawns.[175]

Chlordane was said to work faster on Japanese beetle infestation than DDT. Chlordane was sold under a number of trade names (including Them, Chlordust, S-W Chlor-Spra, R-H, Toxiclor, Colorado 44, Cook-Kill, Synklor, and Dowklor). DDT, however, had the perceived advantage of remaining active in the soil for at least five years, thus protecting the lawn from reinfestation.[176] Another new chemical that was tried out on the lawn was Thiophos 3422, but it proved to be more volatile than DDT and more toxic to ornamental plants.[177] Cyanogas was marketed by the American Cyanamid Company in 1949 to control ants in lawns and to keep them out of the house. The lawn owner was to pour a few grains in each ant hill.[178]

Those chemical pesticides were perceived as relatively benign. Despite occasional warnings about the dangers to ornamental plants and other vegetation, the hazards to humans and other animals were not known. According to a 1947 issue of *Lawn Care,* DDT and sabadilla "are relatively non-toxic to humans, pets and birds when used in the diluted strengths required for pest control." The next issue was even more positive in describing Scott's Pest Control, containing DDT and sabadilla, as "a convenience material that is easily used to keep various lawn insect pests in check . . . effective yet safe to use from the standpoint of humans, pets and birds."[179] An article in *House Beautiful* in 1948 was a bit more cautious, noting that "while it is believed that there can be little danger to children, pets, or wild creatures resulting from turf treatments with DDT or chlordane, it is always wise to be careful."[180] In 1950, chlordane was described by a leading pharmacologist as "one of the most toxic of insecticides—anyone handling it could be poisoned," but the American public did not heed the warning.[181] Manufacturers continued to advertise chlordane as a weapon against crabgrass and lawn pests. Householders were urged to "Conquer Crabgrass! . . . save your lawn from 'creeping death'!" Chlordane spray, spread, or dust would get rid of lawn insects above *and* below ground and would enable the homeowner to "enjoy outdoor living without annoyance from crawling, biting, stinging pests."[182]

DDT was recommended for the control of leafhopper, sod webworm, chinch bug, false chinch bug, and slugs. Chlordane was recommended as the most effective insecticide since it was found to control a greater number of pests than DDT, particularly mole-crickets, fall armyworm, and grubs. With the headline "Springtime Is Spray Time," an advertisement for Black Leaf 45-percent chlordane spray promised "quick, easy, economical and highly-effective control of soil and turf insects, such as chinch bugs, Japanese beetle larvae, ants, mole crickets, ear-wigs, lawn moths, spiders and grasshoppers."[183] Chlordane was considered superior to DDT because moisture activated it and an application might remain effective for a month to six weeks.[184] Readers of *American Home* were warned that the new insecticide was highly effective against ants and Japanese beetle grubs but was definitely poisonous to humans and animals and should be used carefully.[185] Another writer noted that some people might prefer to use slower-acting DDT rather than chlordane because chlordane would eliminate all earthworms for a season.[186] Long-lasting control was marketed as a positive attribute of the new chemical pesticides. An advertisement for Antrol Lawntrol boasted that it contained "Dieldrin new lethal chemical—Granules reach soil where pests live—Deadly months longer."[187] Lawns had become totally artificial and could not be allowed to harbor any living thing other than the preferred type of grass.

By the sixties, the lawn-care industry had produced a bewildering array of chemical products for lawns. An article in the *Saturday Evening Post* noted that "there are chemicals to make grass grow, to keep it from growing, to kill crabgrass before it comes up, to kill it after it comes up, to wipe out any number of encroaching weeds and grasses, to kill dozens of kinds of invading bugs and grubs, and to counteract grass diseases."[188] Homeowners only slowly began to recognize the dangers of using chemicals such as arsenic, DDT, and chlordane.

Rachel Carson published *Silent Spring* in 1962, a study of the development of the lawn and garden chemical industry in the United States and its impact on the environment. Carson pointed out, "Gardening is now firmly linked with the super poisons. Every hardware store, garden-supply shop, and supermarket has rows of insecticides for every conceivable horticultural situation. Those who fail to make wide use of this array of lethal sprays and dusts are by implication remiss, for almost every newspaper's garden page and the majority of the gardening magazines take their use for granted." She warned that the production of syn-

thetic pesticides had grown fivefold between 1947 and 1960, reaching a wholesale value of well over a quarter of a billion dollars, and predicted that this enormous production was only a beginning in the aspirations of the chemical industry. Carson was also appalled by the depiction of chemical killers as toys. Weed killers and pesticides and the gadgets designed to apply them to lawns were advertised as fun to use, with promises of sensational results. She explained that "they give a giddy sense of power over nature to those who wield them, and as for the long-range and less obvious effects—these are easily brushed aside as the baseless imaginings of pessimists."[189]

The publication of *Silent Spring* prompted an examination of the chemical industry. Some chemicals such as DDT and arsenic were eventually banned for home use. *Newsweek* noted that American cellars had been "turned into arsenals of fungicides, herbicides and insecticides." The article went on to say, "Despite Rachel Carson's *Silent Spring*, the U.S. lawn fanatic is still high on chemical warfare, although some suppliers have noticed their customers spending more time studying labels. Still he needs a Bachelor of Chemistry to comprehend the bewildering variety of weed killers and bug destroyers now fogging the market."[190] Rachel Carson died in 1964. The Rachel Carson Council was incorporated in December 1965 to promote public interest in and knowledge of the environment, to encourage enlightened conservation measures, and to serve as a clearinghouse of information for scientists and laymen. The council focuses on chemical contamination, especially the pesticide problem explored in *Silent Spring*. It addresses the effect of pesticides on human and environmental health as well as on the economy, government, agricultural methods, and industrial practices.[191]

The warnings of Carson and others did not stop the production and use of chemical pesticides, herbicides, and fertilizers for lawns. In 1965, *Better Homes and Gardens* published a chart to help homeowners find their "way among the hundreds of chemicals developed for lawn care." Readers were advised that they "must use a variety of chemicals during different periods of the growing season to get the beautiful turf you want."[192] By the eighties, the American public's acceptance of the chemical dependence of the lawn was clearly mirrored in the naming of a national lawn-care service, Chemlawn. It has become commonplace to see small signs sprouting on recently treated lawns that read, "Please Stay Off Grass Until Dry—Chemlawn Application—Another Chemlawn Customer Service."

As lawn standards continued to rise, homeowners, particularly men, sought to make their lawns predictable and easily controlled using new products such as Weed-a-Bomb, the Martin Weed Gun, and the Flame Gun that "kills weeds in summer, melts ice in winter."[193] In 1964, it was estimated that Americans invested almost as much in their lawns as in foreign military assistance.[194] Chlordane, DDT, 2,4-D, and other chemicals were advertised as panaceas for all lawn problems. These chemical weapons were perceived as relatively benign, and the hazards to humans and other animals were not widely publicized. Americans were naive about the long-term environmental effects of indiscriminate use of chemicals on their lawns. In the sixties, the warnings of Rachel Carson and others led to the banning of DDT and arsenic and eventually chlordane. But other chemical agents were substituted, and the number of chemical pesticides, herbicides, and fertilizers continued to proliferate. The war between man and nature continues to be waged.

Taylor's dream of an industrialized lawn that could be produced as if in a factory had come true. Herbicides and insecticides, genetically manufactured grasses, and inorganic fertilizers could all be used to achieve a green velvety carpet for the front yard. Designer sod, like carpet, could be purchased by the yard. Despite the availability of all of these wonder products and the rhetoric of writers and advertisers, most front lawns are still imperfect. There are many more acres of lawn grass in the United States at the end of the century than there were at the beginning, but relatively few people actually spend the time, money, and labor necessary to achieve velvety green perfection despite, or perhaps because of, the best efforts of the lawn-care industry. A lawn expert, writing in 1971, found it "odd that this problem of the American home has not been solved by the many big companies that find the sale of lawn supplies a multi-million dollar market. It may be due to each supplier knowing alot about his own thing and too few bringing it all together."[195] In 1989 more than 500,000 people made their living directly from turf care and maintenance, and turf grass was a $25 billion industry.[196] They all have a vested interest in poor lawns. A cartoon in *Popular Mechanics* in 1960 expressed the homeowner's continuing struggle to maintain a lawn that would meet the standards set by magazine articles and advertising. The caption read, "This year I got smart—I planted weeds and the grass killed them."[197]

As in other wars, the weapons and technology brought to bear against the enemy addressed the symptoms rather than the root causes

of the problem. The basis of America's front-lawn aesthetic is the ideal of a single type of grass that will stay green year round. With the cultivation of a large number of plants of the same type comes a greater susceptibility to disease and insect damage. The standard held up for lawns that requires the grass to be of a single color, texture, and size was unrealistic even for the most devoted gardener; however, it enabled manufacturers to sell more weapons to homeowners in their battle against nature.

7

The Age of High-Tech Horticulture

High-tech horticulture came of age in the seventies and eighties with designer grasses available for every type of environmental niche.[1] New pesticides, herbicides, and fertilizers crowded the shelves in garden centers. As Americans amassed their weapons of destruction in garages and basements, they gradually became aware of the dangers of the overuse and misuse of chemicals as well as of power equipment such as lawn mowers. For some homeowners, concerns about lawn-keeping led them to hire professional lawn services to apply the various chemicals for them. For others, these concerns led to the rejection of state-of-the-art lawns and the beginning of a new definition of appropriate domestic landscape. Still others were content to move into townhouse or condominium communities where they did not need to make any decisions and where the management would take care of the grounds.

The concept of a war against Nature changed in these two decades. Military images became unacceptable to many in a generation that had grown up during the Vietnam War and who had either protested the war or were unhappy with the idea that America had lost the war. One man confessed, "Mowing the lawn, I felt like I was battling the earth rather than working it; each week it sent forth a green army and each week I

9. David P. Fogle, Catherine Mahan, Christopher Weeks, *Clues to American Gardens* (Washington and Philadelphia: Starrhill Press, 1987), p. 44.

10. Personal communication from Pat Ruggeri, who lived in Saudi Arabia for several years.

11. Robert W. Schery, "Lawn Ecology," *Horticulture* Sept. 1976: 9.

CHAPTER 1: THE INTRODUCTION OF LAWNS TO AMERICA

1. Ulysses Prentiss Hedrick, *A History of Horticulture in America to 1860* (New York: Oxford University Press, 1950), p. 263.

2. Rudy J. Favretti and Joy Putman Favretti, *Landscapes and Gardens for Historic Buildings* (Nashville: American Association for State and Local History, 1978) p. 177.

3. Charles L. Flint, *Grasses and Forage Plants* (Boston: Lee & Shepard Publishers, 1888), pp. 283, 254.

4. William Cronon, *Changes in the Land: Indians, Colonists and the Ecology of New England* (New York: Hill & Wang, 1983), p. 141; Everett E. Edwards, "The Settlement of Grasslands," in *Grass: The Yearbook of Agriculture, 1948* USDA (Washington, D.C.: Government Printing Office, 1948), p. 16.

5. E. L. Jones, "Creative Disruptions in American Agriculture 1620–1820," *Agricultural History* 48 (1974): 524.

6. Cronon, *Changes in the Land*, p. 142.

7. Alfred W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900–1900* (New York: Cambridge University Press, 1986), p. 157.

8. Jones, "Creative Disruptions in American Agriculture," p. 524.

9. Edwards, "Settlement of Grasslands," p. 19.

10. Cronon, *Changes in the Land*, p. 142.

11. Ibid., p. 143.

12. Crosby, *Ecological Imperialism*, p. 156.

13. Jack Rodney Harlan, *Crops and Man* (Madison, Wisc.: American Society of Agronomy, Crop Science Society of America, 1975), p. 101.

14. Charles Morrow Wilson, *Grass and People* (Gainesville: University of Florida Press, 1961), p. 5; Robert W. Schery, "The Migration of a Plant," *Natural History* 74 (Dec. 1965): 43.

15. Schery, "Migration of a Plant," p. 44.

16. Wilson, *Grass and People*, p. 5.

17. Crosby, *Ecological Imperialism*, p. 153.

18. Edwards, "Settlement of Grasslands," p. 18.

19. Favretti and Favretti, *Landscapes and Gardens for Historic Buildings*, p. 48; James R. Buckler and Kathryn Meehan, *The Art of Gardening: Maryland Landscapes and the American Garden Aesthetic, 1730–1930* (Easton, Md.: Historical Society of Talbot County, 1985), p. 8.

20. Jones, "Creative Disruptions in American Agriculture," p. 525.

21. Edwards, "Settlement of Grasslands," pp. 17, 19.

22. Jones, "Creative Disruptions in American Agriculture," p. 525.

23. Edwards, "Settlement of Grasslands," p. 18.

24. W. Curtis Sharp, George A. White, and James A. Briggs, "The Plants That Followed People," in *Our American Land: 1987 Yearbook of Agriculture*, USDA (Washington, D.C.: Government Printing Office, 1987) p. 56.

25. George B. Tobey, Jr., *A History of Landscape Architecture: The Relationship of People to Environment* (New York: American Elsevier Publishing Co., 1973), p. 175.

26. *The Compact Edition of the Oxford English Dictionary* (New York: Oxford University Press, 1971), p. 1583.

27. William H. Brewer, "The Effect of Well-Kept Grass-Land, Long Established, in Giving Stability to Business," in *Report of the Secretary of Connecticut Board of Agriculture, 1895* (Hartford: Press of the Case, Lockwood & Brainard Co., 1896), p. 8.

28. Paul Shepard, *Man in the Landscape: A Historic View of the Esthetics of Nature* (New York: Alfred A. Knopf, 1967), pp. 86–87.

29. G. E. Fussell, *Landscape Painting and the Agricultural Revolution* (London: Pindar Press, 1984), p. 17.

30. William A. Craigie and James R. Hulbert, eds., *A Dictionary of American English on Historical Principles* vol. 3 (Chicago: University of Chicago Press, 1942), p. 1404.

31. Wilson, *Grass and People*, p. 151.

32. Elizabeth Kellam de Forest, *The Gardens and Grounds at Mount Vernon: How George Washington Planned and Planted Them* (Mount Vernon, Va.: Mount Vernon Ladies Association of the Union, 1982), pp. 4, 34.

33. Craigie and Hulbert, *Dictionary of American English*, p. 1404.

34. Wilson, *Grass and People*, p. 151.

35. Favretti and Favretti, *Landscapes and Gardens for Historic Buildings*, pp. 11, 19, 25.

36. Hedrick, *History of Horticulture in America*, p. 294.

37. Sarah P. Stetson, "William Hamilton and His 'Woodlands'," *Pennsylvania Magazine of History and Biography* 73 (Jan. 1949): 26.

38. Favretti and Favretti, *Landscapes and Gardens for Historic Buildings*, p. 35; Therese O'Malley, "Landscape Gardening in the Early National Period," in *Views and Visions: American Landscape Before 1830*, Edward J. Nygren with Bruce Robertson, eds. (Washington, D.C.: Corcoran Gallery of Art, 1986), p. 133.

39. Stetson, "William Hamilton," p. 26.

40. Nygren, *Views and Visions*, p. vii.

41. David B. Chase, "The Beginnings of the Landscape Tradition in America," *Historic Preservation* (Jan.-March 1973): 35.

42. David P. Fogle, Catherine Mahan, Christopher Weeks, *Clues to American Gardens* (Washington and Philadelphia: Starrhill Press, 1987), p. 16.

43. Frederick Doveton Nichols and Ralph E. Griswold, *Thomas Jefferson, Landscape Architect* (Charlottesville: University Press of Virginia, 1978), p. 133.

44. Chase, "Beginnings of the Landscape Tradition," p. 39.

45. Fogle et al. *Clues to American Gardens*, pp. 16–17.

46. Favretti and Favretti, *Landscapes and Gardens for Historic Buildings*, p. 33.

47. Fussell, *Landscape Painting and the Agricultural Revolution*, p. 16. Geoffrey and Susan Jellicoe, Patrick Goode, and Michael Lancaster, *The Oxford Companion to Gardens* (New York: Oxford University Press, 1986), p. 241.

48. De Forest, *Gardens and Grounds at Mount Vernon*, p. 21.

49. Chase, "Beginnings of the Landscape Tradition," p. 39.

50. O'Malley, "Landscape Gardening in the Early National Period," p. 142.

51. John R. Stilgoe, *Borderland: Origins of the American Suburb, 1820–1939* (New Haven: Yale University Press, 1988), p. 136.

52. Stetson, "William Hamilton," p. 27.

53. Favretti and Favretti, *Landscapes and Gardens for Historic Buildings*, p. 34.

54. Ibid., p. 34.

55. Ann Leighton, *American Gardens in the Eighteenth Century: "For Use or for Delight"* (Boston: Houghton Mifflin Co., 1976), p. 378.

56. Favretti and Favretti, *Landscapes and Gardens for Historic Buildings*, p. 35.

57. O'Malley, "Landscape Gardening in the Early National Period," p. 145.

58. John D. Cushing, "Town Commons of New England, 1640–1840," *Old-Time New England* 50 (1961): 90–92.

59. John Stilgoe, "Town Common and Village Green in New England: 1620 to 1981," in *On Common Ground: Caring for Shared Land From Town Common to Urban Park*, Ronald Lee Fleming and Lauri A. Halderman, eds. (Harvard, Mass.: Harvard Common Press, 1982), pp. 26, 29.

60. John R. Stilgoe, *Common Landscape of America, 1580 to 1845* (New Haven: Yale University Press, 1982), p. 48.

61. Cushing, "Town Commons of New England," p. 91.

62. Stilgoe, "Town Common and Village Green."

63. Cushing, "Town Commons of New England," p. 93.

64. Stilgoe, "Town Common and Village Green," p. 29.

65. Cushing, "Town Commons of New England," p. 93.

66. Ralph Waldo Emerson, "The Young American," in *English Traits, Representative Men, and Other Essays* (New York: E. P. Dutton & Co., 1908), p. 362.

67. Nathaniel Parker Willis, *Hurry-Graphs: Or, Sketches of Scenery, Celebrities, and Society* (Auburn, N.Y.: Alden, 1853), p. 156.

68. William Cobbett, *A Year's Residence in America* (Boston: Small, Maynard & Co., n.d. [written 1818]), p. 3.

69. Charles Dickens, *American Notes* (1842; reprint ed., London: Granville Publishing, 1985), p. 64.

70. T. J. Jackson Lears, *No Place of Grace: Antimodernism and the Transformation of American Culture 1880–1920* (New York: Pantheon Books, 1981); Leo Marx, *The Machine in the Garden: Technology and the Pastoral Ideal in America* (New York: Oxford University Press, 1964); Charles L. Sanford, *The Quest for Paradise* (New York: AMS Press, 1979); Peter J. Schmitt, *Back to Nature: The Arcadian Myth in Urban America* (New York: Oxford University Press, 1969).

71. George B. Tatum, "The Emergence of an American School of Landscape Design," *Historic Preservation* April-June 1973: 38.

72. David P. Handlin, *The American Home: Architecture and Society, 1815–1915* (Boston: Little, Brown & Co., 1979), p. 130.

73. Andrew Jackson Downing, *The Architecture of Country Houses* (D. Appleton & Co., 1850; reprint ed., New York: Da Capo Press, 1968), preface v.

74. Tobey, *History of Landscape Architecture*, p. 157.

75. Henry W. Cleaveland, William Backus, and Samuel D. Backus, *Village and Farm Cottages* (New York: D. Appleton & Co., 1856), preface, p. 13.

76. B. F. Gilbert, "Takoma Park" (Washington, D.C.: by the author, 1889), p. 43.

77. Clifford Edward Clark, Jr., *The American Family Home, 1800–1960* (Chapel Hill: University of North Carolina Press, 1986), p. 238.

78. Robert Fishman, *Bourgeois Utopias: The Rise and Fall of Suburbia* (New York: Basic Books, 1987), pp. 95, 130.

79. Shepard, *Man in the Landscape*, p. 88.

80. Andrew Jackson Downing, *A Treatise on the Theory and Practice of Landscape Gardening, Adapted to North America* (New York: Wiley & Putnam, 1841) p. 272.

81. Charles Rufus Skinner, *Arbor Day Manual*, Granger Index Reprint Series (Freeport, N.Y.: Books for Libraries Press, 1971), p. 1; John Brinckerhoff Jackson, *American Space: The Centennial Years 1865–1876* (New York: W. W. Norton & Co., 1972), pp. 37, 25.

82. Jackson, *American Space*, p. 25.

83. John R. Stilgoe, "Smiling Scenes," in *Views and Visions: American Landscape Before 1830*, Edward J. Nygren with Bruce Robertson, eds. (Washington, D.C.: Corcoran Gallery of Art, 1986), p. 219.

84. Ibid., p. 217.

85. Stilgoe, *Borderland*, p. 122.

86. Samual Sloan, *Sloan's Homestead Architecture* (Philadelphia: J. B. Lippincott & Co., 1867), p. 21.

87. John R. Stilgoe, *Metropolitan Corridor: Railroads and the American Scene* (New Haven: Yale University Press, 1983), pp. 229–30.

88. Willis, *Hurry-Graphs*, p. 130.

89. Favretti and Favretti, *Landscapes and Gardens for Historic Buildings*, p. 37.

90. Bernard McMahon, *The American Gardener's Calendar* (Philadelphia: Printed by B. Graves for the author, 1806), p. 55.

91. Kenneth T. Jackson, *Crabgrass Frontier: The Suburbanization of the United States* (New York: Oxford University Press, 1985), p. 58.

92. Carlton B. Lees, "The Golden Age of Horticulture," *Historic Preservation* Oct.-Dec. 1972: 35.

93. Tatum, "Emergence of an American School of Landscape Design," p. 34.

94. Chase, "Beginnings of the Landscape Tradition," p. 35.

95. Downing, *Architecture of Country Houses*, pp. vi, 269.

96. Downing, *Treatise on Landscape Gardening*, p. 10.

97. Ibid., 2nd ed. (New York: Wiley & Putnam, 1844), pp. 492, 490.

98. L. Durand, "Lawns and Grasses," *Horticulturist* 8 (1853): 311.

99. Tatum, "Emergence of an American School of Landscape Design," p. 41.

100. Ibid., p. 146.

101. Tobey, *History of Landscape Architecture*, p. 165.

102. J. B. Jackson, *American Space*, p. 21.

103. Handlin, *American Home*, p. 105.

104. Frank J. Scott, *Victorian Gardens: The Art of Beautifying Suburban Home Grounds, A Victorian Guidebook of 1870*, reprint ed. (Watkins Glen, N.Y.: Library of Victorian Culture, American Life Foundation, 1982), p. 205.

105. Stilgoe, *Metropolitan Corridor*, p. 275.

106. Sloan, *Sloan's Homestead Architecture*, p. vii.

107. Palliser, Palliser & Co., *Palliser's Model Homes* (Bridgeport, Conn.: by the author, 1878), p. 34.

108. Cleaveland et al., *Village and Farm Cottages*, p. 74.

109. Handlin, *American Home*, p. 181.

110. Gwendolyn Wright, *Moralism and the Model Home: Domestic Architecture and Cultural Conflict in Chicago, 1873–1913* (Chicago: University of Chicago Press, 1985), p. 29.

111. K. T. Jackson, *Crabgrass Frontier*, p. 55.

112. Schmitt, *Back to Nature*, p. 63.

113. K. T. Jackson, *Crabgrass Frontier*, p. 56.

114. Favretti and Favretti, *Landscapes and Gardens for Historic Buildings*, p. 45.

115. Buckler and Meehan, *Art of Gardening*, p. 11.

116. Stilgoe, *Borderland*, p. 111.

117. Handlin, *American Home*, p. 171.

118. Clark, *American Family Home*, p. 43.

119. Peter Henderson, *Gardening for Pleasure* (New York: Orange Judd Co., 1875), p. 23.

120. Stilgoe, *Metropolitan Corridor*, p. 280.

121. Frank Jessup Scott, *The Art of Beautifying Suburban Home Grounds of Small Extent* (New York: D. Appleton, 1870), pp. 107–8.

122. Franklin Reuben Elliott, *Handbook of Practical Landscape Gardening* (Rochester, N.Y.: D. M. Dewey, Horticultural Books, 1881), p. 10.

123. R. T. Woodward, *Woodward's Book on Horticulture* (Boston, Mass.: by the author, 1897), pp. 43, 59.

124. A. J. Turgeon, *Turfgrass Management* (Reston, Va.: Reston Publishing Co., Prentice-Hall, 1980), p. 132.

125. Benjamin Butterworth, *The Growth of Industrial Art* (Washington, D.C.: Government Printing Office, 1892), p. 13.

126. *Patents for Inventors Issued by the United States Patent Office From 1790 to 1873, Inclusive*, compiled and published under the direction of M. D. Leggett, Commissioner of Patents (Washington, D.C.: Government Printing Office, 1874).

127. Butterworth, *Growth of Industrial Art*, p. 13. U.S. Department of Commerce and U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970*, Part I (Washington, D.C.: Government Printing Office, 1975), pp. 41–42.

128. Charles B. Mills, *First in Lawns: O. M. Scott and Sons* (New York: Newcomen Society in North America, Princeton University Press, 1961), p. 10.

129. Henderson, *Gardening for Pleasure*, p. 22.

130. Scott, *Victorian Gardens*, p. 111.

131. Ransomes, Sims & Jefferies PLC, "150 Years of Grasscutting Technology, 1832–1982" (Ipswich, England: by the author, n.d.), p. 1.

132. Butterworth, *Growth of Industrial Art*, p. 13.

133. *Patents for Inventors*, n.p.

134. John W. Duncan, "Watering Your Lawn," *American City* July 1912: 19–20.

135. Buckler and Meehan, *Art of Gardening*, p. 11.

136. U.S. Centennial Commission International Exhibition 1876, *General Report of the Judges of Group 29* (Philadelphia: J. B. Lippincott & Co., 1878), p. 40.

137. Fishman, *Bourgeois Utopias*, p. 147.

138. Schmitt, *Back to Nature*, p. 12.

139. Shepard, *Man in the Landscape*, p. 91.

140. Mills, *First in Lawns*, p. 10.

141. Nils Jonssen-Rose, *Lawns and Gardens: How to Plant and Beautify the Home Lot, the Pleasure Ground, and Garden* (New York: G. P. Putnam's Sons, Knickerbocker Press, 1897), p. 34.

142. Samuel Parsons, Jr., "The Home Grounds," in *The House and Home* vol. 2 (New York: Charles Scribner's Sons, 1896), p. 9.

143. Thorstein Veblen, *The Theory of the Leisure Class* (New York: Viking Press, reprint 1967), pp. 134–5.

CHAPTER 2: GARDEN CLUBS, GOLF, AND THE USDA

1. William H. Wilson, *The City Beautiful Movement* (Baltimore: Johns Hopkins University Press, 1989), p. 41.

2. Jon C. Teaford, *The Twentieth-Century American City: Problem, Promise, and Reality* (Baltimore: Johns Hopkins University Press, 1986), p. 40.

3. Charles Mulford Robinson, *The Improvement of Towns and Cities: Or, The Practical Basis of Civic Aesthetics* (New York: G. P. Putnam's Sons, Knickerbocker Press, 1901); *Modern Civic Art: Or, The City Made Beautiful* (New York: G. P. Putnam's Sons, Knickerbocker Press, 1904).

4. Robinson, *Improvement of Towns and Cities*, pp. 140, 147.

5. Edwin L. Shuey, *Factory People and Their Employees: How Their Relations Are Made Pleasant and Profitable* (New York: Lentilhon & Co., 1900), p. 39.

6. David R. Hershey, "Letters to the Editor," *Smithsonian* Aug. 1989.

7. David P. Handlin, *The American Home: Architecture and Society, 1815–1915* (Boston: Little, Brown & Co., 1979), p. 193.

8. Westinghouse Air Brake Co., "The Air Brake Family: Industrial and Social Activities," publication 90414 (Wilmerding, Penn., Sept. 1920).

9. Florence C. Speller, *Garden Clubs: Their Activities and Organization* (New York: Mohawk Press, 1931), p. 4.

10. Fae Huttenlocher, *The Garden-Club Handbook* (Des Moines: Meredith Publishing Co., 1939), p. 5.

11. Herbert David Hemenway, *How to Make Home and City Beautiful: Prepared to Help Those Interested in Making Attractive Homes and Beautiful Cities* (Northampton, Mass., 1911), pp. 97, 98.

12. Ernestine Abercrombie Goodman, *The Garden Club of America: History 1913–1938* (Philadelphia, 1938), pp. 11, 10.

13. Warren H. Manning, "The Aims and Propaganda of the Garden Club of America," *Bulletin of the Garden Club of America* 12 (Jan. 1916): 3.

14. *Bulletin of the Garden Club of America* 12 (Jan. 1916): 19, 15.

15. Ibid., pp. 10–13.

16. George W. McDaniel, *Hearth and Home: Preserving a People's Culture* (Philadelphia: Temple University Press, 1982), pp. 213–14.

17. Mrs. Martin, "History of the Garden Club of America," *Bulletin of the Garden Club of America* n.s. 5 (July 1920): 7.

18. Goodman, *Garden Club of America*, p. 23.

19. *Bulletin of the Garden Club of America* n.s. 2 (Jan. 1920): 45, and n.s. 7 (Dec. 1920): 20.

20. Ibid., n.s. 7 (Dec. 1920): 21.

21. Ibid., n.s. 2 (Jan. 1920): 45.

22. Ibid., n.s. 9 (Jan. 1923): 58.

23. Marjorie Gibbon Battles and Catherine Colt Dickey, *Fifty Blooming Years, 1913–1963* (Garden Club of America, 1963), p. 31.

24. *Report of the Eleventh Annual Meeting of the Garden Club of America* (Richmond, Va., 1924), p. 20.

25. *Eleventh Annual International Flower Show*, Grand Central Palace, New York City, March 17–22, 1924, n.p.

26. Ibid.

27. *Report of the Eleventh Annual Meeting of the Garden Club of America*, pp. 20–22.

28. *Eleventh Annual International Flower Show.*

29. *Bulletin of the Garden Club of America* n.s. 19 (Sept. 1924): 56.

30. Ibid., 4th ser. 22 (July 1932): 101.

31. Martha Brookes Hutcheson, "Possible Inspiration Through Garden Clubs Toward Wiser and More Beautiful Plantings," *Bulletin of the Garden Club of America* 4th ser. 16 (July 1931): 118.

32. *Bulletin of the Garden Club of America* 4th ser. 22 (July 1932): 105.

33. Ibid., 5th ser. 1 (Jan. 1933): 12.

34. Ibid., 8 (March 1934): 98.

35. Charles Orchard Smith, *Garden Clubs in the Schools of Englewood, New Jersey*, Department of the Interior, Bureau of Education Bulletin 26 (Washington, D.C.: Government Printing Office, 1917), p. 6.

36. *Garden Club Exchange* 1 (March 1930): 7.

37. Huttenlocher, *Garden-Club Handbook*, p. 63.

38. *Garden Club Exchange* 7 (June 1936): 1.

39. Huttenlocher, *Garden-Club Handbook*, p. 64.

40. *Garden Club Exchange* 7 (June 1936): 3.

41. Ibid., 10 (Sept. 1938): 67.

42. Huttenlocher, *Garden-Club Handbook*, p. 71.

43. "On the Mark! Get Set! Let's Go!: Junior Garden Clubs of America Yard and Garden Contest," *Better Homes and Gardens* March 1933: 25.

44. *Garden Club Exchange* 5 (Feb. 1934): 3.

45. Huttenlocher, *Garden-Club Handbook*, pp. 6–7.

46. Elmer T. Peterson, "Conquering the New Frontier of Civilized Ugliness," *Garden Club Exchange* 1 (Sept. 1929): 6.

47. Vivian Nation Hoagland, "We Looked at It With Outrageous Pride," *Better Homes and Gardens* March 1933: 59.

48. "Along the Garden Path," *Better Homes and Gardens* March 1921: 8.

49. Fae Huttenlocher, "A 1933 Civic Project for America's Clubs," *Garden Club Exchange* 4 (Jan. 1933): 1.

61. Ads—RPM Mfg. Co., *Better Homes and Gardens* May 1954: 282, *Sunset* May 1954: 266; Heineke & Co., *House Beautiful* March 1951: 193, *Better Homes and Gardens* March 1951: 287; Simplicity Mfg. Co., *Better Homes and Gardens* May 1953: 320; Montamower Distributing Co., *House Beautiful* March 1950: 179, *Better Homes and Gardens* April 1950: 295; Rotoflo Power Mowers, *Better Homes and Gardens* May 1948: 274.

62. Worcester Lawn Mower Co. Division of Savage Arms Corp., ad, *Better Homes and Gardens* May 1952: 309.

63. Simplicity Mfg. Co., ad, *Better Homes and Gardens* April 1952: 318.

64. "Good Lawns: From Coast to Coast," *Home Garden and Flower Grower* May 1967: 35.

65. Ads—Lawn Garden Hedge Trimmer, Parkers' Products, *Sunset* May 1954: 267; Bradson Co., *Better Homes and Gardens* June 1951: 238.

66. American Chemical Paint Co., ad, *Better Homes and Gardens* May 1953: 324.

67. Ads—Waterbury Tool Division, Vickers, subsidiary of Sperry Corp., *House Beautiful* March 1952: 204; Western Tool & Stamping Co., *Sunset* Feb. 1958: 143; Copar, *House and Garden* April 1958: 210.

68. Sensation Mower, ad, *Better Homes and Gardens* April 1952: 321.

69. Savage Arms Corp. Lawn Mower Division, ad, *House and Garden* April 1952: 190.

70. Western Tool & Stamping Co., ad, *House Beautiful* March 1953: 214.

71. Robertson Mfg. Co., ad, *Home Garden* Nov. 1953: 84.

72. Masterbilt Products Corp., ad, *House and Garden* July 1950: 112.

73. Metallizing Engineering Co., ad, *Better Homes and Gardens* May 1950: 303.

74. Yuba Power Products, ad, *House and Garden* April 1959: 205.

75. H. T. Montgomery, "Pink Thumbs and Brown Lawn," *Today's Health* July 1970: 41.

76. William Zinsser, "Electronic Coup de Grass: The Mowing Ethic," *Life* Aug. 22, 1969: 10.

77. "Color It Green," *Newsweek* May 18, 1964: 70.

78. Shan Stewart, "Look, Pa—No Grass!" *Better Homes and Gardens* Sept. 1952: 251.

79. Ted Williams, "The Joe-Pye-Weed Is Always Taller in the Other Person's Yard," *Audubon* July 1981: 110.

80. Anna Fisher Rush and Margaret Schierberl, "The Suburban Woman's Complete Guide to Lawn Care" *McCall's* May 1975: 44.

81. Gwen Kinkead, "American Company Honda Can't Mow Down," *Fortune* July 28, 1980: 55.

82. Michael Allen, "The Nitty-Gritty of Lawn Care" *Saturday Evening Post* July-Aug. 1990: 66.

CHAPTER 6: THE WAR BETWEEN MAN AND NATURE

1. Gore Vidal, "Notes on Our Patriarchal State," *Nation* Aug. 27, 1990: 203.

2. Robert W. Schery, "Lawn Ecology," *Horticulture* Sept. 1976: 9.

3. Ransom quoted by Annette Kolodny in *The Lay of the Land: Metaphor as Experience and History in American Life and Letters* (Chapel Hill: University of North Carolina Press, 1975), p. 139. Ibid., p. 146.

4. Roderick Nash, *Wilderness and the American Mind*, 3d ed. (New Haven: Yale University Press, 1982), pp. 24, 27, 42.

5. Scott & Sons, *Lawn Care* 23, no. 109 (1950): 3.

6. Fred V. Grau and Marvin H. Ferguson, "Pointers on Making Good Lawns," USDA Leaflet 281 (Washington, D.C.: Government Printing Office, April 1950), p. 5.

7. "New Grasses for the Lawn," *Changing Times* Sept. 1954: 17.

8. Henry Lee, "Plant a 'Prefab' Lawn," *Coronet* Oct. 1950: 103.

9. Chuck Crandall, "Winning the Turf Battle," *Country Journal* April 1988: 40–44.

10. Elvin McDonald, "How to Buy a Lawn," *House Beautiful* Feb. 1969: 69.

11. "Those Companies That Promise Prettier Lawns," *Changing Times* March 1973: 41.

12. "Weed Trimmers," *Consumers' Research Magazine* Sept. 1979: 19.

13. "Nylon Cord Grass Trimmers," *Changing Times* March 1980: 72.

14. F.F.R., "Good Grass and Plenty of It," *Home Garden* Aug. 1946: 32.

15. G. W. Burton and D. G. Sturkie, "Greenswards in the Warmer Regions," *Grass: The Yearbook of Agriculture, 1948*, USDA (Washington, D.C.: Government Printing Office, 1948), p. 311 (hereafter referred to as *Grass 1948*).

16. Northrup, King & Co., *How to Build and Maintain a Lawn* (Berkeley and Los Angeles: Service Department, 1947), p. 6.

17. Fred V. Grau, "From the USGA Green Section," *Golf Course Reporter* May-June 1952: 34.

18. Fred Grau, "Looking Forward to an Expanded Turf Program for the Southwest," *Proceedings of Southwest Turf Conference: Texas, Louisiana, New Mexico*, Texas A&M College, College Station, Jan. 20–22, 1947, p. 70.

19. D. C. Smith, "The Breeder's Ways and Means," *Grass 1948*, p. 333.

20. *Turf Research Review* (Beltsville, Md.: U.S. Golf Association Green Section, Plant Industry Station, Summer 1951), p. 36.

21. H. B. Musser, G. W. Burton, H. A. Schoth, "Developing Grasses for Special Uses," *Grass 1948*, p. 369.

22. "The Beginning of Turf Research," *Southern Turf Foundation Bulletin* 3 (Spring 1952): 1 (issued by the Southern Golf Association).

23. *Turf Research Review,* pp. 1, 41.

24. Charles K. Hallowell, "The Extension Service and the Turf Problem," *Greenkeepers Reporter* Jan.-Feb. 1948: 14.

25. Leslie Kerr, *Your Lawn and Its Care* (Ord, Neb.: Quiz Industries, 1948), p. 2.

26. Frances C. Weintraub, *Grasses Introduced Into the United States,* USDA, Forest Service, Agriculture Handbook 58, 1953, p. 35.

27. Elias J. Beach, "Advice to the Ladies," *American Home* March 1947: 94. Ads—Druncliff Co., *Home Garden* Aug. 1947: 86, *American Home* Aug. 1948: 71; Wagner's Blue Mountain Hardy Grass Seeds, *House and Garden* Sept. 1949: 173.

28. *Farm and Grass Seed Manual* (Cincinnati, Ohio: J. Chas. McCullough Seed Co., 1950), p. 68.

29. R. Milton Carleton, "This New Grass Will Cut Your Mowing in Half: Merion Bluegrass," *Better Homes and Gardens* Nov. 1951: 6.

30. Gardner Soule, "B-27 Bluegrass Seed Improves Finest Lawn," *Popular Science* Sept. 1954: 169.

31. "Mr. Valentine Discovers a Maverick and a New Lawn Grass Is Born: Merion Blue Grass," *House and Garden* Sept. 1954: 154.

32. Houston B. Couch, "Turfgrass Disease Control in the Twentieth Century," *Golf Superintendent* Oct. 1971: 26.

33. "One Type of Grass May Remain Green All Year: Bermuda Grass U-3," *Science Newsletter* May 20, 1950: 318.

34. Couch, "Turfgrass Disease Control," p. 26; R. Milton Carleton, "New Grasses With Less Work, Promise a Perfect Lawn," *Better Homes and Gardens* March 1950: 18; *Turf Research Review;* Fred V. Grau, *Proceedings of the National Turf Field Days,* Oct. 15–17, 1950, sponsored by U.S. Golf Association Green Section; USDA, Bureau of Plant Industry, Division of Forage Crops and Diseases; Mid-Atlantic Association of Greenkeepers (West Point, Penn.: West Point Lawn Products, 1950), p. 15.

35. Milo Perkins, "Grass Made to Your Order," *Harper's* May 1955: 64.

36. Carleton, "New Grasses With Less Work, p. 18.

37. Fred V. Grau, "Better Grasses for Better Turf," *Scientific Monthly* Oct. 1951: 265.

38. C. B. Mills, "Lawn Care," *American City* July 1950: 84.

39. "Don't Go and Buy Topsoil," *Changing Times* May 1953: 14.

40. *Farm and Grass Seed Manual* (1954), p. 82.

41. George L. Zeis, "Zoysia Can Solve Home Turf Problems," *Flower and Garden* April-May 1981: 70.

42. Grau, "Better Grasses for Better Turf," p. 264.

43. Dorothy Kidd Sampson, "Zoysia, Too Tough for Weeds," *Home Gardener* June 1953: 64.

44. "Godsend in Grass: Zoysia Japonica," *Newsweek* Jan. 18, 1954: 82.

45. Ads—Zoysia Farm Nurseries, *House and Garden* April 1956: 188; Rogercrest Gardens, *Sunset* June 1956: 282.

46. Lawn Grass Development Co., ad, *Home Garden* July 1953: 85.

47. Vaughan's Seed Co., ad, *House and Garden* March 1954: 160.

48. Virginia Coates, Bernard Gladstone, and E. H. Tiffany, Jr., "Four Ways to Have a Better Lawn This Summer," *American Home* May 1954: 146.

49. Richard L. Bergman, "Planning a Zoysia Lawn," *Home Garden and Flower Grower* Feb. 1971: 60; Robert W. Schery, "Lawn Grasses for Special Places and Purposes," *Horticulture* Sept. 1973: 50.

50. "Future Lawns May Be Green All Year," *USA Today* April 1988: 15.

51. "The Southern Gardener," *Southern Living* March 1989: 14S.

52. "The New Look in Lawn Grasses," *Better Homes and Gardens* May 1973: 150.

53. Robert W. Schery, "New Varieties Bring Change to Seeded Lawns," *Horticulture* Feb. 1973: 54.

54. Barbara Pleasant, "Classy Grasses," *Rodale's Organic Gardening* May 1986: 57.

55. Robert W. Schery, "Top Turfgrasses," *Horticulture* April 1971: 22; "New Look in Lawn Grasses," p. 150.

56. W. H. Daniel, "Thinking Man's Lawn: Or, The Intelligent Woman's Guide to a Good Lawn," *Horticulture* March 1976: 18.

57. Eliot C. Roberts, "Renovate Your Lawn," *Rodale's Organic Gardening* March 1986: 60.

58. Robert W. Schery, "Fescues, the Hard-Working Grasses for Home Lawns," *Home Garden and Flower Grower* March 1971: 25; "New Look in Lawn Grasses," p. 150; "Improved Grasses for the Lawn," *Changing Times* Aug. 1973: 23.

59. "New Look in Lawn Grasses," p. 151.

60. Robert W. Schery, "Lawn Renovation, the Modern Way," *Home Garden and Flower Grower* May 1971: 38; "New Look in Lawn Grasses," p. 151; Ann Reilly, "How to Keep Your Lawn Grass Green," *Flower and Garden* April 1978: 23; Maria T. Cinque, "Northern Lawns That Last," *Organic Gardening* April 1985: 82.

61. "Grass Seed," *Consumers' Research Magazine* Sept. 1977: 28.

62. H. W. Indyk, "Lawns," *New Yorker* Sept. 18, 1971: 28.

63. Schery, "New Varieties Bring Change," p. 52; "Culture and Notes," *Horticulture* March 1977: 84.

64. "Coming Soon: 'Lazy Lawns,'" *Newsweek* Sept. 15, 1986: 67; "Hell No, It Won't Grow! Canada's Dr. Jan Weijer Has a Lawn You'll Have to Mow Only Once a Year," *People Weekly* Aug. 10, 1987: 39.

65. Fred V. Grau and O. J. Noer, "Golf Is Played on Grass," *Grass 1948,* p. 325.

66. "Green Lawn 12 Months a Year," *House Beautiful* Jan. 1948: 55, 54.

67. Joseph E. Howland, "To Have a Green Winter Garden Fertilize Twice This Fall," *House Beautiful* Oct. 1950: 172.

68. Carl Riotte and Louise Riotte, "Winter Wheat on the Lawn," *Organic Gardening and Farming* Nov. 1973: 70–72.

69. Joseph E. Howland, "For a Greener Lawn Next August," *Better Homes and Gardens* March 1948: 60.

70. Burton and Sturkie, "Greenswards in the Warmer Regions," p. 311; "Improved Grasses for the Lawn," p. 24; "Get Going Now on Next Spring," *Changing Times* Sept. 1982: 64.

71. Daniel, "Thinking Man's Lawn," p. 18; Robert W. Schery, "In Bluegrass Country—Lawn Repairs Likely," *Flower and Garden* April-May 1981: 30.

72. "Still Time for a Better Lawn," *Changing Times* March 1977: 35.

73. "Grass Seed: Shopping for Greener Pastures," *Consumers' Research Magazine* Aug. 1983: 15.

74. Ann Reilly, "Tomorrow's Good Lawns Are in the Bag Today (Literally!)," *Flower and Garden* Aug.-Sept. 1987: 19.

75. Delilah Smittle, "Putting the Lawn to Bed for a Long Winter's Night," *Flower and Garden* Sept.-Oct. 1989: 16.

76. R. Milton Carleton, "New Light on Lawn Care," *Horticulture* April 1972: 41.

77. Robert W. Schery, "A Lawn You'll Have Time to Enjoy," *Home Garden and Flower Grower* March 1972: 41.

78. "Improved Grasses for the Lawn," p. 23; R. Milton Carleton, "Get Next Year's Lawn Off to a Good Start," *Horticulture* Aug. 1974: 26; Michael Olmert, "Points of Origin," *Smithsonian* June 1984: 36; "10 Lawn Care Tips," *Workbench* May-June 1985: 99; Michael Talbot, "Ecological Lawn Care," *Mother Earth News* May-June 1990: 60.

79. Schery, "Lawn You'll Have Time to Enjoy," p. 41.

80. "Getting Your Lawn in Shape for Winter," *Home Garden and Flower Grower* Oct. 1971: 34.

81. Olmert, "Points of Origin," p. 36; Ellen Henke, "Shortcuts to a Healthy Lawn," *Saturday Evening Post* April 1987: 96.

82. Talbot, "Ecological Lawn Care," p. 60.

83. Warren Schultz, Jr., "The Well-Fed Lawn," *Organic Gardening* Sept. 1984: 47; Sherry Romeo, "The Lawn Care Scare," *Home Mechanix* March 1986: 51.

84. Henke, "Shortcuts to a Healthy Lawn," p. 96.

85. Schultz, "Well-Fed Lawn," p. 46; William K. Stevens, "A Lawn Fed on Chemicals Switches to an Organic Diet," *New York Times* Aug. 27, 1991: Science Times Section C7.

86. Schultz, "Well-Fed Lawn," pp. 45, 48.

87. Ibid., 47; Talbot, "Ecological Lawn Care," p. 66.

88. J. A. Conway, "Lawn," *Newsweek* Aug. 17, 1959: 77.

89. Grass Spray, ad, *Sunset* Jan. 1960: 119.

90. "Color It Green," *Newsweek* May 18, 1964: 70.

91. *Popular Mechanics* March 1965: 105.

92. James Jordon, "Maintenance Free Surface for Sloping Yard," *Workbench* Sept.-Oct. 1983: 92.

93. *Popular Mechanics* March 1965: 106.

94. Rosario Capotosto, "How to Put Down an Instant Lawn," *Popular Science* Oct. 1967: 178.

95. Charles E. Pound, "A Rug of Grass for Easy Maintenance," *Parks and Recreation* May 1968: 67.

96. "Rollup Football Field: At the University of Idaho," *Parks and Recreation* May 1973: 37.

97. "Grass That Doesn't Grow," *American City* April 1970: 52.

98. "Artificial Turf Turns Median Strip Into Beauty Spots," *American City* June 1971: 24.

99. "A Very Rough Season for Synthetic Turf," *Business Week* Nov. 6, 1971: 35.

100. Chevron Chemical Co., ad, *Southern Living* May 1978: 216.

101. Samuel Parsons, Jr., "The Home Grounds," in *The House and Home*, vol. 2 (New York: Charles Scribner's Sons, 1896), p. 10.

102. Howland, "For a Greener Lawn Next August," p. 249; Nils Jonsson-Rose, *Lawns and Gardens* (New York: G. P. Putnam's Sons, Knickerbocker Press, 1897), p. 107.

103. "Ready-Made Lawns," *Literary Digest* April 29, 1922: 22.

104. Green Thumb, ad, *Better Homes and Gardens* April 1947: 8.

105. Lee, "Plant a 'Prefab' Lawn!" pp. 102–3; James A. Skardon, "Grass Craze," *Saturday Evening Post* March 17, 1962: 32.

106. "Seed-on-Paper, Sod-on-Mesh: Two New Quick-Lawn Ideas," *Sunset* Nov. 1979: 262.

107. L. C. Grove, "How to Lay, and Lift Sod," *Better Homes and Gardens* Sept. 1951: 208.

108. L. C. Grove, "Give Your Lawn a September Boost," *Better Homes and Gardens* Sept. 1951: 18; "Grass Restorers Banish the Bald Spots," *Better Homes and Gardens* Sept. 1953: 280.

109. Edward L. Throm and Bette M. Kanameiski, *How to Grow the Best Lawn and Garden in Your Neighborhood* (Chicago: Popular Mechanics, 1951), p. 45.

110. D. P. Watson and C. D. Paris, "Unroll the Immediate Beauty of a Sod Lawn," *Horticulture* Nov. 1961: 558.

111. Cal-Turf Farms, ad, *Sunset* Sept. 1966: 199.

112. "The Instant Lawn," *Sunset* Sept. 1967: 62.

113. James Fanning, "Grass-Roots Advice About Lawns," *House and Garden* April 1977: 88.

114. "Sod—Just Unroll a New Lawn," *Changing Times* April 1967: 30.

115. Louis Van De Boe, "Lawn Is as Good as the Care You Give It," *House and Garden* Sept. 1949: 170.

116. *Farm and Grass Seed Manual* (1948), p. 69.

117. Olin Mathieson Chemical Corp., ad, *Better Homes and Gardens* March 1958: 203.

118. McDonald, "How to Buy a Lawn," p. 162.

119. "Yes, You Can Have a Weed-Free Lawn," *Changing Times* July 1955: 41.

120. Jackson Hand, "Start Now for a Weedless Lawn," *American Home* April 1953: 132; R. B. Farnham, "Don't Sprinkle the Lawn," *House Beautiful* Aug. 1946: 102.

121. Bernard Gladstone, "Fall's the Time to Build a Lawn," *American Magazine* Aug. 1955: 63.

122. J. Wilkins Lentz, "Control Crabgrass With a Dry Compound," *House and Garden* July 1950: 110.

123. R. Milton Carleton, "Now You Can Spray Away Crabgrass," *Better Homes and Gardens* April 1950: 14.

124. P. J. Mckenna, "Down Among the Crab Grass," *Home Garden* Sept. 1946: 27.

125. Van De Boe, "Lawn Is as Good as the Care You Give It," p. 171.

126. Grau, *Proceedings of National Turf Field Days*, p. 16.

127. R. M. Carleton, "How to Get Rid of Crabgrass," *Better Homes and Gardens* June 1947: 197.

128. "Control of Crabgrass," *Consumers' Research Bulletin* Aug. 1949: 19.

129. Warren E. Lafkin, "Renovating the Established Lawn" (White Plains, N.Y.: Lafkins Golf & Lawn Supply Corp., 1947), p. 5.

130. Kelly-Western Seed Division, ad, *Sunset* Oct. 1955: 244.

131. R. Milton Carleton, "Lick Lawn Pests With Chlordane," *Better Homes and Gardens* Sept. 1952: 10.

132. "Crab-grass: Operation Poison for Crab-grass," *Home Garden* July 1951: 86; L. V. Blake, "Primarily About 'PC'," *Home Garden* June 1952: 67; Montague Free, "'PC' and 'PMA'—Side by Side," *Home Garden* June 1952: 68; Carol H. Woodward, "You Can Control Crabgrass," *House and Garden* June 1952: 132.

133. O. M. Scott & Sons Co., ads, *House and Garden* July 1950: 111; *Nation's Business* July 1950: 71; *House Beautiful* July 1950: 108; *American Home* July 1950: 81; *Home Garden* Aug. 1950: 99, July 1951: 93, June 1952: 93.

134. "Crab-Grass: New Weapons in the Old Battle," *Home Garden* July 1950: 78.

135. Ralph H. Major, Jr., "Sudden Death to Crab Grass!" *Coronet* Aug. 1951: 88.

136. American Cyanamid Co., ads, *Better Homes and Gardens* June 1951: 232; *Sunset* May 1954: 283, Sept. 1955: 184.

137. Associated Chemists, ad, *House and Garden* July 1950: 112.

138. American Chemical Paint Co., ads, *Better Homes and Gardens* May 1950: 302, June 1951: 241; *House and Garden* June 1952: 154; *Sunset* July 1955: 138; *Better Homes and Gardens* March 1956: 269; *Sunset* July 1956: 161.

139. Du Pont, ads, *Home Garden* Aug. 1952: 97; *Better Homes and Gardens* May 1954: 266.

140. "Crabgrass Nemesis?" *Sunset* Dec. 1953: 149.

141. Diamond Alkali Co., ad, *Better Homes and Gardens* March 1962: 90.

142. Ralph Knight, "I Love Crabgrass," *Saturday Evening Post* Aug. 19, 1950: 41.

143. Carleton, "Now You Can Spray Away Crabgrass," pp. 14–15; "Crab-Grass: New Weapons in the Old Battle," *Home Garden* July 1950: 78; "How I Licked Crab Grass: Symposium," *Home Garden* May 1953: 28–33; Major, "Sudden Death to Crab Grass!" pp. 87–88; Edwin F. Steffek, "Crabgrass Never Surrenders, But You Can Get Rid of It," *House and Garden* July 1954: 109; Woodward, "You Can Control Crabgrass," p. 132.

144. Barbara Hesse Davis, "You Can Kill Crab Grass With Chemicals," *Country Gentleman* April 1954: 141.

145. Steffek, "Crabgrass Never Surrenders," p. 112.

146. American Chemical Paint Co., ad, *House Beautiful* June 1946: 168.

147. Fred V. Grau, "Fairways, 1940 to 1960," in *Proceedings of the Midwest Regional Turf Conference* (1961), p. 19; *Farm and Grass Seed Manual* (1948), p. 69.

148. Ralph E. Engel and E. E. Evaul, "History of Turf at the New Jersey Experiment Station," *Greenkeepers Reporter* Jan.-Feb. 1948: 39.

149. American Chemical Paint Co., ads, *Home Garden* May 1946: 92, *Sunset* June 1956: 268.

150. Dow Chemical Co., ads, *Home Garden* March 1947: 86, *Better Homes and Gardens* May 1947: 216, *American Home* March 1947: 83.

151. Sherwin-Williams Research, ads, *House Beautiful* June 1946: 183, Sept. 1946: 194, April 1947: 259; *Home Garden* June 1946: 90, March 1948: 90, May 1948: 99; *American Home* March 1947: 86, June 1949: 125; *Better Homes and Gardens* March 1947: 196, April 1947: 203, May 1947: 223, May 1948: 282; *House and Garden* July 1947: 109, March 1948: 191, April 1948: 207.

152. Swift & Co., ads, *American Home* June 1949: 123; *Better Homes and Gardens* April 1947: 189; *Home Garden* March 1949: 94; *House Beautiful* April 1947: 243, March 1949: 197; *Better Homes and Gardens* April 1950: 308; *Home Garden* April 1950: 4; *Better Homes and Gardens* March 1961: 108B.

153. Ads—Weedanol, Associated Chemists, *Better Homes and Gardens*

April 1947: 193, *House Beautiful* April 1947: 252; Ridz 2,4-D, *Better Homes and Gardens* May 1947: 225; Knox-Out Weeds, Pennsylvania Salt Mfg. Co., *Better Homes and Gardens* May 1947: 219; Dr. Salisbury's Selective Weed-Kill, *Better Homes and Gardens* May 1947: 224; Tufor, U.S. Rubber Co. Agricultural Chemical Division, *Better Homes and Gardens* April 1947: 196.

154. A. M. S. Pridham, "Lawn Magic: 2,4-D," *House and Garden* Feb. 1947: 88.

155. F. James, "Have a Lawn to Brag About," *Better Homes and Gardens* March 1947: 190.

156. Northrup, King & Co., *How to Build and Maintain a Lawn*, p. 9.

157. Amchem Products, ads, *Sunset* May 1960: 264, *House and Garden* April 1964: 202.

158. David Ehrenfeld, Letter to the Editor, *New York Times* May 12, 1991: Section E, 16.

159. "Health Effects of the 36 Most Commonly Used Lawn Pesticides," press release, National Coalition Against the Misuse of Pesticides, Washington, D.C., May 14, 1992.

160. R. Milton Carleton, "Have You Heard the Latest Garden News?" *Better Homes and Gardens* Sept. 1951: 25.

161. Couch, "Turfgrass Disease Control," p. 24.

162. *Lawn Care* 19, no. 87 (1946): 2, no. 88 (1946): 4.

163. O. M. Scott & Sons Co., ads, *Home Garden* June 1946: 8, *House Beautiful* June 1946: 182, *Better Homes and Gardens* May 1947: 218, *House and Garden* May 1947: 186, *Home Garden* May 1949: 83.

164. Vigoro, ads, *House Beautiful* March 1952: 205, *Better Homes and Gardens* March 1952: 277.

165. Thompson Chemicals Corp., ads, *Better Homes and Gardens* May 1953: 348, May 1954: 260; *Sunset* May 1954: 267.

166. Root-Lowell Corp., ad, *Better Homes and Gardens* May 1953: 334.

167. American Chemical Paint Co., ad, *Better Homes and Gardens* May 1953: 324.

168. Gro-Quick Co., ad, *Home Garden* March 1948: 99.

169. Chas. A. Martin Co., ad, *Better Homes and Gardens* April 1947: 9.

170. Donaldson Co., ad, *House and Garden* May 1955: 217.

171. Rachel Carson, *Silent Spring* (Boston: Houghton Mifflin Co., 1962): 16.

172. Katherine M. Palmer, "This Spore Dust Will Save Your Lawn," *Better Homes and Gardens* Aug. 1944: 26.

173. *Lawn Care* 22, no. 104 (1949): 2.

174. James Whorton, *Before Silent Spring: Pesticides and Public Health in Pre-DDT America* (Princeton: Princeton University Press, 1974): 248–9.

175. Engel and Evaul, "History of Turf at the New Jersey Experiment Station," p. 39.

176. Katherine Palmer Plumb, "Don't Just Sit There! Do Something: Use Fast-Acting Chlordane to Kill Beetle Grubs in Your Lawn," *House Beautiful* May 1948: 218.

177. Van De Boe, "Lawn Is as Good as the Care You Give It," p. 171.

178. American Cyanamid Co., ad, *Home Garden* May 1949: 92.

179. *Lawn Care* 20, no. 94 (1947): 4, no. 95 (1947): 3.

180. Plumb, "Don't Just Sit There!," p. 218.

181. Carson, *Silent Spring*, p. 24.

182. Velsicol Chemical Corp., ads, *Better Homes and Gardens* March 1959: 167, *Sunset* June 1963: 226.

183. Black Leaf, ad, *Sunset* March 1953: 171.

184. Grau, *Proceedings of National Turf Field Days*, p. 57.

185. E. I. Farrington, "Lawn Care Begins in the Spring," *American Home* March 1950: 116.

186. J. Alfred Adams, "Lawn Grubs Should Be the Least of Your Worries," *Home Garden* Aug. 1952: 75.

187. Antrol Lawntrol, ad, *Sunset* July 1955: 140.

188. Skardon, "Grass Craze," p. 30.

189. Carson, *Silent Spring*, pp. 176, 17, 68.

190. "Color It Green," p. 70.

191. "Rachel Carson Council," pamphlet, Rachel Carson Council Inc., Chevy Chase, Md., 1987.

192. Hamilton Mason and Larry Grove, "Guide to Lawn Problems and How to Solve Them," *Better Homes and Gardens* April 1965: 40.

193. Hobi, ad, *Home Garden and Flower Grower* Aug. 1969: back page.

194. "Color It Green," p. 70.

195. William B. Harris, "How to Make Your Lawn Grow Green," *House and Garden* May 1971: 46.

196. "In Praise of Lawns," *Harper's* May 1989: 31.

197. *Popular Mechanics* Aug. 1960: 239.

CHAPTER 7: THE AGE OF HIGH-TECH HORTICULTURE

1. Timothy F. Bannon, "Lawn Order," *Harper's* June 1982: 12.

2. Michael Pollan, "Why Mow? The Case Against Lawns," *New York Times Magazine* May 28, 1989: 42.

3. "Nylon Cord Grass Trimmers," *Changing Times* March 1980: 72.

4. Ben Yagoda, "One Mow Time," *Review* Sept. 1986: 96; Deborah