CHAPTER 1

LANDSCAPE VALUES: HISTORY, CONCEPTS, AND APPLICATIONS

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The visual quality of the American landscape became a topic of increased concern during the decades of the 1960s and 1970s. The visual consequences of rapid and extensive growth and development in the post-World War II era were becoming ever more apparent. His concern was chronicled in books bearing provocative titles such as *Man-Made America: Chaos or Control?* (Tunnard and Pushkarev 1963), *God’s Own Junkyard* (Blake 1964), and *The American Landscape: A Critical View* (Nairn 1965). National attention was focused on the issue of visual quality in 1965 when President Lyndon B. Johnson sponsored the White House Conference on Natural Beauty (1965).

Long-standing interests in the beauties of wild and rugged landscapes expanded to encompass less than wild places in rural America and on the fringe of metropolitan areas. While there were notable attempts to direct attention to the lack of aesthetic qualities in American cities, greatest attention was directed to nonurban landscapes. These were, and continue to be, the locations where large-scale environmental changes occur, including construction of new subdivisions, communities, dams, reservoirs, highways, airports, and recreation areas as well as timber harvests and surface mining. A substantial body of public policy promulgated at the national level set the stage for the conduct of visual landscape assessments, the preparation of environmental impact statements, and the use of simulation techniques to convey the visual consequences of alternative plans. These policies also served as significant stimuli for research in landscape aesthetics. Of considerable pragmatic importance to practitioners, and a challenge to researchers, was the development of systematic and objective methods for visual resource assessment.

This chapter is organized in three sections. The first presents a review of the evolution of the modern concept of landscape, of changing human-landscape relationships and changing concepts of landscape beauty. The second section considers the history of American public policy related to landscape. Policy shifts over time, usually the result of compromises among interested parties, are presented as reflecting normative public values. The final section discusses and categorizes concepts and approaches that have been offered by designers, planners, and scientists during the past two decades to identify, describe, and evaluate landscape values or scenic beauty and to incorporate such values into landscape design, planning, and management decisions.

**CONCEPTS OF LANDSCAPE AND LANDSCAPE BEAUTY**

One of the first visual simulations of the consequences of alternative management decisions on the landscape was executed in Siena, Italy during the fourteenth century. Landscape simulation is currently an important technique for assessing the visual consequences of proposed landscape alterations (See Chapter 11). A very early example of a landscape simulation is found in the Sala della Pace of the Palazzo Publico in Siena. In the late 1330s Ambrogio Lorenzetti graphically portrayed the effects of good and bad administrative and managerial decisions on urban and rural landscapes.

Three walls of the Sala della Pace are covered by frescoes. Lorenzetti painted on facing walls the “effects of bad government in the town and country” and the “effects of good government in the town and country.” Cole (1980) observes that “the citizen standing in the Sala della Pace would have been able to make a graphic comparison between two types of government simply by looking at the room’s two long walls.”

Each fresco consists of two parts, the town and the country. The good town shows handsome, orderly buildings and the bad town shows decaying, untended buildings. The good town is full of activity with animals and people, including 10 lovely young women dancing in a handsome piazza. The good country contains panoramic views to distant hills that are undoubtedly representative of the beautiful, gentle, humanized landscape of Tuscany, a countryside of rolling hills with hayfields, vineyards, animals, farm workers, and buildings. What remains of the bad government fresco suggests a somber and chaotic countryside lacking in signs of productivity or pastoral qualities.

Lorenzetti’s frescoes also signal an awakening to landscape as an element in art to be considered in itself as a source of pleasure and human satisfaction rather than as incidental decoration or background to other pictorial content. Clark (1961) suggests that Ambrogio Lorenzetti together with his brother Pietro and Simone Martini (also
painters in Siena) and the poets Petrarch, Dante, and Boccaccio represent a sharp break with medieval tradition and introduce the modern concept of landscape. Martini and the Lorenzetti's departed from the stylized, detailed depiction of elements of landscape as minor parts of pictorial compositions and treated landscapes as illusionistic, spatial compositions meriting attention unto themselves. Petrarch, Dante, and Boccaccio wrote of enjoying the pleasures of nature and the viewing of beautiful landscapes—a position that is in sharp contrast with earlier prevailing medieval beliefs about the sinfulness of earthly pleasures and the unknown dangers and fears associated with nature.

The Modern Concept of Landscape

The emergence of this modern concept of landscape as a source of pleasure and satisfaction was enhanced by subsequent developments in landscape painting and garden design. The evolution of gardens from places of utility for growing food and medicinal plants to places of beauty and enjoyment paralleled the emergence of landscape painting in the Middle Ages and into the Renaissance. Artists sought to capture the many moods of nature and to express her personality and the joy she provided. This occurred during a time when the western world was becoming increasingly secular.

Turner (1966) notes that landscape painting also paralleled the Renaissance development of city life and its attendant merchant class and monetary economy. The merchant class became patrons of secular art and sought the pleasures of nature in their country villas and gardens. Nature in the gardens, however, was carefully controlled and manipulated. It was not evocative of wild landscapes or surrounding rural landscapes. The garden was a carefully designed place of geometric, usually symmetrical, architectural forms into which plants and water were introduced under conditions of careful control. Nevertheless, the walls of the palazzos and loggias in the villas were frequently decorated with paintings and frescoes depicting wild nature and the surrounding countryside. This geometric approach to garden design prevailed for several centuries throughout Europe, although the scale of gardens varied immensely from the relatively modest walled garden of a fifteenth-century Italian villa to the grand scale of Versailles in seventeenth-century France.

The very word landscape wasn’t introduced into the English language until the sixteenth century. It was a technical term, landschap, used in Dutch landscape paintings of beautiful scenery (Stilgoe, 1982; Funter, 1982). The English version of this word, landskip, later became transformed to landscape, the word we use today. The meaning of the word changed, however, after its introduction into England. Within a few decades it also meant vistas of rural countryside, hilltop panoramic views and large ornamental gardens as well as paintings of rural scenery.

The Beautiful, the Picturesque, and the Sublime

A profound change in garden design occurred in England during the eighteenth century. Stimulated by the idealized landscape paintings of late seventeenth-century artists Rosa, Poussin, and Claude, designers sought to recreate landscapes
of bucolic beauty, landscapes of softened hills and valleys, with trees—singly and in clumps—in their natural forms, and buildings-alone or in groups—usually of classical design (Fleming and Gore, 1979). The geometry and symmetry of Renaissance and Baroque gardens were replaced with a kind of stylized nature that avoided straight lines and angles and embraced sweeping, serpentine curves. Nature was made soft, rounded, neat, and tidy.

This romantic view of nature was found not only in painting and gardens but also in poetry. Alexander Pope in his Essay on Criticism (1715) admonished young poets to

First follow Nature, and your judgment frame
By her just standard, which is still the same:
Unerring Nature, still divinely bright,
One clear, unchang’d and universal light,
Life, force, and beauty, must to all impart,
At once the source, and end, and test of Art.
That Art is best which most resembles her,
And still presides, yet never does appear.

Fleming and Gore (1979) suggest that these words were also applicable to landscape gardening of the time.

Humphrey Repton (1907), a highly successful eighteenth-century landscape gardener and practitioner of this “stylized nature” approach to design, devised a graphic means of making his designs meaningful to his clients. He wrote:

To make my designs intelligible, I found that a mere map was insufficient; as being no more capable of conveying an idea of the landscape than the ground-plan of a house does of its elevation.

Where Ambrogio Lorenzetti in the fourteenth century painted frescoes of the effects of good and bad government, Repton devised another and more modest means of simulating the consequences of change. He prepared an illustration, frequently a watercolor sketch, of the place as it existed, with a fold-up sketch hinged at the bottom—usually about one-half page in height—that depicted the place as it would appear after his design had been executed. Thus Repton could show his client how a formal geometric garden could be modified to blend into the surrounding landscape or park as he called it by folding up

the hinged sketch to cover that portion that would be changed by his design.

There was a tendency during this period to judge landscapes in the same way as paintings, which led to use of the term picturesque. Picturesque landscapes demanded more contrast than that found in the landscape gardens of earlier practitioners of the art such as William Kent and Lancelot (Capability) Brown. The Reverend William Gilpin, regarded as the founder of the Picturesque School, decried the use of uniform green lawns with clumps and belts of trees as looking insipid in a picture. Capability Brown’s gardens, in Gilpin’s view, lacked the contrast with rugged materials and aspects and thus might be beautiful but not picturesque. The picturesque park surrounding a house and garden was one that was irregular in detail, rough and coarse in texture, intricate in pattern, and variegated in color and shading (O’Brien, 1981). Picturesque parks in-
cluded fallen trees, rocky grottos, and gothic ruins. Sir Uvedale Price, an avowed advocate of the picturesque school of landscape gardening, also drew a distinction between the picturesque landscape and the sublime (O’Brien 1981; Allentuck 1974). The sublime he defined as including greatness of dimension and being founded on principles of awe and terror. Price suggested that landscape gardeners could create beautiful and picturesque landscapes, but they did not have the power to create sublime landscapes. These were created by a higher power.

Picturesque and Sublime in America

The English picturesque landscape and a fascination with wilderness or sublime landscapes were two dominant factors that influenced American landscape values in the nineteenth century and that continue to influence landscape values in the later decades of the twentieth century. Initially, wilderness was a foe to be conquered; it was the landscape from which settlers wrested sites for homes and farms in the seventeenth and eighteenth centuries; it was a vast unknown area that stretched far to the west from the thin band of widely separated settlements along the eastern seaboard. Conquering the wilderness was viewed as an essential task in the formation of a new and independent nation.

By the early nineteenth century, however, another view of wilderness was emerging, notably among a group of artists and writers. The painter George Catlin, in 1832, was among the very first to argue for setting aside a section of America’s wilderness to be protected as a national park (Catlin 1968). Writers such as James Fenimore Cooper eloquently described the beauties and rugged qualities of wilderness landscapes in his romantic novels (Nevius 1976). Other writers such as William Cullen Bryant and Henry David Thoreau extolled the virtues and beauty of America’s natural landscapes. In a new country that lacked the artistic artifacts and cultural history of Europe, wild nature could be a symbol of national pride. It was one thing America had that was equal to or better than anything that could be found in Europe.

The landscape of the Hudson River Valley was such a symbol of national pride (Stilgoe 1982). The landscape was romanticized through associations with the Revolutionary War; it possessed geological features that contributed to its sublimity; and it had the intricacies of pattern associated with picturesque landscapes. The terms sublime and picturesque represented important concepts in the aesthetic evaluation of romanticized landscape in nineteenth-century America as well as in England. Contained by the sublime landscape of the highlands, a picturesque landscape was created in the lower levels of the valley. Land-

scape gardener Andrew Jackson Downing played a significant role in this landscape transformation through his application of the principles of picturesque gardening that had been brought to America from England (Downing 1869). The valley was also immortalized in the writings of Washington Irving and in the paintings and sketches of the Hudson River Valley School of Painting with which many of the great nineteenth-century landscape painters were associated including Albert Bierstadt, Frederick Church, Thomas Cole, Jasper F. Cropsey, Asher Durand, Martin Johnson Heade, and John F. Kensett.

Anti-Urbanism

Intellectuals such as Thomas Jefferson promoted the virtues of an agrarian society and, indirectly, the values of rural landscapes. In *Notes on the State of Virginia* he wrote, "Those who labor in the earth are the chosen people of God... The mobs of great cities add just so much to the support of pure government, as sores do to the strength of the human body" (Jefferson, 1955). Morton and Lucia White (1962) suggest that there has been a consistent pattern of anti-urbanism among American intellectuals, from Jefferson and Thoreau to Louis Sullivan and Frank Lloyd Wright. They argue that many of the individuals who are responsible for our intellectual history are those who, like Jefferson, saw virtue in rural living and alienation in the city. Among these elites were also the advocates of wild nature. Whether one described the landscape as picturesque or sublime, or as a healthful place of escape from the city, the intellectual response in nineteenth- and twentieth-century America has represented a fairly consistent value orientation to nature and natural landscapes.

Frederick Law Olmsted, Sr. shared the belief about the value of nature. He embraced the English landscape park with its rural characteristics as a fitting form for American urban parks (Olmsted 1979). He believed in the curative power of such parks where urban residents suffering from illness could spend a few hours every day in "The Park."

It is also interesting to note that Olmsted and Vaux adopted a technique similar to that used by Repton a century earlier to depict the visual consequences of their design for Central Park (Bev-eridge and Schuyler 1983). A series of comparative sketches were prepared illustrating "Present Outlines" and the "Effect Proposed" for various areas throughout the park.

Elites and Common Folks

Whether the landscape values of the nineteenth-century intellectual elites were shared by the majority of the American population is a difficult question to address. Undoubtedly many of those who were better educated read works by Bryant, Cooper, Thoreau, and others. They may also have visited exhibits of landscape paintings at the New York National Academy of Design, Yale School of Fine Arts, or the Boston Athenaeum. Nevertheless, these individuals undoubtedly represented a modest percentage of the population. Furthermore, Stebbins (1980) indicates that in a number of the exhibitions, landscape paintings rarely accounted for more than 30 percent of the exhibited works, and frequently less.

Zube (1981) studied the diaries and journals of settlers and visitors in the southwest to identify what these individuals valued in the landscape and how their values differed from those of the intellectual elite. By the second half of the nineteenth century, the American West had been symbolized as wilderness, despoiled nature, and a garden. Concern was voiced about the destruction of natural landscapes: clearing of forests, digging of mines, and the building of towns and railroads. The ax and the plow were symbolic of this perceived despoliation of nature. There were, however, a number of writers who conveyed an image of the wilderness as transformed to a garden, from the sublime to the picturesque, and projected images of rural productivity and pastoral scenes as exemplified in Jefferson’s idealized agrarian society. Zube concluded that early settlers in this wilderness area did share some of these images and values. The notable exception, however, was that they rarely perceived the cutting of timber, mining, or the building of towns as destroying nature. Most often these activities were viewed as improving the landscape, making it more hospitable, and realizing personal ambitions. They saw significant pragmatic, economic values in the landscape, as well as aesthetic values. This is an important difference from the perceptions of the intellectual elites.
The Shaping of American Landscape Values

In summary, the concept of landscape as a source of pleasure and satisfaction is, historically, relatively recent. Even more recent is the popular fascination with the beauty of wild nature. The eighteenth- and nineteenth-century English aesthetic concepts of sublime and picturesque landscapes originally associated with gardens and their surrounding “parks” and wild landscapes were adopted by American writers and painters early in the nineteenth century. The Hudson River Valley provided a center of attention for these intellectuals and also provided a setting for application of these aesthetic concepts. American values were shaped during the nineteenth century to look with favor on natural and rural landscapes and to look with disfavor on urban landscapes. Wild and rural landscapes were sources of pleasure and emotional satisfaction.

During the first 100 years of America’s existence as a nation, public policies—normative public values—concerning land and landscape were shaped by a number of factors: a belief in an inexhaustible stock of landscape resources; a perceived need to settle the unsettled areas of the nation; and the need to tame and conquer nature—to transform the landscape from a savage wilderness into a bountiful garden (Smith 1970). Stories abound about the overharvesting and destruction of forests, abusive agricultural practices that destroyed soil fertility and induced erosion, and mining operations that paid no heed to site reclamation or the effects on the surrounding landscape. The use of the ax and the plow as symbols of landscape destruction was not without meaning. And the expressed concerns of literary and aesthetic elites for protection of sublime and

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picturesque landscapes were slow in reaching the
hearing of policy makers.

Table 1.1 indicates five phases in landscape policy during the past two centuries and lists exemplary events in each of the phases. Starting with the general disposal of public lands following the Revolutionary War, subsequent phases were: preservation of unique landscapes, the development of recreation landscapes, the amelioration of visual blight, and, finally, the integration of aesthetic landscape values into broad-based environmental planning.

**Landscape Disposal**

The General Ordinance of 1785 not only provided for the selling of public lands to the highest bidder, but also profoundly affected the visual image of a vast portion of America. The adoption of the grid system of public land survey established the pattern of much of rural America. The location of roads along section lines resulted in long straight stretches with nearly 90-degree curves. Farm fields were rectangular in shape regardless of topography and farm houses and barns were evenly spaced across the countryside according to the size of the farm and the grid.

A major thrust in land disposal occurred around the time of the Civil War with the signing of the first Homestead Act and the Morrill Act providing for state land grant universities. Nearly 300 million acres were disposed of under the several Homestead Acts and about 10 million acres under the Morrill Act. Land grants to railroads and individual states accounted for another 320 million acres. This major era of disposal ended around the turn of the century (Dana and Fairfax 1980). Overall, in excess of 1000 million acres of the public domain have been disposed under various laws since 1785.

Undoubtedly, there were many who saw land disposals as a way of transforming the wilderness into a garden. The Homestead, Timber Culture, and Desert Land Sales Acts were sympathetic to Jefferson’s ideal of an agrarian society.

**Landscape Preservation**

It wasn’t until 1865 that the landscape concerns first expressed in the Hudson River Valley were realized in formal public action at the national level when Congress ceded Yosemite Valley to the State of California for a state park. This action, as has frequently been noted, marked the start of the movement for preservation of unique and beautiful landscapes. George Catlin’s call in 1832 for a national park to protect a section of America’s wilderness wasn’t realized, however, until 1874—40 years later—when Yellowstone National Park was established. Yellowstone was the first national park not only in the United States, but also in the world. It is important to remember, however, as Runte (1979) makes clear, that Congress had to be convinced that lands proposed for national parks contained no resources of economic value. If there were commercial timber stands, for example, they were purportedly too remote or difficult of access to be harvested economically. Aesthetics could not easily win out over economics in Congress.

The establishment of Yosemite State Park (it became a national park in 1890) and Yellowstone National Park also marked significant accomplishments in support of the spirit of cultural nationalism. These were outstanding landscapes—unique in the world—that Americans could point to with pride. They were truly sublime landscapes, superior to anything that existed in Europe.

In 1885 the New York State legislature established the Adirondack Forest Preserve, protecting from timber harvest a vast area in 14 counties and extending the concept of landscape preservation to the level of state government. The action was motivated by concerns for aesthetic and recreational values and, of great importance, for protection of the watershed for purposes of water supply and flood control.

The Antiquities Act of 1906 provided the president with authority to establish national monuments and thus protect areas of historic and scientific interest. This Act enabled the president to preserve cultural landscapes and wildlife habitat areas by proclamation.

The establishment of additional national parks led in 1916 to the creation of the National Park Service, which was charged with responsibility to preserve the landscape and provide for the enjoyment of future generations.

The last major preservation policy to be enacted was the Wilderness Act of 1964. At long last, the aesthetic and spiritual values of sublime wil-
derness that had been espoused by a literary and artistic elite of more than a century earlier received official recognition. Implementation of the Wilderness Act over the two decades of its existence, however, has frequently been met with strong resistance from commodity resource interests including grazing, timber harvest, and mining. Economic and aesthetic interests still come in conflict when the issue of landscape preservation is raised.

Landscape preservation now encompasses more than aesthetic values. Cultural, biological, and geological values currently figure prominently in preservation programs, along with aesthetics. Furthermore, landscape preservation programs are active around the world. International leadership is provided by the United Nations World Heritage List (Development Forum 1980) and the UNESCO Biosphere Reserve (UNESCO 1973) designation under the Man and the Biosphere Program. The World Heritage list includes cultural and natural landscapes while biosphere reserves are limited to exemplary ecosystems. However, ecosystems are defined as including man—they are not limited to natural, undisturbed landscapes. World Heritage sites are to the world what national cultural and natural parks are to individual countries. They bespeak of internationally recognized aesthetic, historic, and cultural values. Biosphere reserves are also of international significance, representing global ecosystems. The primary value orientation, however, is neither aesthetic nor historic but rather scientific. They are landscapes that are protected as monitoring sites and may also contain rare and endangered species of plants and animals.

Recreation Landscapes

Railroads provided a primary means of access for affluent visitors to national parks in the late nineteenth and early twentieth centuries (Shankland 1970). Shortly thereafter, however, the availability of the automobile enabled more Americans to travel and become tourists. Cars rapidly replaced trains as the primary means of access to national parks (Belasco 1981), freeing travelers from the restrictions of railroad timetables and inflexible routings. The automobile reinforced the sense of cultural nationalism, enabling many Americans to see for themselves that the scenery of the United States was equal to or better than anything Europe could offer. The car also ushered in a major demand for outdoor recreation landscapes.

After the establishment of Yosemite State Park in 1865, the state park idea spread slowly and sporadically until the 1920s when a number of states, including California, Connecticut, Iowa, Michigan, Minnesota, New York, and Wisconsin, began developing state park systems. This movement was aided by the public works programs of the 1930s, notably the Civilian Conservation Corps (CCC) which established some 475 CCC camps in state parks around the country (With 1980). Labor provided by the young men in these camps helped to build roads, trails, picnic and campgrounds and to install water and sewer systems.

If national parks were the crown jewels of the national landscape, many state parks were the crown jewels of the states. These parks, however, were frequently more extensively developed for active recreation than most national parks. Nevertheless, they reinforced the prevailing value orientation toward natural landscapes.

The next wave of interest in recreation landscapes followed World War II and was again stimulated by the automobile and the mobility it provided. The beauty of national forests made them major attractions for Americans seeking outdoor recreation opportunities. The Multiple Use and Sustained Yield Act of 1960 provided the U.S. Forest Service with legislative authority to manage national forests for outdoor recreation and wildlife and fish in addition to their traditional management responsibilities for range, timber, and watershed. As one Forest Service professional stated the case, researchers and managers were now challenged “to integrate timber production and aesthetics” (Shafer 1967).

The Outdoor Recreation Resources Review Commission (ORRRC) was established in 1958 to identify outdoor recreation wants and needs for the nation, determine recreation resources available, and determine the necessary policies and programs to meet the needs (ORRRC 1962). The Commission’s report was issued in 1962. It contained a substantial list of recommendations, several of which resulted in important landscape legislation. Both the Wild and Scenic Rivers Act and the National Recreation and Scenic Trails Act of 1968 were outcomes of ORRRC findings about
needs and resources. The automobile was found to provide the most popular recreational activity of all, driving for pleasure. Proposals to establish a national scenic highway system failed to gain congressional support, however.

A major boost in providing recreation landscapes was provided by the Land and Water Conservation Fund Act of 1965. This act contributed significantly to the growth of state and local park systems as well as to expansion of federal agency land holdings. States were required to have a statewide comprehensive outdoor recreation plan to qualify for available funds. This legislation marked a significant advance in landscape policy in that it added to the federal public landscape as well as to state and local public landscapes.

Ameliorating Scenic Ills

There was a growing awareness during the early 1960s that our landscape was becoming increasingly ugly and abused. This was particularly evident in and around major population centers, but was also visible in rural areas. This awakening was significant for several reasons: first, attention was directed to the ugly and degrading aspects of the landscape rather than to the beautiful and satisfying; and second, primary attention was directed to the impact of humans on the landscape rather than to natural landscapes. It is of interest, nevertheless, that when President Johnson convened his White House Conference in 1965, a conference that addressed issues as townscapes, water and water fronts, highway design, roadside control, landscape reclamation, undergrounding utilities, auto junk yards, and suburbia, it was called the White House Conference on Natural Beauty. There were sessions on parks and open spaces, scenic roads and parkways and the farm landscape, but the emphasis was on human-made landscapes. Implicit in the charge to the conference was the notion that the beauty of our natural landscapes provide a yardstick for assessing the visual quality of the built environment and the impact of humans on the landscape. Furthermore, it was implied that in most cases these effects had not measured up to the natural landscape standard and that in many instances the result was a significant degradation of visual quality.

This concern with the decreasing visual quality of America was vividly expressed in the three books cited in the opening paragraph of this chapter: Man-Made America: Chaos or Control (Tunnard and Pushkarev 1963), God's Own Junkyard (Blake 1964), and The American Landscape: A Critical View (Nairn 1965). Authors of these books were not addressing problems of preserving sublime and picturesque landscapes. They were making statements, sometimes angry ones (Blake 1964) about what was wrong with the landscape—the man-made landscape—and what might be done about it (Tunnard and Pushkarev 1963; Nairn 1965). They were addressing the same issues as the White House Conference.

This antiguity movement gained additional support from the belief that there was greater consensus among the public about what was ugly than about what was beautiful (Kates 1966–67). The old adage “beauty is in the eye of the beholder” was accepted with little question. The White House Conference served as a model and stimulus for similar conferences at the state level across the country. In addition to focusing attention on the increasing ugliness of the landscape, the Conference presaged the environmental movement that followed a few years later.

The Highway Beautification Act of 1965 is perhaps most representative of the concern with decreasing visual quality and increasing ugliness. Billboards and junkyards were symbols of landscape neglect. In an automobile-oriented society they also confronted millions of Americans daily on their commutes to and from work. Elimination of billboards, screening of junkyards, and general enhancement of the landscape were viewed as important steps in restoring visual quality to the everyday landscape. Implementation of the Act, however, was very sporadic, with few states taking an aggressive position.

Another prominent eyesore on the landscape was the vast area of derelict surface mines. At the time of the Conference there were 3.2 million acres that had been surface mined in the country. Only one-third of that area had been reclaimed by either natural forces or human intervention. The Appalachian Regional Development Act included regulations on surface mining for that region of the country. It took another decade, however, until the Surface Mining Control and Reclamation Act of 1977 was passed and provided regulation for the strip mining of coal in all regions of the country.

Even national parks and wilderness areas, the nation’s sublime landscapes, were susceptible of
visual degradation. In 1977 Congress enacted amendments to the Clean Air Act that included designation of large national parks and wilderness areas as Class I areas in which little air quality deterioration would be allowed. Visibility values were recognized as an essential component of these landscapes.

Environmental Planning

On January 1, 1970 President Nixon signed the National Environmental Policy Act of 1969 (NEPA). This was a landmark piece of legislation. It recognized issues and themes that had been identified at the White House Conference in 1965 and in particular “the impact of man’s activities on the interrelations of all components of the natural environment, . . . .” It also required that all agencies of the federal government “identify and develop methods and procedures . . . which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations.” The NEPA ushered in an era of interdisciplinary environmental planning in which visual values could be included in the planning and design decision-making process. It made evident the lack of valid and reliable methods and procedures for identifying visual values and visual impacts of proposed developments. Agencies were challenged to develop such methods and procedures to meet the requirements of the Act. And NEPA also served as a model for a number of states that adopted similar environmental policies and interdisciplinary planning objectives. Most important, however, is that the NEPA made it clear that visual values, the visual quality of the landscape, was not only of concern with reference to uniquely beautiful or ugly landscapes but to all landscapes that were affected by federal design, planning, or management activities. The implementation road for the NEPA was rocky and torturous, but as indicated later in this chapter and in following chapters, impressive progress was made.

The four other legislative acts listed under Environmental Planning in Table 1 are representative, with respect to visual or aesthetic values, of nearly all environmental legislation enacted during the 1970s. For example, the Coastal Zone Management Act (CZM) called for “giving full consideration to ecological, cultural, historic and aesthetic values as well as to needs for economic development.” The intent of Congress is clearly stated and is responsive to the conditions set forth in the NEPA. The CZM provided for a cooperative federal-state approach to planning the landscape of the coastal zone. It provided a mechanism whereby the federal government encouraged states to undertake broad-based interdisciplinary environmental planning. The extent to which aesthetic values were addressed in the participating states, however, varied considerably—sometimes figuring prominently in plan development and sometimes being lightly glossed over.

The three other acts relate specifically to public lands. The Forest and Rangeland Renewable Resources Planning Act, the National Forest Management Act, and the Federal Land Policy and Management Act address planning and management policies on Forest Service and Bureau of Land Management lands. These acts also build upon the policies set forth in the NEPA and call for interdisciplinary planning teams and for consideration of a full array of resource values including aesthetics. Dana and Fairfax (1980) point out, however, that the question of priorities among values in decision making is not addressed in the two Forest Service Acts. For visual values this can be both good and bad. On the positive side it provides managers with flexibility to weight values differently in order to meet different needs in various parts of the forest. It also means that an a priori decision has not been made that visual values always come after timber, forage, and watershed values. On the negative side it could mean that aesthetic and other amenity values could systematically receive only token attention under commodity-oriented supervisors and managers, as was the case in a number of states under the CZM.

Recapitulation

Landscape policy has evolved significantly during the past two centuries with an ever increasing rate of change as it moved through the five phases from disposal through preservation and recreation to scenic ills and environmental planning. Conceptually this represents a broadened perspective on the values of landscape aesthetics. The expansion from preservation to recreation is recognition that attractive landscapes can be expe-
rienced physically and socially as well as visually, and that for many people the experiences are inextricably intertwined and mutually reinforcing.

The further expansion from preservation and recreation to the reclamation of scenic ills implicitly recognized a continuum of scenic values from the uniquely beautiful to the uniquely ugly. Furthermore, as the uniquely beautiful was assumed to provide psychological benefits of pleasure and satisfaction, it was assumed that the ugly provided psychological costs. In her opening comments at the White House Conference on Natural Beauty, Mrs. Lyndon B. Johnson voiced her belief that “one of the most pressing challenges for the individual is the depression and the tension resulting from existence in a world which is increasingly less pleasing to the eye. Our peace of mind, our emotions, our spirit—even our souls—are conditioned by what our eyes see” (White House Conference on Natural Beauty 1965).

The final phase in this evolution of policy, environmental planning, is obviously much broader than visual or aesthetic landscape issues. Its vital importance, however, is that it moved toward establishing a policy and administrative environment, at the national level and in a number of states, in which aesthetics are to be considered in environmental decision making “along with economic and technical considerations.”

Each succeeding phase in this policy sequence provided landscape architects and others concerned with visual values with increasingly difficult tasks. During the first phase, visual values essentially were ignored. The national priorities appeared to be clear—conquer and settle the landscape. During the preservation phase, identification of the uniquely beautiful landscapes of the country was a relatively straightforward task. Getting action taken to preserve them was a very real challenge, however. The economics versus aesthetics argument surfaced early in this phase and has never disappeared. The recreation phase built upon the challenges of the preservation phase. Landscape analysis methods and procedures had to be developed to select attractive and physically suitable sites for recreation. And this frequently had to be part of a multiple-use planning activity. This phase also saw the rise of public interest in decisions made about landscape and resource allocations. Public participation was surfacing as an integral part of large-scale planning and design activities. Parallel with this development was a growing interest in gaining better understanding of public perceptions of landscape values and their consonance with decision makers’ perceptions.

The fourth phase, addressing the amelioration of scenic ills by doing away with ugliness in the environment, was both an extension of the recreation phase and an introduction to the environmental planning phase. Public participation interests that emerged in the late 1950s and early 1960s continued to grow, confronting professionals with a broadened view of who the clients were. There was also a new set of design problems identified—designs to reclaim ugly and derelict landscape—and a challenge to devise strategies for minimizing the recurrence of such landscapes in the future.

The environmental planning phase saw public participation become institutionalized as a requirement in essentially all federal environmental legislation. It provided landscape architects with the challenge of interdisciplinary team work and it further challenged them and others interested in visual values with developing valid and reliable methods and procedures for assessing visual values and for incorporating them into interdisciplinary planning and decision making.

IDENTIFYING LANDSCAPE VALUES

Public policy, particularly since the early 1960s, has provided the major stimulus for development of better methods and procedures for assessing landscape values. During this period of time an impressive body of work has been undertaken in the United States and England by individuals from an array of disciplines. The breadth of work undertaken is a reflection of the breadth of the field. Ecologists, economists, foresters, geographers, landscape architects, planners, and psychologists have all contributed. There have been a number of state-of-the-art conferences and symposia, and, recently, a number of scholarly critiques and reviews of the literature that document developments in the field. Both the conferences and the literature reviews provide excellent windows on the approaches being taken to study landscape values and on the kinds of pragmatic and conceptual problems involved in landscape assessment.
Conferences and Symposia

In May, 1967 the Landscape Research Group in England organized a symposium on Methods of Landscape Analysis (Murray 1967). The introduction to the symposium identified four main groups of problems:

1. Techniques for measuring quickly, to a suitable degree of accuracy and detail, the physical characteristics of a landscape.
2. Techniques for measuring human reaction to environmental conditions.
3. Techniques for manipulating the very large quantities of data (some of it new in kind) thus made available.
4. Means of incorporating the results of this work into the design process.

The symposium addressed only the first group of problems. Primary attention was directed to methods that were systematic and objective. There was recognition that describing landscape attributes and characteristics is usually a highly subjective process and that for landscape data to have utility in planning and design decision making they should not be idiosyncratic to the individual but that the methods used should produce the same results if employed by several individuals.

A second conference was held at the University of Massachusetts in November, 1973 and was organized around three themes: values, perceptions, and resources (Zube et al. 1975). The first theme provided a humanistic perspective and traced landscape values historically and from the vantage point of several disciplines. In this context the concern was primarily with people and how they interact with and are affected by the landscape, rather than with the landscape per se. The second theme addressed both conceptual and applied questions in assessing perceptions of landscape quality. Among the questions addressed were what is or are: (1) the validity of various forms of landscape simulation; (2) the extent of agreement between experts and lay persons; (3) the characteristics of valued landscapes; and (4) the differences among (a) descriptive assessments which depict or measure attributes of specific landscape, (b) evaluative appraisals—relative landscape judgments employing an explicit or implicit standard of comparison, and (c) personal, subjective, preferential judgments. The third theme was approached through conceptual models and case studies demonstrating different approaches to landscape assessment. Unifying elements running through all of the models and cases were objectivity and systematic designs. None of the cases directly utilized data provided by perception studies. Most of the American examples, however, implicitly reflected assumed values for sublime and picturesque landscapes.

Another conference was held at the State University of New York at Syracuse in 1975 and was oriented to a specific kind of landscape, the coastal zone (Harper and Warbach 1975). The conference consisted of three sessions that in part paralleled the Amherst meeting a year earlier: visual attitudes and perceptions; visual quality assessment methods; and visual quality planning on the coast. Running through each session was the consistent tie to coastal landscapes. The last session included both general strategies and methods and specific examples of coastal planning activities. The conference was timely and meshed well with the then-current planning activities carried on under the Coastal Zone Management Act mentioned earlier in this chapter.

In September 1976 the Landscape Research Group in England held another symposium, this one entitled "The Aesthetics of Landscape" (Appleton 1976). While this symposium also addressed applied issues, the primary emphasis was on a humanistic interpretation of landscape and the distinctions and similarities among disciplinary orientations including education, geography, history, landscape architecture, literature, and the visual arts. As is the case with many conferences and symposia, questions such as this are rarely answered and frequently lead to more questions. But they also open up discussions and suggest new concepts and approaches. Two particularly provocative questions were raised by artist-educator, Ewart Johns (1976):

1. Do our aesthetic values, especially as they relate to the environment, date from the nineteenth century or earlier and are they, in consequence, of little use to us now in our attempts to distinguish the “good” from the “bad” or the “better” from the “worse”?
2. How much do we perceive individual objects—especially those which are the product
of modern technology—as separate “items” and hence as intrusive elements in the general scene?

He was asking, in part, whether the eighteenth- and nineteenth-century values associated with picturesque and sublime landscapes prevailed and, if so, whether they stand in the way of our appreciating twentieth-century contributions. In partial answer to his own question he suggested that “the notion of total discontinuity between this and previous centuries” needed to be dispelled.

The most recent and certainly the largest conference was held at Incline Village, Nevada in 1979 and was organized under the aegis of the Forest Service, Soil Conservation Service, Bureau of Land Management and 12 additional institutional and agency cosponsors (Elsner and Smardon 1979). The overriding theme of the conference was on “applied techniques for analysis and management of the visual resource.” These techniques were categorized as descriptive approaches, computer and quantitative approaches, and psychometric and social science approaches. Descriptive approaches derive primarily from the techniques of landscape architects and resource managers, but can also include historic and geographic landscape descriptions. Computer and quantitative approaches were developed initially for working with large landscapes that may be difficult of access and for which there are available quantitative and spatial geographic data such as slope, vegetation type, elevation, and percentage of tree cover. They provide descriptive information about variability in landscape characteristics and can identify at different viewing points, for example, which areas can be seen and which are hidden from view because of topographic configuration or vegetative cover. They also introduce new computer simulation techniques for assessing the effects of different planning, management, and design decisions, techniques that extend well beyond the original efforts of Lorenzetti and Repton for considering a wide array of alternatives. Psychometric and social science approaches use the human as the measuring instrument. They attempt to elicit descriptive, preferential, or evaluative judgments from observers and users of the landscape and to understand the quality and nature of human-landscape interactions.

These applied techniques were discussed within the context of a series of landscape design, planning, and management topics including: surface mining and reclamation, urbanization, highway development, recreational development, rural and agricultural development, utility corridors and power plant siting, timber management, water resource development, and coastal energy development. The parallel between these topics and those of the White House Conference on Natural Beauty held 14 years earlier is striking.

There are a number of inferences that can be drawn from the structure and content of these conferences and symposia. The first, and perhaps most obvious, is that the field of visual analysis has experienced continual development in England and the United States during the relatively short time span of less than 20 years. For example, attendance at the early conferences and symposia ranged from 75 to 100 with the exception of Amherst with an attendance of 200. Nearly 800 people attended the Incline Village conference where 74 papers were presented and 104 papers were included in the proceedings. Furthermore, a 1976 review of the broader field of environmental perception research (Craik and Zube 1976) concluded that more work had been done in the subareas of natural and recreation environments than any other subarea except the sonic environment. Other subareas included urban, residential and institutional environments, and the environmental media of air, water, and land.

Secondly, the field is certainly multidisciplinary and employs a wide array of study techniques and methods. While some techniques and methods have evolved over a long time period and others have been developed within the field, most have been adapted from the disciplines of landscape architecture, psychology, geography, and history.

Thirdly, the previously noted parallel between the topical content of the 1965 White House Conference on Natural Beauty and the 1979 Incline Village Conference, “Our Natural Landscape,” suggests that the problem domain has not changed significantly during the intervening years.

And fourthly, the field has been responsive to changing policy emphases from recreation and multiple use to scenic rivers and trails, surface mine reclamation, highway design, forest management, and visual impact assessment. The NEPA also provided an important avenue for visual analysis to become integrated in a broad array
of development and management proposals as part of the broader environmental impact assessment process.

Critiques and Reviews

Five scholarly critiques and reviews of the field were published in 1981 and 1982. Three were published in journals and two in monographs. The journals, indicating the disciplinary breadth of the field are *Landscape Planning* (Zube et al. 1982), *Journal of Environmental Psychology* (Porteus 1982) and *Progress in Human Geography* (Penning-Roadsell 1981). Both of the monographs, *Human Behavior and Environment* (Daniel and Vining 1982) and *Valued Environments* (Punter 1982) are multidisciplinary in authorship. A detailed comparative analysis of the contents of these reviews will not be presented here as it has been done elsewhere (Zube 1984). Of importance for this chapter are the converging conclusions that were reached independently in nearly all of the reviews.

Three of the reviews emphasized work that had a predominantly rural or wild landscape orientation (Zube et al. 1982; Penning-Roadsell 1981; Daniel and Vining, 1982), one took a broader view encompassing the entire landscape spectrum from urban to wild (Porteus 1982), and one concentrated on the urban landscape (Punter 1982). Each of the reviews identified a set of paradigms or models for purposes of categorizing the multiple approaches to visual analysis. While there was considerable agreement in the conceptualization of these models or paradigms, there was considerably less agreement on nomenclature. It should also be noted that the terminology for the process or activity being reviewed was equally disparate, ranging from landscape aesthetics and landscape perception to landscape quality, landscape value, and environmental aesthetics.

Table 1.2 illustrates the different terminology used to describe the various models or paradigms. Regardless of the terminology, however, there are three fairly consistent categorizations common across most reviews. They are indicated as

<table>
<thead>
<tr>
<th>Professional</th>
<th>Behavioral</th>
<th>Humanistic</th>
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<td><strong>A</strong></td>
<td><strong>B</strong></td>
<td><strong>C</strong></td>
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<tr>
<td>Ecological</td>
<td>Psychophysical</td>
<td>Phenomenological</td>
</tr>
<tr>
<td>Formal</td>
<td>Psychological</td>
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<tr>
<td>Aesthetic</td>
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<tr>
<td>Daniel and Vining (1982)</td>
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<tr>
<td>Intuitive</td>
<td>Preference</td>
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<tr>
<td>Statistical</td>
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<tr>
<td>Sophistication</td>
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<tr>
<td>Penning-Roadsell (1981)</td>
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<tr>
<td>Planner</td>
<td>Experimentalists</td>
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<tr>
<td>Porteous**</td>
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<tr>
<td>Landscape/Visual Quality</td>
<td>Landscape Perception</td>
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<tr>
<td>Punter (1982)</td>
<td>Landscape Interpretation</td>
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<td>Experts</td>
<td>Psychophysical</td>
<td>Cognitive</td>
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<td>Zube, Sell and Taylor (1982)</td>
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<td></td>
<td>Experiential</td>
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*Adapted from (45)

**Porteous also includes an activist category made up of individuals with "immediate practical aims" relating to "issues of conservation, preservation and rehabilitation" of non-urban and urban landscapes.
professional, behavioral, and humanistic. The professional paradigm represents the work of designers, planners, and resource managers. It is based on formal principles of design and, in some instances, on beliefs about relationships between aesthetics and management—for example, the belief that a well-managed forest is a beautiful forest. The emphasis, however, is on the systematic use of the formal principles of design. The product is usually a description of the landscape in physical and aesthetic/design terms with assigned values on the basis of such descriptions.

The behavioral paradigm draws predominantly on the discipline of psychology. It differs from the professional paradigm in several significant ways. It uses the observer or participant in the landscape as the measuring instrument and the objective is to learn what the user's responses to the landscape are. There are two primary categories of responses that have been studied: (1) perceptions of beauty or visual quality, and (2) connotative meanings. Work frequently includes the development of predictive landscape dimensions which may be physical such as vegetation, topography, and water, or design and cognitive concepts such as mystery, complexity, and legibility. Statistical analysis relates ratings of beauty with variations in landscape dimensions and thus provides some understanding about how variations in the landscape—whether they be expressed as mystery and legibility or topography and vegetation—relate to variations in perceptions of beauty.

The humanistic paradigm draws on the traditions and methods of disciplines such as anthropology, cultural geography, history, and phenomenology. It attempts to understand the transactions between humans and landscape, personal experiences of landscape, and meanings of the everyday landscape. The products of humanistic studies vary with the disciplinary orientation but tend to be qualitative rather than quantitative. Where the behavioral paradigm yields group norms on perceptions of landscape beauty or connotative meanings, this paradigm yields detailed information about individuals and specific places. It does not lead to predictive equations but to descriptions of experiences.

These reviews lead to several general conclusions. Each paradigm has strengths and weaknesses and offers a unique contribution to the field. No individual paradigm as it currently exists is adequate to meet today's needs for landscape assessment. The professional paradigm has been most extensively employed and is dominant in the literature (Zube et al. 1982). However, several recent studies have raised important questions about the reliability of results produced under this paradigm (Craik and Feimer 1979; Feimer et al. 1979; Ross and Kopka 1983). In other words, there are important questions to be addressed about the agreement among assessments by different individuals when assessing the same landscape using the same methods and procedures. The efforts for objectivity in method and practice apparently have not as yet produced the required degree of reliability in field applications.

The behavioral paradigm provides the most rigorous approach to landscape assessment. Drawing heavily on psychological research designs and employing statistical analyses of data, questions of validity and reliability are answered within specified limits of confidence. Unless these data are related to landscape attributes or characteristics that the designer, planner, or manager can manipulate, however, they have limited utility in decision making. Also, in times of shrinking budgets, the costs for behavioral studies tend to exceed professional studies—even when landscape simulations are used in lieu of onsite assessments.

The humanistic paradigm provides the greatest depth of understanding about the meanings and experiences of landscapes. The methods employed, however, are frequently highly idiosyncratic and, when coupled with a focus on a limited number of individuals, they yield data that cannot readily be generalized to a larger population. Hence, direct utility is limited.

DISCUSSION

Johns (1976) questioned whether "our aesthetic values . . . date from the nineteenth century or earlier and are they, in consequence, of little use to us now . . . ?" He was questioning values born in fourteenth-century Italy, shaped in eighteenth- and nineteenth-century England, and adopted in nineteenth-century United States. If we accept public policy as normative public values, it appears that those values associated with sublime and picturesque landscapes are still operative, but it also appears that the landscape value spectrum
has been extended beyond wild and rural landscapes to urbanizing and urban landscapes. Nevertheless, the body of work to date has emphasized the wild and rural.

In part this is probably attributable to the existence of public bureaus and agencies such as the Forest Service (FS), Bureau of Land Management (BLM), National Park Service (NPS), Soil Conservation Service (SCS), Army Corps of Engineers, and Department of Transportation which, under various policy mandates and specifically under NEPA, began to institutionalize the assessment of visual values and visual impacts as part of their planning and decision-making processes. There has been no equally effective institution addressing the urban environment as these in the rural and wild environment. Nor has there been an urban agency that has the direct management responsibility that the FS, BLM, and NPS have or the grass-roots organization in rural America that the SCS has. This is not to suggest that these bureaus and agencies have been consistently successful but rather that conditions existed that made it more likely for some kind of success in the rural and wild landscapes than in urban landscapes under the policies that were adopted and the political leadership through much of the 1960s and 1970s.

Better understanding of the attributes of wild and rural landscapes that people value might contribute to our understanding about how to improve urban landscapes. There may be principles of order, diversity, scale, coherence, and continuity that can be investigated and applied to urban problems. Greater emphasis on the humanistic paradigm could expand our knowledge of the symbolic and practical meanings that people associate with different landscapes and the relative priorities of values. Such qualitative information could be used to enrich the array of issues studied in the behavioral paradigm and provide the quantitative data desired by decision makers.

An important question now is whether the field has made enough advances to survive the more restrictive conditions that prevail in the postenvironmental movement era? The available evidence suggests a tentative affirmative answer. Several methodological and theoretical advances could greatly enhance this cautious but positive outlook. The first has already been alluded to. It is the development of a firm understanding of the significant contribution of each paradigm to the field. While the professional paradigm has been criticized for lack of reliability, and validity is yet to be demonstrated, it is highly unlikely, because of costs and time, that every visual analysis project is going to employ behavioral paradigm methods and involve panels of users to assess values. What seems more plausible is that the behavioral paradigm will be followed when major or new types of projects or new subgroups of the public are involved. The professional paradigm will still provide the primary mode of analysis and evaluation. However, definite steps will have to be taken to increase reliability, to train professionals to be responsive to the identified values of various groups, and to provide quantitative data where required to be compatible with other contributions to the interdisciplinary planning process.

Finally, the field needs a conceptual framework or unifying theory that links the three paradigms and provides a means of assessing the cumulative contribution that two decades of study and application have made to the preservation and enhancement of the landscape and to the quality of life and well-being (Zube 1984). Such a framework or theory will both help us to better understand what has already been done and to more intelligently plan what needs to be done in the future in the areas of research, applications, and education.