office in Tehran. After the Shah of Iran fell in 1979, the Pardisan project was halted, and the office in Tehran was closed. The firm had incurred substantial debts and was unable to collect unpaid fees from the new government. McHarg was forced to resign. "When I lost my office," he said recently, "ecological planning lost one of its greatest practitioners."[31]

Critical Reaction and Legacy

For eighteen years, the creative tension between theory as developed at Penn and practice as pursued at McHarg's firm led to innovations in method. When McHarg's practice ended, his ideas and methods, as he articulated them, ossified. But the issues they raise and the challenges they pose are part of his legacy, and they continue to be worked out by others. Can science be the sole, or even the principal, source of authority for landscape design? Are natural and vernacular landscapes the sole standard of beauty? What *is* ecological design? What are its methods and historical precedents? And what about the city? What could urban ecological design be? These questions have been answered variously and still provoke debate, argued in verbal texts and in built projects and speculative proposals.[32]

In the 1960s and 1970s, McHarg's charismatic personality and polemical language captured the attention of the profession and public and persuaded a large following to accept ideas that had also been explored by others. Years later, many innovations once seen as radical are now common practice. The legacy of polemics has a less positive side, however.[33] The claim that science is the *only* defensible authority for landscape design has provoked equally dogmatic reactions from those who see landscape architecture as an art form.[34] When McHarg calls ecology "not only an explanation, but also a command," he conflates ecology as a science (a way of describing the world), ecology as a cause (a mandate for moral action), and ecology as an aesthetic (a norm for beauty). It is important to distinguish the insights ecology yields as a description of the world, on the one hand, from how these insights have served as a source of prescriptive principles and aesthetic values, on the other.

McHarg emphasized invention over precedent. For the most part, the curriculum in landscape architecture at Penn from the 1960s through the 1970s was ahistorical, offering no introduction to, or comparison among, alternative approaches to landscape design and

[31] McHarg, personal communication, 1998. When Narendra Juneja died a few years later, McHarg also lost his closest colleague in practice and teaching.

[32] Anne Whiston Spirn, "The Authority of Nature." See also George Thompson and Frederick Steiner, eds., *Ecological Design and Planning* (New York: John Wiley, 1997).

[33] I have discussed this at greater length in Spirn, "The Authority of Nature." This paragraph summarizes some points made in that essay.

[34] Provoked by such statements, many proponents of a new artistic thrust in landscape architecture chose to set this movement in opposition to "the ecological movement and its detrimental consequences for design." One article included gratuitous, unfounded attacks, some from critics who chose to remain anonymous, such as, "The so-called Penn School led by McHarg produced a generation of landscape graduates who did not build." Daralice Boles, "The New American Landscape," *Progressive Architecture* (July 1989): 53. Statements such as these were retracted by the editors in a subsequent issue of the journal in response to letters to the editor.

planning.[35] McHarg's claim to have invented the overlay method provoked Carl Steinitz, Paul Parker, and Lawrie Jordan to research the use of overlays as a planning method in the twentieth century, an original contribution to the literature, as was Steinitz's earlier comparative study of McHarg, Phil Lewis, and Angus Hill.[36]

"But, you say, all this may be very fine but landscape architects are finally designers—when will you speak to ecology and design?"[37] Thus McHarg acknowledged, in 1967, the question repeatedly posed to him by his students. By the mid-1970s, ecological design was an integral part of the landscape architecture curriculum at Penn, but, despite a few cases and persistent efforts to secure commissions, it was not practiced in the office. Much of the impetus for exploring ecological design came from McHarg's students, and some produced work that influenced projects at his firm, such as the investigation of stormwater management and design by Toby Tourbier and Richard Westmacott in the late 1960s, which inspired design solutions at Woodlands. Michael Hough's book of 1985, *City Form and Natural Process,* and my own of 1984, *The Granite Garden: Urban Nature and Human Design,* brought together ecological planning and design. Both were sympathetic to McHarg's approach but critical of his pessimism toward and neglect of cities.

The Landscape Development Plan for the University of Pennsylvania in 1977, an exploration of ecological design in the context of an urban campus, is a good example of a project informed by McHarg's teachings and carried out by his former students and colleagues. Peter Shepheard, Laurie Olin, Robert Hanna, Narendra Juneja, Carol Franklin, and Leslie Sauer, all faculty of Penn's Department of Landscape Architecture and Regional Planning, worked together with Colin Franklin and Rolf Sauer. Conceived as an instrument of growth and change, the plan gave priority to the history and identity of the campus, the university's prospective growth, and the needs of its inhabitants, human and nonhuman.[38] Carol and Colin Franklin, Leslie Sauer, and Narendra Juneja had all worked on Pardisan at WMRT. The last three were also responsible for most of the conceptual work on Woodlands, and in certain respects, the Penn plan represented the implementation of adaptive design strategies they developed for Woodlands.

[35] Anthony Walmsley taught two courses in the history of landscape architecture from the 1960s through the 1980s, but historical context was conspicuously absent from other courses, at least from the mid 1960s to the mid-1970s. Walmsley began to research the history of ecological design in the late 1980s.

[36] Carl Steinitz, Paul Parker, and Lawrie Jordan, "Hand-Drawn Overlays: Their History and Prospective Uses," *Landscape Architecture* 66 (September 1976): 444–55. The gap in Penn's history curriculum prompted me to trace precedents, track a genealogy of ideas and practices, and construct a pantheon of theorists and practitioners. This pantheon ranges from Hippocrates and Aristotle to Alberti and Leonardo; from John Evelyn and J. C. Loudon to Joseph Paxton, Frederick Law Olmsted, and Charles Eliot; from Frank Lloyd Wright to Kevin Lynch and Lawrence Halprin; and from Patrick Geddes to Lewis Mumford to Ian McHarg. See Spirn, "Urban Nature and Human Design"; eadem, "The Legacy of Frederick Law Olmsted"; eadem, "Architect of Landscape: Frank Lloyd Wright," in *Frank Lloyd Wright: Designs for an American Landscape,* ed. David De Long (New York: Harry N. Abrams, 1996); eadem, "The Authority of Nature."

[37] McHarg, "An Ecological Method for Landscape Architecture," 107.

[38] Peter Shepheard et al., *Landscape Development Plan: University of Pennsylvania* (Philadelphia: Center for Environmental Design, Graduate School of Fine Arts, 1977).