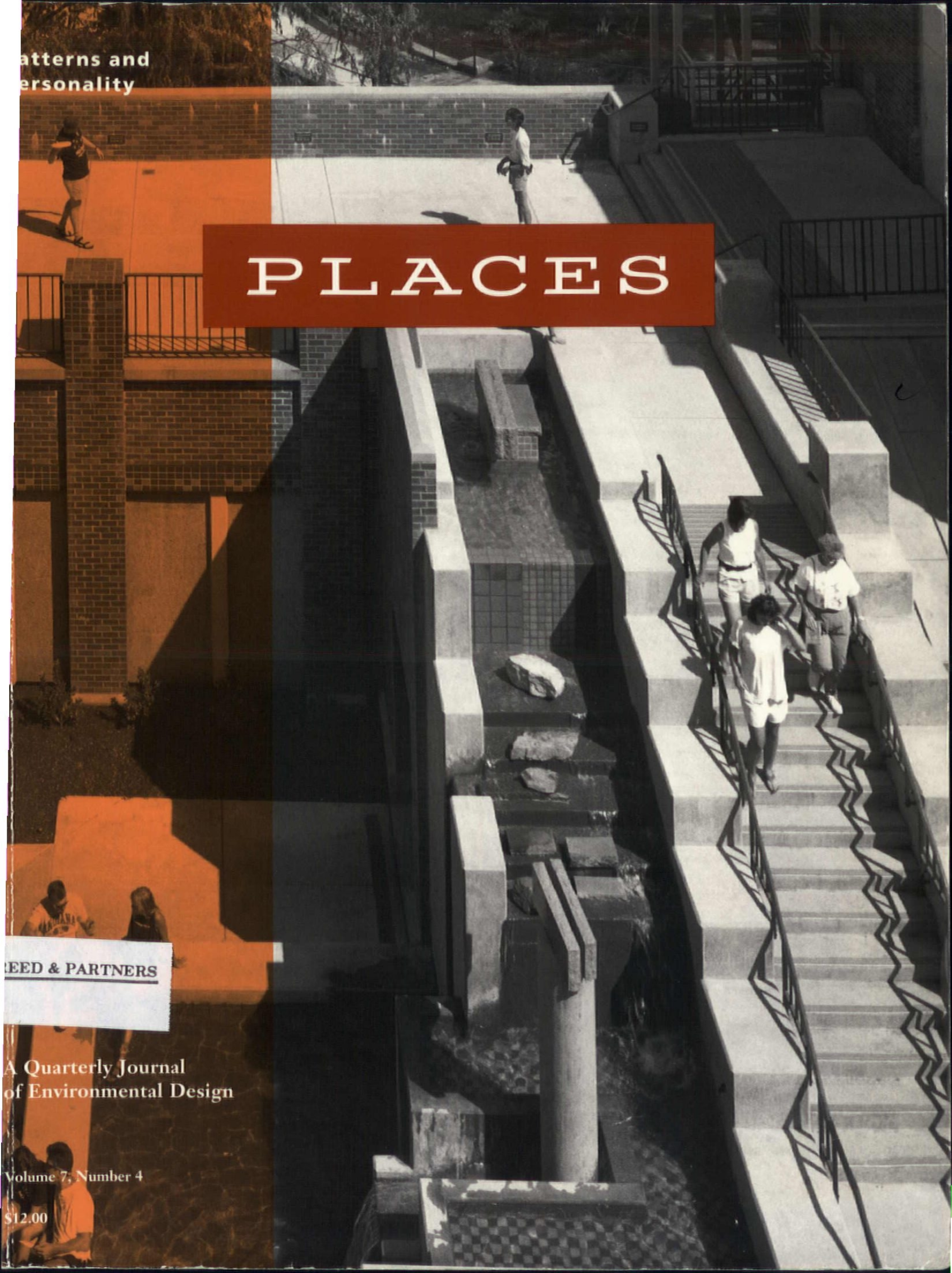

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Patterns and Personality

One of the most precious things about good places is that they result from the energies of many people; they are not lonely feats of imagination. In experiencing and thinking about a place of any scope and substance you look in the windows of many minds and sense the pulse of diverse life stories.

Seldom, however, are places reported that way. The urge to construct a simple narrative usually leads to singling out a few individuals and attributing the charms (and faults) of the place to their invention.

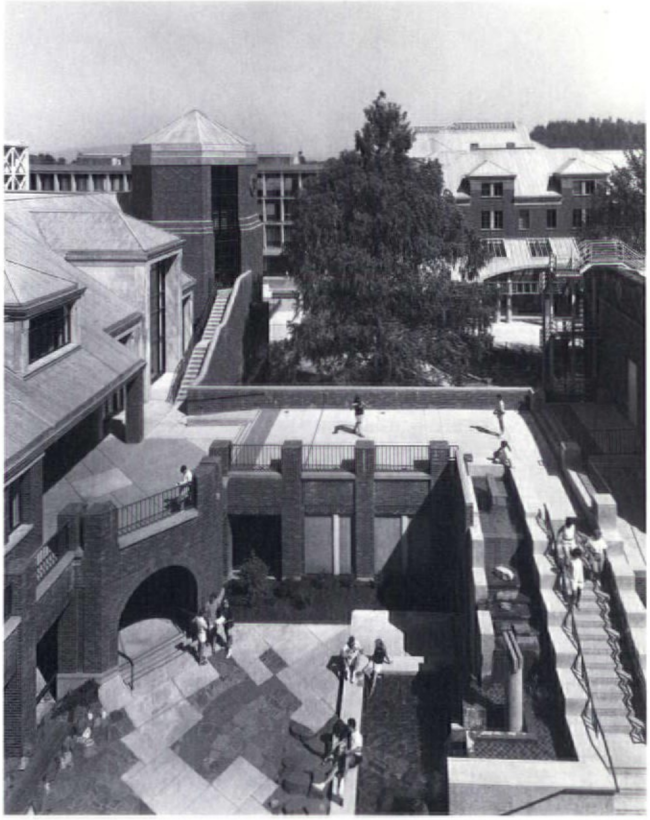
Our attention turned to the new science complex at the University of Oregon because it is uncommonly ingenious in the intermingling of new buildings with existing structures, replete with elements of art and crafts not normally present in contemporary construction, intricately yet variously conceived as a place where work (scientific work, no less) is not set apart from personality.

We look at this place as the intersection of four traditions: the patterns and processes stemming from the work and writings of Christopher Alexander, as established in *The Oregon Experiment*; the design impulses and ways of working descendent from the insights and forms championed by Charles W. Moore, embodied here in the work of Moore, Ruble, Yudell and The Ratcliff Architects; and the tradition of alliance between the arts and architecture, implemented in this project through a competition for architecturally-integrated art; and the University's well-developed tradition of faculty self-governance.

Indeed, the richness of the science complex is that it was touched by the imaginations of many people, replete with thoughtful consideration and invention. Many faculty were involved in conceptualizing how these new buildings would structure their life; consequently, the place has an order that is richly interwoven. Making a careful evaluation of the site's relation to the larger campus led to a complex that maintains consistency with traditional campus patterns while accommodating and absorbing a previous set of buildings that broke from that pattern. Incorporating an art program during the design process brought to the place an additional layer of thought, providing its users with access to the pleasures of the muse. These initiatives now set in motion still another set of stories — ones that are acted out each day by the inhabitants of the place.

In this collection of articles, the largest picture is set by J. David Rowe, the University Planner. David was himself the embodiment of a quality without which no place of consequence can exist — quiet, caring persistence. In the course of a 17-year tenure at the University Planning Office, Rowe nurtured *The Oregon Experiment* from its inception in Alexander's work into an effective working process for the University, a process that gives voice and form to the most fundamental human concerns for how places should enhance our lives. His unexpected death as this issue was being completed is a terrible loss.

— Donlyn Lyndon



A courtyard and fountain in the University of Oregon science complex. Photo by Timothy Hursley.

Death Valley: Notes From a Visit

Reed Dillingham

Death Valley is a long, deep, dry, enclosed trough, the bottom dropped between two large mountain blocks of lava and granite. It is separate from the rest of the world, with its own character and geography, a place where human elements like roads and buildings seem inconsequential and out of place.

My entry into this world comes at the end of a long drive north from the town of Trona on the edge of the salt-dry Searles Lake, up the desert of the Panamint Valley and over the 5000-foot Townes Pass.

I first perceive Death Valley as a measureless, dry landscape surrounded by distant mountains. But following the highway along the Valley, I sense its surreal scale and strange, magic quality. Places are separated from each other by long stretches of highway along which there is nothing worth noting on a sign. At a spot near Ubehebe Crater a sign says "Racetrack 27 miles." I wonder whether there is anything, any place, in between. In this strange, extended landscape, what makes a place?

An extensive field of sand dunes sweeps over the north-central portion of Death Valley, covering an area about eight miles long and five miles wide. These rolling sand forms vary in height from a foot to about 30 feet. In some low places between the dunes, the dried mud of an old lake bed has been exposed by the wind and baked a brown–tan color by the summer sun.

As I wander among the dunes, photographing various details in the early morning light, I look for a larger scene that will allow me to connect several photographs in a panorama. At last, a high dune crested with a clutch of young mesquite saplings holds my gaze. I realize the scene's visual sweep: from the dunes' shadowed rise in the north, along a ridge, to where the ridge falls off in the south, with the distant dark shadow of the Amargosa Range lost in the sun's glare.

When I am finished photographing, I stand as if fixed to the spot. Slowly turning, I take in the whole place for the first time. I am within a small space defined by sand hills on the west, north and east. To the south the lower dunes open onto a longer view, rolling away like a sandy ocean with occasional high-topped dunes rising as islands in the general plain.

The size of the space is difficult to judge because I cannot easily relate the scale of the sand and scrub trees to the size of usual things; I guess that the area is roughly circular with a 100-foot diameter. Within the bowl, the lower topography of sand forms is complex with small enclosed bowls bottomed with hard pan, long, low sand ridges and little hillocks crowned with scrub.

My actual position, unconsciously selected as a photo stop, is at the approximate center of this space, on a smoothly sloping plain inclined gently to the south. As I take in the scene, I decide to stop, sit and see what a little more time will reveal about this place.

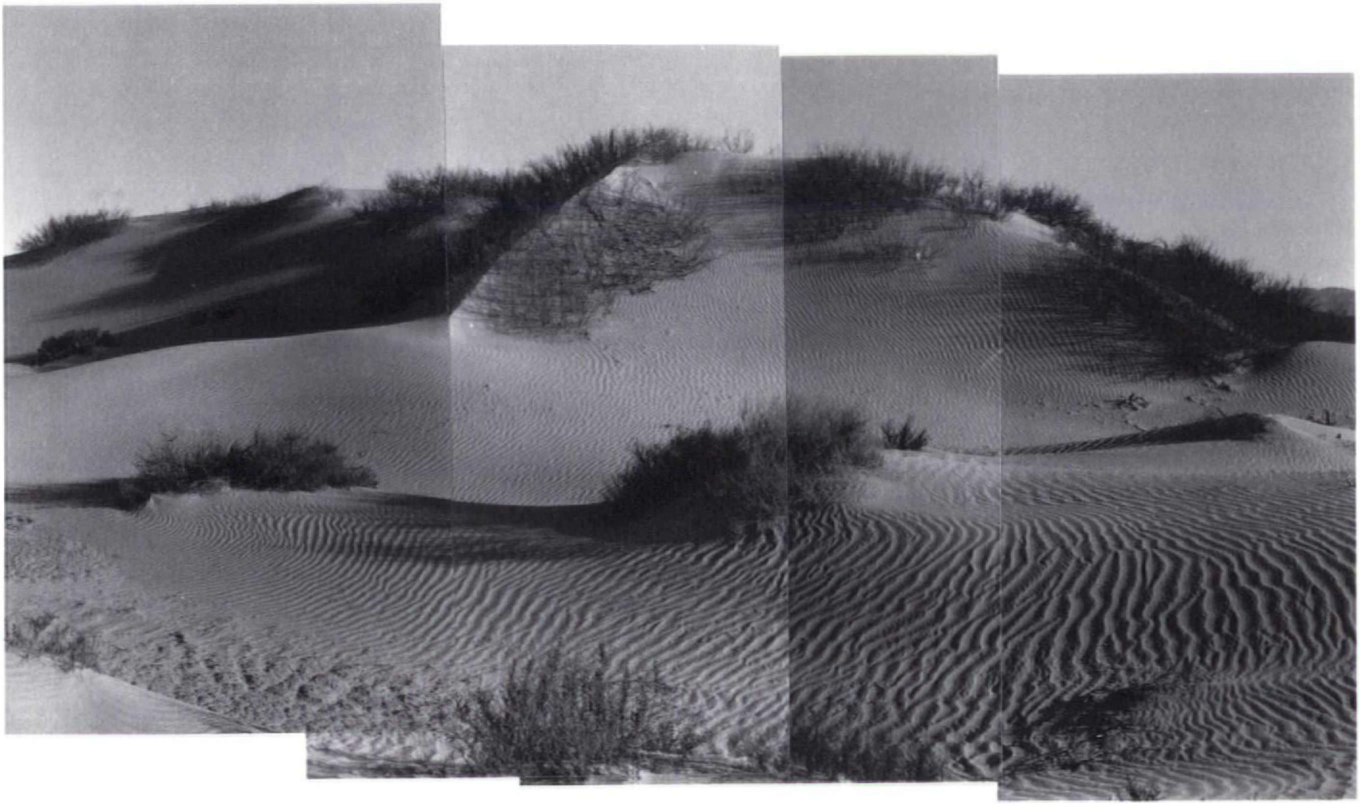
Visually, the dunes are striking. Their wind-caused forms, constrained by the physical constraints of sand, are characterized by clean, uninterrupted lines, with no slope greater than the angle of repose (34 degrees). The wind details the sand surface with assorted inexplicable ripples that catch the eye, reminiscent of smoke patterns seen in wind-tunnel tests. The sand itself is uniformly fine and almost white, with no appreciable moisture content.

Here and there, small discontinuous patches of low brushy desert scrub grow along the low ridges and the tops of the dunes. That plants could survive in such a harsh environment is strange; the scrub adds to the dramatic visual counterpoint of the shrubs against the white dunes. The starkness of the setting suggests a Chinese brush painting: a pastel green plant splashed against the white expanse of rice paper.

Although any small sound would carry a long way here, the air is quiet. In one direction, a small bird is chirping. From another comes the faint sound of a distant car. But mostly it's so quiet that I can almost hear the sound of my blood pumping.

A raven caws and flies by a hundred yards to the southwest.

A beetle appears. From where it came I do not know; it is at least 20 or 30 feet across the hot sand to the nearest twigs and scrub. The beetle scrambles around, through and under my pack before disappearing.



Courtesy Reed Dillingham.

Morning creeps on; the sun climbs higher. As it passes overhead, I notice that the clear blue sky has begun to haze over to a milky white. There are still shadows, but they are now very soft. The dramatic early morning light is gone.

Perhaps I will best remember the quiet, subtle visual enclosure of this place, its stark physical forms reflecting back the play of light and shadows. The backdrop of dramatic yet limited sensory information tends to highlight the small details and events of the place: the quality of light, the bird tracks in the sand, the ravens flapping north. The smallest note of sound or appearance takes on exaggerated importance. All of the detail I ordinarily miss in my usual urban life has been clarified and presented here in a way that is impossible to ignore.

I decide to take a tour, a walk around my spot at a radius of 50 to 100 yards, just beyond the rim of the dunes that I can see from here. I notice several animal burrows set below small scrub-topped hummocks. Rabbit and bird tracks trace zig-zag paths through the dunes. A lizard darts over the warm sand and dives under some brush.

I am looking hard, hoping for the unexpected. After a day of only sand dunes, my brain wants novelty, something different: an arrowhead, a dried snake skin, even a rusty tin can might be interesting. Half of me wants the novelty of finding something, the other half wants to believe that the sand dunes and the desert are pristine and unsullied by cheap tricks. In the end, fate preserves my romantic image of the sand: I see nothing unexpected.

Even though I make no discoveries, looking for the unexpected reminds me of the value of a place that has the potential for surprise. Places are not always coherent, nor are they possible to anticipate. Events and conditions change. Unexpected developments modify what we thought we saw. Our mind's quest for novelty looks for change and then the relishes surprise. In many ways, the places that offer the most potential for surprise are the ones that pull us back again and again to look for the possibility of such a gift.

Another raven flies by going west.

It is 3:30. The breeze has stopped; there is complete calm. The air is warm and feels slightly muggy.

I am getting tired of staying here. I can feel my patience turning to boredom. What seemed calm and tranquil now breeds tedium. Is the only reason to wait because I dared myself to wait it out?

The sun is taking forever to fall. This morning I wanted time to stop and now it just about has. Of course, with the lack of shadows and the gradual occlusion of the sun behind the gathering haze, there is no visible sign of passing time.

I hike out of the dunes at 4:30, meeting three people on the way who say "Hello" — the loudest sound I have heard in nine hours.

At night, lying in my sleeping bag with my eyes closed, I can still see the place in all its detail. But the sense of what I have seen eludes me. Was that place more real to me, did it have more meaning or significance to me than, for example, a place in a town where two streets meet?

The next day I visit Zabriskie Point. The sign interpreting this place tells of geologic history and of Christian Zabriskie, who oversaw borax operations in Death Valley until 1933. The relevance of his name to this place is slight, yet no less than many other place names. I find this way of naming places disturbing because it overlays some level of social meaning on a dramatic natural scene, as if the name gave this place a human purpose and a greater validity than its natural character.

Locations, specific spots are existential; they only exist and are void of meaning until we give them one or find one. Meaning can turn location or position into place. Ultimately the reality of a place is unknowable except within the limits of a point of view, such as human activity, geologic history, or visual drama.

Even then, places are known only to a limited extent. Their true nature is hidden, changing, affected by passing conditions, weather, people and seasons. We bring our preconceptions, knowledge and interest to a place's reality and overlay them. We wonder if what we see and experience has any relationship to to what we brought.

Regardless of our ideas, each place has its own reality, its own inherent sense of identity, different from the reality of anywhere else and ultimately unknowable in the fullest sense. A location is a place, then, because we call it so, we give it a name, use it, recognize it and pay heed.

The spot in the dunes, my station for nine hours, became distinct for me and different from the areas around. It was a place. Although I stumbled upon it, I found identifiable qualities that differentiated it from its surroundings and from my other place memories: the bowl of space, the strange pattern of sand dune topography, the patterns of light and wind, the sounds of breeze and birds.

In a place like the bowl in the dunes, where no human-made element is perceived, we are unable to use our typical frameworks, that is, function or social meaning, for evaluating places. We cannot ask about its traffic capacity or its history of accidents. Such a place can only be considered on its own terms: the natural causes that made it and the forms or natural effects of those causes. The purely natural place has no inherent social meaning. It only is what it is.

To really understand a place like the bowl in the dunes, we cannot be told a name, glimpse at a few facts on a sign board or even read a guide book. We have to sit and watch and let information come to us in its own way and its own time.

The University of Oregon Science Complex

In compiling this special report on the expansion of the University of Oregon science complex, *Places* asked several people involved in the project each to tell their part of the story.

Significantly, all of their reflections are filled with the involvement of others. Each author — architect Buzz Yudell, Stephen Harby, Christie Johnson Coffin and Charles W. Moore; artists Alice Wingwall and Kent Bloomer; and J. David Rowe, John Moseley and Lotte Streisinger, members of the University administration and faculty — speaks both of collaboration between architects and users as well as how individuals bring their own ideas to bear on such an undertaking.

Our report concludes with critical assessments by Mark Pally and Robert Campbell, who approach the place from external vantage points. Timothy Hursley's elegant photographs, which accompany many of these articles, tell a story of their own.

We also weave throughout this report a roster of people who channeled their experience and energy into this project — a reminder that good places depend on the care and contributions of many people.

This report was funded in part by a grant from the Graham Foundation.






When the University of Oregon began to plan for the expansion of its science facilities in the mid-1980s, it drew upon long-standing ideas about how the campus should be designed. Early campus plans had established the idea that the science complex should consist of a discrete group of buildings, in campus planning terms a "quad." Those early plans also had established an image of what the campus should look like and a clear concept about how new growth should be organized: primarily along two intersecting axes.

But for many years those traditions had been abandoned, and the continuity of form that had characterized campus development during the school's first 75 years had been lost. The science complex, the first large-scale development on campus in many years, provided an opportunity to restore some of that order while testing new ideas about how growth decisions should be made.

The University of Oregon was established in 1872 and grew slowly for the next 40 years. In 1914, the University retained architect Ellis F. Lawrence of Portland to develop a plan for future campus development. His appointment began a productive association with the University that lasted until his death in 1946. During his tenure he modified and revised the plan for the campus (once in 1923 and again in 1932), designed virtually every campus building put up in those formative years and served as the first dean of the University's School of Architecture and Fine Arts.

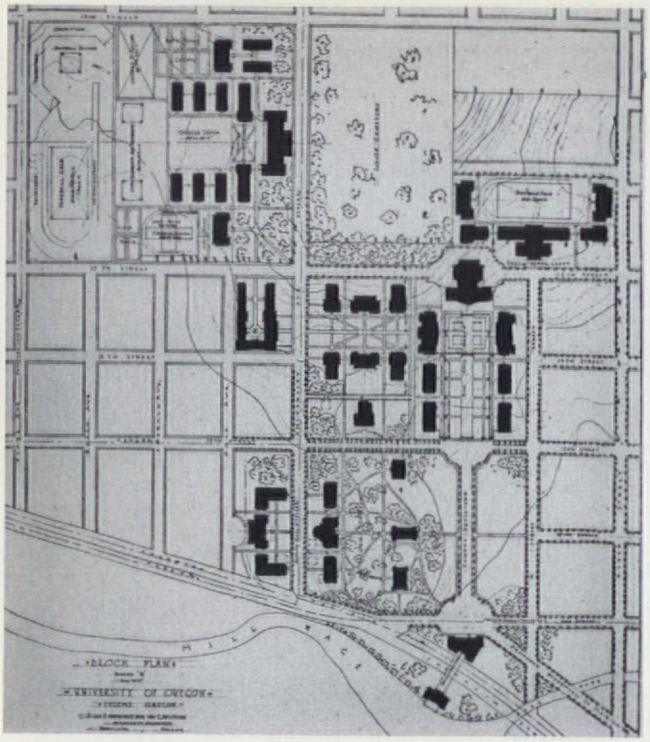
The Roots of Oregon's Campus Planning Tradition

J. David Rowe

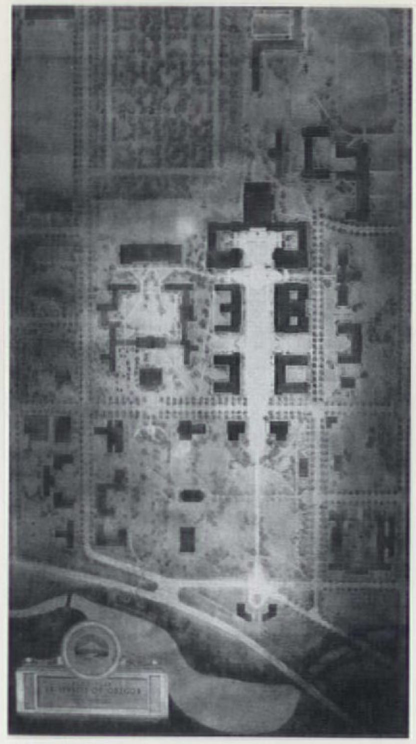
Lawrence's leadership established a campus character that remains strongly evident. The concepts of spatial organization articulated in his plans reflected his Beaux Arts training and were given physical substance by the buildings he designed. After Lawrence's death the University experimented with other campus planning ideas and architectural styles. But there is still overwhelming sentiment on campus and within the larger community for preserving, strengthening and expanding the quads, greens, malls and promenades that are the essence of the character Lawrence established.

Ellis F. Lawrence's Knight Library exemplifies the architectural character he wanted to establish on the campus. Photo courtesy University of Oregon Archives.


ARS
Rennell Ellis



One version of Ellis F. Lawrence's 1914 campus plan.



Lawrence's 1923 revision of the plan.

Ellis F. Lawrence's Vision

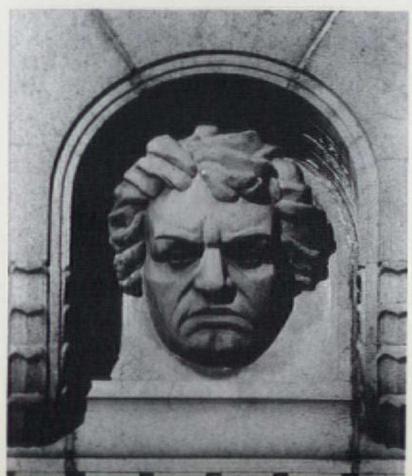
In his 1914 plan for the campus, Ellis F. Lawrence established two principal axes (one oriented north–south and the other east–west) and proposed several quads around which buildings would be grouped. Each building would be large enough to have its own identity but not so large as to be a dominating object. The arrangement of buildings established clear paths of pedestrian circulation and coherent open spaces.

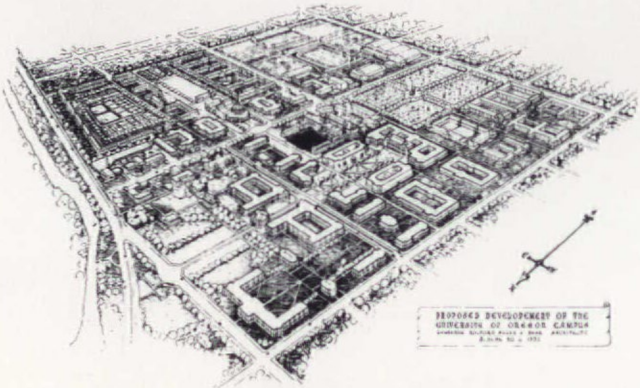
These ideas guided future growth in a manner that complemented the existing campus. Lawrence designed 17 campus buildings, which varied in architectural style but achieved the "harmony in diversity" he valued. Masonry construction (when the budget allowed), attractive detailing and integrated art works helped to create a visually unified campus.

1930s Revision and Redirection

In the 1932 revised plan, Lawrence reaffirmed the basic organization of the campus. He also undertook to "locate approximately the major groups of the departments and schools so that each may best function in its relation to the entire group." He identified a prominent location for a "Science Grouping": on the main quad, close to the library (in one study, a "Science Hall" was considered as the head of a new quadrangle west of the main quad).

Below: This gargoyle on Knight Library is an example of the collaboration between architect and artist Lawrence promoted.





Lawrence's 1932 revision of the plan.

A 1960's proposal for growth, based on Lawrence Lackey's 1962 plan.

But the "Science Grouping" was never built. Just as the 1932 plan was being adopted, the State Board of Higher Education, hoping to strengthen the new state system of higher education and eliminate duplicate courses, voted to transfer upper-division and graduate studies in the sciences to Oregon Agricultural College (now Oregon State University). A decade later the Board reversed itself and returned upper-division and graduate studies in the sciences to the University. To provide space for these programs, the University built Science Main (now Pacific Hall) north of 13th Avenue in 1950.

1960s Expansion and Infill

Lawrence's 1932 plan also argued the need for acquiring property and expanding the campus to the west; however, the University decided to limit development to land it already owned. But by 1960 the campus had no more room to expand. By now the most realistic opportunities for expansion were to the east (into a modest, low-density residential area) and north (onto land between the railroad and the river, then being used as a sand and gravel quarry).

In 1962, the University selected urban designer Lawrence Lackey to prepare a new plan, primarily to provide direction for eastward expansion. Lackey presented a scheme for large-scale dormitory development filling in the existing campus and on property east of the campus (acquired in part as an urban renewal project). This plan, typical of the functional plans being prepared at the time, reinforced the notion of Lawrence's academic groupings and suggested developing a significant portion of the area around Science Main for science facilities. Several buildings were added in the general vicinity between 1960 and 1971, and a nearby Lawrence building (built in 1935) was converted to house the geology department and expanded to include a small accelerator.

By 1972, most of the buildings proposed in the Lackey plan had been built and the plan offered no guidance for further expansion.

Far left and right: Exterior and the sun room of the Women's Memorial Building, designed by Lawrence.

Drawings courtesy University of Oregon Planning Office. Photos courtesy University of Oregon Archives.

How *The Oregon Experiment* Shaped the Science Complex

A Renewed Search for Order

In the early 1970s the University decided any new plan would have to incorporate a planning process, not just a new map, and that the process should reflect the long-standing tradition of faculty participation in University governance. The University retained the Center for Environmental Structure, and the result of that consultation, published as *The Oregon Experiment*, was adopted in principle as the basis for campus planning in 1974.

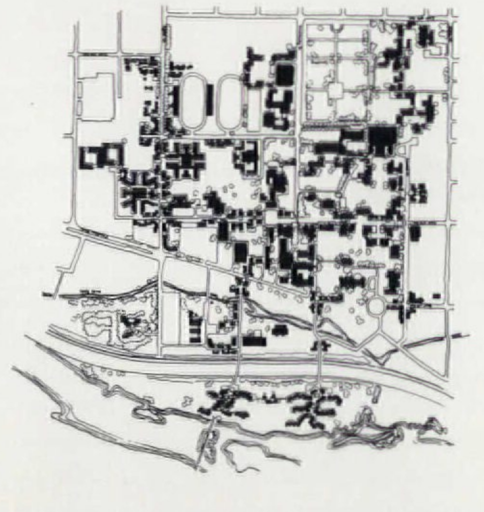
The Oregon Experiment rests on six fundamental principles or premises. They are: "organic order," "user participation," "piecemeal growth," "patterns," "diagnosis" and "coordination." Although each of these principles is important by itself, the group achieves its full significance because of the way in which the principles interact with each other.

Together, these principles suggest that the physical environment develops over time as a result of many separate acts, most of which are, or ought to be, relatively small in scale. Order is injected into this situation not by slavish adherence to a preconceived image of the way things ought to be, but as an expression of commonly held values of the community.

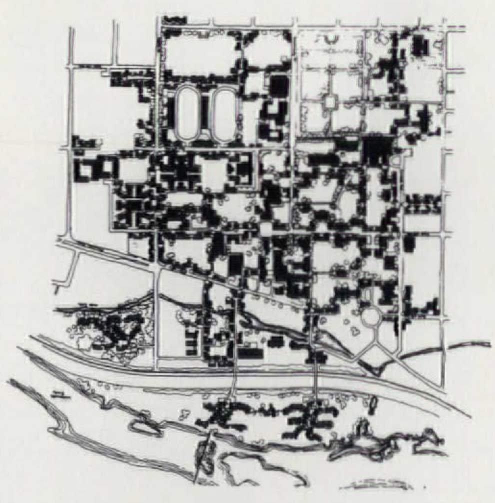
The chances for a successful project can be increased if people who are affected by an environment are intimately involved in planning its modification and improvement, if they are provided with a mechanism that allows them to focus their attention on the relationship between that environment and their own lives, if they are allowed to articulate their values in a way that physical substance can be derived from them, and if these processes are supported at the institutional level at which overall objectives of the larger community are protected and nourished.

With each project it has undertaken since 1975, the University has learned a bit more about ways in which the application of these principles affects the built environment and the relationships among the people who inhabit it. For a number of reasons, the science complex expansion constituted the greatest challenge yet.

Campus 1973



Possible outcome of growth during the 1980s



Possible outcome of growth during the 1990s

These drawings envision how a large number of small-scale projects built in piecemeal fashion could, over time, define outdoor spaces and strengthen paths. From Christopher Alexander, *The Oregon Experiment*, © 1975 Oxford University Press. Reprinted by permission.

Piecemeal growth

This principle suggests that smaller projects are less likely to be irrevocably disruptive to the environment than large projects. They are more likely to lend themselves to repair and adaption of the environment as a whole.

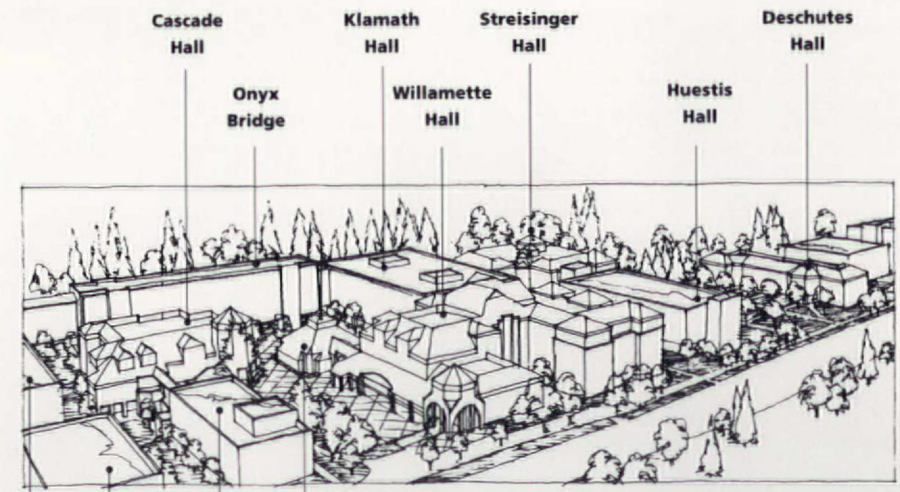
This principle does not suggest that large buildings never be built, but only that smaller projects dominate the list of construction activities. For many years, the University had not been troubled by the prospect of "large lump" development; resources for such projects simply had not been available.

When the "large lump" opportunity of the science complex expansion did arise, the University did not abandon the principle of piecemeal growth. From the beginning, there was almost unanimous agreement among science users, Campus Planning Committee members and the administration that the project should consist of several smaller buildings, each sited and designed to stand alone should a disruption of funding occur. The project also included two smaller buildings, put up elsewhere on the campus, that provide space for activities displaced by the new buildings.

User participation

The principle of active and collaborative user participation in the design process (as opposed to the more traditional "review and react" role of end users), holds that the people whose lives (and, in this case, professional productivity) will be most affected by a facility ought to have a large voice in its planning and development.

Critics of this notion suggest that involving users this intensely invites disorganization and that the overall institutional interests that transcend the bounds of user groups will be subordinated to the parochial interests of the users. In practice, this has not been an overriding problem because of the interactive effects of the principle of coordination.



The science complex attempted to follow the planning principles of ***The Oregon Experiment***. (The library was not built). Courtesy The Ratcliff Architects.

Coordination

This principle reminds us that the institution as an entity has a major stake in all campus development, just as the participating users have a stake in the specific project. If involving users through collaborative participation is helpful and productive, the same principle should apply to the way in which larger institutional objectives are looked after. The principles of user participation and coordination are addressed simultaneously in the way that the collaboration is organized; the interests of both users and the institution are represented in the process from the outset.

More than a hundred individuals were directly and collaboratively involved in planning the science complex. Participants included not only science faculty and staff, but also representatives from other faculties, the Campus Planning Committee, the central administration and the University's Physical Plant department. The full participation of this diverse population tended to stimulate a balanced discussion of the issues in a way that assured promotion of larger campus-wide concerns.

Equally important, this broad discussion contributed to the development of a sense of stewardship among the direct users. Representatives from the science departments began to sense their own responsibilities for the care and health of the rest of the campus and often led discussions of how to take advantage of the opportunity this project offered to improve the quality of the campus as a whole. During the inevitable process of balancing the user's requests with available resources, the science faculty willingly opted to absorb a 12 to 14 percent cut in assignable space in order to leave intact the budget allocations for landscaping, building finishes and the other design features that served to more completely and sensitively integrate the new building complex into the overall fabric of the campus. Clearly, parochial interests neither unduly dominated the process nor distorted the final product.

Patterns

Patterns are statements that describe a design situation or problem, analyze it in terms of available information and suggest ways in which the problem might be resolved. Collectively, a group of patterns forms a "pattern language." The principle of patterns suggests that a language for communicating values, as they pertain to the environment and people's relationship to it, must be developed in order to provide a means for focusing the energies of users on the issues that are central to a project.[1]

Before interviewing architects who would work on the project, a committee of users agreed upon several patterns that should be considered in the design. The committee incorporated them, along with a brief explanation of their importance, into the "Manual for Prospective Architectural Consultants," which became the basic document for describing to designers what their assignment would be.

In putting the manual together, the University Planning Office and the Campus Planning Committee identified several existing patterns that underscored the need for integrating the new complex into the campus and suggested how it could be done. Some of these patterns were modified to reflect the users' aspirations more accurately. The science faculty developed a special pattern ("Horizontal and Vertical Integration") to support interdisciplinary activity in science research; this pattern made the most significant contribution to our concept of the project as a whole. Finally, the design team developed a number of patterns during the course of discussions with users.

Diagnosis

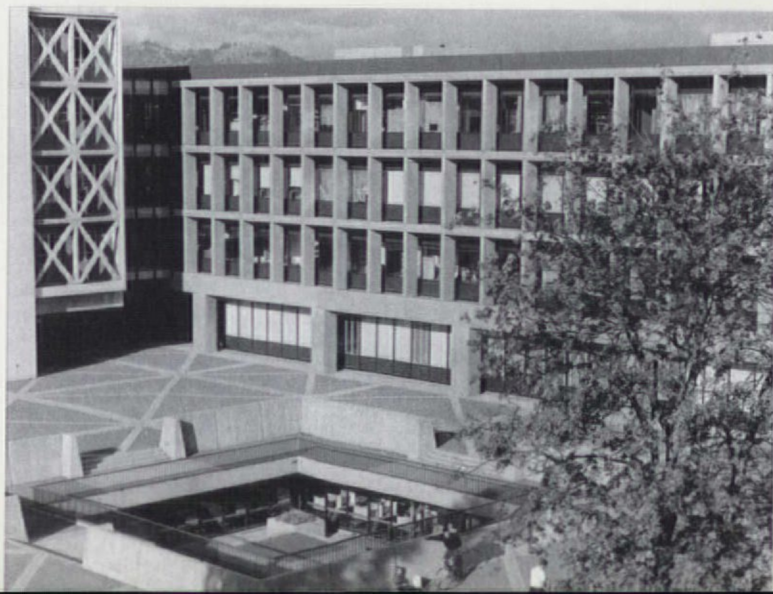
Diagnosis addresses the need to understand what is right and what is wrong with the campus environment at any given point in time.[2]

In this case, the diagnostic process confirmed the conventional wisdom: The site of the existing science complex was one of the most unpleasant places on campus, generally disconnected from principles of spatial organization evident in other areas. The buildings were unrelated to each other or to anything else in style or scale, and the complex lacked a unifying element.

This diagnosis, developed in the early stages of planning for the science complex, was agreed to by the Campus Planning Com-mittee and the Core Users Committee. Present-ed in the "Manual for Prospective Architectural Consultants," it became the well understood communal charge to the design team.

The planning committees asked the design team to help repair this site by considering ways to strengthen the relationships among the site, the campus and the surrounding community. They also asked the design team to help introduce elements that would restore human scale to the place and to help achieve what Lawrence might have envisioned as he concluded his narrative of the 1932 revision to the campus plan: "The outward aspect of the physical plant of a University should exemplify the teaching of that University — in good taste, beauty and efficiency."

The science complex before the new buildings were put up. The white building (above) is on the site of the new Willamette Hall. Photo above courtesy The Ratcliff Architects. Right photo courtesy University of Oregon Archives.



Why Collaboration Worked

There are probably two reasons why this complicated process worked so well at the University. First, the state of Oregon has a long tradition of citizen participation. The initiative and referendum processes were developed here; recent state laws have mandated citizen participation at all levels of land use planning. At the University, there is a well-established tradition of faculty governance. For the last 20 years, students have participated in the University governing senate. To suggest that users ought to have a major voice in the development of their own facilities is not revolutionary here but follows tradition and expectations.

The second reason is that Ellis Lawrence's work inspired a strong aesthetic for the campus; for a long time there has been a very clear perception among students, faculty, staff and alumni of what the campus should look like. The fundamental pattern of site repair, regularly referred to in the planning of large and small projects, is very consistent with this long-standing aesthetic. There is general agreement in the campus community that most of the "aberrations" built in the 1950s do not fit this aesthetic and that new buildings should adhere more closely to the beauty of Lawrence's concepts of grouping and open spaces. The malls and courts of the science complex expansion link the smaller buildings in a fashion consistent with the plans Lawrence established in 1914.

If not for these two traditions, the outcome of the science complex expansion might have been quite different, with or without the process to which Alexander contributed greatly. That process, which the science complex architects took quite seriously, continues to evolve on the Oregon campus. The most recent result of that evolution is a complex of buildings and spaces that pleases the users, honors tradition and is a credit to the institution and the state.

Notes

1. Two works by Alexander and his associates at the Center for Environmental Structure provide the theoretical and operational bases for this principle. They are *The Timeless Way of Building* (New York: Oxford University Press, 1979) and *A Pattern Language* (New York: Oxford University Press, 1977).

2. *The Oregon Experiment* (New York: Oxford University Press, 1971) suggests that a complete diagnosis be undertaken and formally adopted on an annual basis. For a number of reasons, chief among them the amount of staff and financial resources required for such an endeavor, a comprehensive diagnosis of the entire campus has not been undertaken since *The Oregon Experiment* was adopted.

Credits

Oregon State System of Higher Education: W. C. Neland, Associate Vice Chancellor; Richard Perry, Associate Vice Chancellor; Arthur A. Mancl, Director, Building and Planning.

University of Oregon Administration: Paul Olum, President; Richard J. Hill, Provost and Vice President; Dan Williams, Vice President, Administration; John Moseley, Vice President, Research; Richard Hersh, former Vice President, Research; Robert Berdahl, Dean, Arts and Sciences.

University of Oregon Planning Office: J. David Rowe, Campus Planner; Fred Tepfer, Associate Planner; Loren Allen, Lyle Hall, Martin Bailkey, Shawn Peterson.

Physical Plant:
Harold Babcock, *Director;* Garry Fritz, *Construction Project Manager;* Ted Burns, Don Ferguson, Clifford Flacy, Alex Gordon, Harold Hepner, Mike Hostetler, Janet Lobue, David Oliver, Dale Reddon, Tim King, John Evans, Paul Petersen, Bill Norwood, Jim Davis, Roberta Squires.

From Participation to Ownership: How Users Shaped the Science Complex

John Moseley

Photo by Timothy Hursley.

The University of Oregon is proud of its long history of intense faculty involvement in its decision-making processes. This tradition has been carried over into the planning of new facilities as a result of *The Oregon Experiment*, which is a prescription for involving a community (people who teach, work and study at the University) in developing its environment (the campus). The major principles of *The Oregon Experiment* — organic order, piecemeal growth, patterns, diagnosis and coordination — are all implemented by means of user participation.[1]

At least three "user groups" are identified at the University. First and most obvious are "direct users": the faculty, staff and students who will occupy and use a building. The "direct users" of the science complex were represented by the Science Facilities User Committee, the Core Users Committee and major task groups (see opposite page). Second is the Campus Planning Committee, an ongoing body that includes the campus planner and representatives from the faculty, administration and Physical Plant department. This committee brings an overall campus perspective to each project and assures appropriate consideration is given to the principles that guide campus development, primarily those expressed in *The Oregon Experiment*. Finally, the University administration must approve the project at several stages and is involved throughout the planning and design.[2]

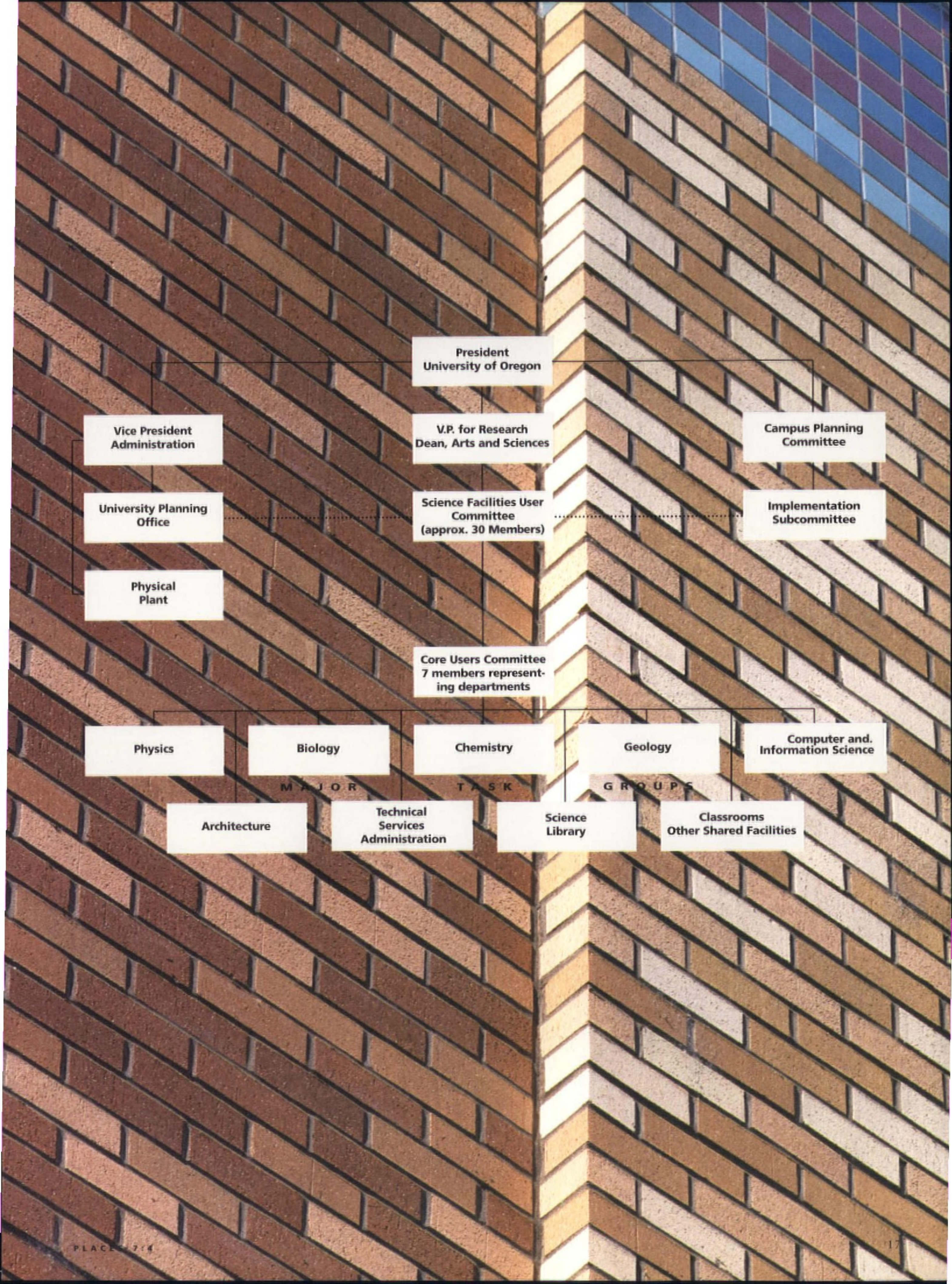
The "direct users" were engaged in planning the science complex from the earliest conceptual stages through the final designs. This group established the basic physical framework for the project, determined how much new space would be allocated to various activities and decided the principles for distributing this space among the array of new and existing buildings.

The faculty and staff who would occupy the new buildings were represented by the Science Facilities User Committee, which was composed of more than 30 faculty and staff representing all major areas of concern in the project. This committee was appointed jointly by the Vice President for Research and the Dean of the College of Arts and Sciences.

The Chair of the Science Facility User Committee appointed the seven-member Core Users Committee, which included the campus planner and representatives of each of the departments involved in the project and which functioned as an executive committee for the larger user committee.

The Core Users Committee established several "major task groups," one for each department and one for each shared facility, such as the library, classrooms and workshops. These groups were responsible for defining the program for spaces they would use and for making proposals to the Core Users Committee.

The Core Users Committee had primary responsibility for putting together funding proposals for the project and for drafting the program that defined the project for prospective architectural consultants. The key elements that the proposal and program contained were a detailed breakdown of the space (new, existing and renovated) the Committee thought would be needed through the year 2000 and a conceptual model for organizing that space.


President
University of Oregon
Vice President
Administration
V.P. for Research
Dean, Arts and Sciences
Campus Planning
Committee
University Planning
Office
Science Facilities User
Committee
(approx. 30 Members)
Implementation
Subcommittee
Physical
Plant
Core Users Committee
7 members represent-
ing departments
Physics
Biology
Chemistry
Geology
Computer and
Information Science
MAJOR TASK GROUPS
Architecture
Technical
Services
Administration
Science
Library
Classrooms
Other Shared Facilities

These two basic issues, the allocation and organization of space, were intertwined and were resolved successfully because they were addressed at the same time by the people who had the most stake in the outcome.

As might be imagined, reaching agreement about priorities for allocating the new space was not easy. When the discussions began, all of the groups that might benefit from new space were in seriously overcrowded conditions. Just making up for this accumulated deficit of space would have required approximately half the funding that was being sought. But there was demand for even more space — all of the science departments had open positions and could reasonably expect that new positions would be created through a state "Centers of Excellence" initiative. Consequently, the major task groups presented requests for more than twice as much space as was expected to be available, even assuming full funding.

To make matters worse, the University was not certain there would be enough money to finish the project. At the time planning of the science complex commenced, we were assured funding ($2.3 million) for the planning and initial design phases, but there was no money committed for construction. The University had requested a total of $45 million from the U.S. Department of Energy and the state government, but had to be prepared for the possibility that final commitments from these sources could be substantially less.

The ability of the direct users to reconcile their space requests and the overall expansion program with the expected funding limit is a strong indicator of the value of including users in the planning process. The Core Users Committee, major task forces and entire User Committee met regularly for two months to discuss the long list of space requests, to justify them to each other and to the larger group, to eliminate overlapping requests, to seek more efficient uses of space and to compare the space requests with national norms for comparable programs. The end result contained a surprise: The users agreed on not only priorities for using the new space, but also a conceptual plan for organizing the new space (and integrating it with the existing buildings).

To explain this how this happened, it helps to describe the organization of the sciences at the University. In addition to the biology, chemistry, physics, geology and computer and information science departments (those that would be affected by the expansion), the University has a number of interdisciplinary institutes that cut across departmental lines. They are molecular biology, chemical physics, materials science, theoretical sciences and neurosciences.

These institutes are not "free-standing"; they are tightly integrated with the departments. All faculty appointments are made within a department, and the institutes consist of faculty who are brought together around an interdisciplinary programmatic focus, regardless of their department. A substantial majority of the science faculty is affiliated with an institute.

Atrium connection between Willamette Hall, the new physics building, and Klamath Hall, the existing chemistry building. Left and right photos by Timothy Hursley. Center photo by Donlyn Lyndon.

Left: Second-level connection between Volcanology Building and Cascade Hall. The stair at right leads to the third level of Cascade Hall.
Below: A stairway within Cascade Hall.

Horizontal and Vertical Integration

Most of the science faculty at the University are not only appointed within a department, but also affiliated with an interdisciplinary research institute. Faculty members wanted the new complex to facilitate their interactions within both groups.

To accomplish this, departments are located in individual buildings (vertical integration) and institutes are located on the same floor of each building that houses a department with faculty members in the institute. The connections among floors and buildings include "social stairs," hallways, light wells, an atrium and an outdoor stairway.

Each of these elements fosters easy access and encourages random social interaction. These elements also provide occasions for the differentiated architectural spaces and expressions that make each building, and each departmental realm, unique.

It had been realized by the science faculty long before the planning for the science facilities started that the ideal arrangement of space would allow a faculty member's office, laboratory and research assistants to be located in a place that was physically connected to both the department and the institute with which that faculty member was affiliated. For example, I am a physicist; I want to be in an area that is identified with the physics department since my teaching is in this department and I have interests in all of the research areas of physics. I am also a member of the Chemical Physics Institute, which involves not only atomic, molecular and optical physicists but also physical chemists. I also would like to be particularly close to those chemists involved in the Institute, in order to facilitate research cooperation.

The User Committee was not certain that the new facilities could be designed to accomplish this goal; the integration we envisioned would require making connections between new and existing buildings. To guide its thinking, and the thinking of the architects, the committee developed a conceptual model called "horizontal and vertical integration."

The programmatic purpose of "horizontal and vertical integration" was to permit each faculty member to be physically located "in" her or his department and institute. At the same time, this arrangement helped reduce the space request from each major task group. For example, it turned out that seminar and class rooms, administrative office space and various support activities could be shared efficiently. These reductions resulted not only from finding efficiencies in space organization and sharing, but also by developing within the entire group a common goal: solve the "horizontal and vertical integration" problem. Each major task group was more likely to reduce its space request to help achieve the highly desired overall organization of space.

The users also decided the new complex should consist of four smaller buildings, three of which would connect to each other or to existing buildings. This approach could satisfy the horizontal and vertical integration scheme, keep buildings to a scale consistent with other buildings in this area of the campus and maintain the spirit of *The Oregon Experiment* by giving the appearance of "piecemeal growth." This approach also provided opportunities for the architects to design and users to discover a "sense of place" within the complex.

These ideas were incorporated in a proposal titled "Design of a Science Facility for the University of Oregon." The proposal contained an overview of the activities that would be housed in the new buildings, described the horizontal and vertical integration scheme, included a conceptual plan for locating the new buildings and provided a breakdown of space needs for the programs. The proposal was not only submitted to potential funders but also served as the heart of a manual for prospective architectural consultants (which was used in the selection process for the architects); the ideas in the proposal became the basis for the design of the new facilities.

Having reached an agreement on an overall arrangement and allocation of space, it was easier for the direct users to accomplish the even more difficult task of deciding on priorities at lower funding levels. However, the University obtained all the funding it was seeking, and the arrangement of space that was finally constructed closely follows the original conceptual model.

From Integration to Ownership

Involving the users so early, and so substantively, in the planning process helped in two important ways. First, a process that did not involve users so thoroughly probably would have obtained less suitable results, and its decisions about allocating space probably would not have been so well accepted. Second, the users' success in developing a conceptual model for organizing space in a way that met important community needs led to a very high degree of "ownership" in the project. These accomplishments set the stage for continued constructive involvement of the users in the development of the project.

The architects organized several participatory "workshops" that involved members of the User Committee, as well as other appropriate faculty and administrators, to address issues such as the building location and massing and the schematic design of departmental spaces and laboratories.[3] In addition, the core committee and the major task groups worked directly with the architects to develop the conceptual design. Having such a large number of participants in the process certainly was time-consuming, but the "consensus" solutions reached in most aspects of the project would have been impossible otherwise. The high degree of faculty and staff involvement also brought additional responsibility to administrators who had to arbitrate differences that were not easily resolved and also had to keep the project on a reasonable timeline.

This involvement brought with it a sense of ownership that made it easier to cope with problems that arose during the design and development of the science complex. For example, construction costs were higher than expected, forcing a reconsideration of the amount of space allocated to various activities. The Core Users Committee opted to absorb a 12 percent cut in assignable space in order to leave intact design features intended to integrate the new buildings with the existing ones and with the remainder of the campus. Quality and organization of space and architectural design won out over maximizing floor space.

Now that the buildings are occupied, it is interesting to observe how well the concept of "horizontal and vertical integration" is working. One of the areas where this concept can be best seen is in the connection between the new physics building, Willamette Hall, and the existing chemistry building, Klamath Hall. The connecting element is the spectacular atrium, which brings physicists and chemists into the open area, allows most of the hallways in Willamette Hall to be open to the atrium and allows these two buildings to function as one. Faculty who work in these buildings report that both planned and spontaneous interactions with other faculty in their department and their institute are enhanced by the easy connection between the buildings and by the attraction of the open space. It is virtually impossible for me to visit the coffee shop in the atrium without meeting a half dozen of my colleagues; not infrequently these chance encounters result in very useful discussions.

Other, smaller-scale examples can be found throughout the buildings. A stairway that reminds one of an Escher drawing connects two floors of molecular biologists, achieving the goal of "horizontal integration." A similar two-story light well/staircase connects two floors of the Materials Science Institute. These "connectors" attract people for a variety of reasons: the quality of the space, the fact that many administrative offices, seminar rooms and other shared spaces open directly onto these connectors and the fact that many of the hallways in the buildings are actually open to these spaces.

Moreover, the architectural quality of one of the least attractive parts of the campus was tremendously enhanced and is more in keeping with the rest of a very beautiful campus. The campus as a whole gained some very useful public spaces, such as the Willamette Hall atrium and classrooms.

Within the complex, the variety of visual clues, the lack of symmetry and the connections to existing buildings make it easy for a person using the facility to identify exactly where he or she is and give many of the spaces a strong identity. I suspect that over the years, the fact that all four buildings were constructed at the same time will be forgotten and people will tend to think of some of the existing buildings as unimaginative "additions" to the newer structures!

The success of this project underlines the importance of user participation in the planning of university facilities. While such heavy involvement by such a large number of people is time-consuming and at times greatly complicates the lives of administrators, it increases the likelihood of reaching an optimum solution and creates a sense of ownership in the project among its occupants and others on campus who participate in the process.

Notes

1. For a fuller discussion of these principles, see J. David Rowe's article in this issue.

2. As a professor in the physics department and as the University's vice president for research, I fell into both the first and third groups. I also served on the Science Facilities User Committee.

3. The workshops are described in Buzz Yudell's article in this issue.

Credits

Core/Site User Committees:
Harold Babcock, Rod Capaldi, Don Corner, Berndt Crasemann, Rick Dahlquist, Jerry Finrow, Wilmot Gilland, Paul S. Holbo, Joanne Hugi, Eugene Luks, Robert Mazo, Mike Menaker, John Moseley, Aaron Novick, John Reynolds, J. David Rowe, Norman Savage, George Sprague, Kent Stevens, Greg Stickrod, Isabel Stirling, Don Van Houten, Peter von Hippel, Jim Weston, Charles Wright.

Animal Facilities:
Greg Stickrod.

Architecture and Allied Arts:
Wilmot Gilland, *Dean*; John Reynolds, Jerry Finrow, Don Corner, Jenny Young, Ronald Lovinger.

Biology:
Jim Weston, Rod Capaldi, George Sprague, John Postlethwait, Aaron Novick, Bruce Wilson.

Chemistry:
Rick Dahlquist, Ralph Barnhard, Diane Hawley, Geraldine Richmond, Tom Stevens, Tadmirl Venkatesh, Eric Selker, David Senkovich, Peter von Hippel.

Computer and Information Science:
Gene Luks, Kent Stevens, Andrzej Prozurowski, Steve Fickas.

Geology:
Sam Boggs, Gordon Goles, Darby Dyar, Gene Humphreys, Dana Johnston, William Orr, Mark Reed, Greg Retallack, Jack Rice, Norman Savage, Harve Waff.

Institute of Theoretical Science:
Robert Mazo, Rudolph Hwa, Nilenda Deshpande.

Museum of Natural History:
Don Dumond, Patricia Krier.

Physics:
John Moseley, J. David Cohen, Berndt Crasemann, Russell Donnelly, Jack Farley, Marvin Girardeau, Roger Haydock, Richard Higgins, James Kemp, Harlan Lefevre, Brian Matthews, David McDaniels, Ira Nolt, Jack Overley, Kwangjai Park, George Rayfield, Jim Remington, David Sokoloff, Davison Soper.

Science Library:
George Shipman, Isabel Stirling, Patricia Silvernail, Beckie Hoglund.

Technical Science Administration:
Fred Munz.

Building Community Through Participation

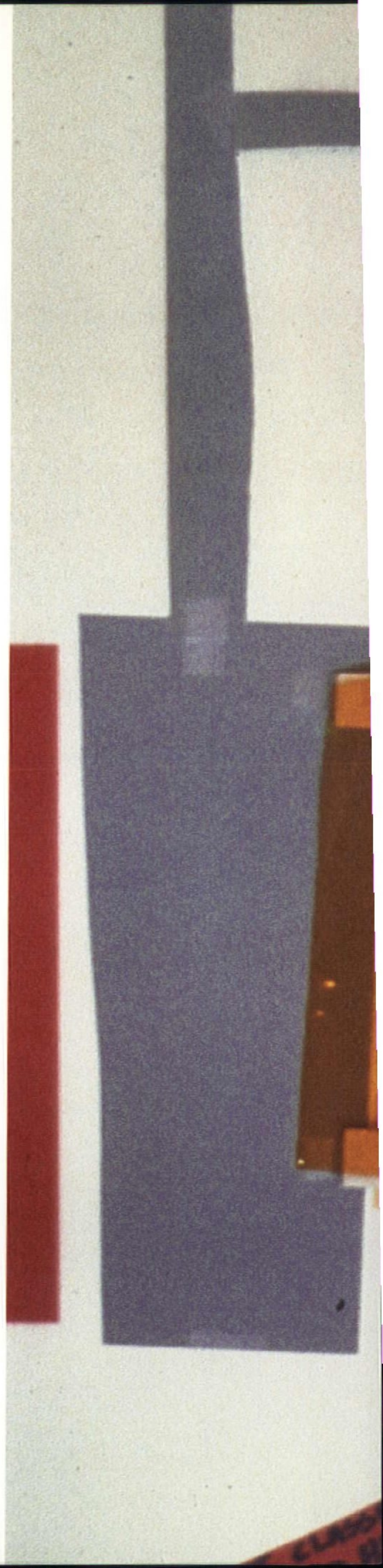
Buzz Yudell

Planning a major new complex in a sensitive environment is a daunting prospect. The planning team consists, inevitably, of outsiders able to bring new insights but equally capable of disrupting the fabric of the place. How can one give shape to the needs and spirit of the place?

In his book *Genius Loci*, Christian Norberg-Schulz writes, "Architecture means to visualize the *genius loci* (spirit of place), and the task of the architect is to create meaningful places, whereby he helps man to dwell."[1]

We approached this project with the sense that the best way to help our clients to dwell was to engage them deeply in the process of planning. We came with a commitment to listen, to collaborate and to help synthesize many perceptions and needs into the physical places that could nurture their work, community and campus.

When the planning team — consisting of the firms of The Ratcliff Architects, Moore Ruble Yudell, and McLellan & Copenhagen — began work at the University in 1985, we found a sophisticated community proud of its history, aware of the recent damage to the fabric of the campus and committed to an open and democratic process of decision-making. While the campus seemed unusually free from partisan maneuvering there were, as always, divergent goals and perceptions.



A series of participatory design workshops led by the planning team produced sketches and collages that indicated priorities for organizing departments and allocating space. Red dots indicate places where daylight is needed. Photos courtesy Moore Ruble Yudell.

The science departments themselves were highly organized, having worked for years on alternate scenarios for expansion of their facilities and funding. The scientists were concerned with the functional needs of their laboratories and the amount of space that would be available to them. The campus planning staff was dearly concerned with the scale and pattern of buildings and open spaces. Students were looking for the quality of the teaching facilities. Many of the architecture faculty were concerned that Christopher Alexander's "pattern language" as expressed in *The Oregon Experiment* be rigorously applied. All of these groups participated throughout the design process, from workshops through the traditional design phases.

The planning team brought its own history, diversity of perceptions and predilections. We saw our challenge as creating a process that could welcome a multiplicity of perceptions and opinions, foster communication and exchange, and ultimately, synthesize and manifest a diversity of thought and need into a coherent plan and design for the science complex.

The Process

Any process with these ambitions must balance openness with structure, free expression with information. Our means of accomplishing this was a series of participatory design workshops conducted on campus over a four-month period. These workshops brought together interested members of the University community, people representing a broad range of constituencies and points of view, and encouraged their creative participation in an array of campus planning issues.

The Campus

This workshop began with a presentation about the historical plans for the campus, looking at places where those had been successfully realized and places where, more recently, the patterns had been ignored or damaged. This was followed by a range of activities, from those that encouraged people to think freely and creatively to those that asked them to be focused and analytical.

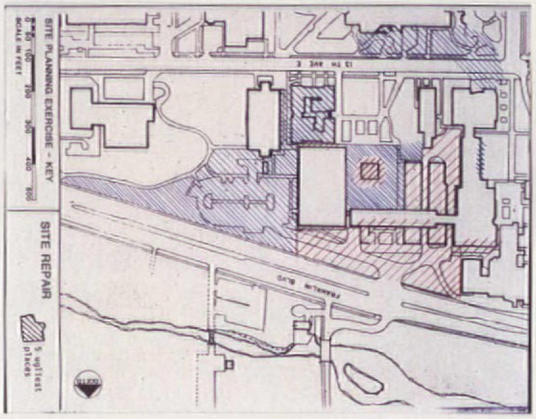
During most of the workshop, small groups explored the implications of alternate schemes for the location and massing of the buildings. The groups were intentionally organized to be heterogeneous, each with representatives of science departments, the campus planning office, students, staff and administration. Early on, it became apparent that the maximum efficiency of the science buildings might be at odds with the campus needs for sensitively scaled buildings and courtyards.

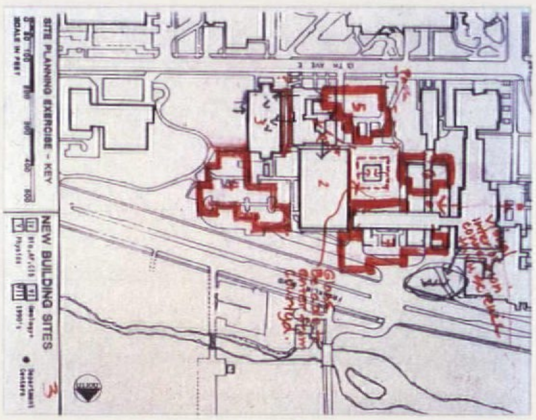
The scientists, who were already well versed in the programmatic needs of the buildings, became sensitized to the needs of the campus. The campus planners, students and staff began to understand more clearly how the scientists worked and their physical, spatial and social needs. The overlapping agendas had been exposed, the dialogue had been expanded.

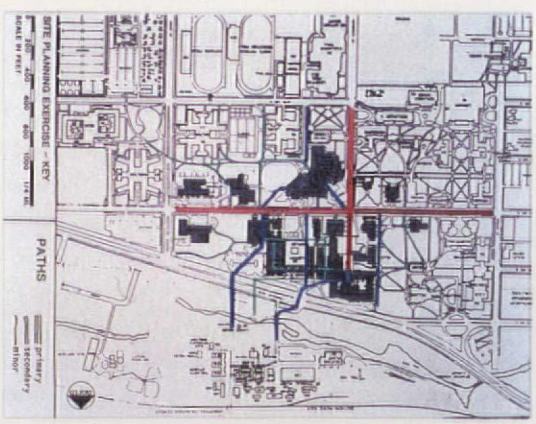
Intermittently groups went out to the potential sites and responded on maps to questions about such issues as preferred locations for individual buildings, important paths and views, site repair and key linkages between departments. These issues all had analogues in patterns described in *The Oregon Experiment*. The maps were collated by the planning team and discussed with the whole workshop.

This workshop also led to a number of critical discoveries about the physical planning of the campus. First, it became clear that the horizontal and vertical linkages that the scientists sought among departments and institutes (some in existing buildings and others in new ones) could be achieved without sacrificing important campus patterns. The new buildings could be linked in such a way that a new series of south-facing courtyards (a pattern from *The Pattern Language* that Alexander and his colleagues said would be particularly applicable to the Oregon campus) could be established. Further, these new buildings could be positioned to preserve and enhance important axial views and to "repair" damaged site areas by shielding unattractive views and providing "addresses" and identity on 13th Avenue, the main campus street, where previously there had been none.

There were, as well, some magical moments of discovery. During a site-massing study, a member of the faculty noticed that in addition to using the new buildings to strengthen the sense of identity of 13th Avenue, there was also the possibility of arranging them to create a secondary path, a pedestrian way parallel to 13th Avenue. This was to become Science Walk, a kind of insiders' path for communication among science students and faculty. It later became so important to the plan that Scott Wylie, a sculptor involved in the art program, choose this walk as the site for a series of tile and brick installations.

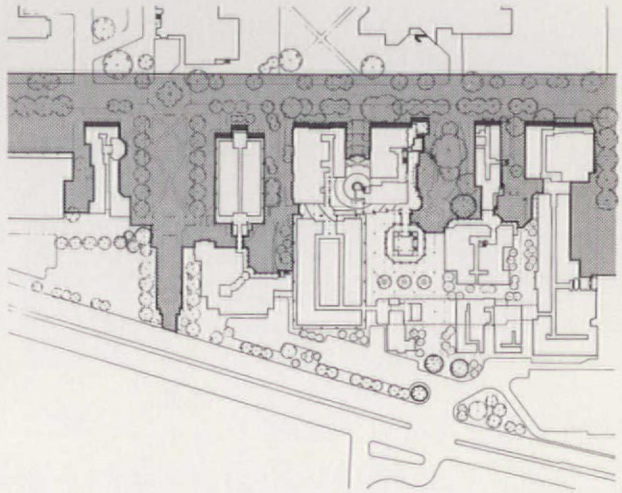


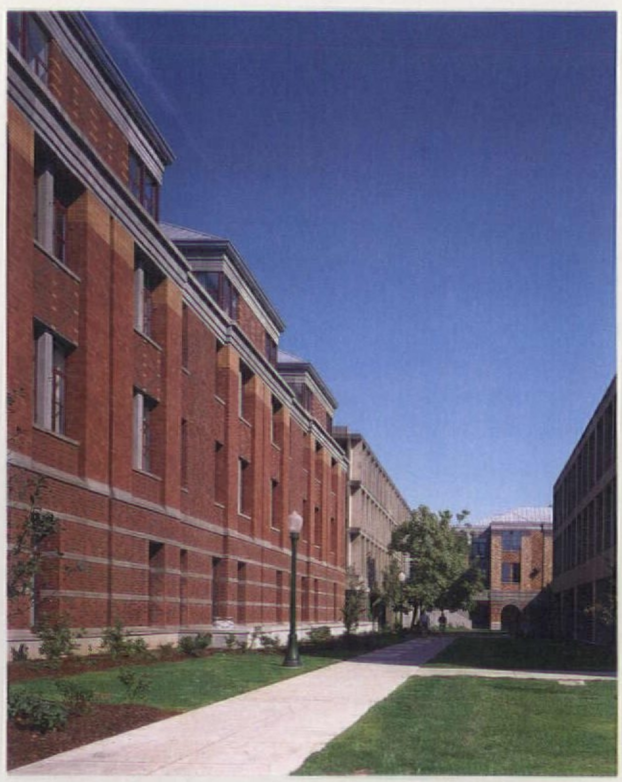




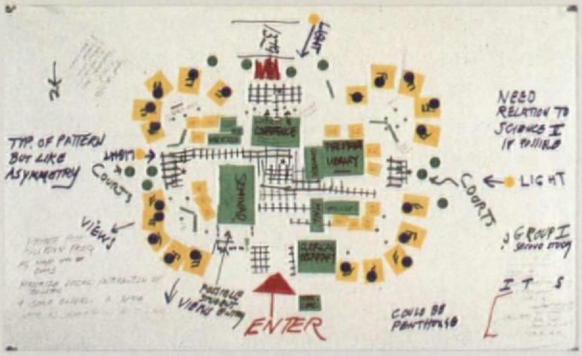
Architects and workshop participants walked the campus, making maps that indicated views, paths, potential building sites and sites in need of repair. Drawings courtesy Moore Ruble Yudell.

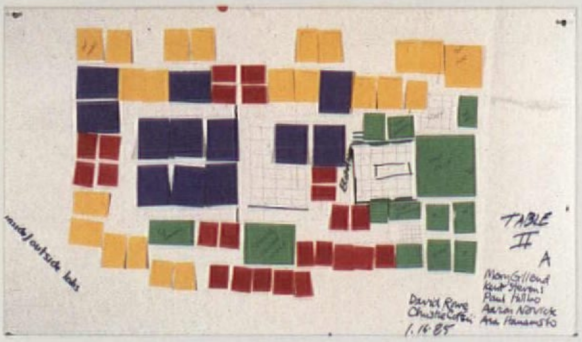
The facades of the buildings strengthen the idea of 13th Avenue as an important street, and south-facing courtyards penetrate into the complex from 13th Avenue. Graphic courtesy Moore Ruble Yudell.





Willamette Hall's east facade forms a courtyard with Huestis Hall (right) and Klamath and Streisinger Halls (rear). Photo by Timothy Hursley.





Collages and model by workshop participants. Photos courtesy Moore Ruble Yudell.

The Department

The workshop dealing with the departmental realm began with a brief overview of the typological alternatives for organizing science research buildings. We analyzed a broad range of examples for their spatial, social and service configurations and potentials. We presented both analytic and descriptive material so the character and spirit of places could be discussed as much as their dimensions and functions.

Scientists, graduate students and staff then gathered in small groups according to discipline. They discussed issues ranging from the nature of communication in the scientific community to the logistics of moving equipment through their buildings. Much discussion centered on the relationships between faculty, graduate research assistants, staff and undergraduates. It became clear that for most scientists, social relationships were central to the research process.

Animated discussion quickly evolved to equally energetic sketching and collage making. Using colored paper to code such uses as laboratories, office spaces and service areas, the teams produced two- and three-dimensional collages of great sophistication. Each collage represented the group consensus on how an entire department ideally should be organized.

The scientists from the Institute for Theoretical Physics and the computer and information science department both created geometrically elegant diagrams stressing the primacy of the individual lab, analogous to a study. These labs were oriented outward toward trees and views and configured in intimate clusters of related researchers and research assistants. The biologists sought large flexible spaces, positioned for easy connection to related research in chemistry and physics. The geologists, a particularly congenial group with an outdoors orientation, emphasized social spaces, views and contemplative study.

The physicists were perhaps the most organized and ambitious group. They were headed by John Moseley, who had been at the forefront of planning and funding for the entire science complex. They presented an extraordinary three-dimensional model that represented a highly resolved set of horizontal and vertical relationships among disciplines and equally sophisticated linkages to other departments along bridges that would house offices for the interdisciplinary institutes. The whole composition was organized around an atrium that allowed for social interaction within and among departments and could provide a focus for the whole science community.

All departments dealt with some of the key patterns stressed in *The Oregon Experiment*. "Social Stair" is a pattern that suggests the use of stairs to encourage social and academic interaction. Every department eventually integrated a carefully located social stair. "Department Hearth" is a pattern that recommends a focal space that can become the social and emotional center of the department. "South Facing Outdoor Space" is a pattern that encourages the southern orientation of gathering spaces in this often damp northern climate. These patterns were introduced to the work-

The hearth for the biology department connects to an upper-level terrace that overlooks a courtyard. Photo by Donlyn Lyndon.

shops by the planning team at various times and were skillfully incorporated in many of the scientists' sketches and models.

The scientists were able to work within these patterns while creating differentiated spaces responding to the particular needs of each department. For example, the more informal and outdoor-oriented geologists worked towards large informal south-facing meeting spaces adjacent to south-facing porches and courtyards. The theoretical physicists sought intimately scaled, quiet spaces adjacent to clusters of faculty offices or related to the small departmental library.

The sophistication of these studies, which came together in less than two hours, was astounding and demonstrated the potential of the workshop process for the exposition and synthesis of creative ideas. Most graduate students or even practicing architects would spend weeks gathering information and testing alternate configurations before arriving at the level of resolution that these studies exhibited.

The products of these workshops became touchstones for the science complex's planning and design. Specific ideas took on a life bigger than anyone in the workshops may have expected. The Willamette Hall atrium became the veritable heart of the science complex and one of the major meeting and celebration spaces on campus. Science Walk became a small-scale but very important social spine.

While it was clear that user involvement was well rooted at the University, we felt a participatory workshop process would provide additional benefits for a project as complicated as this. We had learned that workshops encourage users to participate in active, creative ways that surveys and critiques do not, increasing people's sense of empowerment and responsibility for their environment. We organized the workshops around different "realms" that people encounter on the campus, realms that are nested in a hierarchy of scales. The sequence focused on the realm of the campus, the realm of the department or building and the realm of the laboratory. Each workshop was meant to elicit and discover issues and goals of the various participants.

Within each realm diverse points of view or cultures existed. In the campus realm were campus planners, students, faculty and staff. In the department realm were at least four quite different groups of scientists with diverse ways of conducting research and communicating (there were also a number of inter-departmental institutes to encourage and share dialogue among disciplines). In the laboratory realm were individual variations in methods of research and teaching. We had to balance these against economies of scale and the need for future flexibility.

Issues exposed at each scale were juxtaposed against what we had learned about the other scales so the various ideas and discoveries could inform each other. For example, a morning workshop on the campus might expose issues that would influence an afternoon workshop on the departmental buildings.

The planning team itself brought diversity. Moore Ruble Yudell brought considerable experience in participato-

The Laboratories

The laboratory workshop was the focus for discussions about the detailed process and dimensions of the work of research. The introductory talk focused on a range of precedents and examples with discussion of the trade-offs inherent in the size of labs and the services provided to them; we presented various paradigms for laboratory organization that would provide significant trade-offs among issues of internal functioning, cost and exterior massing.

The primary workshop activity centered on "kit of parts," models that could be manipulated to develop all the relationships within each discipline's work spaces and offices. This helped to test the many variables being considered.

During this workshop the quantitative issues of university space standards were introduced so that even at the earliest planning stages we were able to address the sometimes difficult compromises necessary between ideal solutions and the realities of budgets and funding. The workshops for all three realms or scales attempted to balance the benefits of free, creative imagining with the gradual introduction of the constraints of budget, space limitations and the overlapping needs of different constituencies within the campus.

The most critical concern for the planning team was reconciling the laboratory needs of the scientists with site concerns of the community and planning staff. The physics laboratories, which required the largest, most flexible space, produced the biggest new building. Much of the effort of the site workshop and subsequent planning team design studies focused on how to articulate the scale of this building. In the end it is experienced as a series of related pieces along 13th Avenue.

The laboratory workshop did not produce the moments of great surprise and discovery that we experienced in the other workshops. However, it established critical differences in character and dimension between the various kinds of research space. The spectrum ran from laser scientists who sought garage-like spaces with no outside light to geologists who preferred intimate studies to theoretical physicists who hoped for rooftop aeries with views to verdant mountains.

Model of laboratory spaces developed by participants in workshops.
Photo courtesy Moore Ruble Yudell.

ry planning workshops. Much of this work had been inspired by earlier collaborations with Jim Burns, whose "take-part" planning techniques had been developed first with Lawrence Halprin and then extended and tested in his own community experiences.

The Ratcliff Architects brought workshop experience and a closer connection to the work of Christopher Alexander, Christie Johnson Coffin having been a graduate student his and having taught on the architecture faculty of the University of Oregon. McLellan & Copenhagen, the laboratory consultants, brought experience in client participation and in the detailed planning of laboratory space.

We sought a broad cross-section of user participation in the workshops. Typically some 50 to 80 individuals representing student, faculty, planning staff and administration participated. Also, 10 to 15 members of the planning team attended each session.

Each workshop had its own rhythm, moments of discovery, controversy, magic and, sometimes, epiphany. Each began with a brief talk by members of the planning team to establish a base of information among participants from different realms. Much of the work occurred in groups of five to eight individuals at tables where ideas were exchanged and sketches and collages were developed collaboratively. One member of the planning team acted as the facilitator at each table, listening, taking notes, answering technical questions and stimulating discussion but being careful not to guide or prejudice the exploratory nature of the process. The atmosphere was meant to be informal and collegial.

Workshops were spaced approximately four to six weeks apart; between the sessions the planning team synthesized the results of the preceding workshop to be presented, discussed and adjusted at subsequent sessions. Each major workshop topic was explored in half-day work sessions.

This process in no way replaced traditional programming efforts. Information on the program and needs came from the user committees and numerous interviews of scientists and staff by the planning team. The participatory process did, however, provide an invaluable mode in which communication of overlapping constituencies and free exploration of dreams and ideas could inject invaluable creativity into the overall planning process.

The Workshops in Context

For all the energy and ideas that the workshops exhibited, they represent only a short burst of energy and time within the overall planning and design phases. They in no way obviate all the traditional steps in the design process, from programming through multiple design phases. Nor do they, as some practitioners fear, diminish the role of the architect or the need for the architect to give physical form to the place. Creativity is not a limited commodity, and the more open the process the more freely it can flow.

The workshops had many lasting effects. They exposed various goals and agendas in a common forum so all players were aware of the necessity of accommodating diverse but overlapping needs from the start. They unleashed the enormous creativity of individuals who were enfranchised as creative participants in the making of their workplace and community, rather than relegated to the sidelines as observers or critics. They built a sense of participation that translated into energy and advocacy along the often difficult path to realizing a project. They fostered communication that extended the sense of community.

Opening day ceremonies were in October, 1989, about four years after the first workshops. We were sitting expectantly in the atrium enjoying the light and space and remembering the physicists' colored paper model. Awaiting the arrival of U.S. Senator Mark Hatfield, a staunch supporter of the funding of this project, we imagined with some pleasure how this space might come to be a focus for insightful discussion between scientists or symposia to solve world problems.

Suddenly the spell was broken as students festooned with headbands, placards and banners marched in, chanting in protest against Hatfield's stand on the spotted owl, the University policy on benefits for teaching assistants and other issues too obscure for an outsider to glean. They paraded around the seated guests and up the grand stairs, finally occupying the stairs and balconies of all four levels — the ones we had so carefully conceived to encourage visible social interaction.

Our University hosts were appalled that this long-awaited celebration was so rudely violated and especially that distinguished guests from all levels of government were unabashedly hooted. Both the hosts and the politicians subject to this abuse were calm and skillful in their response. The ceremonies proceeded in impressive if somewhat abbreviated form.

For some reason I was quietly pleased by this display — not necessarily from political sympathy for the protesters, but because this atrium, conceived by the scientists for their use, had already taken on a scale and life beyond those initial ideas. All of the needs of the science complex could be fulfilled here, but other agendas

Protesters in atrium of Willamette Hall during the dedication ceremony. Courtesy *Oregon Daily Emerald.*

and ideas could overlap and coexist in this place for community.

Since that eventful opening the buildings and spaces have settled down to quieter patterns of daily use. Laboratories seem well suited for research and teaching. Social stairs, department hearths, south facing courtyards and porches are used for informal meeting and relaxation. Science Walk is a place for chance encounter. The physics atrium, home to a small coffee shop, is a focus for socializing and professional gathering both at the scale of the department and the university.

For us the pleasures and rewards of the workshop process lie first in giving voice to the aspirations of a community and then in giving form to those dreams. The places that grow out of this process take on their own life, which then continues to nurture and build community.

Note

1. Christian Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture* (New York: Rizzoli, 1980).

Cascade Charley

Alice Wingwall

Working description: Cascade, from dictionary, "a fall of water over steeply slanting rocks... ."

A torrential rain shaped a working cascade before my eyes as it forced down a monumental cut in a hillside in the Ticino, the Italian-speaking canton of Switzerland. The day before, I had seen the boulders and slanting rocks dry in the afternoon sun. Now, water was plunging, flying and falling over the sharply descending angles of great big rocks, right next to the window of the train. Both the shape of the mountainside crevice of rocks and the force of the water astounded me. Yesterday, the cut had seemed climbable, a kind of natural excavation in the mountainside. Today, the tremendous onrush of the water made that impossible.

In the geology courtyard, I worked to reconstruct some of the geology I had seen in that mountain stair. My cut is a water stair beside a pedestrian stair between the geology courtyard and a terrace 15 feet above grade. The terrace itself links the older Volcanology or "Little Geology" building and the new geology building, Cascade Hall. The terrace also gives access to an outside stair on the upper level of Cascade Hall.

Color appears in various sizes of granite slabs in the pools and on the stairs; two granite pieces are elevated to the top of a column in the middle pool; tiles relating to colors on the surrounding buildings fill the bottoms of the three pools. The geologists brought additional rocks to fit into the formation of granite and tile.

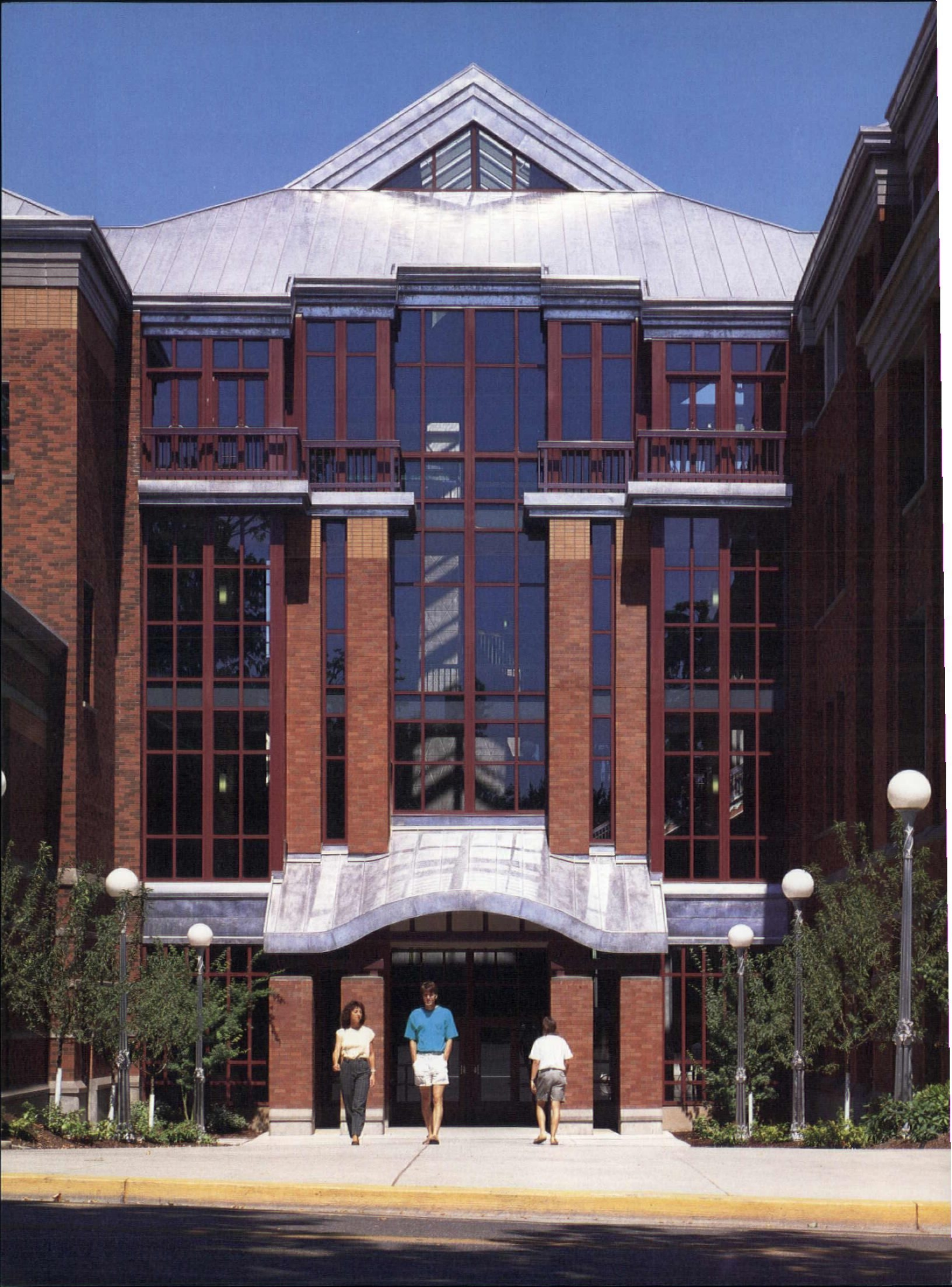
A "shadow" of the column in the middle pool falls across the bottom pool. That shadow, formed as a path of quarry tile, contains pieces of granite that refer to the granite atop the column and in the top pool. The lower pieces may have fallen from the structure above, or they may form part of a large structure that we may not be able to see. We have to guess at its total pattern. We might be looking at geological sediment, at a kind of excavation through time. We might confuse the geological fragments with architectural fragments, like those we see at the Roman Forum, for instance. We might be looking at a temple dug out of a hillside, or a house just being built. This contemplative time is as fleeting as reflections in the water that flows past.

Yet reflections are as enduring as memories. The joking support of the construction team and the jibes of the concrete foreman: "Why the overkill on this concrete, Alice? You made gorilla steps!" he yelled as workers ran up and down the 24-inch risers on the slab walls of the fountain. "It's no dumb tilt slab." Finally, he told me quietly that the fountain was the most challenging, but most fun, of jobs he had done. "I had to think about it. But hey, it's a monument." And, beside the monument, the reflection of the lost presence of my father, Charley. He loved water and monumental rocks.

After all, it is about stones: Where we find them, where we put them, how we contemplate them. After all, it is about water: How it looks flowing around rocks, how it changes their colors, how it listens, how it falls differently from pools and stairs, around columns and over walls. We learn that cascade and chance come from the same original word, *cadere*, "to fall."

In one sense we fell into geological time, into archeological time, and loved learning from time, and from the rocks.

Left photo by Paraspazio.
Right inset photo by Timothy Hursley.



One might assume that a functional university laboratory building ought to look the part, since so many of them resemble the experimental apparatus they house and overpower the rest of the campus with their size. One might further assume from the evidence (including that produced amply at the University of Oregon during the past four decades) that science buildings cannot be designed or built in a manner that complements the complicated and sensitive physical contexts of a traditional college campus.

But the expansion of the science complex at the University of Oregon is different. It has not only produced flexible, functional laboratory space but also resulted in a set of buildings whose siting, massing and exterior design advances the quality of the campus environment. This outcome is a tribute to the vision of the University's planners and administrators and of the scientists who participated in the design process.

As designers, our job was to fashion a new science campus from the somewhat unpromising existing buildings as well as the potentially unyielding large blocks of new laboratory space. We were guided by the participants' concerns and suggestions: They proposed ways of returning the science complex to the high standard set by Ellis F. Lawrence's 1914 plan, expressed a preference for buildings that responded in unique and idiosyncratic ways to the context rather than buildings of standard academic historical styles, and opposed anything that seemed to present a technological vocabulary.

Using New Buildings to Solve Old Problems

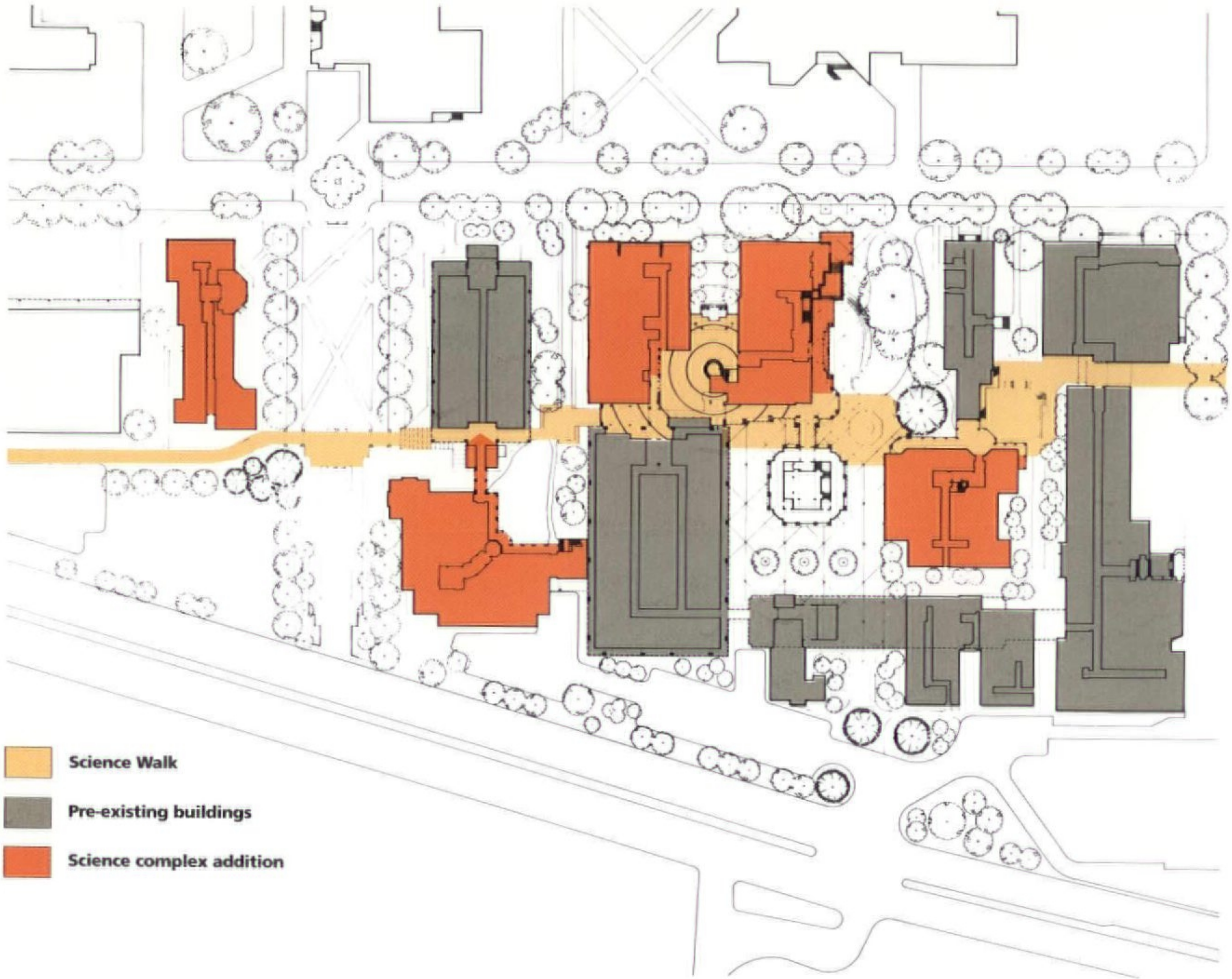
Stephen Harby

We focused on a number of basic issues: strengthening the relationship of the science complex to 13th Avenue, which is a major campus axis; turning the amorphous open spaces surrounding the science buildings into defined courtyards; and preventing the expansion from imparting the sense that it was a monolithic project.

Along much of 13th Avenue, the campus' major east-west street (and one of Lawrence's original campus axes), there is a pattern of alternating facades and courtyards, all about 50 feet wide. This pattern provides a rhythm that a pedestrian experiences when walking down the street, and the courts often lead to larger and more complex spaces beyond. We wanted to establish a similar pattern where the science complex fronts 13th Avenue, thereby strengthening the sense that 13th Avenue is a major axis and imparting a stronger identity to the buildings and open spaces that connect to it.

Willamette Hall, the largest of the new buildings, is fragmented into several elements that approach 13th Avenue in different ways. At the southwest corner of the building, a small, open tower shelters an entrance to a cluster of lecture halls, accents the low-rise mass of the

Willamette Hall main entrance, facing 13th Avenue. Photo by Timothy Hursley.



The new science buildings were set among the existing ones. The open spaces in the complex are now better defined and there are more physical connections between buildings. Graphic courtesy Moore Ruble Yudell. Photo by Timothy Hursley.

west wing and provides a counterpoint to the higher four-story mass of the east wing. The 13th Avenue facade of the east wing is divided into a pair of elements that reinforce the more intimate scale along the street frontage. Between these wings is a 75-foot deep forecourt that leads to a four-story glass facade and the main entrance to the atrium. The atrium carries this court into the building, integrating the concepts of human-scaled buildings and courtyards.

Older Buildings as Allies

Another goal was to treat the older buildings as allies and to rehabilitate them by incorporating them into the new composition rather than to banish them by ignoring them. The newer part of the campus, particularly the science complex, consists of larger buildings that float independently from one another in poorly defined open spaces. The newer buildings differ from the older structures and from one another, since their designers sought originality of appearance. The placement and massing of the four new buildings engage the existing buildings with courts, linked arcades and porches to create a more meaningful composition. The oppressive scale and austerity of the older science buildings have been tempered because they are now part of a larger and more varied composition.

Klamath Hall is a monolithic concrete box designed in the brutalist style. It formed a dominant center to the science complex although it was set back from 13th Avenue. To the east of that is Huestis Hall. These two buildings, constructed in the 1960s, were sited diagonally to each other as independent objects in space with no engagement between them. By adding Streisinger and Willamette halls to this pair, we created a group of four buildings that function collectively.

Strong internal linkages connect all these buildings. Primary among them is the new Willamette Hall atrium, which provides a grand prelude to the chemistry department's lobby in Klamath (whose previously overbearing gridded facade now forms an essential part of the intricate composition of the atrium's north wall).

The four buildings also are sited to define an appropriately scaled courtyard. Huestis Hall, once a freestanding object, now forms the eastern edge of a green leading from 13th Avenue to an inviting plaza bounded by Klamath and the new cell biology laboratory.

Even the concrete egg-crate facade of Klamath Hall takes on a pleasing regularity, since the amount of it that can be seen has been reduced by half and has been joined by other, more varied elements. The west side of Klamath Hall's concrete frame structure is "woven" into the new facade of Willamette Hall.

Similar engagements between old and new buildings occur elsewhere. A courtyard that was strategically placed where a parking lot had been has woven two existing buildings (Columbia and Volcanology) and Cascade Hall into a strong composition. Alice Wingwall chose this site for the fountain and sculptural stair that she designed as part of the art program. The fountain, which climbs up the side of an existing accelerator building, has transformed what had been an eyesore into one of the most popular spots on campus.

Huestis Hall and the new Streisinger and Deschutes halls were grouped to create a larger, more formal open space — a new quad. Deschutes Hall, home to the computer and information science department, encloses the east edge of the green and provides a balancing mass to Huestis Hall. A projecting wing at the north end of the building, coupled with a similar tower on Streisinger Hall, marks the point at which Science Walk crosses the green and divides it into two smaller spaces. The ensemble anticipates future growth by reserving a logical site for a fourth building, which would complete the quad. The green also anchors a new campus axis that recognizes an

The variety of materials and colors used in the facades, and the consistent organization of the facades, allow each building to be unique while establishing continuity throughout the complex.
Photos by Timothy Hursley.

existing path to the athletic fields, stadium and river, and could be extended to a future planned research center.

The final element of linkage in the science complex is Science Walk, which provides an understandable and direct connection among the various focal courts, porches, building entrances and major public interior spaces like the atrium. Reflecting the spirit of the principle of "piecemeal growth," it is fashioned not as a unified element like an arcade or gallery but as a collage of varied experiences using different forms, materials and scales both inside and out. Previously existing gateways, like the bridge linking two existing buildings at the west end of the site, were improved, and existing important places like the lobby of Klamath Hall are incorporated and made inviting.

To reinforce the importance of Science Walk and underscore its informal character, the Art Selection Committee selected Scott Wylie's proposal to install special paving patterns along its length. Wylie used ceramics, bricks and stone to weave a visual and textural pattern along the sequence of exterior courts, paths, porches, entrances and interior gathering spaces that connect the opposite sides of the buildings that front 13th Avenue. The experience of moving along Science Walk is rich and varied, providing the kinds of choices and diverse sensations that the complexity of the program suggests.

Developing Variety with an Architectural Vocabulary

Designing the exteriors of the buildings, we were faced with conflicting goals. We wanted to make the new buildings relate to each other and look familiar. But we also wanted to make each of them unique, to avoid the

The exterior design of the new buildings reflects the presence of special places inside — such as the entrance to a cluster of lecture rooms in Willamette Hall (above), a department hearth in Streisinger Hall (top left) and a colloquium room in Deschutes Hall (below left).

impression that a monolithic complex had been inserted into the campus.

We gathered a family of materials (such as brick, tile, concrete and copper) and elements (such as pilasters, capitals, belt courses, cornices, sloping roofs, windows and doors) that could be combined in an infinite number of ways. This resulted in a certain commonality while also permitting opportunities for variation.

We also suggested continuity among the new buildings and with the oldest section of the campus by organizing the facades in a consistent way. Each is recognizably divided into the traditional zones of base, shaft and top. Bases are used to tie the buildings together horizontally. The pilaster and window elements of the shafts are arranged in overlapping layered elements of different scales while patterns in the brick and ceramic tile weave through the composition. The new buildings are unified by the stepped cornices and metal roofs.

Studying the older parts of the science complex, we noted the brick color varied from building to building: Geology and Volcanology are dark red-brown, Huestis Hall is bright red and Oregon Hall is orange-red. In the new buildings we subtly varied the palette of colors for brick and elements like metal windows and door frames — continuing this tradition while avoiding an overly uniform appearance.

The expansion would have taken a vastly different form had we not followed the cues of the users, who sought a physically integrated and connected network of departments and institutes and who wanted to build on the campus' historic architectural and planning character. We hope that as the new buildings develop a patina of age, and as the spaces inside and out become a part of people's everyday lives, distinctions between old and new, good and bad, and large and small will be tempered and dispelled into unified groupings of experience.

Christie Johnson Coffin

Making Places for Scientists

Does quality of place have much to do with quality of science? For science, at least, the caliber of the researchers and their resources seems to be most critical. Nonetheless, scientists at the University of Oregon, embarking on the expansion of their facilities, agreed that it was worth asking questions about laboratories famous for excellent work: What were these places like? How were the labs clustered? What size were the lab modules? What made them special places?

Scientists who had worked in other laboratories mentioned a number of features they appreciated, such as the "play room" at the Massachusetts Institute of Technology's Artificial Intelligence Laboratory. Others reported on places that had supported their best work, mentioning views of the Pacific Ocean from the Salk Institute and of the Cascades from the Eugene campus. Excellent laboratories, it turned out, were often cramped and dingy, replete with odors and crammed with specialized equipment. What seemed most to distinguish good laboratories was the vitality of groups working on related questions, not the labs' architectural features. As architects, we listened and visited many laboratories as we developed design concepts for the science complex expansion.

Many of these design concepts evolved from discussions that had occurred before we were hired. Before selecting an architect, the Science Facilities User Committee published a report that diagrammed the complicated connections among the various disciplines, reflecting current and anticipated cross-disciplinary work. Following a campus history of connected science buildings, the report stated that all disciplines should be interconnected and indicated particularly critical links. The clarity of the faculty vision for the sciences on campus helped us immeasurably to get on with making buildings.

One interpretation of this diagram would have been to create a single monstrous building or megastructure. To spur discussion at the interview for the selection of architects, I momentarily placed a single, large building mass on a model of the site to stress the large size of the project. The selection committee's negative response was so apparent that I snatched the large block away. They

Laboratory in Willamette Hall and department hearth in Streisinger Hall. Ornamental stained glass is by Ed Carpenter. Top photo by Andrew McKinney. Bottom photo by Timothy Hursley.


Model 2040


325

The Willamette Hall atrium, looking south into the 13th Avenue forecourt. Photo by Timothy Hursley.

audibly relaxed, and I proceeded to describe our ideas for a multi-building complex that could create a series of courtyards and plazas of varying size and character.

As we continued meeting with the Committee, we came to understand that the scientists' work was interconnected in interesting, unexpected ways. Many breakthroughs occur, for example, when chemists or physicists apply their talents to biological problems, or computer scientists join forces with neurologists or psychologists. In some cases the University had recognized these relationships by creating interdisciplinary institutes, such as the Chemical Physics Institute and the Institute of Molecular Biology, and more had been proposed. Somehow we, too, would have to find ways of bridging these distinctions.

Working from the Inside Out

With the concept of connectedness established as the overall framework for the expansion, we needed to learn about the particular spaces within this network. Early on, during a workshop with faculty, staff and students, we asked people in each department to develop a colorful diagram showing what would be essential to their department's new space. We used simple materials, such as cellophane, colored construction paper and parsley, to encourage playfulness and minimize skill differences between architects and non-architects. The informality inherent in these materials allowed people to toy with ideas and explore them freely. We asked people from each department to develop an ideal diagram of its new spaces, with special emphasis on its main social gathering place, a department hearth.

The physics group developed the idea of a central sunlit place that would be surrounded by labs, department headquarters, teaching spaces and its department hearth. Thus, at this early stage of the design process, the physicists' diagram planted the seed for the final concept for Willamette Hall — an atrium that connects several disciplines, functions and buildings.

The seed was planted our third week on the job — too early, it seemed, to fix on any particular scheme. In the following weeks we explored courtyard schemes and street schemes and nearly shelved the atrium scheme.We eventually revived the atrium, although we had some concern about its cost. The User Committee selected it from several options at a design workshop. Over the months the atrium grew into a place with concrete and steel bridges linking chemistry and physics, biology and physics, chemistry and theoretical sciences, and research laboratories and classrooms. I do not think the scientists suspected how very literally we would take the concept of bridging between disciplines.

In campus building projects, it is typical that the amount of space available for laboratories, offices and teaching space is less than what faculty and staff think they need, and that each square foot of a new building is parceled out carefully to particular users and activities. Unprogrammed space the size of a four-story atrium with bridges flying through it is a rare commodity. Moreover, an atrium looks extravagant and thus violates the first rule of public projects: They need not be cheap, but must look cheap.

This truism took a turn in the expansion of the science complex. The issue, it turned out, was not whether the atrium looked expensive but whether the University was getting value for its money.

The atrium did cost more, at least enough to house another scientist. It required additional roof structure, fire sprinklers, smoke exhaust fans and walls (including a glass wall on the south facade). But the atrium did not cost as much as it appeared: Most of the walls were already needed to enclose laboratories and classrooms. We calculated that the atrium could do without heating, ventilating and air conditioning: Running the exhaust fans would cool it on hot, sunny days, and even on cold, cloudy, rainy days some solar heating could be expected. Moreover, the atrium created some savings. Without it, the bridges connecting the departments would need weather enclosures. And, adjacent laboratories and classrooms would benefit from the mild atrium climate (in practice, roughly 80 percent of indoor temperatures), reducing the cost of heating and cooling them.

There is no easy answer as to why the atrium survived the budget balancing process. Certainly, Campus Planner J. David Rowe argued in his quiet but persuasive way that the University was about excellence, both scientific and architectural. Physicist John Moseley, also the University vice president for research, argued that the design manifested the University's interdisciplinary program. Don Van Houten, Dean of the College of Arts and Sciences, argued that the project benefitted the campus as a whole and not just the science community. We argued in favor of the atrium, but feared for it, as a design team always fears for any feature that strictly speaking could be lived without.

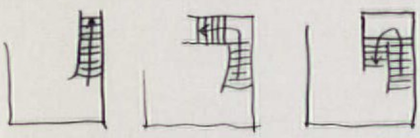

EXIT

From Patterns to Places

These examples show how patterns from A Pattern Language *were transformed into specific patterns for the University of Oregon campus, then into special places in the science complex.*

133. Staircase as a stage

Place the main stair in a key position, central and visible. Treat the whole staircase as a room. Arrange it so that the stair and the room are one, with the stair coming down around one or two walls of the room. Flare out the bottom of the stair with open windows and wide steps so that people coming down the stair become part of the action in the room and so people will naturally use the stair for seats.



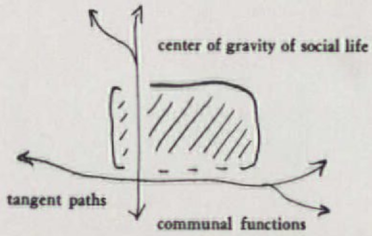
133S. The social stair

This pattern describes how stairs can be used to provide a place for informal interaction. It calls for generous, visible stairs with views and light to encourage their use and for extra-wide landings and balconies with places to linger, lean, or sit. The aim is to encourage the casual passing conversation to develop into something more serious, which will seldom happen if it is interrupted by the end of an elevator ride.

Photo by Timothy Hursley.
Top drawings from *A Pattern Language*, by Christopher Alexander. © 1977 Oxford University Press. Used by permission.
Plan, drawing at right courtesy The Ratcliff Architects.

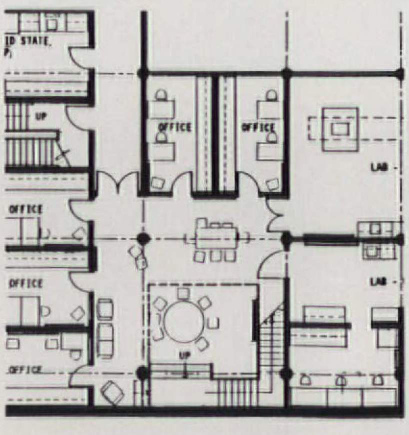
29. Common areas at the heart

Create a single common area for every social group. Locate it at the center of gravity of all the spaces the group occupies, and in such a way that the paths which go in and out of the building lie tangent to it. A successful common area should have a kitchen and eating space (since eating is one of most communal of activities), comfortable seating and an outdoor area.



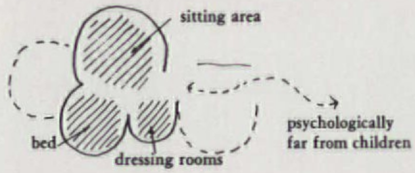
129S. Department hearth

This pattern calls for the creation of a social hearth near the center of department activity. It would create a single center for each department, a place to have a seminar or a discussion, to pick up mail, to get a cup of coffee or some supplies. It would include bulletin boards for student and faculty information, offices for the staff and perhaps a small library. All department faculty offices should be within 500 feet of this hearth.



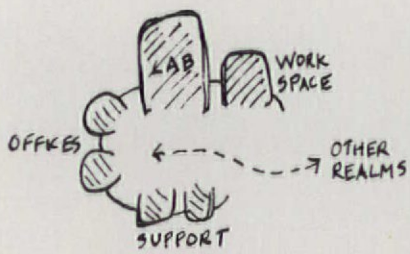
136. Couple's realm

The presence of children in a family often destroys the closeness and the special privacy which husband and wife need together. Make a special part of the house distinct from the common areas and all the children's rooms, where the man and woman of the house can be together in private. Give this place a quick path to the children's rooms, but, at all costs, make it a distinctly separate realm.



136S. Research realm

This pattern describes the domain of a faculty researcher. It includes a private office, the laboratory, individual support spaces and work areas for other members of the research team. These spaces must satisfy the need for intense work within the group and encourage communication with adjacent groups. Visitors to the realm, particularly to the faculty office, must not intrude upon the laboratory work. Connections to corridors, access to shared facilities, natural light and the need for views must be considered in laying out a research realm.



When it came to making hard choices to keep the building within budget, the scientists took a broad view, cutting a number of other items and keeping the atrium. One of the cuts even reduced the width of physics labs from 25 to 24 feet. The atrium's existence was finally assured only by a construction bid three to four percent below what had been expected.

The Oregon Approach and *The Oregon Experiment*

The design process was striking for its openness and high level of participation among a diverse group of consultants and University representatives. That the process was collaborative was no accident, given the University's tradition of collaborative decision-making — I had experienced this first hand, having taught there for several years during the 1970s. I was confident there would be open, critical discussion of anything we presented and that we could comfortably involve both the Campus Planning Committee and the User Committee from the start.

We were working under the University master plan, *The Oregon Experiment*, which articulates principles to be followed in making and altering places on campus. The principles of organic order, participation and coordination had grown out of the University's longstanding collaborative tradition and were firmly agreed upon by all. The principle of piecemeal growth, while violated by the large size of the project, was supported by the concept of a complex of smaller buildings. The principle of diagnosis was hard to dispute; many places needed improvement, even on a campus as attractive as Oregon's.

The principle of using patterns was a different matter. We faced an early test when scientists began reviewing *The Pattern Language*. Some physicists saw the pattern "Wings of Light" and told us forcefully that the recommended 25-foot maximum building width did not apply to physics labs and was, in fact, foolish. This encounter with a pattern that needed recalculation for the application at hand encouraged their natural skepticism. Did they have to use *The Pattern Language*?

The design team was committed to *The Pattern Language* as one of the basic principles of the master plan. However, to the science faculty, an enforced reading of *The Pattern Language* was unimaginable. We decided literally to cover the walls of our on-site studio with "patterns," which make creative connections between social issues and physical forms. We made casual and natural reference to them when convenient. We wrote specialized patterns for the science buildings (although we never had much time to codify our patterns). We surrounded plans that we drew with summaries of relevant patterns. In short, we insisted quietly, but firmly, that these were principles about buildings that we found useful to bear in mind as we designed.

Site Repair

Several patterns became part of our everyday vocabulary and had very significant form-giving power. Most powerful was "Site Repair." The pattern suggests that new buildings should be located in ugly places and not handsome places, and that new construction should be used to repair places that do not work. This makes more sense than seeking the most beautiful spot and filling it with a building.

This pattern became a guiding principle for one of our earliest participatory design exercises. We asked the faculty, students and staff to consider what part of the campus worked well and what part worked least well. Small groups were asked to locate paths, gathering spaces, places of special beauty or interest, and places requiring repair. We then noted these observations on acetate maps. We overlaid the maps using an overhead projector and rapidly identified common patterns and intriguing variations.

Everyone seemed to like the older red brick portion of the campus, mature landscaping and sunny places. No one seemed to like large paved plazas, large parking lots and large expanses of gray concrete. The science quadrant was a favorite with few and clearly possessed many opportunities for site repair. Although much of this was not surprising, the articulate nature of the responses and the virtual unanimity were striking. Not all of our discussions were so nearly unanimous.

The Heart of Darkness

Sometimes the scientists strongly advocated ideas that the design group questioned. One of the ongoing discussions with the cell biologists concerned their preferred plan: a very dense arrangement with labs and faculty offices at the perimeter and more labs and graduate offices at the core. They wanted everyone horizontally contiguous on one enormous level, a scheme that seemed so contrary to "Wings of Light" that we dubbed it "Heart of Darkness."

We had seen many biology labs built on this model. One of the 1960s buildings at Oregon was a classic example, in plan a very thick rectangle with many interior rooms. The designer of the building had simplified the architectural problem to one of making as many functions adjacent to each other as possible; all else was disciplined to follow. The design group reacted against the rabbit warren of corridors and the windowless spaces.

The cell biologists also wanted virtually the entire department to be on the third floor, so that vital connections could be established with biologists and chemists on the third floors of two nearby buildings. Facilities for storing research animals were assigned to the second floor. The relatively new Computer and Information Sciences Department was recruited to occupy the ground floor.

The computer scientists began to question their role as the base of a densely built "Heart of Darkness" scheme. They had heard rumors that biochemical laboratories dripped and gushed from time to time on anything unlucky enough to occupy space below. Not only that, but these drips and gushes might include chemically and biologically interesting substances. The intervention of a floor housing research animals was hardly more reassuring. The computer scientists thought of their delicate electronic instruments and the maple bookcases they were planning to bring from home. We did not think the drips and gushes would be frequent, but no one was willing to give an iron-clad guarantee that they would never occur.

When our cost studies disclosed it would be less expensive to house the computer scientists in a separate building, the computer scientists could hardly have been more pleased. They were looking for an ivory tower, not the first floor in a "Heart of Darkness" scheme. Each professor taught many hundreds of undergraduates and needed a retreat where serious research could be accomplished. The department very much wanted a building of its own and would have wanted one even if it had not heard instances of biochemical laboratories expanding into adjacent space.

The computer scientists also sought an egalitarian physical arrangement. They thought each faculty member should have an office and a lab with windows and, if possible, views. They regarded the "Heart of Darkness" scheme, with its windowless labs and offices in the core, as a major obstacle to their functioning as a group of peers. If only some labs and offices had windows, how would the department decide who received the better quarters? Would tenured faculty offer the better space to the newest members, because it is so hard to recruit good young faculty? The department chose not to force this choice by providing everyone with windows.

Putting the computer scientists in a separate building resolved one problem, but we still had to address the matter of the first two floors of the cell biology building. No one volunteered to occupy the ground floor and hold up the biology laboratories, so we were forced to rethink. The result was we reduced the size of the second and third levels, split the biochemical laboratories for the cell biologists between them and assigned the animal quarters to the ground floor.

Social Stairs

The cell biologists had concerns beyond making sure they were located close to each other; they also wanted a social gathering space at the heart of their building. This proved the seed for interesting architecture.

We talked of many models for this space. One model that recurred was the pub at Cambridge University's MRC laboratory, which is famous for work on DNA. Since the laboratories were crowded and by definition unsafe to eat in, the English had topped the building with a pub.

While a pub was neither legal on a public campus in Oregon nor a typical part of local culture, the model was useful. What was it about a pub that made it a focus of scientific discussion at Cambridge? It was a natural part of many people's daily lives. You might bump into the same people there by accident or have standing arrangements to meet particular people. It could be part of a daily routine. Many liked the idea of laboratories surrounding a gathering space, making it the fabric that provided daily connections among laboratories and offices.

We were able to address this while solving a functional problem the new floor assignments posed. The challenge was to make the second level, where four cell biology laboratories were located, seem connected to the third level, where related interdisciplinary work in plant and animal cell biology was taking place in several connected buildings.

Many members of the design team had ideas for how to make a special stair that would achieve this connection. Six or eight of us made sketches: straight stairs, diagonal stairs, L-shaped stairs, stairs with benches on landings, stairs that functioned as stages or podiums. Almost all of us

Streisinger Hall's central stairway connects the second and third levels and is illuminated by natural light from clerestory windows.
Photo by Timothy Hursley.

envisioned large skylights or lanterns with many windows to flood the space with daylight and help it work as the social core of the building.

We invited Charles Moore to examine our sketches. Each idea seemed quite good. How could we include as many of them as possible? Charles discovered a way to make a diagonal, somewhat L-shaped stair with a long, straight section, a bench on the landing and the beginnings of a playful set of monitors that were to banish the darkness at the heart of the building. The staircase became a very special place in the complex, an in-between space that defied formal definition and celebrated the importance of the connections among the laboratories.

Garages and Kitchens

We also worked with the scientists to design their individual laboratories. As we worked with scientists from different disciplines, we discovered their ideals about laboratory space varied significantly. Early on we concluded that the notion of universal laboratory space was beyond our means; we could not afford to equip every space for every eventuality. However, we began to recognize several different patterns for ideal laboratories.

The physicists, in principle, agreed with author Richard Feynman, who described a good physics laboratory as "a double garage with a lot of electricity."[1] Their way of life included a lot of tinkering, with frequent visits to the local hardware store. A simple loft space suited them.

Careful attention was given to laboratory details, such as cabinetry and windows. Photo by Andrew McKinney.

As we worked with the physicists on the details of their labs, we discovered many ways in which the modern execution of Feynman's concept required substantial technical support. Physics laboratories must accommodate a range of special apparatus from argon lasers, requiring 70 amps of three-cycle 440-volt power, to nuclear magnetic resonance equipment, which can erase your credit cards. They must also accommodate hazardous substances like xylene, which will ignite on contact with air.

For the physicists, we made a basic loft space 24 feet by 50 feet and provided it with an overhead cable tray for electrical and communications wiring, standard piped services and heating, ventilating and air conditioning. This allows users reasonable leeway to adjust over time. (When a new program caused a change of laboratory assignments prior to occupancy of the building, six laboratories were reassigned with very minimal change.)

A good biology lab, on the other hand, is more like a good kitchen, idiosyncratically fitted out with a wide variety of machines, lots of counter space and as much storage as possible. In some cases, we worked closely with faculty recruiting committees to custom tailor laboratories for promising new faculty members, such as a professor working with barn owls. Yet some generalizations can be made here, also. We made the basic bench modules quite similar from laboratory to laboratory, while providing for variation in a specialty zone. The bench areas, where the scientists spend much of their time, were placed along the window wall. We placed the specialty zone nearest the large air ducts, cable trays and gas mains to simplify adding and deleting services as needed.

Make Every Day Like Saturday

Early in the process, biologist Aaron Novick, when asked what his ideal laboratory might look like, said he would be happy if we could make a place where "every day would be like Saturday." Because both scientists and architects complain of being drawn into management and having to return on Saturday to do the "real" work, we recognized this wish.

While I cannot claim that we ever discovered the ultimate architectural manifestation of Novick's wish, it set a very high goal for us. We tried not only to separate the research laboratories from casual traffic and noise, but to make them places worthy of a Saturday excursion.

Few are drawn on Saturdays to windowless places with eight-foot ceilings covered with rows and columns of four-foot cool-white fluorescent tubes set in two-foot by four-foot grids of acoustic fluff. Windows, views, daylight, high ceilings, natural wood and color are a more likely vocabulary for a solution. Perhaps one should think of the laboratory as one thinks of a family dining place, not only as a machine for the sanitary ingestion of food, but as a pleasurable and social place where people spend significant moments of their lives. It is possible to become so overwhelmed by the technical requirements of laboratories that one loses sight of such things as the fragrance of the bushes outside the laboratory door or the pattern of the sunshine on the laboratory floor.

Working from the Outside In

Inevitably a new building has an edge about it that calls attention to it in a negative way, not unlike the new student in a high school class who, not having assimilated the local customs yet, wears a sophisticated outfit when the others are wearing playful, comfortable clothing. Our goal was to make the new buildings look so comfortable that there would be ambiguity between old and new. We sought to make the older buildings look better.

Early in the process we began to develop a common aesthetic vocabulary with faculty and staff by conducting a sort of "Rorschach test" with slides. We selected 80 slides representing a wide variety of historic and contemporary architectural examples. None of the buildings had been designed by any of the architects involved in the science complex, freeing viewers to respond openly without hiding their feelings to save ours. We then asked faculty, staff and ourselves to answer two questions about each slide: Do you like it? Do you like it for the science complex?

None of the aggressively high-tech buildings received many votes. Several, such as the Crystal Cathedral, a steel and glass church, were greeted with disbelief: Why would we even show such a building? The most votes were awarded to a picture of grass and trees with no visible buildings. The least votes went to an austere stone landscape with no vegetation. This seemed a strong vote for the pastoral portions of the Oregon campus. Many people who worked on campus had moved from dense urban areas to Eugene, and had little relish for doubling the density of the science quadrant.

The picture of a building that was given the most votes was of the Central Beher, an insurance company office in Appeldorn, Netherlands, by Hermann Hertzberger. The picture showed sunshine, large corner windows, trees and concrete block, and suggested there would be lots of sunshine inside. The building was not very tall: two or three stories. It had more shape than a simple, big box, possibly even some personality. The materials were ordinary and easy to understand; they seemed to have been placed by people, not machines. They looked durable, as though they would not break, and they looked as though a person could understand how to fix them even if they were to break. The building looked affordable rather than extravagant. It looked friendly.

Getting nearly as many votes was a picture of the Lane County Public Services Building in Eugene, designed by Unthank, Sedar, Poticha. Again, it was a friendly building. Public offices were arranged on a three-level, daylighted arcade, making them open and accessible. As with Central Beher, the picture showed plants, sunshine, simple materials and a low scale that a person would not feel dwarfed by. It looked well built, neither extravagant nor cheap.

The issues that emerged from these discussions centered on green space, daylight, human scale, down-to-earth materials that wear well (particularly in the rain) and friendliness — an elusive property. These discussions supported our own tendencies to view the green space and buildings as equally important, to introduce daylight almost everywhere (short of obvious exceptions such as photographic darkrooms), to make the built forms relate to the size of people, to use brick, tile, concrete and other locally available and inexpensive materials, and to place major importance on the in-between spaces that connect both people and buildings and make the campus as a whole more habitable.

Although ornamentation was not, in general, sought by faculty and staff, we were excited by the possibilities for ornamentation and embellishment inherent in brick, tile and concrete. Some of our favorite building ornamentation, such as the animal motifs on Harvard's Agassiz Museum, received few votes in the Rorschach test, but we decided to keep the discussion alive. After all, the Rorschach test was never seen as a plebiscite, but rather as the kindling for discussion.

As our designs developed we worked to make the visual connections among buildings seem strong without losing the character of individual buildings in the overall complex. Linked buildings became friends and cousins but never identical twins. Each new building nearly touched or connected to several existing structures. We could easily adapt the brick, tile and concrete to these different contexts, altering coloration and patterning. Also, we could mitigate the major increase in density that these buildings constituted by varying the patterns of brickwork. The new buildings would not only survive the rain intact, but look warmly welcoming in the rain.

As we introduced ornamentation into our drawings, many of the faculty, staff and students began to welcome and encourage it, although a few continued to favor the plain. Among our friends were critics who questioned our apparently traditional design. We were frequently asked why we did not develop industrialized, shiny metal, glass and plastic buildings to express modern science. Certainly some celebrated contemporary laboratories follow this esthetic. We had included this option in our discussions. The results had been clear.

Although there was some interest in the buildings functioning as statements about science and technology, there was more interest in their being habitable in the fullest sense for campus and scientific life. Science is a human as well as a technical pursuit. Scientists are far too varied for there to be any one simple answer to what a science building should look like. Most felt the actual scientific work would express science and technology and that the buildings' representation of science need not be direct and linear.

In-use Evaluation

Most articles on science buildings focus on providing places for machines and scientific processes. In making the new science buildings at the University of Oregon, we worked very hard to identify and employ appropriate, safe and adaptable technical solutions throughout the buildings, while making places that are friendly to the pursuit of science and to the needs of other campus users.

Now that the buildings are built and occupied, we are asking users to tell us how we did: Did we do what we set out to do? Was the original program satisfied? Did we set out to do the right thing? Would a different program have made more sense in retrospect? What specific technical problems and benefits have the buildings produced?

When we learn of a problem, we want to help fix it and devise strategies to avoid repeating that mistake. Although we claim to be equally interested in problems and praise, it would be dishonest to say that the complaints were equally welcome. We have little need to learn how to create problems with architecture and engineering. Ideas that work should form our repertoire, or pattern language.

The Core Users Group reports the complex consists not only of more or less the right number of rooms arrayed in the correct proximity to each other and the required taps and outlets, but also of friendly spaces that support collaboration in science and tie the science complex to the overall campus. The scientists report the recruitment of excellent young scientists to use the new labs.

We do not expect them to answer the question I posed initially: Does the quality of place have much to do with the quality of science? Making good places for scientists is not only, or even primarily, an architectural concern. Yet architecture plays a part by making it harder or easier to develop a community of scientists.

Notes

1. Richard Feynman, *Surely You're Joking, Mr. Feynman* (New York: W.W. Norton, 1985).

Credits

The Ratcliff Architects:
Christopher Ratcliff, *Principal;* Christie Johnson Coffin, *Project Director;* Carl Christiansen, *Project Architect, Willamette and Deschutes halls;* Stephannie Bartos, *Project Architect, Streisinger Hall;* Takeshi Yamamoto, *Project Architect, Cascade Hall;* Yung-Ling Chen, *Interior Architecture;* Miyo Itakura, *Coordinator;* Jack Margolis, *Specifications/ Quality Control;* Eugene Kodani, Senior Technical Architect; David Alpert, Michael Bade, John Baker, Richard Bartlett, Laura Blake, Bill Blessing, Tom Blessing, Alan Burkett, Burns Calwalader, Crodd Chin, Luminita Ruva Ciupitu, Donald Corner, Joelyn Gropp, Logan Hopper, Mel Jordan, Stephanie Kenan, Pauline Ma-Senturia, Michael Pease, Rick Reynoso, Sara Stauffer, Alison Strayer, Dan Werrapon, Dan Wetherell, Jenny Young, *Project Team.*

Moore Ruble Yudell (Associated Designer):
Buzz Yudell, *Principal Designer, Principal-in-Charge;* Charles Moore; *Principal Designer;* John Ruble, *Principal Designer;* Stephen Harby, James Morton, *Project Managers;* Hong Chen, Neal Matsuno, Bill Mochidome, William Murray, George Nakatani, James O'Connor, Patrick Ousey, Richard Song, Brian Tichenor, Renzo Zecchtto, Katie Zobal, *Project Team.*

Brockmeyer, McDonnell (Associated Architect):
Gene Brockmeyer, Gerald McDonnell, Larry Massey, Russ Mercredy.

Colors, Tile and Brick Patterns:
Tina Beebe, Stephen Sidelinger, Dani Rosen.

Interview with Charles W. Moore

What did you, as architects, bring to a project heavily influenced by user participation?

My special interest was in making buildings that fit the campus and had plausible relationships with the other buildings there. I shared what was, fortunately, a general preference for the older part of the campus over the part built in the 1960s, which included the science buildings. If I had not felt strongly about that I would have been in considerable trouble.

We focussed on creating buildings that would go with the older campus, soften the newer buildings and be part of 13th Avenue. It seemed to most of us designers and participants that 13th Avenue was abutted mostly by the "thin" or narrow ends of buildings. On the other hand, since what we were building would be much more dense than the early part of the campus, I was very anxious not to have buildings standing with wide sides to the street making the whole thing seem blocked up, without any breathing room.

I realize now that the designers came up with inventions. They seemed inevitable at the time. For example, we went to some lengths to make the porch along Willamette Hall open and small scaled, so it would scale down to the Volcanology Building on the other side of that courtyard. That way, we felt, the courtyard would be a gently scaled, clearly defined space that reaches back from 13th Avenue to another courtyard adjacent to the geology building.

I cannot say we did things like that specifically because we were told to by physics professors, but we did work in accord with the concerns that they expressed to us.

Willamette Hall helps repair its site in several ways. The south facade (right) contributes to a more uniform streetwall along 13th Avenue; the wings on either side of the forecourt have different heights and architectural detailing so they appear to be discrete buildings. The west facade (below) helps define a courtyard.
Photo below by Timothy Hursley.
Right photo by Donlyn Lyndon.

After we had established that basic relationship between Willamette Hall and the Volcanology building, we kept experimenting with the details. There were many people involved. Somebody would present an idea, then somebody else would react. I am not certain who came up with the final configuration, or when. But the courtyard stayed full of surprises; the change of grade and the steps were nurtured by various people.

What I especially like about those buildings is that they are so full of special places. They are often places that are willful or quirky, which is not bad. With that many buildings covering that much area, if the solution had been standard the buildings would have been boring and you would have lost your way very quickly. There were so many people involved that solutions did not get stamped out.

How did you work with *The Pattern Language*?

One of the excitements of designing the science complex was the opportunity, the adventure, of working with *The Pattern Language*, as adapted for the University. One strength of *The Oregon Experiment* is the importance it has in the minds of the Oregon faculty, particularly the architecture faculty.

I did and do admire *The Pattern Language*; I think it is at its best when it notes the common sense wisdoms architects generally forget — for instance, if there is a beautiful place on your site, it is better to stand aside and admire it than to wipe it out with a new building set on top of the admired green.

During this project I took *The Pattern Language* as more of a check than anything else. I never went through the book and tried to find a message about what to do. Most everyone involved was using *The Pattern Language*, not with fundamentalist blinders, but for the help it could give to keep the discussion sane and helpful. We used *The Pattern Language* like a preacher uses the Bible — we did what worked out and used *The Pattern Language* to justify it.

I do not recall an instance in which *The Pattern Language* caused us not to do something we would otherwise have done — which is as it should be, because *The Pattern Language* is meant to be common sense, and we were using common sense, I'd like to think.

The Pattern Language is useful as a very general start, as a basis of a philosophy about how to proceed. It served in the background as a general instigator and it kept us honest. Eugene is a participatory place anyway, and *The Pattern Language* helped keep discussion open and colorful.

This text is edited from written comments by Moore and a conversation between Moore and Todd W. Bressi.

Credits

Engineers

Structural: PMB Systems Engineering, Bill Dasher, Sukomal Chakraborty, Rodrigo Santos, Richard Lundberg, Brian Wilson. *Mechanical*: Gayner Engineers, Grant Wong, Nick Mironov, Lloyd Byron, Silvan Peterhaus, Bill Stahl, Sheun Lo. *Electrical*: Cammisa & Wipf, Darrell Wipf, Mel Cammisa, Victor Wong, Bob Boyd. *Civil*: Balzhiser Hubbard, Dave Bomar.

Landscape Architects

Royston Hanamoto Alley & Abey: Asa Hanamoto, Robert Royston, Dick Glanville, Masa Moriyama, Rick Strong, Manuela King. *Cameron and McCarthy:* Ron Cameron, Brian McCarthy, Larry Gilbert.

General Contractors

Cascade Hall: Robinson Construction Co.; *Willamette and Streisinger halls:* Wildish Building Co.; *Deschutes Hall*: Hyland & Sons, Inc.

Other Consultants

Laboratory Planner: McLellan & Copenhagen, Tom McLellan, Steve Copenhagen. *Cost Consultant*: Lee Saylor, Inc., Lee Saylor, Bill Cole. *Energy/Solar Planner*: Berkeley Solar Group, Bruce Wilcox, Joe Steinberger. *Conceptual Lighting Design*: Peters Clayberg & Caulfield, Dick Peters. *Acoustics*: Charles M. Salter & Associates, Charles Salter, David Schwind. *Codes*: Nolte & Associates, Michael Nolte. Rolf Jensen & Associates, Ray Grille.

People, Place and Public Art

Lotte Streisinger

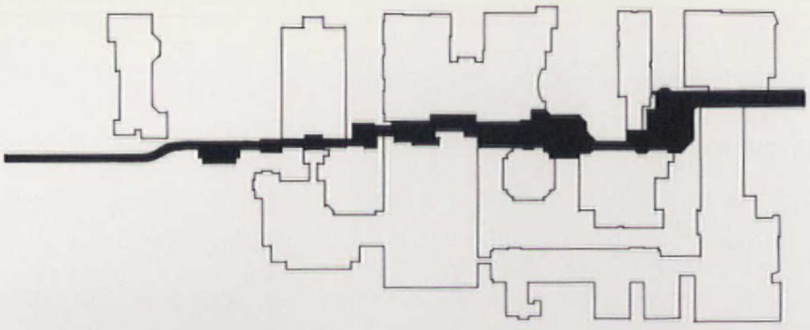
Public art projects must make connections among people, places and art, rather than distance themselves, in order to be accepted by the people who will live with them. Public art projects must move away from the notion of art as a detached entity and embody instead the idea of integrating art into the pattern of everyday life, as it was in the public places of the past. For instance, Michelangelo's *David*, in the City Hall square of Florence, gave Florentines of the time a self-image around which to rally against the external giants who threatened them.

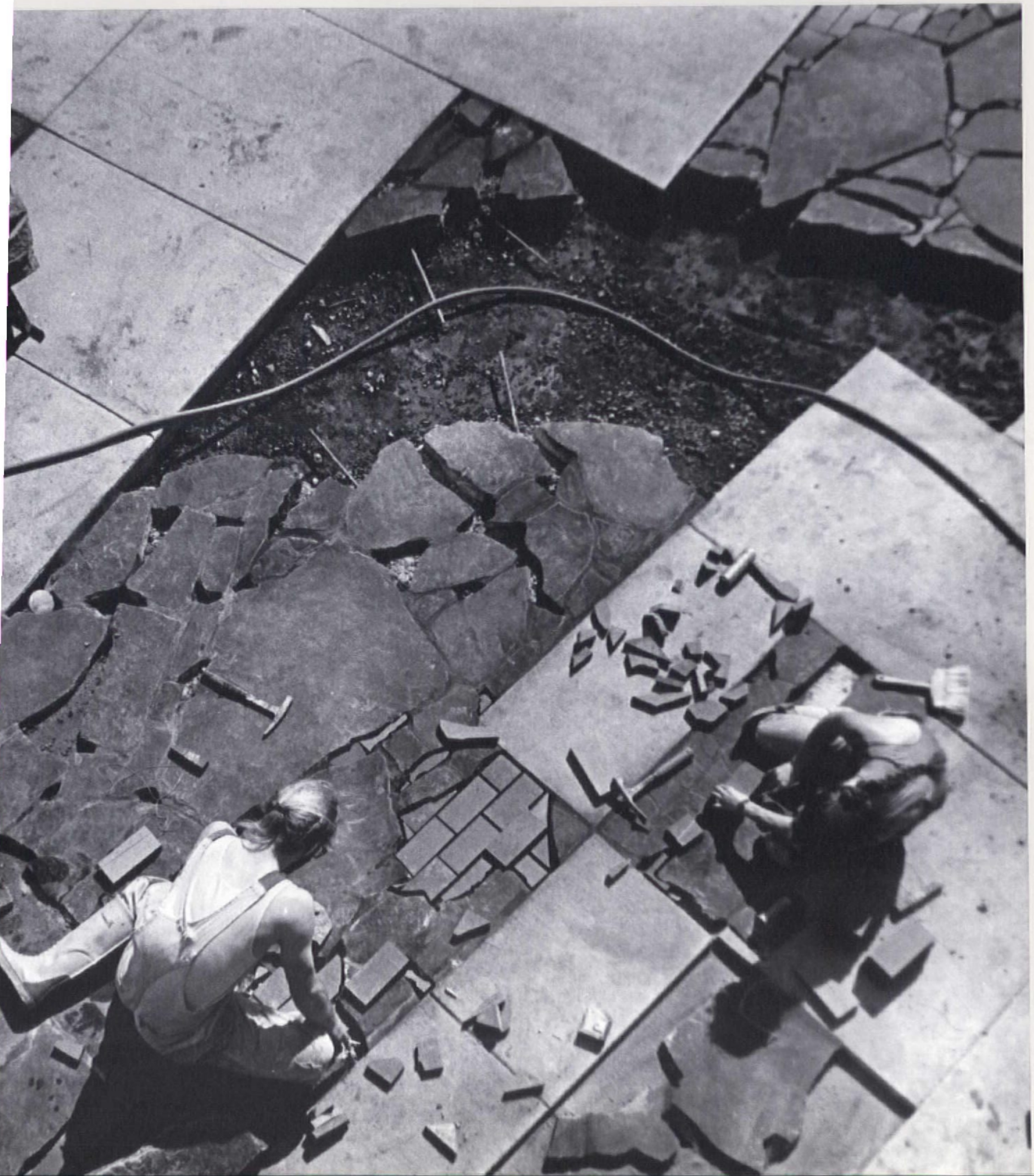
Bringing about this connectedness is an ongoing process. The sometimes conflicting interests of architects, artists, users, owners, contractors and the media must be diplomatically negotiated, and possibilities must be created within the context of limitations. The role of an arts coordinator is to make this happen.

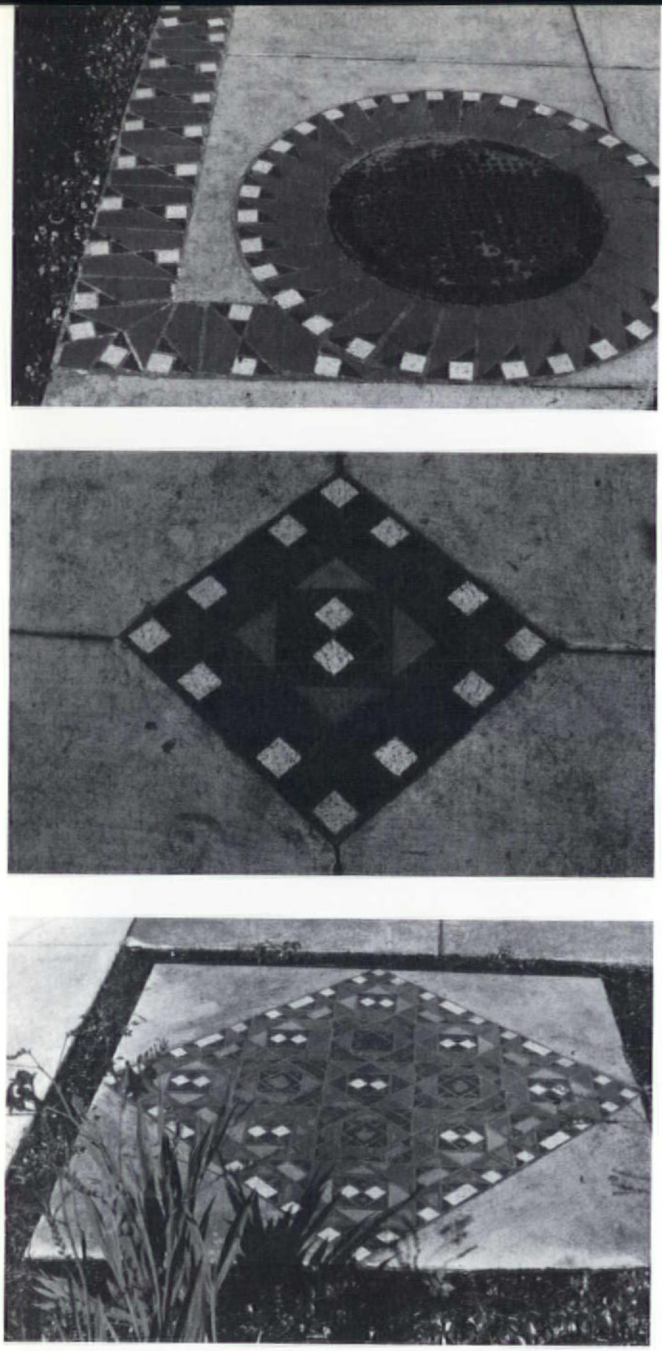
The University of Oregon places great emphasis on enabling users to participate in the planning and design of campus projects; this emphasis was embraced by the architects for the science complex and applied to the art selection process. The architects and future users of the complex had been meeting for more than a year when I was appointed the project's Visual Arts Coordinator in spring, 1986. Together they had developed a number of design goals for the overall project, among them the following, which were included in the "Invitation to Artists":

- Make outdoor spaces positive places, not spaces left over after the buildings are put up.
- Make outdoor rooms that accommodate a variety of different activities, from one person reading a book to many people gathering for a major science fair or commencement.
- Link new laboratory space to support intra- and interdisciplinary work.
- Provide covered connections among buildings where practical.
- Make a wide variety of places to support different activities and users.
- Emphasize places that take advantage of the sun when it is out.
- Make places that work in the rain, celebrate water and work as winter outdoor spaces.
- Provide a variety of paths through the site.

Science Walk is a "main street" connecting the old and new buildings of the science complex. Below, workers install Scott Wylie's masonry designs. Drawing courtesy Moore Ruble Yudell.
Photo courtesy *Oregon Daily Emerald.*







Detail of Scott Wylie's ornamentation for Science Walk.
Photos courtesy Scott Wylie.

One of the first steps in establishing the science complex art program was convening an Art Selection Committee, which included the architects, two visual artists, an art historian, three people from user groups and representatives of the State System of Higher Education, the Oregon Arts Commission and the University administration. As Visual Arts coordinator, I served as the non-voting chair.

This was the briefing I gave committee members before the first meeting:

Public buildings provide an opportunity and, indeed, create a need for works of art and craft. In the past it was taken for granted that art and architecture complement each other. Modern architecture, however, has tended to deny that notion, with the result that we have many streets and workplaces where there is nothing to look at, nothing to identify with and nothing to exercise the imagination.

But attitudes are changing again and today, here in Eugene, we have the chance to become involved in a project with a unique juxtaposition of factors: a state that mandates one percent of the construction costs of public projects for art, a consequently substantial budget for art and a set of architects who are very interested in working with artists and artisans.

I met with the principal architects for the project several times and we formulated preliminary goals for building-integrated or site-specific art works. These goals, after discussion, modification and approval by the Art Selection Committee, were also included in the prospectus.

We sent the prospectus to artists around the country and asked them to submit slides of their previous work and short proposals that described the concept of a project for the science complex. The Committee reviewed the 225 entries and selected 25 semi-finalists, each of whom was paid a professional fee to prepare a model. The semi-finalists' models were presented in a public exhibition (which also provided, for many people, their first glimpse of the new science facilities). The Committee met again and chose seven finalists.

Design Development and Execution

The integration of art work and architecture depends on coordination with the construction schedule, which can be affected by factors like the bidding process, labor disputes, or the weather. Artists must be kept apprised of changes in the schedule, design and budget. There can be a very long lag time between the selection of the artist and the installation of the work. (Art-mason Scott Wylie spent more than four years working with the landscape designers in installing his ornamentation for Science Walk.)

During the long period between selection and completion, many things can change. For instance, glass artist Jane Marquis had proposed stained glass windows for a new science library reading room, which was part of the original plan. But the reading room was later eliminated for budget reasons. In consultation with the campus planning office we suggested that she shift her site to the glass window walls surrounding the existing library atrium. For each of the 44 windows she created stained glass panels with quotations, submitted by campus scientists and others, that comprise an artist's reflections on science.

Other art sites were changed in response to user input. Upon being selected as a semi-finalist, glass artist Ed Carpenter prepared a model of windows incorporating glass marbles and proposed it for the colloquium room of the computer and information science building. When the computer scientists saw this proposal at the exhibition of the models, they were adamantly opposed to it; they wanted nothing like rows of marbles that reminded them in any way of the computer screens at which they looked all day. When they gazed out their windows, they said, they wanted to see sky, clouds and trees.

After many discussions with the architects, we assigned the colloquium room to Ken VonRoenn. He provided elegant, minimal glass: tall, narrow, bevelled window strips with prisms and no color. The doors leading into the room are ornamented in the same way, giving a quiet, somewhat old-time quality to a building dealing with a new science.

Carpenter was assigned a new site, a small sunny gazebo room on the top floor of the biology building. This is a visually elaborate building with lots of architectural excitement. Carpenter had difficulty coming up with a glass design for it; he told me it was because there is already so much to look at there. I suggested he think of his work as adding another layer of visual richness. He found that helpful and arrived with softly abstract stained glass pan-

The science library atrium's stained glass windows, by Jane Marquis, incorporate quotes submitted by science faculty. Photos courtesy Jane Marquis.

els all around the room, changing with the light.

In some cases the artwork on the buildings refers to the kind of work the scientists do within. Most obviously, Kent Bloomer's *Physics Wall*, in the four-story atrium of Willamette Hall, alludes to the different kinds of research that takes place on the various levels of the building, with molecular physics on the ground floor and astrophysics at the top. Bloomer had seen an architectural drawing of this atrium in the prospectus. He recognized it as a potential site for his work, made his proposal accordingly and then, when he had been selected, persuaded the architect to modify the columns to accommodate his piece.

Bloomer also designed the series of lanterns that begins in the atrium and continues outside along Science Walk, emphasizing the indoor/outdoor nature of the atrium. These lanterns are reminiscent of older lighting fixtures on campus — appropriately so because, for the exterior of the new science buildings, the architects have taken their inspiration from older buildings elsewhere on the campus.

Willamette Hall, the physics department building, proclaims itself on the outside as such, with Wayne Chabre's gargoyle portraits of Marie Curie, Sir Isaac Newton, James Clerk Maxwell (and his Demon) and Albert Einstein. Likewise, the Computer Science building proclaims its identity and historical roots with gargoyles of Alan Turing and John Von Neumann. The new Museum of Natural History features gargoyles of animals (salmon, bear and raven, with Pacific Northwest Native American emblems for the same) as does the biology building (fruit fly and zebra fish). Many of these gargoyles face 13th Avenue, the main campus thoroughfare, making it a "Street of Faces." In each case, the images were selected in discussions among the artist and users of the buildings.

The computer scientists, incidentally, also became involved in the placement of "their" two portraits. Various building users thought the gargoyles should be hung in other locations than those indicated on the architects' plans. The artist was at hand, as well as the construction supervisor, the workers and a raised platform. I suggested that we try the locations indicated by the architects, as it is hard to know what things will look like until you can see them. We did, and there they remain, to the general satisfaction of all.

Users also became involved in Alice Wingwall's fountain in the geology courtyard. Several geologists contributed rocks, which direct water's flow in various ways.

Making Places with Public Art

The history of public art in the U.S. has not always been one of public acceptance: Richard Serra's controversial *Tilted Arc*

Evaluating the Art Projects

The Art Selection Committee (working with the arts coordinator and architects) established a series of goals for the building-integrated or site-specific art works that would accompany the science complex. These goals were published in the prospectus circulated to artists and guided the selection process. They can also be used to evaluate what the art projects add to the science complex.

• *Enrich, ornament and embellish the built environment.* Science Walk's brick patterning provides the enriching ornament we sought. Among the ideas we listed in the prospectus were tiles, friezes, paving patterns; brick, brick patterning, glazed brick; column capitals in concrete, stone, metal; cornices, finials, moldings; art glass; and gargoyles.

• *Offer unexpected insights into science, creativity and the power of thought.* Jane Marquis' stained glass windows, which incorporate familiar quotes from science literature, accomplish this. One suggestion we made was for "A Circle of Elders." At least one proposal to that effect, for carved stones, made it to the semi-finals.

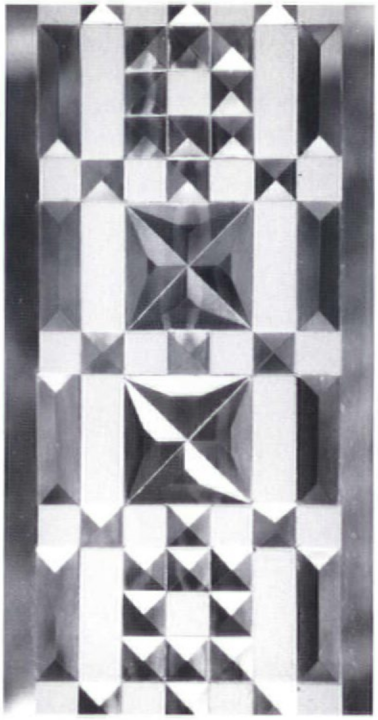
• *Offer unexpected insight into natural phenomena (such as sun, wind, rain, gravity, mold, lichen, sound, light, motion, pattern, symmetry and time).* Our suggestions included a rain fountain, wind sculptures, or light shows. In Alice Wingwall's fountain, water creates different sounds as it tumbles over two cascades.

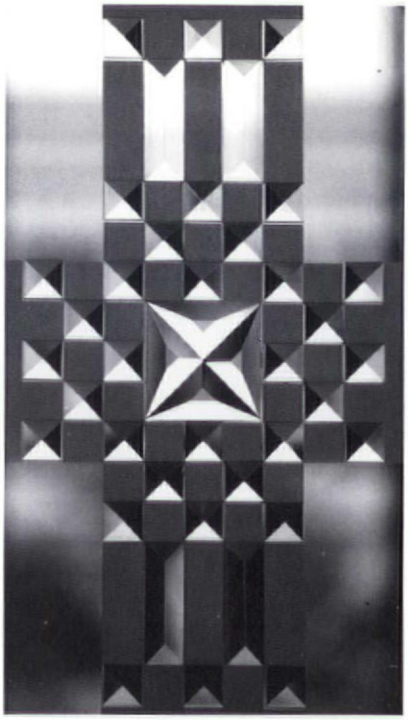
• *Contribute to campus history and myth.* The quotes in the stained glass windows are a historic record of sorts, and the gargoyles (whose patina makes them look aged already) will create new campus myths.

• *Endow useful objects with a special quality.* We proposed artists work with signage, maps, kiosks, downspouts, lamps, benches, or drinking fountains. Kent Bloomer responded with ornamented lanterns.

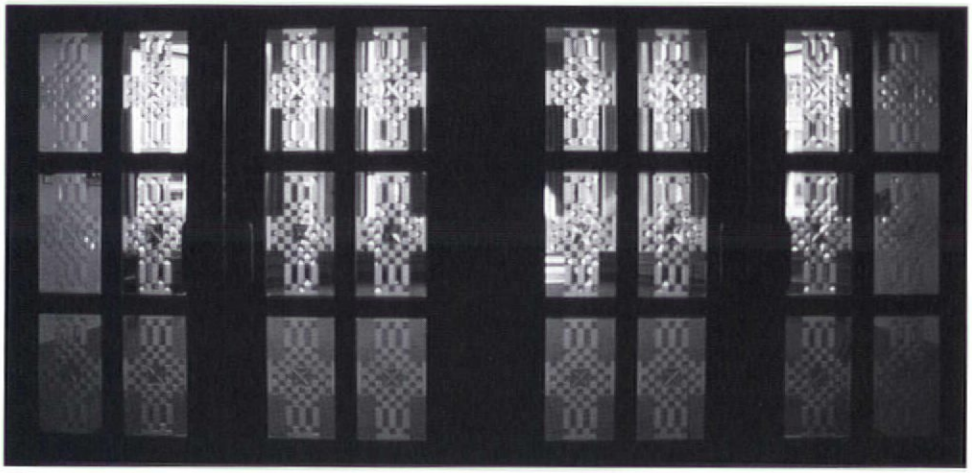
• *Provide objects that add delight, humor and beauty to everyday life regardless of their utility.* The gargoyles, which are purely ornamental, contribute this spirit.

— *Lotte Streisinger*





Glass by Ken VonRoenn.
Top photos by Timothy Hursley.
Bottom photo courtesy Ken VonRoenn.



sculpture in New York and Robert Arneson's *Portrait Bust of Mayor Moscone* in San Francisco are well-known examples of public art that was ultimately rejected. We are also familiar with the phenomenon of "plop art" — pieces, often by famous artists, that are "plopped" onto a site near a new construction, more or less as an afterthought. The best that can usually be expected is that the public will walk around such art and ignore it.

One way to promote acceptance of art in public places is to have a lot of it; in this way all the attention is not focused on one piece and there is something for everyone to like or even not to like. The Einstein gargoyle, which portrays him with his tongue sticking out (as he posed for a famous photo), caused a little furor but there are eleven other gargoyles to contemplate.

Another important path towards public acceptance and even love of public art projects is to make information about them available. We opened up the artist selection process by exhibiting the semi-finalists' models. We prepared news releases, invited television stations to the hoisting of the first gargoyle and have given a number of tours and a lecture. A brochure offering a self-guided tour of the art projects has been published and is available in department offices.

Involving the people who will encounter the art on an everyday basis with the selection and creation of the art projects can help. The Art Selection Committee involved users in decisions about what projects were chosen and where they would be located. Some of the artists involved users, too: Geologists brought rocks for "their" fountain and other campus users contributed favorite quotations for the stained glass in the science library atrium.

It is not unusual to see signs of how the art has been received: A biology department Christmas party featured a Santa Claus gargoyle with his tongue sticking out as a lab door decoration — a fond reference to the Einstein gargoyle. The computer scientists have included "their" gargoyles — Turin and Von Neumann — among the photographs of faculty and staff in the building's lobby. The rim of the fountain is a favorite place to sit on a sunny day. Clearly, the public art projects at the science complex are well-integrated, both with the architecture and in the consciousness of the people who use it.

Kent Bloomer

The Confounding Issue of Collaboration Between Architects and Artists

Ever since the seventeenth century, when the modern age of academics began, works of architecture have been thought to possess certain properties of "art," even as they incorporated other art forms in the fabric of buildings. Meaningful compositions of color, sculpture and the subordinate crafts were considered to be a part of architecture.

During the same centuries, the study of architecture was institutionalized as one of the fine arts and located in schools alongside painting, sculpture, music and drama. Simultaneously, and, perhaps, schismatically, architecture was also studied in schools of technology as a property of engineering.

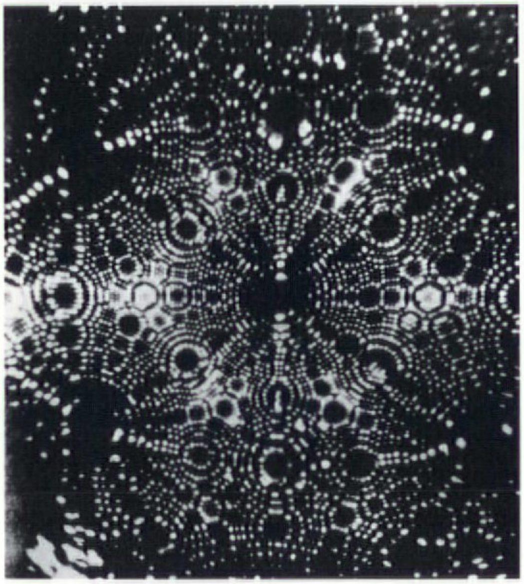
Nevertheless, it was not until the radically atomized academics of the late twentieth century that the confounding notion that "art" and "architecture" are categorically different professions was established. How else could the present notion of collaboration between artists and architects be explained? Collaboration implies a joint project between distinct and even hostile parties.

To make matters even more puzzling, the call for collaboration is occurring at the very time architects are designing buildings that are often promoted to the status of artwork and whose drawings and models are frequently exhibited in art museums. Coincidentally, many painters, sculptors, graphic designers and artisans, whose work has been traditionally exhibited in museums, are now resisting the autonomy of exhibit space and seeking specific landscapes, streetscapes and buildings as environments in which their work might achieve greater significance and public orientation.

Is there a confusion of tongues?

Admittedly we all pretend to know why the divisions exist. Architects are licensed to design buildings, painters apply colors-of-the-mind to flat surfaces, sculptors make three-dimensional things that can be moved from place to place, and artisans fabricate practical things in a particularly virtuoso manner.

But these partial distinctions fail to suggest why one constituency produces "art by artists" while the other does not; nor why one constituency is expected to engage the imagination dramatically while the other is expected to solve realistic problems. I think it is fair to say that, excluding the goals of pragmatic and specialized self-interest, that is, "professionalism," many of the theoretical divisions between art and architecture, as well as between art and "problem-solving," are the fossilized remnants of obsolete theories of knowledge.



Images such as this ion-field photograph and these drawings of Greek and Anasazi pottery inspired the ornament of *Physics Wall*.
Photos courtesy Kent Bloomer.

Perhaps we should not despair. There is an obvious and established way out of the dilemma. By returning the priority of ornament to the act of making architecture in full regalia, certainly not in some sort of hesitant, guarded, or abstract manner, the fractured community of "architects," "artists" and "artisans" can be powerfully reunited.

Ornament, rigorously considered, provides the grammatical strategy for orchestrating the complex hierarchy of visual languages and crafts within a unified vessel. Many ornaments, no matter how much criticism or rejection the practice of architectural ornament has experienced in recent years, have endured in the many fabrics of public life during the late twentieth century.

Indeed, the grammar of ornament probably constitutes the quintessential language of place. Of course, architecture is trusted to be the quintessential language of place, but it seems that the recent academic inclination to portray architecture as a specialization devoted to its own purities inhibits it from making profound contact with the myriad specificities of a particular location. Why else would architects seek the sanctity of museums?

The clearest way to think about ornaments is to characterize them as semiotic "things," that is, units of language. Henri Focillon alluded to the linguistic nature of ornament when he stated in *The Life Forms in Art*, that "ornamental art [was] perhaps the first alphabet of human thought to come into close contact with space."[1]

Visual ornaments are utterly dependent on the objects or spaces being ornamented. They have neither the locational autonomy achieved by phonetic language nor the locational freedom granted to most of the artworks of the late twentieth century. To seek the ambient space of a museum is to seek autonomy. A figure of ornament, separated from its host and temporarily located in a viewing space is treated as an autonomous artwork. That autonomous status denies to the figure its function of ornamenting. In this respect, ornaments must be understood as needing to act in rigorous combination with other things.

The necessity for a bond between an ornament and the object or space being ornamented confers a condition of fixity to the act of ornamenting that congeals originally dispersed figures into the hard circumstance of place. Ornament is necessarily

Detail of stairways along *Physics Wall* and lanterns in the atrium.
Photos by Timothy Hursley.

combinative, while much of what is called "art" in today's world is associated with an aura of individuality and freedom from a commitment to place.

Physics Wall

Physics Wall, funded by the Oregon percent-for-art program, was conceived as a system of ornaments. The ornaments situated in *Physics Wall* signify some elementary diagrams typical of the disciplines within the physics department, whose offices and classrooms surround the Willamette Hall atrium. The "diagrams" were reconsidered as ornaments to be positioned within the formal and typologically Gothic ordering of bases, shafts, capitals, scroll-course and tracery. In that ordering, the ornaments function as visual "units-of-vocabulary" grammatically united by an imposing and familiar symbol of construction.

The spatial ordering of the ornaments in *Physics Wall* emphasizes the vertical model of earthly nature in which solid particles are at the ground-level and the fiery stars are overhead. I interviewed some of the physicists from the four disciplines to determine what particular figures might signify and even memorialize their unique sciences. The solid-state physicists housed on the ground floor spoke of the symmetrical constellation of atomic particles such as those recorded on the ion-field photograph; the molecular physicists spoke of simple clusters of molecules represented by intersecting icosahedra.

The biophysicists led me to drawings from an article in the English journal *Nature* by their colleague Jane Richardson, who is devoted to providing visual descriptions of DNA. In the article she included examples of Greek and Anasazi pottery ornaments, which performed as elegant symbols of the double helix and zig-zags that typify the geometric actions characteristic of DNA. Her cartoon of Lactate Dehydrogenose domain illustrates ribbon-like forms that coil from the ends of the double helix popularly associated with DNA. The astrophysicists spoke of the Crab Nebula, an immense cloud of celestial gas.

The column bases were fabricated out of metal to contain lights that illuminate frozen atomic geometry. Projecting from the bases are parts of shafts that hold "molecular" capitals as lightheads just above the second floor. Between the molecules and stars on the stringers of the stair case is a polychrome fret derived from the Anasazi to celebrate the motion and presence of life forms. The Native American fret is as unique to the Western Hemisphere as the Greek Key and Yin-Yang symbols are to ancient Greece and China. The galaxy above is constituted by 1,800 laser-cut stainless steel stars suspended from a frame under the ceiling and barely touched by long intermediate shafts turning into the shapes of tuning forks.

Physics Wall under construction revealed the confounding issue of collaboration between artists and architects. The so-called "art" consists of the ornaments, which are inextricably associated with the silver shafts, which, in turn, are positioned by the concrete piers upon which the balconies and staircase are mounted. Where does the "art" begin and the "architecture" end? If we consider *Physics Wall* to be a system of communication, what part of the system is more communicable than another?

The architect and project architects, Charles Moore, Steve Harby and Carl Christiansen; the principal client for the physics department, John Moseley; and the principal representative of the Oregon Plan for the Arts, Lotte Streisinger; understood early on that *Physics Wall* was to be a system of ornaments rather than a typical autonomous artwork. Their cooperation and encouragement were extraordinary.

Nevertheless, the modern distinction between art and architecture prevailed with enough force to cripple the project economically. Because *Physics Wall* and Willamette Hall were built under separate contracts, *Physics Wall* was burdened with the expense of separate scaffolds and other routine accoutrements of construction.

I had to make additional flights between the East and West coasts in order to earn cooperation from the general contractor, and to pay for them myself. The electrical contractor blew the union whistle and then physically interfered with the progress of installing the ornaments by pre-installing fragile light fixtures in a critical passageway that we required for our equipment. There was no provision within the basic building budget to install special hardware in the steel overhead rafters to which the star field was attached, and there was no budgeting provision for light fixtures for the ornaments beyond the existence of wires poking out of conduits buried in the concrete. Thus, beyond the will and cooperation of the architects and client, the operational reality of separating "art" and "architecture" corroded both the esthetic and practical economies of uniting the two agendas.

The real gremlin is the contemporary concept of art itself. Any activity can achieve a level of artistry. Art is too general a concept to legitimatize a subclass of "artists." Art is an attribute, not a profession.

If we were to remove the concept of art from the rhetoric defining architecture, painting, sculpture and craft; if we were to replace it with the concept of ornament; and if we were to insist at the outset that ornaments are a critical part of the idea, language and cost of architecture, then we could return to the legacy of architecture as a more profound process of orchestrating visual expressions and artisanry within the craft of building.

If an architect can design the ornaments, in the manner of Louis Sullivan, the architect, not a collaborating "artist," should do the job. If the architect is not prepared to design ornaments, he can plan the character and disposition of ornaments and commission a working painter, sculptor, or artisan to execute them.

If there are wonderfully inspired artisans like the O'Shea brothers, who in a Ruskinian manner embellished the frames and columns of the Oxford Science Museum by Benjamin Woodward, we should be delighted to let artisans participate in the making of architecture.

To reconsider the life of ornaments as a primary property of architecture would be to eliminate unnecessary and petty professional contests with all the attendant parodies and inefficiencies. Ornaments have always been the adventitious linguistic elements of architecture, and their grammar deserves full citizenship in the act of significant place-making.

Note

1. Henri Focillon, *The Life Forms in Art* (New York: Wittenborn Schultz, 1948).

Credits

Artists:
Kent Bloomer, *Physics Wall* and lantern; Ed Carpenter, stained glass; Wayne Chabre, copper gargoyles; Jane Marquis, stained glass; Ken VonRoenn, etched and bevelled glass; Alice Wingwall, fountain; Scott Wylie, masonry for Science Walk.

Selection Committee, Architecturally Integrated Art:
Stephannie Bartos, The Ratcliff Architects; Christie Johnson Coffin, The Ratcliff Architects; Wilmont Gilland, Dean, Architecture and Allied Arts; Stephen Harby, Moore Ruble Yudell; Roger Hull, Art Historian; Allan Kluber, Artist; Nancy Lindburg, Oregon Arts Commission; Arthur A. Mancl, Oregon State Board of Higher Education; Charles Moore, Moore Ruble Yudell; John Moseley, Vice President for Research and Professor of Physics; Kit Ratcliff, The Ratcliff Architects; J. David Rowe, University Planner; Lotte Streisinger, Arts Adminsitrator; Margaret Via, Artist; Jim Weston, biology department; Buzz Yudell, Moore Ruble Yudell.

Willamette Hall atrium.
Photo by Donlyn Lyndon.

Finding a Place for Collaboration

Marc Pally

As interest in the field of public art continues to grow and as "percent-for-art" programs multiply at state and local levels, there is an increasingly apparent need to establish a critical framework for evaluating art projects. The public-art component of the science complex provides an opportunity for exploring both the potential of this nascent field and the problems that beset it.

The announcement for the science complex art program asked artists to "participate in a collaboration with the architects" despite the fact that by the time proposals were invited, the buildings had been designed. Clearly, collaboration would have been difficult at this stage, but an examination of three of the largest projects shows that artists met with various degrees of success at integrating their art with the architecture.

A hammered-copper sculptural portrait of physicist Edward Condon, placed midway up on a corner tower of Cascade Hall, is visible from a pedestrian bridge linking the Volcanology Building and the new Cascade Hall. This and 11 other similarly sized and constructed gargoyles are scattered throughout the complex on exterior walls, usually near the second story. Created by Wayne Chabre, all the pieces address issues of science, either by offering portraits of scientists or by depicting animals associated with scientific inquiry. Chabre settled on specific people and themes after talking with University scientists.

The sculptures are rendered in a straightforward, realistic style, much like the expressive manner pioneered by Auguste Rodin in the late nineteenth century. These well-made and convincing pieces can be seen within the tradition of architectural sculpture. Their tone varies enormously; the most successful pieces offer unexpected images like the iconoclastic and endearing portrait of Albert Einstein with his tongue sticking out (taken from a photograph of the scientist celebrating his 72nd birthday). The sculpture of the fruit fly, at a highly

A dozen hammered copper gargoyles by Wayne Chabre adorn the new science complex buildings.
Right photo by Timothy Hursley.
Above photo and inset photos courtesy Wayne Chabre.

magnified scale, transforms this tiny laboratory organism into a baroque grotesque. The image of James Clerk Maxwell is supplemented by a self-portrait of Chabre, who nestles in the beard of the great nineteenth century physicist.

The most successful sequence of sculptures occurs at the corner tower of Willamette Hall, on which the sculptures *Sir Issac Newton* and *Maxwell and His Demon* are placed. The scale of the wall is small enough not to dwarf the two images and their placement enhances the tower's position as a gateway into the science complex. Similarly, the sculpture of Einstein is placed over a doorway, well framed within a recessed entrance.

In general, however, the sculptures' placement is highly problematic. Their distribution seems random rather than deliberate: Some are sited on corner towers, others are placed on or between pilasters and other vertically articulated masses, and one is affixed above a doorway. Chabre had no choice but to tack his pieces onto a completed architectural design that makes no provision for including sculpture: no system of niches or arches that might accommodate such enhancements.

Chabre also made gargoyles for an earlier campus project, the natural history museum. Photo courtesy Wayne Chabre.

Without an architectural gesture toward integration, these 12 small pieces appear lost and overwhelmed, uncomfortable and uninvited. They are out of scale with the space around them and the fruit fly and zebra fish are placed so high that it is hard to read their complex forms. A simple framing system within the brick coursing would have improved matters considerably, and an identification system would well serve the purpose of commemoration inherent in these pieces.

Alice Wingwall's fountain is clearly the most successful project and the one most in harmony with the context of the science complex. This is due in large measure to the autonomous nature of the fountain itself and its careful siting at the periphery of the complex, next to established buildings and connecting to the campus beyond. The second-level pedestrian linkage also reinforces a basic design element of the complex. The attitude of bridging is carried into the form of the fountain, whose strong rectangular shapes echo adjacent architectural elements.

The water starts in a pool at the second-level pedestrian walkway, drops down a few feet to a small holding pool, then cascades over two waterfalls to another pool at grade. Some of the water glides over the lip of the holding pool with a soft, lapping effect, then falls into the lowest pool; the rest tumbles through a channel spout and spills vigorously into the lowest pool. A sitting wall surrounds the pool on three sides, and stairs wrap around the cascades.

Rock specimens, many contributed by geologists working in the adjacent buildings, are placed randomly within the channelized fall and collection pool. Some of the specimens are in their natural state; others have been shaped and milled into rectan-

Geology faculty helped place the rocks in Alice Wingwall's fountain (left).
Detail of *Physics Wall* and lanterns (below).
Left courtesy Paraspazio.
Below courtesy Kent Bloomer.

gular forms — generic building blocks, perhaps. Such materials speak directly to the field of geology housed within both buildings and provide a metaphor for intellectual inquiry and human action in general, honing natural resources into human-made shapes. The fountain walls are covered with tiles similar to those used in the buildings, providing another linkage.

The fountain projects sounds well beyond its immediate surroundings; one is aware of the fountain's presence before one can see it. Once encountered, the fountain offers an oasis, with the sound enclosing the space. One is invited to sit on the wall surrounding the collecting pool; however, it is difficult to sit on the wall along the waterfall because of a handrail that makes jumping onto the wall awkward. (If the intention were to include seating, the wall should have been designed to be more inviting and comfortable — perhaps lowered several inches and without a handrail.) Seating could have been made available at the landing. If the intention was to discourage sitting — hopefully this was not the case — the retaining wall should not have been made wide enough for sitting.)

During my visit the concrete steps were not complete and three-quarters of the way down temporary wooden steps had been installed. The transition from concrete to wood was startling. When I stepped on the wood tread and felt its response, I associated it with the water and stones in the fountain and felt the oasis effect even more strongly. Perhaps a system of wooden steps would have improved the project over the ordinary concrete steps now in place.

Kent Bloomer's contribution, one of the most ambitious, comprises two elements: *Physics Wall*, a floor-to-ceiling installation within the atrium, and a series of lamp posts that starts in the atrium and continues along several paths outside.

Physics Wall is a system of steel elements affixed to columns that support bridges connecting buildings on either side of the atrium. At ground level, steel plates clad the base of each column. The plates are punctured by a system of back-lit holes simulating the structure of atoms, thus unifying the foundation of science (atomic order) with architectural function.

Four steel tubes emerge from each column base and flank the columns as they rise upward; a series of "capitals" terminates their rise at the second floor handrail. These "capitals," illuminated from an internal light source, are reminiscent of

geodesic domes. Constructed in outline form by the use of steel bands, they can be seen as a generic molecular model.

A single tube, centered on the flat face of each column, leads one's eye up to the fourth floor. There, a complex tracery of tubes and star-shaped flat forms fans out from each column and unites into one sweeping network. The overall effect is of a cloud of particles that is equally convincing whether regarded from a macro perspective (astrophysics, which in fact is housed on the fourth floor) or a micro perspective (protein crystallography, housed on the third floor). Finally, a painted frieze on the outside of the stairway that crosses the wall diagonally refers to the double-helix pattern of a DNA molecule.

Physics Wall required more cooperation from the architects than any other art project. Bloomer requested that the columns not continue to the roof as originally planned, but stop at the fourth-level balcony. This would result in less visual interference with the galaxy of laser-cut stars. Lighting and electrical systems had to be reconsidered to accommodate elements of the piece. Bloomer also worked closely with color consultant Tina Beebe in determining the colors for the stairway frieze. Finally, the bearing capacity of the ceiling members had to be increased for the cables supporting the stars.

The logistics of *Physics Wall* are formidable and its scale enormous. Conceptually, the piece is logical, with images at each level referring to the disciplines working in the labs beyond, and with modulating references from the earthbound base to the skies above.

However, the visual character of the project does not live up to these ambitions. The materiality of the steel remains obdurate, though it is called upon to provide reference to a host of ideas. The steel is especially problematic on the lamp posts, in which organic and elegant forms are encased in a material at odds with the warm brick atrium. The intellectual association is clear, but never convincing enough to engage me in a more thorough relationship, one that merges metaphor and function, meaning and materiality.

The major component of the piece, the cloud of stars, must compete visually with the heavily articulated ceiling, a backdrop that remains highly inhospitable to this airy sculpture. Also, examples of protein crystals in display windows on the third floor reveal forms more complex and less predictable than the ones designed by Bloomer. A more energized and dense system might have alleviated these problems.

Many of the sciences housed within the science complex are themselves pursuing a form of collaboration. Boundaries between established disciplines in science are to a greater or lesser degree artificial, if not archaic. Previously isolated fields are now most meaningfully pursued in the context of an enlarged perspective; "geo" now serves as a prefix not only for geology but also for geophysics, geochemistry, geobiology and the like. In most fields the extreme specialization that has characterized the past century and a half can be seen as an aberration, a parting from traditions of inclusion and connectedness. Modern notions of specialization now appear naive, if not outright impractical.

The architectural plan for the science complex is responsive to this state and seeks to facilitate exchange among the various disciplines it houses. Common rooms are strategically placed within connecting corridors and pathways, both at grade and at elevated levels, and encourage passage from one discipline area to another. Furthermore, the buildings themselves are unified through the use of materials, scale and style. Both functionally and symbolically, the architecture amplifies and reflects the notion of collaboration in the sciences.

Collaboration and interdisciplinary practice occurs in the social sciences, humanities and arts as well as in the physical sciences. Certainly the building arts were for most of Western history comprised of many skills, including all practices integral to each project's development and evolution. The position and function of art and ornamentation were considered as basic as the form of space and disposition of mass. But the advent of Modernism and its reductivist inclinations created an enormous rift between art and architecture, with each discipline determined to discover its own pure form and purpose.

The changing tides of history that have helped move the scientific community toward more interdisciplinary perspectives have also affected the ways in which we look at how buildings and cities are planned and built. Collaboration and cooperation among artists. architects, designers, engineers and planners calls into question longstanding demarcations among these disciplines.

Within the past decade artists have increasingly participated in the design of the built environment. The manner and degree of their participation varies enormously, from the last-minute decorative gesture to full-scale collaboration.

Unfortunately, the involvement of artists in the design of the science center occurred after the completion of the design development drawings. In essence, artists were invited to submit proposals for "building-integrated" or "site-responsive" projects after the buildings and their adjacent spaces had been fully detailed. Such an arrangement does not necessarily preclude artists from making outstanding contributions to a project, but it increases the chances that their contributions will be more additive than integral.

The buildings themselves were conceived after a thorough series of discussions among the user groups, university representatives and the architectural team. Indeed, this idea of intense dialogue is a hallmark of the University's approach to design. Such intensive briefing and context setting was not, however, used to familiarize artists with the project and its relationship to the rest of the campus.

Furthermore, the artists were not convened to work together, to discuss one another's ideas, or to consider ways in which the entire art program might be developed in a unified manner. Specifically conceiving each artist's contribution as an individual statement deprived the science complex of a more integrated and comprehensive art program. Some collaboration did occur when projects were being built, as between Beebe and Bloomer, and between Scott Wylie (designer of tiling for Science Walk) and Alice Wingwall (whose fountain is a terminus for Science Walk).

Science Walk, the one project that addresses the need to integrate the various buildings and spaces of the science complex, was under construction when I visited. Science Walk has the potential to help unify the art program, lending it more authority within the science complex than it currently has.

The science complex is a prime example of good intentions producing work less satisfying than they should. The process of collaboration among disciplines is well established in the sciences; there is no reason why such a relationship is not possible between artists and architects.

A wonderful example on campus of such a partnership is Knight Library, built in 1935. This highly ornamented eclectic Beaux-Arts structure, designed by long-time campus planner Ellis Lawrence, has a programmatic approach to art-work that is integral to the architecture. Inscription panels are placed directly over windows, busts are placed within alcoves and niches, murals receive architectural framing at key locations and other detailing, such as light fixtures and benches, are woven into the design fabric. The effect is one of integration and unity, an accomplishment possible only through mutual planning among all parties from conceptual planning forward.

Certainly artists working today welcome the opportunity to participate at the conceptual development phase, although they probably would demand a less confining role than that offered to those who contributed to the library. The science complex takes many of its cues from older buildings on campus, and while its sensitive incorporation of many of the materials, scales and attitudes of these other buildings is laudable, it would have been much more successful had the collaborative intent of buildings such as Knight Library also been honored.

Given that the complex was built for disciplines engaged in active collaboration, it is ironic that collaboration between architects and artists was not employed more effectively. Creating such opportunities is one of the key challenges for projects that seek to enrich public places with art.

Interior of Gerlinger Hall reflects the tradition of integrated art and architecture promoted by Ellis F. Lawrence. Courtesy University of Oregon Archives.

Knight's Moves

Robert Campbell

All buildings are broadcasting stations. They fill the air with messages quite extraneous to their immediate purposes. They do this regardless of whether the architect intends them to or not.

American college campuses offer an amazing range of such messages. The concrete megablobs that the University of Wisconsin, let's say, built in the 1960s and 70s trumpet a brazen tale of the oligarchic power of an *arriviste* central administration, of bossy new guys who crunch numbers and work out with weights.

By contrast, the ordered Edwardian quads and vistas of Rice University whisper a bedtime story, possibly fictive, of a strolling social and academic hierarchy so calm and well established it has no paranoid need to assert itself — a hierarchy rather like that of the British in India, similarly housed in a just slightly exotic architecture.

I came to the University of Oregon not as a user of the campus — not as a student, teacher, administrator, or townie — but as a tourist, never the best way to experience architecture. I also arrived as a longtime admirer of the writings of Christopher Alexander, author of *The Oregon Experiment*, which defines many of the goals the new science complex seeks to reach.

Once, at an Aspen Design Conference, I heard the architect Sir Hugh Casson remark that "the Englishness of the English is that in time of crisis they turn not to reason but to memory" — as accurate, perhaps, as any ethnic generalization can ever be. It is true of Christopher Alexander. Like his countryman Edmund Burke, he is suspicious of the world of ideas, suspicious of systems and system-makers. He looks for truth not in any process of intellectual abstraction, but rather in consensual cultural agreement over time. He trusts experience, both personal and collective. Such an attitude has much to recommend it. It leads Alexander to what are — for me, at least — numerous intuitions of hair-raising persuasiveness about what works and what doesn't in architecture and planning.

My quest as a tourist in Eugene, I suppose, was to find out whether the science complex really embodies Alexander's principles and, if it does, whether it validates or discredits them. And, to be open to whatever other messages might hang in the air, as one might pick up a barely audible scream for help beneath the noisy jawing of a CB radio. Since I can't stand the names science center or science complex, I will refer to this group of buildings simply as Rumpelstiltskin.

The first shock you receive from Rumpelstiltskin is administered by its architectural program. Perhaps misled by a 1985 article in the student newspaper of the School of Architecture and Allied Arts — "The Year Alexander Died," by Mike Shellenbarger — I had long assumed the University had turned

A characteristic "knight's move" is the stairway that hugs the edge of the atrium in Willamette Hall.
Photo by Timothy Hursley.

its back on *The Oregon Experiment*. So it was with astonishment and pleasure that I read the "Manual for Prospective Architectural Consultants," the brief given to architects being considered for the job of designing Rumpelstiltskin.

The "Manual" announces on page one: "Planning at the University of Oregon is guided by the basic principles of *The Oregon Experiment* and *A Pattern Language*." It spends the next three pages outlining those principles. And in case anyone has missed the point, it includes an appendix of 24 key patterns, ranging from "Pedestrian Street" to "Department Hearth."

Testing Rumpelstiltskin against these 24 patterns is probably as good a way as any to determine if it's truly Alexandrine. Right away, it turns out, it flunks number one.

This pattern, called "Open University," tells us: "When a University is built up as a campus separated by a hard boundary from the town, it tends to isolate its students from the townspeople, and in a subtle way takes on the character of a glorified high school." Therefore, "the boundary of the university must weave in and out, like fingers, into the town. Parts of the town must grow up within the campus, and parts of the campus must grow up within the town."

In short, a university should be a part of community life, not a preparation for it. Rumpelstiltskin faces onto public streets but cannot really be said to fulfill this wise pattern. On one side it confronts campus greenery, on the other an arterial with a strip of service yards. Generously grade it "D."

"Site Repair": ("Buildings must always be built on those parts of the land which are in the worst condition, not the best.") Nestled among ugly existing buildings, roads and parking lots, all of which it helps to integrate and conceal, Rumpelstiltskin gets an "A-plus" for "Site Repair."

"Activity Nodes": ("Create nodes of activity throughout the community, spread about 300 yards apart... . At the center, make a small public square and surround it with a combination of community facilities and shops... .") The 300-yard gauge allows for only one node here, and Rumpelstiltskin possesses just one, the dramatic new multi-story atrium in Willamette Hall. It's not exactly surrounded by shops and facilities, though. Grade it "B."

"Building Complex": ("A building cannot be a human building unless it is a complex of still smaller buildings or smaller parts which manifest its own internal social facts.") One of my favorites among Alexander's patterns. Rumpelstiltskin certainly breaks down into the smaller parts, but it is seldom clear what they are supposed to be manifesting. Another "B."

I do not want to ride these patterns into the ground. The point is they have been kept in mind, at least, within the perimeter of Rumpelstiltskin itself, but less so (perhaps inevitably) in its relation to the larger campus.

There are other sides to Alexander. One has to do with process, letting the users of the architecture make the major decisions. As a tourist, I have no insight into how that worked here. But there are still other basic concepts, such as the notions of piecemeal growth and organic order. Here, it seems to me, is where Rumpelstiltskin makes its one serious misstep.

Rumpelstiltskin is a dramatization and a pretense, not a manifestation, of piecemeal growth and organic order. Created at a single moment by a single team of architects (with whatever input from users), it represents itself not as the unitary thing it is, but as a loose hodgepodge of related but individual buildings that appear to have grown up, like a family, over a period of time.

Take the floor of the atrium. Made of reddish-ocher concrete, it is colored unevenly, as if it has aged over time. On it are inscribed mysterious patterns — radial, snakelike patterns — that seem to be the runes and ciphers left behind by an earlier civilization. We cannot help knowing that these ghostly demarcations are not, in fact, the work of native American Druids, much as we might love to believe it, and merely the arbitrary doodles of designers. They are, consequently, form without meaning. And the uneven coloring is the expression not of the action of time, nor of the imperfect Ruskinian hand of a human maker, but of a sophisticated desire to create the effect of such irregularities.

It is often said of modern architecture that what began as a social and political experiment ended as a formalist dogma. A half-truth at best, but nevertheless an illuminating one. Rumpelstiltskin raises a similar concern: Will the difficult striving toward the kind of world Christopher Alexander imagined begin to be replaced, even at the hands of his admirers, by a formal representation of that world? Everything turns into art so quickly in our era.

Having nursed that particular worry, I should turn to a recital of pleasures. The great atrium is a truly amazing space, a boggling festival of architectural metaphor. The corner stair recalls piazzas like Todi's, but the pattern impressed on its concrete is that of the coffered slab of Louis Kahn's Yale Art Gallery. Crisscrossing bridges, like the stair, are a literal embodiment of the wish to connect the different departments.

Hard surfaces everywhere render the idea of connection audible — the talk, the footsteps, the click of bicycles, the doors opening and closing. Leaflike silver sculptures, exfoliating from the tops of piers like suddenly fertilized Corinthian capitals, make of the atrium a scared moonlit grove, but paving and streetlights make of it, at the same moment, an urban square at evening.

Not quite enough happens around the atrium to justify all this. There is a lot of center here, and a rather thin surround. A look at Alexander's "Alcoves" pattern might have helped. But this is a tremendous, exhilarating space nonetheless.

Another pleasure is the way the old buildings on the site have been respected. These are mostly hideous, with long spans and big cantilevers that express an internally generated power. Rumpelstiltskin simply reaches out and gathers them into the family, like Marines welcomed from an unpopular war. They're respected and allowed to continue to be themselves, while at the same time they're integrated into something larger. Once space-occupiers, they become, with their new linkages, space-shapers.

Smaller joys lie in the many special places. To choose just one: The fountain, by artist Alice Wingwall, is a conceit falling somewhere between an architectural ruin and a natural rock formation — appropriately enough, in its location between the departments of geology and volcanology.

As you spend more time at Rumpelstiltskin, as you move back and forth among the many spaces and buildings that jostle against one another, you gradually become aware of something you cannot name. Some principle of recurrence is holding the whole thing together, but you cannot figure out what it is.

It is not the similar masonry, or the repeating formal elements like octagons and arches, or even the vise-like pressure of the parallel streets that force Rumpelstiltskin into its linear orientation. Nor is it Science Walk, the meandering path (reminiscent of the one in Charles Moore's earlier Kresge College in Santa Cruz) that threads these elements together.

The fountain gives the clue. The water moves in an L-shaped path as it drops through the fountain. Eventually, you realize it is reminding you of the L-shaped concrete stair down which people are flowing in the atrium at the farther end of Rumpelstiltskin. You realize that you have continually found your own body, too, making L-shaped moves — both horizontal and vertical. Knight's moves: two squares one way, one perpendicular.

A knight's move is the representation of a diagonal motion by orthogonal means — of freedom, let's say, by order, or of the organic by the Cartesian. At Rumpelstiltskin it becomes both structure and metaphor.

I began by asserting that campuses are messengers. They announce the powers and purposes that shape them. At Rumpelstiltskin the wily sidle, the fox trot, the knight's move, embodies the message as well as anything does. It is a message about relationships that are always conditional and assertions that are always contingent.

If Rumpelstiltskin expresses anything, it expresses a disinclination to accept any one principle of origin or order. In all its step-step-sidestep patterns, it encodes a dance of conflicting desires. It respects the past and yearns to break clear. It acknowledges authority, but loves the people in all their idiosyncrasy. It accepts Christopher Alexander as The Word, except maybe on weekdays. It embraces a Marine and then steps out with flowers in its hair.

It expresses a mood you might characterize, a little glibly, as post-Derridan, although there's no evidence here of the architecture of deconstruction. It embodies a premise that architecture is perennial discourse and commentary, an intricate Ptolemaic system of feedback cycles, always careful to undercut itself — a talk show, a dance of oppositions, rather than a march of progress. Everybody, it says in sum, got in on the act.

Sometimes the messages at Rumpelstiltskin are fictive. The idiosyncrasy, let's admit, can be more ostensible than real. But as the poet reminds us:

The prologues are over. It is a question, now,
Of final belief. So, say that final belief
Must be in a fiction. It is time to choose.[1]

Note

1. Wallace Stevens, "Asides on the Oboe," from *Parts of a World* (New York: A. A. Knopf, 1942).

PROMISES, PROMISES — of Earthly Power...

Michael Mercil

America's Fourth Coast — The Mississippi River: An Expedition Report

Date: 29 June 1990
Location: Mississippi River Mile 1318.1 — Keokuk, Iowa.

K E O K U K! So named during a Fourth of July celebration in 1829, the name belonging to the recognized leader of both the Sac and Fox tribes after the defeat of Black Hawk in the War of 1832. But we are not in Keokuk because of colorful Native American lore or a particular interest in ancient Iowa history. Our purpose is to seek out the urban visions that inspired this presumably ordinary and undistinguished landscape in the middle of the United States.

During the three sweltering weeks since our expedition began, almost no place has appeared familiar to us and none of them has been ordinary. In recent days, the dominant artifacts along our route have been the locks, dams, bridges, barges, tugboats, railroads and industrial sites that cause this section of the river corridor to seem like a mechanical chamber. The object of

...and Heavenly Glory

Sculptural ornamentation from Nauvoo Temple and detail of power house machinery at Keokuk Dam.
Photo by Mary DeLaittre.

our attention at Keokuk is the Great Dam and Power House of the Union Electric Company.

It was the first and remains the longest dam to cross the Father of the Waters. From the Illinois banks, the 119 arched spillway gates of Keokuk Dam stretch low and bridge-like for seven-eighths of a mile across the Mississippi. Nearly parallel with the Iowa shore sits the Power House. Rising up out of the water 177 feet high, 132 feet wide and 1718 feet long, it floats upon the River like a concrete Roman temple barge of electric civic glory.

Everything about this place is *bigness*. A still working relic from the machine age, it is an immense churning, whirring, rolling, turning, sucking, pumping dynamo! The floor of the power house is divided lengthwise in half. Below the interior wall on its Iowa side 110,000 transformer watts of crashing, gray water roar through an open intake channel. On the Illinois side are 15 black cylindrical generators, 11 feet tall and 31 feet wide, marching down the 113,388-square-foot expanse of the generator hall.

The well-maintained pride in this place is reflected everywhere, in shining white porcelain dials, gleaming knobs, and pulls and switches of brightly polished brass. Designed before the invention of planned obsolescence, the original turbines have been spinning ceaselessly at 57.7 revolutions per minute for three-quarters of a century.

The Keokuk project was built from 1910 to 1913 next to a town with 16,000 inhabitants; construction required a labor force of 2,500. It was conceived of as a *modern wonder of the world*, and some claimed its masonry construction surpassed that of the great pyramid at Cheops.

The project marked a great leap of faith forward toward the future, in its novel use of concrete, its sheer dimension and the function of its power house as a hydroelectric generator. In contrast to the project's modern industrial mission, the allusions of the architecture reached backwards to the past. The strictly symmetrical elevation of the power house, the low, horizontal, pedimented roof line and the high-arched windows flanked by pilasters were conscious efforts by the Stone & Webster Engineering Company to present an image of classical respectability that would inspire civic pride and a local sense of confidence in the promised future of the development:

[The] floor tiling is only one of many details . . . but it may illustrate the care used in even the finishing touches given this structure. The tiles are square and come from Ruabon, Wales, out of a claybed used by the Romans during their occupation of Great Britain over twenty centuries ago.[1]

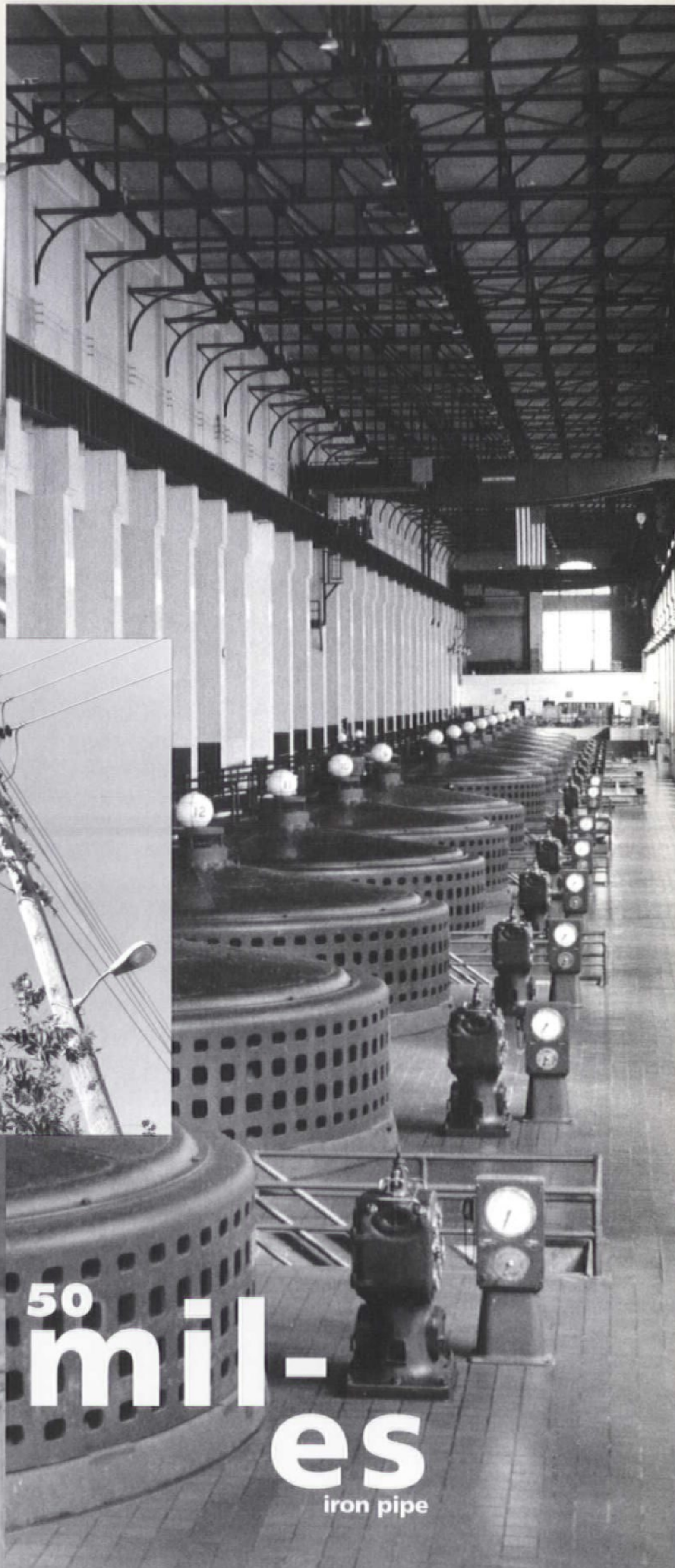
Ingredients:

7,000 tons structural steel

650,000 cubic yards concrete

300,000 cubic yards sand

Map of Mississippi River valley, including Keokuk, courtesy U.S. Army Corps of Engineers.
Photos by Mary DeLaittre.



The spectacular urban scale of the Power House and its neo-classical architectural rendering referred less directly to a distant Roman heritage, however, than to contemporary American Beaux Arts planning schemes. Ever since construction of the "Great White Way" at the Chicago World's Columbian Exposition in 1893, neo-classicism of gargantuan proportions had become a hallmark of City Beautiful projects throughout the United States. Despite a vast civic scale that was hugely disproportionate to the actual size of most towns, the rational order of these Beaux Arts plans presented a compelling alternative to the seemingly chaotic urban landscapes so familiar to many for whom the crudeness of frontier life remained a vivid memory.

Since the 1820's, the town of Keokuk had served as the "Gate City" to Iowa settlement. Westbound immigrants and their wares had floated up the Mississippi as far as the Des Moines rapids at Keokuk while whole northern pine forests were floated downstream to supply nearby lumber mills. But by the mid-1880's, pioneer settlement was virtually complete and virgin timber stands had been logged over.

As the frontier economy of the central Mississippi river valley went bust, dreams of damming the rapids at Keokuk reappeared as the practical solution to the region's economic woes. By 1913, Stone & Webster claimed, "thoughtful economists" had drawn "the inevitable conclusion" that "the maintenance of the present standard of civilized living depends in large measure upon the ability to produce water power in ever increasing quantity."[2] Industrial development, economic prosperity and social progress now became the promise of the *hydroelectric future*.

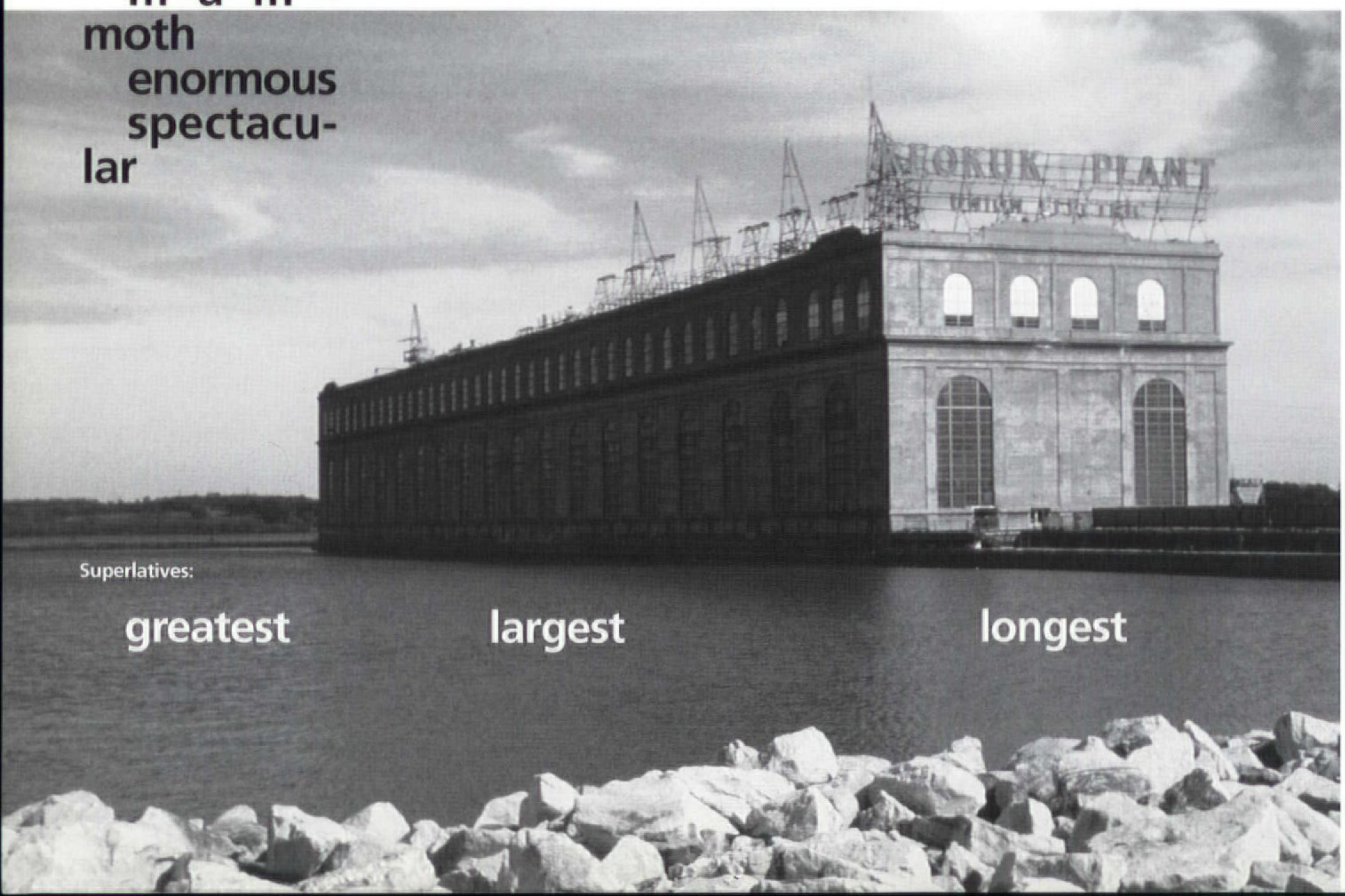
Separated from the town by the Mississippi, the colossal new project at Keokuk was planned as a visionary urban landscape around which a new industrial empire would inevitably arise. With an anticipated 30 generators each delivering 10,000 horsepower capacity, the

Adjectives:

massive
colossal
mam-moth
enormous
spectacu-lar

Superlatives:

greatest **largest** **longest**



The power house.
Photo by Michael Mercil.

"Gate City" was rechristened America's *Power City* and its location deemed "the very heart of the nation and center of things commercial"[3] — a newly discovered hydroelectric El Dorado destined to become a national Kingdom of Earthly Power.

Riverboat excursions to the construction project became popular weekend tourist events. For those who made the pilgrimage, the rising Power House appeared as a mighty temple at the hub of the shining *Power Zone*.

The 15 generators now installed in this power house are sufficient to light . . . a road extending twice around the world through Keokuk. When the other half of this power house is completed, it will generate enough current to illuminate a pathway 200,000 miles long, or nearly the distance to the Moon.[4]

The first electric current was delivered from the Keokuk plant to St. Louis in July, 1913. A crowd of 50,000 participated in a "the special day of dedication of the work to the use of mankind"[5] on August 25th.

All of the machinery worked, yet the anticipated development of industrial manufacturing proved elusive and the promised land of material prosperity never arrived. By the end of 1914, only two small factories had opened in the *Power City* and not one factory of significance was opened in nearby Burlington, Hannibal, Quincy, or Fort Madison. Despite assurances from Stone & Webster that hydroelectric power would be sold more cheaply than steam power, electric rates were manipulated to eliminate competitiveness and maximize profits. Previous songs of praise now swelled into an angry chorus.

Was it not the general opinion ... that when the dam was completed we would have our light bills cut in two?[6]

Keokuk had already paid a steep social price for the boom surrounding construction of the project. If its citizens had adjusted to foundation-shaking dynamite blasts, they openly anguished over the "daily riot of vice" and a spreading "epidemic of crime." A severe housing shortage created slums reportedly worse than the tenements of Philadelphia. Schools grew overcrowded. Sewage and garbage disposal were inadequate. In 1912, the tuberculosis mortality rate in Keokuk reached higher than that of Chicago. City officials, who spent $18,000 promoting the city, were meanwhile unable to agree upon funds requested for needed sewer construction.

Building the Keokuk lock, dam and power plant was intended to propel the collapsed frontier economy of Iowa's "Gate City" forward into the prosperous industrial realm of the metropolitan twentieth century. But, like many commercial investment schemes, the singular urban vision of the *Power City* was blind to the limiting realities of its geographic, economic and social circumstances. Keokuk in 1910 was, after all, a modestly sized Iowa town near the middle of the Mississippi River in the middle of the midwestern United States. The "great, teeming, producing, consuming population" of the *Power Zone* was dispersed through the vast agricultural regions of the central Mississippi river valley.

The mammoth scale of the Keokuk development ultimately proved too large even for the mighty Mississippi River. Because of inadequate water flow during most months of the year, only 15 of the originally planned 30 generators were ever installed and one half of the Power House was never finished.

Crossing the foundations of its unfinished extension, we exit the Power House still marvelling at the huge dimensions of this place, its dramatic siting in the middle of the River and the almost overwhelming presence of its mechanical power. But just as nothing could increase the flow of the Mississippi, neither could inflated promotional rhetoric nor redrawing the maps transform the actual location of the *Power City* from a middle to a center. Keokuk, Iowa, today remains a river town with fewer than 13,000 residents. The colossal *Power City* now shines only as a dimmed reminder of early twentieth century industrial/commercial utopianism that none of us had heard of before today.

highest

boldest

Date: 30 June 1990
Location: Mississippi River Mile 1328.6 — Nauvoo, Ill.

Though prepared with the history of the settlement of Nauvoo, we feel apprehensive of our intrusion into the ruins of a city built with the guidance of *divine revelation*. We approach the Mormon past in scattered groups of twos and threes.

Old Nauvoo is a purposeful place — a neat, orderly, brick-tight yet oddly open historic town that was originally built with eyes set toward the future, toward spiritual glory, toward salvation and Mormon heaven. But it was also planned looking back over its shoulder towards the *world*. Besides his legions of religious followers, the Prophet Joseph Smith also led a military dragoon here. And Jonathan Browning, inventor of the automatic repeating rifle, was among the resident company of Saints.

In 1839, the exiled Smith purchased the town of Commerce, Ill., as a Mormon resettlement stake. Located at the head of the Des Moines rapids on the eastern shore of the Mississippi, Commerce was an unhealthy low-lying swampland. Trusting that "it might become a healthy place by the blessing of heaven to the Saints," the Prophet renamed it Nauvoo, meaning "beautiful place," and "considered it wisdom to attempt to build up a city" there.[7]

Ignoring local topography, Smith's ambitious city plan was of an infinitely expandable grid of four-acre blocks each divided into one-acre lots. Buildings were sited at outside corners with block interiors reserved for household fields and gardens.

Having etched his vision for a New Jerusalem upon the eastern bank of the Mississippi, Smith commanded all Saints to gather at Nauvoo to cultivate a Garden of Eden and build the Heavenly Kingdom of the Mormon faith. New converts soon flooded the valley and by 1845, its swelling population of 15,000 surpassed that of much less saintly Chicago. With its rapidly expanding population and an advantageous location for exploiting riverboat traffic, Nauvoo seemed destined to become:

a great Emporium of the West, the center of all centers . . . embracing all the intelligence of all nations, with industry, frugality, economy, virtue, and brotherly love unsurpassed in any age of the world . . . a suitable home for the Saints.[8]

At the sacred center of this New Jerusalem stood the magnificent Nauvoo Temple. Set back upon a bluff that slowly rises 300 feet up from the river flats, its gleaming angel-topped tower smiled high above the lower settlement. The Temple, built as a labor of great love and sacrifice between 1840-1846, was burned by arsonists in 1848; a sudden tornado toppled its polished limestone walls in 1850. Today the site is marked by a modestly landscaped park that contains an archaeological excavation of the Temple foundations, a few Temple stones and a scale model of the original building.

An exceptionally exuberant expression of the Mormon imagination, the now vanished Temple had been the largest and certainly most unusual building west of the Alleghenies and north of St. Louis. The itinerant painter Henry Lewis wrote approvingly of its curious architecture, "considering . . . that it is of no particular style it [does] not in the least offend the eye by its uniqueness."[9] While the designated Temple architect was Elder William Weeks, disagreements over architectural taste were finally deferred to the Lord's judgment as revealed through Joseph Smith: "I wish you to carry out my designs. I have seen in vision the splendid appearance of that building illuminated and will have it built according to the pattern shown me," he commanded.[10]

The pattern shown him included a gleaming, four-story limestone structure about 88 feet wide, 128 feet long and 165 feet high to the tip of its white wooden tower. Large, round windows lit interiors of second-floor and attic-level offices. Ingeniously adapting arcane Masonic symbolism, the entire building was surrounded by 30 pilasters capped with smiling suns and supported at the base by dozing moons. The entablature was banded with inverted five-point stars. Atop the tower a gilded angel Moroni held aloft the *sacred word* while blowing his shining golden trumpet. In the basement, 12 life-sized stone oxen with ears and horns of tin held up the heavy tub of Holy Baptism.

Amidst economic hardships and ever-increasing social pressures, work on the Temple provided the new community of Saints with a challenge of faith and a unifying public works project . Land, labor and material costs were financed through voluntary contribution. Mandatory tithes required all Church members to donate one of each 10 days labor or, "one-tenth of all that anyone possessed at the commencement of the building, and one-tenth part of all his increase from that time until completion of the same."[11]

With virtually no other industry in Nauvoo and hundreds of Saints "called" to work as stone masons, carpenters, artisans and laborers, the Temple was the city's largest employer. Families were enlisted to house and feed the work force; housewives knit socks and gloves. Progress on the Temple offered new converts a visible measure of their progress toward building the divinely sanctioned Mormon kingdom.

But Nauvoo was not a peaceable kingdom spread out below the benignly smiling Temple. Against objections from Smith, new commercial and residential development surrounded the Temple, competing with the older commercial center on the flats. Bluff-top acreage was cheaper and better drained than lowlands near the River. Smith complained ... *the upper part of the town has no right to rival those on the River. [H]ere, on the bank of the River, was where we first pitched our tents; here was where the first sickness and deaths occurred; here has been the greatest suffering in the city.*[12]

The Prophet's deep respect for historic precedent aside, he also shared business interests in the other great public building already begun in the lower section of the city. Once completed, the Nauvoo House would provide a grand hotel for visitors and a permanent residence for the Smith family. Although a speculative venture, this building had also been ordained through divine revelations that listed private stockholders (including the Prophet himself).

Lucien Woodworth, hired as principal architect, designed a 75-room, three-story L-shaped building of red brick and limestone; each wing was about 120 feet long and 40 feet deep. But the palatial scale of Nauvoo House demanded too much from a community already overburdened by other commitments. The hotel was built only to the second floor when Brigham Young acknowledged the evident lack of

Center: Nauvoo Temple bell. Clockwise from top left: duplex house of Erastus F. Snow and Nathaniel Ashby, c. 1950; duplex house of Erastus F. Snow and Nathaniel Ashby; c. 1870; Joseph Smith mansion house; Jonathan Browning house. Center photo courtesy Utah State Historical Society. Surrounding photos courtesy Harold Allen.

communal enthusiasm for the project, suggesting, "I expect that the Saints are so anxious to work [on the Temple], and so ready to do right, that God has whispered to the Prophet, 'Build the Temple and let the Nauvoo House alone at present.'"[13]

Smith had insisted that in the eyes of the Lord, the Temple and Nauvoo House were of equal, not rival, importance and that, "both must be completed to secure the salvation of the Church."[14] Yet their distinct sacred and secular functions, their separate financial structures and the topographic differences between their hilltop and river flat locations reflected serious divisions within the Mormon leadership and community.

To this volatile mix of internal social, economic, political and theological disputes was added a gradual rekindling of outside religious persecution that soon proved fatal to the Mormon experiment at Nauvoo. Smith announced his candidacy for President of the U.S. in the spring of 1844. Shortly thereafter, the rumored doctrine of celestial marriage (polygamy) was publicly exposed when a rival Mormon faction challenged the Prophet's supreme authority in a published offer to reform the Church. Smith quickly reacted by confiscating the blasphemous papers and burning the printing press, for which he and his brother Hyrum were consequently arrested. While detained in jail in nearby Carthage, the men were assassinated by a furious anti-Mormon mob. Violence continued until a state legislative committee expelled the Saints, under new leadership by Young, from Illinois.

In an extraordinary demonstration of religious and communal fortitude, the Mormon faithful continued their work on the Temple while preparing for their westward exodus. Its interior was never finished, but a dedication ceremony was held in April, 1846. Though Nauvoo was soon abandoned, the Prophet's vision of a Heavenly Kingdom was carried onward by the Saints to flower once again in the empty Utah desert. There, isolated from outside interference and applying the brutal lessons learned at Nauvoo, the Mormons built new empire that spread from Salt Lake City through the Great Basin.

Following the Mormon departure from Illinois, the abandoned city of Nauvoo was briefly occupied by a small communal sect of French Icarians. Swiss and German immigrants later settled permanently on the bluff top near the Temple site. Stones from the ruined Temple were retrieved for building wine cellars, houses, a few commercial buildings and a Catholic school, while vacant dwellings on the flat lands near the river fell victim to vandalism and decay.

Nauvoo Temple as seen from the flats.
Photo courtesy LDS Historical Department.

Opposite page: Temple model on exhibit in Nauvoo.
Photo by Mary DeLaittre.

As a small agricultural village of 1,100 residents where blue cheese and red wine are now the major local produce, Nauvoo is still a visibly divided town of lingering, if greatly diminished, tensions.

In the early 1960s, the Saints began returning to the river flats to re-purchase land and restore the old city. There the scattered remains of Smith's New Jerusalem have been resurrected as a modern-day Mecca for busloads of Mormon pilgrims. Two visitor centers are separately operated by the Church of Jesus Christ of Latter-day Saints (headquartered in Salt Lake City) and the Reorganized Church (headquartered in Independence, Mo.).

Outsiders to the faith may sense the silent rivalry between these sects during guided tours in which Mormon history and religious myth promiscuously mix in a poignant reminder of Nauvoo's inspired and troubled past. What survives as red brick evidence of the Heavenly Kingdom are generally its most substantial public halls and those houses and shops at one time owned or occupied by the earliest and most prominent citizens (some of these buildings have been reconstructed). The corner post locations of the houses and their generous wheat field lots still testify to the ambitious vision of the original plan for the city.

The impression that Nauvoo makes on a visitor today — despite the haunting openness of the nearly empty grid and the conspicuous absence of the unressurected Temple — is similar to that described by a visitor in 1847:

No one can visit Nauvoo and come away without the conviction that whatever rascality and crime there may have been among them, the body of the Mormons were an industrious and hard working and frugal people. In the history of the world there cannot be found such an instance of so rapid a rise of a city out of a wilderness — a city so well built, a territory so well cultivated.[15]

Date: 30 November 1990
Location: Mississippi River Mile 1806.8 — Minneapolis

Built on hopes and promises, both the *Power City* of Keokuk and the Heavenly Kingdom at Nauvoo suffered the hard disappointment of the *big idea* that ignores the limits of local circumstance and/or of human tolerance.

If the singularity of each vision finally became a source of failure, it also provided the generating force of intense commitment, pride and wonder. These are cities well-placed among the wild dreams of America. If this limits their usefulness as models for urban design today, both enterprises nevertheless represent accomplishments from which we can learn.

What impressed us most as visitors was the physical evidence of these extraordinary architectural and planning visions. Unable to establish themselves as permanent centers of urban life within the Mississippi river valley, each becomes part of our experience of America's urban history. The final mission for the members of our expedition is to carry our discoveries from unfamiliar places like Keokuk and Nauvoo forward into our own still promising futures.

Notes

1. *Electric Power from the Mississippi: A Description of the Waterpower Development at Keokuk, Iowa* (Keokuk, Iowa: Mississippi River Power Company; Stone & Webster Management Association, 1913), p. 35.

2. *Ibid.*, p. 65.

3. *Ibid.*, p. 67.

4. *Ibid.*, p. 35.

5. *Ibid.*, p. 85.

6. Philip V. Scarpino, *Great River: An Environmental History of the Upper Mississippi, 1890-1950* (Columbia, MO: University of Missouri Press, 1985), p. 56. This book provided a valuable resource regarding the background and consequences of the Keokuk project.

7. Joseph Smith quoted in Gordon B. Hinckley, *Truth Restored: A Short History of the Church of Jesus Christ of Latter-Day Saints* (Salt Lake City: Corporation of the President of the Church of Jesus Christ of the Latter-Day Saints, 1979), pp. 60-61.

8. From the Nauvoo *Neighbor*, Oct. 23, 1843, quoted in Dolores Hayden, *Seven American Utopias: The Architecture of Communitarian Socialism, 1790-1975* (Cambridge, MA: MIT Press, 1976), p. 117.

9. Henry Lewis quoted in *Making a Motion Picture in 1848: Henry Lewis' Journal of a Canoe Voyage from the Falls of St. Anthony to St. Louis* (Saint Paul: Minnesota Historical Society, 1936), p. 51.

10. Joseph Smith quoted in Robert Bruce Flanders, *Nauvoo: Kingdom on the Mississippi* (Urbana: University of Illinois Press, 1965), p. 194.

11. *Ibid.*, p. 201.

12. *Ibid.*, p. 188.

13. *Ibid.*, p. 190.

14. *Ibid.*, p. 179.

15. J. H. Backingham, "Illinois as Lincoln Knew It: A Boston Reporter's Record of a Trip in 1847" in Harry E. Pratt (ed.), *Papers in Illinois History and Transactions for the Year 1937* (Springfield, IL.: Illinois State Historical Society, 1938).

This article was prepared as a report from the Expedition of the Fourth Coast: Mississippi River, sponsored in summer 1990 by the Design Center for the American Urban Landscape at the University of Minnesota.

Designers and Social Responsibility

Good places exist within and respond to many contexts. The following essays suggest new ways in which designers can construct a sense of responsibility to the communities, people and environments that are the context of their work. The essays are excerpted from presentations given last March at a symposium called "Social Responsibility and the Design Professions" — a day-long discourse about the social, economic, ecological and institutional implications of environmental design.

The symposium, sponsored by Architects, Designers and Planners for Social Responsibility/New York, was held at the New School for Social Research and organized by Susana Torre, chair of the environmental design department at Parsons School of Design.

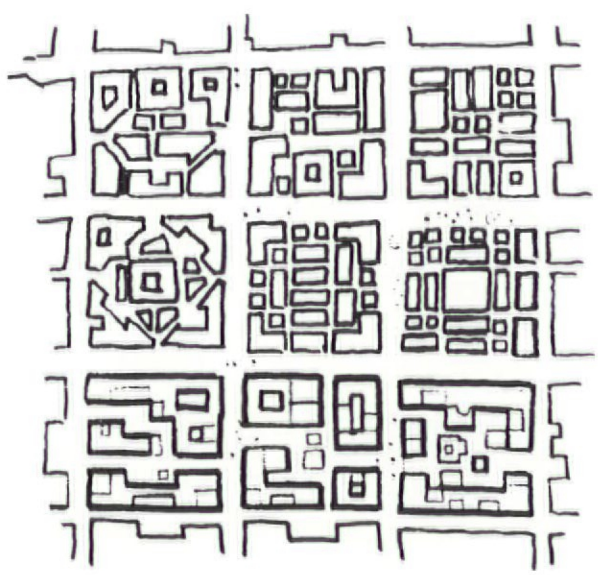
Photos by Todd W. Bressi and André Schütz.

Responsibility and Responsiveness

Richard Sennett

When I was asked to address the question of the social responsibility of architects, I thought it would be interesting to pursue the question of the social responsibility of architectural forms. It also occurred to me that one could ask in what way architectural forms can be socially responsive, which is different from being socially responsible. I want to explore those two notions by describing the work of the Indian architect Balkrishna Doshi, which seems to me to be both socially responsive and responsible.

Doshi has been working for many years on the rebuilding of Jaipur. The work is an attempt to incorporate a notion that is generic to Jaipuri architecture — that the form of every house represents the cosmology of the universe as it was conceived in the ninth century, that every house is an extension of that rigidly geometric world. Doshi has tried to build housing that is massive in scale, up to a thousand units at a time, and that can be put up in accordance with these old cosmological principles.



Sketch of Vidyadhar Nagar, from *Balkrishna Doshi: An Architecture for India*, William J. Curtis, ed. © 1988, Rizzoli International Publications, New York.

Doshi has made his architecture responsive by designing a set of building units that can be put together easily by the people who are going to live in them, allowing people without much money to build their own houses. The housing is responsive to a set of social and economic conditions and uses the very act of constructing one's own environment as a way of bettering people's condition.

Doshi's architecture is responsible in a different sense. It is more than an attempt to understand what the act of participation in building will mean by realizing the sociological relationship between a material and its user. It is an attempt to make a system of building that expresses in its forms not so much the lives of the people who are putting it up and living it it, but the ancient religion of those people. The architecture accomplishes this (that is, it involves people in building a kind of religious shrine that they don't understand before they build it) by incorporating the notion that the act of building can create unfinished or partial objects.

I am not suggesting that we build cosmological cities on the model of medieval Jaipur. Doshi's notion is that even though there is an established concept of form, there can still be an architecture that is socially responsive, that inducts people into the world. Rather than make completed structures, people are given materials to make unfinished forms, perhaps forms that can never be finishable, like the tenets of that religion.

This example is suggestive of how we can think about what makes a form responsive in our own culture: It should embody some way of inducting people into a reality that is different than the reality in which they began.

A responsive architecture breaks with the approach of creating forms that realize a specific program or function, no matter who is participating in determining that function. A responsive form must respond to our need for transformation by allowing us to create unfinished or unfinishable objects.

An unresponsive approach results in objects that — although they may be made in a socially responsive way because everybody's participated — do not transform the lives of the people that dwell in them. These forms, by being complete, do not admit of displacement or the kind of rituals of use that grow up.

Think of how inelastic many of the forms we create today are compared to the building blocks of eighteenth-century Georgian architecture, which is enormously responsive in the sense that the forms themselves can be displaced. Think of how difficult it would be to transform a skyscraper that is meant for commercial use into residential use.

The aesthetic problem confronting urbanists is how to create underdetermined objects. What I consider socially responsive architecture is conceiving of objects that are incomplete or even incompletable, that can be added to or rearranged, and of how we can use the advances in building technology that have occurred in the last hundred years for the purpose of making less definite objects.

To be socially responsible is to believe, whether people like it or not, in a social vision that brings people together. It means talking not about issues of representation and popularity, but about what a social space ought to look like.

— *Richard Sennett*

Finding Spaces and Filling Them

Janet Lippman Abu-Lughod

Effective, socially responsible action takes more than good will and motivation. It takes open spaces in the urban fabric, an open process to fill in those spaces and good timing.

By "open space" I mean something more than public space. There is physical space, which is what architects and planners usually work with, and there is social space, which is what sociologists like me usually work with.

One can think of open space as emptiness or as opportunities. One can look at burned-out areas of our cities as abandoned or as potentially fillable. One can look at empty nests as lonely or free.

I have been working on a project that focuses on New York City's East Village, a neighborhood to the east of Greenwich Village, where the destruction of the physical area and its social fabric has resulted in a large amount of open physical and social space. Arson, abandonment and demolition have opened up an enormous number of empty lots, or physical space, particularly in an area that I call the "DMZ," or Demilitarized Zone, which insulates the inhabited East Village from the inhabited public housing projects along the East River. Other physical open spaces include Tompkins Square Park, which was known, until recently, for the cultural diversity and tolerance it sustained. The solid phalanx of public housing projects running along the River has considerable open and unused space between buildings.

The social space in the East Village includes the homeless; single-parent families, most of them headed by poor women; and many people marginal to mainstream processes of production and consumption — squatters, who are outside the housing market; artists and musicians who are outside the art and music market; and people who are remnants of Loisaida, a primarily Puerto Rican and Latino community now gutted and emptied out. These conditions can be seen as problems or as openings that invite new forms of socially responsible planning and architecture and new forms of social organization that could spring from self-help activities and an open agenda.

Many opportunities have already been lost. Within the DMZ, for example, un-imaginative, cinderblock public housing projects have been put up recently, almost overnight. They could have been self-help housing had they involved the people who would live there in the construction. Instead, these projects are already deteriorating. There are no mixed land uses — no space for commerce, for production, or for diverse types of consumption.

Another lost opportunity concerns the city's plans to sell vacant land for market-rate housing and to use the profits to subsidize the rehabilitation of abandoned buildings for below market-rate housing. This is where timing comes in. When the New York real estate market collapsed, there was a "default" opportunity to rebuild the East Village for the people already there — people living as squatters in these otherwise abandoned buildings, families who are doubled and tripled up in Housing Authority apartments in a desperate effort to avoid homelessness and renters clinging to substandard apartments because they have no affordable alternative

The opportunity to integrate the homeless, the poor and the squatters into the construction and rehabilitation efforts has been lost. Tompkins Square Park has a small but viable squatter population; at its peak two winters ago the resident population included 300 people living in self-built shacks. Any chance of mobilizing some of this labor has been foregone. (Last summer, the Tompkins Square Park squatters were forcibly evicted; more than 300 police were deployed to

Scenes from the East Village "DMZ": Top: A settlement of homeless people. Bottom: New public housing.

close the park and control entrance selectively, only to small areas. The homeless moved to another site in the DMZ.)

There is one last, tragic example. Many New York bridges are falling down and one of the reasons seems to be that homeless people have removed the wooden beams that support these bridges. The homeless burn the beams to keep warm in the winter. I would urge all of us to consider these empty spaces — the spaces where the beams are as well as the spaces where the homeless and the squatters are — and how to use these spaces to rebuild the city.

One of the most promising places where space is opening up is in the architecture and planning professions. Construction is down and so is the demand for architects and planners. Perhaps the most immediate thing we can do is turn this space (the time that architecture and planning professionals have) to constructive use by recognizing that there is a large group of socially marginal people who are the clients with whom socially responsible architects and planners should be working.

I have given up hope of finding 'the community will'; that is why I am no longer a person of the '60s. I have given up hope of being a philosopher king, which is why I am an ex-city planner. Now I am content to try and nurture open-ended agendas, political conflict, small resolutions and enough open space for a diversity of members of the community to find solutions.

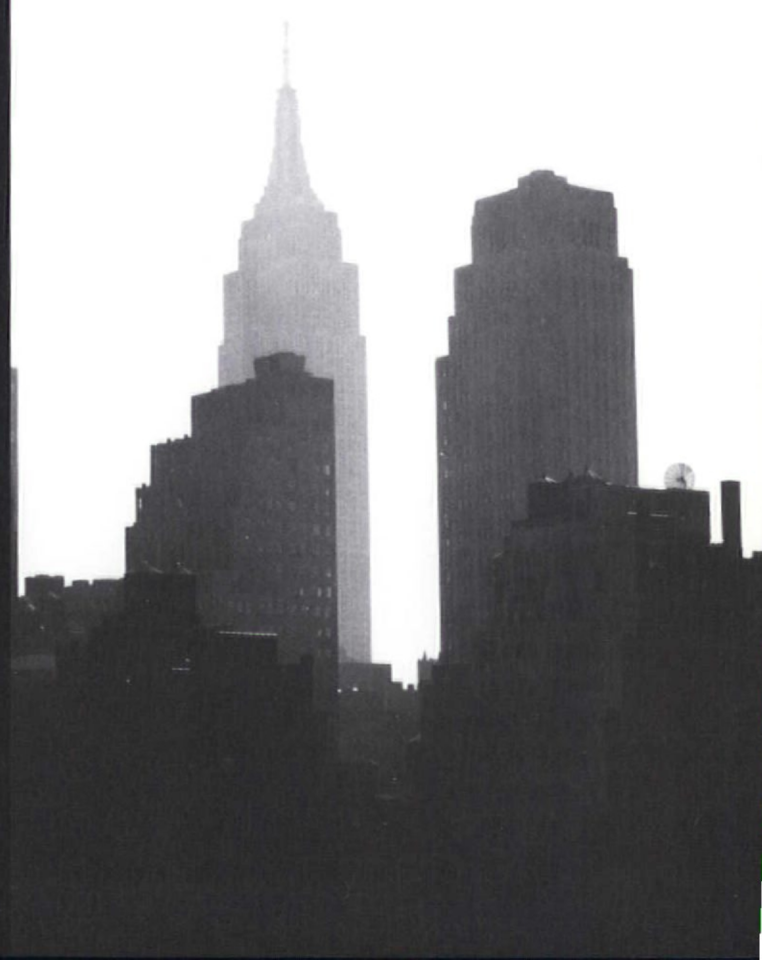
— *Janet Lippman Abu-Lughod*

Revealing Connections in the Corporate Economy

Saskia Sassen

Our image of the advanced urban economy is probably best described by icons of the corporate city — office skyscrapers, suburban corporate campuses, hotel/conference centers — most of which are sealed off from their surroundings. This image has even invaded residential areas in the form of luxury high-rise apartment buildings.

There are parts of this economy that are hidden by these icons yet connected to them in ways that are not well understood. One connection that is not evident involves activities like manufacturing and industrial and personal services, which we think of as belonging to another era or type of system; they are in fact part of the advanced urban economy.



Today's dominant visual vocabulary overemphasizes some parts of the city's economy and makes invisible others that may be just as important. This influences the way people conceive of the city and the role they play in it, and ultimately affects politics.

— *Saskia Sassen*

A second set of connections concerns nationality and gender. Anybody walking through New York or any other major city today will eventually arrive in an area commonly considered the immigrant city, thought of as imported from the Third World and not really belonging to the heart of the advanced urban economy. But the kinds of jobs held by the people living or working in these places and the economic contributions they make are indeed part of our economy and our cities.

Many of the low-wage and part-time jobs being generated today are held by women. Because these activities are often considered of secondary importance, or because many of the jobs are part-time, they too are not always regarded as part of the advanced urban economy.

The failure to recognize these connections has not only visual consequences but also political and social consequences. By failing to include these other activities in our conception of the advanced urban economy, by failing to make these connections legible, we are diminishing the political power of the vast number of people who are engaged in them.

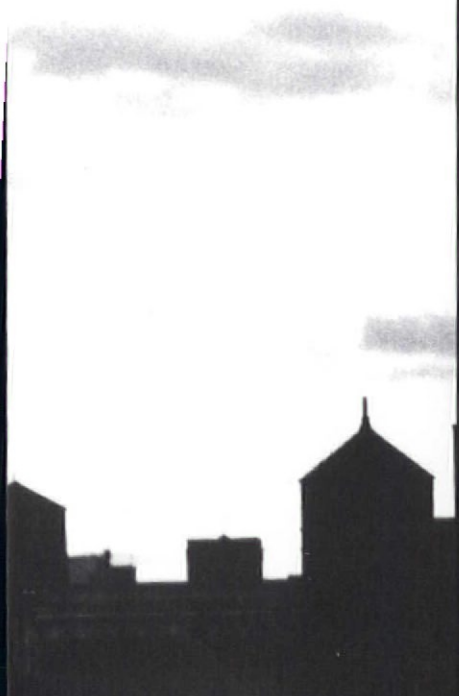
For example, during the 1980s the government of New York City gave full support to expanding sectors of the economy like telecommunications, finance and specialized services. But it did not give the same support to economic activities like manufacturing and industrial services (which were serving these expanding

Previous page and below: Two Manhattan skylines.

sectors). This had major consequences for the people involved in these activities — neither their housing nor their economic needs were fully addressed.

How can we make legible — through built forms and spaces — the connections between these various parts of the economy?

We must do more than replicate the older visual forms that now characterize the immigrant city; we can be experimental and aesthetically adventurous. We must go beyond the image of the corporate city and at the same time avoid falling back on romantic notions of what a nice little Third World house would look like.



Facing the Challenge of the American City

David P. Handlin

When I hear the word *city* used in conversations such as this, I try to imagine the kind of place its usage implies. And I invariably conclude that what is being referred to are places like the Lower East Side, Greenwich Village, parts of San Francisco or Boston, or Harvard Square, where my architecture office is located. In other words, the Jane Jacobs city, remnants of the pre- or early-industrial city, the walking city.

I have great fondness for these places, but there is one fundamental problem in thinking of them as archetypical of what a city should be: In spatial terms, they comprise probably less than one percent of the American city.

Recently I have had the opportunity to spend some time in three newer cities, Memphis, Houston and Tampa. Although each has an older section that dates back to the latter part of the nineteenth century, the bulk of these cities has absolutely nothing to do with Greenwich Village and Harvard Square.

My question, therefore, is if we cannot speak of the "city" in more encompassing terms, are we simply writing off this other 99 percent and all the people who live there, bearing in mind that they are not simply the rich and privileged but represent the whole economic and ethnic spectrum?

Just as I question this narrow concept of what type of built form constitutes a livable or tolerable city, I see an equally limited idea of what constitutes urban public space. On the one hand our idea of public space is exemplified in our ongoing admiration for places like the *Place des Vosges*, and on the other hand, in various landscape traditions extending from the English garden to Frederick Law Olmsted. If these traditions continue to dominate our ideas about public space, we will continue to misunderstand or ignore the varied needs of the bulk of people inhabiting American cities.

I see two possible reactions to the emerging spatial constellation that I am describing. One is to turn one's back on it, to withdraw into a nostalgia about what life supposedly was like in a city, town or suburb that existed in some

It would be very difficult to prove that people who live in the 'other' city are less friendly or more isolated than people who live in cities like New York.

— David P. Handlin

sort of golden age of the past. The other is to analyze this emerging context with the hope that as designers and theoreticians we might be able to shape it (perhaps, in part, on the basis of our knowledge of the history of city, town and suburb) in a more palatable way.

I am not as disdainful about following the first course of action as I might seem, because I know there are profound problems in following the second. One of the most important has to do with language. We simply do not have the words or phrases to describe or converse about, in part or in whole, this emerging city (if that is the right term). We seem to be trapped by our language.

Taking photographs in Tampa, I found myself trying to frame compositions according to conventions established by photographers of the urban scene. I was reminded of this recently when I saw some Berenice Abbott photo-graphs. They are wonderful images but I have found that the conventions on which they are based do not seem to be useful in describing this emerging city.

What is needed is the artistic imagination both to create and represent this emerging city. Before that, there has to be a certain amount of faith or will. I can guarantee you that simply disparaging it is not going to make it go away. Amazing things, many of them amazingly bad, are happening in every part of the American city — in the central cores, in the abandoned areas where the nineteenth century industrial infrastructure was located and on the far periphery.

Designers and theoreticians, especially in the last 20 years, have had virtually nothing of consequence to say about how these inevitable and inexorable waves of change should and can take place. By focusing on a narrow idea of what is desirable, we have rendered ourselves all but impotent.

Is placelessness a problem, and if so, what sort?

— Marshall Berman

Architecture as a Universal Language

Marshall Berman

Within a number of different occupations, my generation — the '60s or New Left generation — practiced a form of what planners came to call advocacy planning. Planners lent themselves to the community movement, assuming not only that it was possible to determine what "the people" wanted, but also that one could think in terms of the interests and welfare of "the people" as a whole. Then, during the '70s and '80s, what we had thought of as "the people" disintegrated into an infinite number of distinct interest groups.

In a recent *New York Times Magazine* article, "The Secession of the Successful," Robert Reich wrote that today, when people talk about their community, they use the '60s rhetoric of community control and power to the people, and that to a great extent language that originally expressed a challenge to traditional political systems has now been incorporated into practical politics. But today, Reich notes, "community" almost always means "people of my ethnic group and income level," whatever those happen to be, and the people most skillful in using this language tend to be those in the highest income sectors.

The idea of recovering the sense of connection between the immigrant city and the advanced urban economy touches upon a perennial moral as well as political question: How can we see the connection between ourselves and other people who are less well-off than we, who speak a different language and whose lives we do not immediately understand? It seems to me similar to the question, "Am I my brother's keeper?" As such, I think it must be asked anew in every epoch, maybe in every generation, and translated into a different language of immediate social practice.

How to rediscover the sense of connection? The building in which we are meeting is built along one of the places where these connections are most visible: 14th Street — one of the best public spaces in New York and a place that really does bring together people of different classes and ethnic groups.

An interesting feature of this building is that it is like a bunker. Nearly impermeable, it neither opens to the street nor connects with it at all; it could be in Nebraska, Brazil, or even underground. Its impermeable and placeless qualities embody a twisted notion of the aesthetics of the International Style. Yet that aesthetics and its accompanying metaphysics were meant to, and in some ways really do, bring people together. Placelessness can create the possibility for people to come inside a building anywhere and forget where they are; yet in some way it also enables people to talk together.

Accompanying the International Style was the idea of an international language in which people who had not communicated before now could, and in new ways. I admire that aesthetic and its implicit goal of world communication. So while I am perfectly happy to criticize this building, I still think it is important to remember the goal its peculiar bunker feeling was meant, and I think failed, to fulfill.

Were there to be a consensus in architecture and planning now, it should be to help forge some new world culture and communication. But we cannot fully do that unless we can get out to the street.

An urban bunker: the New School building on New York's 14th Street.

Donald Versus the Drawing

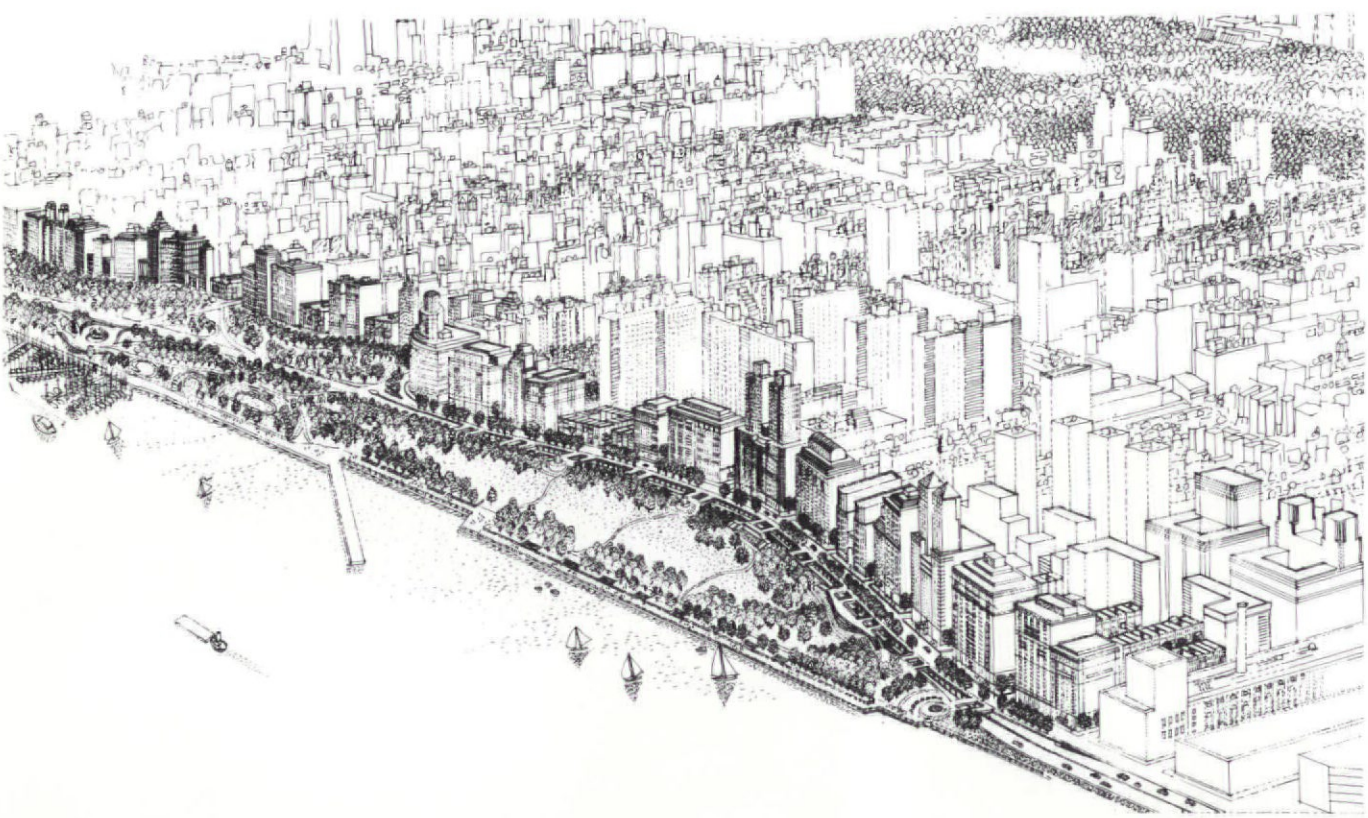
New York — For much of his hyperkinetic career, Donald Trump has mesmerized this city with his carefully cultivated image of a high-stakes deal maker who lives a life of conspicuous, lavish wealth. His empire consists of buildings that boast long-standing world-class identities (the Plaza Hotel), appropriate the names and architectural motifs of other world-renowned landmarks (the Taj Mahal casino), or have been gilded with his own name (Trump Tower).

But Trump's dream to put up the world's tallest building on the Upper West Side was undone by another image, a deceptively simple pen-and-ink drawing that also mesmerized the public and gave the diverse opponents to his plans a platform for agreement.

Six years ago, Trump proposed building the 150-story tower (along with a phalanx of 60-story towers) on an abandoned railroad yard he owns along the Hudson River, just west of Lincoln Center. The buildings would have provided space for a regional mall, television or film studios, housing, offices and a hotel.

Television City, an early version of this proposal designed by Helmut Jahn, foundered when Trump failed to lure NBC to the project. The next version was Trump City, designed by Alexander Cooper, best known here for his well-regarded master plan for Battery Park City. As Cooper's plan was plodding through the city's interminable environmental review process, neighborhood and civic groups started making plans to oppose it. Meanwhile, Trump's casino business was souring and banks worried whether he would make good on his enormous debt.

The drawing that rallied opposition to Trump City. Courtesy Daniel Gutman.



Then, a year and a half ago, the drawing appeared. It depicted an alternative to Trump City and was made by architects Daniel Gutman and Paul Willen, who had been commissioned by several civic groups. This scheme, called Riverside South, rested on an easily imageable concept: extending the scale and sinuous form of Riverside Drive (which separates Riverside Park from the neighborhood to the east) south through the site. The drawing showed the extension weaving inland then back to the shore, making room for a 25-acre park. And it showed that the streetwall of the buildings along the extension would range from about five to about 15 stories.

The drawing provided Trump City's opponents with an opportunity to take the high road. Instead of condemning the project for being too dense, the towers for being too tall, or the shopping mall for being in an inappropriate location, they could present a positive vision for developing the rail yards. In a city reeling from the excesses of boxy modern towers, who could argue against extending the beloved, traditional form of Riverside Drive?

On the strength of the widely published drawing, Trump City opponents lined up behind Riverside South. Last spring Trump did too, joining with seven civic groups to create and bankroll the Riverside South Planning Corporation. This non-profit entity was charged with directing a new plan, which would follow the principles of Gutman and Willen's drawing and be prepared by Skidmore,Owings & Merrill (along with Gutman, Willen and other consultants).

But it may be hard for RSPC to live up to the promise of the drawing. In June, a R/UDAT sponsored by the New York City AIA chapter, Manhattan Borough President Ruth Messinger and the local community planning board reported that the drawing depicted less density than Trump was seeking (and less than the city had approved for the site a decade ago). The R/UDAT team prepared a sketch that depicted how big the buildings would really have to be to accommodate the density.

Also, the drawing shows that buildings at the northern tip of Riverside South would be similar in height to buildings that are adjacent to the project site (and which are part of a historic district composed of walk-up brownstones and 10- to 15-story apartment buildings). But Trump was demanding that taller buildings be put up in this area, where there likely will be the most market demand — and the most public opposition.

RSPC's formal proposal is likely to follow the spirit of Gutman and Willen's drawing. But if the proposal strays too far from the details of height and density depicted in the original Riverside South drawing it may lose its hold on the public sentiment; its supporters may not come together with the same sense of civic purpose. The power of a drawing such as this can be a double-edged sword, especially if it raises expectations that are not met.

— *Todd W. Bressi*

This sketch, prepared by the R/UDAT team, depicts the density that Donald Trump was seeking. It also locates the tallest buildings in the central section of the Riverside Drive extension, away from a historic district at the left edge of the site. Courtesy Lance Brown.

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