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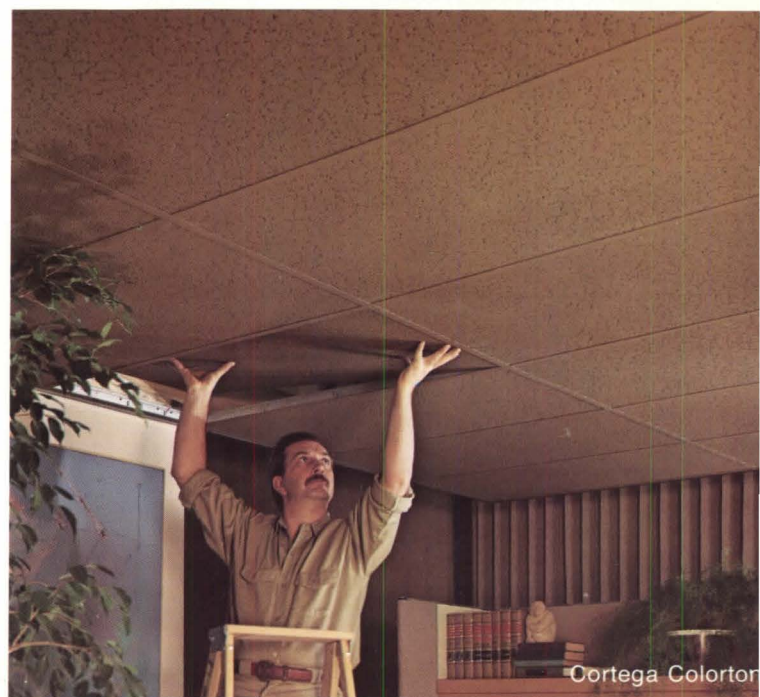
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Cover: Photograph by Peter Szmuk of Leonardo Savioli's Flower Market of Pescia, Italy (see page 50).

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Florida's tallest building uses steel in a new way.



One Tampa City Center rises dramatically 517 feet over downtown Tampa, Florida. This new 40-story office building is not only Florida's tallest but one of its most spectacular.

The tower narrows on the south and west at the 10th floor and again at the 18th floor, notching in at both sides to form interesting architectural facades. The main tower forms a square with a chamfered notch articulating each bay for the full 40 stories. The exterior is sheathed in a clear silver double-pane reflecting glass that is effective in preventing heat transfer.

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EVENTS

Sept. 13: Course on Classical Drawing: Instruction in Composition and Perspective, New York City. Contact: The National Academy School of Fine Arts, 5 East 89th St., New York, N.Y. 10028.

Sept. 15: Course on Classical Architecture: Drafting the Five Orders and Classical Ornament, New York City. Contact: The National Academy School of Fine Arts, 5 East 89th St., New York, N.Y. 10028.

Sept. 17-18: AIA Energy in Design: Techniques Workshop, Raleigh, N.C. (Repeat workshop Sept. 24-25, Muncie, Ind.) Contact: Brenda Henderson at Institute headquarters, (202) 626-7353.

Sept. 18: Solar Expo '82, Flint, Mich. Contact: Jordan College Energy Programs, 360 W. Pine St., Cedar Springs, Mich. 49319.

Sept. 20: Seminar on Computer Graphics in Architecture and Engineering, Washington, D.C. (Repeat seminars Sept. 22, Chicago; Sept. 24, San Francisco; Oct. 11, Boston; Oct. 13, Tampa, Fla.; Oct. 15, Denver.) Contact: George Borkovich, A/E Systems Report, 3400 Edge Lane, Thorndale, Pa. 19372.

Sept. 22-23: Conference on Reusing Old Buildings: Preservation Law and the Development Process, Baltimore. Contact: Conference Coordinator, The Conservation Foundation, 1717 Massachusetts Ave. N.W., Washington, D.C. 20036.

Sept. 24-25: AIA Energy in Design: Process Workshop, Pittsburgh. Contact: Brenda Henderson at Institute headquarters, (202) 626-7353.

Sept. 24-25: AIA Energy in Design: Practice Workshop, Boise, Idaho. Contact: Brenda Henderson at Institute headquarters, (202) 626-7353.

Sept. 27-28: Seminar on Using Small Computers in the Professional Design Firm, Washington, D.C. (Repeat seminars Sept. 29-30, Denver; Oct. 25-26, Chicago; Oct. 27-28, Los Angeles; Nov. 8-9, Tampa, Fla.; Jan. 17-18, Kahuku, Hawaii.) Contact: Terri Connell, 1145 Gaskins Road, Richmond, Va. 23233.

Sept. 28: Technical Seminar on Terra Cotta Preservation, Chicago. (Repeat seminar Sept. 30, New York City.) Contact: Friends of Terra Cotta, Inc., c/o California Historical Society, 2090 Jackson St., San Francisco, Calif. 94109.

Sept. 29-Oct. 1: City Recon '82 Exposition and Conference, Chicago. Contact: City Recon '82, 330 S. Wells St., Chicago, Ill. 60606.

Oct. 1-2: Second Washington Preservation Conference, Washington, D.C. Contact: Washington Metropolitan Chapter/AIA, 1777 Church St. N.W., Washington, D.C. 20036.

Oct. 3-10: First International Congress on Architectural Conservation, University of

Basle, Switzerland. Contact: United States Committee for the International Council on Monuments and Sites, 1785 Massachusetts Ave. N.W., Washington, D.C. 20036.

Oct. 4-5: Seminar on the Effective Use of Building Insulation, University of Wisconsin, Madison.

Oct. 4-5: Energy Auditing Seminar, Chicago. Contact: Association of Energy Engineers, 4025 Pleasantdale Road, Suite 340, Atlanta, Ga. 30340.

Oct. 6-8: International Forum of the International Federation of Interior Architects, Madrid. Contact: Sobre Identidad Profesional del Arquitecto/Diseñador de Interiores, Organizado por el Colegio Nacional de Decoradores, Calle Ayala, n. 20, Madrid 1, Spain.

Oct. 7-8: Council on Tall Buildings and Urban Habitat Meeting on Urban Housing, Chicago. Contact: Chicago High Rise Committee, c/o Rex Selbe, U.S. Gypsum Co., 101 S. Wacker Drive, Chicago, Ill. 60606.

Oct. 13-16: Conference on Historic Preservation and the Minority Community, Atlanta. Contact: Fourth Annual Conference on Historic Preservation and the Minority Community, P.O. Box 89154, Atlanta, Ga. 30312.

Nov. 9-12: Konstruction '82, Frankfurt, W. Germany. Contact: Clapp & Poliak International, 7315 Wisconsin Ave. N.W., Washington, D.C. 20088.

LETTERS

Manhattan Building Boom: Your article on Manhattan's development (June, page 28) had the quality of architecture itself: commodity and delight. It was hard for me to believe that anyone could take this complex and overwhelming subject and make it interesting to read about. Even though I have followed every development that is mentioned, I have hardly ever taken the time to think of it all as a total, and to realize what a moment in history we are living through. I suppose the last time New York exploded like this was 1925 to 1929.

Best of all, you caught with your wonderfully wry tone the exact mingling of attitudes we have toward all of the change—we couldn't love New York without its energy, but we want to hold on to it as it is. Thank you for freezing this moment in time and making it part of history for all of us.

*Margot Wellington, Executive Director
The Municipal Art Society of New York
Letters continued on page 13*

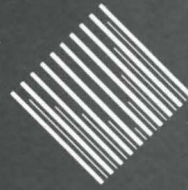
Correction: Associated with FABRAP of Atlanta on the U.S. Pavilion at the '82 World's Fair (see June, page 50) were the firms of Lindsay & Maples of Knoxville and Turner Associates of Atlanta.

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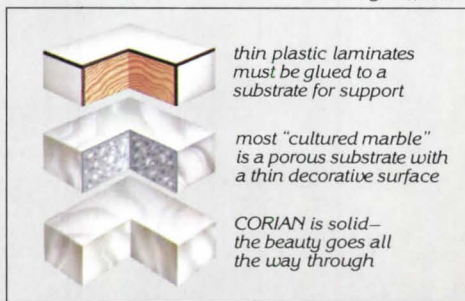
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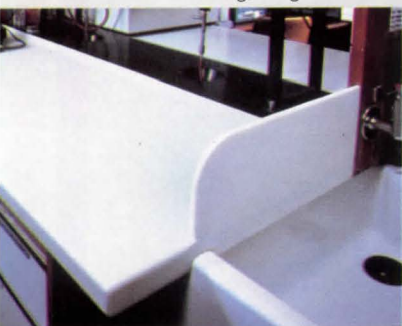
Formal edge treatment adds to appeal of guest bath in Amway Grand Plaza Hotel, Grand Rapids. DeWinter Associates, Inc., architects.



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Letters from page 6

I greatly enjoyed your countdown about the current construction glut in Manhattan (so resplendently clear in Cervin Robinson's characteristically lucid photographs). While we all know each of these wonders exists, it is startling to see them together, jostling each other into reality.

Furthermore, your citing of Pelli's outrageous gamble is especially important. (I, too, am convinced on paper.) If Cesar wins, development architecture will happily never be the same again.

Perhaps it's my New York chauvinism, but it is especially exhilarating to see confirmation of so many ways to do things. How about another survey when they are done?

*Hugh Hardy, FAIA
New York City*

Suburbanites' Survey: Dr. Scott Kinzy's survey on home style preferences (see June, page 14) unfortunately could have been misleading. First of all, only front elevations were shown rather than interior perspectives of the main living areas. Space, flow, and light are what dwellers experience and live with far more than exterior cosmetics. It's like asking people whom they might wish to marry, based on a facade.

The eight styles surveyed would differ significantly in interior views, and people surveyed might have responded very differently to the interior concepts created by the various shell styles. Second, the surveyor chose homes in certain existing tracts. Had a Wrightian look been included, for instance, the response to an indigenous "modern" concept might have been different. But the survey presented typical tract and other fashions of the moment as the only meaningful alternatives for subdivisions. This tends to perpetuate the view that creative architecture is unpopular—which is not necessarily demonstrated by the survey. It may therefore be prudent for Dr. Kinzy to resurvey at least the esthetic criteria before leading anyone to act on the present results.

*Lou Zaharopoulos
Symonds/Feola Partnership
Glendale, Calif.*

I would hardly consider Assistant Professor Scott A. Kinzy's assessment of the suburbanites' preference for architectural styles to be an equitable appraisal: (1) It was limited to only 126 respondents, and (2) two subdivisions in New York do not make for the Northeast and the northern Middle West.

In addition, such an effort could have been better spent asking the whys and wherefores of said choices beyond the gut-level instinct of visual response. Greater credence could have also been obtained by involving the builder and the

architect in the survey, perhaps also accounting for the respondents' choices. As Louis Mumford put it so beautifully, the suburbanite is buying "ancestry." This makes more sense to me than the Kinzy report.

In the meantime, I would like to see a similar effort that addresses itself to man's needs in the 21st century.

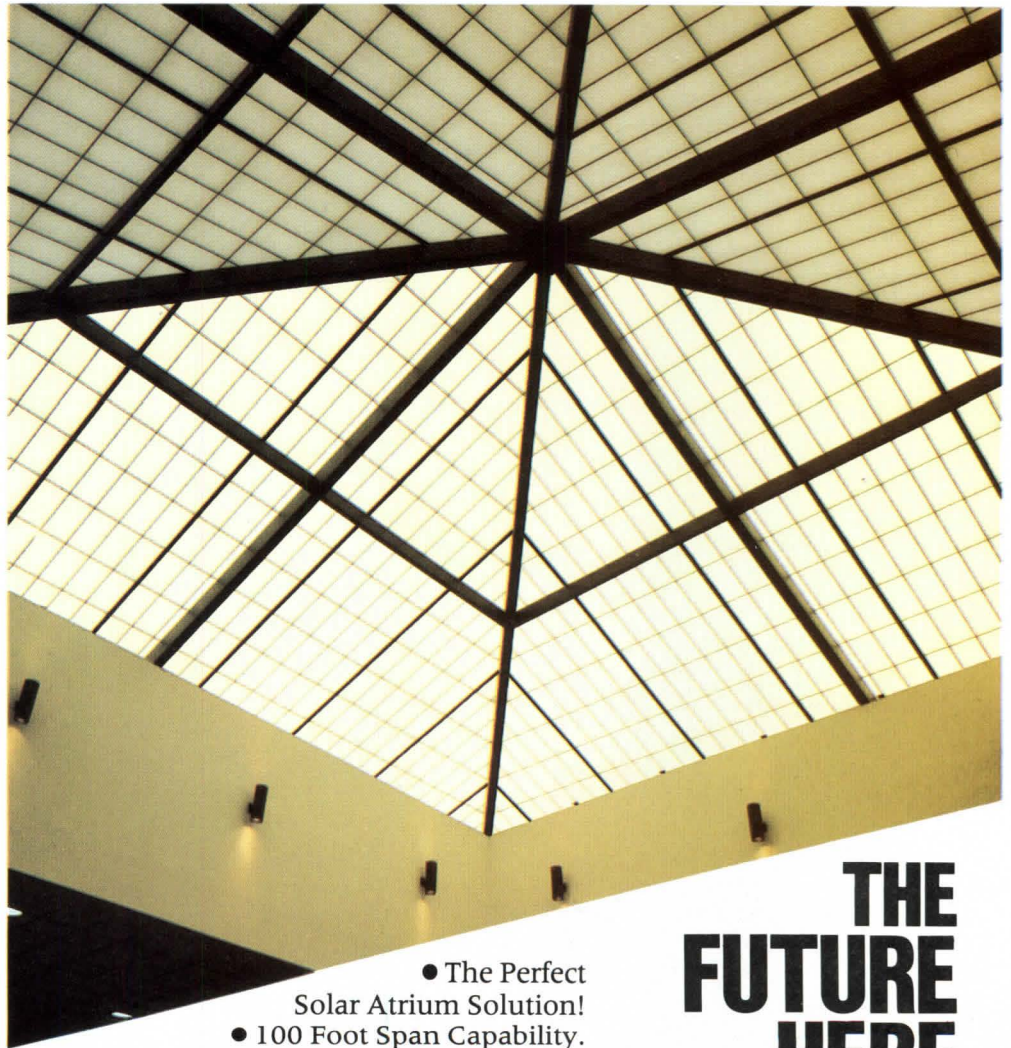
*Albert Dale Northup
Port Huron, Mich.*

Credits for Rockefeller Wing: The letter from Douglas Newton, chairman, department of primitive art, Metropolitan Museum, in the June 1982 issue (page 6) demands further clarification.

Both Stuart Silver and Clifford La

Fontaine were design consultants for the installation of the exhibition. This fact should, of course, have been mentioned. However, it must be noted that this effort was a collaboration with Kevin Roche John Dinkeloo & Associates. Messrs. Silver and La Fontaine were responsible for the layout of the exhibition and the installation of art. Roche/Dinkeloo, nevertheless, were solely responsible for the contract documents and detailed fabrication drawings for the manufacture of all casework exhibition cases, vitrines, pedestals, etc.

*Arthur Rosenblatt, FAIA
Vice President, Architecture and Planning
Metropolitan Museum of Art
New York City*



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Switching accents.

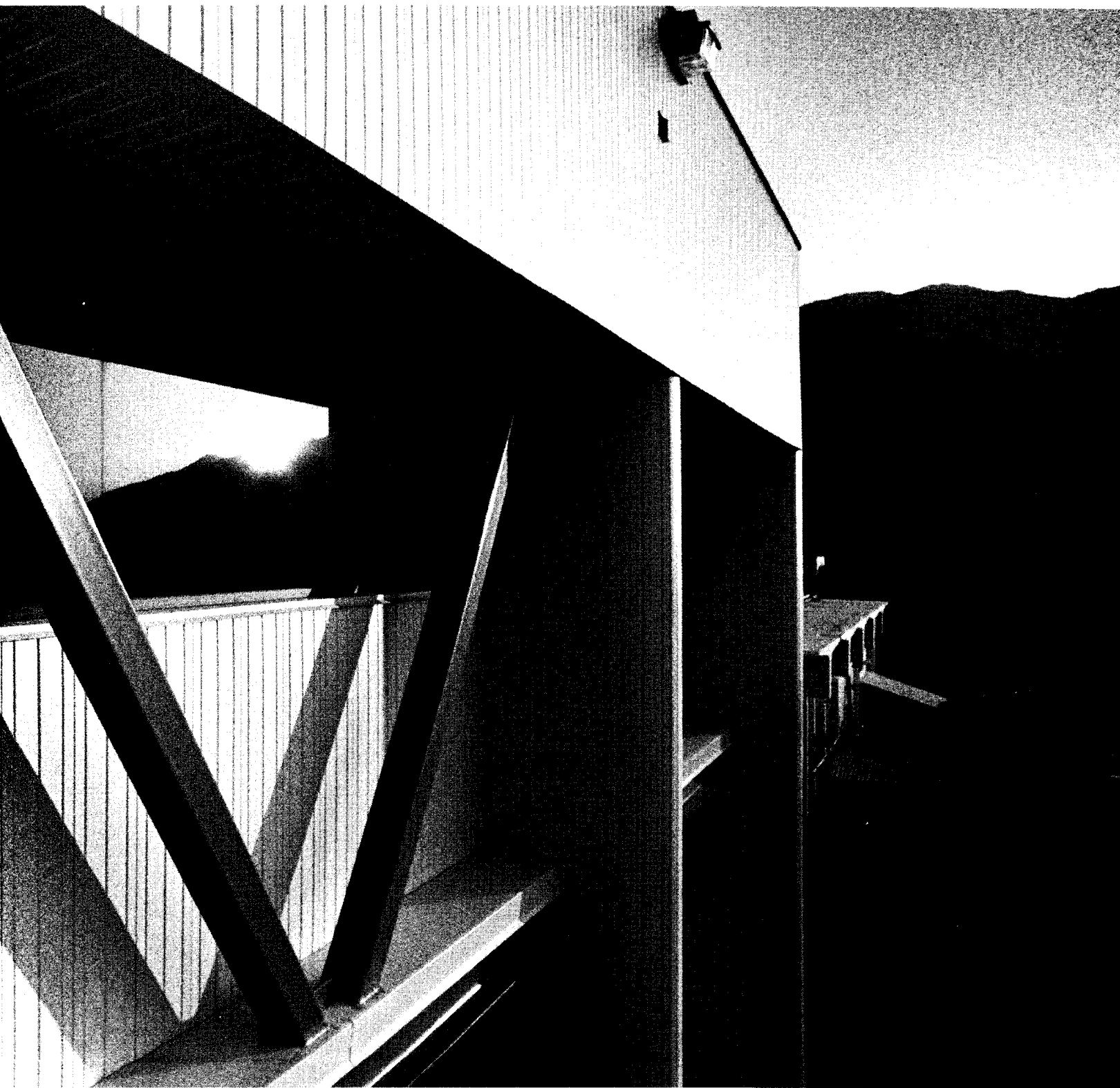


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International Bonds—and Movements

Times have changed, R. Buckminster Fuller, FAIA, told the honor award-winning architects assembled in H. H. Richardson's Trinity Church during the 1976 AIA convention in Philadelphia. After all, he said, look at the interminable lengths of time involved in communication between America's coasts a century ago. The fact that we communicate globally today—in mere seconds, via satellite—has changed the face of the world, not to mention the nature of architecture.

Times have indeed changed, but communications still bog down in the global village. Architecture, as truly international as any discipline, is an ancient art, and its international bonds substantially predate Jefferson's affection for Palladian symmetry or the last century's diaspora of architects trained at the Ecole des Beaux-Arts. Some of those bonds are being strengthened today as never before, especially those between the U.S.—by consensus, the undisputed leader of the architectural world—and its traditional European allies and antecedents. New bonds are being forged between the architects of the West and their colleagues in the emerging nations of Asia, Oceania, and Africa. In such key areas as design and practice, research, historic preservation, and the environment, architecture is in fact beating the path to the global village. Yet, communication is still a problem, and one sufficient to slow the pace of architecture's internationalization significantly.

Take the International Union of Architects—UIA by its French acronym—founded 34 years ago. "It's gaining momentum," says former AIA President R. Randall Vosbeck, FAIA, now the American representative on UIA's executive council. "It suffers, as many international organizations do, from problems of language and general communication. It also suffers because so many national architectural organizations have very small budgets—many of the AIA's state components have more money—and because it has a small staff." UIA has also suffered, Vosbeck says, because American involvement hasn't always been as extensive as it is now. "As American architects, we haven't really been aware of UIA," he says. "Mis-

takenly, we've felt that we don't need it, and that the world's architects can learn more from us than we can from them." That isn't true, Vosbeck feels, although he notes that "most countries look to the U.S. for design leadership—not that a lot isn't happening in Europe."

In fact, many of the world's architects look to UIA for leadership before they look to their own national architectural societies, because those frequently underfinanced organizations can't and don't offer the kinds of services American architects have come to expect from their national society. UIA serves as an intellectual forum for the world's architects, and as a locus of information on the various special fields that its working groups address. UIA's profile is also higher around

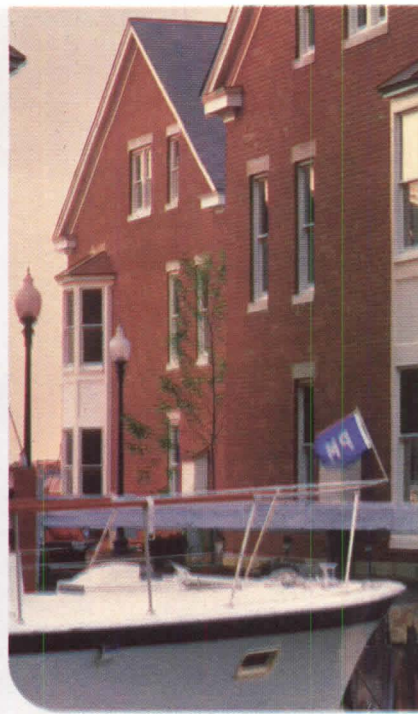
the world because of its involvement, as sponsor or announcer, in international design competitions, which play a more important role for foreign architects than they do for American designers.

AIA's involvement in UIA activities has increased since Louis de Moll, FAIA—Institute president when Fuller spoke of global communications in Philadelphia—became UIA president in 1977. De Moll succeeded in adding to UIA's longstanding, tradition-bound roster of international working groups a new, practice-oriented group on professional development, a field in which the U.S. is clearly dominant. AIA has since kept up its participation in UIA events, sending Vosbeck, Institute Executive Vice President David

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Allen Freeman



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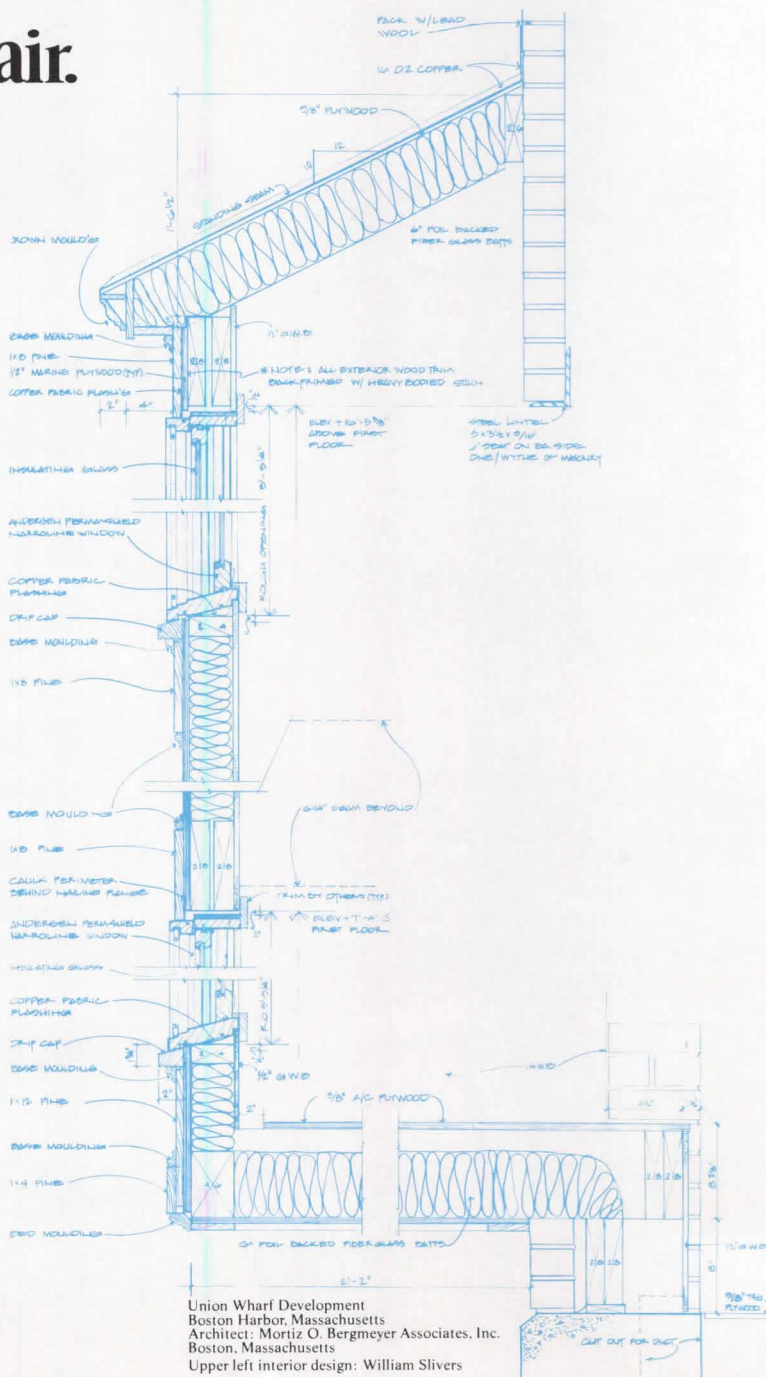
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Upper left interior design: William Slivers

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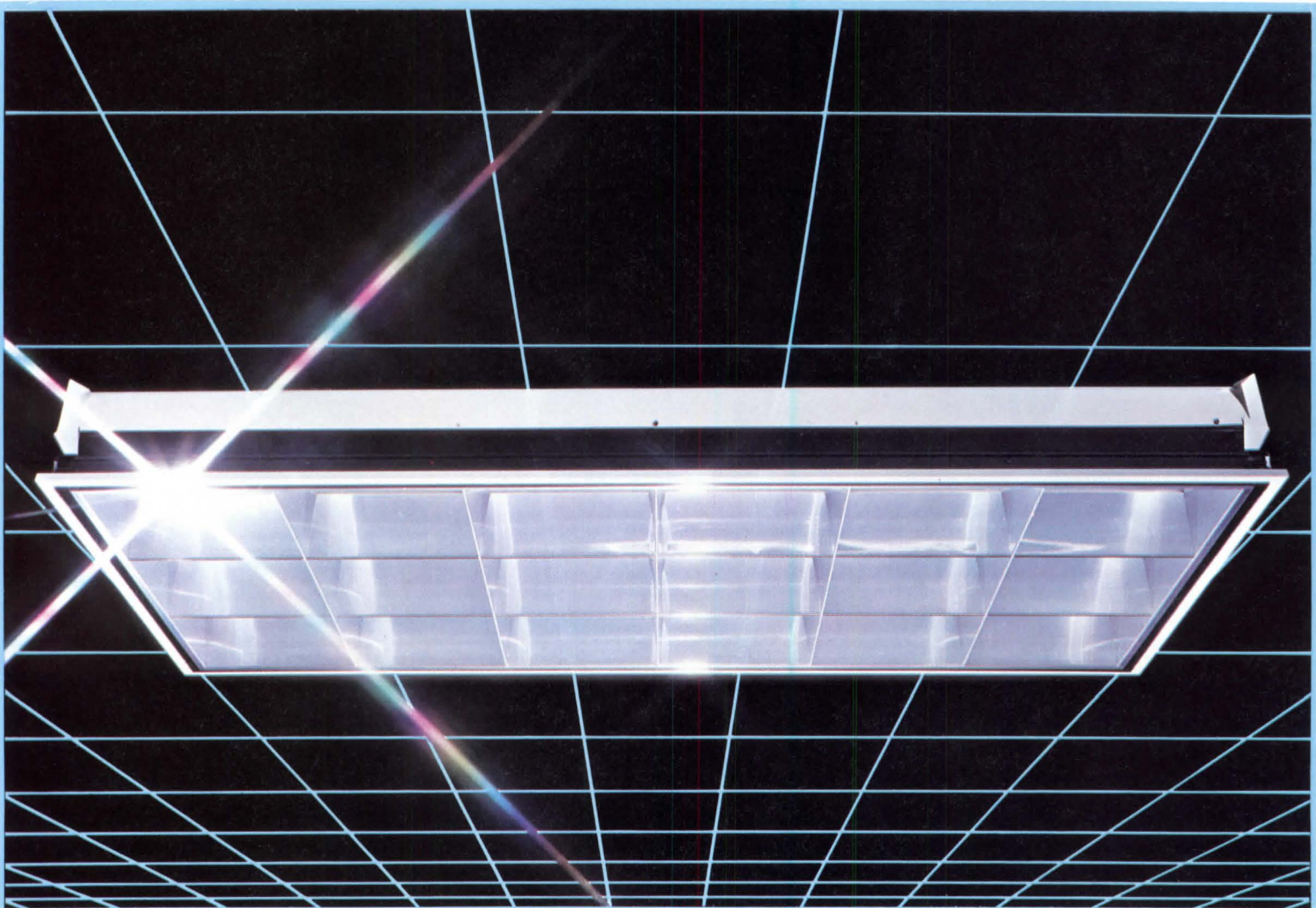
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Circle 15 on information card

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Olan Meeker Jr., FAIA, and other delegates to last year's triannual, worldwide UIA Congress, held in Poland. The congress met in a Warsaw on the brink of military takeover, and Vosbeck was "amazed," he says, at the sheer number of professionals and architectural students who trekked to Poland for the gathering, and at "their need for and their involvement in" the international organization. The Americans were also surprised to see the Polish architectural society, SARP, immersed in the Solidarity movement. The major U.S. contribution to the congress was Vosbeck's address on the strides made by U.S. architects in the field of energy conscious design.

Such visits and exchanges between AIA and UIA are now becoming relatively commonplace. Next April, the Institute will host the housing-centered meeting of UIA's habitat working group, one of its most active and prominent working groups, chaired by a Soviet. And UIA President Rafael de la Hoz spoke at AIA's 1982 convention in Honolulu, where he discussed UIA's plans to create a world information system—dubbed the Arkysyst Project—and to hold its 1984 World Congress in the Philippines. The Spaniard also succinctly summed the world's view of architectural America, likening the U.S. to Rome in its days of empire and labeling "English, or better yet, American," the "lingua franca" of this century. He called on his listeners to be generous in disseminating their skills and expertise around the world. And he referred to Vosbeck's message on energy conscious design by recalling Teresa de Avila, who called original sin blessed "because, as she reasoned, it made possible the advent of Christ." Said de la Hoz, "God bless the energy crisis, because it has made possible, at long last, the interest of AIA in a problem of the poor."

Energy as the Focus of International Building Research

Precisely because it is a problem for the poor, energy is becoming the focus for much of the world's architectural research, and the international sharing of such research is on the rise.

The global forum for design research is the International Council for Building Research Studies and Documentation—CIB. Founded by the United Nations in 1962, CIB correlates research conducted around the world with seven commissions that address building economics, energy conservation, water supply and drainage, building services control, earthquake hazard mitigation, construction management and organization, and building documentation and information transfer.

U.S. contributions to CIB's research files are coordinated by what used to be called the federal Building Research Advisory Board and is now known as the Advisory Board on the Built Environment (ABBE), a unit of the National Academy of Sciences directed by John Eberhard, FAIA, former AIA Research Corporation president.

The world's architectural research, Eberhard says, is now focused primarily on the chemical and physical sciences, on materials and structural technology. The same is true of U.S. research, Eberhard notes, and that emphasis is reflected in the engineering-heavy forest of agencies that contribute via ABBE to CIB's commissions—AIA, NBS, GSA, PBS, NAHB, NSF, NCSBCS, ASCE, ASTM, ASHRAE, EDRA, HUD, FEMA. Other nations seem to be spending higher percentages (though lower amounts) of their national budgets than the U.S. does on research, says Eberhard. He recently sat down with the 10 building-related agencies that make up the Federal Construction Council and tallied their total budgets at a combined \$11 billion for 1983, with only \$200 million—less than 2 percent—earmarked for building research. But such foreign research agencies as China's Building Research Center appear, like this country's National Bureau of Standards (NBS), to be most concerned with the physical sciences in their architectural research, rather than with the human requirements of design or with energy.

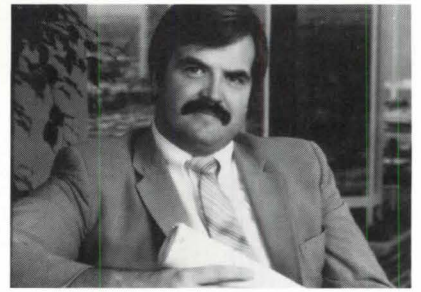
Exceptions prove the rule, however, and the exceptions are mounting. "Sweden has had the lead in energy conservation research, in part because of its northern location and in part because of its moratorium on nuclear power," says Eberhard. Two other northern nations, Finland and the Soviet Union, have been heavily involved in energy conservation, he adds, and experimentation with tightly sealed structures in those cold climes has led to research in other, related areas, including the problems of interior pollution in the latter two countries and air movement and the presence of radon in Sweden.

The surprise is that such tropical and equatorial nations as India and Bangladesh are also conducting energy research—not for cooling structures but for heating food and water. In those less developed nations where wood is as difficult to get as coal, gas, oil, electricity, or any more sophisticated source of energy, solar heat is being explored as an extremely viable alternative.

According to Noel Raufaste, NBS researcher assigned to ABBE to coordinate U.S. participation in CIB's seven working commissions, worldwide architectural research is increasing—and not all of it flows out of the U.S. This country is largely

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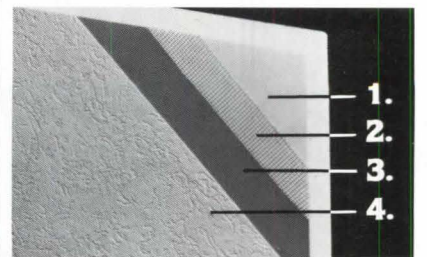
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News from page 24

responsible for the CIB building economics commission's focus on energy-related life cycle costing, and for the building services commission's interest in developing software for integrated systems to control firesafety, lights, security, and other building services. But, says Raufaste, CIB's water systems commission is looking to improve U.S. plumbing standards, basing its work on European standards. CIB technical documents are flowing into the U.S. National Technical Information Service for dissemination here. And in earthquake hazard mitigation research, "the Japanese have the lead," says Raufaste, "and the Chinese are getting up there. We're holding annual meetings with the Japanese, and we're beginning to get a lot more information out of China."

Worldwide Efforts to Protect The Natural Environment

The information coming out of China isn't limited to earthquakes; much of it concerns the state of the world's environment, an issue that is rapidly heating up with architects not far from the middle of the fracas.

International interest in the natural environment dates, in organizational terms, from the end of World War II, which left portions of the natural world as devastated as the cities of Coventry, Dresden, Berlin, and Hiroshima—all of which immediately began eras of rebuilding paid for internationally. The lack of an international body to rebuild and monitor the world's natural resources led to the formation in 1947 of a nongovernmental, nonpolitical organization called the International Union for Conservation of Nature and Natural Resources (IUCN), an underfunded, unenforced watchdog determined to resolve such still unsolved issues as the worldwide slaughter of whales and the international law of the sea, among others.

IUCN went largely unheeded until 1972, when the Stockholm Conference on the Human Environment prompted formation of the U.N. Environment Project, headquartered in Nairobi and charged with joining Unesco and the World Wildlife Fund in their support of IUCN. That support and the sudden surge of concern over the environment in the '70s combined to heighten the attention paid to the volunteer professionals serving on IUCN's six working commissions on world ecology, endangered species, parks and protected areas, international law administration, environmental education, and—the commission on which design professionals serve—environmental planning.

Architect and planner Hermann Field, FAIA, serves on IUCN's commission on environmental planning. He says IUCN's

concern for the environment—and his own—found voice in 1980 with concurrent publication of an internationally researched World Conservation Strategy and the Carter Administration-funded Global 2000 Report, both of which examined today's environmental trends and projected likely events for the future. Neither, says Field, was especially optimistic. "Both agreed that the world is running low on the essential nutrients and basic renewable resources needed to sustain life," he says.

The world's environment is falling apart, Field says, "but we're not aware of it because it's so diffuse. We're facing a rapid deterioration of the global environment, not unlike all the buildings that are going to rubble in Beirut. Ecosystems that have developed over millions of years are gradually being devoured, habitats of organisms are being wiped out, and species are actually shrinking. In the past, numbers of species have expanded, but today we're sitting on top of an evolutionary pyramid and everything below us is rapidly eroding." The problem, Field continues, is that "there is no real land-use planning worldwide," and numerous examples of it are everywhere, particularly in the emerging nations that are hungry for resources.

"Look at the despoliation of natural rain forests in Brazil, Indonesia, Malaysia, the Philippines," he says. "The tropical rain forest is a fragile ecosystem; clear-cutting it eliminates the world's richest repository of species, the whole basis of the food chain. By the turn of the century we'll have practically lost the world's rain forests."

Another example: "We're outstripping the fertility of the ground in overpopulated regions, and that is resulting in desertification. More population means more demand for key resources—food nutrients, firewood—over ever-widening areas of land. That's why more and more areas—in India, Central America, the Sahel region of Africa—are experiencing desertification"—literally running out of resources.

Another: "Watersheds are vital. That's where the remaining forests are, because the wood is difficult to get at. Once we take the forests there, the results are erosion, massive flooding, silting, water pollution. The world's watersheds and river basins are in catastrophic condition."

Enter China, whose once forested river basins were drastically overcut as the population expanded. What may be the world's foremost environmental success story is the massive reforestation of China's Yellow River Basin, a project that has restored balance in recent years to a seriously threatened ecology.

"We're running out of time," Field says. "We're living off of our resource capital,

when we should be living off the interest. For instance, we're overdrawing from our rivers, water tables, and aquifers; we're depleting them, and when you run out of capital in water, you're in trouble."

When questioned whether architects have a professional role to play in the preservation of the world's environment, Field points out that pollution takes an architectural toll as well as a natural one. "Look at Athens. Rome. Even here in Boston, our sandstone structures are scaling from the pollution," he says. "We've been the handmaidens of despoliation. We're part of this. Architects are the one leading group who can help create a better environment for the future. We must do what we can."

We're already doing more than most, at least in the U.S., says Field. One of his IUCN environmental planning commission's priorities is to create a better planning process for development projects. "With environmental impact statements, we do that well in the United States," he says. "But the multinational extracting companies rarely look at the long term in their overseas operations." Other priorities include urban fringes—"That's where the major despoiling is going on, especially in the developing countries"—and devastated landscapes like China's Yellow River Basin.

"The manmade environment is inseparable from the natural environment," Field says. "Architects have a responsibility to look at the key issue when they design." That issue was defined internationally in 1980 as "the need for sustainable utilization of species and renewable resources." It's either that, says Field, "or live off our environmental capital until it's gone."

Historic Preservation Reaches Across National Boundaries

The preservation of the natural environment worldwide is closely tied to the preservation of the world's historic architecture not just because the same pollutants harm both, but because the convoluted structure of cooperative international organizations links them together inextricably.

IUCN has a nongovernmental, nonpolitical sister organization known as ICOMOS—the International Council on Monuments and Sites. Formed in 1965 and headquartered in Paris, ICOMOS "promotes the study and conservation of historic monuments, buildings, and districts" around the world; with little political clout and less money, promoting historic preservation through international exchange programs for professionals and students is about all ICOMOS can do.

continued on page 34

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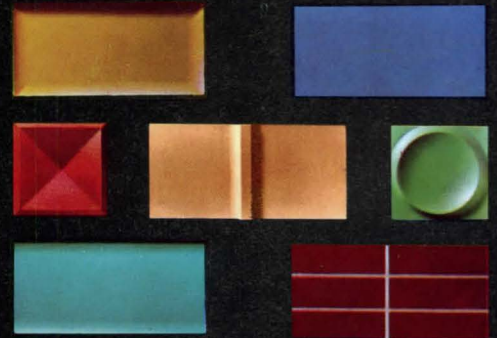
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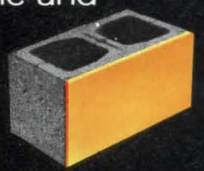
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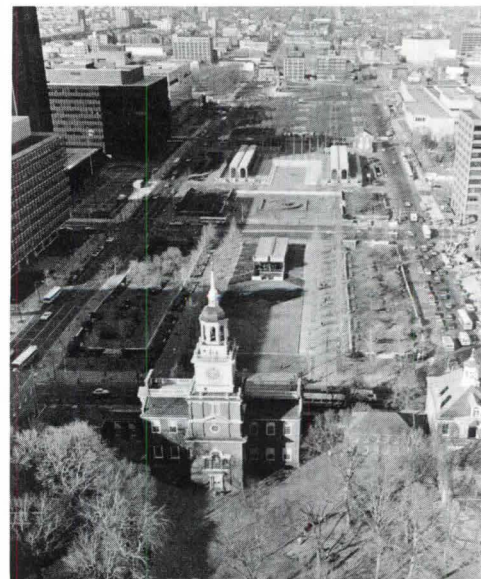
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US/ICOMOS is the American national ICOMOS committee, one of 73 worldwide; chaired by former National Trust for Historic Preservation Vice President Terry Morton, US/ICOMOS occupies two small rooms, courtesy of the trust, in the Decatur House near the White House.

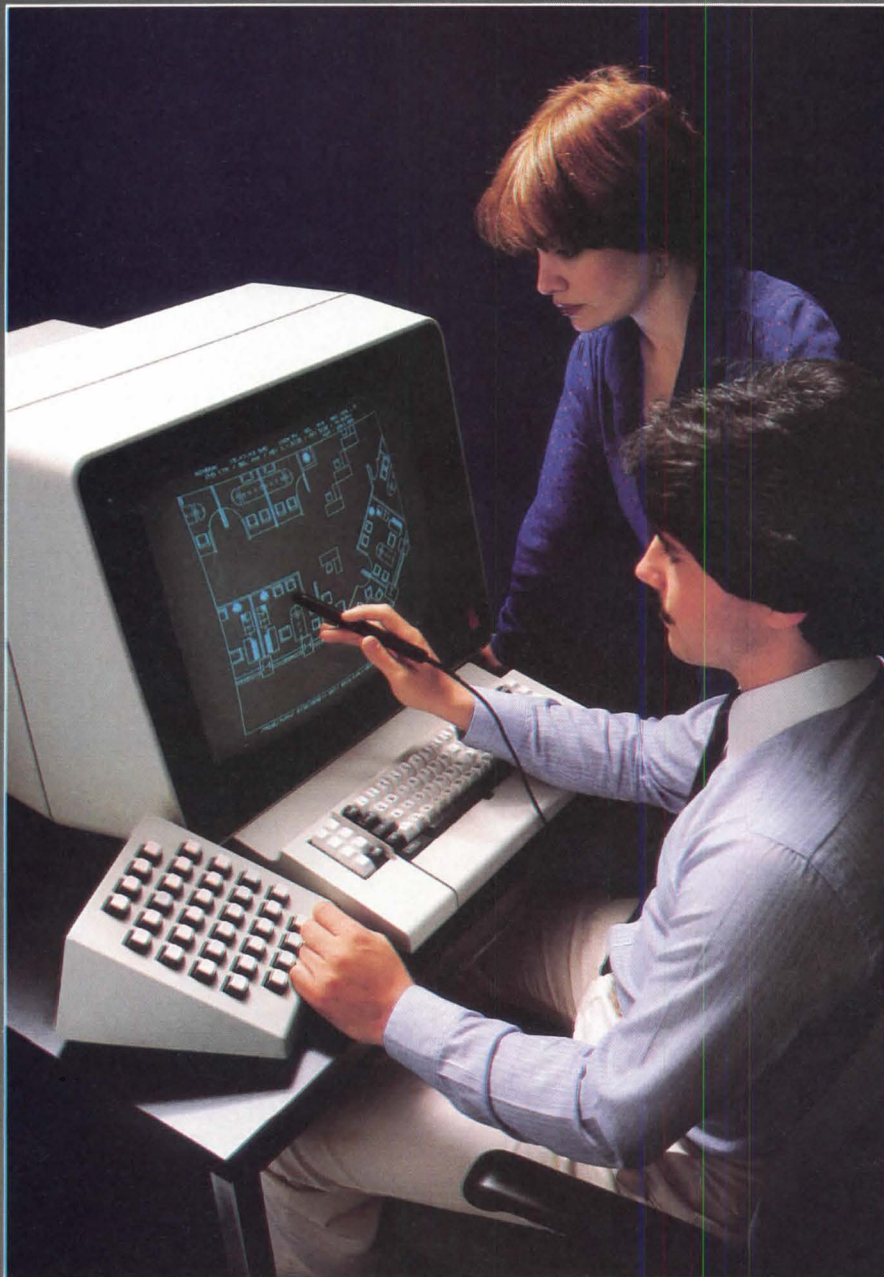
ICOMOS' major contribution to world historic preservation has always lain in its role as principal professional adviser to the United Nations, Unesco, the Organization of American States, and other international political bodies. In 1972, Unesco adopted something called the "Convention Concerning the Protection of the World Cultural and Natural Heritage," which called for the establishment of an international list of sites, locations, and structures of global importance—a planetwide register of places worth preserving. ICOMOS and IUCN were given funding and oversight authority for the World Heritage List.

The U.S. was the first nation to ratify Unesco's convention, placing the National Park Service in charge of U.S. nominations for the list. Eventually a total of 63 nations ratified, and 112 cultural and natural landmarks are now on the list, ranging from Versailles and Fontainebleau in France to Egypt's pyramids at Giza and Australia's Great Barrier Reef.

Ernest Connally, longtime National Park Service associate director in charge of historic properties and former ICOMOS secretary general, points out that the preponderance of landmarks listed are man-made structures, but of the nine U.S. entries on the World Heritage List, only Philadelphia's Independence Hall (below) and Colorado's Mesa Verde National Park—site of prehistoric, solar-oriented cliff dwellings—are remotely architectural. The other sites are the Everglades, the Grand Canyon, and the national parks of Redwood, Yellowstone, Mammoth Cave, Olympic, and Alaska's Wrangell-St. Elias. *continued on page 40*



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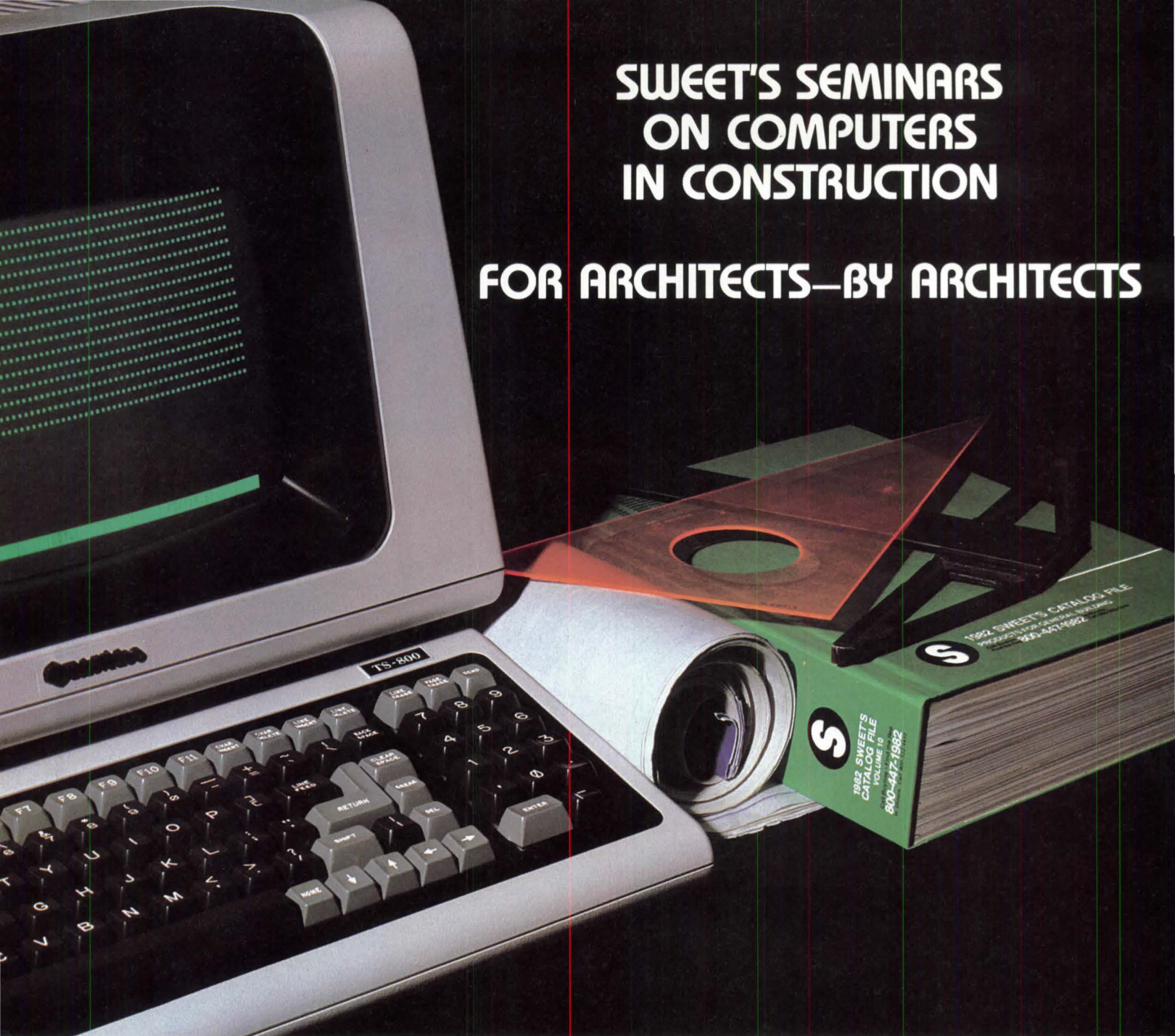
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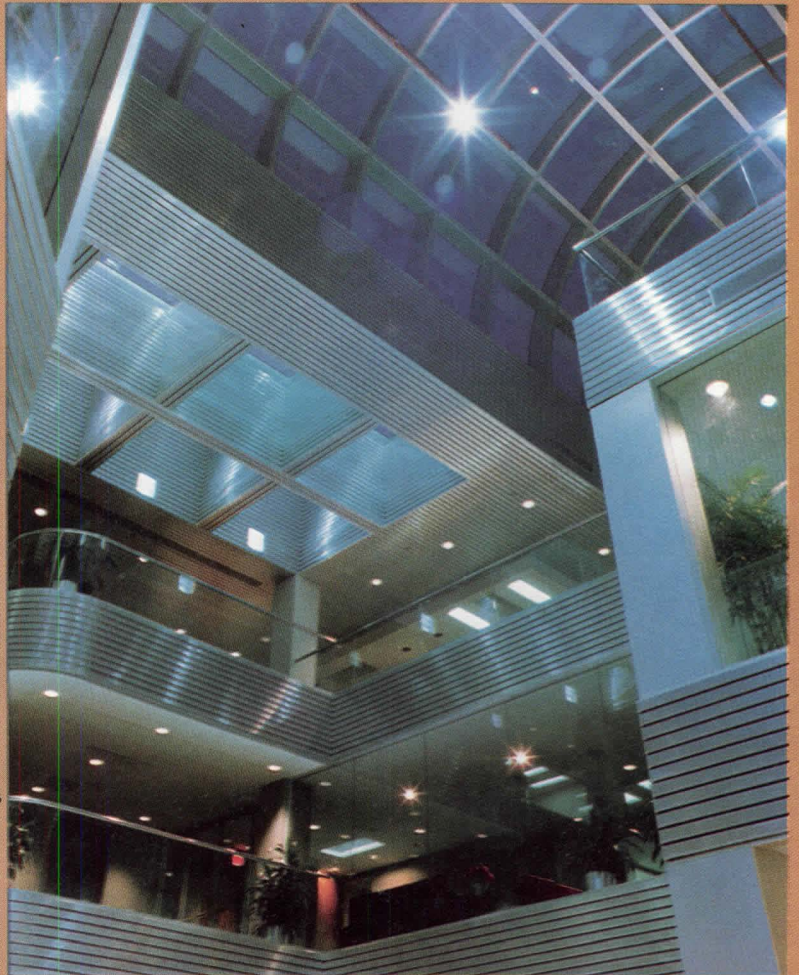
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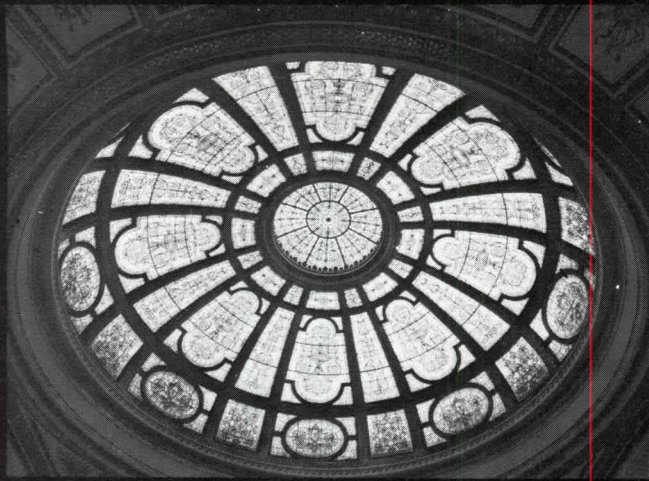
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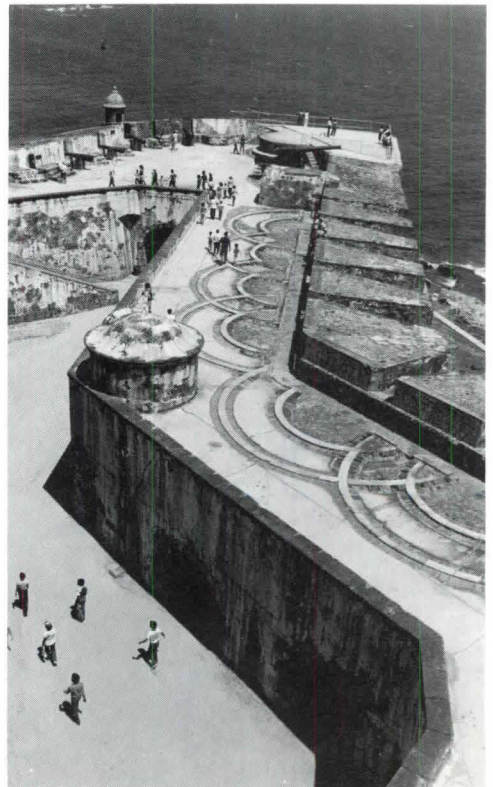
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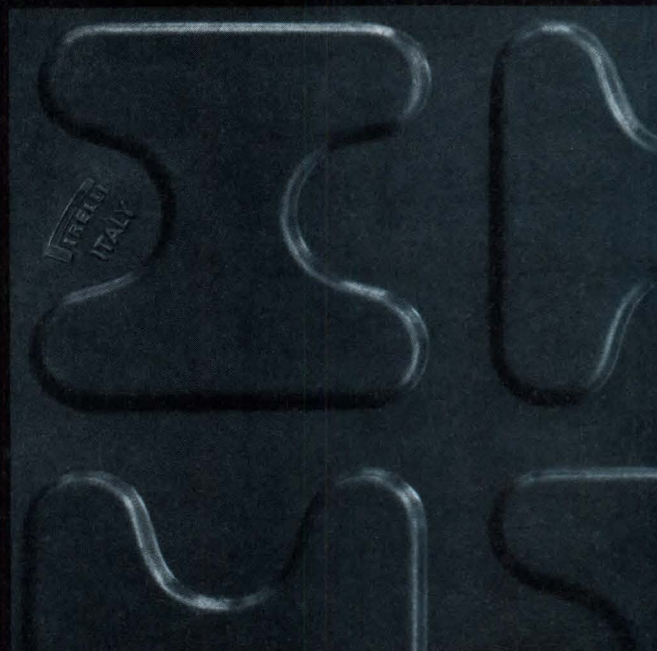
Each nation making a nomination to the list must assure the 21-nation World Heritage Committee, which ultimately votes for or against inclusion, that steps will be taken to preserve the site nominated. That requirement has more meaning in other countries than it does in the U.S., where all properties nominated and listed have been government-owned, and as such, it establishes the World Heritage List as the only global incentive for the preservation of major world landmarks. Yet politics, domestic and foreign, renders the list extremely selective, not comprehensive. This year's U.S. nominations, for example, selected through a National Park Service-administered interagency screening process, were Great Smoky Mountains National Park and a historic fortress in San Juan, Puerto Rico (below). Passed over were Yosemite National Park, Louis Sullivan's Wainwright Office Building in St. Louis, and Kitty Hawk, N.C., site of the Wright brothers' first flight. According to Robert Milne, head of the park service's international branch, the selections reflected a need for a southern site and a reference to the nation's Hispanic background; Kitty Hawk was dropped because, in Milne's words, "the French have a tendency to say they had the first manpowered guided flight, and we don't know what the Russians think."

This year's U.S. nominations and a previous nomination—Illinois' prehistoric Cahokia Mounds—are expected to attain listing when the World Heritage Committee votes in late 1983. They may, however, be the last U.S. entries for some time, because a rule in the original Unesco

continued on page 44



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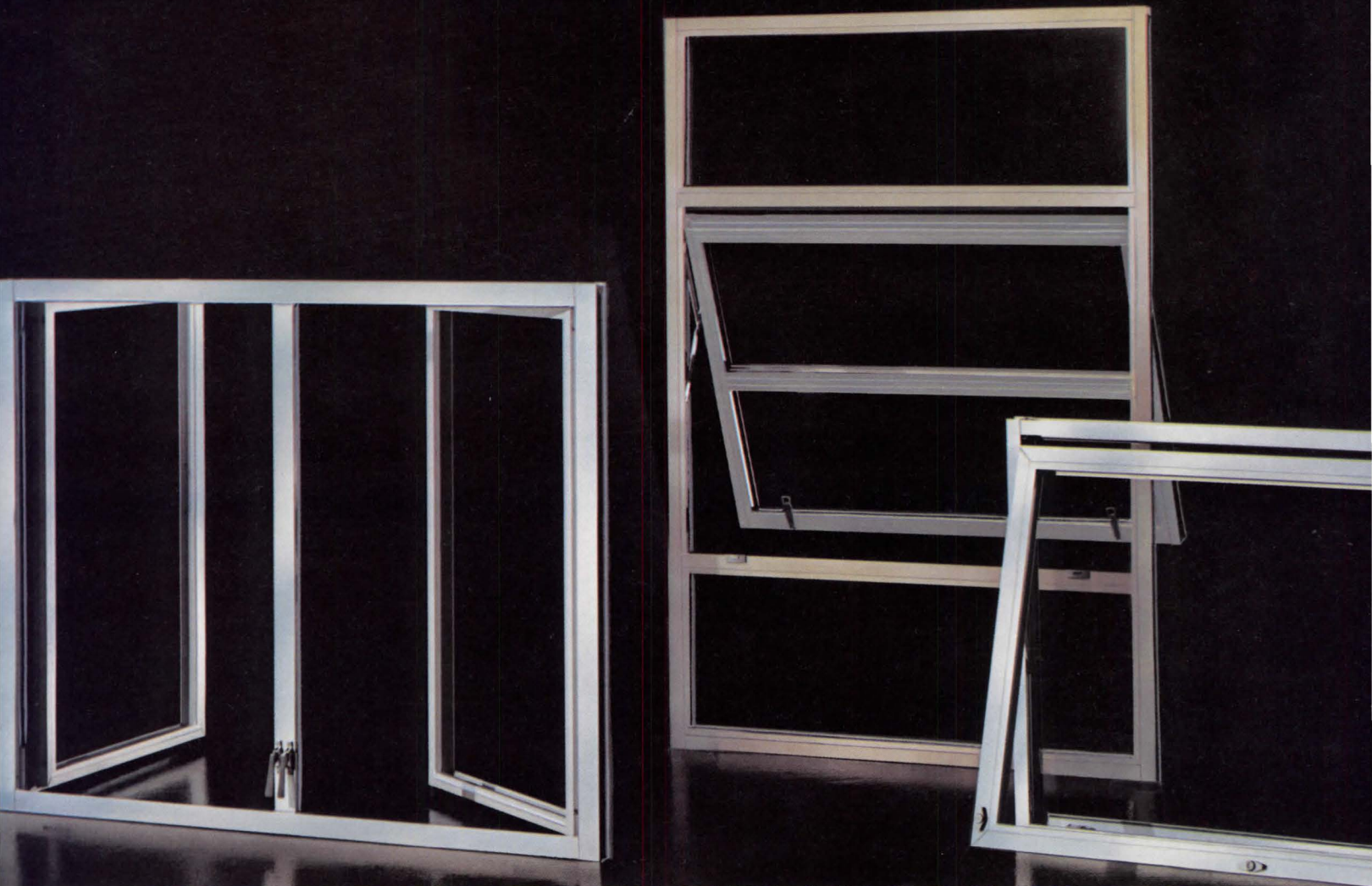


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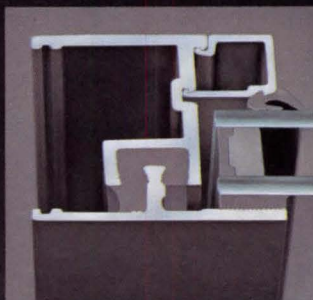


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News from page 40

convention bars from voting any nation that has not contributed "voluntarily" to the ICOMOS-administered World Heritage Fund for two consecutive years. The United States, in an era of federal thrift, did not contribute this year and hasn't allocated any contribution in the 1983 federal budget.

Less structured than the World Heritage List but perhaps more effective in

terms of actual architectural preservation is ICOMOS' advice to Unesco in the latter's periodic international appeals for funds to preserve major architectural landmarks around the world. Hindered only by Unesco's inability to become involved with such outlawed nations as Kampuchea (formerly Cambodia), where the magnificent temples of Angkor Wat (above) are in dire need of protection and restoration, ICOMOS keeps an eye

out for endangered landmarks.

ICOMOS-sparked Unesco appeals were responsible in part for the rescue of Egypt's Abu Simbel at the Aswan High Dam site and for the development of a new water system for Venice, which was sinking under its own weight as water was drawn from substrata beneath the canaled city (a fate, according to Ernest Connally, now faced in Houston, where, he says, "the astronauts houses are sinking"). A Unesco appeal on behalf of the pollution-scarred ruins of the Acropolis in Athens was scotched, Connally says, when the Greek government declared itself able to care for its own monuments. ICOMOS has prompted four current Unesco preservation appeals, all for architectural works in the Third World: the 4,000-year-old city of Moenjodaro in Pakistan's Indus Valley, the temples of the Kathmandu Valley in Nepal, the great stepped temple at Borobodur, Indonesia, and the ancient capital of Thailand at Sukhothai.

"It's exciting," says US/ICOMOS chair Terry Morton. "A lot has been accomplished." But in preservation, perhaps as in all things international "it's not like it is in this country. Things get bogged down. It's always *mañana* on top of *mañana*." Even in the global village, some things take time. *Kevin W. Green*

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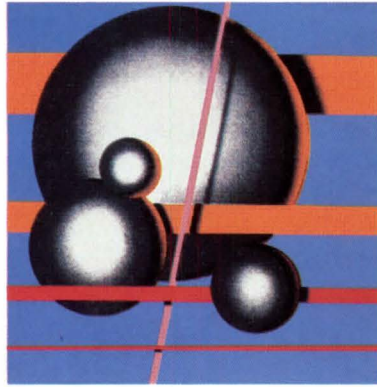
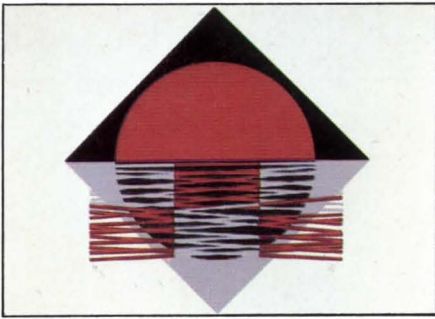
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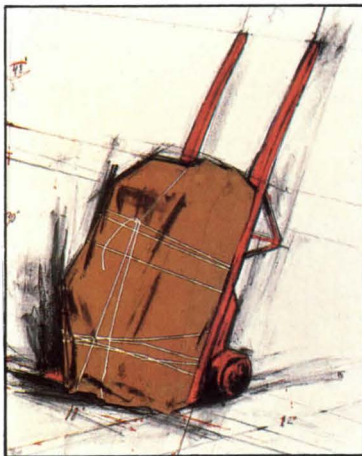
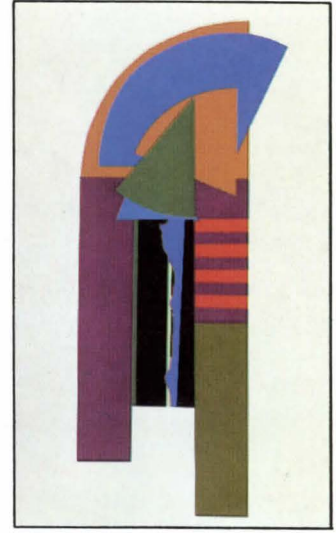
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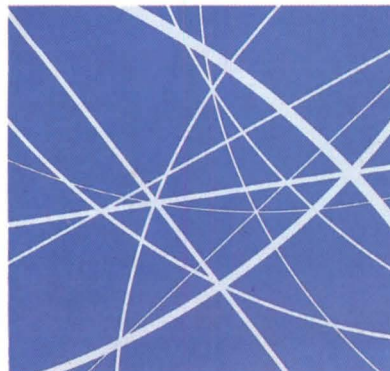
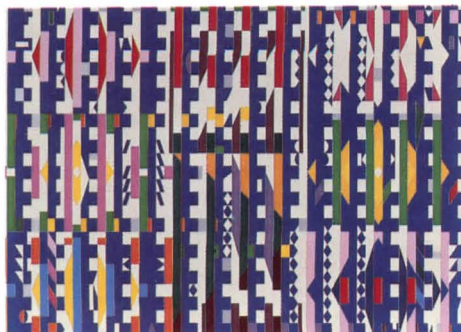
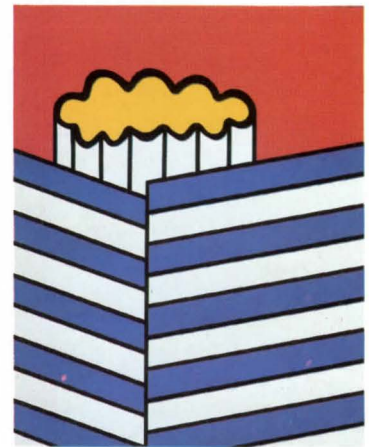


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The First Annual Review of Recent World Architecture

The title is self-explanatory. Starting with this issue each year at this time we intend to present the best work we can find in other nations. It is a companion to the mid-May issue in which we look at new work in our own corner of the world.

In a first effort of this kind we cannot claim that the buildings shown are the very best around the globe, nor even that they are fully representative of each nation: They are simply the best that we have been able to find.

Our standard in searching has been architectural quality. We have sought a geographical spread but not complete balance. This year a few countries dominate, next year we expect that others will.

We have conducted the search through assembling award winners from those nations that have awards programs; through the scanning of other nations' magazines; and through the help of a brace of correspondents and contributors whose bylines appear in the issue. We are enormously grateful to these people, and to Peter Blake for his help in identifying several of them.

Editor in charge of assembling the issue was Andrea Oppenheimer Dean. In our opinion she has put together an intriguing and exciting collection. But turn the page and judge for yourself. *D. C.*

Italy

Flower Market in a 'Covered Piazza' with A Remarkable Roof

The unexpected recent death of Leonardo Savioli has deprived Italy of one of its most outstanding designers of the postwar era. He has been one of the most significant representatives of the humanistic heritage of the Florentine Renaissance. With Cori, Ricci, Detti, and others, Savioli belonged to that "group of Florence" whose master was Giovanni Michelucci, and whose landmark building is the Florence Railway Station. A retrospective last May of Savioli's work in Faenza bore witness to his faith in an integration of design disciplines, from graphics to interiors, painting to architecture, planning to prefabrication.

Most important was his refusal to accept any architectural fashion and his coherent and very personal attitude toward design. It was deeply connected with his choice of structure and the manner in which he related one space to another to create clear architectural definitions using very few materials (mainly steel and precast concrete), and an extreme care for details.

These are all evident in the Flower Market of Pescia, which began with a 1949 competition for a 6,400-square-foot

"covered piazza" for exhibiting and storing flowers, plus a bank branch office, a restaurant, rooms for relaxing, and services. The winning scheme designed by Savioli with Giuseppe and Enzo Gore, Leonardo Ricci, and Emilio Brizzi, was quite different from the recently completed end product. It consisted of a 77x256-foot shell, a thin vault, and at its time was important for being modern when Italian architecture was still dominated by fascist ideas.

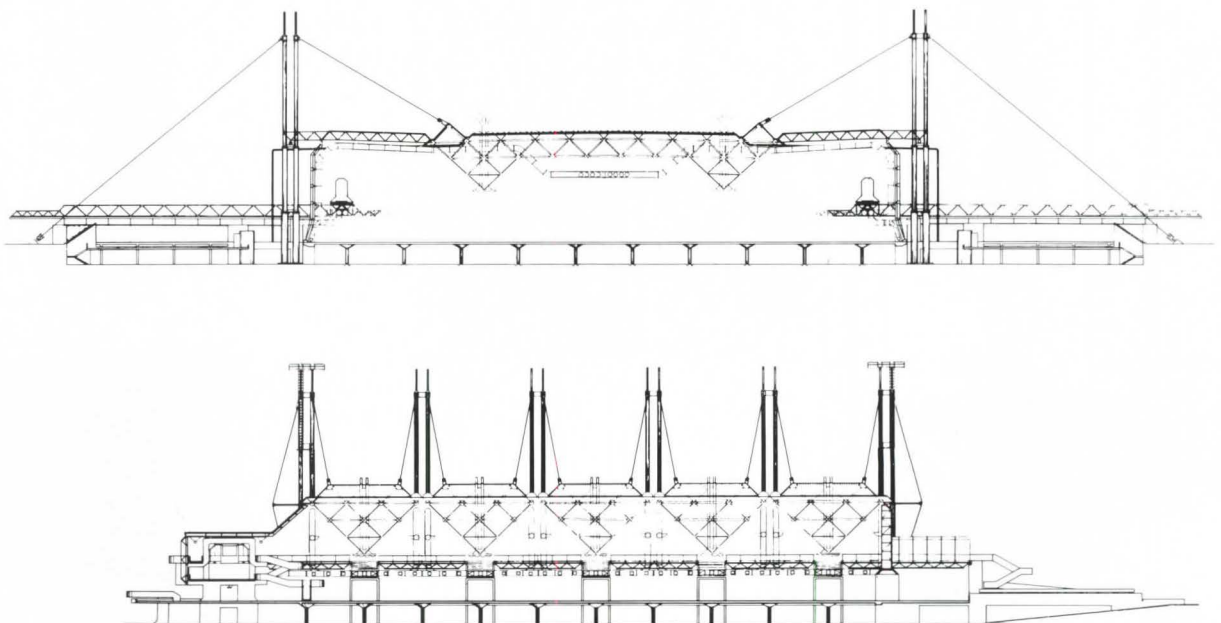
The Flower Market of Pescia provides for display and sale of 400 million flowers, worth more than 6 billion Lire. It represents a landmark among metal frame structures whose origins are in the British hothouse, in Paxton's Crystal Palace, Eiffel's tower, Les Galleries des Machines in Le Trocadéro. It does not fall within the architecture of high-tech containers whose forms are independent of contents and uses, as is true of Centre Pompidou by Piano & Rogers and Sainsbury Center by Foster & Associates. Unlike these, the design of the Flower Market was determined by functional needs, a requirement for flexibility, for allowing gradual growth by modular increments, and eventually enlarging or reducing the building.

The site is surrounded by Via Mamminese, by the railway, and by a new road provided by the master plan of Pescia. There are two entrances with a double ring circulation system: an external one

for the delivery of goods, an internal one for transportation. In addition, there are internal and external pedestrian circulation systems, an open air parking area, and another one underground.

The structure consists of a system of three-dimensional elements, 352x64-feet, carried by external pillars consisting of tubular steel elements assembled in the form of a cross. The roof of the central hall stands on two pillars fitted into the ground; two cables, one for each pillar, are provided to reduce the free span of the roof. Two more cables, one for each pillar, are anchored to the ground and help to reduce the weight due to traction of the cables. Two wings, covering the peripheral rooms, are joined by hinges to the pillars supporting the central roof and by a pendular support with a hollow section inside. The three-dimensional, multidirectional elements of the roof form a reticulated, rigid slab. Inside them is situated the mechanical equipment, lights, fittings, and walkways. The balustrades of the internal walkways, balconies, and stairs are in concrete. Metal panels, brises-soleil, transparent domes, special crystals, the use of pure geometric forms—all contribute to create a harmonious, light, neat, and elegant space, where nothing is casual or superfluous.

The main central space is devoted to the sale of flowers; at the left and right of it are storage spaces; at the north side







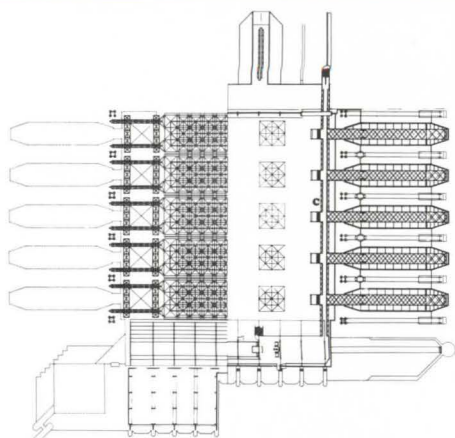
are offices and shops; on the right wing, a bar and restaurant. A panoramic walkway facing the inner space and some more inner streets give access to a floor below grade.

As Bruno Zevi pointed out in 1971, we can recognize "two souls" in Savioli: the soul of the man of Florence, fond of the Renaissance, of calculations, figures, precision, and elegance, of formal junctions capable of breathing life into a diagrammatic scheme. The other soul is just the opposite: It rejects handsome drawings

and emphasizes the geometry of spaces and volumes. Savioli himself found duality in his origins: "My father was a designer of locomotives and trains, born in Ferrara; my mother was a milliner from Orvieto. From Ferrara I have inherited that iron painting taste of the 'officine ferraresi,' and the feeling of the marble-iron corners of the palaces. From Orvieto I inherited the organic structural design of details of Cappella Brizio and of the volcanic rock on which the town is built." At the end of his life, Savioli seemed to

feel the need for a higher degree of "carnality," of "bulkiness" and, perhaps, for an "incoherence" and a different attitude toward representation. His architectural language reflects very consistently his "two souls"; it is very sad that his premature death prevented a conciliation between them. HILDA SELEM

Ms. Selem is the Italian correspondent for the Architectural Review, and has taught at M.I.T. and the Harvard Graduate School of Design.



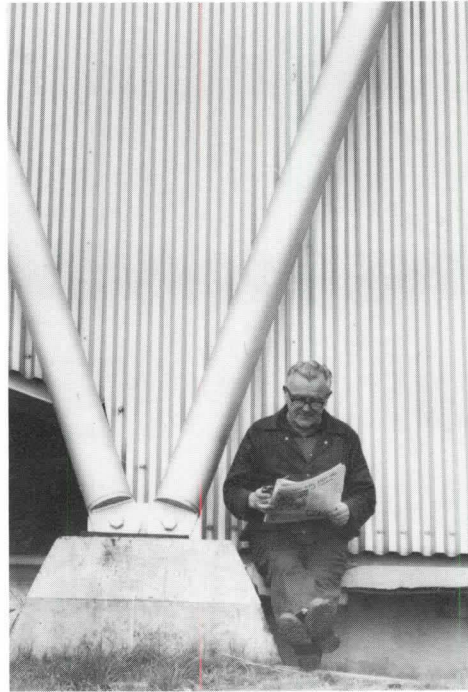
England

Industrial Buildings That Display the British Touch at High-Tech

It is a paradox that Britain, with its economy in an advanced state of decay, should be producing the most elegant and original architectural responses to late 20th century industry. While the enigmatic and idiosyncratic figure of James Stirling broods over the British scene from the height of towering world reputation, he enjoys little direct following at home. The most coherent and forceful school at present is high-tech, dominated by the work of two offices, those of Richard Rogers and Norman Foster.

British high-tech first hit the international big time in 1977 when Rogers, with Italian partner Renzo Piano, completed the Centre Pompidou in Paris. Suddenly, in the middle of the decorous Marais, there was a lyrical celebration of 20th century building technology. It was as if the structural spirit of Gustav Eiffel had been transformed to our time and wrapped in a bright tartan of pipes and tubes. It was immensely sophisticated and exuberant. Curiously, by tricks of scale, it sat harmoniously in its historic context—and it has become the most visited building in Paris, rivaling even the Eiffel Tower in attraction.

While Pompidou was in gestation, Foster was working on the Willis Faber office building in Ipswich, a small country town northeast of London. Willis Faber (see April '81, page 58) was to become as renowned in architectural circles as the Paris buildings. Foster's approach was quite different from that of his erstwhile partner, Rogers. Instead of taking every opportunity to expose the guts and skeleton of the building, Foster chose to wrap everything inside a slick skin of mirror glass that exactly followed the perimeter of the site. The sophistication of the skin was quite remarkable: The individual glass planes appeared at first to have no support (in fact they were fixed to glass mullions and joined by translucent silicone). At night, when the interior shone through the glass, the organization was more obvious: a series of concrete trays,



John Donat Photography

of which the top (roof) extended to the perimeter and from which the glass skin depended. At night, all the workings of the office and boilerworks guts could be clearly seen.

By the late '70s, the two contrasting streams of high-tech could be clearly seen. Rogers' Gothic revels in incident, in the picturesque clash of functions. Foster's classic is all about envelope: encompassing the jumble of function within overall order. The difference is similar to that between, say, Aalto and Mies.

The contrast shows that high-tech, as an approach, can, like the modern movement, have a great range of expression. But the similarities are perhaps more interesting. Both architects have a great feeling for fine detail, for a delicacy and precision that is almost impossible to achieve in traditional building materials. Both, far from celebrating what we now see as really high technology (microchips, bioengineering, photoresponsive materials, high performance ceramics), are making beautiful, poetic images about a rather low technology. For instance, Rogers' pipes are a celebration of air-conditioning techniques that are at least as old as the century. And both architects, while pressing *building* technology to its limits, are prepared to accept quite conventional techniques to achieve their ends—so the interior of Foster's Willis Faber

is a simple structure of concrete columns and slabs. The glistening structure of Pompidou is, to a puritan, a sham—thin stainless sheets wrapped round fire insulation, in the middle of which are real steel bearing members. That is a process that involves much hand work, and neither architect worries too much about making special elements by hand to look as if they were fabricated by machines.

Perhaps the very chaos of the British—and European—economy helps: Production runs are short, so you can persuade a manufacturer to make a special kind of casting for your building and you can find a small man around the corner who is prepared to craft up a lavatory paper holder that looks as if it had come off the most elaborate production line.

Yet if high-tech does not fully live up to its popular name, it is a strong and growing school in Britain and Europe. It is both an approach to design and a style with more or less accepted rules. High-tech is, in a way, an expression of modern movement theories that held that buildings should be like machines, yet that were propounded by architects who themselves made white classical boxes. And it is an expression of a British tradition—celebration of engineering—that goes back to the late 18th century: to iron bridges and market buildings. That Britain produced both the Crystal Palace and high-tech is no coincidence, as some of the new architects admit.

High-tech works for practically every kind of building—except public housing. (Foster made a metal sided, low cost housing estate in Britain's new city, Milton Keynes, which has turned out to be a disaster.) But high-tech can be wonderfully powerful, expressive, varied, and apposite for industry (of course); for leisure (for instance, Grimshaw's sports building for IBM shown here); for public building (Pompidou); for commerce (Foster at Ipswich and Hong Kong); and even for private living (Jiricna's flat). The following examples show the range of British high-tech thinking in the early 1980s. Interestingly, many of the buildings were for American clients. PETER DAVEY

Mr. Davey is editor of the Architectural Review in London.

Rogers for Cummins

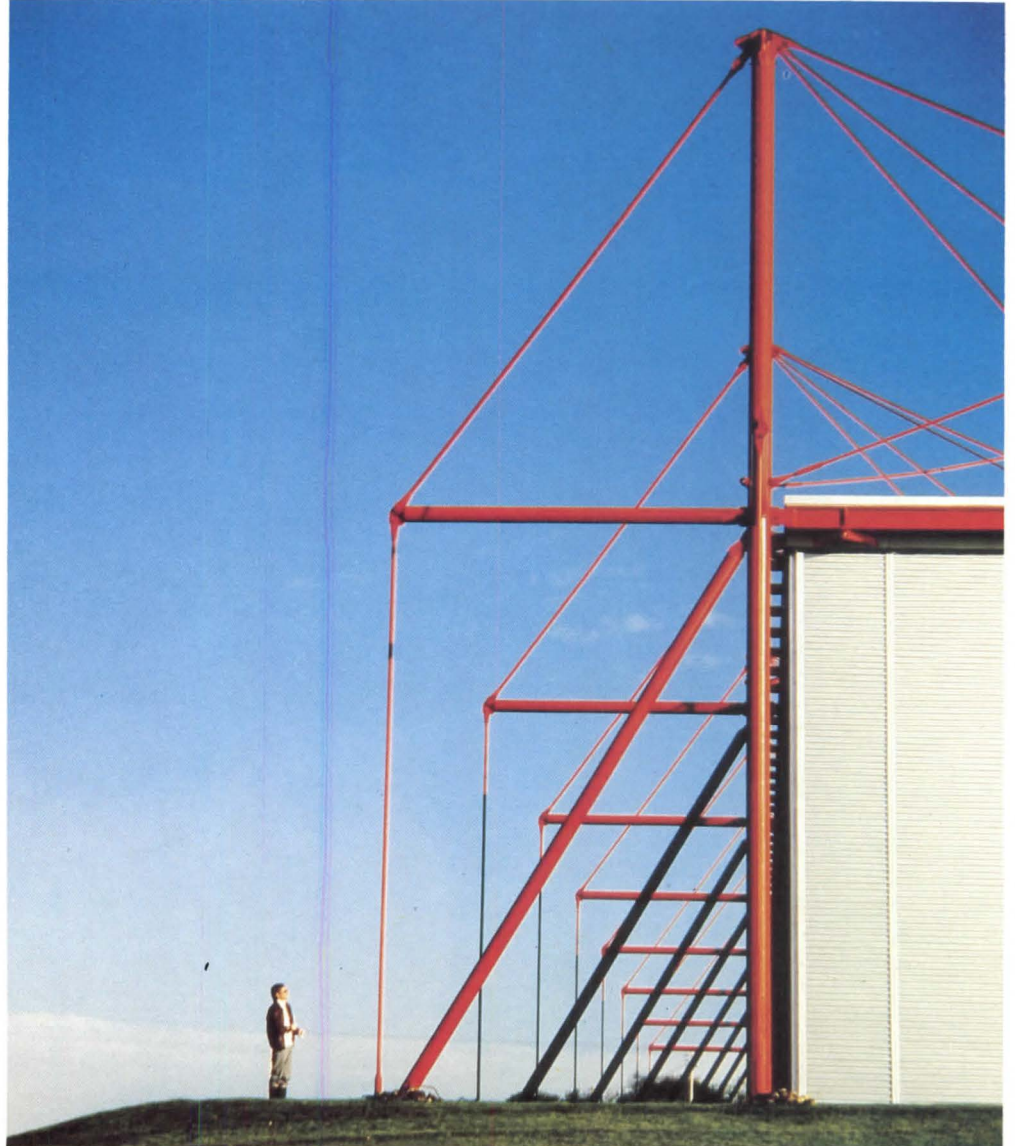
When the Cummins Engine Company of Columbus, Ind., decided to expand its manufacturing operations in Europe, company chairman J. Irwin Miller decided to continue the firm's policy of hiring really good architects, which has made Columbus such a parade ground of architectural thinking from the '40s to the present.

The firm's Fleetguard subsidiary makes heavy duty engine filters, and Cummins chose to locate its chief European manufacturing and distribution center in the placid, wooded Breton countryside near the medieval town of Quimper because of the attraction of the place and the strength of the local community.

But the factory is far from being cozy or medieval. It is built to an extraordinarily logical program. Like most other manufacturers, Cummins wanted a large, uncluttered open space for operations with the possibility of extension and involving minimum fuss. With engineer Peter Rice of Ove Arup & Partners (who has been responsible for much of the structural daring of British high-tech), Richard Rogers & Partners decided to make a building which hung from an external tensile structure. Putting the structure outside the building ensured that the factory could be extended at any time with minimum internal disturbance. Choosing a tensile system meant that the weight of the structure could be reduced to a minimum. The result is stunning. A silvered box of corrugated steel siding sits inside a delicate cobweb of red tubes and rods. It all hangs from a regular grid of thin 14-inch diameter tubular steel columns.

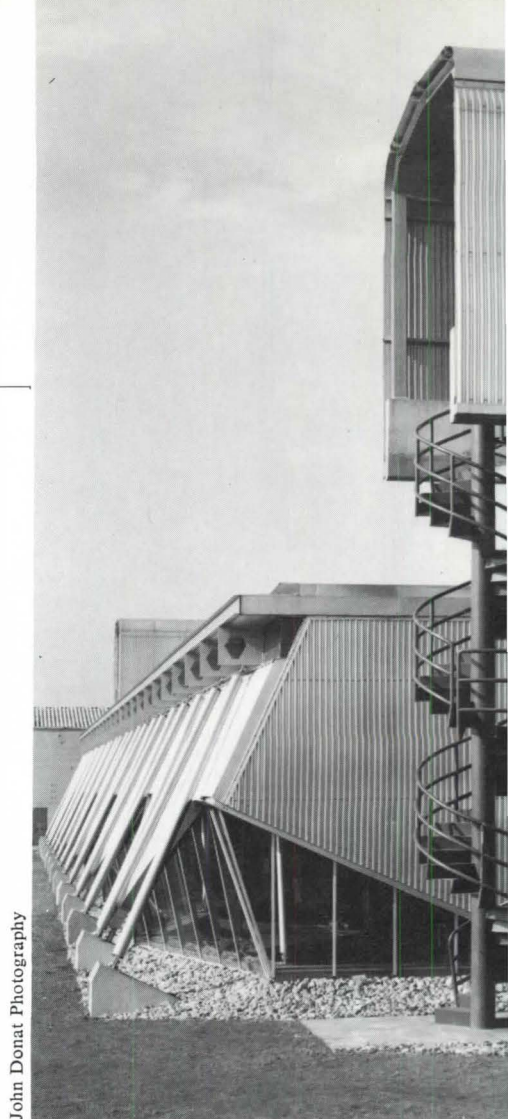
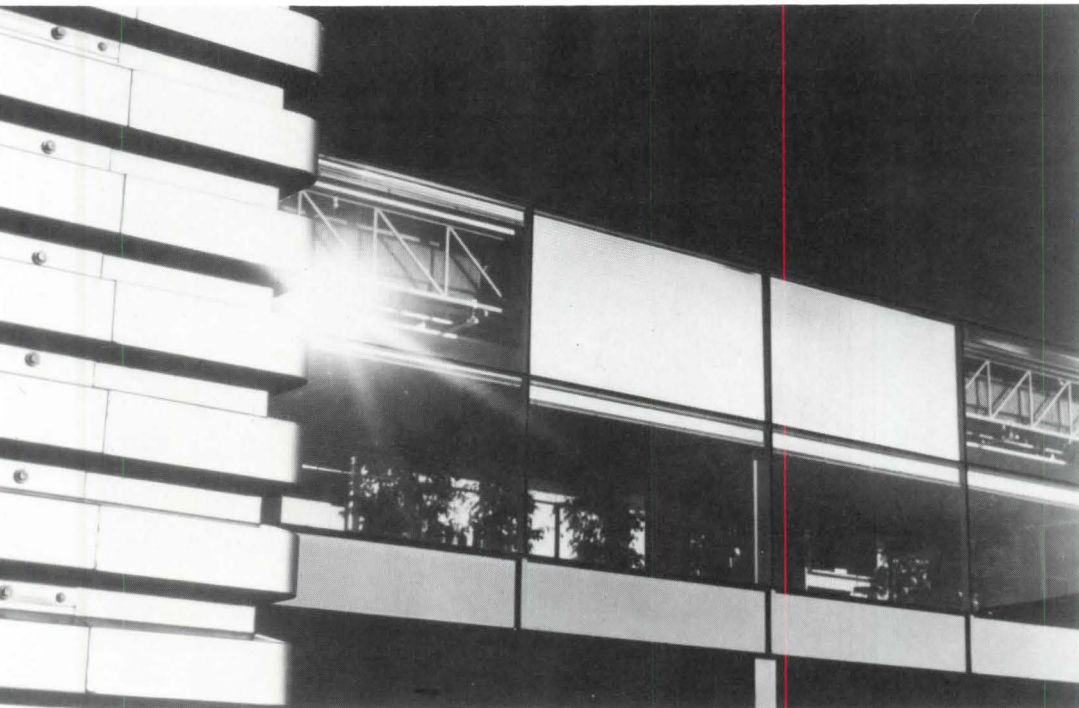
In this building, Rogers has decided to keep the services inside, but here, seen against the silver walls, the pipes and ducts have something of the gutsy excitement that he achieved at Pompidou. The building was opened recently with a grand banquet for workers, local notables, and Cummins' management. As *Architectural Review* reporter Lance Knobel remarked, "that a factory can have the grace to suit a banquet testifies to the rarity and accomplishment of its design." P.D.

Across page, Cummins factory at Shotts; this page, Cummins at Quimper with external tensile structure and gutsy interior.



Ken Kirkwood





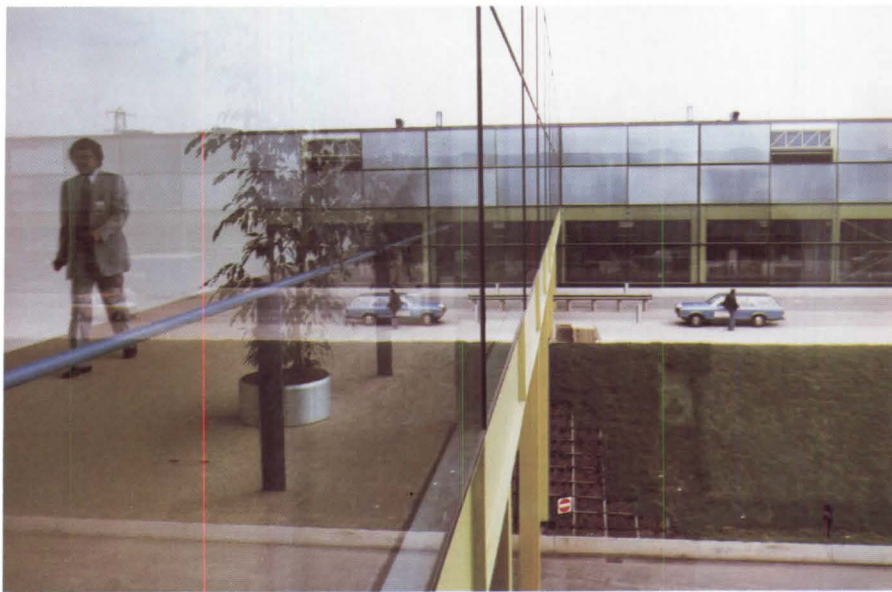
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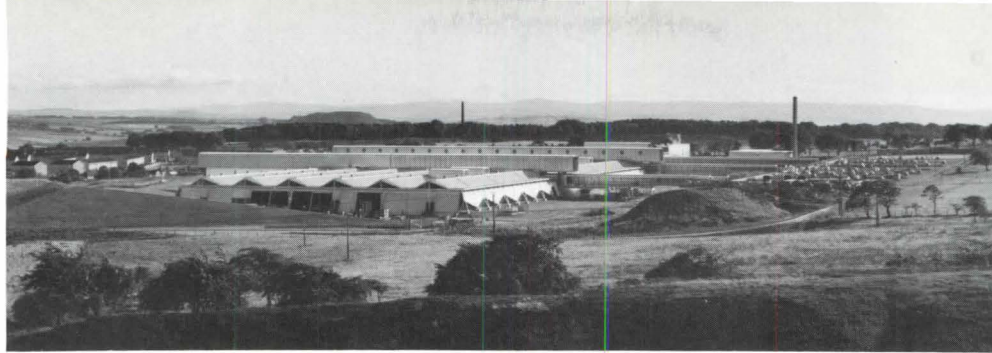
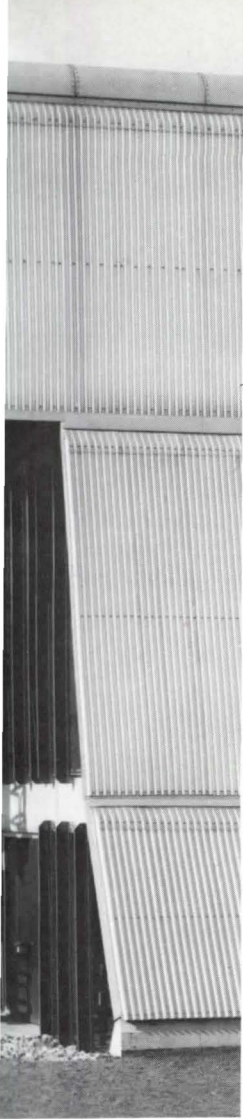
Foster for IBM

Norman Foster's latest UK work is perhaps his least typical. He has tended to produce buildings that are, like Ipswich, contained within one perfect envelope. At Greenford, in Middlesex, IBM wanted a distribution warehouse and a demonstration center. Foster separated the two but joined them together across an intervening road by a glazed bridge.

The detailing shows all the usual Foster hallmarks: impeccably smooth gray glass walls backed by the fine reeding of special aluminum Venetian blinds; sheets of shiny silver siding; an elegantly articulated simple steel structure painted grass green. As is usual in Foster's work, every junction is perfectly thought out, everything meets exactly and with the minimum fuss. There is much spatial richness: The views through and across the bridge are particularly exciting.

And yet, the whole effect is not quite as compelling as that of some of Foster's earlier buildings. IBM hopes that the building will expand as business increases. Perhaps the lack of overall clarity (and it is lacking only in comparison to Foster's previous work) is due to the indeterminacy of the program. That Foster has not lost form is shown by his most recent design for the headquarters of the Hong Kong and Shanghai Bank. P.D.





John Donat Photography

Cummins Again

Cummins' other big European venture is the new engine factory built at Shotts, a run-down town in Scotland's industrial belt. The London firm of Ahrends, Burton & Koralek was chosen as architect. It had an impressive track record in university building and had made some forays into building for industry. It has produced a building which is less lucid than Rogers' Quimper factory but more obviously monumental.

The large floor areas are spanned by steel delta trusses which, in the other direction, are stiffened by conventional steel castella beams. Parallel to the trusses are carried the big lemon-colored ducts of the ventilation system, and masses of small pipes. This duct-and-truss system is clearly expressed on the outside in a series of roof ridges. The shape is echoed on long sides by the complicated triangular geometry of diagonal lateral supports,

which generate a complicated folded geometry of metal siding (which slopes outward) and glazing (which slopes inward to reduce glare). Externally, the result is much more sculptural in the expressionist sense than Rogers' at Quimper. Internally, the provision of glazing around the perimeter may make working at Shotts more pleasant than working at Quimper. Shotts seems more muddled and is far less breathtakingly elegant than Quimper, perhaps because it is more humane. P.D.



Charles Martin

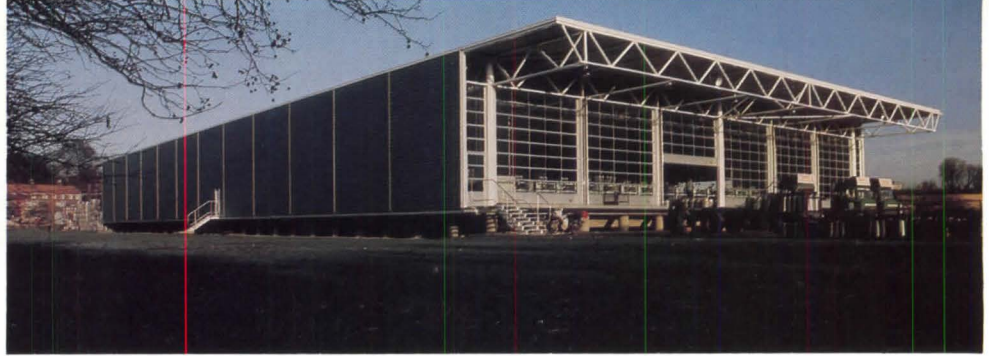


IBM as Well

The most sophisticated and delicate small structure to emerge from the high-tech stable is the gymnasium at Hursley, Hampshire, built by Nicholas Grimshaw & Partners for IBM.

The space is spanned by five delicate trussed portal frames in which the members are honed to a minimum. From this are suspended five simple planes: The roof deck and four walls whose double skins of shining profiled steel are filled with insulation. Inside, there are no vertical supports at all: Structure is linked to planes from the outside by ingenious cladding cleats. The five planes are linked by quarter barrels of double skinned, translucent blue glass fiber. These meet at the upper four corners in quarter spheres of the same material.

Nicholas Grimshaw and his team have created an exemplary version of a building type that is usually brutish: Gymnasiums are too often brick or concrete boxes that have nothing to say, while the inside is cut off from any contact with what's going on outside. At Hursley, the gymnasts can get a muted, yet effective, impression of the external world through the blue corners. And seen in its wooded glade, the building is full of incident. The structure gives the box detail, interest, and—almost perversely—human scale. P.D.



Rigorous Brewery

The most off-the-peg of recent high-tech buildings is Michael Hopkins' racking plant for a brewery in rural Suffolk. Like many high-tech buildings, it is a reincarnation of that paradigm of the modern movement, the endless shed, arbitrarily cut off to form an individual building.

So the building's main expression is in its ends. The roof sails over at each end (both are loading bays)—the internal structure comes out. This, with the standard overhead doors that have been very carefully chosen from a catalogue, gener-

ates the main statement of the building.

The interior is dominated by the forms of the stainless steel machinery that fills silvery metal barrels with beer piped in from the main brewery. Workers' rest rooms are elegant plastic boxes dropped into the main spaces. All is very logical and well detailed. But it does seem a pity that, for the sake of overall consistency, the workers are only allowed a glimpse of the outside through the glazed doors at the ends and cannot otherwise, even from their recreation areas, see the surrounding meadows. At its most rigorous, high-tech can be rather inhumane. P.D.



Jo Reid & John Peck



Jo Reid & John Peck

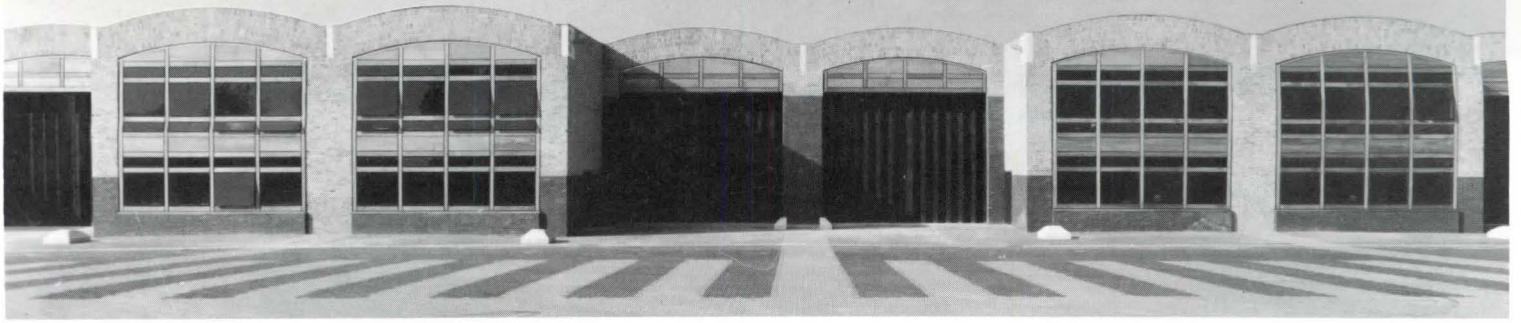
Witty Conservatory

One of the wittiest of high-tech buildings is the little London conservatory by the Terry Farrell Partnership. It is a series of steel hoops covered with flowing poly-carbonate sheeting.

The double layer of sheeting is light, unbreakable, and bends naturally to the curves of the structure, but is strong enough laterally to add stiffness to the structure—a high-tech material if ever there was one. And in true high-tech fashion, the sheet is press-clipped to the frame with nylon buttons specially developed for the project. Yet this small building may show a way forward from main

stream high-tech. Its flowing shapes show that when real high technology techniques are fully used (as opposed to a poetic interpretation of high technology) new forms may develop and high-tech architecture may grow away from the Euclidian geometry that has characterized the work of the school so far.

Farrell's use of postmodern elements (for instance, the detached timber screen in front of the building) is another instance of his attempt to set himself apart from the mainstream. Yet, compared with the technical sophistication and elegance of the greenhouse itself, these gestures seem—at least to British eyes—forced imitations of transatlantic formalism. P.D.



An Alternative British Approach In Brick and Wood

Because the industrial building is the seemingly perfect vehicle for a technological esthetic—the now acceptable face of the modern movement—it has largely remained philistine in regard to the reborn historicist faith which is proselytizing other building types. In the context of Britain's mainstream industrial architects such as Rogers, Grimshaw, Hopkins, and ABK, the work of John Outram is noteworthy for its eccentricity. For it breaks the virtual esthetic monopoly on industrial architecture by abandoning the technological idol in favor of more traditional mythologies.

Outram's McKay Trading Estate is 72,000 square feet of speculative warehouses and offices in Poyle, Surrey, near London's Heathrow International Airport. Apart from the size and functions of the premises, the client's only imperative was that the building be constructed of brick and timber. The four-acre site is in the midst of an industrial backwater which, in contrast with recent masterplanned and landscaped industrial suburbs, is typical of postwar Britain: a ramshackle, haphazard collection of brick and corrugated metal sheds built over the past 30 years to accommodate small scale manufacturing enterprises. In short, neither program nor context offered generative design clues.

The building, pushed hard against the western boundary of the site, covers 40 percent of the total area. A two-story office block faces the road to the south, with double height warehouse units and their ancillary two-story offices behind stretching the full length of the site from south to north. Because of the speculative nature of the building, the warehouse is designed so that it can be used either by a single tenant or subdivided.

The facade of the building is a brick masonry colonnade which is wrapped around the "big bag" of interior space. The large scale arches of the colonnade, which lend the building a grandeur greater than its two stories might otherwise command, are infilled in a number of ways to denote various functions. A gray solar glass and timber screen forms the main entrance; similar screens with brick span-



drels at ground level indicate office areas; and timber arch infills with steel folding shutter doors form the vehicular/goods entrances to the warehouses.

The only place where the rhythm of the facade is interrupted is on the south office unit. The turning of the corner from office facade to entrance facade seems unresolved. The flat section of blank wall is clearly meant to be the return of the south facade. However, if the arched parapet and pier had been built and blanked out with masonry infill, the paired rhythm of the east facade could have been maintained as well as the return. A blank "non-entrance" might have provided an even stronger counterpoint to the entrance than the present wall. The windows on the north wall of this office unit also seem anomalies in the overall design strategy of the facade.

Materials are used with a curious combination of functional, symbolic, and decorative intentions. While the building could be a load bearing masonry structure, the brick cavity wall is merely wallpaper applied to a steel frame. Hence the arches are not real, and, although the limestone markers between the arches connote beam ends, a constructional notion, they are purely decorative. The brick piers are service ducts.

The most jarring discovery is the lack of continuity between facade and section. Although the skin implies a series of shallow vaults, the asbestos roof is in fact pitched with the ridge beam parallel to the long warehouse facade. A series of cantilevered portals reaches to the expansion joint at the ridge beam, with the springing point of the portals moving up and down as the walls step in and out to suit the various irregularities of the west boundary of the site.



The stepping of the east facade is more willful than pragmatic. While the goods bays recede, the human office spaces are separated from the large space and advance as a series of pavilions. The arches remain constant, relying on the delicate timber infill panels to create a human scale in the office zones and on the folding shutters to maintain a large vehicular scale for the warehouses.

The main interior space that Outram designed is the entrance to the south office block, a double height space with a black rubber floor, banded plaster and timber walls, and a suspended aluminum ceiling following the curve of the brick arch.

All in all, the building succeeds in at least one respect where many others might have failed: It commands notice and stands with considerable dignity amid shabby surroundings without overwhelming its more humble neighbors. The scheme has abandoned the neoprene and sandwich panel gospel of the technologists for traditional, natural materials and appears to have eschewed the modern movement without jumping on the classical bandwagon. The building at Poyle is a fresh synthesis of historical and contemporary architectural attitudes—superficially reminiscent of the work of Louis Kahn—which avoids outright plagiarism from the past. ANNETTE LECUYER

Ms. LeCuyer is a designer and writer who lives in London.

Belgium

A Set of Apartments Over Shops and a Triad of Town Houses

A recurring theme in the current proliferation of alternative architectural approaches to the established dogmas of modernism is the desire to re-establish and repair the built fabric of existing towns and cities.

In Europe, perhaps more so than in North America, the original centers of some of the older settlements have remained sufficiently intact to permit repair. Many others, however, have been transformed beyond recognition by random and ill-considered postwar developments.

Kapellen, a small Belgian town of 11,800 people north of Antwerp, attracts little of the attention of the larger European cities. Nor does it have the special urban qualities of the nearby historic towns of Bruges or Ghent. However, two recent projects in the town by architect Jo Crepain demonstrate appropriate tech-

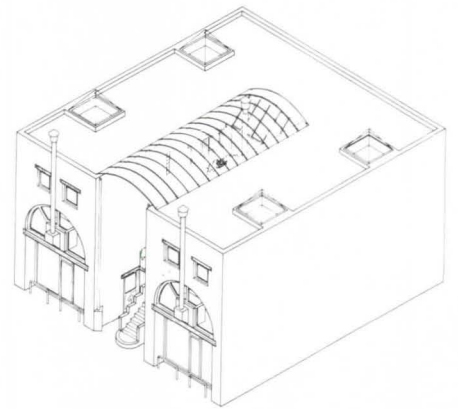
niques for urban repair and town building.

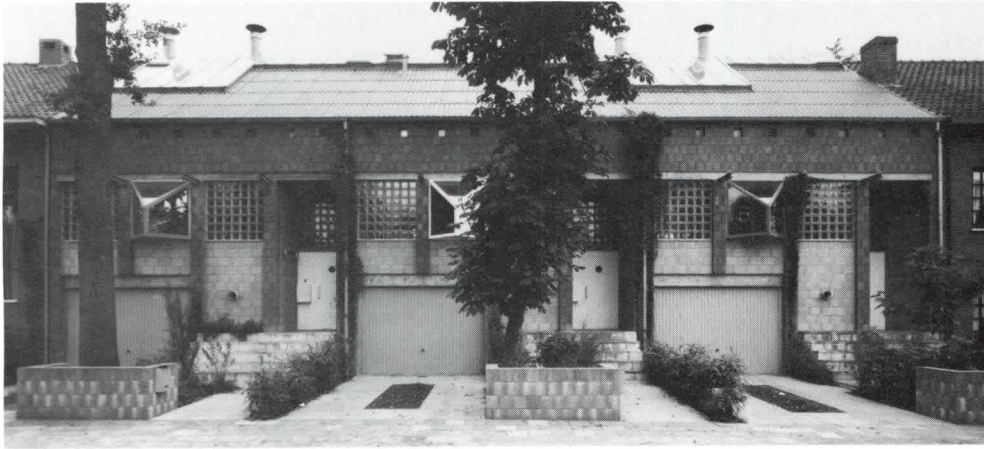
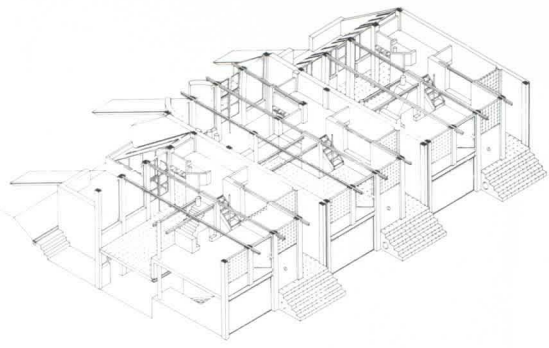
On Engelselei, a street of two- and three-story houses and shops close to the center of the town, Crepain has built two shops and five apartments, all within a three-story brick box. The apartments are on two levels over the shops and include four two bedroom units and a single bedroom studio apartment. The brick box has been hollowed out to create a classical U-shaped plan with an entrance court on the street. This court is covered by a curved translucent roof, connected to the street by a flight of stairs, and paved, lit, and planted as a small communal space wedged between the public domain of the street and the privacy of the houses. By interpreting the traditional pattern of living over the shop and slightly increasing the density of development on the site, the scheme not only reinforces the life on the street but also introduces differing scales of spaces. Crepain has translated these different scales emphatically in the building design.

He has created a symmetrical front to the street, with the windows of the resi-

dential units directly related to the inevitably large ground floor shop windows. The first floor living rooms facing onto the street are planned with generous semi-circular windows, each of which frames a central free-standing fireplace. An external chimney flue divides the bay and articulates the small square windows to the top floor bedrooms.

The design has created not only a formal front to the street but literally a pair of faces "looking over" Engelselei. This exercise in anthropomorphism is completed





by the addition of a glazed canopy over the two shop windows, creating "mustaches" as the final trim.

The scheme is weakest at its center. The axially organized court terminates in side entrances to the apartments and a blank wall topped with high-level glazing, while the three-foot-wide stair, the graphics, and external light fixtures seem domestic and hardly of an appropriate town scale. At either side of the stair at ground floor level are pokey and dark residual spaces.

In contrast to the formal street front, the back of the block is cut back squarely to form a series of tiny south-facing terraces with direct access from three of the apartments at first floor level. A series of stepped dividing walls provides adequate privacy between units, and a long skylight illuminates the rear of the ground floor shops.

The second scheme designed by Jo Crepain is located on the edge of Kapellen. It is on a street between the existing old town and the more recent suburban housing developments, and can be seen as an attempt to carefully stitch together these two dissimilar bits of the urban fabric.

Utilizing three parcels of land, each 22x112-feet, the scheme provides housing for three young families. One of the couples has three children and the others have two children each. The architect has responded to their differing needs by designing three variations on a single theme, the terraced row house, which presents an ordered urban scale facade to the street while allowing variety at the backs of buildings.

And, while relating the development's height and volume to those of its neighbors, the architect has organized the internal spaces in a number of different

ways. The three houses consist of a pair of parallel, colonnaded walls linking to the adjoining buildings. For the north-facing street frontage, the bays within the light gray concrete block colonnade are infilled with either pink concrete block (color coded to depict non-loadbearing construction), glass blocks, or doors. These infills are organized almost identically across the fronts of all three houses. This regular treatment of the elevation transforms three houses into a single building, closing off the gap in the street.

Crepain has unashamedly incorporated elements of the 18th century European house into this scheme. Entrances off the street, planned alongside individual garages and across a paved threshold, are up a "much too large staircase" leading into a "much too high entrance hall," as he says, and to the main living spaces that are planned on a piano nobile looking over street and gardens.

On the street side the infill panels of obscured glass block are interrupted by a projecting bay window. Designed to appear as a small house on the face of the colonnaded wall, this bay is playfully referred to as a "peeping window." Each is painted in the family color and, as well as providing a lookout for adults and children alike, it is a place for flowers, toys, or just pensive moments.

Structural galvanized I-beams have been extended through the external wall, not only to express the structure but also to provide places for climbing plants, sun screens, Christmas lights, and hanging baskets.

The roof, pitched at 35 degrees and tiled in black to match the adjoining roofs, is opened up along the ridge to let daylight into the upper part of the houses.

The top floor rooms, then, are planned behind a solid blockwork cornice on the street frontage.

In sharp contrast to the regular street facade, the backs of these three houses are each very different. Responding to the differing requirements of each family, Crepain has designed a collection of balconies, children's play and garden rooms, greenhouses, and kitchens oriented to the sun and linking to the communal gardens beyond. Generally these spaces are high and glassy in order to let the sun penetrate as far as possible into the center of the houses.

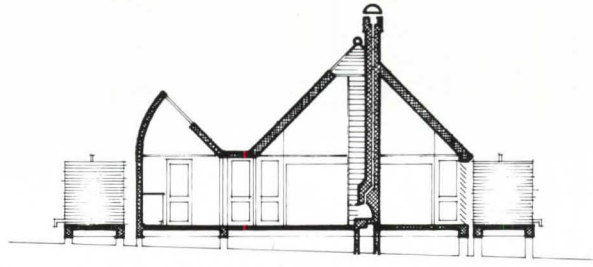
As the exterior form of the building varies on the garden side, so the internal organization of spaces also reflects the different preferences of the three owners. Generally space is planned for children at the garden level with a range of different types of living space planned above. Like the apartments on Engelselei, these spaces are intricately connected and make sensitive use of the overall volume.

The two end houses have studios and workrooms on the top level, while the central unit has the main bedroom and private bathroom together with a second sitting room, open to the living space below, tucked high under the roof.

Crepain's work in Kapellen consists of small buildings that have already slipped quietly into the existing townscape. However, their impact, both in terms of the life of that town and the development of an architectural approach, may be considerable. BRIAN CARTER

Mr. Carter is an architect working with Arup Associates in London. He has taught in Europe and North America and written on architecture in a number of journals.

Australia



Flashing Forms of Corrugated Steel For Weekend Farmers

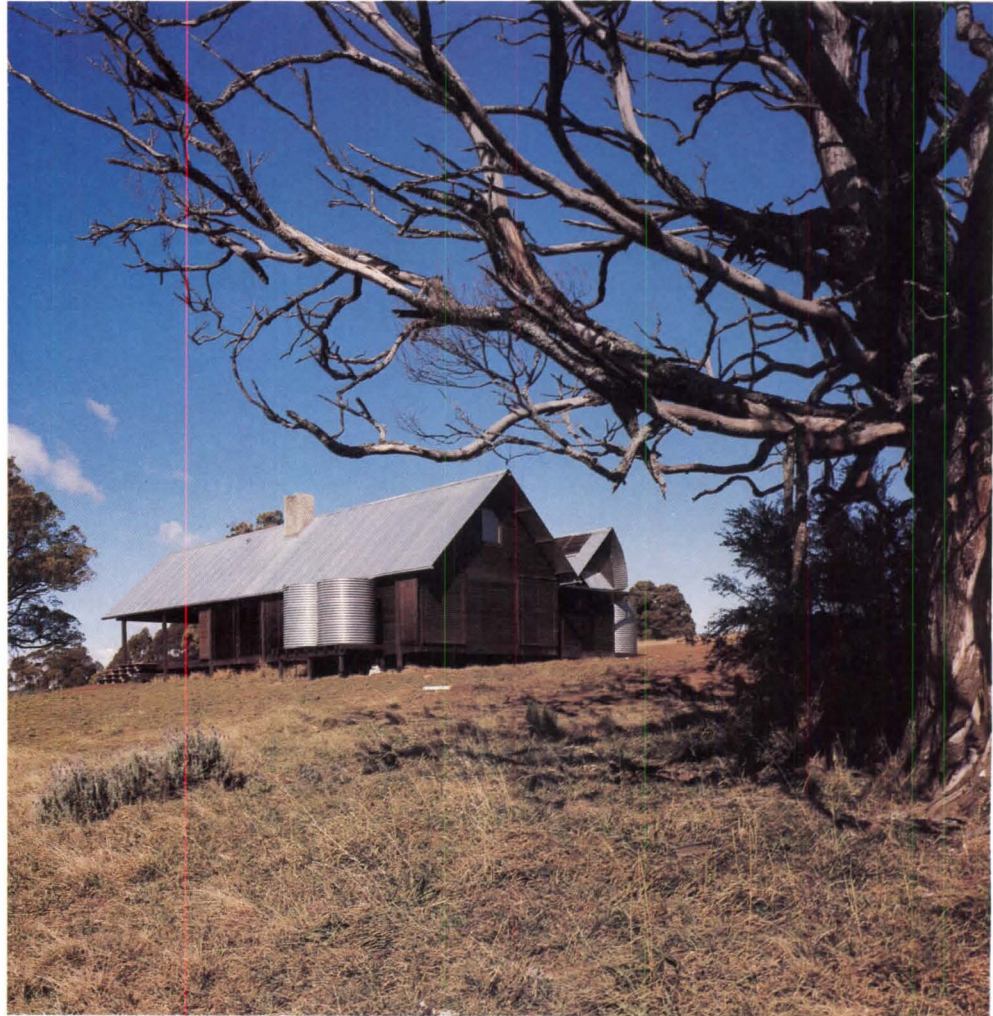
This pair of houses at Mt. Irvine sits on well seasoned farmland in a range of mountains more than 60 miles inland from Sydney. Architect Glenn Murcutt was commissioned by two city families who own the small farm to design weekend houses that, while both occupying prominent positions on the landscape, were to be discreetly sited in relation to one another to provide both contact and privacy.

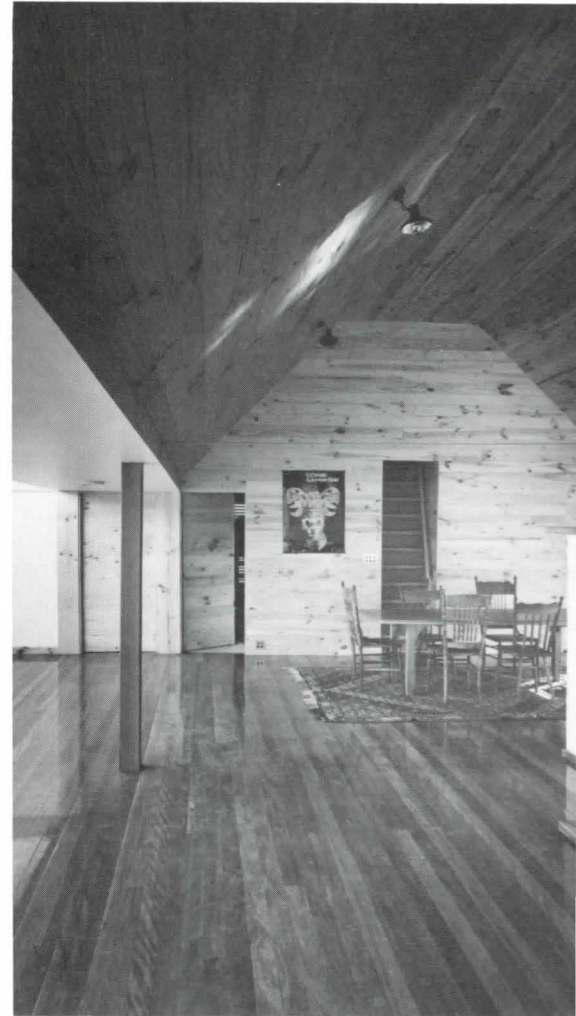
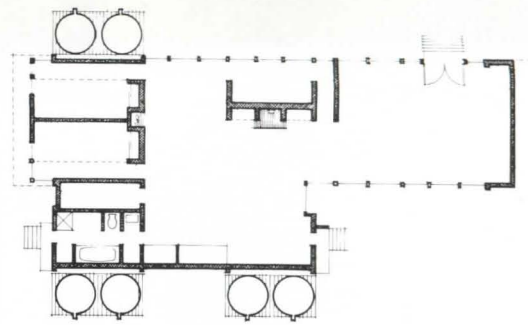
Glenn Murcutt's measured, thoughtful, residential architecture has, over the past 10 years, evolved from small, unnoticed beginnings to something of a minor institution in Australian professional and public eyes. Following a personal path and eschewing the temptations of a larger office, his working manner is decidedly individualistic. Operating with but one or two assistants, Murcutt usually has between 30 and 40 residential projects of all sizes, in various stages of production, at any one time.

All of those works that I have seen reveal the architect's subscription to a virtually consistent series of ideas. These include: first, appreciation for the spirit of a particular place; second, reverence for the architectural object; third, the use of archetypal precedents to generate architectural form; and, fourth, the idea of a building as a "modifier" of the external world.

The spatial order at Mt. Irvine begins with a larger consideration of a farm on the top of a mountain, and then includes the careful positioning of the two houses in such a way that they can share it without detracting from its special qualities of place. Both houses, incidentally, are raised slightly above the ground on wood decks, and therefore float over the terrain rather than taking root there.

The irony that can be read into this condition of the buildings hovering ever so slightly off the ground, in seeming rejection of the very turf they occupy, cultivates a tone of artifice that the architect may or may not intend. These houses are unashamedly manufactured objects; the opposition that exists between their simple forms and the ground itself is per-





factly obvious and simply stated without the mediating effect of garden or other intervention.

Both houses conform, incidentally, to the visual ethos of the Australian "bush" dwellings, hewn, as they once were, out of the very forest or wood in which they stood, affording a poignant picture to present-day observers of the tenuous toe-hold the man-made object has in a scene of enveloping nature.

Explanations that are virtual parables and the continuous ruminative use of precedent point to a certain level of social continuity in Glenn Murcutt's architecture, which is undoubtedly part of the reason for his extensive public success. The evidence, furthermore, for his own belief in social continuity—however imperfect—is plain. His critics in Australia, who are among the 85 percent of the population living in urban areas, see the present and the future quite rightly in urban rather than rural terms and, consequently, see

In both the Nicholas house (left and above) and Carruthers house (overleaf), with its full width verandah across one end, Murcutt combines Miesian order elements with vernacular influences and materials in a highly personal way.

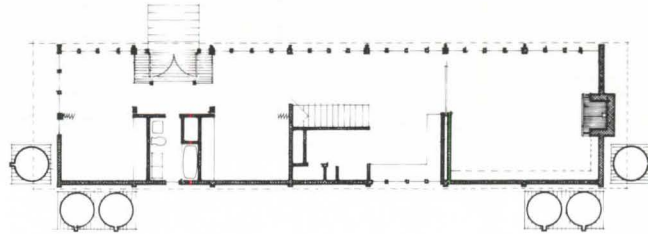
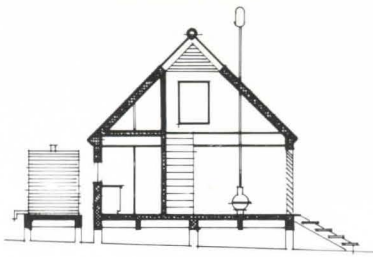
the continuity of rural idioms in Murcutt's work as misdirected. His defense must be that the forms used and the transformations wrought on them are interpretable in urban as well as rural terms. While this is concedable in his personal vernacular idiom of construction, it is not so in his predilection for the building-as-object, the major part of his architectural mise-en-scene.

Murcutt's lightness of step must be conceded in the Nicholas house, where inventiveness has been given reign. The plan and form of the house is made from a dramatic collage of parts beginning with the recognizable New Guinea-cum-Miesian form, in this case with living areas in

the center, a full-width verandah across one end, and a two-level battery of bedrooms across the other. Grafted onto the south flank of the house, and given expressly different form, is a wing of services containing kitchen, bathroom, and laundry. The roof here is pie-shaped in section, admitting light filtered in a Murcuttian manner from the north, and rolling down to meet the blank wall at the back of the house, its shield-like form of corrugated steel emblematically opposing a direction of consistently bad weather.

The resultant diversity has been both hailed and summarily rejected. Submitted for the Royal Australian Institute of Architects awards, this project was excluded in early judging one year and then the next passed right through the awards system to receive the Robin Boyd (national) award for house design.

The Carruthers house is actually a verandah-house where the verandah is elevated in significance from its more



usual role as an adjunct of subsidiary form, to become one with the major form of the house itself. Hence the house becomes one big verandah and the secondary device is made redundant.

In looking for precedents for this house one should include the New Guinea "long house." Talking of some boyhood years spent in New Guinea, Murcutt recalls his affection for this honorific form of indigenous building, noting in particular its narrow, extenuated rectangular plan surmounted by a visually dominant gable roof form.

One can see the regional qualities of Murcutt's work as a natural result of the particularly regional quality of his "data." Nonetheless, his transformation of these archetypes is personal and subtle. As well as the unlikely conjunction of Miesian planimetrics, Australian verandahs, and New Guinea long houses, there is in his architecture an idiomatic use of a palette of vernacular materials and techniques—particularly for roofing and walling—that is intriguing.

The north wall of the Carruthers house is a case in point. The wall consists of a structure of wood posts infilled with operable glass louvers fitted into full-height aluminum frames. Outside the louvers is attached a continuous mesh of insect screening and, finally, a full covering of wooden Venetian blinds. This layering of mechanisms allows the whole facade to be altered according to the conditions of natural lighting, weather, and view.

Murcutt's work, of which these Mt. Irvine houses are characteristic, should eventually be seen as something of a turning point in the recent history of Australian architecture. His work contains both a summation of Australian regional tendencies expressed in a rational architectural manner and a way to provide for historical and social continuity without diminishing the importance of invention and creativity. **ANDREW METCALF**

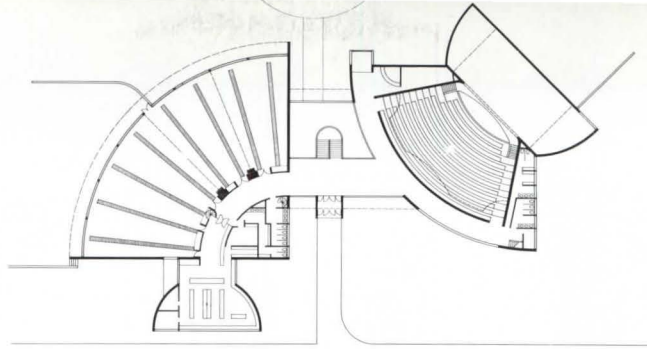
Mr. Metcalf, an architect in Sydney, has taught at the University of Toronto.



Max Dupain



Max Dupain



A Building That Takes Its Identity from Not-so-plain Geometry

Geometry, notably circular and quadrant systems, played an increasingly important role in Harry Seidler's buildings throughout the 1970s. In his most successful recent work (and the Ringwood Cultural Centre is a fine example of this) in addition to shaping the functional volumes the geometry contributes a special identity and assures a measure of coherence to the total form.

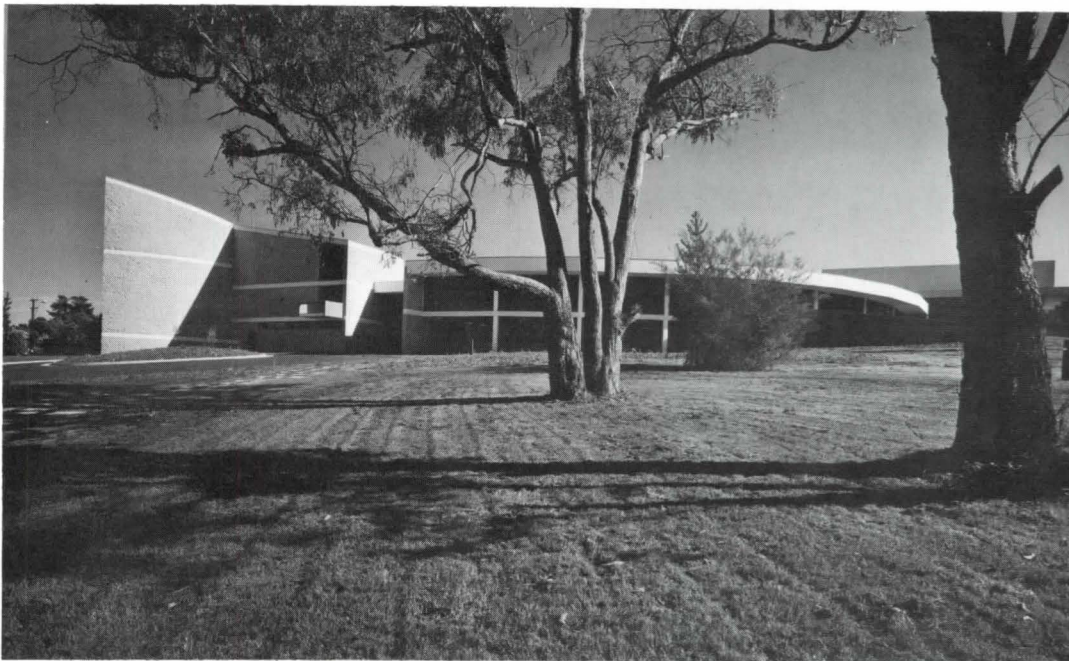
Two similar quadrants house quite different uses: a theater in one and an open multipurpose functions room in the other. Furthermore, the geometry of the quadrants has been exploited in quite different ways. Inside the theater, the audience faces inward, and, since this shape is incapable of including all the theater functions, the corner has been fused with a higher semicircular volume containing the stage and limited fly-tower, thereby giving expression to the two principal parts of the theater. By contrast, the functions room, which can be subdivided in a radial fashion, faces outward through the curved glazed wall in order to take in the surrounding treed landscape and distant view of the Dandenong Ranges.

The simplicity of the Ringwood conception—its clever exploitation of geometry and its pragmatism in adjusting its forms to the specifics of the site and program—have resulted in a building that is both modest and practical, but which nevertheless succeeds in projecting an image of considerable civic assurance and sophistication. It is a measure of Seidler's skill that he has achieved so much with a budget that was far from lavish, and using very ordinary materials. The external walls are beige-gray split face concrete block with projecting elements such as retaining walls, balcony, entrance, and lobby stair all in formboard-marked concrete. A deep gray-blue carpet has been carried through the theater and functions room.

The theater is the most interesting space in the center, representing a simplified version of Seidler's New Theatre Royal, Sydney. However, the voluptuous S-shaped radial ceiling elements have had to be simplified for Ringwood, where they are reduced to two layers of inclined radial



Squire Photographics



Max Dupain

Max Dupain

beams. The straightforward spatial scheme is enlivened by the introduction of complementary convex surfaces in the rear wall control box and the orchestra pit.

Seidler's fascination with circular and curved geometries is never allowed to get out of hand. Always underlying and chiding the forms is an abiding sense of order. The result is a building whose identity seems inseparable from its unique geometry. PHILIP DREW

Mr. Drew, a critic and architectural historian from Newcastle, is a visiting associate professor at Washington University, St. Louis, for 1982-83, and author of Tensile Architecture and Arata Isozaki.



Japan

Kazuo Shinohara's 'House Beneath High-Voltage Lines'

This house by Kazuo Shinohara, finished in 1981, is in the Todoroki area of Tokyo. The site is surrounded by other lots, and its only access is by a narrow approach. This far from favorable circumstance is scarcely improved by the presence overhead of high-voltage lines, strung roughly in the north-south direction; regulations restrict all building within a certain distance of such lines. The rationale for the form of the building is quite simple: to keep at the required distance from the high-voltage lines and yet provide the maximum amount of floor space. The otherwise regular volume is furrowed by two shallow grooves that cut obliquely across the top, thus eliminating only what comes within the restricted zone (see sections, facing page). Another diagonal cut is made on the north side to conform to regulations limiting the shadows that a building may cast on adjacent property.

While not all houses are built under high-power lines, other architects regularly face constraints of equal magnitude in Japan's crowded conditions. Most, however, would disguise any consequent awkwardness of form. Shinohara's house, in its direct, matter-of-fact acknowledgment of these constraints, is *sachlichkeit* with a vengeance, and it is even more surprising coming from an architect who has until recently shown little interest in relating his houses to their immediate physical context.

The structure is a three-story reinforced concrete frame, with the main beams oriented east-west. The scalloped slabs that span these beams are cantilevered both to the north and to the south, in the latter case protruding beyond the volume of the house to provide cover over the windows. It is, on the face of it, a reinterpretation of early 20th century ideas of the free plan and the free facade. Shinohara suggested in a recorded conversation with Arata Isozaki (*Shinkenchiku*, Jan. '81) that his having spent much of his career absorbed in traditional Japanese architecture and his becoming interested in modernist ideas only late in his career meant that these times still held a freshness for him. It is certainly true that they are transformed

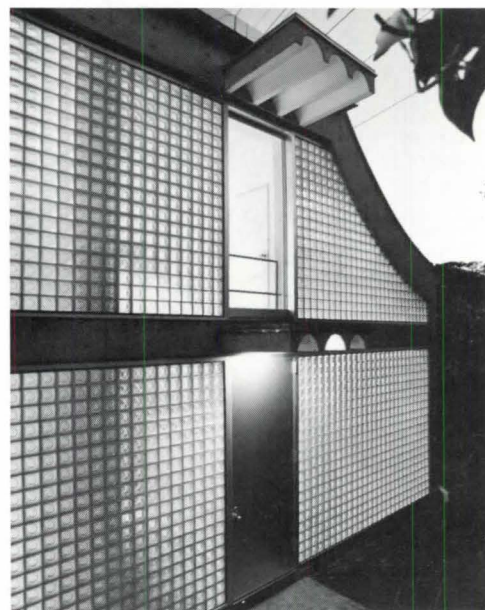
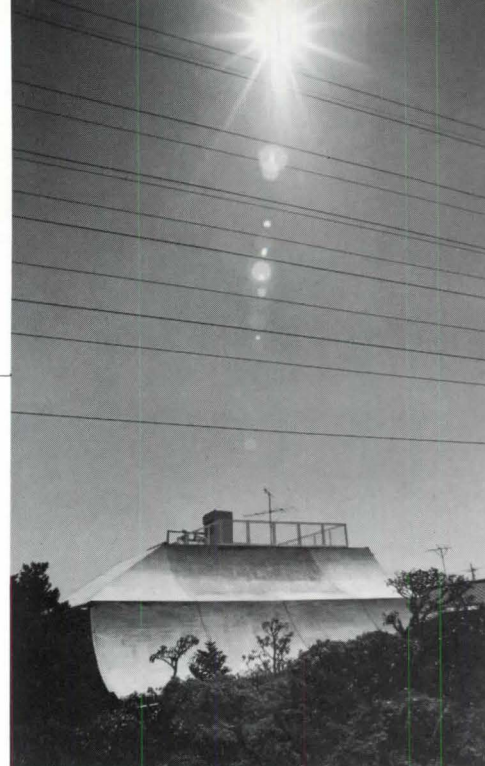
by him in ways that are quite novel.

Shinohara's work before this, the House in Hanayama Number 4, is another reworking of certain modernist themes, in that case pilotis and roof garden. Projecting from the side of a steep slope, it suggests very strongly a beached ship; the terrace as seen from the living room resembles a captain's view of the deck, and the dining room also has a certain on-board atmosphere. Nautical associations, of course, are another link to early modernist architecture. The house, however, also calls to mind the so-called cliff style Buddhist temples such as Kiyomizudera and Ishiyamadera.

Because the House Beneath High-Voltage Lines is entirely surrounded by other houses and because of the narrow approach and the angle of vision it affords, the first-time visitor may not notice the irregularities on the top. We pass through a two-story wall of glass block and tend to assume that the house is a regular volume. Upon entering, we are immediately confronted by a green column carrying a green beam; beyond it is another column. Because the wall columns are visually suppressed on the interior, these two T's dominate the space. These therefore are not simply the early modernist's regular grid of columns representing a spatial continuum but strongly suggest the distinctly Japanese fascination with columns as physical objects. Paired columns as isolated objects in an abstract space are found in other Shinohara houses. The columns have been "Japanized," just as, on the outside, the flat roof symbolic of modernist architecture is by its deformations endowed with the semblance of the traditional sloping roof.

A spiral staircase, another familiar feature of early modern architecture, takes us to the second floor, where the column in the corridor is painted yellow. Here in the main bedroom, we are met by a sight that is especially astonishing if we are unprepared. The wall suddenly buckles at midheight and is pushed inward along with the beams to form a convex transition from the vertical wall to the ribbed ceiling. This buckling is repeated on the third floor where the children's bedrooms are located, but there the curve starts almost immediately above the floor. One third-floor column is half the other's height.

The buckled wall is like a billowing sail or a hull; the ribbed ceiling becomes the

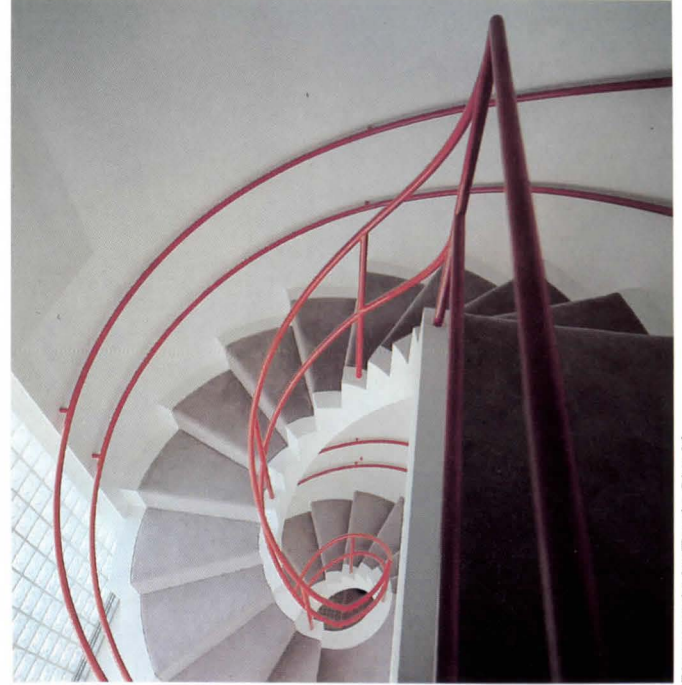
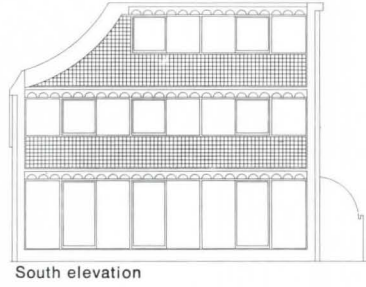
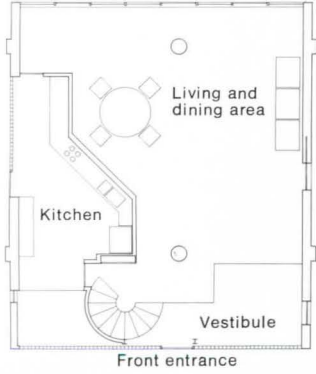
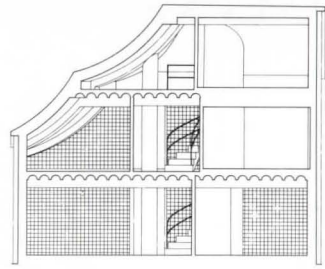


rippled surface of the water lapping the boat. The colors of the house—ocean green, coral red, sun yellow, sky blue—add something of a tropical note. As with other work by Shinohara, then, nautical associations are suggested.

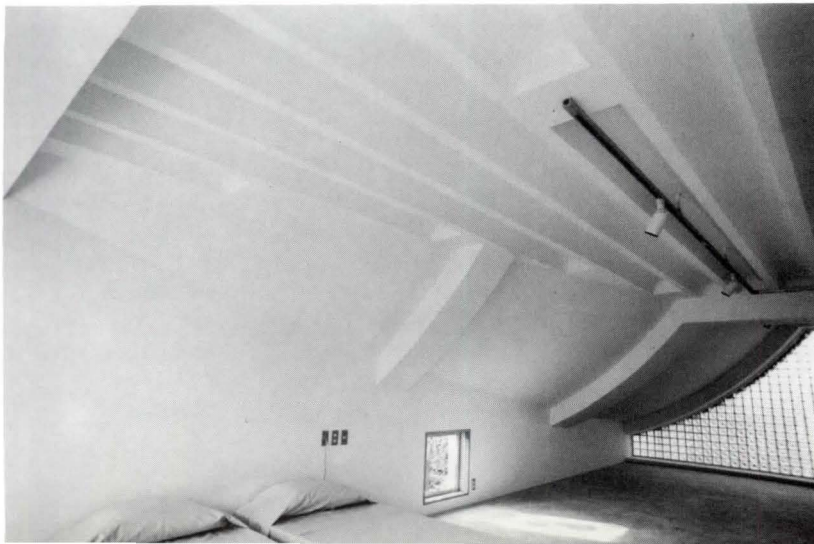
But the buckled wall and the canopy that it creates over the bed also suggest the simplest and one of the oldest forms of shelters, the tent. Like the fetus that in its development retraces the stages of evolution, the house in its way relives its origin. Shinohara has transformed the mundane constraint of the high-voltage lines into an agent of release that permits the archetype to emerge as if for a passing moment before subsiding back into the contemporary, sophisticated structure.

HIROSHI WATANABE

Mr. Watanabe, an architect in Tokyo, was a correspondent for Architecture Plus, and has contributed to this magazine, most notably in the November 1979 issue on Japan.



Photographs by Tomio Ohashi



The irregular form of the house sprang from the need to keep a required distance from overhead high-voltage lines and provide maximum floor space. The entrance is shown across page bottom. Clockwise from bottom on this page are: bedroom with wall curving inward at midheight joining a ribbed ceiling; third floor blue column and beams; section, elevation, and first floor plan; spiral staircase; and living room with green column and scalloped slab.



South elevation

Toyokazu Watanabe's House and Studio For a Psychic Painter

In the eastern part of Osaka, in the middle of what little farmland has so far resisted the onslaughts of urbanization, stands a ziggurat known as the Sugimura House. A three-story, exposed concrete structure, it is a house and studio for a painter who claims to have extrasensory perception and who has produced in recent years nothing but totally black paintings. The client also gives art lessons, and a classroom is located on the third floor along with his studio.

In walking around the house, we have a vague feeling of being watched. Like its owner, who claims more than usual sight, this house has more windows than we would normally expect from a dwelling of its size. It is essentially divided into east and west sections tied at each floor by a narrow corridor. A grandparent is living with the family, which explains the self-sufficient unit on the first floor. Aside from the first floor entrance, there is another entrance on the second floor reached by a stairway that winds its way tortuously around a structure that would make a very sound gallows. Slightly more obvious and consequently less intriguing are some visual effects inside. In the first floor living room a column hanging from the ceiling stops short of the floor, and upstairs a stairway disappears into a solid ceiling. The multitude of windows, especially on the third floor, is genuinely disquieting, looking down or peering up at us.

Architect Toyokazu Watanabe, who comes originally from northern Japan and who now works in Osaka, feels himself to be every bit as transplanted as this pile from the Near East. He is very conscious of being an outsider. He depreciates what he considers the empty formalism of many of his fellow architects, postulates the existence of a more vital (though dangerous), unpolished and neglected strain in Japanese architecture (which he calls Jomon, that catchword once used to different effect by Tange) as against the refined, delicate strain (Yayoi) that has been falsely regarded as the only truly Japanese one—i.e., he prefers the robust Izumo Shrine to Ise and would choose the gaudy Nikko mausoleums over the re-

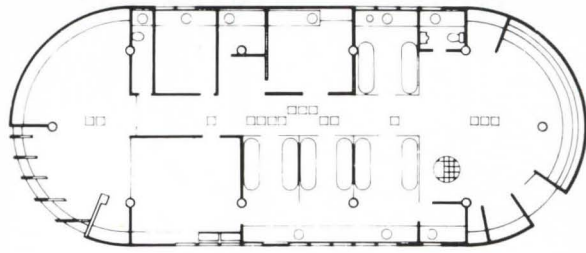


strained Katsura Palace—and is furthermore readily attracted to somewhat unorthodox readings of history, such as that Christ survived the crucifixion and lived out his life in northern Japan.

The technological excesses of the Metabolists effectively ended with the Osaka Exposition of 1970. In sharp contrast to the buoyant optimism of the previous decade, the '70s were often marked by introspection. The works of some young architects show evidence of a turning away from reason. Thus we have Monta Kiko Mozuna's 1972 Anti-Dwelling Box (see Nov. '79, page 61), intended to be a three-dimensional mandala, and Kijo Rokkaku's house of 1980 in which a huge tree trunk thrusts itself diagonally through an otherwise placid living room.

The plan of Sugimura House, choked in the middle, the column left dangling, the stair obliterated, the stains on the walls that we might attribute to shoddy concrete work or to some ancient and unspeakable rite, all combine to produce in us a nervous apprehension. In short, it is a creepy house. While that may not sound like a very professional assessment, it is a characterization that the architect no doubt expects and welcomes. There is an undeniable aura to the building, as well as some too easily won surrealist effects. In the Sugimura House, Watanabe definitely is obsessed with the dark side of the human spirit, although it is still difficult to gauge the ultimate importance of his work. Suffice it to say that if we spoke in literary terms we would place him somewhere between the later Henry James and the mature H. P. Lovecraft. H.W.





Shoei Yoh's Slightly Flattened, Fenestrated Sausage of a Clinic

This high-tech egg of a building is a private clinic located in what were once rice paddies on a peninsula at the northern end of Kyushu island. Finished in 1979, it serves as a regional medical center for a number of fishing villages; many people come to it by bus or car.

The structure of reinforced concrete frame with a plastic curtain wall bolted to it is raised off the ground on short pilotis. The architect began with the idea of a linear working station with various mechanical services on the perimeter. To get the maximum volume with the least surface area, a semicircular section was chosen; a counter was attached to the wall, and pipes and wiring were placed below the floor and ventilation above the ceiling. For the sake of economy, a single plastic panel from top to bottom would have been preferable, but in order to service the pipes and wiring, the bottom was given a separate panel. The semicircular section was then extended and rotated to form the resulting volume. The plan (2,750 square feet in area), a slightly flattened oval, accommodates a waiting area at one end and what is called a terrace but is really a space for future expansion at the other. Lights are built into the floor and there are toplights situated where necessary.

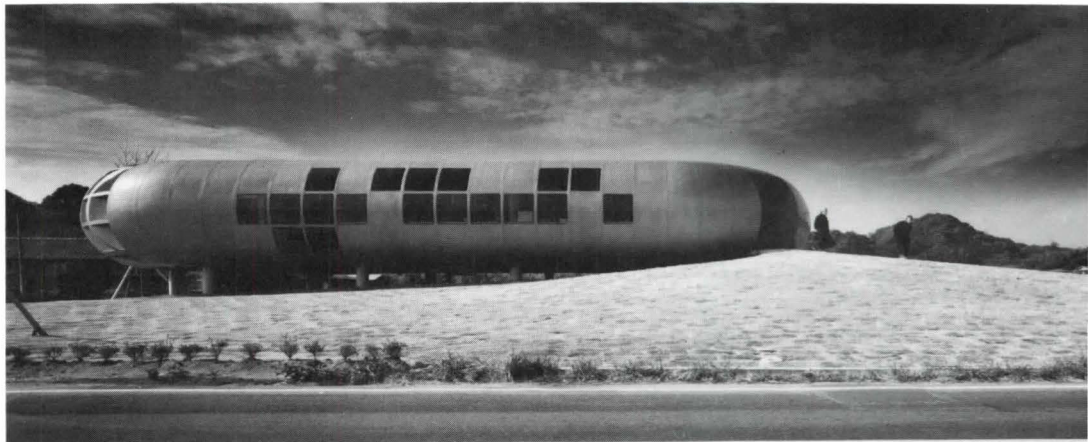
The architect, Shoei Yoh (born in 1940), also designs interiors and furniture—he has done glass versions of chairs by Rietveld, Mies, and Mackintosh. His buildings are almost all minimalist forms; e.g., prisms that are in section round (New Robin Design Studio), rectangular (Ingot Coffee Shop), and triangular (a store selling Japanese quilts).

Yoh has studied in the U.S. and has expressed admiration—and recently—for Philip Johnson's Glass House, Mies's Farnsworth house, and the works of Saarinen. He considers much of what he sees in Japanese architectural journals today "too conceptual and too symbolic." In other words, he is a proponent of what Charles Jencks would call late modernism.

After three years the building seems to be holding up well, despite the salty air from the ocean, although one thing Yoh



Photographs by Shiratori



regrets is the absence of gutters; rain, particularly winter rain, running down the face of the building makes cleaning something of a problem.

The people in the rural communities the clinic serves apparently find the high-tech design reassuring, as evidence that the doctor is abreast of the times. In fact,

though the overall image is modern, the flattened oval form of the plan and section is a familiar one to the Japanese, who call it *koban-gata* after gold or silver coins of the feudal period. The building's modest scale, snug interior, and the familiarity of the gestalt make being up to date at the Kinoshita Clinic virtually painless. H.W.

Takefumi Aida's Meticulously Assembled 'Toy-Block House 3'

A clever child, one preternaturally patient. Had he been a little more clumsy—what a perfect alignment of blocks!—and given vent to anger by knocking a few over, we would have been reassured. We expect a few gaping holes punched here and there; instead we find it all so meticulously put together. We worry for this child.

The Toy-Block House 3 (1981) by Takefumi Aida is in a crowded residential area of Tokyo, where there are tall apartment blocks as well as single-family houses. The client is a well-known singer and wanted a lesson room. That and the need to abide by *kasō*, the ancient rules of geomancy that still influence domestic designs in Japan, were major client requirements. A lesson room is provided next to the living room. *Kasō* determined the location of the main and service entrances, the lesson room and the range in the kitchen, the way the windows opened, and the position of the airconditioning equipment. (Don't ask how the ancients knew about fan-coil units.) The rules of *kasō* include such taboos as "never have the toilet on the north side of the house." There have been some recent attempts to find rational bases for these rules—notably the popular writings of the architect Kiyoshi Seike—but they remain mostly a matter of superstition.

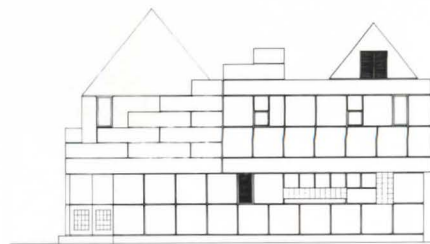
This is, despite appearances, a reinforced concrete frame structure. The plan is roughly in an "L," following the street as it turns the corner. On the first floor a belt of secondary spaces—vestibule, hall, terrace, and kitchen—provides a buffer zone shielding the lesson room, living room, and dining room. The three main spaces on the first floor, though they face the garden, are essentially cut off from it. On the second floor, the plan is divided into three parts separated by terraces: the main bedroom, a Japanese-style room, and the children's bedrooms. Again, the

rooms, though they may have windows opening onto the terraces, are basically closed spaces. The second floor is then topped by gabled roofs.

Aida stresses the importance of "playfulness" as an antidote to the arid functionality of modern architecture. "The fun of playing with blocks is in the process of construction. Memories of childhood and our experiences as adults intermingle and help create allusive forms. However, it is also impressive to see a house of toy blocks destroyed." In that instant we feel a complex mixture of pleasure and regret" (*Shinkenchiku*, Aug. '81). On the outside the walls are cut by joints into "blocks" basically 3.9 feet to a side. A fourth of the blocks were colored gray, and their positions were determined in a statistically random manner. Certain pieces were given bright colors as accents. Inside, the blocks were reduced to a 1.95-foot module.

A whimsy, once embarked on, requires a reckless and wholehearted disregard of reality—i.e., it must be true to its own inner logic—but Aida is too sane an architect to make that final break. There is a holding back, which—while laudable and perfectly understandable—can undermine his effort. He is caught between being consistent and being sensible. Being consistent inevitably means some awkward situations; being sensible means bending the rules of the game, which after a while may make the game not worth playing. In a house with a plan based on a painting by Mondrian, he faithfully followed the "original" to the extent that he ended up with more rooms than were really necessary; on the other hand, he had to introduce some extra partitions that Mondrian had not suggested in order to make the house work, so that we feel a bit cheated. In the Toy-Block House, to get the proper piled-up look on the street side, he had to push the bulk of the house back, so that on the garden side the house rises abruptly two full stories plus the pitched roofs and tends to overwhelm the small outdoor space. Inside, too, being consistent means highly enclosed spaces that are cut off from the garden and terraces. In being a sensible architect, however, he drops the toy-block idea in places where it is not practicable.

Because the Toy-Block House is a charming idea, the architect's ambivalence makes us indeed feel "a complex mixture of pleasure and regret." H.W.



First floor



In street-side view, left, peaked roof is over Japanese-style ceremony room, stepped blocks over stair. Inside ceremony room, above, a beam incorporating lighting attempts to visually lower ceiling. Below, living room looking toward dining area; transparent section of 'column' between areas is turned at an angle.



Second floor



Okinawa

A City Hall of Pink-Painted Posts and Roofs—and Monsters

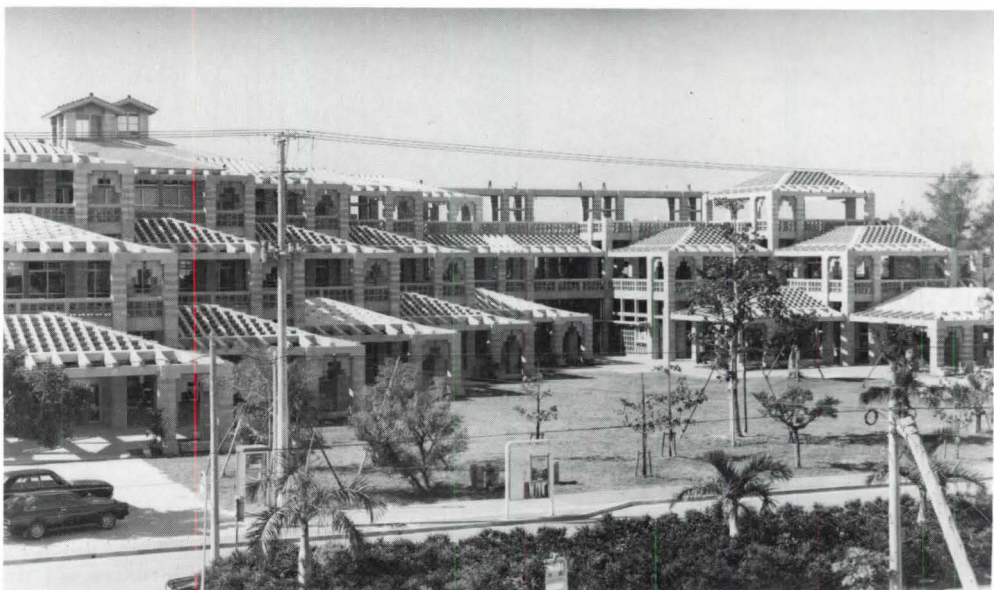
One of the most distinctive groups of its kind in Japan today, Team Zoo is more interested in arriving at the basic sources of architecture through concern with local setting, environment, and residents' life styles than in the pursuit of sophisticated technology, design concepts, or refinement. Though Koichi Otake, Hiroyasu Higuchi, and Reiko Tomita are the leaders, all members of the group participate in the discussions in which the design direction is determined. This does not mean, however, that they have a standardized style. As the name Team Zoo suggests, each of the designers in the group fully manifests his own individual design character, just as each of the animals in a zoo has its own special characteristics. They are what might be called second-generation pupils of Le Corbusier, since their teacher was the late Takamasa Yoshizaka, who studied with Le Corbusier in the famous French architect's late years. In addition to being a warrior in the cause of modern architecture, Le Corbusier was fascinated by the vernacular design motifs persisting in the islands of the Aegean Sea. It is interesting to note that this aspect of his work and personality is amplified in the work of Team Zoo.

Nago City Hall, the commission that Team Zoo won as the result of a design competition, is located on the main Ryukyu island, Okinawa, in a semitropical zone. In the building's design, Team Zoo has made skillful use of its research into Okinawan history and climate. For example, the Asagi Terrace, the building's most prominent feature, is a modification of the traditional Okinawan *asagi*, a shelter consisting of no more than roof and posts. But, since it covers an area of more than 60 percent of the entire interior, the terrace is more than a design formality. It provides a spacious gathering place, protected from the hot southern sun, and will probably play an important role in making the city hall a true community center.

Immediately after the end of World War II, the Americans who occupied Okinawa introduced the use of concrete block. At present considered the epitome



Mitsuo Matsuoka



Mitsuo Matsuoka

of the cheap, these blocks can scarcely be called outstanding materials from either the viewpoint of performance or design. But in this building, Team Zoo has faced the difficulties of employing them and has triumphed in a way that sublimates the American elements latent in modern Okinawan culture.

When a house is completed in Okinawa, it is customary to decorate its ridge pole with ceramic figures of a monster called *shiusa*, which is supposed to ward off evil. In the hope of using these old-fashioned ornaments to produce a new community symbol, Team Zoo commissioned various manufacturers to make 56 *shiusa* figures, which they placed on the ridge poles and south facade. Their aim, however, is not so much nostalgia for the past as the wish

to create new decorative possibilities.

The building plan is composed on the basis of a four-post grid generating expressive richness on the exterior and spatial dynamism inside. The north-south beam supported on the posts is pierced to introduce natural lighting into the interior in a passive design unifying structure and indoor design expression.

Though at a glance it may look like simple tropical architecture, the Nago City Hall is actually a vital modern work based on meticulous planning and incorporating simultaneously elements of Okinawan local color and history and both the fruits of and a critical commentary on modernist design. SHOZO BABA

Mr. Baba is editor of Japan Architect.

Kuwait

A Tange Air Terminal That Almost Seems Poised for Flight

Though Kenzo Tange of Tokyo designed the Kuwait Air Terminal in 1967, the building was not completed until 1979. Located in a desert on the eastern outskirts of Kuwait, the terminal was intended as a symbolic gateway to the country. From the air, it looks like a huge jet, its jet stream issuing as a parking lot.

It is a two-level structure, with arrivals taking place on the first floor, departures on the second. Design decisions were intended, above all, to allow travelers to move through the building as easily and comfortably as possible.

Circulation areas are broad, straight, visible from afar, and especially pleasant because of their configuration. The walls, instead of making a right angle where they meet roof and floor, depart from the narrow roof at an oblique angle and slant outward until about 10 feet above the floor, where they make another oblique angle, cant inward, and then end a couple

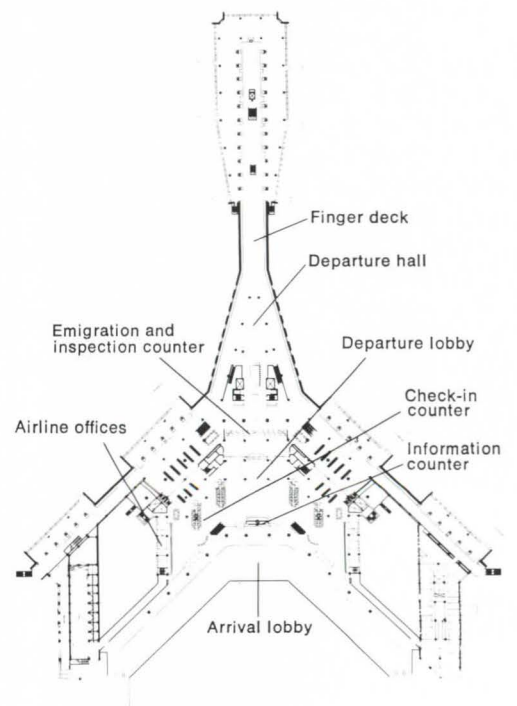
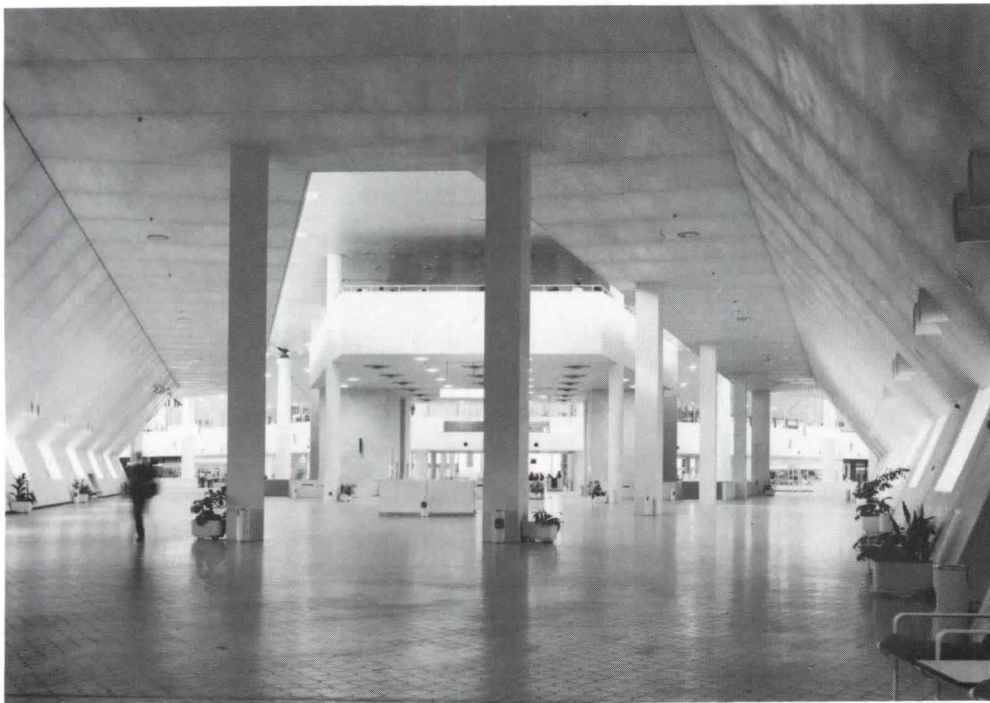


of inches above the floor, again at an oblique angle. The result is to make long, hexagonal—rather than rectangular—spaces of the interior hallways. This serves to both soften and increase the sense of enclosure without creating a feeling of claustrophobia, since the areas are very wide and opened in the lower part of the walls by recessed windows that bring in soft, filtered light.

The overall interior color is a soft buff, with tile and stone surfaces. The rear window walls recall those used by Saarinen at Dulles, and, like Dulles, the Kuwait Air Terminal is an airport of considerable architectural distinction. ANDREA OPPENHEIMER DEAN.



Mitsuo Matsuoka



Canada

A House Comprised of Two 'Caves' Spanned By a Sleek Bridge

A small granite peninsula, shaded with pine and birch, slopes into the iron blue waters of Stony Lake. Backed by woods, the headland looks out over long lake views dotted with rocky islets where turtles sun their backs. Waterlilies fill the channel between the peninsula and its adjacent tiny island, reflecting the shadows of passing geese.

In this idyllic setting architect Jim Strasman has designed a \$500,000 second home for a client who "wanted only the best." The five-acre site, in the Kawartha Lakes area 25 miles from the southern Ontario provincial city of Peterborough, and the eager and generous patron are the stuff of a designer's fantasy. Such luck is also a challenge: a time to put up or shut up, with no one to blame for failure but oneself.

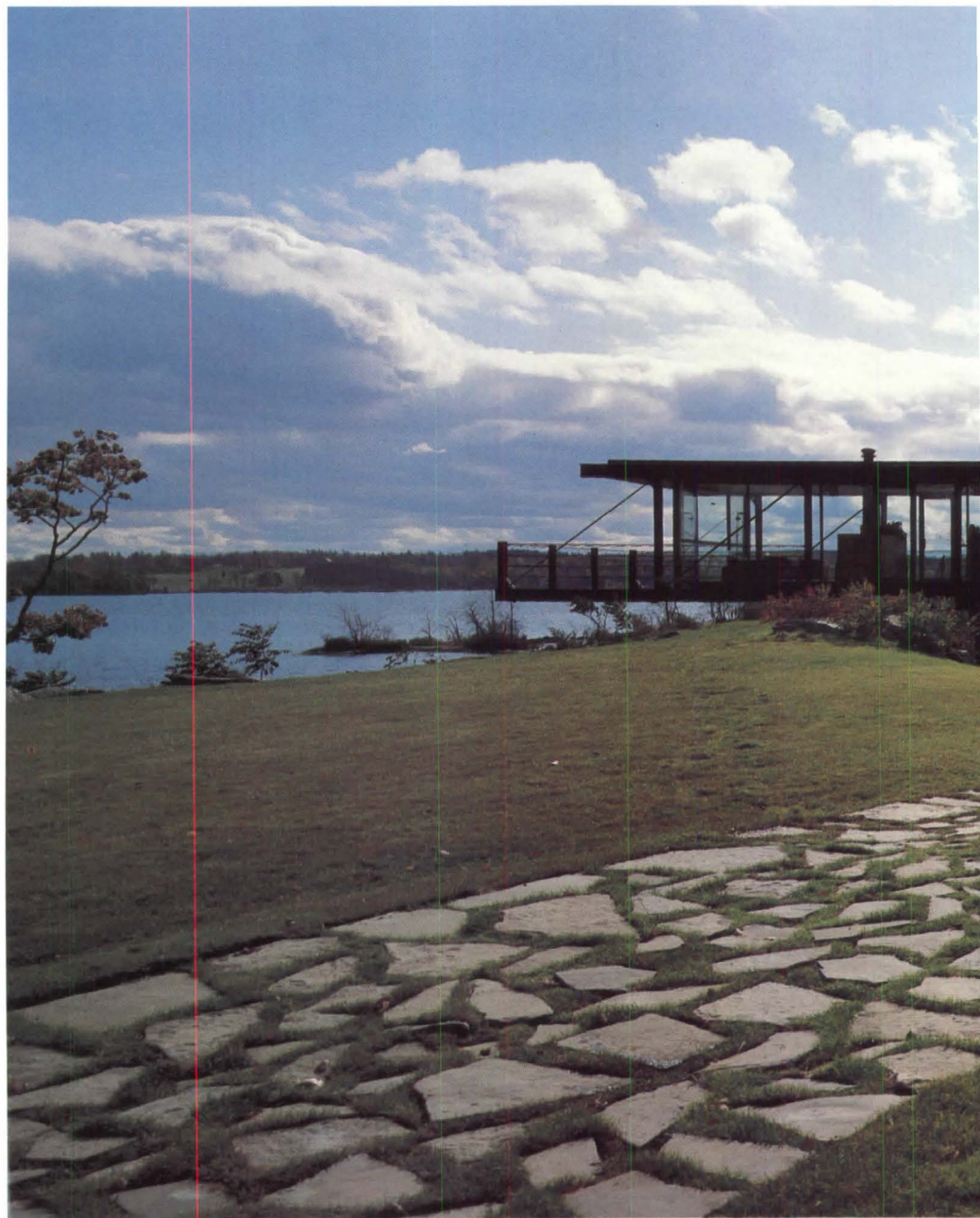
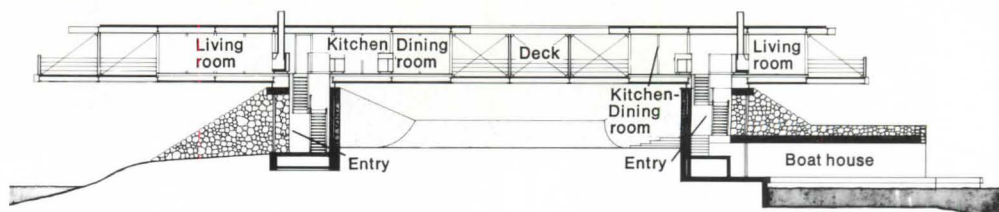
Strasman hasn't failed. He came up with a design of marvelous simplicity matching the tranquillity of the landscape; a house for all seasons that is utterly modern yet meets nature naturally.

Owner Al Wandich, a Russian-born Toronto developer of condominiums, searched for a site for three years. "I had a vision in my head," he says, "of a place wild yet well serviced. Most of all, I hunted a location that wouldn't soon bore me, in a region I could explore for many years to come."

Stony Lake is a stretch of wild water that is, at the same time, a channel of the Trent Canal system linking inland Ottawa with Lake Ontario. The lake has 1,100 islands and countless bays and inlets. It is cottage country, where summer people and winter weekenders sail boats and ride skidoos and snowmobiles. It is the city man's vision of a well serviced paradise.

Al Wandich has a wife, two teenage sons, and a married daughter with three children of her own. He has a mother and a sister, and many friends. He is a generous host. To accommodate his family and friends he needed a "cottage" that would provide room for many visitors yet keep his own life private. The Wandich house was Strasman's first commission after 11 years with Arthur Erickson.

Strasman was both excited and de-



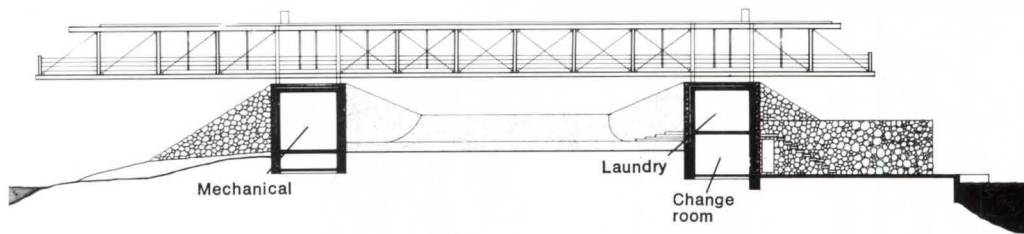
pressed when he first set eyes on the peninsula: excited by the setting, depressed by the dreary collection of frame buildings messing up the site. "It looked like some rundown summer camp," he says.

Yet the architect knew that, with the client's need for over 6,000 square feet of house, he would be hard put to come up with a design that didn't overpower the

headland, which is long and narrow, barely 200 feet wide at the tip, and hollowed by a declivity between two rocky spines.

More profoundly, Strasman was challenged by the site's superb simplicity. Any house he put there had to be equally unfussy and unclever. It had, in the classic quote, to achieve an art that conceals art.

Strasman's solution was to bury the



Ian Leith Photography



bedrooms in two rocky “caves” that seem part of the natural topography, and bridge them with a beached boat whose deck holds living space.

The upper deck crosses the headland’s tip in a 170-foot sweep that sails out over the water. This 24-foot-wide structure houses two fully glazed boxes and 2,700 square feet of open sun deck. Each glass

box contains a living, dining and kitchen area, and a fireplace. The larger box is for the Wandich family, the smaller serves the guests.

This boat-like bridge is built of steel on a 12x12-foot module cross-braced with one-inch tie rods. Its center span, between the concrete “caves” on which it’s anchored, is 72 feet. From this fixing, which

allows for expansion, it cantilevers 48 feet to the west, 24 feet to the east, and rides 22 feet above the waterline. Its decking is 2x6-inch pressure treated cedar planking, its ceiling is roughsawn cedar.

The steel trusses were delivered in three sections and assembled on site. The metal is painted a flat charcoal brown. The cost, at \$35,000, turned out to be a quarter of



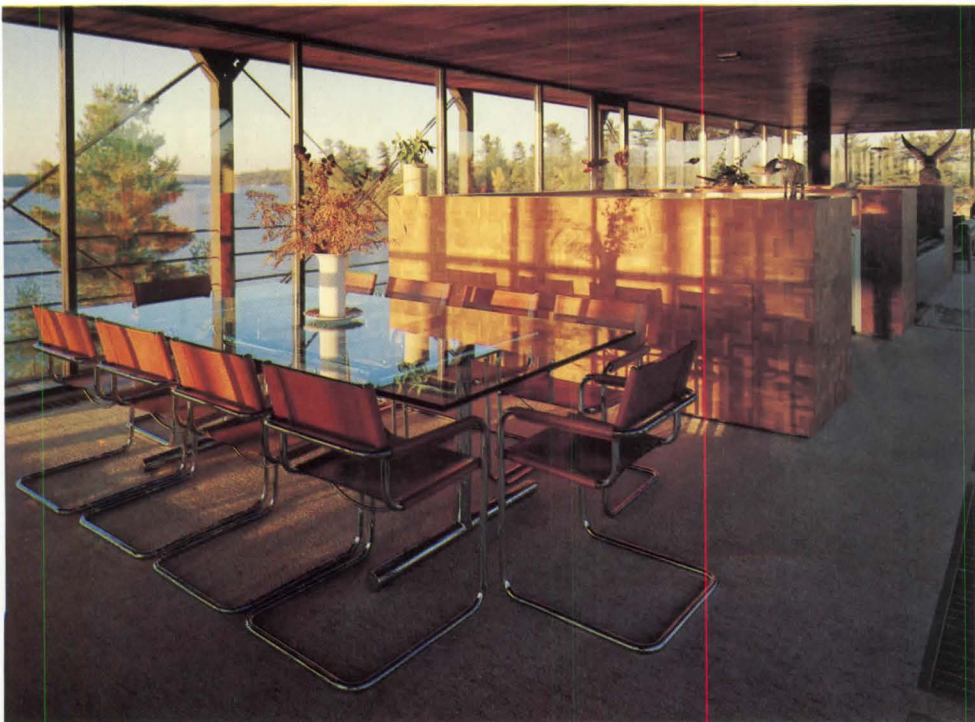
that for an equivalent laminated timber truss, which was Strasman's first thought. Its light, 12x8-inch main members and 6x6-inch vertical struts give it a real feeling of floating on air.

The bedroom wings are finished internally with roughsawn cedar boards and bushhammered concrete. Underground concrete roofs and walls are waterproofed and have rigid insulation under the soil and stone that cover them. Moss, ferns, and grasses have grown over the graded rocks, which are up to four feet in width at the base, smaller at the ridge. Now, three years after the house's completion, the "caves" seem a natural part of the peninsula.

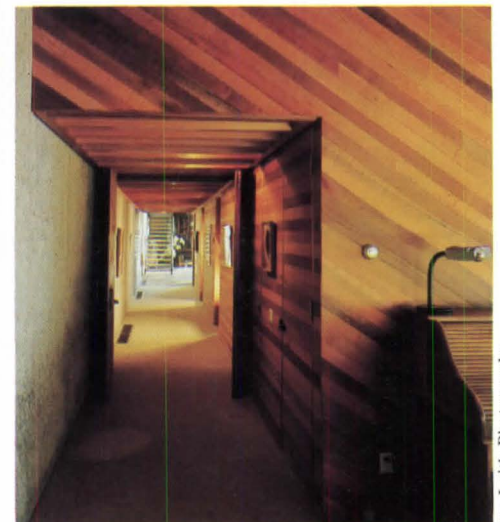
In winter, when the Wandlichs come to cross-country ski, the glass boxes, warmed by log fires and the electric floor vents, look out over a wide white world. "It's like sitting in the bridge of a snow ship," Wandich says, smiling with pleasure. "From up here the water seems to come in under the house, when it's flowing and when it's frozen. Each season has its own delights."

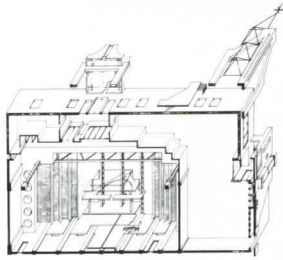
Summer breezes cool the deck when the sliding glass doors at the ends of each box are open. Wide overhangs shade the glazing so no sun blinds are ever necessary. Earth and rocks keep the buried bedrooms cool in August, cozy in January. The bedrooms are like snug cells, the deck is a free flight. **LEON WHITESON**

Mr. Whiteson is architectural columnist for the Toronto Star, author of The Liveable City and of a forthcoming book on modern Canadian architecture.



A cantilevered, glass-walled bridge, with woodlined, cave-like bedrooms in its stone-covered supports.





A Garage Becomes a Parish Church with a Few Simple Gestures

The St. Fidelis Roman Catholic congregation in this suburban pocket of northwestern Toronto is largely first and second generation immigrant, mainly Italian. For years it held services in a school gymnasium. Then it acquired an old construction company garage and asked architect Rocco Maragna to convert it into a church for the extremely modest sum of \$450,000. To minimize costs, Maragna was asked to keep the new construction within the walls of the garage.

The 35-year-old Maragna was born in a small town in the Abruzzi region in the center of Italy's rugged spine. In his head he carries memories of the old Romanesque basilicas of the Abruzzi towns of his childhood. The churches are simple structures with bare symbolic elements: cupola, canopy, and bell tower. These essential elements compose a visual shorthand, a minimal sketch of an image of worship.

The old garage was built out of a random collection of materials left over from various construction contracts in the 1960s. Concrete columns and beams, open-web steel joists, block, brick, and wood paneling were assembled without design. A deep oil trough gouged the cement floor. Roof levels varied. It seemed an altogether unprepossessing prospect.

Apart from a parish building committee, Maragna also had to satisfy the Roman Catholic Episcopal Corporation for the Diocese of Toronto, which consecrates all churches in the city. The garage smells too much of oil, the hierarchy protested, unable to imagine how the architect could transform it into a place of worship.

"Churches are consecrated with oil," Father Pollo, the pastor, retorted. "Babies are baptised with oil, priests are ordained with it. Once a year, on Holy Thursday, the cardinal reconsecrates the cathedral with oil. Oil is a central metaphor for holiness in our religion. The transformation of garage oil into the sacramental substance is a kind of mundane miracle."

Maragna terms his approach to the conversion "symbolic intervention." Those bare symbolic elements of traditional



Fiona Spalding-Smith



Fiona Spalding-Smith

Catholic architecture, cupola, canopy, bell tower, that bare sketch of an image of worship, were applied to transform the garage into a church with a minimum of means.

The existing structure was modified as little as possible. The only major structural intervention was the use of a 90-foot steel truss to open up the junction of the one-story northern half of the building and its two-story rear. This eight-foot-deep truss allowed the removal of the inside wall so that the nave and the main sanctuary could become one volume.

The cupola is raised above the altar as a triangular skylight cut in the old flat steel-decked roof. Beneath the cupola a series of suspended baffles, made out of drywall on metal stud, diffuses the natural daylight.

Apart from the cupola, canopy, and bell tower, the exterior of the old building is largely untouched. The brickwork and stucco infills are painted in a uniform

crisp white. The roof fascias are deep blue.

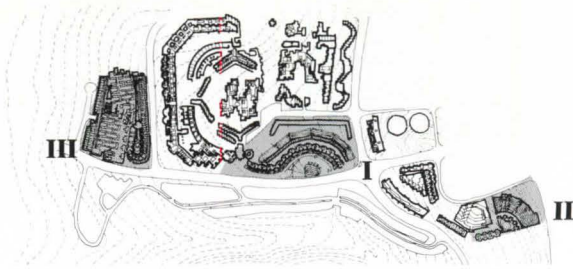
Inside, the blue-painted deep steel truss and supporting columns likewise recall the building's, and the congregation's, industrial past. It is this remarkable marriage of profane and sacred idioms that distinguishes St. Fidelis.

The church makes no pretense to grandeur. Its quality is a discreetly worshipful elegance that is relaxed without being in any way secular, fitting to its suburban congregation.

In its quiet interplay of natural and artificial light, its overlay of the mundane and the spiritual, St. Fidelis transforms an old workaday building into sacred architecture with an economy of gesture.

The "symbolic interventions" are superbly judged. The image of worship is sketched in with a sure touch. A commonplace structure, built for a rough function, has become, in the architect's words, "A religious space in which man can celebrate his presence on earth." L.W.

Israel



Apartment Community Melds Modernism And Regional Influences

By American standards, the number of new housing units produced each year by the Jerusalem housing ministry (5,000 on paper, about 3,000 in reality) is enormous. Equally unusual is the fact that Israel's most distinguished, as well as its most experimental, architects are enlisted by the ministry to design new neighborhoods of housing, totally or partially subsidized by the government.

One of the largest and most ambitious is Gilo, a new town of sorts that will contain 10,000 apartments for 37,000 people when it is completed. It lies about four miles southwest of Jerusalem on a spectacular site, on a mountain ridge overlooking the old city of Jerusalem.

The master plan was created by architect Avram Yaski in 1969. The town's major axis is a highway leading to Jerusalem. Gilo is divided into subzones, each for 700 to 1,000 families, and every subzone is surrounded by walls, parking, and then the street. Automobile traffic is banished from the developments.

Ram Karmi, who was chief architect of Jerusalem's housing ministry for several years, is the son of one of Israel's three pioneer modern architects and is now himself a guru of sorts for younger designers; he was given responsibility for three subzones. The second was just completed and occupied.

Although quite different in appearance, Karmi's Gilo I and II, as they are called (Gilo III is still to come), reflect a very specific urbanistic design philosophy.

"There was," as Karmi says, "a love affair between Zionism and modern architecture. Both started from ground zero and had their roots in socialism and the labor movement. The architecture that existed in *this land* before my father's generation in the '30s was romantic Lawrence of Arabia." Karmi's design combines Bauhaus functionalism with Arab and Mediterranean influences.

Gilo's housing is of different sizes and types to suit the various needs or preferences of young couples, large families, older and single people, people of ample as well as modest means. There are town houses, terrace buildings with small parks,



Gilo I, seen from the plaza (top), from a courtyard (left), and from an interior stair (above).

four-story linear buildings, at least one highrise, and a few one- and two-story houses (sold on the open market).

All project a strong image because, as Karmi says, "they should not be flexible enough to become nothing, something neutral to which one does not know how to relate." To a modernist vocabulary of flat roofs and simple rectilinear shapes, he adds such vernacular features as arches, Arab (or Mediterranean) picturesque massing, and heavy, blank walls facing the street. Because all new housing in the

Jerusalem area must have exterior stone, Karmi covered his concrete buildings with a bulky rock-like facing. The image brings to mind a picture of the wandering Jew, who, having finally reached a homeland but finding it ringed by enemies, has installed himself in a stout fortress.

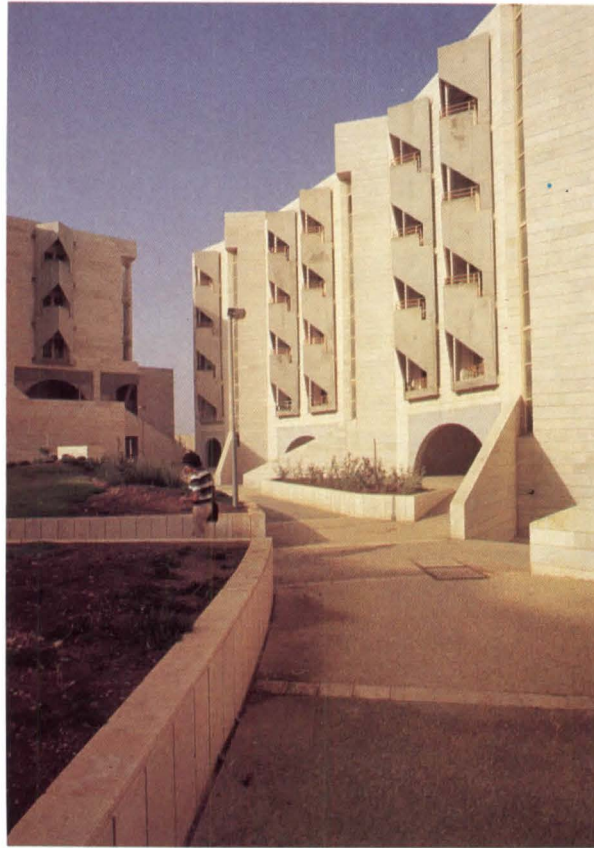
The theme throughout Karmi's Gilo developments is connectedness with privacy, expressed by a hierarchy of spaces from public to private. Using Jerusalem itself as a model, the architect has edged his project by exterior walls pierced by

gates. Movement from private spaces, marked by porches, balconies, windows, and doors, to ever more public areas progresses from individual buildings to housing clusters around inner courtyards, to ever larger and more public spaces. The whole development is laced together with pathways, arcaded streets, and alleys.

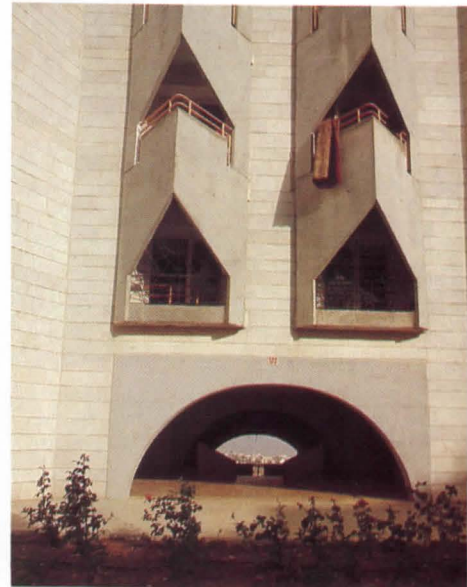
At Gilo I, one enters first a piazza bordered by an S-shaped housing complex that is separated into identical horseshoe-shaped buildings of four-story, terraced housing. Within each horseshoe, exterior stairs climb upward with landings on either side for apartment entrances. At the top of the stairway is a green strip edged by a single long, curved, and arcaded four-story apartment building. Behind this structure comes parking, then a green, and finally a continuous strip of town houses edging the street in a long zigzagging line.

Karmi has attempted to foster a sense of community through use of small courtyards, exterior stairs for neighbors to stop and gab, and apartment entrance landings shared by four families. He is proud of the fact that many residents have made changes to the exterior of their units. It is an obvious sign, he says, "that they have taken possession." Ironically, perhaps, it is in the most conventional dwellings, the town houses facing out of the development onto the main ring road, that one sees the most exterior alterations. Many doors have been painted in bright colors, patios and porches have been added; but spaces belonging to everyone are tended by no one and look it.

Karmi has called Gilo "a fantasy village with a fantastic view." And his Gilo II, with its highly eclectic, varied, and somewhat bizarre shapes, is still more fairy tale-like than Gilo I. Its most striking feature lies within each of the four blocks of four-story buildings that climb the hill in repeated V-shapes. It is a narrow interior arcade the length of the structure's axis. On either side of it, landings with doors to two apartments are scooped out. Punctuating the center of the passageway are seven skylit, octagonal pods. The first, third, and fifth contain stairs to upper units; the second, fourth, and sixth have trees and other plantings. All bring in light and a touch of nature and create a picturesque interior street. But these streets are narrow and windy; walking them is an awkward business, and one

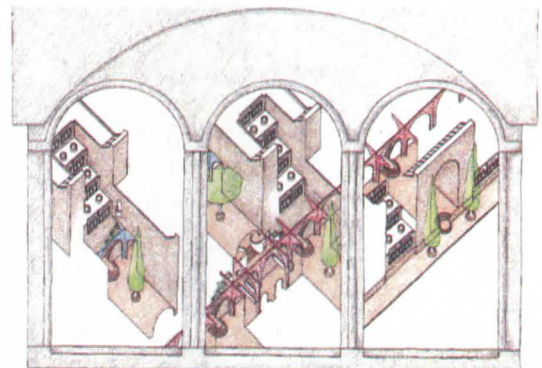


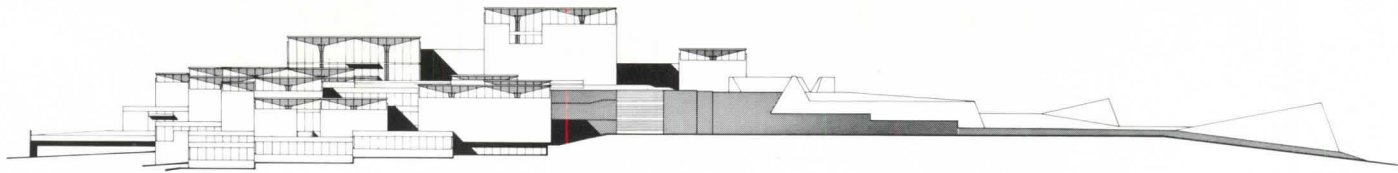
While Gilo I looks as though it may have existed for centuries, Gilo II and III (still in design) become increasingly mannered. At left and below, a long, four-story building of Gilo II; lower photo, an interior court (under construction); bottom, Gilo III.



small child at a time on a bicycle is about all they can comfortably handle without incident. They are also something of a wind tunnel, and residents have added not always attractive doors at either end to close them off.

The attempt at Gilo is to simulate a village, to provide spaces for people to meet, gossip, and feel a sense of belonging. What is missing, of course, are the shops and other street activity needed to transform a bedroom community into a real full-time town. A.O.D.





A National Museum in A Growing Array of Cubes Along a Hilltop

For urbanistically sound and distinguished architectural design, no recent building or complex in Jerusalem can match the Israel Museum. Perched high on a 21-acre site, it is a ranging complex of almost white, stone-faced cubes topped by slender, dark roof lines. It is visible from almost every corner of the city and hugs its hilltop like a cleverly crafted crown.

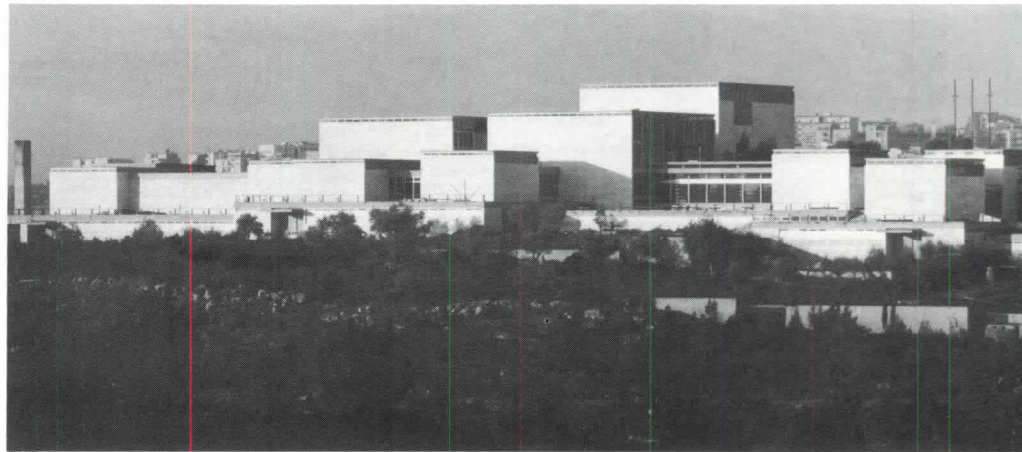
Planning for the museum began in 1959, and its architects, Al Mansfeld and Dora Gad, have added to it year by year. The museum had to be planned for organic growth so that at each stage it would be sufficient unto itself yet accommodate additions as they came. In 1965, when the first phase was opened, the museum consisted of 48,000 square feet; the master plan's latest, 1978, version shows possible expansion of up to 256,000 square feet.

To allow growth and because they wanted to create an informal atmosphere, the architects chose an open-ended scheme of relatively small, interconnecting pavilions, rather than one of large, imposing halls. The major spaces are comprised of the Museum of Archaeology on the north and the Bezalel Museum of Art on the south.

Some of the galleries are high, others low; some are modest in size, others quite large; some are fairly formal, others quite casual; some look inward, others lead outward to Isamu Noguchi's masterfully landscaped terraces and the Billy Rose sculpture garden. All are carefully and quite exquisitely detailed.

Such variety is achieved within an overall system of 25x35-foot units of different though modular heights. The roofs of each unit are hyperbolic paraboloid shells supported on hollow, central columns containing airconditioning and electric conduits plus rainwater downspouts from the roof.

Except for the double-height entrance hall, none of the exhibition spaces exceeds one story, but the building ranges over many different levels. The two-story entrance hall is reached by a bridge-like structure that forms the upper level of the entrance space, which, in turn, overlooks





A Nursing School Made Of Cubes Surrounding a Central Spine

The Katzir nursing school on the grounds of the Asaf Harofeh hospital in Tzrifin adapts a characteristically Mediterranean architecture of white cubes—modified by Bauhaus, Corbusian, and high-tech influences—to an Arab building plan of small stepped units. Also borrowed from the Arabs, says architect Eldar Sharon, is the idea of entering the building from a semi-private balcony that leads to a completely private living space and then opens onto a public interior courtyard (below).

This combination of Bauhaus and Arab influences is hardly surprising. Sharon has long worked with his father, Arie, who was trained at the Bauhaus and in the '30s became one of the troika (with Dov Karmi and Zev Rechter) that dominated the first generation of building activity in Israel. The Bauhaus tradition is pervasive in this young nation where the only old buildings are of Arab architecture; but the forms and shapes of those old structures are increasingly finding their way into the work of younger architects, concerned, as elsewhere, with context and history.

At the three-story nursing school, modular cubes climb the long sides of the building. Running its length and open at both ends is an interior court for public and social events. A board-formed concrete spine is composed of repeated, five-sided, flat-topped arches whose diagonal elements are stairways crisscrossing the

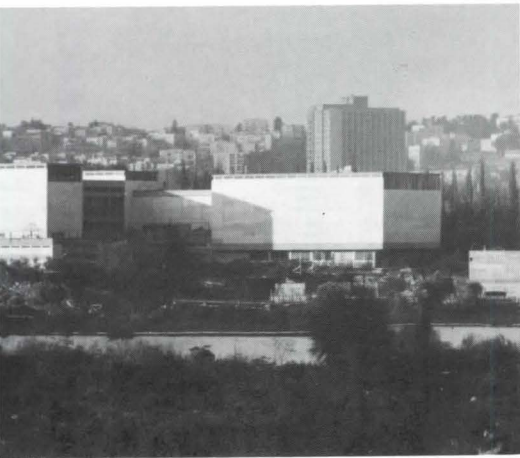


space. Topping the length of the court is a yellow, translucent canopy. It provides shade yet admits light and casts a sunny glow over the white walls.

All parts of the building—from dormitory rooms (above), at one end, to classrooms and administrative offices, at the other—are visible from almost anywhere in the court, which together with the small scale of the complex (4,367 square feet), plus its combination of public and private spaces, gives a sense of community.

The living units are small, with two built-in desks and beds, fitted into a cantilevered alcove.

Balconies are edged by well-crafted, green railings. Doors are painted yellow, red, and blue and, from most points around the buildings, the acrylic bubble covering the interior court is visible to provide a playful counterpoint to the predominant rectangular shapes. It is such touches, in addition to the structure's picturesque massing and inventive juxtaposition of different materials and shapes—to say nothing of its functional niceties—that give this building special appeal. A.O.D.



and is on axis with the historic Crusader's Monastery, on the one hand, the Knesset and the Hebrew University campus, on the other. The attempt is to show a symbolic link between the old and new, and between culture, politics, and education.

Unlike most museums planned in the late '50s and '60s, the Israel Museum has abundant natural light entering from clerestories and domed skylights, filtered by glare-absorbing gray glass. Continuous window strips are deliberately narrow on the eastern, western, and southern walls; only the northern elevations are generously glazed. In addition to the overall module there is a subsystem—four feet, six inches square—governing the placement of engineering and interior equipment, and moveable display panels are fixed at the intersection points of this grid.

Of the new additions, the impressionist and pre-Columbian wings were completed in 1980; the "youth" wing was finished in 1979. The impressionist wing differs from the museum's other galleries in having strong, natural toplighting admitted through narrow, half-cylindrical shells facing due north, baffled to eliminate glare. The pre-Columbian wing, with its three large interconnecting rooms, by contrast, has little natural light.

The new youth wing situated on the northern tip of the complex serves as an art school for both Jewish and Arab children. It includes a library, auditorium, puppet theater, and six studios, each of which is connected to a covered courtyard where children can work outdoors. Still in planning stages are a section for laboratories and workshops and a 5,600-square-foot gallery for Israeli art. The last will be an appropriate capstone for Jerusalem's Israeli Museum. A.O.D.



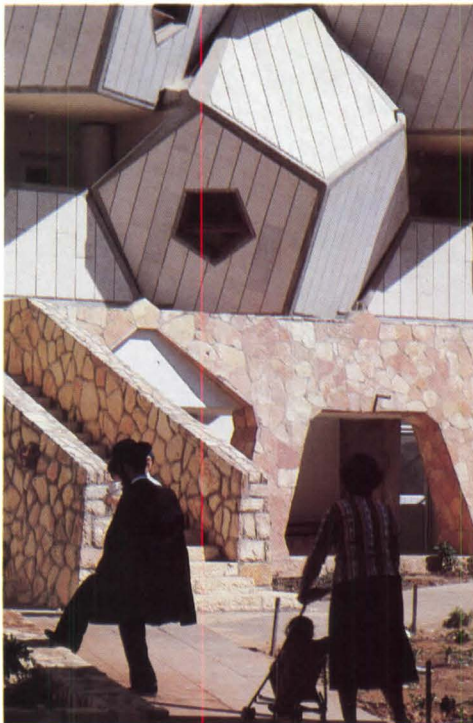
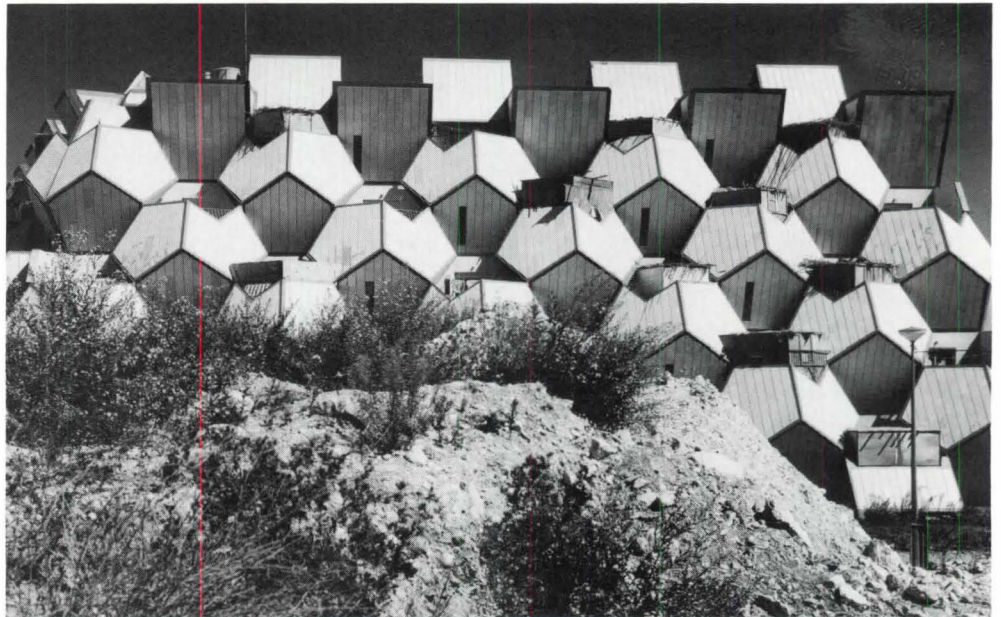
Hive of Angular, Prefabricated Dwelling Units

This aggregate of odd-looking, five-sided modules resembling tiny houses tipped forward as a child might dream or draw them recalls fantasies by Chagall, painter of Jewish villages with flying cows and other creatures, including humans, hovering over them. Zvi Hecker's idiosyncratic housing for the hilltop new town of Ramot, 4.5 kilometers from the old city of Jerusalem, was commissioned by the Israeli ministry of housing, which may seem surprising to Americans accustomed to stereotyped, anonymous-looking public housing projects. Equally surprising is that the ministry chose a maverick among Israeli architects, most of whom still subscribe to Bauhaus concepts and vocabularies, though with a few twists. Hecker, originally Polish, immigrated to Israel after World War II, most of which he spent in Uzbekistan. "The Bauhaus is not my tradition," he says. He is more comfortable with the geometric and decorative traditions of Asia and the Middle East, and has for years been experimenting with polyhedral structures.

The Ramot housing is made of dodecahedrons, prefabricated and assembled on site. Yet it is quite conventional in that the modules are mounted on a traditional concrete slab and cross wall structure, and it is, therefore, criticized for being a stuck-on operation. Hecker counters, "In nature, the outside is not the same as the inside, and I was never fond of clichés about the exterior expressing the interior. A building expresses so many things, and must express something of its own."

In plan, the project resembles a leaf with five projections, or the five fingers of a hand. Only the first phase, one finger, is complete. Each finger is made up of five, chain-like, V-shaped structures, four to five stories high and containing 27 two- to four-bedroom apartments.

The buildings, with courtyards in the back, amble down the hillside, with paths connected by stone-walled stairways. Like all new buildings in the Jerusalem area, Hecker's development had to be faced in stone, but instead of using an ersatz 15th century skin, he used strips cast into the precast cladding. "It's intended to look fake, no more than decoration," he says.



Because the modules recede and shift as they rise, each apartment is unique. The units are stepped back to give each an open terrace to accommodate orthodox rites for the annual Feast of the Tabernacles, called Succoth. In rooms with five instead of four walls, only two are canted, and the feeling is of increased yet enveloping, cave-like space, which some occupants have used quite imaginatively.

Critics contend that the residents' orthodox religion and unconcern with the things of this world make them blind to their surroundings. But there are contrary signs. The grounds are well tended, private gardens have been planted, and some residents have made changes to their units. The development is animated, mainly with long-bearded, black-frosted men going to and fro and boys in earlocks playing and perching on walls, watching the world go by. And, looking on, one fully expects Chagall-like creatures to appear floating over the development. A.O.D.

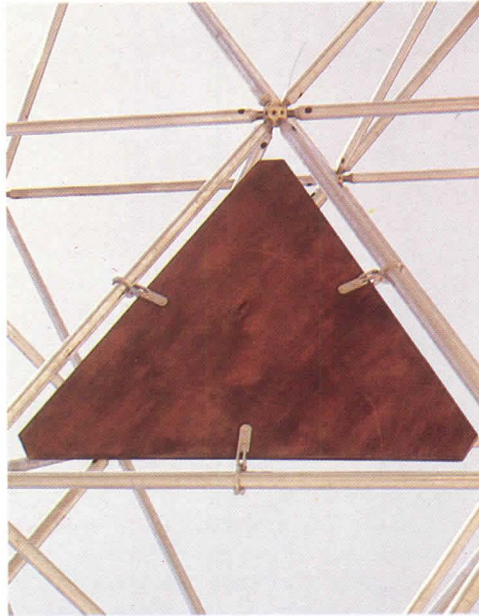
Demountable Pyramid For Outdoor Concerts

The site is a basin made of irregular rock terraces and smooth expanses of grass with sparse vegetation. It is overlooked by Mt. Zion and almost abuts the wall of the old city of Jerusalem; to its west is the new city. The formation of a pool for water storage in this valley began in the first century A.D. After centuries of disuse, the pool was rebuilt in 1176 by the crusaders, who used it mainly for watering their horses. In 1536 it was again restored, this time by Turkish Suleiman the Magnificent, who built Jerusalem's walls and was called simply "the Sultan." Hence the name, though the Sultan's Pool has apparently been dry for the last 200 years.

Its conversion into a place for open-air performances was spurred by the success of an outdoor concert held on the site in the spring of 1978. The next year, a plan for its development was launched, and Rahamimoff Architects and Urbanists was commissioned as designer. The completed job is an apt combination of an immutable-looking landscaped amphitheater that makes minimal changes to the historic site and an intentionally temporary-looking, pyramidal, semitransparent, lightweight acoustic shell. The shell was intended, says Arie Rahamimoff, to stand as a sharply defined, foreign object in the ancient Sultan's Pool. The space frame is a demountable, extremely flexible structure that is easily enlarged or reduced in size or even restructured entirely for the particular needs of a performance. It is made into an acoustic shell by filling voids in the frame with detachable panels of wood.

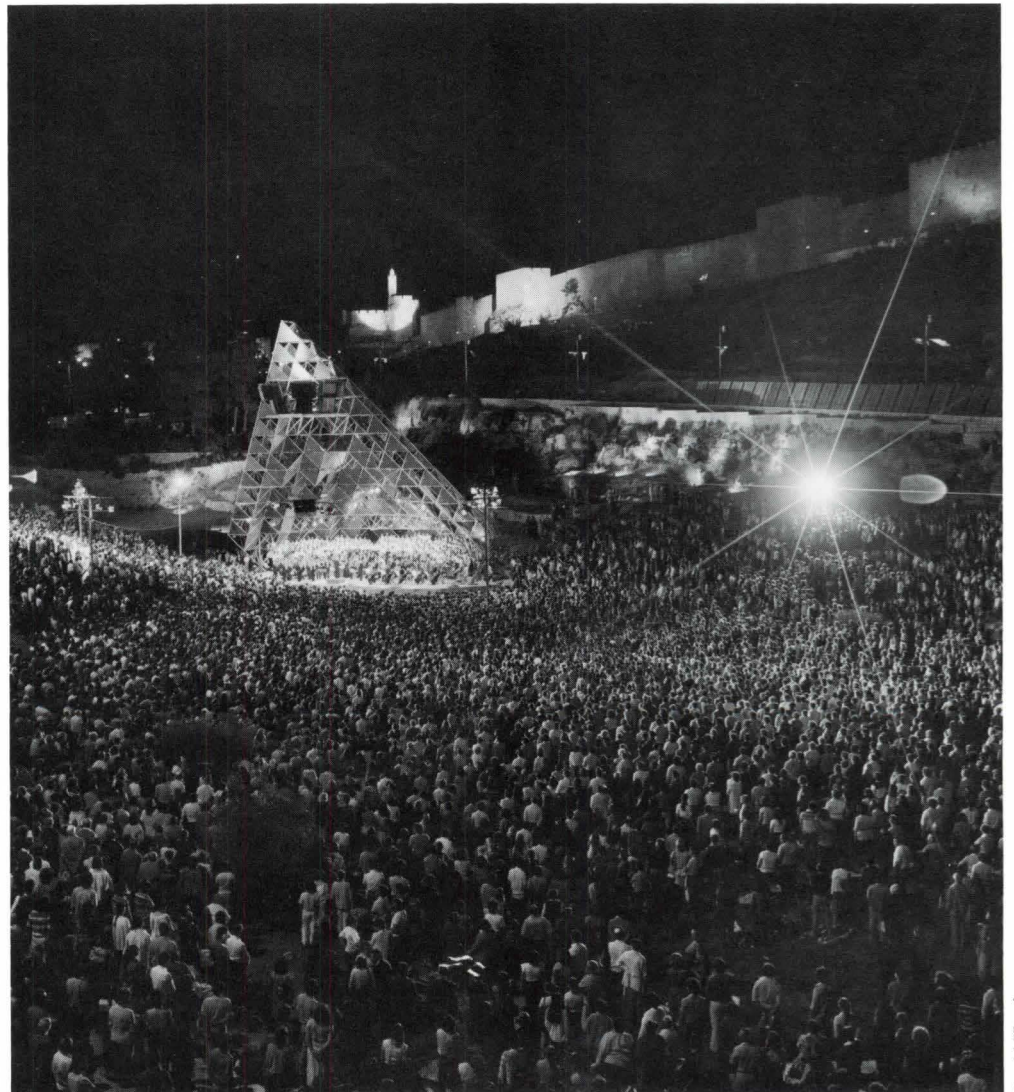
The stage was excavated eight feet into the pool and edged in large, horizontally laid stone blocks with joints left open for grass and creepers. It is centrally located to allow for performances in the round, but oriented toward the south so that the old city serves as background. Dressing and rehearsal rooms are located beneath the stage. There is also a permanent underground infrastructure for sound, lighting, television, and emergency needs. Plug-in points are located on the stage and in concentric rings around it.

The architects laid large stones to help move people over the rocky terraces and placed specially designed stone lighting



columns to define the entrances. They were required to fence the entire area and, to do so with a minimum of visual noise, erected a green iron fence and covered it with creepers. They also raised a mound of earth to improve sightlines and dotted the area with flowering and scented shrubs and vines to articulate entrances, steps, and the stage. In all, their creation appears as a space-age object hovering over an amphitheater from an age-old time that has been restored with just an occasional modern touch. A.O.D.

A detail of the Sultan Pool's space frame is at left; below, the shell, crowds, and a view of the old city of Jerusalem as background.



David Harris

Sweden

For a University Center A Playful Canopy and A Bit of Restoration

Ralph Erskine still designs as he always has, with fantasy, investing his own feelings, endowing his work with artistry and substantial content, putting social interest first. Long before it became fashionable, he designed housing of great variety and richness, including patios and yards meant to increase contact with neighbors. Eschewing monumentality and grandeur, his work is playful, very personal, has a sense of humor, and, above all, attempts to make the environment pleasurable.

In cooperation with colleagues Bengt Allqvist and Per-Ove Skanes, he has just completed a new student activities building at the University of Stockholm in Frescati. The new portion of the campus illustrates all the mistakes of 1960s planning. The theme was large-scale production of faceless buildings with no connection to the existing, old structures. The new university was harshly criticized by the architectural press from the start, and, before long, a competition was held to combine the student union building and the library into a single large new building. Erskine and his colleagues were among the invited competitors. Instead of following the program, they separated the two functions. The library would be connected with the old university building where most of the students and teachers spend their time. The architects had, in other words, planned in accordance with

actual study habits, not for a mechanical separation of functions. Erskine used the gloominess and monotonous character of the old university block as background to an imaginative new architecture.

The first of the two new structures, the student activities building, was completed in August 1981. Erskine felt that the plainness of the old development needed a contrast, a building full of playfulness and extravagance.

The large roof of the activities building seems to bend in the wind like a tent canopy. It is attached to concrete pillars with slender wood posts. Fooled by the frail shapes, one would think they were there to prevent the roof from blowing or falling off. The building gently harmonizes with the surroundings.

On the other side, with a hillside close by, is a lonely tree and an old house from the 1910s, reconstructed as a dining hall. On the ground floor of the activities building are the university bookshop, post office, and other services. The second floor has a cafe and a large hall suitable for parties, meetings, lectures, and other occasions. In spite of its form and unusual plan, it is very easy to find one's way in the building. The construction seems simple and lucid. EVA ERIKSSON

Ms. Eriksson is the editor of Arkitektur in Stockholm.



Rolf Dahlström



Rolf Dahlström



*A Gentle Church Stands
Apart but not Aloof
From Its Surroundings*



Sundahl



Sundahl

Carl Nyren is, next to Ralph Erskine, today's most prominent architect in Sweden. His solutions are often simple, self-explanatory, realistic, and his forms are soft-edged, well balanced, harmonious. His firm has worked with many different styles and building types.

Among his most characteristic recent works is Gottsunda Church in Uppsala, which gives the appearance of a much larger building than it is. This is an optical illusion created by the building's low and spread out plan. Gottsunda Church is at the end of a large parking lot facing a dull neighborhood of modern row houses. Here no architectural restrictions are imposed by the surroundings. To the contrary, the building tries to bring some dignity and beauty into the otherwise gray and ugly neighborhood.

Gottsunda Church has therefore become a unique building, independent of its surroundings. Its tall steeple contrasts sharply with the small, modern town houses nearby. The choice of colors is typical of Nyren. The facade is painted a rose color with details a deep brownish red; window frames are a light green.

Gottsunda Church does not give the impression of being particularly sacred and formal. It is somewhat daring in its colors and size. It does not ask for emotional distance and submission, but invites participation. In the middle of the everyday stream of shoppers, it stretches out with a kind, welcoming gesture. On enter-

ing, one is led through a vestibule (below) to an intimate court, which contrasts with the voluminous sanctuary. The sanctuary, which has a basilical ceiling, is wide and relatively short, not narrow and long as in most traditional churches. The room has unpainted wood paneling, with paintings as the only color decoration. The atmosphere is formal because of the size of the room and the large expanse of bare wood. High up under the ceiling are two windows that cast a beautiful light below.

Gottsunda Church has a less serious and more playful appearance than most of Nyren's architecture. Even so, it would be wrong to call the design postmodern. It is, in fact, difficult to detect any such tendency in Swedish architecture, although, since the '70s, there has been a new and growing interest in issues of form. Many recent buildings copy styles from the national romantic era and even older times. A variety of curved roofs is often used. Among the older generation of architects, there have been objections to a copying that approaches pastiche.

Nyren is based in the modern tradition, working in materials like steel, concrete, and glass. But his architecture is quite personal, and in recent years his work has developed a softer appearance, with light pastel colors dominating. He has also been using more and more traditional materials like brick and wood, but without abandoning the more fundamental modern precepts. E.E.



Museum of Two Distinctly Different Faces and Soaring Interior Spaces

The Ethnographic Museum is located on the edge of downtown Stockholm overlooking a bay to the south and a vast moor to the north. Its acquisitions include about 150,000 pieces, requiring large areas for storage, as well as exhibition rooms, a library, offices, research facilities, a lecture hall, cafe, etc.

The spacious building, by Jan Gezelius, has three levels, one of them underground and used mostly for storage. The facade seems to be contradictory to the plan, for it indicates a varied group of spaces of different construction. The plan, by contrast, is simple, rational, and of homogeneous construction—a concrete skeleton on pillars set widely apart. The excitement generated by the contrast between the geometric skeleton and the articulated superstructure gives the museum its special character.

To a Swede, the museum immediately evokes a national building tradition, for almost every Swedish farm and little country cottage is painted reddish-brown. Too, wood is Sweden's traditional construction material, and prior to the breakthroughs of functionalism vertical panel work was ubiquitous. But Gezelius's museum also has associations with other cultures, mainly the Japanese, as exotic to Swedes as the pieces in this collection.

The building's two sides contrast sharp-



ly in character. The one is secluded, screened off from its surroundings, and quite undramatic. The other, facing the park, is open, generous, and embracing. Its cafe juts into the park and helps to form a sheltered green.

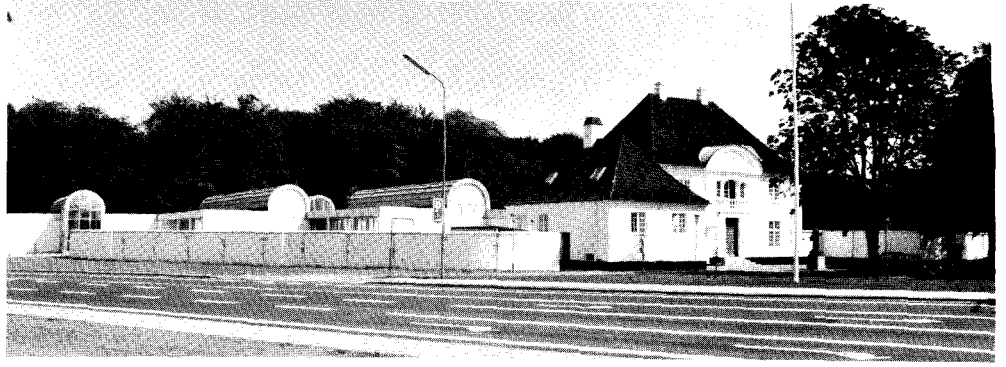
Inside, the building is also a game of contradictions. Its key element is a large, dark exhibition room without windows. Around it is a circle of very light rooms, beautifully illuminated by well placed windows and lanterns. Great care has been devoted to details and to the selection of materials. The study gallery on the second floor is long and narrow, and extends along the side of the building.

Exhibition space consists mainly of two very large rooms connected by a magnificent staircase whose design makes one think instantly of Peter Celsing, one of

Sweden's most admired architects of the postwar period. A stair similar to the one in this museum is found in Celsing's last project, the National Bank of Sweden, and it was widely copied during the 1970s. The staircase in the Ethnographic Museum leads from a small, gloomy room up to a large, breathtakingly beautiful space in the shape of a basilica.

Weakest in the design of the museum are the large, characterless, identical exhibition halls. These were required by the program and result from a belief, growing out of 1960s doctrines, that identically sized flowing spaces give maximum freedom for arranging exhibitions. This arrangement has left the exhibition organizers with the job of designing the interiors, a task they are seldom equipped to do well. E.E.

Denmark



Modular Museum Wing Organized Around Corridors of Light

Until recently, Holstebro had a modest little art museum in an old house. To accommodate the rapidly growing collection, an extension became necessary, and in 1978 the community announced an architectural competition for a new wing. The first prize was awarded to Hanne Kjaerholm, and the building was completed in April 1981. The extensive addition is built on the basis of a very simple construction system of modules measuring 16x16 feet, which will allow for future expansion. As in a game of dominoes, new areas can be added on in any direction. The architect set out to show that a structuralist and standardized modern building is not necessarily monotonous or uninspired.

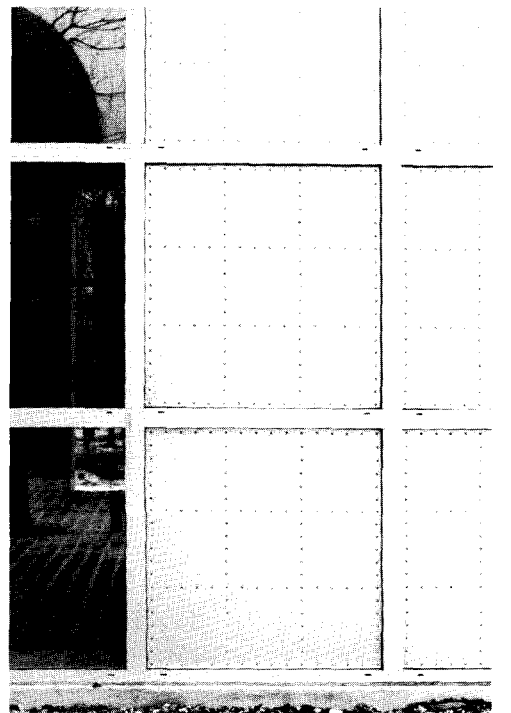
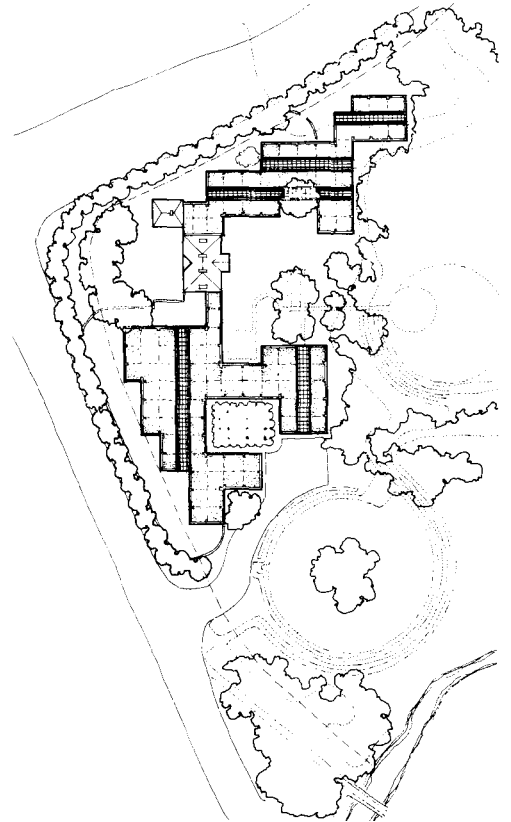
The square modules extend from either side of the old museum, stepping back to follow the curve of the road that wraps around the site. The units are arranged

and linked together to form spaces of varied sizes and shapes as well as small courtyards. Each module is covered with coffered concrete roofing, and these units are placed around a system of modular, skylit, vaulted passages, which are made partly of glass with inlays of Okapane, a highly insulating, translucent material. The light coming into the vaults is regulated and modulated with a system of aluminum shutters.

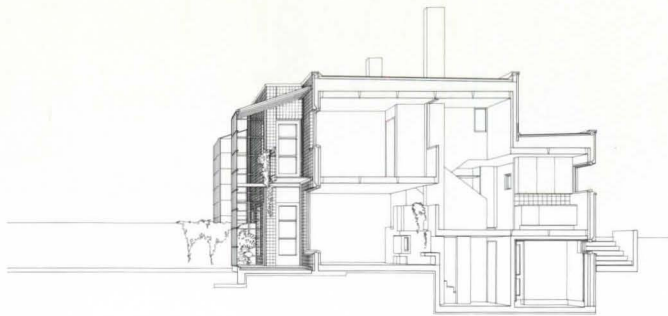
The building facades are divided into square modules, some of which are filled in with natural-colored, riveted, and anodized aluminum, others with glass, and still others with solid brick. For the most part, simple materials—glass, brick, concrete, aluminum—are left in their natural state or are finished in white. The brickwork is rough-cast and whitewashed, with white glazed tiles at the bottom. Floors and stairs are covered with gray Öland stone slabs. The atmosphere thus created is of airy, light-filled pavilions.

KIM DIRCKINCK-HOLMFELD

Mr. Dirckinck-Holmfeld is a leading Danish architectural critic.



Finland



Energy Saving Prototype For Lowrise Housing In an Urban Setting

Finnish production of small houses has traditionally been based on local resources, especially wood. It is a tradition that continues today, although it has in many cases become thoroughly commercialized in the architecture of summer cottages, saunas, and private houses. In the Middle Ages, and particularly in the 17th and 18th centuries, wooden house architecture moved into the slowly expanding small towns, developing a style of its own and later gaining artistic momentum through the Empire style, which had a powerful influence on Finnish architecture in the 19th century. The design of the classicist wooden houses of the garden town plan for the Käpylä working class district in Helsinki (1920-25) was largely based on these influences. And features of traditional folk architecture can still be seen in the standardized houses erected under the extensive building schemes of the postwar period.

There is also another chain of tradition, based on foreign influence but firmly rooted in the Finnish soil: It was in Finland that the Byzantine and Roman traditions met. In the second decade of the 20th century, Eliel Saarinen, whose projects and ideas were instrumental in bringing about suburban growth in Helsinki, proposed small house and row house developments unfamiliar in Finland at that time. His models came from Sweden, Denmark, and Britain in particular. In the functionalist era of the '30s, when few coherent small house groupings were built, Alvar Aalto paved the way with his designs for the Sunila housing development. The postwar trend favored open-plan buildings oriented according to the terrain with traditional saddleback roofs. But the '60s brought, along with more compact grid plans, lowrise building with its emphasis on square shapes.

To offset this trend, the '70s came up with various prefabricated designs stressing fantasy and including features and decorative details from the broadest range of sources—the Finnish log cabin, Swiss chalets, Spanish villas.

Against this background it is possible to see why so many architects long for



Soneck & Pohjakallio



Soneck & Pohjakallio

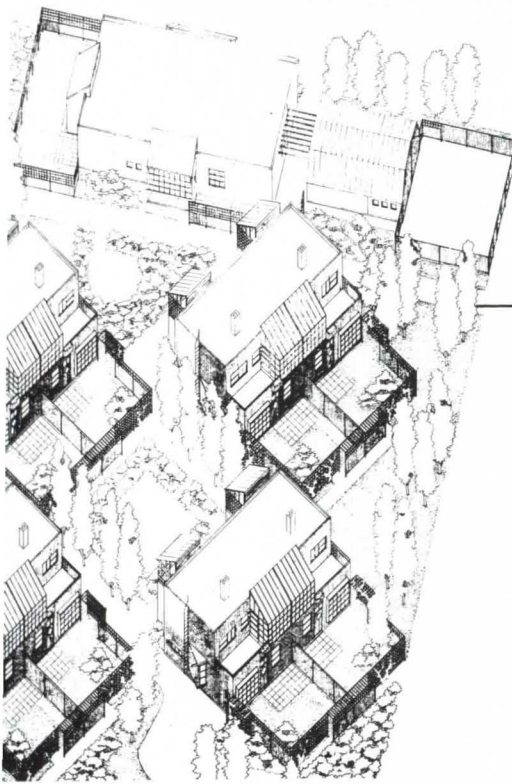
some kind of discipline and integrity in small house construction in urban communities. Pekka Helin and Tuomo Siitonen have in their 1980 housing for the Ylätuvanpolku Co. relied on the functionalist tradition, allowing requirements of space, internal circulation, and overall grouping to guide their main design decisions. Yet they—with the somewhat hesitant sense of humor so typical of Finns—allowed some exterior details to reflect contemporary trends and others to remind the viewer of somewhat earlier design aspirations. But we can hardly label them postmodernist, not even in Finland where the trend is regarded with caution.

The site, part of an experimental area reserved for the Helsinki housing fair, is flat. There are some older residential areas and industrial buildings nearby. Farther off there is a country estate whose main building dates from the late 18th century. Like many Helsinki suburbs, this was

farmland until recently, which is why the land is rather barren. Trees and shrubs have been planted, but their future contribution remains a matter of conjecture.

The design emphasis in these semi-detached houses is on energy savings and on creating a coherent vocabulary for small units suited to urban communities in Finland. The architects explain that “the Ylätuvantie experiment attempts to combine traditional Finnish town architecture with modern production technologies in order to achieve a scheme suitable to modern life styles.”

The play of latticework is refreshing, with a spatial interplay of shadows and recesses. The latticed conservatory and other gridded windows remind one of early functionalism. The effect is particularly clear in the latticed windows in the service building, which is yet to be completed. The bay windows of the dining recesses seem to be related attempts at



Paper Mill Brings the 'Engineering Esthetic' To a Town Center

When Dennis Sharp was assessing Finnish architecture on the basis of his experiences as a member of the jury for the *Finland Builds* exhibition in 1981, he said: "The astonishing persistence of what one might call 'mechanical' or 'hardware' architecture has again come to the surface over the past few years. There are many buildings in parts of the world which owe more to this persistent development of an 'engineering esthetic' than to the present interest in theoretical circles in formalism, historicism, Beaux-Arts revivalism, and current graphic terrorism."

He cited as a Finnish example of the trend the Varkaus paper mill by Erkki Kairamo, a complex almost 1,600 feet long and 77 feet high, excepting a warehouse. Siting a huge mass like this in a town center is not easy.

Kairamo has reduced the impression of great length by creating an opening between paper mill and warehouse, thus providing a visual link from the market square to the lake. He diminished the apparent height on the elevation facing the town by terracing the front of the paper-machine room, articulating the heat recovery level thus formed on a small scale, and using fluted glass units in the upper part of the wall almost the entire length of the mill. The result is a light-looking "attic." The red railings running from the roof down to ground level, following the winding stairs, and the rhythms of the

metal steps and strips, all serve the same ends, as do the creepers at basement level and the aspens in front of the building.

However, the aim was not to mask the building—quite a size to mask!—but to allow the architecture to express its character as an industrial installation. The buildings are mainly on a concrete frame and unit-built; steel construction was also used in various parts.

The walls are faced with gray-profiled sheeting with a metallic shine. Silver-colored steel sheeting is used for the upper level and the articulating strips. The color system of the interiors is also restrained, the exception being the bright, standard warning colors used for the piping and certain machines and machine parts. Other aims were to give the working areas plenty of light and to provide a view over the lake.

The Ahlstrom Co., client for the plant, has sponsored new architecture ever since the days of the Sunila sulphate pulp mill in the '30s, when its director, Harry Gullichsen, engaged Alvar Aalto as architect. Now Kairamo's firm, Arkkitehdit Ky, is giving the old industrial setting of Varkaus a new '70s look: Kristian Gullichsen designed the steam power plant and office building next to which Kairamo's mill stands.

There has been heated debate in Finland recently on conservation of old industrial environments, with the defense losing the battle. But one can derive some consolation from the fact that architects like Kairamo have in the last few years designed good new industrial environments that add to but do not completely displace the old. P.S.

increased spaciousness, which characterized the 1940s, while being oriented for saving energy.

The light overall tones of the exteriors and particularly the interiors date back to the '30s. Yet the cladding materials have provided appealing alternatives to functionalism: unglazed ceramic tiles in off-white and reddish brown, fine-grained plastering and vertical boards painted white with faint vertical stripes, and low relief effects that produce a sensation of spatial flow.

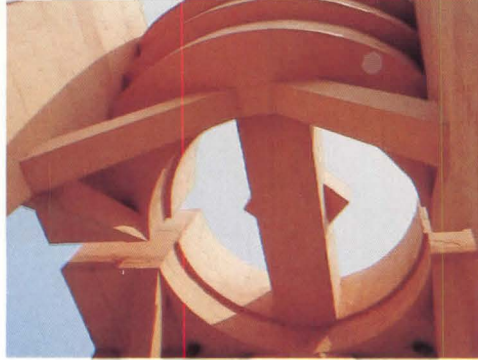
The interiors are, however, of primary importance. There are two basic plans. The more interesting one is entered at the dining room level with the living room half a flight down. The white fireplace divides the downward traffic, leading to a sauna, dressing room, and a guest room that can also be used as a recreation room. The dining recess is on a balcony overlooking the living room and gives access to the bedrooms on the top floor. The second type of plan has a more ordinary two-level layout, with the sauna, surprisingly, on the upper floor with the bedrooms. It is also used as a bathroom, and has access to a glazed conservatory for after-sauna lounging.

No rooms face north. The units are prefabricated with normal insulation thickness. The semidetached flats are separated by a double wall, and are independent energy consumption units. Glazed verandahs at Ylätuvanpolku make it possible to extend the "outdoor" season in Finland by some three to four months a year, the verandah remaining warm even when skies are overcast. PEKKA SUHONEN

Mr. Suhonen is a leading Finnish architecture critic.



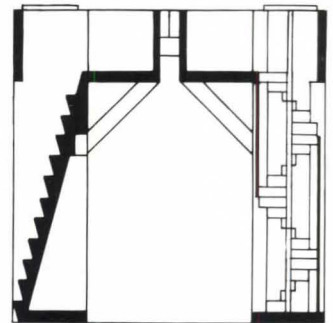
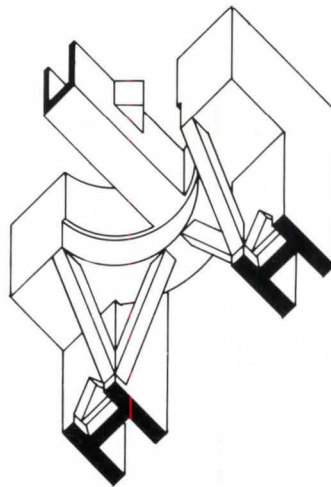
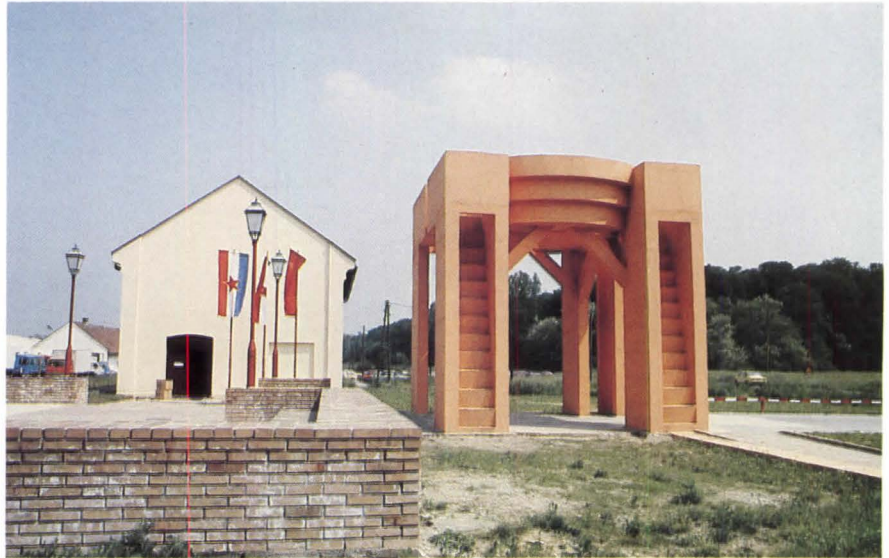
Yugoslavia



Complex Gateway to a Peaceful Memorial to WWII Atrocity Victims

The Danica memorial area is on the outskirts of Koprivnica, 60 miles north-east of Zagreb. Originally a chemical factory, Danica was transformed in 1941 by the Yugoslav Nazi puppet regime into a deportation camp. In 1943, the regime bombed Danica to destroy evidence of atrocities. The camp complex then lay mostly in ruins until the 1970s when its 25 acres came under government protection as a memorial.

Initiative to create the memorial area was generated locally, and almost all funding came from the community. A committee was formed to direct the project, "but the members had no clear idea except not to use a conventional approach with a piece of sculpture," says Lenko Plestina of the University of Zagreb, who was retained as architect. Plestina worked out some preliminary sketches in 1978 whose main idea was to memorialize the victims by a celebration of life. The



conception called not for a heroic monument but a series of spaces for adult and children's sports and recreation.

The first of the project's three phases was completed last year. A three acre area, it encompasses most of what remained of the camp, a house for deportees, water tower, and camp wall, which were renovated. The architect says he attempted to create a dialogue between visitor and history by giving reasoned, precise information, on the one hand, and communicating emotionally through use of suggestive spatial modulation, symbols, and images, on the other.

The deportees' house has been transformed into a museum where the history of the factory, the prewar labor movement, and the camp period are shown. The building's original, plain exterior was not substantially altered. Inside, stairs

were added as well as a basement display room, and a loft space was opened up to create a spacious central gallery.

Parallel to the original camp wall a new one has been added, called the Names Wall, where names of deportees will be engraved. The two walls now form a memorial path. Although the water tower is still the most prominent emblem of the complex, the architect also felt the need for a contemporary symbol. Hence the memorial gate. It marks the former camp entrance and is now the main entryway to the area. It attempts to convey respect for the victims much as in the past triumphal arches commemorated the victor, says Plestina. Its design was meant to evoke the image of a gallows, but among its sources were a nearby park pavilion, Russian constructivist designs, and a monument to the Third International. A.O.D.

France

Cor-ten Castle Rises From a Pond in a Verdant Paris Suburb

It rises from its watery site like an apparition, dark and metallic, perhaps a clanking creature from the imaginations of the special effects designers presently dominating the movie scene.

Its architect, Marc Held, freely calls it "a folly," a flight of fancy on the part of his client with which he willingly, if not gleefully, went along. It is, nonetheless, a serious essay in sculptural form, designed in a series of logical steps beginning with site and program and having much to do with geometry.

The site was large and lovely, in a fine old village engulfed by suburban Paris but still rich in greenery. The water table was very high, which indicated placing the house on posts. Having done so, what could be more logical than to create a pond and let the house wade in it? That is exactly what Held did, with dramatic effect.

The program was quite specific: pairs of bedrooms with connecting baths for owners and guests, living room that would comfortably accommodate both art exhibits and musical performance. The owners intended to use the house as a kind of private cultural center. They also wanted a kitchen and pool adjacent to the living room, an office, and a library. As Held began to organize these requirements into a plan, geometry took over. There gradually evolved a cellular arrangement based on a series of roughly octagonal volumes taken to various heights to give the house its irregular, castle-like profile. It reads, and to some extent functions, like a set of large oil drums welded together.

Clearly the bravest choice of all was the choice of controlled corrosion steel, not exactly your usual residential material and, when used for small buildings of any kind, usually handled in the manner of wood posts and beams.

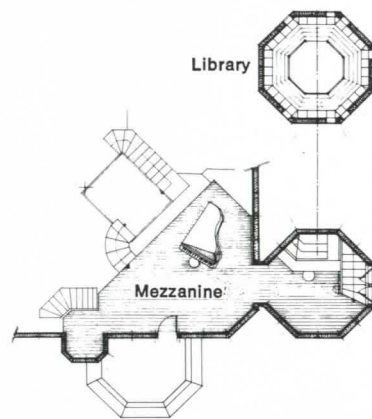
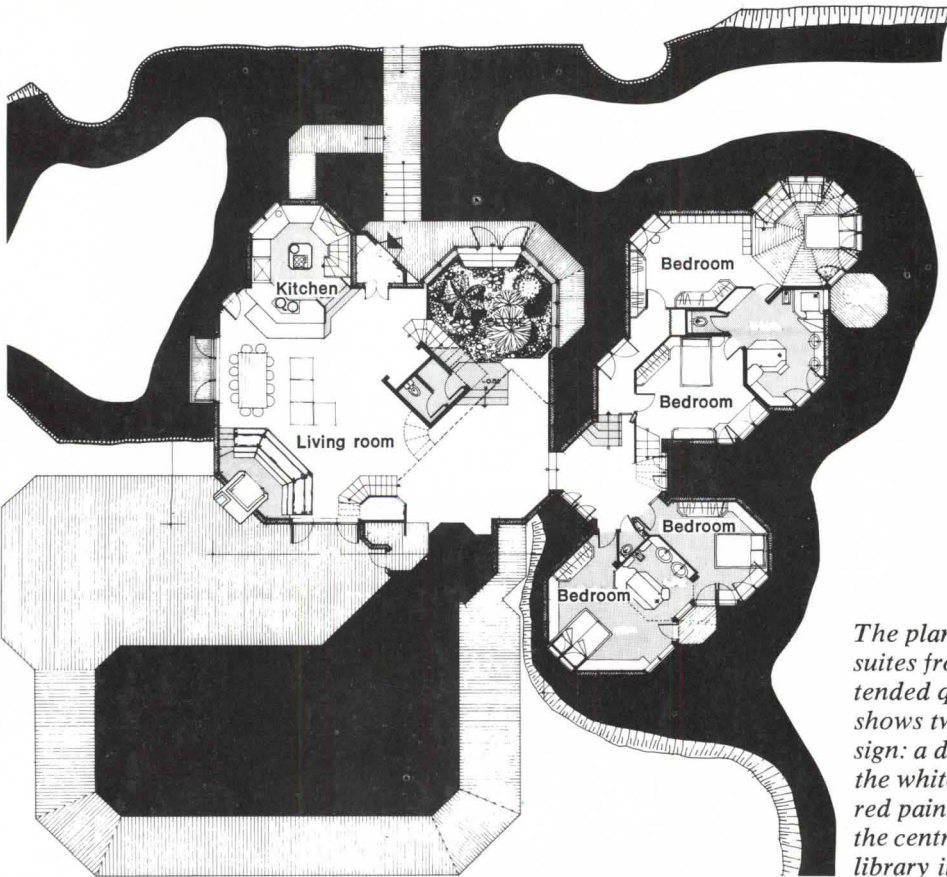
Here Held used the steel to give his forms continuity and make the house an object all of a piece in a way that wood could not. He compares it to the hull of a ship, and somehow it works. The house is dark but not forbidding, heavy but not ponderous, contrasting with but not dominating the water and greenery all around it.

DONALD CANTY



Carla de Benedetti





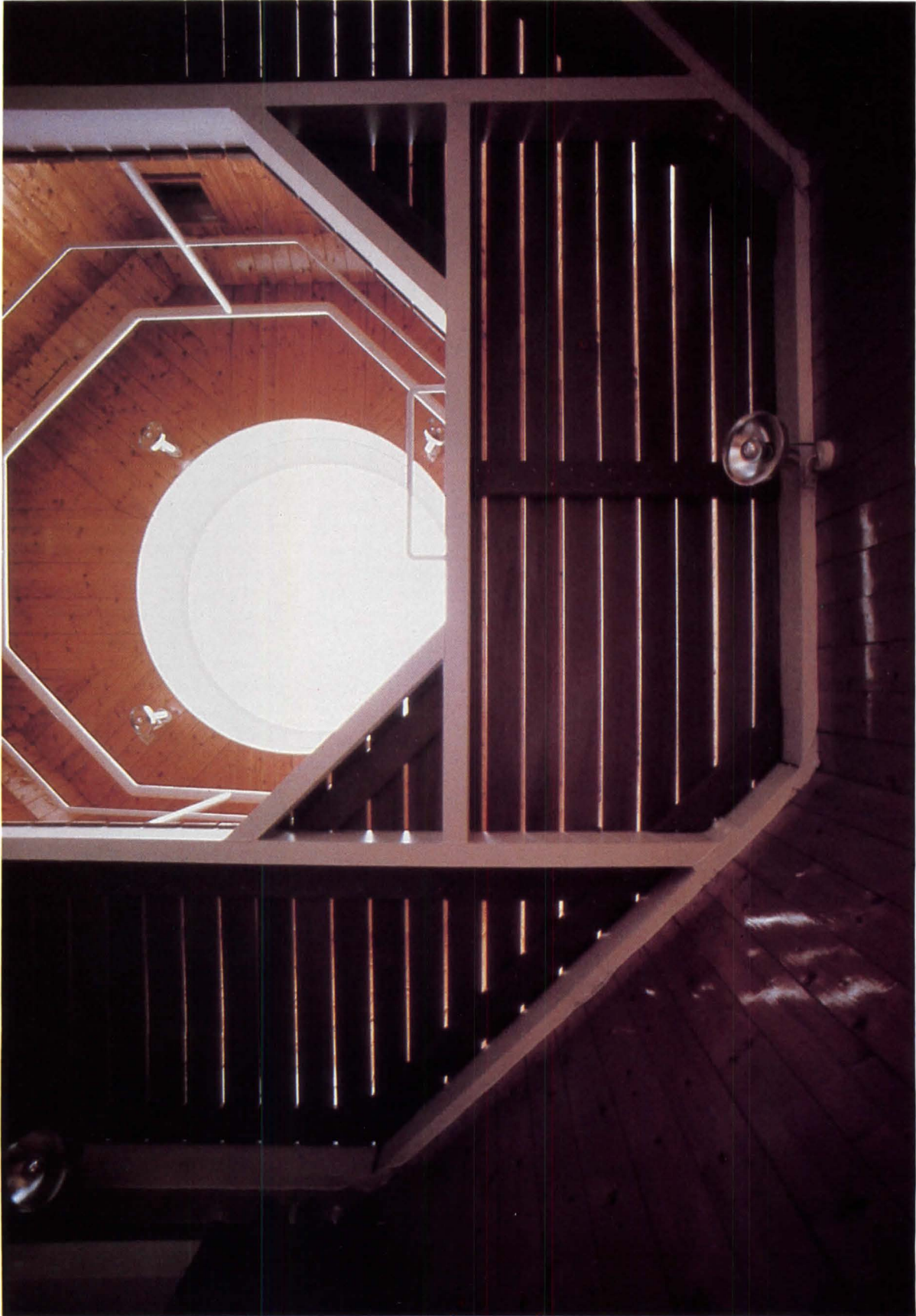
The plan segregates the owners' and guests' suites from the central space, with its intended quasipublic uses. The photo above shows two of the 'flights of fancy' in the design: a deck suspended from the roof and the white-framed greenhouse that flanks the red painted entry. Stage-like mezzanine in the central space leads to the office and library in the tallest of the angular shafts.



The interior is finished with knotty pine and white trim and appurtenances, a not entirely happy contrast to the dark metal exterior. An octagonal kitchen is open to the main space, whose ceiling is an acoustical grid: Fabric panels can be placed at various points and angles to adjust sound. Across page, a view up the central stairway to the office skylight at the house's high point.



Photographs by Carla de Benedetti



Mexico

Multibuilding Cultural Center Embodies a 'New Style' at University City

This cultural center is located in the south of Mexico City in University City, near two main thoroughfares that allow easy access from almost any part of the city. The center was designed by Orso Nuñez Ruíz and Arcadio Artis, together with the National University's general works office.

The complex is made up of a concert hall, two theaters, a library, two cinemas, a ballet and opera hall, a small hall for chamber music, a theater center, the outdoor Sculptural Space, as it is called, and offices. The buildings are linked to ample parking, bus and taxi stops. Their orientation is along a north-south axis over a field of volcanic stone, and the complex is surrounded by the area's unique vegetation.

Each in this series of buildings seeks a personality of its own while responding to specific program requirements. This is what has been called the "new university style," contrasting with that used at University City in the '50s. The new style is characterized by clean, solid masses, some diagonals, clear and well distributed openings, and use of exposed, ribbed concrete. Exteriors are deliberately asymmetric, and the buildings never present a static main facade. They achieve an overall external dignity through use of rigorous



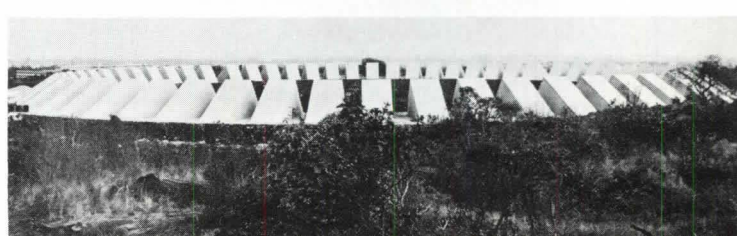
geometries relieved by unexpected shapes, angles, and textured surface treatment. Basically this complex is a series of free-standing buildings, similar in concept but without any physical link. Thus, the walkways and parking lots are overly distant on hot or rainy days, and the concept of cultural unity is somewhat lost in the variety of the various buildings. There is also a certain confusion in interior finishings, an exaggerated use of merely decorative motifs, which becomes apparent when their profusion unfavorably competes with the works of art on display.

Overall, however, the center is a success for being a well-reasoned complex, respectful of its site and the public for whom it was planned. The following is a brief description of its six major units.

The Nezahualcoyotl Concert Hall accommodates 2,300 spectators without resort to electronic sound systems. To bring

performers and the public closer together, the audience surrounds the stage. There is also seating behind the performers. The floor plan was derived from a series of solutions for improved acoustic and visual conditions, including an auditorium floor on several levels and a series of acoustically determined wall surfaces. The concert hall has been very well accepted by the public and musicians, though some specialists are disappointed in the acoustics.

The architectural idiom of the Juan Ruiz de Alarcon and the Sor Juana Ines de la Cruz theaters is similar to that of the concert hall, both in the handling of volumes and use of materials. The Juan Ruiz de Alarcon Theater, with seating for 430 persons, has an Italian stage whose ample dimensions allow a great variety of presentations, including classic theater, plays, ballet, and other dances. The stage has a removable floor and a 74-foot proscenium.



The Sor Juana Ines de la Cruz Theater, with a capacity of 250, was conceived as a vertical space divided into four levels and adjustable heights. There is no demarcation between the public and the actors' zones, allowing the director to design the space as best suits his needs. Thus, the space can function as an "arena" theater, an Elizabethan stage, or a panoramic theater, without affecting either the furnishings, the stage sets, or the lighting. To guarantee total flexibility of lighting, an installation similar to the type used in movie theaters or television studios was specially designed.

The complex formed by these two theaters contains a single common vestibule with services for both the public and the actors, but the area is zoned so that simultaneously held productions won't get in each other's way.

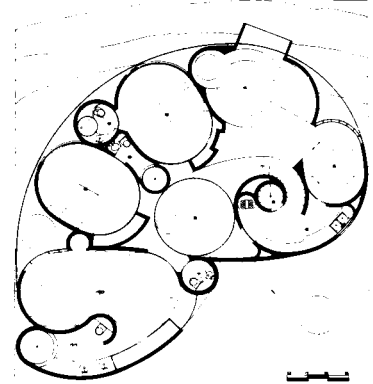
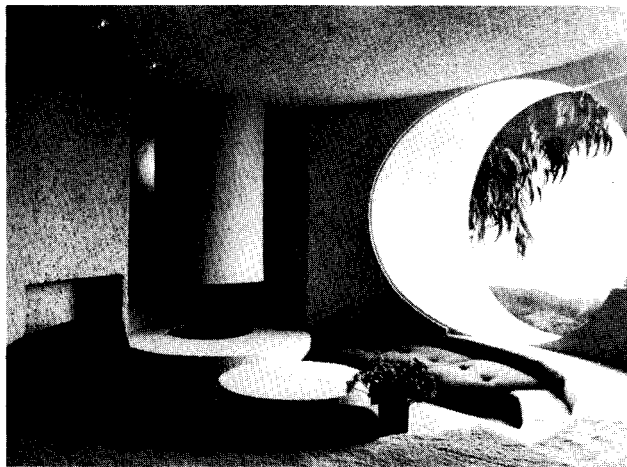
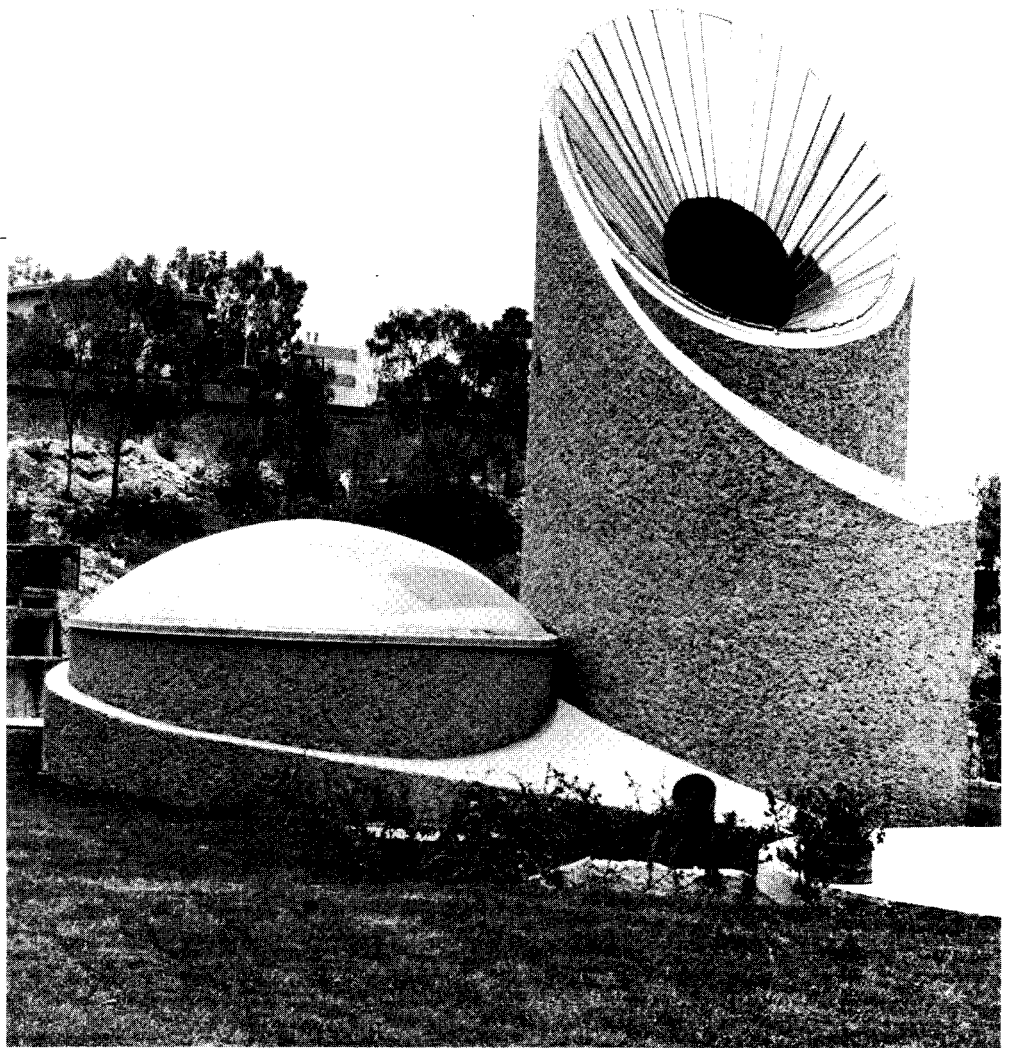
The center for bibliographic research is located in a building formed by two elements joined by a four-story-high covered court and ringed by balconies opening off the various reading rooms. The exterior proportions are massive; the materials and design elements follow the general scheme for the complex. The interior has been planned on a modular basis with great flexibility for changing installations.

There are also four theaters (two for movies) grouped in a single building that also houses an exhibition gallery, a cafeteria, and offices. The building is divided into three main elements, linked to each other and to a common vestibule.

The Little University Theater Center completes the ensemble. Its location is somewhat outside the main group, which is appropriate since it serves as the university's theatrical school.

The climax of the whole complex is the monumental outdoor "sculptural space," a vast composition enclosing a sea of untouched lava within a ring of stone 38 feet in diameter. Its 64 wedge-shaped modules are arranged around its circumference at regular intervals, with the cardinal points being marked by wider gaps. It is the collective work of Helen Escobedo, Manuel Felguérez, Mathias Goeritz, Hesua, Sebastian and Federico Silva.
LOUISE NOELLE

Ms. Noelle is an art historian at Mexico's National University Institute of Esthetic Studies; her specialty is modern architecture.



House Takes Its Form From a Sea Shell

The Neckelmann house in Mexico City by Augustin Hernandez has virtually grown out of and into its site. Its underground architecture has the advantages of conserving the natural landscape, buffering spaces from heat, cold, and noise, and protecting them from fire and storm.

The design of this house was inspired by the Nautilus Pompilius sea shell. The dwelling of circular, cave-like rooms is organized compactly around a central

patio covered by a translucent dome that brings in natural light.

The house is entered through a circular stair that winds downward from the roof garden, around a massive pillar to end at the indoor courtyard. It echoes the inclination of the landscape, whose natural slope also permitted the use of windows on the facade oriented toward the cliff. Rough concrete is used as surface material to blend with the texture of the surrounding terrain.

The house is a perfect integration of design and nature; the result is attractive, energy saving, and harmonious. L.N.



Julius Shulman

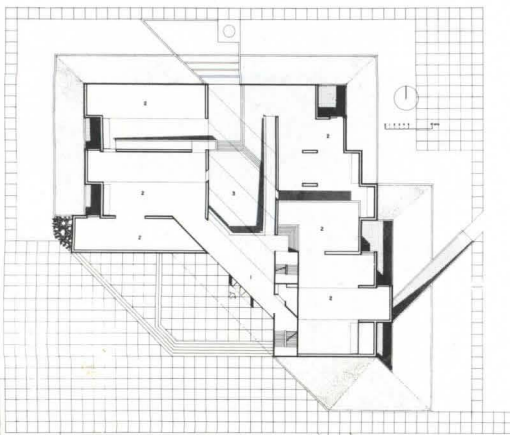
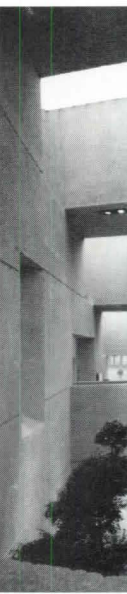
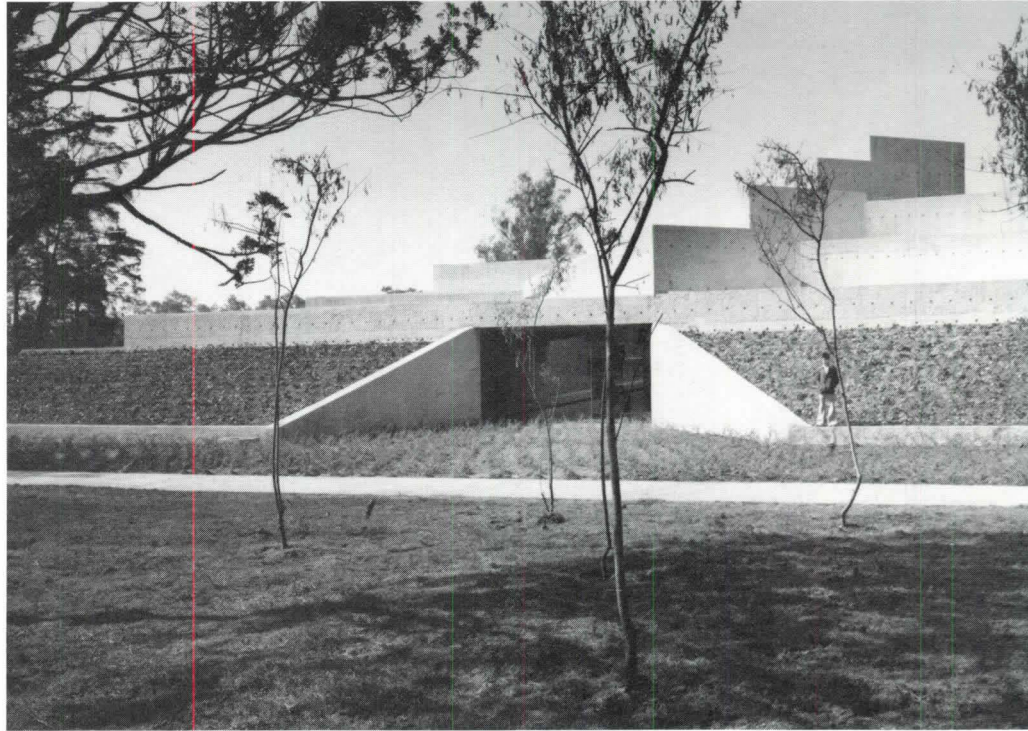
Terraced Museum for Contemporary Art In Mexico City's Core

In Chapultepec Park, ancient recreation site and today part of Mexico City, the Rufino Tamayo Museum by Abraham Zabludovsky and Teodoro Gonzalez de Leon was created to house a collection of contemporary art acquired over the years by the painter whose name it bears.

The architects, designers also of the Infonavit building and the Colegio de México, among other works, have created in the present structure an appropriate and dynamic atmosphere. Although it is just off the Paseo de la Reforma Boulevard, one of the most important and beautiful avenues of the city, and despite easy access from numerous points, and its great size (more than 48,000 square feet), the building blends into its background. Its white silhouette rises in gentle steps from a plaza of strongly textured concrete and marble.

Its irregular masses contain a vestibule, a covered courtyard-patio, and numerous galleries, all united by ramps or stairs. The circulation was carefully studied by the architects. The museum also has a small auditorium, storage areas, services and administrative offices, all generously planned and finished with materials of similar quality.

The double walls that enclose the installations are finished in smooth stucco. A variety of lighting systems, combined with the use of natural light, give variety to the building and provide the collection of paintings, sculpture, etchings, and woven wall hangings with an additional aid to their appreciation. Vertical sources of natural lighting are screened by acrylic skylights. These openings sometimes sug-

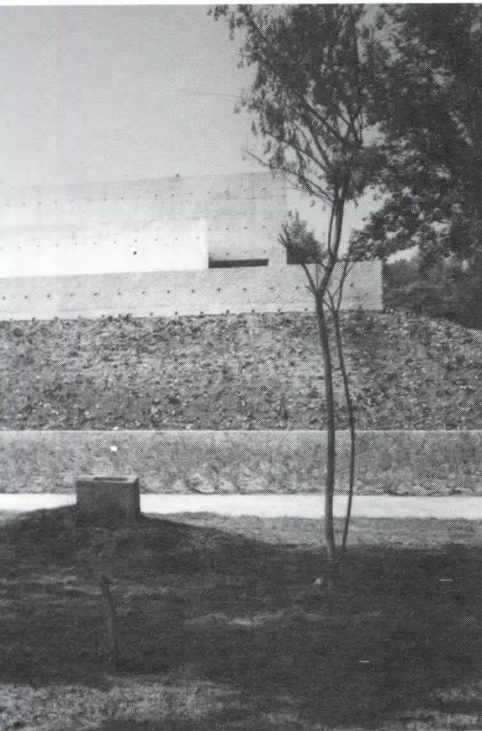


gest doors and occasionally open onto small patios where the spectator finds visual relief from the enclosed galleries.

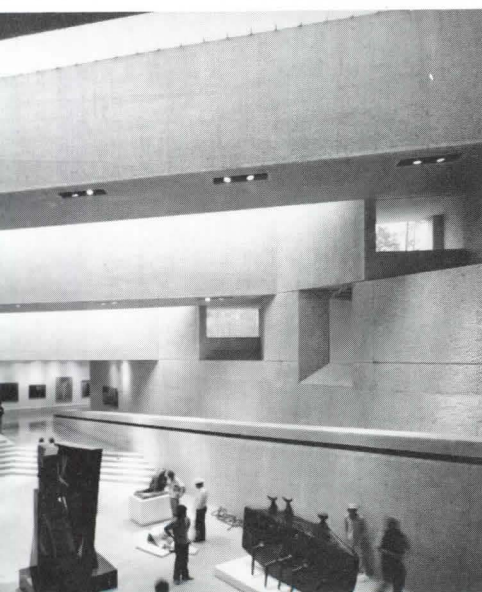
The gallery spaces offer broad surfaces over which the collection has been installed. Deserving special mention is the area next to the vestibule where there is an enormous wall hanging by a Catalonian master. The sculpture patio is also noteworthy, one of its sides opening outward to allow it to merge with the surrounding landscape. Other areas of the museum, to the contrary, are entirely enclosed for

works of another type. An example is the space housing a conceptual work of art, "The Last Supper," by an Argentine artist. Here we discover a closed area animated by a sound tape. There are other spaces similar to this one, their repetition giving coherence to the building.

The exterior solution and surrounding space have been conceived in terms of generally closed masses disposed along strongly stepped lines. This arrangement, together with the terraced landscaping, reduces the impression of large size. Due



Julius Shulman



Julius Shulman

to the superimposition of masses, only a small part of the site is covered. This understated treatment contrasts with the broad entrance zone, with its flanking trees and wide-angled stairs, and with the entrance itself protected by a heavy marquee. All these elements combine to lead the visitor with suitable ceremony to a vivid experience. MARCO DIAZ

Mr. Diaz, an art historian who teaches at Mexico's National University, is author of *Jesuit Architecture in Mexico*.



A House of Simplicity And Subtle Coloration

The exterior of this 1981 house in San Jeronimo by architect Antonio Attolini Lack clearly responds to its interior functions and presents an essentially austere, almost impenetrable appearance of great simplicity. One approaches via a tiled and covered path, or porch, that protects against sun and rain while shading the adjacent living room from morning sun. On entering, one is welcomed by simple lines and materials but a luxurious progression of spaces.

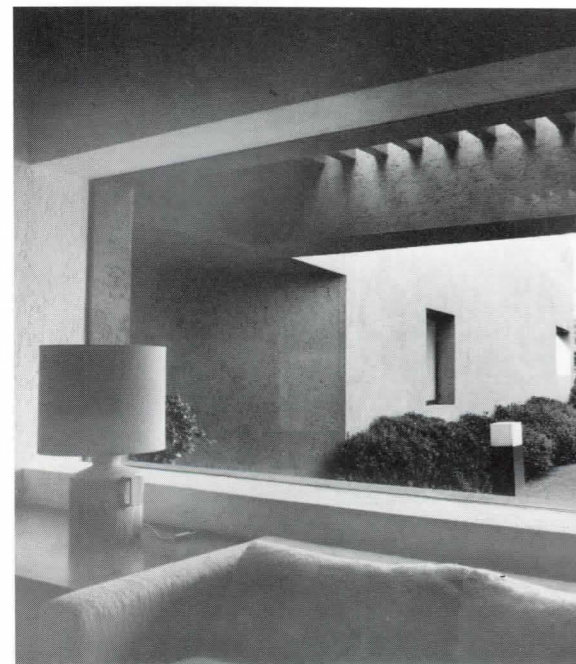
The reception area/hallway is a high, wide, and irregularly shaped space that leads both to the dining room and an inte-

rior garden. Spaces unfold, leading eventually to the bedrooms, whose squared corners are uncharacteristic in this house and produce physical and visual tranquility. Here, the windows have been treated to control the entrance of light, to frame small scenes, and to create a sense of protection. The solidity of the walls also offers both acoustic and thermal insulation, as well as psychological well-being.

Materials throughout are simple: clay, natural wood, carpets, glass, stucco. Characteristic of this architect are the load-bearing beam ceilings and the juxtaposition of heavy, austere walls with glassy glimpses of gardens and patios. He devotes much attention to details, both structural and decorative, to achieve a unified, harmonious, and pleasing dwelling. L.N.



Tomas Prie



Tomas Prie

Russia

New Emphasis on the 'Esthetic and Artistic' Sides of Architecture

Editor's note: The following review of recent Soviet architecture is the only article verging on the "official" in this issue, having been contributed by Professor A. V. Ryabushin, secretary of the governing body of the U.S.S.R. Union of Architects. Even so, we find it both frank and thoughtful, and are grateful to Professor Ryabushin for his contribution.

Our architecture has been highly successful in social terms in the fields of town-planning and large-scale industrial house-building. However, starting from the 1960s it suffered from certain professional drawbacks that had to be overcome in the previous decade. Architects recalled the diversity of human needs, the progressive substance and graphic potential of architecture, the value of beauty, cultural

and artistic traditions, local and national peculiarities, and historical monuments.

The creativity, graphically of architecture, its esthetic and artistic capabilities, its ties with history and national traditions—those are the hottest, "burning" points of the profession. We have realized that unless we keep them in mind, unless we actively search in this direction, the very notion of "architecture" ceases to exist.

Although certain results have been attained during the last decade in this field, a vivid, comprehensible, and close-to-people language of architecture still remains a number one problem. Our architecture develops a vivid image, becomes a real art capable of satisfying material needs while stimulating and capturing people's imagination.

The late '70s and early '80s were marked by new creative impulses and artistic tendencies. A number of outstanding architectural sites, including Olympic ones, came to view. Different in design but both unusual in their dynamism, the yachting center in Tallin (below)

and the indoor cycle track in Moscow (right below), skillfully erected near water, produce a deep impression. The respectable outline of the main Olympic press-center in Zubovskaya Square is dynamic in its ponderousness.

Many of the recently built structures in the capital are characterized by the interplay of peculiar space forms, by a dramatic confrontation of architectural themes and tunes. The joyful outline of the children's musical theater (right) is ponderous yet abundant in details.

Peculiar, outstanding architectural structures appeared recently outside of Moscow. The hotel Kazakhstan in Alma-Ata intentionally declares its disfunctionality, in particular by a truly barbaric and extravagant golden entrance visor. One can also mention the Museum of Revolution in Vilnius, the House of Youth and the Zvartnots airport in Erevan (far right below), the House of Officers in Alma-Ata, the Issyk-Kul sanatorium in Kirgisia, the House of Peoples' Friendship in Tashkent, and many others.



TASS from SOVFOTO



TASS from SOVFOFO

Their architecture is different and in many respects incompatible. But they have one thing in common, for they are unorthodox and unique against the background of boring and cheerless clichés of the geometry-oriented architecture of concrete, glass, and steel that is mechanically called “modern” though it is hopelessly bogged down in yesterday.

Among those structures that started the stream of this initially “strange” architecture, the monumental TASS building in Nikitskie Vorota in Moscow (below), built in the late '70s, occupies one of the first places. It demonstrates, in particular, that in addition to the “internal” factors of architecture that were earlier recognized as the only ones having any significance—i.e. function, construction, and material—there exist perhaps even more important factors imposed by the architectural environment and the city context. There is no doubt that the peculiarity of the Nikitskie Vorota space, the exterior features and large scale of apartment houses built early in our century,

and churches erected early in the previous century, left their imprint on the configuration of the new building.

Its architecture was unusual in many respects: scale, proportion, plasticity, and pattern of details, and the general attitude toward the established stereotype of an administrative building. It was not clear, in particular, how to regard immense apertures with rounded corners extending for two floors simultaneously. No high-ceiling halls stood behind them, and it defied the much valued principle of architectural “truthfulness.” The floor traversed the huge aperture in the middle; one story was illuminated through the windows at the floor level, another at the ceiling level, and that also constituted a flagrant violation of straightforward functional logic. However, the creative thought of the '70s is famous for the very overcoming of such logic and artificial, rigid tenets.

In sharpening the new architecture’s artistic tools, we were able to overcome simplified notions of architectural form

and beauty that were automatic consequences of the right solution of the function and construction issues. The big truth about human culture and history, always present in the society’s memory, often fell victim in previous years to these oversimplified notions, to such literal “truthfulness”—incomprehensible to laymen and useless to experts.

Today we have become convinced both in practice and in theory that what functions well does not necessarily look good, that the literal exposition of the construction and material used does not guarantee the outward beauty of the structure. It is also simply not enough to express on its exterior that this house is made of panels and that one of bricks, that this is a hospital and that is an apartment house. It is necessary to explain the dominant attitude of certain life processes, of society, and of individuals, thus reflecting social values and ideals, ideology, and the emotional atmosphere of the epoch. These features are contained in a perfect artistic work. Exposition of the function, not to mention construction and material, means the most elementary, lowest level serves as a foundation for growing highrise buildings of creative architecture.

All new, “strange” architecture is called forth by some special laws of the creative thought, different from the established basic functional “truthfulness.” Such architecture is, as a rule, annoying and shocking for the tradition-based professional mind. This is understandable: It “overdoes it,” flirts with the ordinary taste, etc. At the same time, one cannot deny this architecture’s novelty in dealing with its tasks, its creative liberty of expression, its brave forms, and its intuition. It is in this direction that one seeks architecture full of national originality, historical memory, intrinsically woven into the historical fabric of architecture. The marvelous Ethnography Museum of Armenia (right) by R. Israelian, recognized as an outstanding recent building, is infinitely far from cold logic of functional form-making.

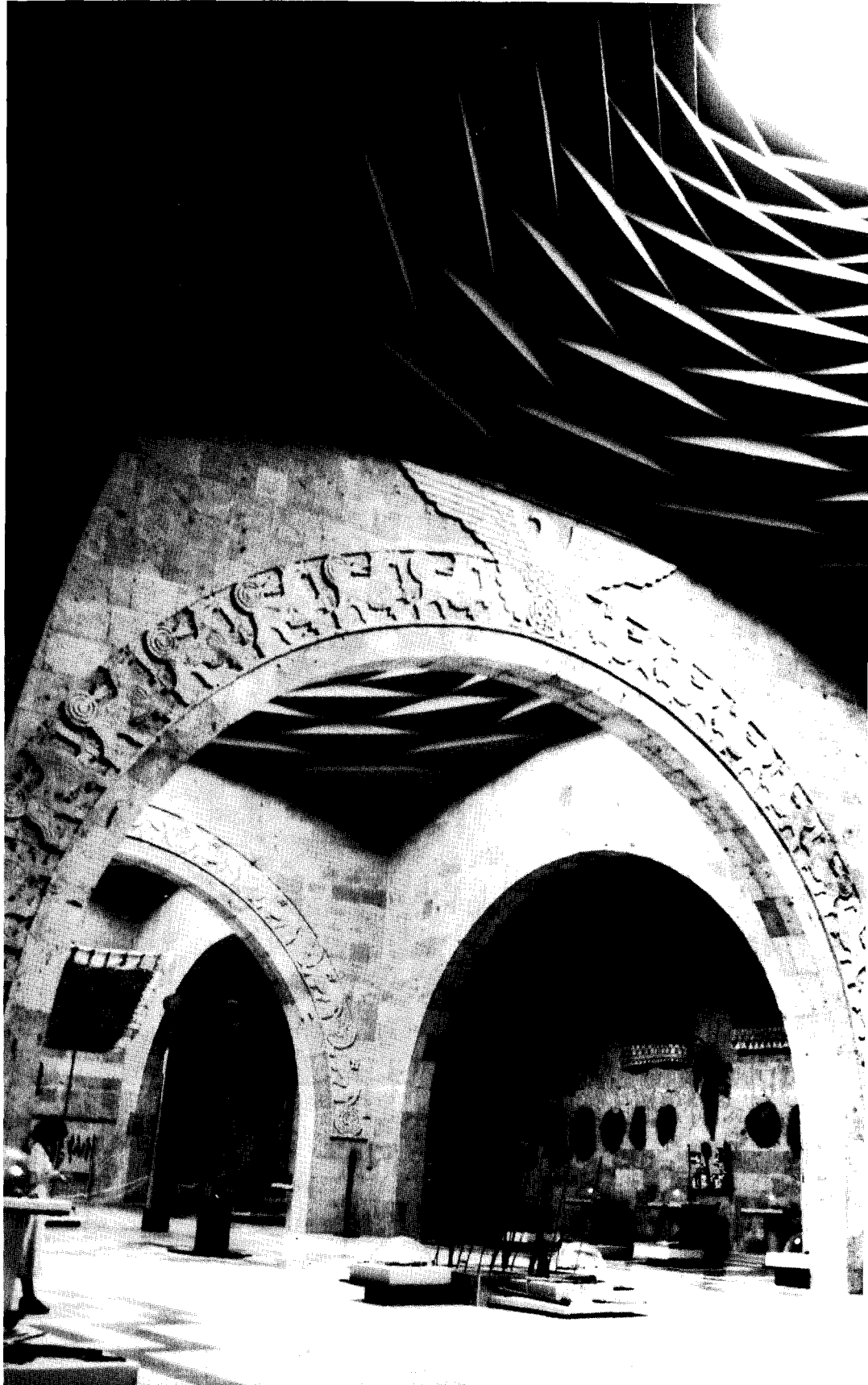
We have no doubts today that forms established by historical tradition should “feed” the new architecture, for historicism would save it from abstractness, put it in the common chain of cultural development, and make it close and understandable to all. However, modern national architecture should be developed



not through a direct reproduction of historical patterns alone (it is not the only available and main road), but rather through a fine association with undoubtedly new forms somewhat imperceptibly (this is art!) recalling historical roots and national and local identity. It is not the cosmetics, or cover patterns (though they should not be disregarded), but primarily the fundamental laws of form-making (specific for the historical national culture and mainly for its present level) that would make this association possible. One would use them in today's creative processes, in today's architecture with all its modern specific features, to demonstrate the peculiarity of Georgian, Uzbek, Lithuanian, and other national architectures of our country.

We treasure the historical heritage of our national architectures, the historically evolved regional and local peculiarities of the building art. We are convinced that one can find modern means to preserve and develop these peculiarities, and this is a pressing creative task of today. However, we are against extremes in this field. We are in favor of developing only those local schools and orientations that move forward and not backward in their activity, that develop in contemporary architecture truly progressive, living features of the tradition, and that do not engage in "reviving the dead" or in thought-up form-making that allegedly reveals local specific features.

There are no people without traditions, one should always remember one's own history, and architecture should serve as the society's historical memory. So we work in architecture tinted with national and local features, clear by its historical roots and therefore close to and easily understood by the people. However, we would like to stress once again that we are against any extremes of historicism and nationalism in architecture. We create a new world's architecture; we, architects, are among the most active creators of this new world. Therefore, our architecture with all its "historical memory" and "history roots" should be future oriented, not past oriented. From the viewpoint of large-scale culture, our architecture should maintain time links and encourage historical continuity of our national past through the dynamic present into our future. Such is the noble humanistic calling of architecture. □



Czechoslovakia



Drawing by Robin Roberts

Single Pylon Bridge As a City's Gateway

The bridge of the Slovak National Uprising has become a new gateway to Bratislava. From the road, the legs of the bridge pylon, located on the right bank of the Danube, frame a silhouette of the city: riverfront buildings with church towers, clay tile roofs, and office highrises in the background. Similarly, when approaching by water, the Bratislava castle on the left bank and the single pylon of the suspension bridge on the other side complete the framing of the city's rich skyline.

After the city fathers concluded that the historical core had to be linked with new development on the urban perimeter, an undeveloped parcel of land across the river from the old town became the site of a new town of 100,000 called Petržalka. An existing bridge, which was constructed as a temporary one after World War II, was declared unfit for the increase in traffic volume.

A national design competition was held in 1967 for the design of the new bridge. The program did not permit any supports in the river that would obstruct navigation. The winning design was a straightforward, low-key solution—a box-beam in section—but structurally it later proved unacceptable.

A Hungarian construction company experienced in building suspended bridges in its home country was then called in to build the bridge. Its directors immediately favored the runner-up entry with its inclined, two-legged pylon holding the cables, which supported the roadway structure spanning the river.

No substantial changes were made in the design development stage to the competition entry, the work of a group of architects and engineers from the Slovak Technical University: Prof. Jozef Lacko led the team of architects; his colleagues were Ivan Slamen and Ladislav Kusnír. The structure was designed by the engineering faculty headed by Prof. Arpád Tesár.

The bridge spans the river channel for more than 1,280 feet. The roadway is suspended by cables at three points over the water from the inclined, A-shaped pylon. The cables are collected together at the pylon top and then descend in a cluster



anchored in the ground. The pylon is topped by a saucer-shaped observation cafe for 120 people, offering breathtaking views of the city. An elevator shoots up inside one of the legs; the other leg contains the fire stair. Vehicular traffic on the bridge is segregated from the pedestrians below.

The architectural concept of a singular vertical element for the bridge, located on the Petržalka side (right bank) of the river opposite the Bratislava castle, is intended as a counterpoint to the overall spatial composition.

However, critics of the bridge claim that this new dominant feature is an undesirable competitor to the historical skyline. They further lament the bridge's location, which brings a heavy stream of traffic through the old core. They also fear the effects of the road vibrations and automobile exhaust on the historical architecture, not to mention the people, in the area.

Nevertheless, since the bridge was opened for use in 1973 (though some of its amenities are just reaching completion), the traditional symbol of the city—the Bratislava castle—has learned to live with its modern counterpart—the new bridge.
PETER LIZON, AIA

Mr. Lizon, originally from Czechoslovakia, is an architect in Washington, D.C., and teaches at the school of architecture, University of Tennessee, Knoxville.

A Museum Addition Encouraged to be Bold

One building on the Bratislava riverfront stands out from all the others. Consisting of white and red articulated forms, it is located over the new Danube bridge, approaching the left bank, on the Razuš Quay. Its anodized aluminum-clad facade houses extensive additions to the Slovak National Gallery. The windowless cantilevered and angled elevation is in sharp





contrast with the surrounding fenestrated, masonry buildings.

The museum extension's strong shape dressed in a metallic skin has been the subject of an ongoing polemic. It illustrates all the problems of contextualism. Vladimír Dedecek, the architect of the extension, has claimed that when he submitted the preliminary design (based on his winning entry in a competition) to the client in 1967 it was rejected as too conservative. A committee of the Slovak ministry of education and culture, which made this decision, declared that it was unnecessary to relate the extension either in scale or form to its architecturally insignificant neighbors. Furthermore, the committee required a complete visual connection of the court of the existing Baroque building, dating from the second half of the 18th century, with the quay promenade.

The footprint of the original building as designed by Austrian architect Hildebrandt, was an O. The four arcaded wings created a court that was used for exercises by the Austro-Hungarian troops then residing in the building. The front wing facing the Danube was demolished in the 1940s to make room for a widened river road. It seemed appropriate to Vladimír Dedecek that the court now used by the national gallery should be given back its former privacy by closing the composition, and that the expansion should relate to its original form.

As often happens, a compromise was reached. The O-form was completed above ground level, and the full visual connection in and out of the court was achieved by spanning a 237-foot distance with a three-story bridge-like structure defining a grandiose entrance to the gallery complex.

Another blow to the original extension concept, complained the architect, was an unfortunate change from the planned ceramic mosaic exterior finish to stark aluminum panels. At least the modified image cannot be faulted as too conservative. The bridge-like structure has no openings on the front, or south, side. The north side, however, is one large expanse of sloped glass that allows art to be displayed in a natural, diffuse light.

Although the exterior of the expansion has been characterized as a brutal statement, the interiors are tasteful. The spaces of the restored baroque wings are integrated with the new exhibition areas. Although the exterior of the gallery presents two diametrically different styles, the interior offers consistently excellent natural and artificial lighting and an internal unity that gives the visitor a sense of continuity. It allows enjoyment of superb collections of paintings, sculpture, and graphics.

The first and second phases of the project, amounting to 34,688 square feet of floor area, were completed in 1979. Two more phases remain to be built. P.L.

Radio Center Heralds A New Expressionism

East of the historical core zone, in the area where the city grew most since the end of the 19th century, a striking form has appeared. The Czechoslovak Radio Broadcasting Center in Bratislava on Mytna Street is part of an ensemble of large buildings grouped around the spacious Gottwald Square. While one end of this space is bordered by a rococo palace and gardens, the seat of the Slovak National Council, the other sides are flanked by modern buildings—the new post office and a complex of schools making up the Slovak Technical University. These buildings were done by some of the best architects in the country, and their designs offer a palette of ideas to the architectural students who occupy one of the structures of the ensemble.

A design competition was held for the Radio Broadcasting Center in 1967. It was won by a team of three architects from Bratislava, Durkovic, Kissling, and Svetko. Not until 1973 did they finish the construction documents. The floor area of 56,640 square feet does not give the true story of the size of the project. The volume of the center is over a million cubic feet, larger than it might be because of the many high ceilinged recording halls and studios in the building's podium and the skylit multistory atrium of the inverted pyramid resting on the podium.

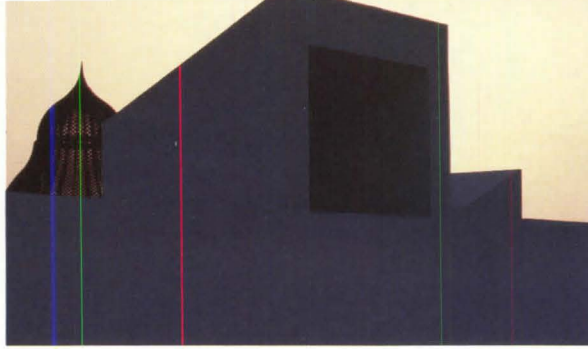
The pyramid houses the acoustically sensitive spaces around the core; perimeter editorial offices help buffer unwanted exterior noise. The inclined surface of the pyramid, the recessed windows, and the exterior structural grid keep unwanted sun from entering the offices.

The Radio Broadcasting Center, together with the Bridge of the Slovak National Uprising and the Extension of the Slovak National Gallery, represents an architectural movement in Czechoslovak architecture. They share a strong tendency toward expressionism and seeing esthetic and formal qualities as primary. P.L.



Photographs by Peter Lizon, AIA

Saudi Arabia



A Palace Exemplifies 'Continuity and Change' In Islamic Tradition

Abdel-Wahad El-Wakil is a 39-year-old Egyptian architect now working in Kent, England. He is a disciple of Hassan Fathy, who has long advocated the use of indigenous construction techniques, design, and materials in his native Egypt, where he has devoted himself to creating housing for the poor.

El-Wakil's palace in the new city of Jeddah is, of course, far from modest. Designed for Sheik Al Sulaiman, president of Datsun and other concerns in Saudi Arabia, it was built for approximately \$6 million. Nor are the materials or design exclusively local: There is an amalgam of architectural elements from Islamic schools, Egyptian, Mamluk, Andalusian, Indian, and Hijazi. The palace is consistent, however, in roundly rejecting modern international architecture in favor of familiar forms and technologies, though kitchen and bathrooms are thor-



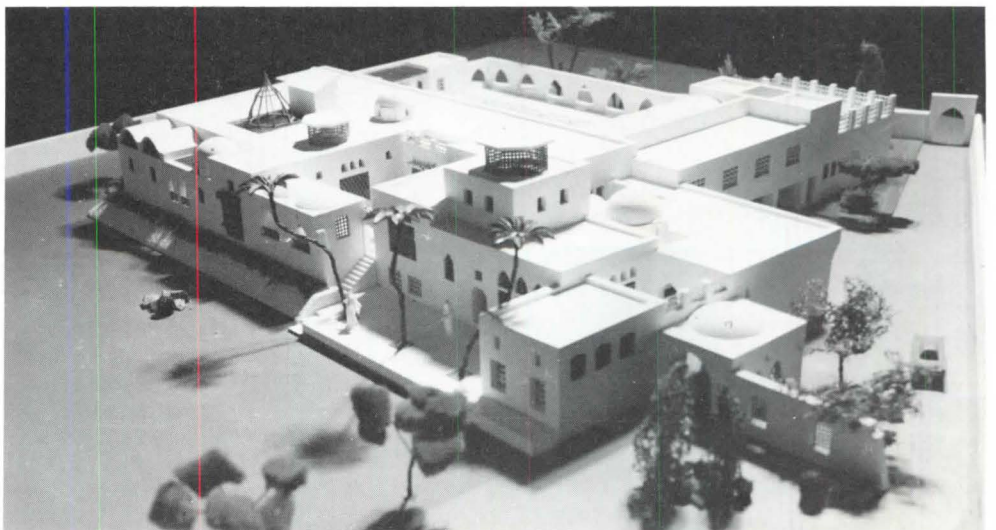
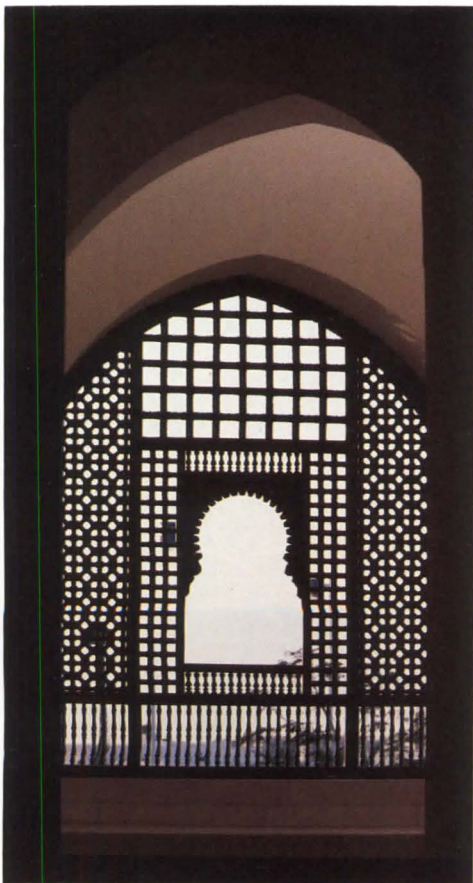
oughly Westernized. According to El-Wakil, "The palace will have served its purpose if it can inspire and influence more utilitarian building types. The challenge of architecture is to maintain continuity within the change that occurs by referring to the constants and reinterpreting them within the new context."

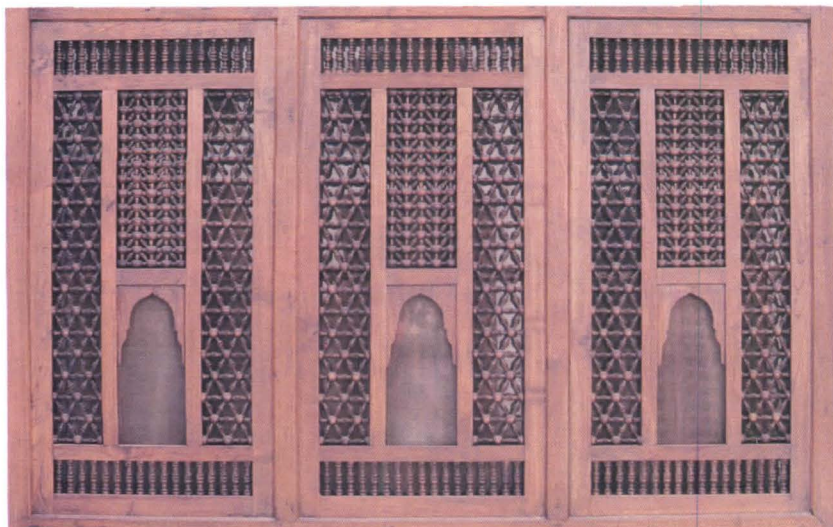
Among the Arab features of the mansion are its asymmetry, its separation into public and private spaces, its interior courtyards, balconies, wooden screens over windows for shade and privacy,

The palace combines extravagant, up-to-date Western amenities with ancient Arab ways of organizing and detailing spaces.

wooden lanterns—or raised domes—to bring in light and breezes, and the use of thick walls to protect against heat and cold. And in the hope of reviving a dying art, El-Wakil employed only Egyptian carpenters for all the woodwork.

El-Wakil observes that one result of modernization in the Near East is that, "People don't want dwellings that remind them of what is old or provincial, in time or space, what is referred to as 'local' or 'vulgar,' belonging to the common people. In this sense, the Sulaiman house has helped; people from the lower or middle classes who work with the sheik now see and want Arab houses. Before, they did not want them." A.O.D.





Kenya

A Combination of Pyramidal, Angular And Rectilinear Forms

The Mathari maximum security psychiatric hospital is adjacent to Nairobi's industrial area. Mutiso Menezes International of Nairobi prepared the master plan in 1974 and recently completed the 360-bed facility, two-thirds of which is for male patients, one-third for females.

The complex is arranged along an east-west axis, zoned for different functions in layers running north-south. In both men's and women's wards there are two types of accommodations. For patients classified as "dangerous" there are three buildings aligned along an east-west axis with single cells; a small exercise yard separates two of the structures.

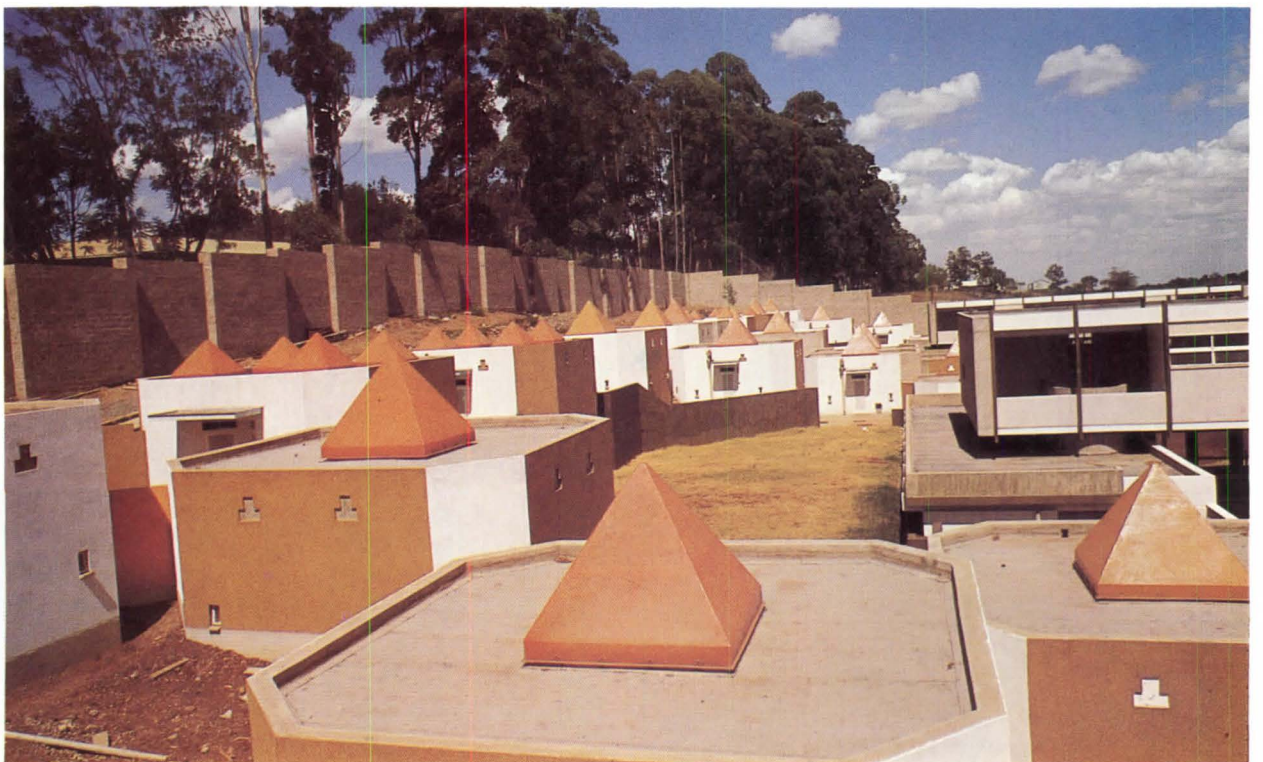
Most intriguing are the accommodations for the so-called "semidangerous," who are allowed out on the hospital grounds with staff permission, and the "harmless," who, in preparation for release, are given increasing amounts of freedom. Both live in hut-like dwellings, each of which houses four patients and is topped by a peaked, orange-colored, translucent skylight located over a central seating arrangement.



Because these patients are encouraged to spend daylight hours outside their rooms, the walls have only peek holes, no windows; the skylights bring in light and ventilation.

The principal feature of the overall design is a central pedestrian street that separates the "dangerous" from other patients and gives access to treatment and so-

cial rooms. This passageway has benches, lighting, kiosks, trash bins, and the like, and is wide enough to accommodate playing courts at one end. Running north-south, and separating the male and female wards, is a central complex that contains security gate controls, administrative space, medical facilities, an amphitheater, and library. A.O.D.



Iran

A School's Walls Are Strengthened by Setting Them on Fire

"Around midway in my life I stopped racing. I picked up my dreams and started a gentle walk," writes E. Nader Khalili, a 45-year-old Iranian architect who also works in California. The "gentle walk" took Khalili on a six-year journey through the Middle East, where he developed a simple building method for desert villages. What he calls *geltaftan*, meaning "firing-clay" in Persian, is a process of firing and baking from the inside adobe and clay block structures, either old or new ones, to make them water resistant and to raise compression strength.

The firing at 1,000 degrees centigrade is done with homemade torches; the building is ignited, and while being baked can also become a kiln for producing bricks and clay vessels. It thus becomes both a product and a producer.

Khalili's intention was to improve on indigenous Middle Eastern adobe architecture, which remains cool in summer and warm in winter. Its single and double arches and domes need neither beams nor joists, create sun and shade zones, wel-

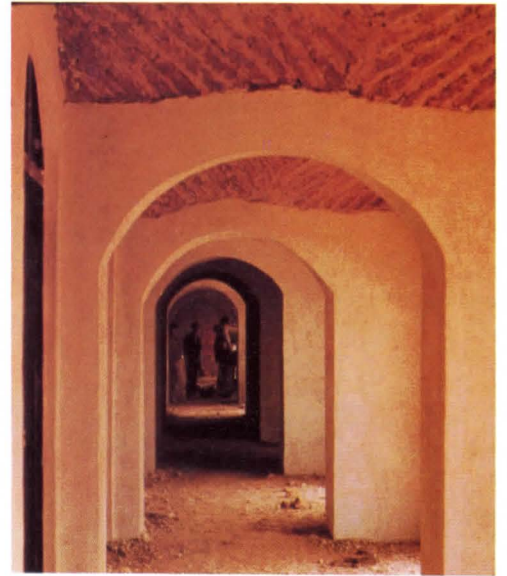
come air currents but soften them. Yet adobe melts like sugar in the rain.

To date, Khalili has used his *geltaftan* method on two modest projects. The first consisted in rehabilitating 12 houses at the small village of Ghaleh Mofid in Iran, simply by firing them. The second, shown here, is a new school in the nearby village of Lavadabad.

The 5,000-square-foot school was finished in four months, despite many delays. Though the firing could have been done in 24 hours, it proceeded over a period of weeks because oil was rationed and sections were fired piecemeal as fuel became available. The roof was covered with straw-clay plaster, as is traditional, but some of the plastering was done at the end of the firing process, and so was baked.

The interiors were lined with gypsum plaster, according to government requirements, though Khalili would have preferred to keep the adobe exposed. Outside walls were also faced with straw-clay or gypsum plaster. Floors are lime-clay slabs covered with a layer of concrete with brick lining. Unfortunately, the plan to bake bricks while the rooms were being fired was fouled by freezing weather.

Khalili's hope is that his *geltaftan* method can be used to create truly low-cost



housing in many parts of the world, that his firing-clay procedure can be learned by unskilled people and carried out with simplest means, that the method can be used to make many disease infested spaces hygienic and safe without use of poisonous chemical sprays, and that the firing and glazing process might even create a new vocabulary for integrating ceramic art into architecture. A.O.D.



Argentina

Architecture Enriches A Variety of Civic Nodes And Spaces in Córdoba

Architect Miguel Angel Roca—also a painter, writer, and university professor—has been secretary of public works for Córdoba since 1977, and he has done much to transform the city's historic center, not only with new structures and remodelings, but also with his creation and treatment of pedestrian streets and plazas.

Most central of these transformations is his treatment of the Plaza de Armas, a

space enclosed by the Plaza San Martín, the cathedral, and the municipal council building. It had been crowded with automobiles and has been restored to pedestrian use. Its entire surface has been paved with stone, and on the paving are drawn in white marble strips the outlines of the cathedral.

The second sector is the Pasaje Santa Catalina, a passageway that proceeds from the Plaza de Armas and is defined by the lateral facades of the cathedral and the municipal council building, is linked to a group of ancient houses, and terminates at the church of Santa Catalina.

The third sector comprises the pedes-

trian area from the Plaza Jeronimo Luis de Cabrera to the legislature. It has a series of tree-like metal trellises whose tubs are designed as stone seats. An arched gate at the threshold of the historic center serves as observation platform and, from a tiny office under the stair, as a tourist information center.

At the city's General Paz marketplace, Roca has used as his central element a venerable, cast iron, rectangular pavilion imported from Europe at the end of the last century; at its four corners are ma-

On Córdoba's Plaza de Armas, the cathedral is outlined in marble.







Above, part of architect Miguel Angel Roca's extensive street architecture for Córdoba is this arched gate near the domed church of Santa Catalina. Right, in another street, a parade of skeletal metal vaults will support deciduous vines for summer shade.



sonry service pavilions that frame and set it off. It contains a theater-cinema, exhibition space, and community rooms.

Around two sides of this elegant structure, Roca has wrapped a new L-shaped building sheathed in smoke-colored mirror glass. In fact, because the new facade is composed of a series of convex and concave curves, it mirrors the old marketplace in duplicate and triplicate. The new structure houses a community center, restaurant, snack bar, administration center, and library. The interstitial spaces between the old and new buildings are alive with odd mirror-fractured images. Córdoba's San Vicente Market was built in 1927 and is located at the boundary between city and countryside. By the 1970s, it had been shorn of its original use, but not of its meaning and significance as an urban and community landmark. In 1979, it was brought back to life as a neighborhood complex for administrative, cultural, and commercial uses.

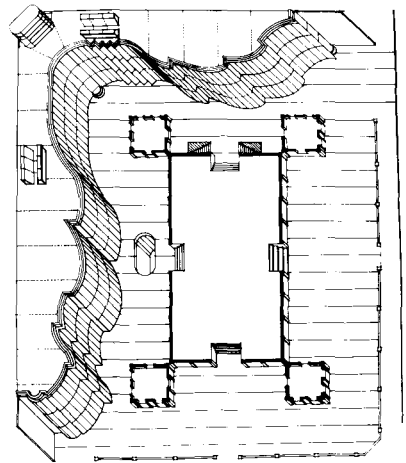
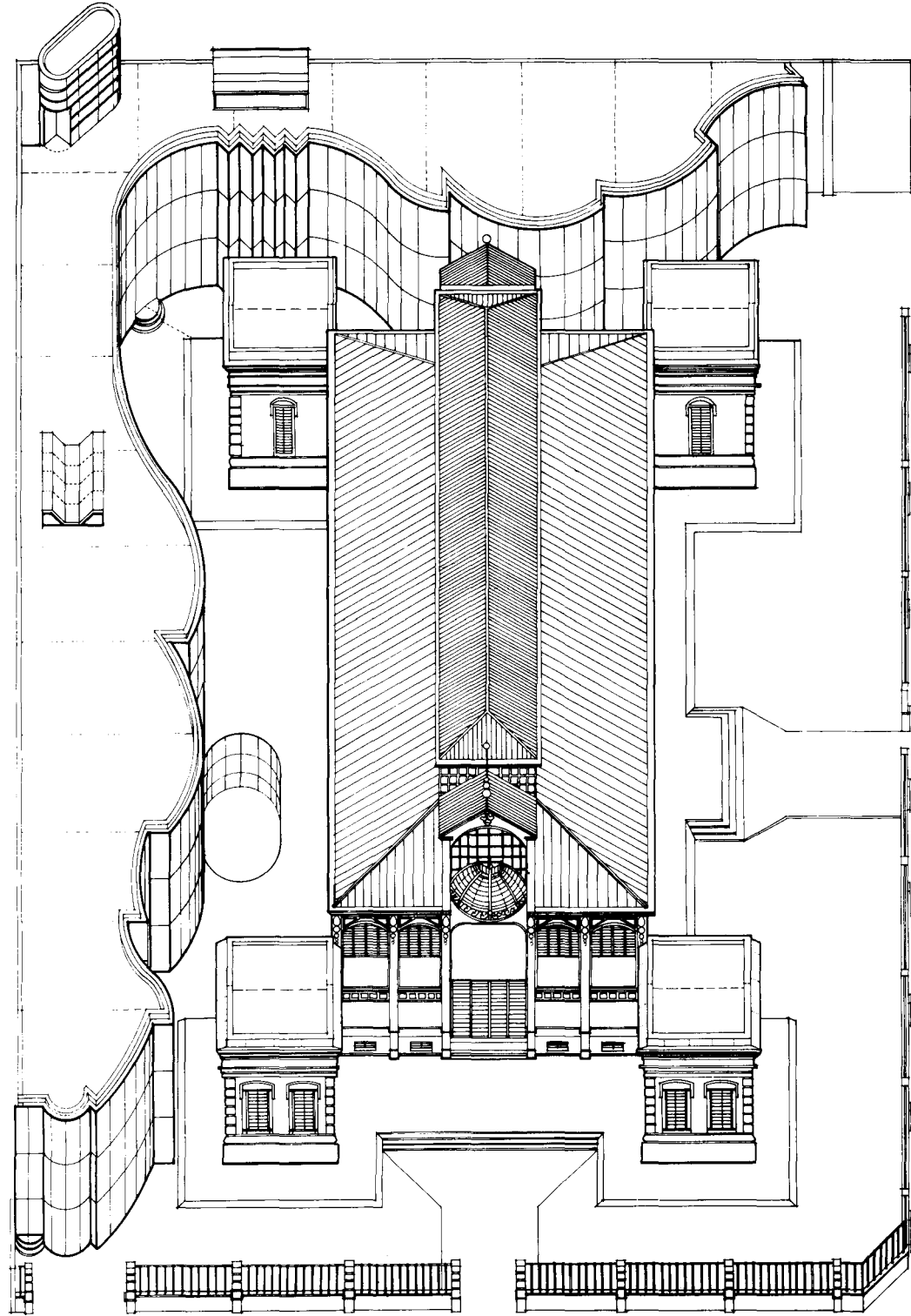
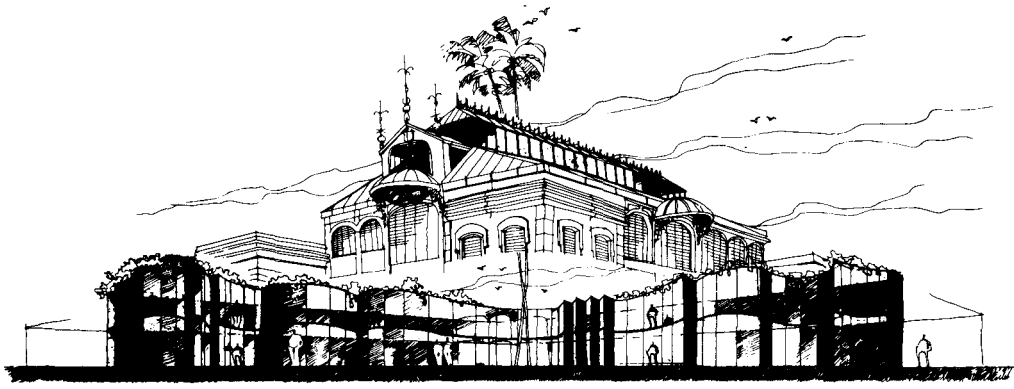
What Roca has done is to restore the existing walls of the market and insert into them a sort of village made up of partly transparent pavilions of different shapes and sizes that accommodate a neighborhood center, a youth center, an administration building, auditorium, library, restaurant, and bar. The ceiling of the interior street is painted sky blue with clouds, and *trompe l'oeil* vines and trees appear across the "street" from the pavilions on the old wall in front of which emerge oversized, nautical-looking vents.

The inspiration for the redevelopment of San Vicente came from a series of paintings by René Magritte, and Roca has achieved his surrealist effects with the same ambiguity of discourse between exterior and interior. At San Vicente one enters an exterior that refers us to the history of the neighborhood. Then inside we are surrounded by a forest, albeit one tamed and measured. It is a world of ambiguities whose forms include both the modern and the postmodern.

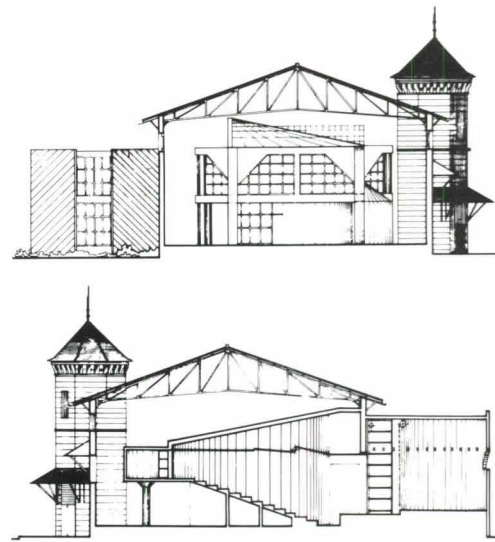
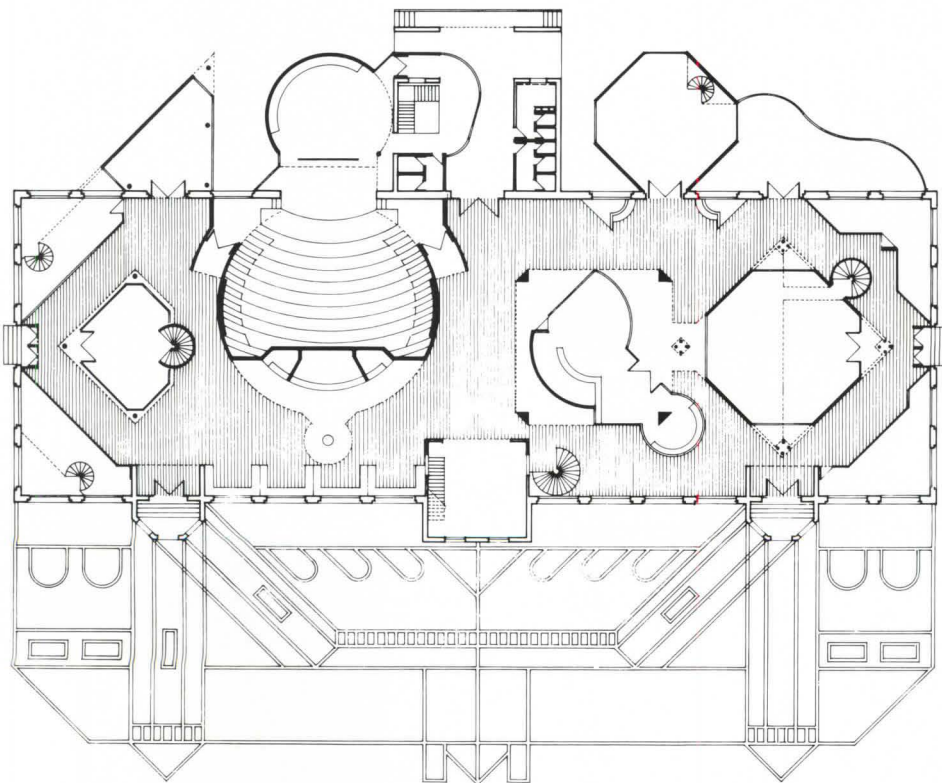
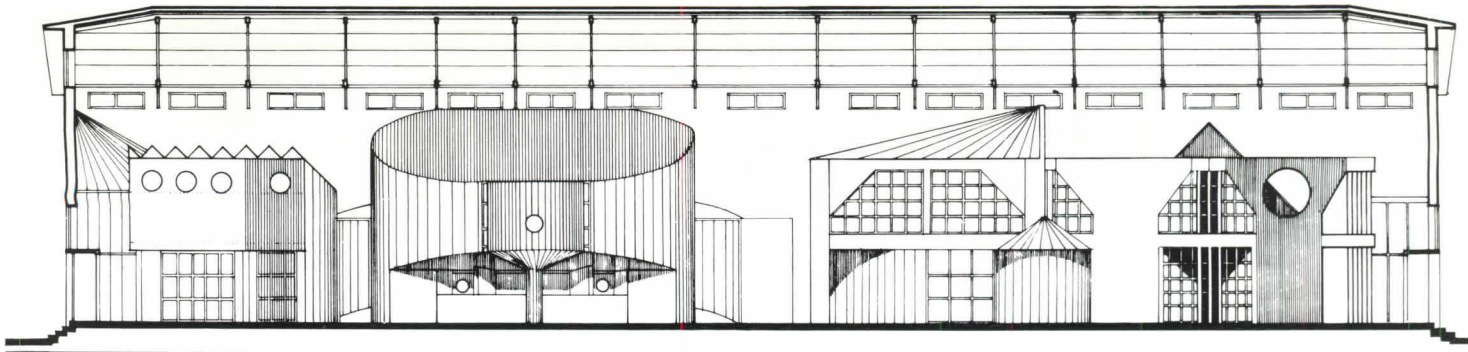
Like the Plaza de Armas in front of the municipal council building and the cathedral, the square facing San Vicente market has a new pavement that celebrates the building by outlining its facade with white marble on dark slate.

JORGE GLUSBERG

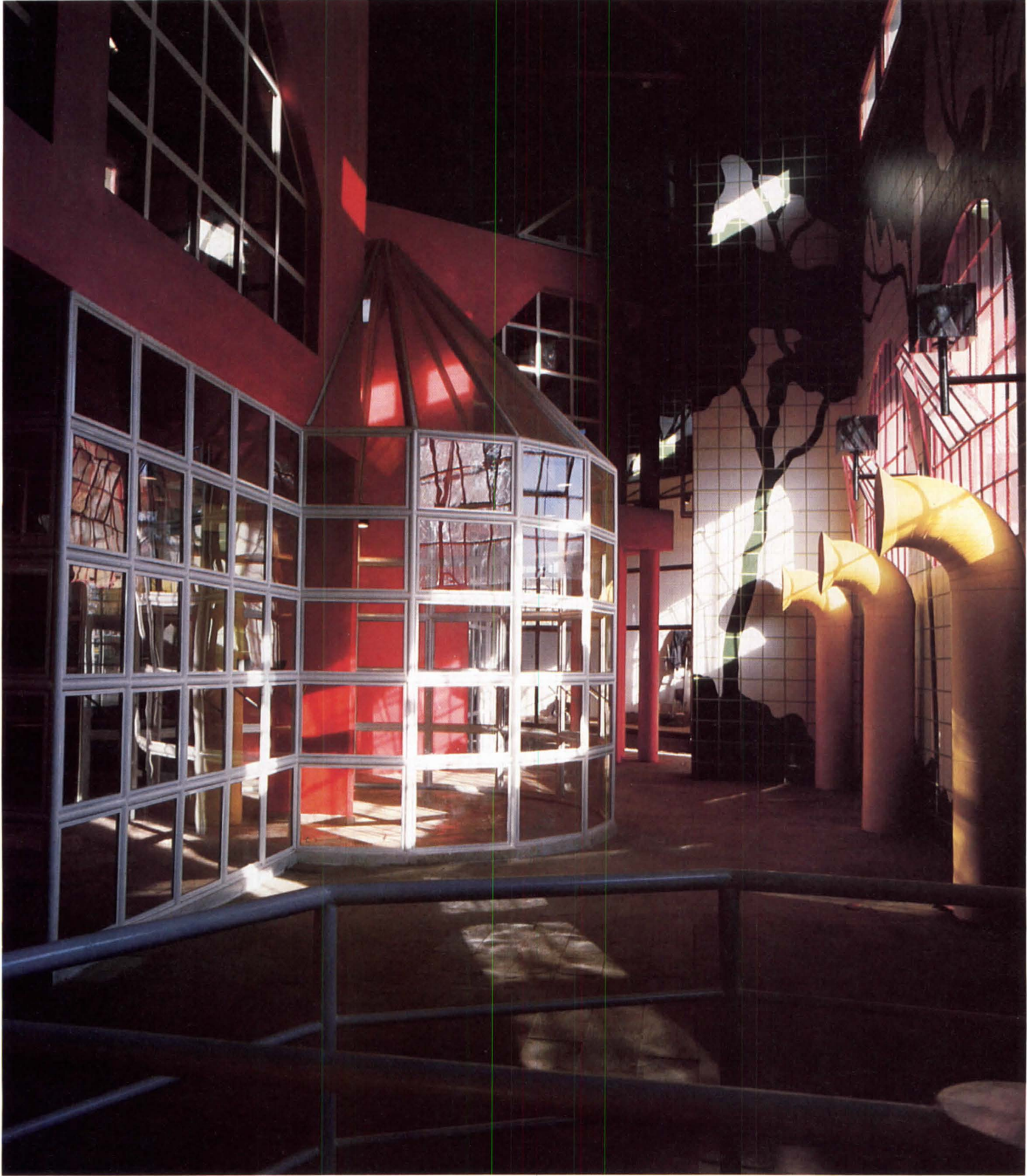
Mr. Glusberg is secretary of the International Committee of Architectural Critics.




The General Paz marketplace is also in Córdoba. Roca has partly surrounded the existing building—cast iron with stone corner pavilions—with a rippling wall of reflective glass. Behind the wall: a new administrative center, library, and cafe.



The San Vicente market has been more radically remodeled by Roca. As shown on the plan at left, its facade has been repeated on the plaza with marble paving strips, as at Plaza de Armas. The interior of the building now holds individual pavilions for theater and other functions, and the rear wall, paradoxically, depicts a wooded glade.



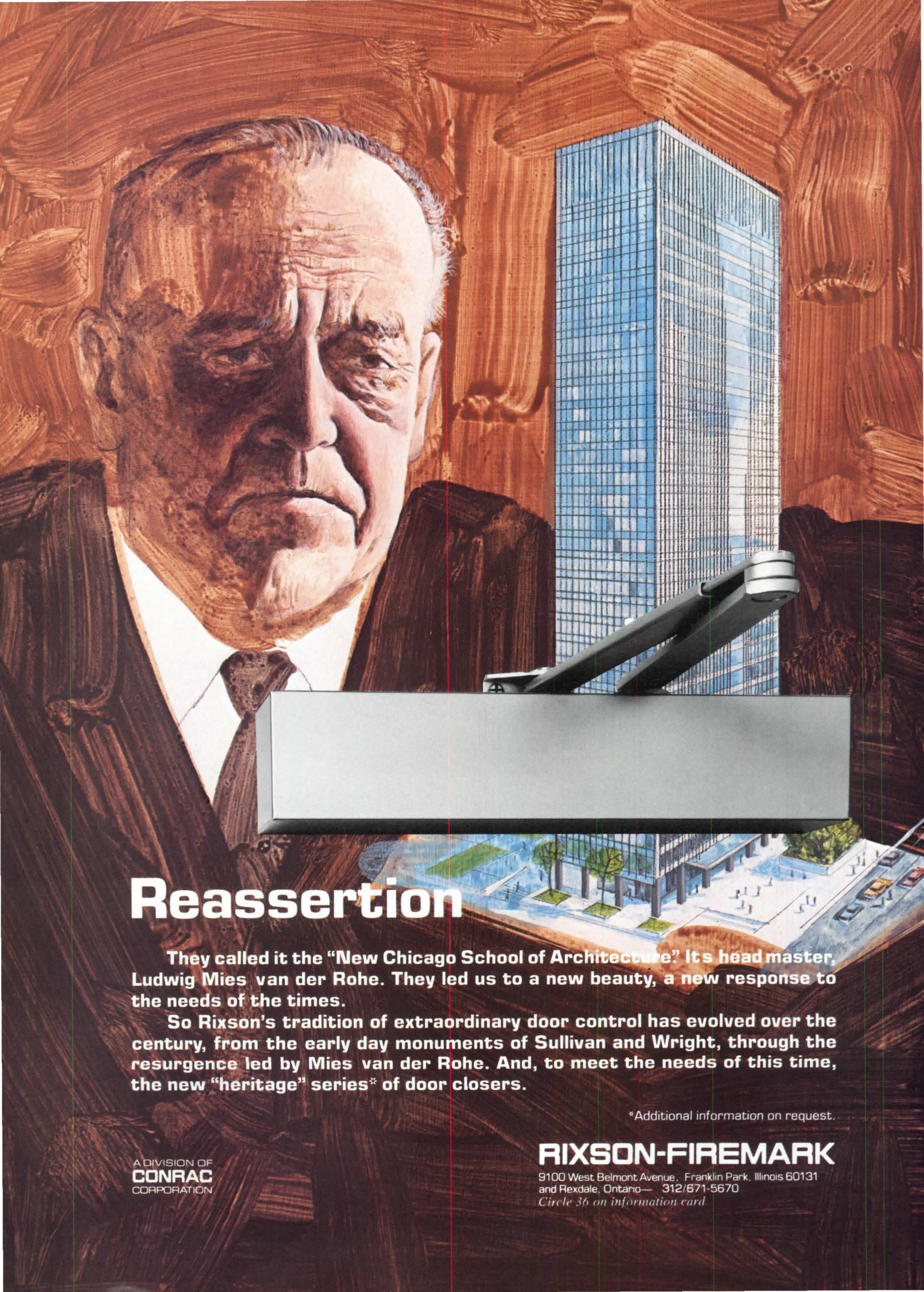


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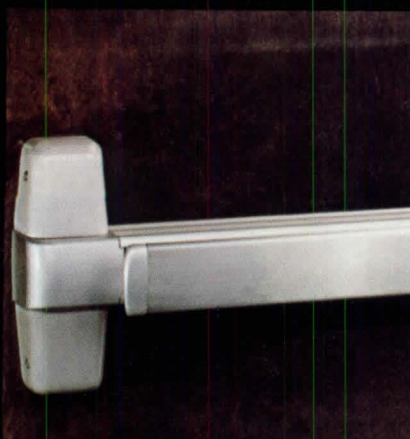
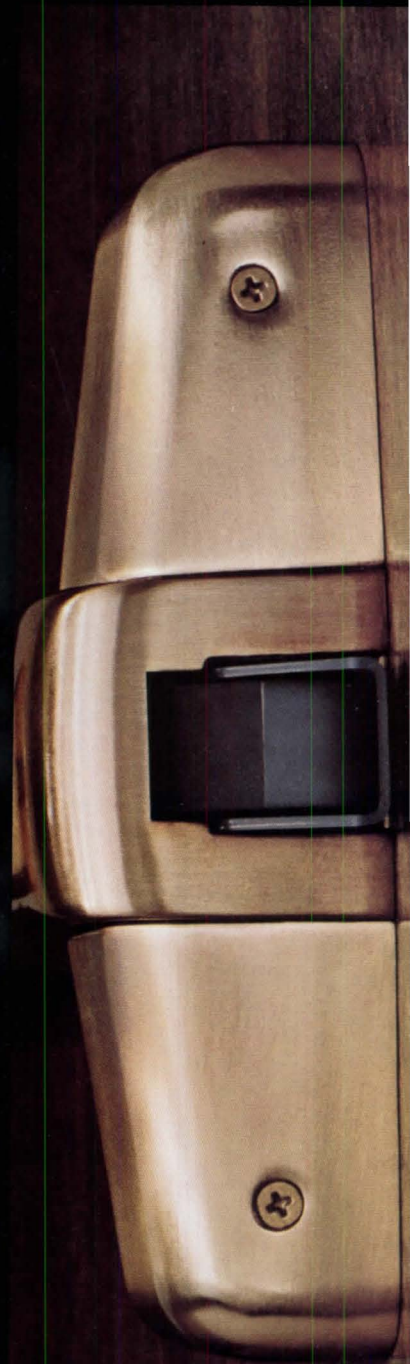
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BOOKS

John Andrews at Home and Abroad

John Andrews: Architecture, a Performing Art. Jennifer Taylor and John Andrews. (Oxford University Press, \$39.95 hardbound, \$19.95 paperbound.)

Claude Bissell, president of the University of Toronto when John Andrews was selected as architect for Scarborough College, says in the preface to this book that it is "a portrait of the artist as a young architect." Andrews himself calls it "a most reluctant book," saying that originally he did not intend to write a book, but simply to record some experiences that might be useful to students.

He gave up the record in 1970 when he moved from the teaching world of Toronto back to Australia, his birthplace. Happily, however, Jennifer Taylor, a senior lecturer in architecture at the University of Sydney, "plagued me to death," Andrews reports, and now this interesting

book is a reality. Taylor provides a basic commentary about the life and work of John Andrews that is interspersed with Andrews' witty comments on individual projects. "It is important to understand," he says, "that I have recorded, mainly when they occurred, a collection of impressions about particular buildings, about people, about times and places."

Taylor describes how Andrews went from "small beginnings" in Australia to receive international renown for such innovative projects in North America as Scarborough College, Gund Hall at Harvard, Miami Port Passenger Terminal, and Metro Centre in Toronto. She describes how Andrews was induced to return to Australia when he won the commission for the design of the Cameron Offices in Canberra, following which were commissions for such structures as the King George Tower in Sydney and Andrews' winning of the competition for the design of the Intelsat headquarters building in Washington, D.C. Of special interest is her description of Andrews' de-

sign solution for his own farm house (construction photo below) in Eugowra, New South Wales, a dwelling utilizing the traditional Australian house form while incorporating solar and wind energy concepts. Taylor's conclusion is that Andrews belongs among a worldwide small group of architects who have "the ability to think fundamental issues afresh and the talent to explore the way in search of better places for living. His strength here lies in the depth of his convictions and his courage to act upon them."

Andrews' own more informal comments will make fascinating reading for architects—all of whom surely know of "hassles" with clients. Andrews describes his search for solutions in the planning of Scarborough College and the design of a student residence for Guelph University in Ontario; he relates the problems involved in the design of Metro Centre; he talks about Gund Hall and its "incredible pressure," the "paranoia and conspiracy," the roof—that "symbol of frustration, anger and hostility." And so on. With each project, Andrews makes his insightful and often humorous comments, speaking of the problems, the solutions—and always of "architecture as a performing art."
Mary E. Osman, Hon. AIA

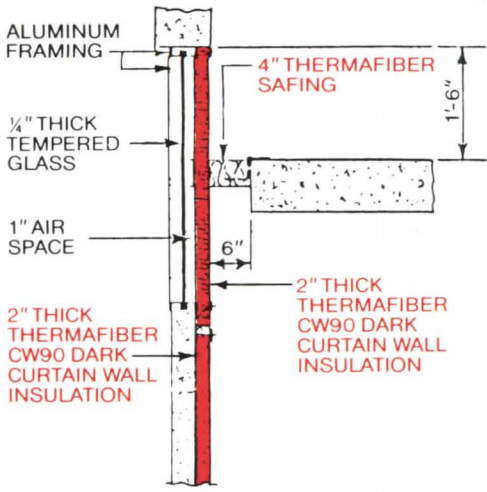
Songs of Glory: The Romanesque Facades of Aquitaine. Linda Seidel. (University of Chicago Press, \$25.)

Now that historical elements and traditions have become recognized again as significant to architecture, and structural ornament appreciated and enjoyed, it is a particular pleasure to recommend this book. Although the Romanesque facades were well known to pilgrims to St. James of Compostella, and to those who cherish the *Song of Roland*, Aquitaine, the area in western France that is south of the Loire River and north of Bordeaux, is off the beaten track of many American travelers. Both a map and the 63 photographic plates make this slim volume a useful one for planning a future pilgrimage. The text presents the image of the rider portrayed on the tympanum over the portal, closely correlated with the poetry of the 12th century, the *Chansons de Geste*, and with Carolingian sources.

Seidel points out Islamic influences, especially through small ivories and luxurious objects brought back from the con-

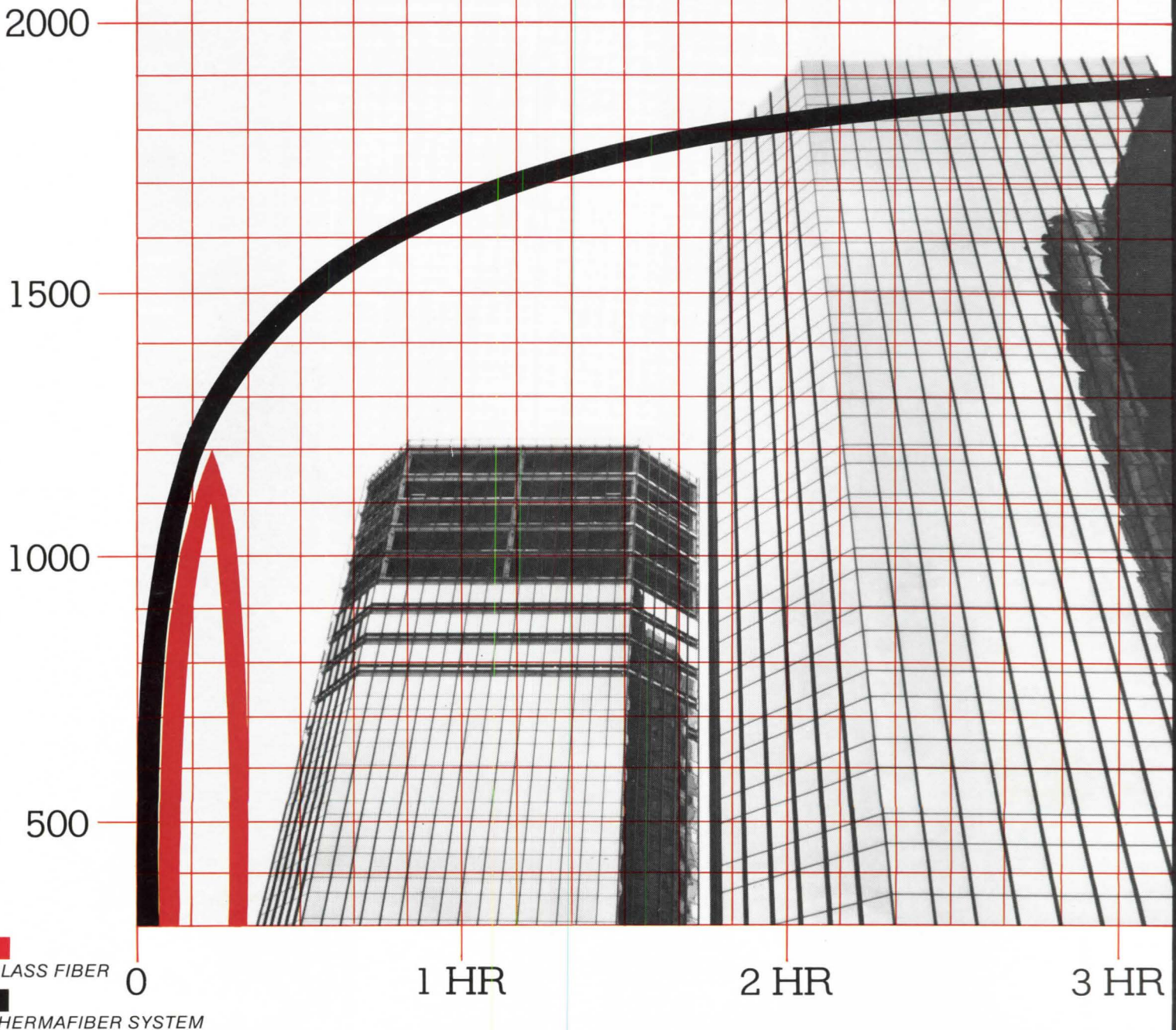
continued on page 126





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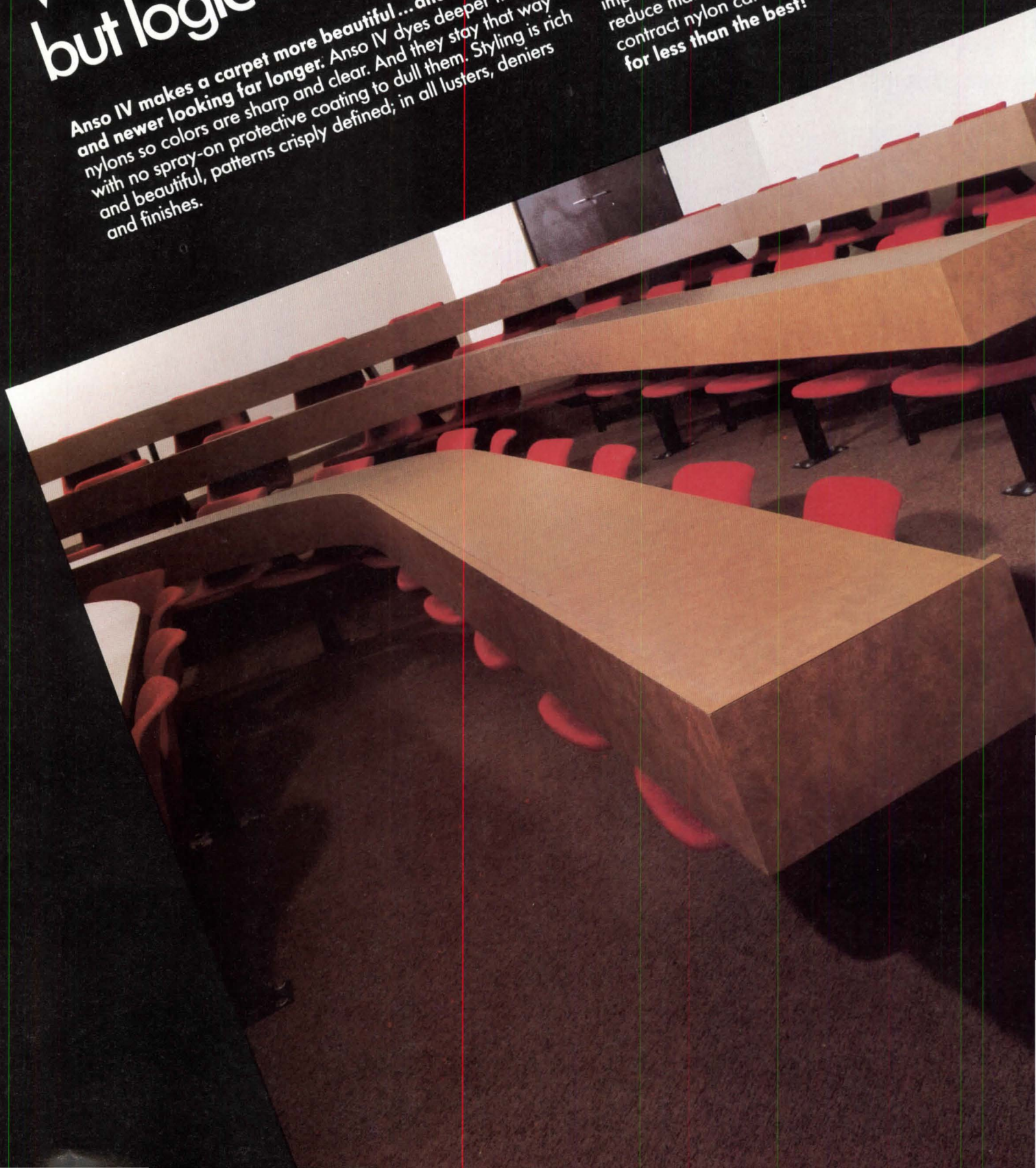
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test with the Moors. A Carolingian reliquary that has survived only in drawings shows jewelled arches ascending toward a tapered summit, suggesting a reasonable source for the facades of Aquitaine. Roman triumphal arches and trophies also foreshadow the west front forms, which lead to the triumph over death within the church.

The many 12th century buildings in the area share an artistic vitality and a consistent taste, with recurrent associations of complete compositions. Seidel has been particularly fascinated by the crowned rider and by the figures of women, clothed or nude, and she suggests that the representation carries multiple messages of victories such as were told in the Chansons de Geste (where the women could be part of the rewards), of the Christian knight in worldly activities for the church, and the triumph of the soul over temptations. It all expresses continuity with the past and the ongoing revitalization of victorious faith in the 12th century. The social prerequisites of the knights combine with the moral exigencies of their struggles, and it has all come down to us as structural design and ornaments.

Not as spectacular as the elegant work at Autun and at Moissac, but compelling for their own many-layered expressive

form, the Romanesque facades of Aquitaine present evocative songs of a glory that was both secular and religious.

Seidel's notes and bibliography are well organized and informative, unobtrusively set between text and illustrations, most of the latter being photographs by the author. *Songs of Glory* will be gratefully consulted by armchair travelers and laymen who respond to the spirit of the middle ages, as well as by scholars. *Sara Holmes Boutelle, Director/Founder, Julia Morgan Association, and author of a forthcoming book on Julia Morgan, Santa Cruz, Calif.*

A Guide to the Gardens of Kyoto. Marc Treib and Ron Herman. (Tokyo: Shufunotomo Co., distributed in this country by International Scholarly Book Service, Inc., P.O. Box 1632, Beaverton, Ore. 97075, \$9.95.)

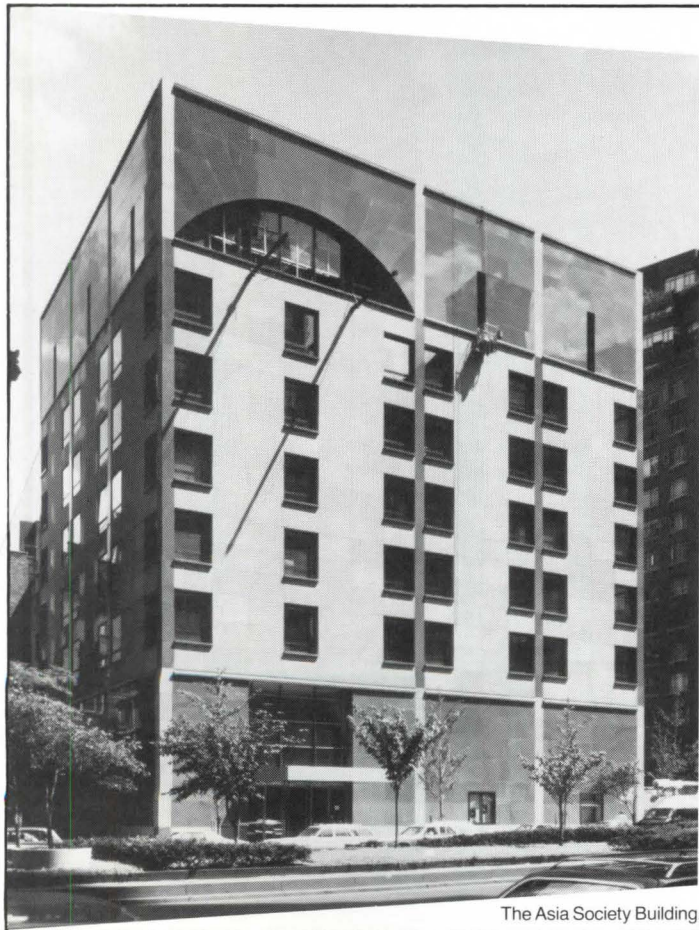
Marc Treib and Ron Herman, faculty members of the college of environmental design of the University of California at Berkeley, have produced an outstanding guide to the gardens of Kyoto. Anyone who is planning a Far Eastern version of the Grand Tour, or is simply fortunate enough to have a few free days in Japan's ancient capital, will find this book indispensable.

This guide combines pragmatic infor-

mation with in-depth cultural analysis, a rare combination in the much-neglected genre of landscape architectural guides. Necessary information, such as location, hours, access, and special permit requirements for garden visits, is presented clearly and succinctly. (Indeed, the names and addresses of the various gardens appear in the margins in bold Japanese characters in case your cab driver does not understand English.)

Two brief, yet highly informative, chapters discuss the history of Japanese gardens in the context of Japanese culture and the development of the ancient city of Kyoto. These introductory chapters are followed by descriptions of about 50 individual temple and pleasure gardens, which form the main body of the guide. Most descriptions are organized according to the route one would take when visiting the various gardens. They call to one's attention significant garden details that are then explained in the context of Japanese culture. Comments appended to the description discuss outstanding qualities of particular gardens or suggest the best time to visit to enjoy the seasonal color. Plans and isometric views as well as photographs provide valuable supplements. The guide also contains additional useful materials: a suggested four-day

continued on page 130



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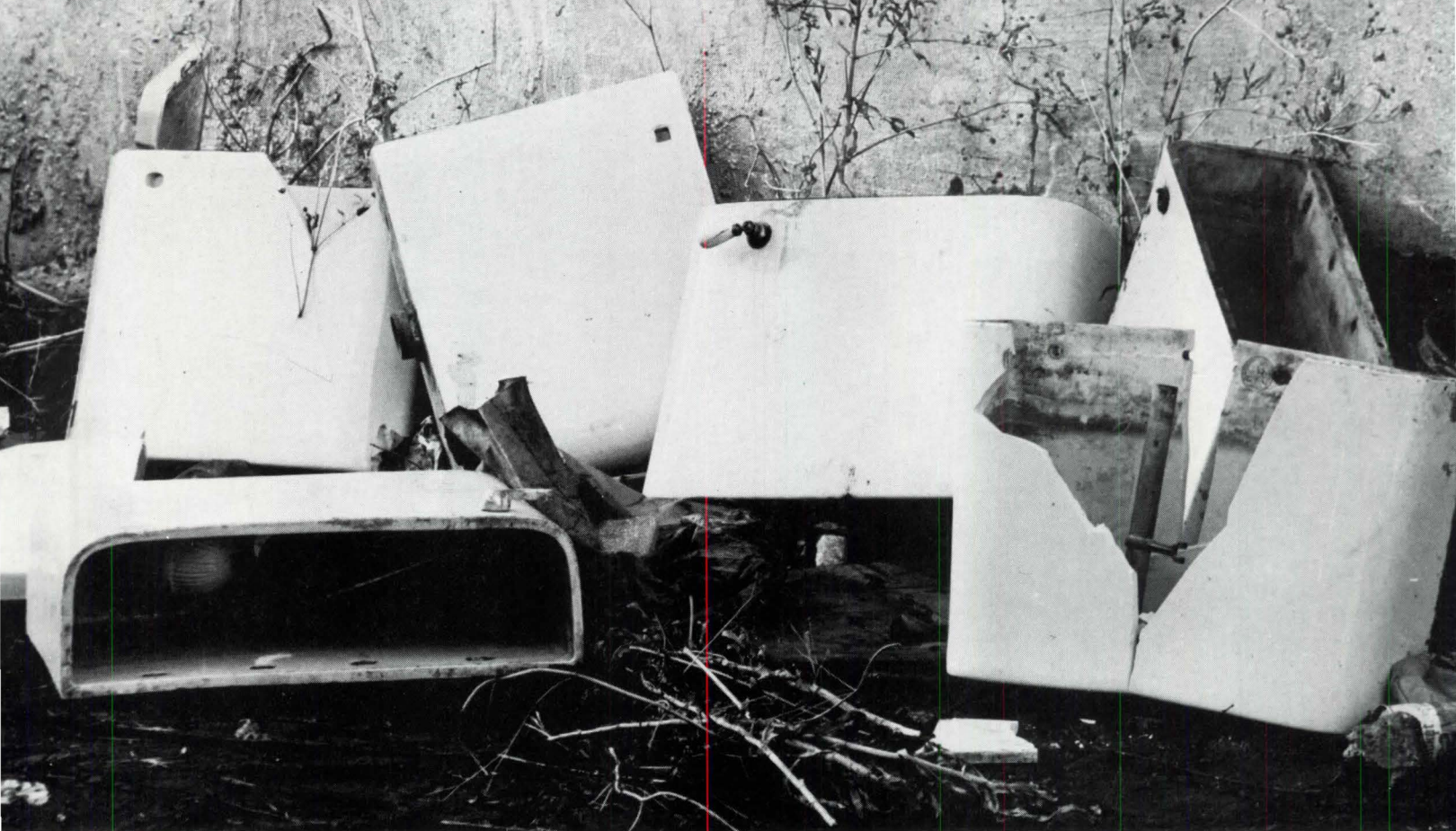
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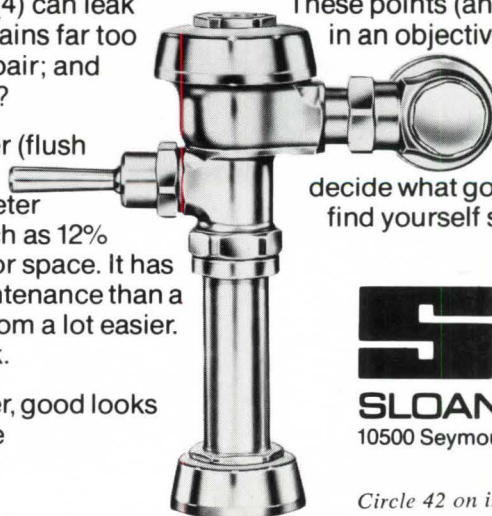
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itinerary of 18 representative gardens (it is hoped that one will have more than a mere four days in Kyoto), a glossary of Japanese gardens terms, a list of frequently used plants, and a bibliography of suggested readings.

A few of the descriptions lack specific information on plant materials, but this is a minor flaw. (For example, the plant description for Taizo-in on page 86 is lacking in specificity, although plant materials play a significant role in the garden's composition.)

Treib's layout for the book is an outstanding example of graphic design, some-

thing meriting comment in a time of increasing carelessness in book production.

In the introduction, the authors confide that they wanted to write the work that they wish had existed when they first visited Kyoto. We can thank them for their labor, which will do much to increase our understanding and enjoyment of one of Japan's most important traditions of design, a tradition that still has much to teach those of us concerned with the fitting of building to site or the creation of gardens. *Reuben M. Rainey, Assistant Professor, Division of Landscape Architecture, School of Architecture, University of Virginia*

Peter Behrens: Architect and Designer, 1868-1940. Alan Windsor. (Whitney Library of Design, \$22.50.)

Most college survey courses in the history of modern architecture begin with Peter Behrens. And for good reason. His early work in the art nouveau and the arts and crafts movement underscores Pevsner's thesis of *The Sources of Modern Architecture and Design*; his emergent neoclassicism suggests a simplicity and restraint of ornament that were to become symbolic of the modern movement; his interest in all aspects of design—graphic, interior, industrial, and architectural—preludes the Bauhaus; and the remarkable fact that the three great masters, Mies, Gropius, and Le Corbusier, each studied under him at one time provides a convenient starting place to recount an oft-told tale. All in all, Behrens has been a very handy architect for professors.

It is surprising that until the appearance of Alan Windsor's book no English language biography of Behrens has been published. But now, at last, there is a straightforward chronology of Behrens' works accompanied by numerous photographs and plans.

In reading Windsor's book, there is a sense of discovering anew an architect whose name is familiar, but whose work is revealed to be far richer and more varied than the few monuments normally associated with him. It is somewhat disappointing that the author settles for just formal analysis, often ending his chapters abruptly, rather than offering insights into the influence that Behrens' works were to exert, or their place relative to the work of others around the same time.

It is to the credit of any author to leave his audience wanting more, but one could wish that Windsor had taken his material further to examine certain theoretical issues. For example, the author does not offer an explanation for the dramatic change in Behrens' work from prewar neoclassicism to postwar expressionism, and later still, to the International Style. It would seem that he remained essentially eclectic, switching styles easily, and drawing heavily on that which he admired. The unifying theme throughout his borrowings was a concern for geometry.

His work in the late '20s that follows more along the lines of the International Style appears to be more influenced by the younger generation of architects. Behrens was in many ways a follower, and a teacher who was surpassed by his students, a fact he recognized in his tribute to Mies' Barcelona Pavilion.

Those particularly interested in the subsequent history of modern architecture might wish for greater elaboration of Behrens' relationship with his protégés; certain disagreements with Mies and Gropius

continued on page 134



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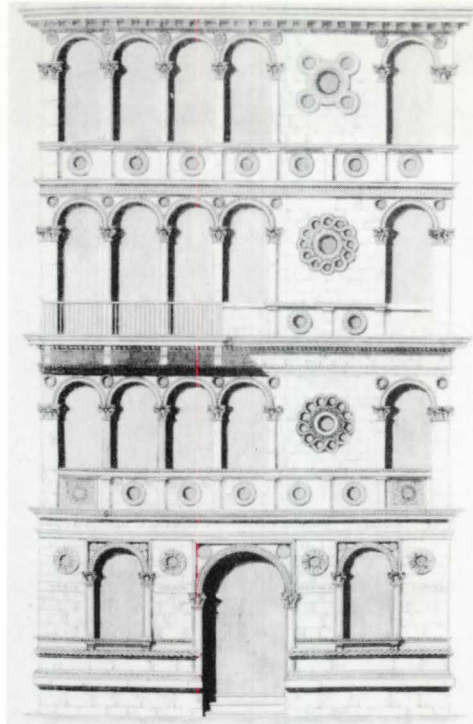
are discussed, but details of Le Corbusier's involvement with Behrens are absent.

What Windsor has done is to show that Behrens' work is not limited in style or essence to the AEG projects shown in all the survey courses, and in so doing, he provides an important introduction to the life of a prolific designer. What is needed now is a thorough analysis of his work. *William H. Schallenberg, Washington, D.C.*

Ruskinian Gothic: The Architecture of Deane and Woodward, 1845-1861. Eve Blau. (Princeton University Press, \$40 hardbound, \$16.50 paperbound.)

Another in an array of recently published books on Victorian architecture, this scholarly work considers the contributions of the Irish firm of Deane & Woodward, architects of the Oxford University Museum of Physical Sciences, the firm's most famous building, the Trinity College Museum, Dublin, and many other public buildings and private dwellings.

Although Benjamin Woodward and Thomas Newenham Deane are "among the most understudied architects of significant stature in the mid-Victorian period," says Eve Blau, the firm they founded was responsible for a Ruskinian Gothic style of architecture that "was distinct



Palazzo Dario, Venice, 1851, above.

both in form and theoretical basis from the concurrently evolving High Victorian Gothic."

It was Woodward, a devout follower of John Ruskin, who shaped the firm's work. Blau demonstrates that it was not

Ruskin's principles alone that developed a distinctive architectural style, but Woodward himself who gave the Ruskinian Gothic style its shape and who put into practice "Ruskin's most important ideas concerning workmanship, craft, and the liberty of the craftsman." Blau follows the firm's development from its beginnings in Cork, Ireland, to its practice throughout Ireland and England. There is a lengthy discussion of the Oxford Museum, which "established a new image of monumental secular Gothic architecture that was to influence the design of almost all major public buildings in England" in the 19th century's second half.

Blau provides an appendix that covers minor works and projects, and also extensive and detailed notes. There is a selected bibliography, and 166 plates are located at the book's conclusion.

Passive Solar Architecture in Europe: The Results of the 'First European Passive Solar Competition—1980.' Edited by Ralph M. Lebens. (Architectural Press and Wiley, \$22.95.)

This book documents the winning entries of the first European passive solar competition organized by the Commission of the European Communities and held in 1980. The editor says the publication's *continued on page 136*



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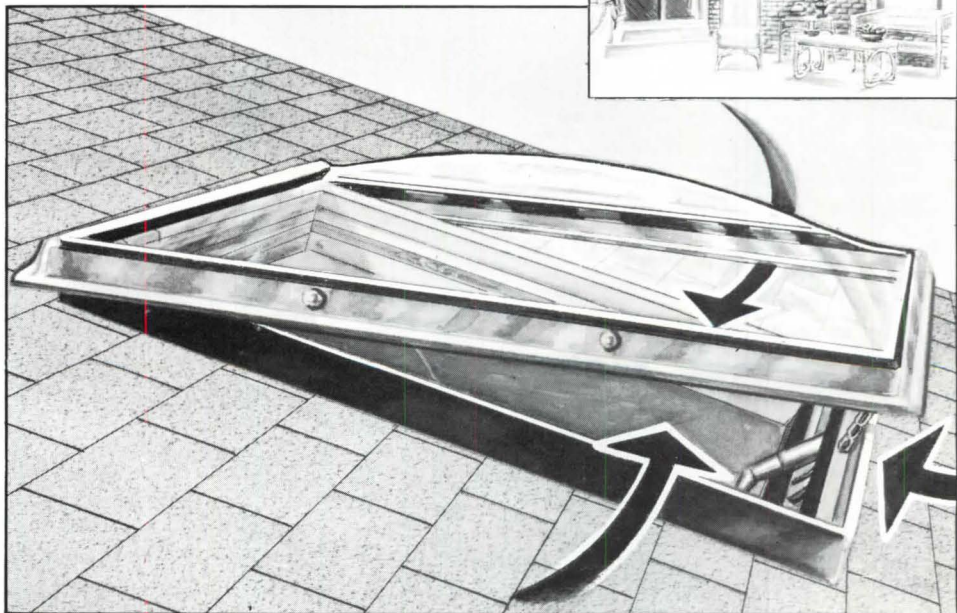
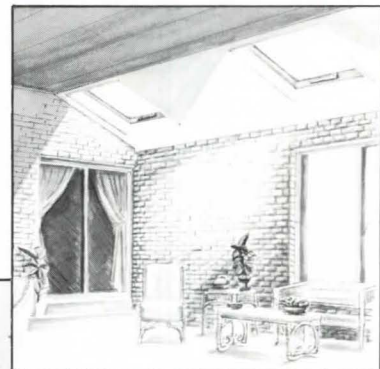
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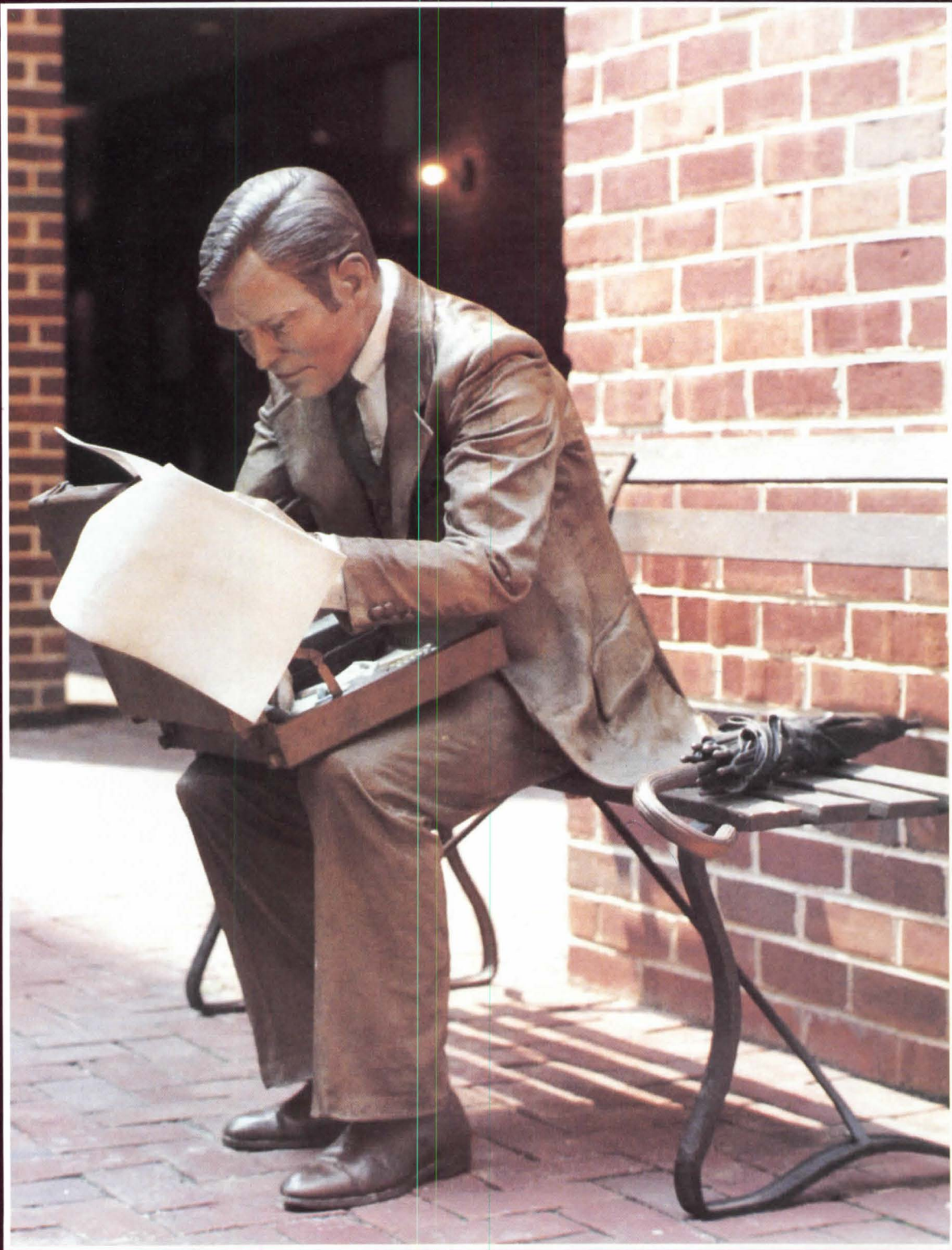
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Books from page 134

purpose is threefold: "to spread the ideas and principles of passive solar design to a wider audience, to document the competition so that some of the excellent designs submitted will have a wider influence, and to give voice to the pioneering work being undertaken by a few innovative architects and designers in Europe."

In conjunction with the awarding of 11 prizes, there was an exhibition in the offices of the commission in Brussels. The book contains photographs of the models that the winners were asked to build for the exhibition. There are also statements by the architects of their design aims and the judges' comments, as well as many diagrams and plans.

In addition to the prize winners' entries, there are examples of designs that the judges deemed to be of special interest. Divided into three categories for multi-story housing, clustered housing, and single-family dwellings, the competition entrants ranged over a wide swing of climates—from Denmark to Greece.

The American architect who wants to know more about passive solar design will find many basic principles enunciated in this book. The judges found that of the 223 entries 50 of them "make eminently workable and attractive solutions to individual and grouped housing and of these

about 12 schemes demonstrated that the passive solar design approach is developing an 'architecture' all of its own."

The Architectural History of Canterbury Cathedral. Francis Woodman. (Routledge & Kegan Paul, \$80.)

Anyone who loves a good mystery will find this book engrossing. The question of just how the magnificent puzzle that is Canterbury Cathedral got put together is most successfully answered by Francis Woodman, and the result is a clear picture of the forces at work behind the creation of England's greatest medieval monument. Through his relentless detective work, Woodman builds a solid case for his theories, drawing on ancient texts and drawings to prove his points and discredit the opinions of earlier historians. Woodman's close examination of the existing fabric of the cathedral forms the basis for his well-argued explanation of the course of construction. Despite his disclaimer that "there can never be a definitive architectural history of Canterbury Cathedral," his book comes as close as anyone could hope for.

The specialized nature of this book need not limit its appeal to Gothic scholars nor those particularly concerned with Canterbury. In tracing the various building programs from their origin through

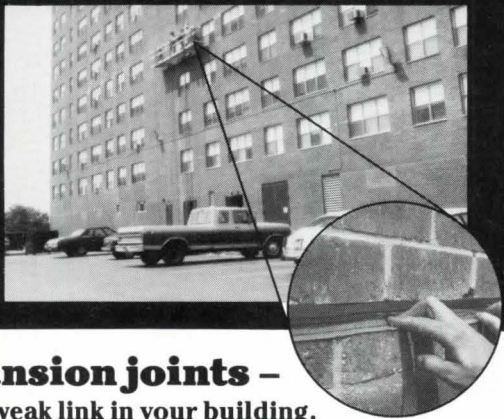
the Romanesque and Gothic ages to the present, Woodman recounts the ecclesiastical, political, and economic history of the times. By placing the construction of the cathedral in its proper historical perspective, Woodman has enriched his story and has written a better history.

Although Woodman carefully explains how each building campaign came about, he does not ponder the relative meaning of the Romanesque and Gothic styles. He concentrates on *how* the cathedral was built, but does not often consider *why* the different styles were employed. One would like to think that the reasons are greater than just a desire to be *au courant*. One would like to see the spirituality of someone like the Abbot Suger reflected in the architecture of Canterbury.

Nonetheless, what Woodman has done, he has done brilliantly. A native of Canterbury, he has imbued his book with the kind of enthusiasm and intimacy that only comes from a labor of love. Written in a precise architectural language and thoroughly illustrated, the book is a refreshing example of solid architectural research. There is no substitute for excellent scholarship and, in an era of revisionism, it is becoming a rare commodity. Francis Woodman's book is well stocked. *William H. Schallenberg, Washington, D.C.*

Books continued on page 138

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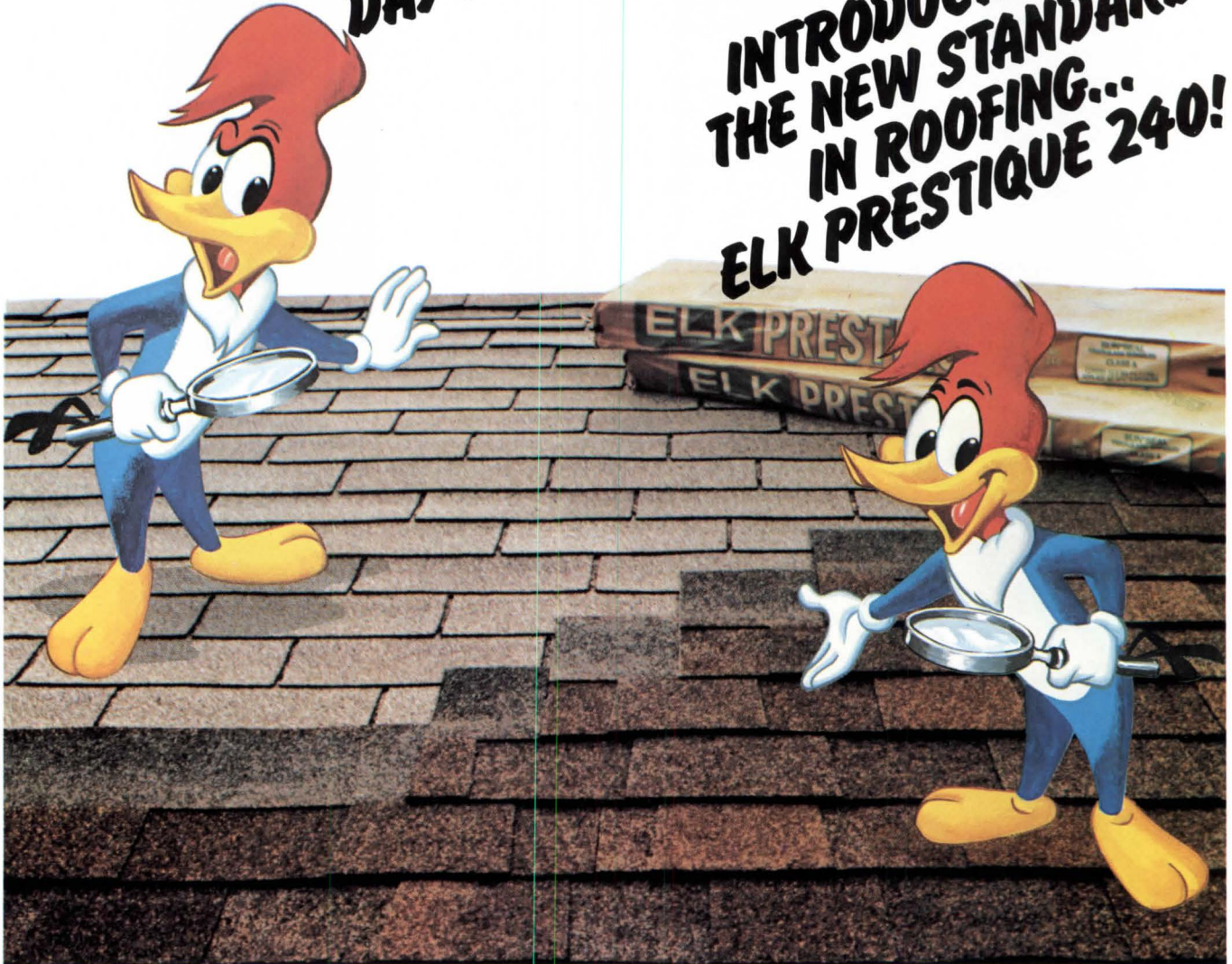
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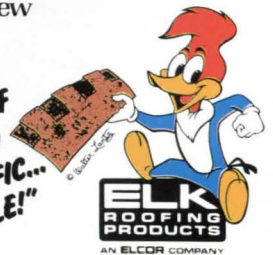


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Books from page 136

The Beaux-Arts and Nineteenth-Century French Architecture. Edited by Robin Middleton. (MIT Press, \$29.95.)

A reassessment of the contributions of the Ecole des Beaux-Arts was made in 1975-76 when the Museum of Modern Art in New York City mounted a major exhibition on Beaux-Arts architecture followed by a book edited by Arthur Drexler. These events led, in 1978, to a conference on the subject at the Architectural Association in London in which historians and critics discussed the influence of the Ecole des Beaux-Arts on 19th century French architecture. This book consists of 11 papers presented at that conference.

British Hospital and Health-Care Buildings: Designs and Appraisals. Edited by Peter Stone. (London, Architectural Press, distributed by Nichols Publishing Co., Box 96, New York, N.Y. 10024, \$80.)

The buildings that illustrate this collection, says the editor, were selected because some illustrate a new direction in medical planning and operational policy, some because they provide "clear master planning ideas or a strong philosophical design approach" and others because of their attention to architectural detail or approaches to space problems.

The book is divided into five major parts: general hospitals, teaching and research hospitals, health centers, maternity units, and miscellaneous (such as a center for the physically handicapped and restaurants, stores, and laundries in hospitals).

The descriptions of the individual hospitals and health centers are detailed, giving information on such matters as design history, the site, interior and exterior design, the various departments, and special facilities and mechanical services.

There are many photographs, diagrams and drawings, as well as an "international bibliography" and index. The editor is an architect and director of Llewelyn-Davies Weeks & Partners and, since 1972, has been responsible for his firm's hospital work in the United Kingdom. The book draws upon building studies published between 1960 and 1977 in *The Architects' Journal*. It will be helpful for the American architect who is a designer of this complex building type which calls for the integration of many disciplines.

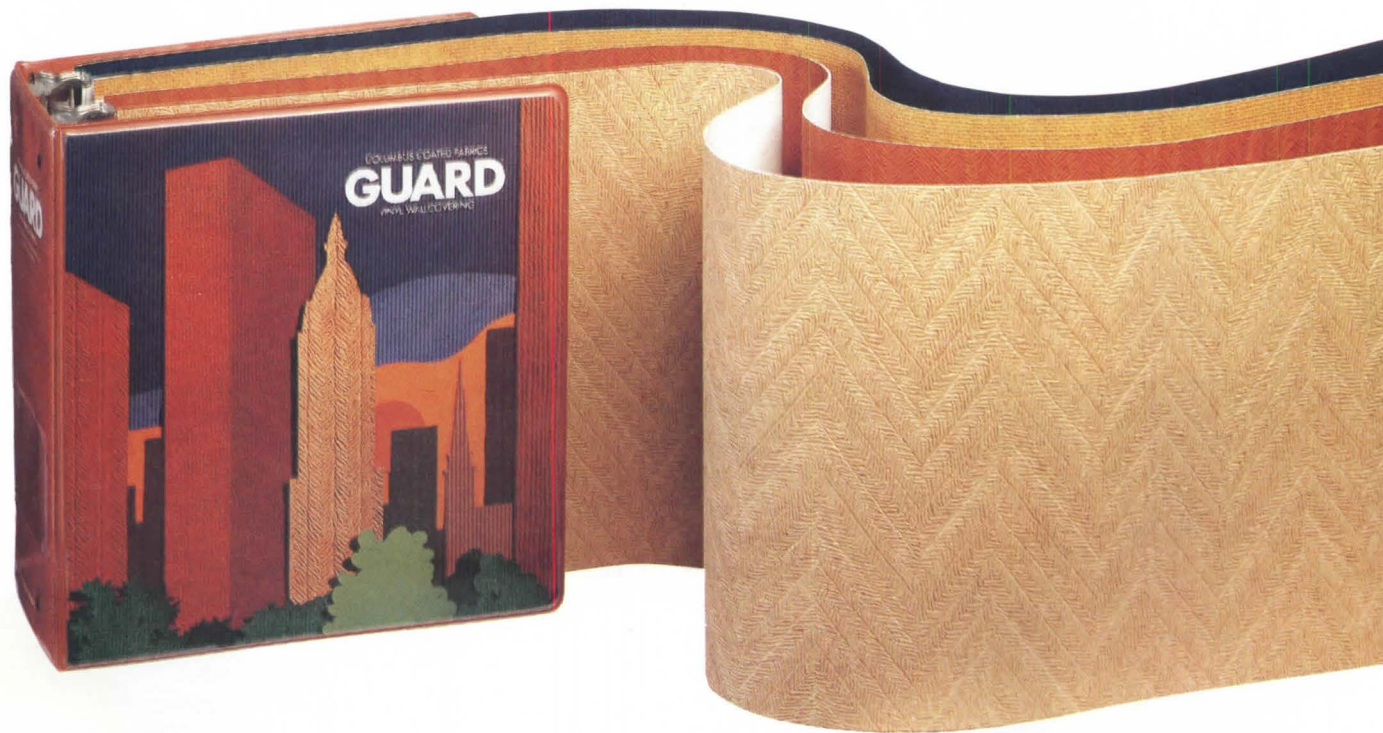
Rome: Profile of a City, 312-1308. Richard Krautheimer. (Princeton University Press, \$50 hardbound, \$16.50 paper.)

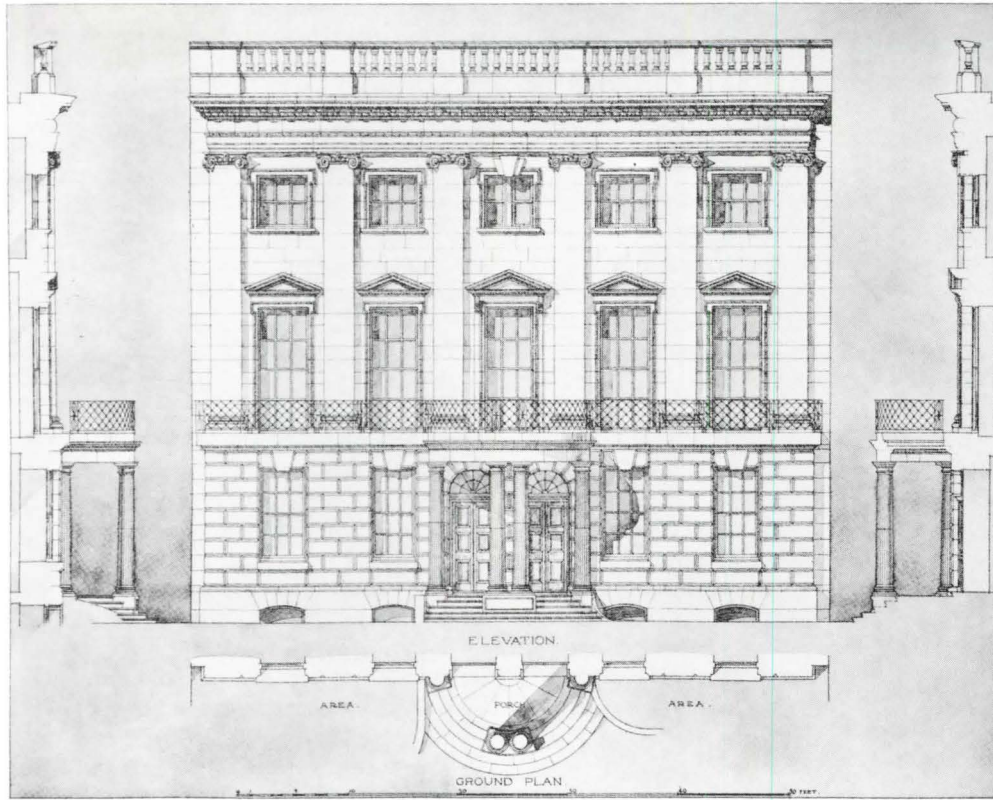
The Eternal City seems always to have had a special genius for melding civilizations and forces into a whole. One of the most critical times in the city's development was the period from the time Con-

stantine took over Rome in 312 to the 14th century when the papacy was removed to Avignon. Without the papacy, Krautheimer says, Rome "lost her *raison d'être*," and was unable to exist as she had previously; the city was then surpassed, for a time, by Florence and Siena. Thus the Middle Ages came to an end in Rome.

During the thousand years before the early 1300s, however, which is the focus of this scholarly book, Rome's art and architecture reflected its social and political development. The book, as Krautheimer says, is a profile of the city as a "living organism." He describes how Rome grew physically and politically, "both as a pawn and as a power." Rome is revealed in her churches, houses, fortifications, streets and squares, art and monuments, and the changing map of the city. The book is an important document, not only for its portrayal of a great city, but also as a study in urbanism and how cultural forces shape a city.

An authority on his subject, art historian Krautheimer, who is professor emeritus of the Institute of Fine Arts at New York University, is the author of numerous books and articles. The book is liberally illustrated, and there are bibliographical notes. Happily for the reader, footnotes are grouped at the back of the book. There are two indexes: one by places and subject and the other by people.





Lincoln's Inn Fields, London, 1735, left.

Monumental Classic Architecture in Great Britain and Ireland. Albert E. Richardson. A new edition. Introductory notes by H. Stafford Bryant Jr. (Norton, \$25 hard-bound, \$10.95 paperbound.)

British architect Sir Albert E. Richardson (1880-1965) is remembered as an

architectural critic and historian. His insights into classical architecture were expressed in the book *Monumental Classic Architecture in Great Britain and Ireland During the Eighteenth & Nineteenth Centuries*, published in London in 1914. This new edition of the book is now published

as part of the "Classical America Series in Art and Architecture."

In the introductory notes to this edition, H. Stafford Bryant Jr., director of Classical America, describes the book as being "in its most literal sense, a survey of monumental public buildings [in England and Ireland] from about 1730 over the succeeding 150 years." But the book is more, Bryant continues, for it is also "a carefully argued *tract* in favor of [Richardson's] particular and special notions as to what constitutes excellence in classical architecture."

The book—one to delight the heart of classical scholars—is illustrated with 176 line drawings and photographs. Its publication was made possible by a grant from the Arthur Ross Foundation.

Architecture of the Arts and Crafts Movement. Peter Davey. (Rizzoli, \$30.)

For whatever reason—nostalgia for past individualism and quality, disenchantment with machine products, contemporary eclecticism—a revival of interest in the arts and crafts movement is evidenced by a smattering of recently published books on the subject. This one, by a British architect and journalist, is both scholarly and entertaining. Peter Davey

continued on page 140

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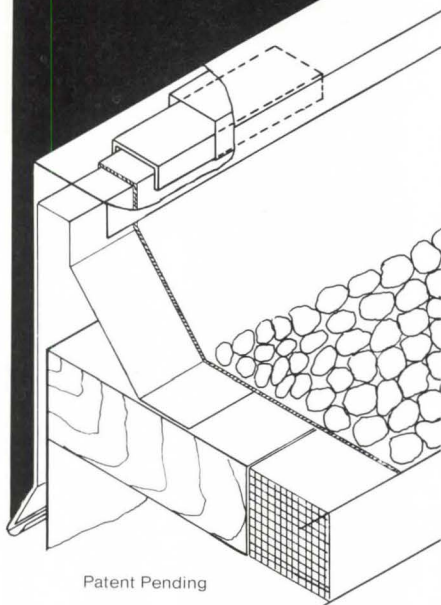
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writes of how the Gothic revival in architecture in England for three decades at the turn of the century furthered the ideals of Pugin, Ruskin, and Morris, “interacted and, in the end, lost cohesion and fell apart to help generate quite other architectures. . . .”

An early chapter in the book portrays William Morris, the shaper of the nature of the arts and crafts movement, as “the prophet” and the inspiration of architects. Davey calls Philip Webb, Norman Shaw, Ernest George and T. G. Jackson “the lamplighters.” The “guide” is William Richard Lethaby; the “explorer,” Edward Prior; the “pathfinder,” Charles F. A. Voysey. Davey continues with a lively discussion of that immensely influential image, the English country house, briefly covering such country house architects as Leonard Stokes, Alfred Powell, and Charles Rennie Mackintosh. He explains the appeal of the arts and crafts country house to the landed class, but also points out that it was “exactly appropriate for a middle class aspiring to the landed values of the aristocracy,” nestling into the countryside, “with its calm, uncluttered interiors and rambling, steep-roofed exterior.”

A chapter on “The Lost City” reveals the distrust of arts and crafts architects for urbanism, abetted, says Davey, by their “revulsion” of 19th century city squalor. They made some forays into the city, of course, one example being Mackintosh’s celebrated Glasgow School of Art. “The lost city of the arts and crafts movement,” Davey says, “would have been less grand than the Edwardian cities that really were built. But it would have been a city with a human face; gentle, witty, occasionally dramatic, kind to its surroundings and responsive to the needs of its citizens.”

Even so, Davey describes Charles Robert Ashbee as the “most original thinker of the later arts and crafts movement,” although he came from the “darkest heart of the Victorian city—London’s East End.” Unlike most of his contemporaries, Ashbee had an understanding of machinery. He considered the production of certain articles by machine to be “immoral,” but he said that “it is just as immoral to keep men making mechanical things by hand . . . when the machine would do the work better.” It was Ashbee who brought Morris’s ideals into the 20th century, Davey says.

Most readable are the chapters on the decline of the arts and crafts movement and its effect on H. M. Baillie Scott and Edwin Lutyens; the rise of the garden city movement and the influence of the arts and crafts movement on suburbia; the extension of the arts and crafts movement to this country, and the arts and crafts movement in Germany and Austria.

World War I virtually killed arts and crafts architecture. During the half century between the birth of the arts and crafts movement and the rise of Nazism, says Davey, the world changed. “Ideas of freedom had either atrophied or been transmuted into the aids of oppression—by the state or by machinery. Arts and crafts architectural achievements had either been forgotten or commercialized and bastardized in the suburbs.”

Davey believes there is relevance today for the belief of the arts and crafts movement in quality and individualism. “At last,” he says, “the subjugation of man to machine, which formed the arts and crafts movement’s objection to machinery, may be nearly over. There is hope that people need no longer be at all involved in producing chains or planks or refrigerators or television sets.” He believes that in such a future the roles of architects and designers may be “more advisory than directive. The need for very large new buildings will probably be much reduced in an age of advanced telecommunications (which are quite inexpensive in energy terms). So will the need to organize large teams. Sometimes by their own artistic example, more often by smoothing the paths, architects and designers would help others to realize their own potential for creativity.”

This well-written book is recommended to those interested in the rich content of architectural history.

Kura: Design and Tradition of the Japanese Storehouse. Teiji Itoh. Adapted by Charles S. Terry; photographs by Kiyoshi Takai. (Madrona Publishers, 2116 Western Ave., Seattle, Wash. 98121, \$15.)

Teiji Itoh says that *kura*, storehouses, are fast disappearing. “Still,” he says, “it is precisely when the creations of men are perishing that people begin to give serious consideration to their true value. If Japanese storehouses had no value other than the purely functional, they could simply be discarded. I think, however, that they have a beauty that transcends function, and it is for this reason that others and I are laboring to prevent them from passing into oblivion.”

Certainly, the structural beauty of the *kura* is seen in the photographs and line drawings in this book. Itoh explains the beginnings of *kura* in the seventh or eighth millennium B.C. He discusses their functions as instruments of government, places for storage of grain and treasure, cultural repositories, as facilities for production and distribution, as places for storage of things for everyday life, and as “symbols of the mysterious”—settings for mysterious or dramatic events often referred to in Japanese literature. He also tells of the requirements for safety and their place as

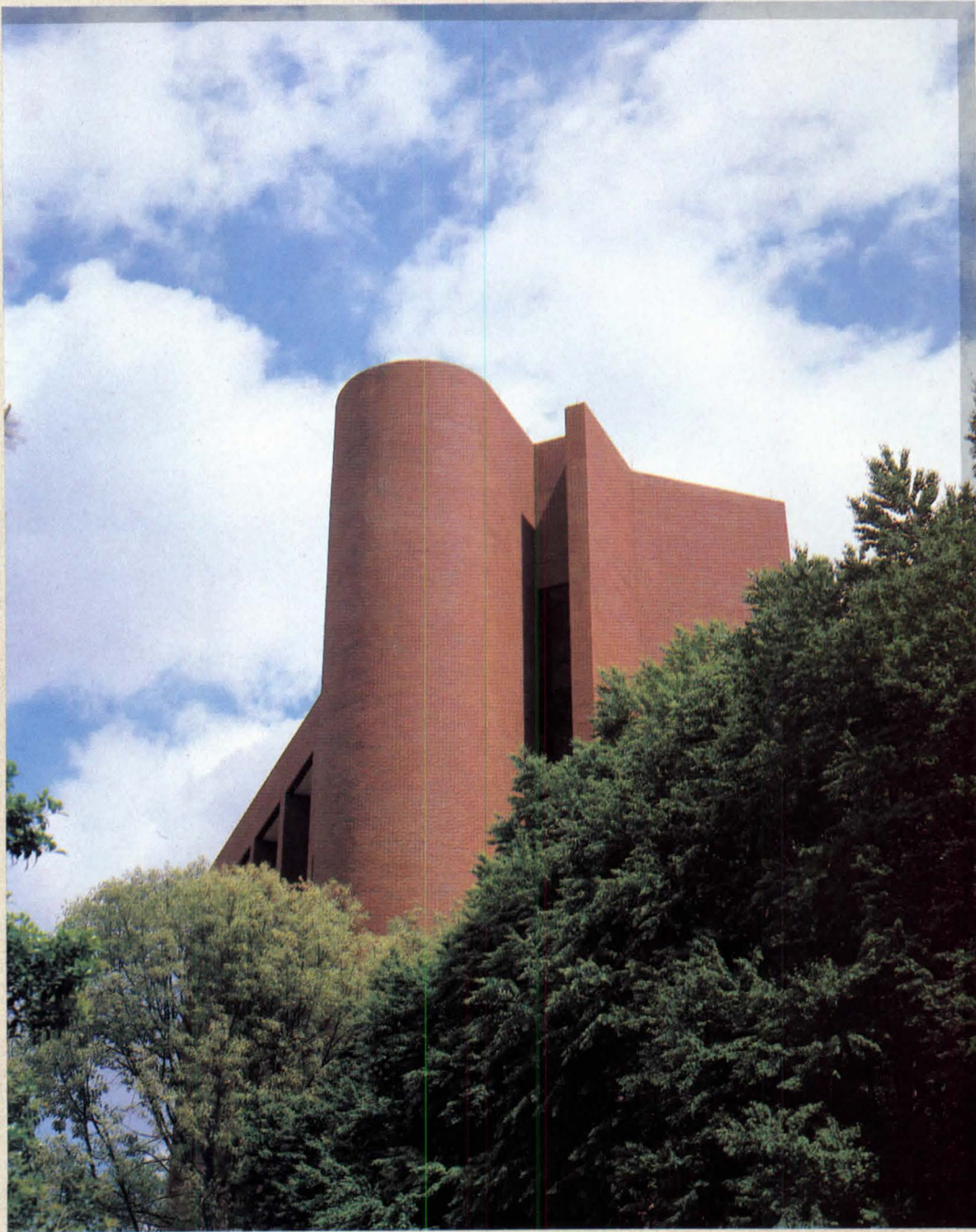
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1

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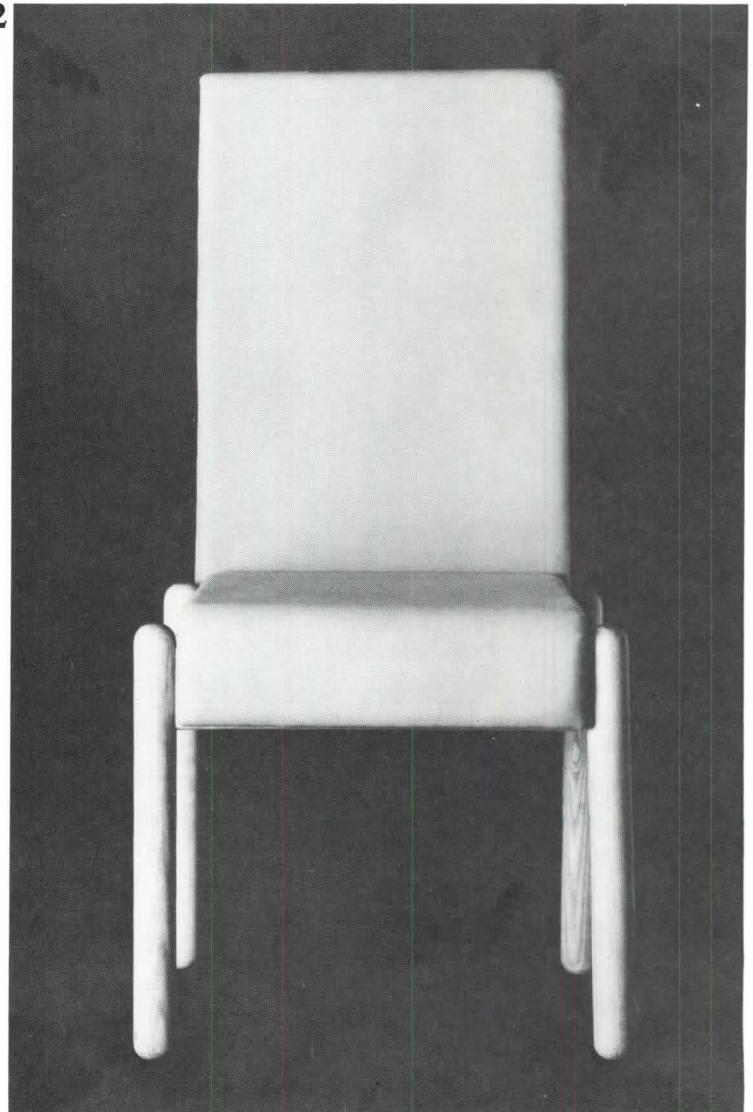
Also with a foreign accent.
 By Stanley Abercrombie, AIA

In keeping with this issue's international theme, here are some furnishings designs from foreign parts. From Italy is the Sporting lounge chair (1) designed for Creazioni Danber of Milan by C. B. Berruti, in collaboration with the firm of Carlo Ratti, specialists in the bending of wood laminates. Also Italian is the Foglia chair (2), designed by Boccato, Gigante, Zambusi for the Bonacina firm in Meda; this sober straight-backed side chair is available upholstered, as shown, or with plain wood seat and back; versions with shorter backs are also available.

In the Design M collection of the German firm Ingo Maurer GmbH are several appealing lighting fixtures. The Shiro aluminum hanging lamp (3) is 15 inches in diameter and can be lowered from 30 inches to 65 inches; it is available as shown or lacquered yellow, green, or red. The Scherenlampe table model (4) of highly polished chromium plate has a rotating globe over the bulb and can be extended to a height of 34 inches. Giant Bulb Clear (5) has a hand-blown crystal globe on a chromium-plated base; it is 22 inches tall. Bulb Opal and Giant Bulb Opal (6) are, respectively, 12 and 22 inches high; their bases can be chrome or lacquered in red or yellow. Scherenlampe was designed by Dorothee Maurer-Becker, all others by Ingo Maurer.

From Denmark is a folding chair of epoxy-painted tubular steel and steel mesh (7) designed by architect Soren Holst. It is manufactured by Ole Wellendorph, Strandvejen 234B, 3070 Snekkersten.

2

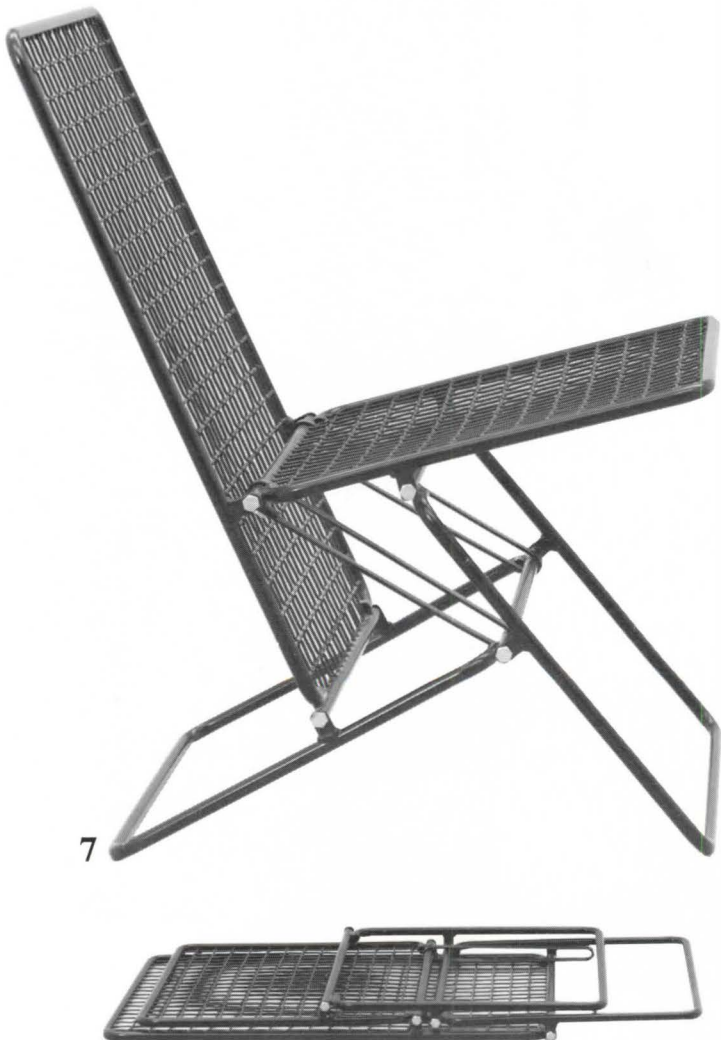




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5



6



1

Here, more recent designs from the prolific Italians. The Monos table (1), designed by architect Giovanni Offredi for Saporiti Italia, has a clear glass top supported on symmetrically placed trestles of maple or walnut (or a combination of woods) held together by aluminum rods.

The Clio folding chair (2) comes from the firm of Cidue s.p.a. and is available in a wide range of colors. The Esapode table and Me-la chair (3) are designed by architect Manfredo Massironi for La Societa Delta Export di Tavagnacco, Udine. Both have structures of metal tubing with durable finishes in many colors. The elongated oval

table top, of laminated wood, is hinged along its long axis, and the three-legged table supports rotate so that the table's width can be reduced in half for placing it out of the way against a wall.

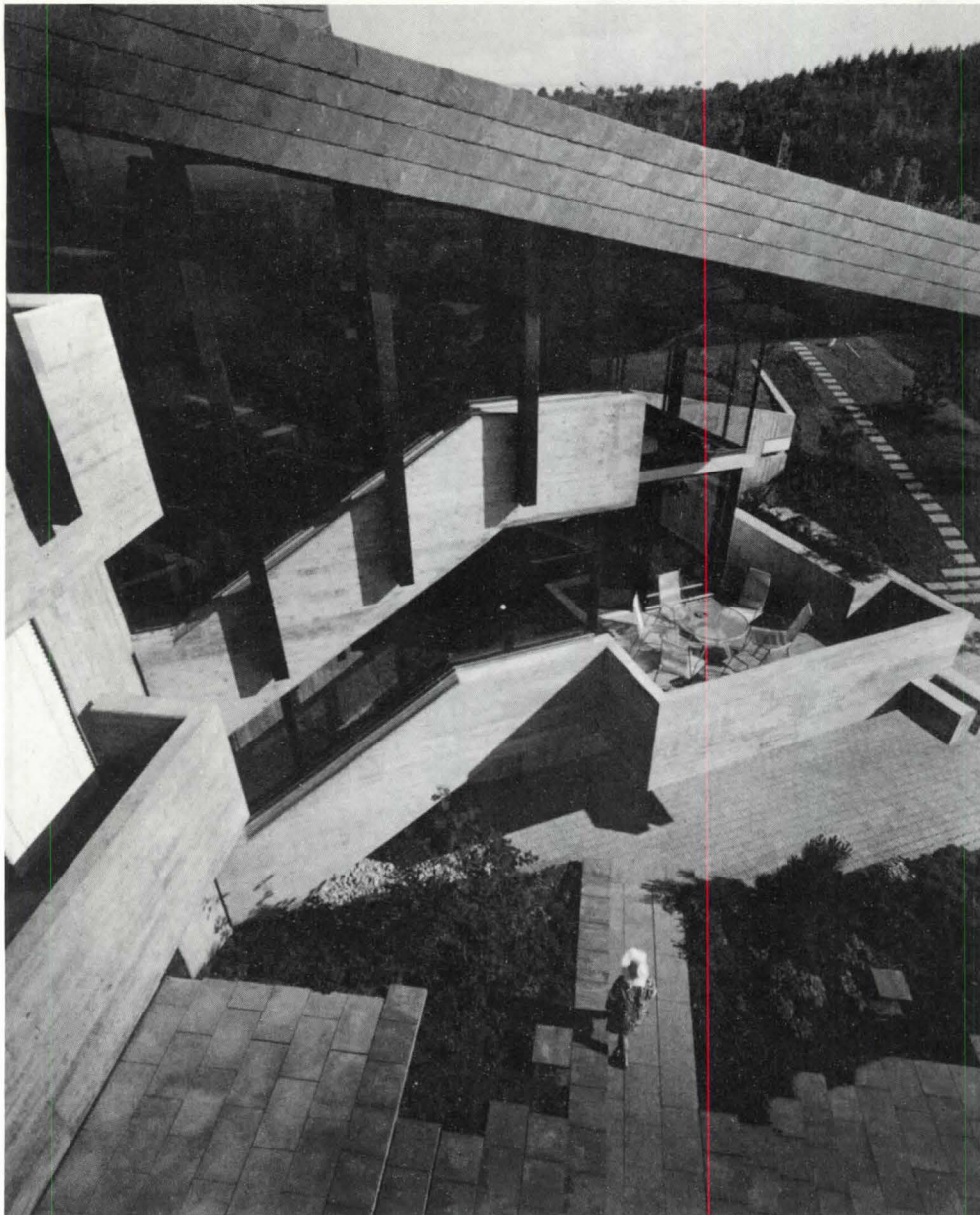
The Quattro floor lamp (4) designed by Sergio Asti for Cil of Rome has a rotating black shade atop four metal tubes available in red, green, or beige. Rectangular metal bases are also black. The total height of the lamp is 43 inches. Quattro is available in this country through Mel Brown International, Los Angeles, and through Lighting Associates, New York City. □



2







Books from page 140

status symbols. And there are more lengthy discussions of the structural types of *kura*—from log cabins to stone warehouses. The book concludes with 44 pages of black and white photographs of wooden, stone and clay storehouses.

London: The Unique City. Revised edition. Steen Eiler Rasmussen. (MIT Press, \$9.95.)

First published in Copenhagen in 1934, this work has been acclaimed by critics for its analytical study of a single city and for its insights into the manner in which London differs from Continental cities. Rasmussen identifies the influences that gave London its distinctive qualities, calling it a "scattered" city in contrast with such "concentrated" cities as Paris. Rasmussen warns Londoners to resist the replacement of small houses with costly big block highrises, saying that "London, the capital of English civilization, has caught the infection of Continental experiments that are at variance with the whole character and tendency of the city. Thus

the foolish mistakes of other countries are imported everywhere, and at the end of a few years all cities will be equally ugly and equally devoid of individuality." This revised edition reflects the advent of London new towns since World War II, containing a 1978 essay on their planning. Although London "has been spoiled by a number of meaningless skyscrapers" and typical London houses have been replaced by highrises, Rasmussen sees the new towns as contributing to London's uniqueness, keeping it "always the scattered city."

Shopfronts. Bill Evans and Andrew Lawson. (Van Nostrand Reinhold, \$16.95.)

When Napoleon called England "a nation of shopkeepers," he meant it as an insult, but the English took up the slogan, say the authors of this book, "with a certain amount of pride," the phrase suggesting a national character of individuality and independence. Many small shops still survive in that country, but maybe not for long. This photographic essay by two British artists is intended as a record for the

future. Depicted and described are shopfronts of grocers, bakers, hairdressers, funeral directors, and other tradesmen. The modern shopfront designer might despair at the photographs of these shopfronts, so jammed full of wares. Nonetheless, they have a charm that shopfronts in large shopping malls, so neatly laid out, cannot approach. And they surely express individuality.

Classic Modern Houses in Europe. Richard Einzig. (London, Architectural Press, 16.95 pounds.)

Richard Einzig, world renowned architectural photographer, died in 1980 at the age of 48. His photographs that illustrate this handsome book reveal him to have been a master of his craft—in fact, he was an artist. In the foreword, Norman Foster calls him a perfectionist who "insisted on personal control over the total process from visiting the building to the production of the final photographic prints." Einzig selected for this book, which he wanted to be the first in a series, the best houses of Europe built over the past two decades. His text describes the houses and the manner in which they are a part of their sites.

The houses vary from a large handsome copper-roofed country house in Switzerland, designed by Justus Dahinden, to British architect John Guest's own "reflective" town house in London, to a hill house by Wilfried Beck-Erlang (left) near Reutlingen, West Germany.

In the Wake of the Tourist: Managing Special Places in Eight Countries: Fred P. Bosselman. (Conservation Foundation.)

If you've ever gone to a remote spot, virtually unknown to tourists (other than yourself and a few others) and returned later to find it devastated by the impact of tourism, this book will hold your interest. Is it possible for places to keep their appeal despite hordes of visitors?

Fred Bosselman describes how special places in eight countries have dealt with the problems of land use caused by tourism, including Cancún, Mexico; the English Lake District; Ayers Rock in Australia; and the cities of Jerusalem, Amsterdam, and London. Each place has had different problems caused by tourism. But tourism can be beneficial, he says, and he describes various approaches, cautioning that no scheme can be copied blindly. The book is most useful for any person concerned with land use. "Those who recognize that their neighborhood has an individual character will see qualities in other neighborhoods that they might not have noticed before," Bosselman writes. "They may begin to look upon a larger community as a special place. And they should, in turn, be more concerned about the

continued on page 149



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in Leesburg, Virginia, switched to gas. The operation was a success. It has already saved the hospital over \$100,000 in fuel bills.

Conversion of two oil-burning boilers to dual-fuel function cost the hospital \$22,000. But, according to Foster, it paid for itself in 63 days. The actual \$100,078 savings was based on the prevailing price of oil versus what was actually spent for natural gas over a twelve-month period.

"We only expected to save \$60,000," said Foster, "but we've already gone way beyond that."

Although the cost of all energy will go up over the next few years, Foster's decision to switch to gas will save the hospital hundreds of thousands of dollars over the life of the boilers. Because, as the price of natural gas goes up, it will still remain a better buy than oil or electricity. "And in the meantime," says Foster, "we're way ahead of the game."

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qualities of their region and state and even their nation. . . . Defining a geographic area and emphasizing its intrinsic merits helps people sharpen their perceptions, reorient their values and take a new look at the world."

John Loughborough Pearson. Anthony Quiney. (Yale University Press, \$40.)

The architect of some of the finest churches in England, John Loughborough Pearson (1817-97) practiced architecture for almost two-thirds of the 19th century. His genius is revealed in his churches and country houses. This study provides an account of Pearson's clients, associates and contemporaries, as well as an in-depth analysis of his work. Pearson epitomizes an age rather than leading it, Quiney says, and was truly a great Victorian architect. Inconsistent as a designer of surfaces, he was "almost entirely successful" as a designer of masses. As a designer of spaces, he was "supreme," a fact that gives him "special eminence among architects of whatever era and whatever building type."

London 1900. Alastair Service. (Rizzoli, \$35.)

Three years before 1900, the British celebrated Queen Victoria's diamond jubilee. In 1900, Londoners were caught up

in a war in which Dutch farmers in South Africa gave the British Empire some "comeuppance." These occupations of the period, Service says, were important to builders and architects as well as to the people for whom buildings at the time were erected. And London was transformed. Service discusses London in 1900 in all its facets—architecture, housing for the working class, mansion blocks, public transportation, factories and offices, shops and stores, theaters and restaurants, hotels and clubs, churches and education, town halls and state buildings. The book is copiously illustrated.

Traditional Architecture of Afghanistan.

Stanley Ira Hallet and Rafi Samizay. (Garland STPM Press, 136 Madison Ave., New York, N.Y. 10016, \$34.50.)

When this book was written, the authors could not have had any idea that Afghanistan would figure so prominently in the news by publication date. Evidently, the country is in more than a political predicament. The authors say that there is also an understandable architectural dilemma. The traditional forms of architecture cannot meet the requirements of the 20th century, yet modern construction ignores the needs inherent in a country rich in tradition. The authors, an American and a native of Afghanistan,

take a serious look at the indigenous architecture, even though they know, they say, that the clocks cannot be turned back. With many photographs and drawings by Afghan architects and a sympathetic text, they review the culture, history, dwelling units and construction methods of various regions, villages and cities, showing the influence of the harsh climate, the diversity of ethnic groups, and the richness of history.

The Great Perspectivists. Gavin Stamp. (Rizzoli, \$25 hardbound, \$15 paperback.)

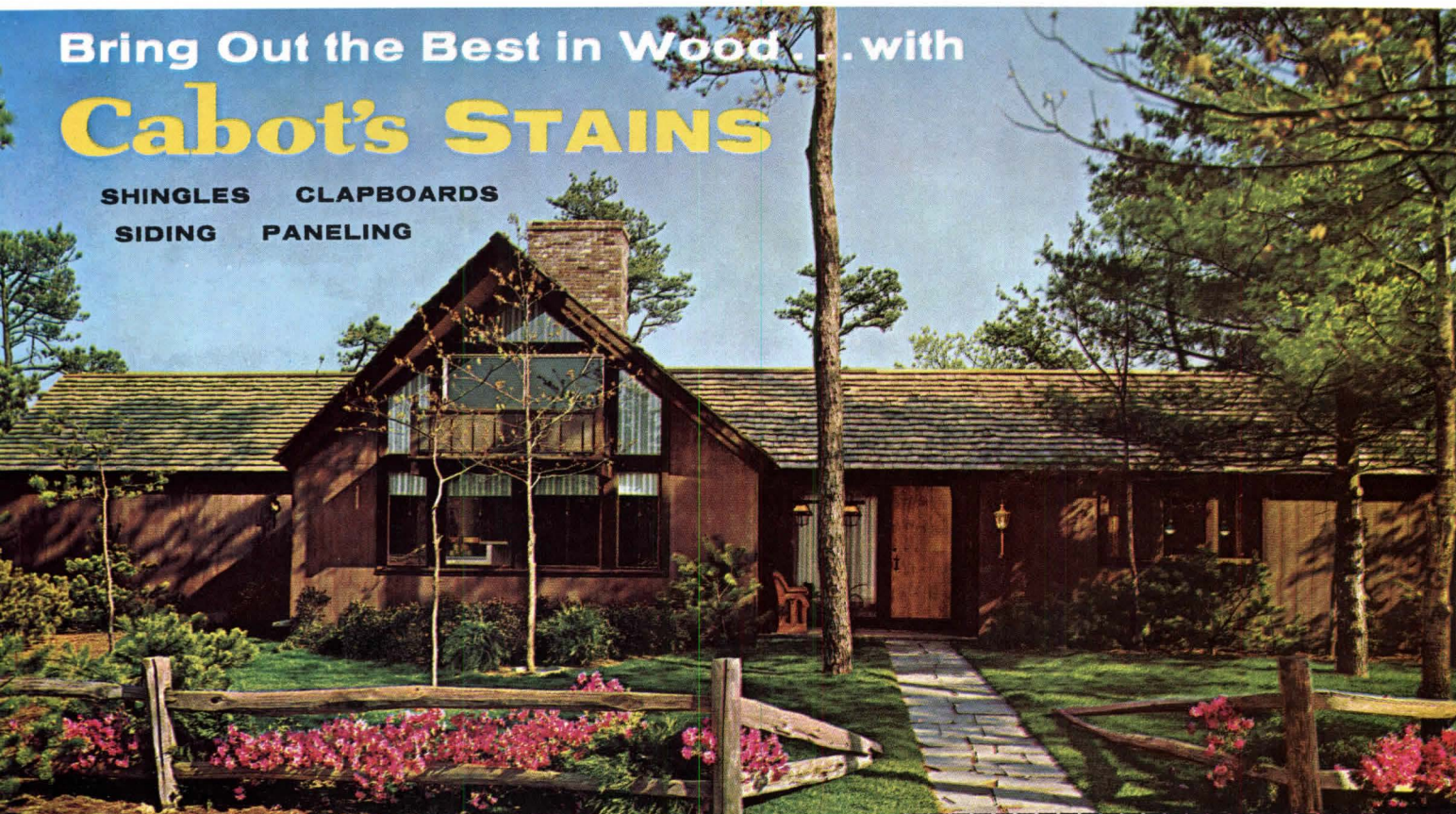
Architectural perspective, says architectural historian Gavin Stamp, "belongs in the province of both architecture and art; it is an artist's impression, and the success of a perspective depends upon artistic imagination and skill—it is not mathematically precise." Certainly, the examples of British architectural perspective in the 19th and early 20th centuries presented in this book demonstrate artistic imagination and skill, portraying impressions of buildings not in existence at the time the drawings were executed.

The drawings are taken largely from the collection of the Royal Institute of British Architects, and the book is one in the "RIBA Drawings Series." Following *continued on page 152*

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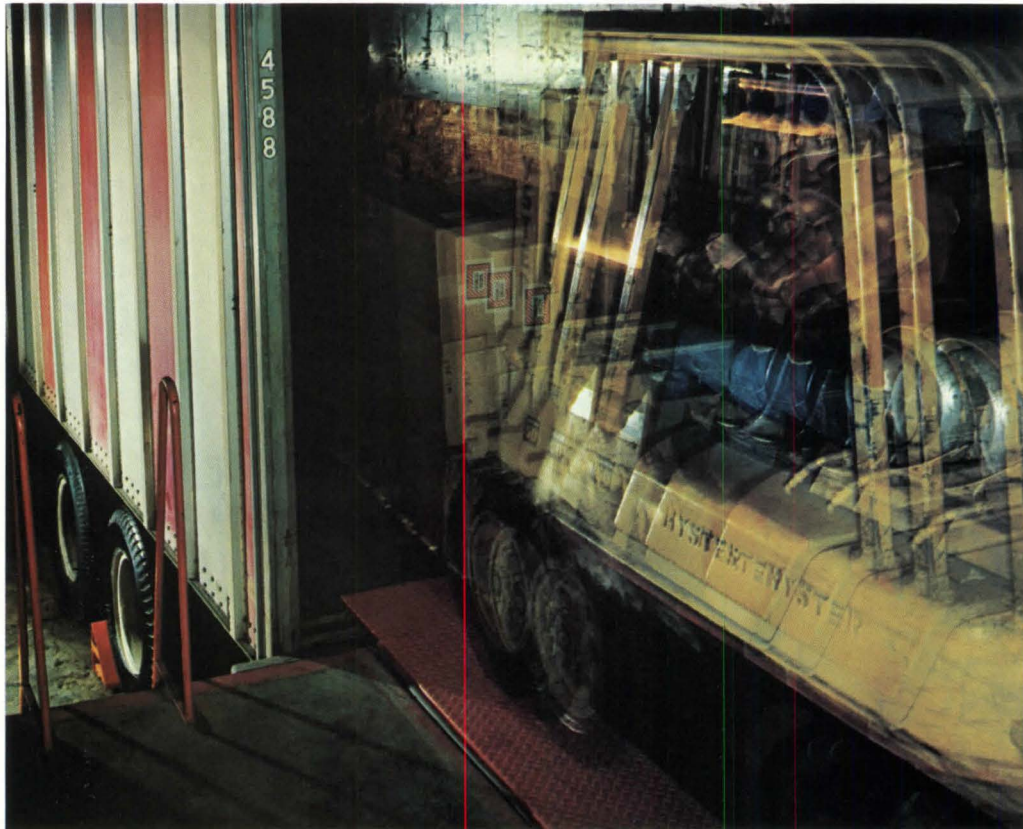
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an introductory essay on perspective, Stamp presents the drawings of architects ranging from William Talman (1650-1719) to Welles Coates (1895-1958). In between are the perspective drawings of such eminent and influential architects as James Wyatt, Augustus Welby Northmore Pugin, Sir John Soane, and Richard Norman Shaw. The beautiful drawings, many in color, supply documentary insights into the work of these architects.

Wind Effects on Buildings. Volume 1: Design Applications. Volume 2: Statistics and Meteorology. T. V. Lawson. (London: Applied Science Publishers, Ripple Road, Barking, 1G11 OSA, Essex, England, volume 1, \$55; volume 2, \$30.)

Designing buildings with wind effects in mind, says the author of these two technical volumes, is a recent consideration, brought about by the public's adverse reaction to new buildings that have unpleasant wind conditions. The first volume considers the principal interactions, with chapters devoted to wind loading, heating and ventilation, the wind environment of buildings and wind tunnel investigations. Mathematical tools are provided for the synthesis and analysis of problems that the designer may encounter. The second

volume, which may be studied in parallel or used independently, concerns statistical analysis and meteorological expressions, the purpose being to allow in the first volume "the smooth flow of the aerodynamic arguments without breaks."

The author is associated with the University of Bristol's department of aeronautical engineering.

Discovering English Churches. Richard Foster. (Oxford University Press, \$24.95.)

Richard Foster, author of this handsomely illustrated book, is a producer for the British Broadcasting Co. who knows how to write in an interesting manner. This is the story of England, told through the medium of its thousands of parish churches, more than half dating from medieval times. While each church is unique, being "a product of its own particular history," Foster says, each one also "shares in the tide of events" that shaped England and its people. Foster places the parish churches in the sweep of social history, describing social customs, religious practices, political influences, and the effects of such events as wars and the black plague. He describes the architecture, the church builders, the master masons, the patrons, the worshippers, placing the churches in the context of their own times.

An interesting feature of this most readable book is a list of 1,001 of some of England's more significant parish churches, located by area. There is also a helpful glossary of architectural and ecclesiastical terms.

William Wilkins, 1778-1839. R. W. Liscombe. (Cambridge, England: Cambridge University Press, no price given.)

Known by many people as the architect of the National Gallery in London (1834-38), William Wilkins made far more significant contributions. Although the gallery should have been the culmination of his career, Liscombe says, it became "the signal of its decline." William Makepeace Thackeray called it "a little gin shop of a building."

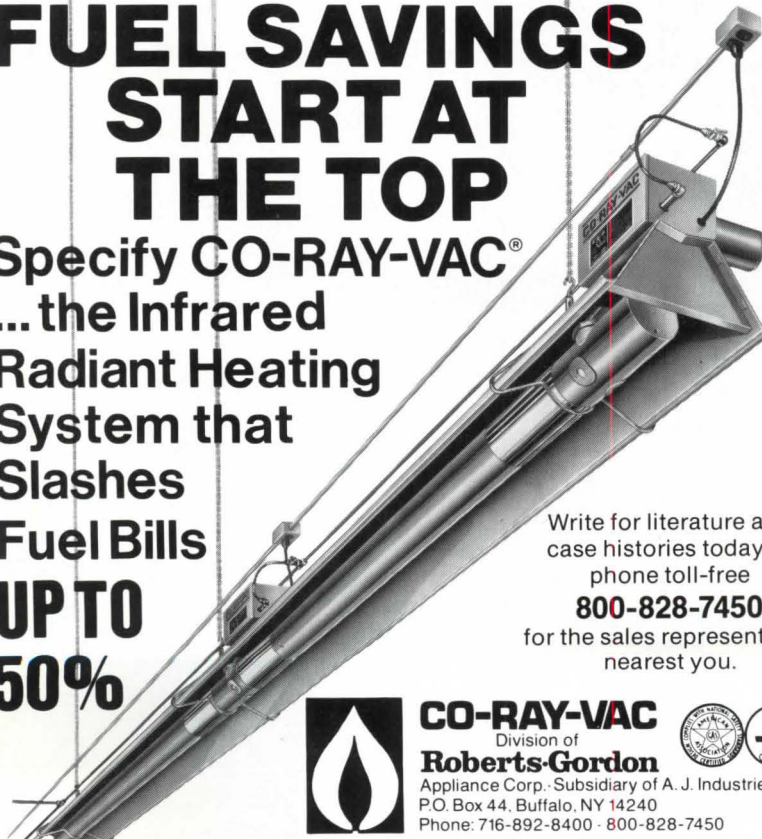
More to Wilkins' glory is Downing College, Cambridge (begun in 1806), which is significant historically as the first campus plan with separate structures sited around a parklike expanse of lawn. It preceded Thomas Jefferson's University of Virginia. Wilkins was also a pioneer in Greek revival architecture in England, and worked also in the Gothic style. This book, the first biography of this architect, traces in scholarly detail his commissions and accomplishments.

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Landscape into Cityscape: Frederick Law Olmsted's Plans for a Greater New York City. Albert Fein, Editor. (Van Nostrand Reinhold, \$11.95.)

When first published in 1967, this collection of reports and papers by Frederick Law Olmsted commenced the process of rescuing Olmsted from the landscape architects, whose profession he had virtually created, and establishing his larger significance as a historical and cultural figure. In the acknowledgments to the 1967 edition and the reference to the Olmsted centennial exhibition, Fein provides a convenient benchmark against which to measure what he describes as "the Olmsted renaissance."

The progress of that movement and its extensive literature is recorded in the per-

ceptive introduction and the notes and bibliographical apparatus that is the major contribution of the present paperback edition. Perhaps of still broader significance is the recently formed National Association of Olmsted Parks. Indeed, it is not too much to describe Fein's introduction to the book, with its decided emphasis on the status of Olmsted's work (particularly the 16 great "county parks" in major cities), as a statesmanlike charter for that organization. Step by step he traces Olmsted's philosophy of the parks movement and the expression of these ideas in the parks themselves: their past and present uses for recreation and civic events, their revitalization of adjacent neighborhoods, their appeal to middle class property owners, their corollary of suburban development, and the philosophy of resource

stewardship that has continued from Jefferson, Lincoln, Theodore Roosevelt through Olmsted to the environment and preservation movements of today. No dust has settled on this historian's account.

Olmsted's relevance is documented on every page from its source in his work to the condition and value of his parks today. Everyone concerned with the American city will find this work of value.

Frederick Gutheim, Hon. AIA, Washington, D.C.

Engineering and Industrial Graphics

Handbook. George E. Rowbotham, editor-in-chief. (McGraw-Hill, \$49.50.)

This weighty tome of some 560 pages has information on all types of graphics in engineering and design supplied by 12 contributors. It is not a book of instructions, says the editor-in-chief, but rather sets forth the state of the art as viewed by experts. The book's 16 sections cover technical illustrations, technical and audiovisual presentations, the economic dimension of layout drawings, dimensioning and tolerancing, electronic drafting, printed-wiring drawings, specialized drawings, measurement with SI metric, interactive graphics, preparation of patent drawings, mathematical graphics, reprographics and micrographics, retrieval systems, creating an effective design/drafting manual, checker's guide, and numbering systems. The chief editor is engineering management editor of *Design Drafting & Reprographics*.

Architecture in Tennessee, 1768-1897.

James Patrick. Contemporary photographs by Michael A. Tomlan. (University of Tennessee Press.)

James Patrick, a professor at the University of Dallas, Irving, Tex., has written a critical history of Tennessee's architecture from the time the first squared-log and frame houses were erected in the 1700s to the 1897 Nashville Centennial, which was influenced greatly by the World's Columbian Exposition at Chicago in 1893. Before AIA's 30th convention in Nashville in 1896, Patrick says, "Beaux-Arts classicism had triumphed in Tennessee." (It was at that convention, Patrick reminds us, that AIA voted to move its headquarters to Washington, D.C., and to contribute at least \$500 toward Daniel French's memorial to Richard Morris Hunt.) The centennial itself influenced the forthcoming architecture in Tennessee, and "buildings in the new style" were erected across the state, ending Tennessee's regional tradition.

The bulk of this book is about that regional tradition in architecture in Tennessee. Patrick discusses "the look of Tennessee's village and plantation dwellings" in the late 1700s and 1800s by

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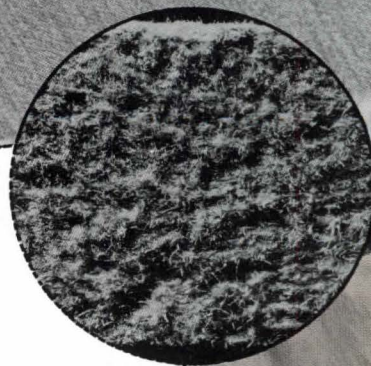
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early travelers and critics; techniques and materials; carpenters and architects; and the esthetics of this architecture. He gives an overview of the state and its architecture in the 18th century, which is followed by an exploration of regional styles—federal, Greek revival, romantic classicism. There is a chapter on the architecture of Southern nationalism, with admiration expressed for the “distinctive excellence of Tennessee’s plantation architecture,” the result, he says, of the willingness of the relatively small planter class to live on the land.

Patrick pays tribute to many architects who are often omitted in surveys of Southern architecture. One of the valuable contributions of this book is its catalog of extant Tennessee architecture built before the end of 1897, referenced by county. There is a glossary as well. Extensive notes to the various chapters are provided, and a selected bibliography.

John F. Kennedy Center for the Performing Arts. Brendan Gill. (Abrams, \$25 hardbound, \$12.95 paperbound.)

This celebration of the first 10 years of the Kennedy Center in Washington, D.C., written by a New York City theater critic, is innocent of any more serious historical intent. It will be the perfect souvenir for

many admirers of this institution. Credit is given to Roger Stevens who had led it from “a piece of paper and an armful of architectural drawings” to its present eminence. His background in real estate and building, as finance chairman of the Democratic party, his vast experience in buying and selling Broadway theaters and in backing shows, combined with workaholic proclivities, indicates his unique qualities. As a book, with its 118 large color photographs (more of artists and performances than of the building), this will serve until someone else tackles a critical evaluation of the Kennedy Center and explores the many decisions and alternatives that produced what we have today. *Frederic Gutheim, Hon. AIA, Washington, D.C.*

Building Through Time: The Life of Harold C. Whitehouse, 1884-1974. Sally B. Woodbridge. (American Lives Endowment, 765 Portola Road, Portola Valley, Calif. 94025.)

This book, which is not for sale, has been distributed to architectural and public libraries by the American Lives Endowment. According to the chairman of the board of the endowment, a few copies are available upon request at no cost on a first-come first-served basis. The book contains an eight-page essay by architectural historian Sally B. Woodbridge on

the life of Harold C. Whitehouse, FAIA, whose firm of Whitehouse & Price was known throughout the Pacific Northwest for its designs of churches and civic and educational buildings.

Woodbridge praises the “consummate craftsmanship” in Whitehouse’s ecclesiastical design. Certainly, the best known of his churches is the Cathedral of St. John the Evangelist in Spokane, Wash., and 21 of the 32 plates in the book are devoted to this structure. The book also contains the firm’s job list for work from 1920 to 1970.

Factories: Planning, Design and Modernization. Jolyon Drury, editor. (Architectural Press, London, and Nichols Publishing Co., \$150.)

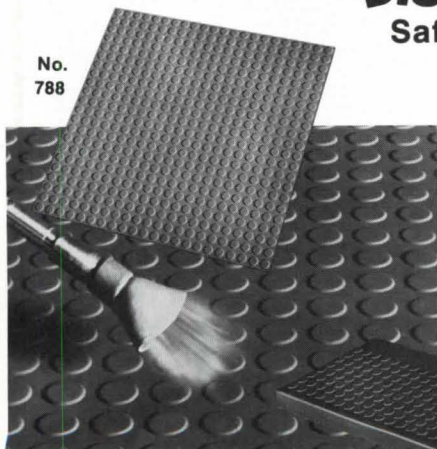
This expensive book brings together in one volume a long-running series of articles on the design and renovation of factories first published in the British *Architects’ Journal*. Edited by an architect who was associated with Arup Associates before going into private consulting practice and coauthor of *Building and Planning for Industrial Storage and Distribution* (1975), the book’s essays are all by experts: John Winter and Chris Clarke, Cliff Tandy, Nicholas Kemp, Dougal Drysdale, Keith Lovell, and Ron-

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ald Kirkwood. Their contributions cover the gamut of industrial architecture, including the preparation of a master plan, detailed aspects of factory design, landscaping, and management. The two appendices concern the prevention and suppression of flammable and explosive atmospheres and the production and materials handling equipment and workplace "furniture."

A foreword by D. Daryl Wyckoff, a professor at Harvard University's graduate school of business administration, calls the book "a practical handbook to serve as a companion to managers and industrial decision makers in the formative stages of industrial facilities planning." The book is, he says, "the course in industrial engineering that many of us wish we had taken and some of us learned painfully through costly errors." Prevention of errors makes the book's cost of \$150 seem more reasonable.

Frank Lloyd Wright. Thomas A. Heinz. (St. Martin's Press, \$19.95 hardbound, \$11.95 paperbound.)

Thomas A. Heinz, a recognized authority on Frank Lloyd Wright and editor of *The Frank Lloyd Wright Newsletter*, says that the best way to study Wright's work is not read about it, or even read what Wright had to say himself, but "to look at the buildings again and again." If you can't have the pleasure of looking at the buildings first hand, then the next best thing is to study photographs of them.

The 80 pages of full-color photographs presented in this book are not a photo essay of Wright's complete work, Heinz says, but are "an overview of the incredible diversity of form and structure which is his legacy to us."

The beautiful photographs displayed in this book clearly show Wright's diversity. They range from the 1889 Frank Lloyd Wright house in Oak Park, Ill., to the 1957 Marin County Civic Center in San Rafael, Calif. The book also contains an introductory essay by Heinz on the significance of Wright's work. There is a selected bibliography, and there are brief introductory captions about each of the photographs, with the buildings dated and located. Any admirer of Wright will want this book.

Building Design and Construction Handbook. Fourth edition. Frederick S. Merritt, editor in chief. (McGraw-Hill, \$75.)

The third edition of this work, published in 1975, was entitled *Building Construction Handbook*. The word "Design" added to the title of this fourth edition indicates, says the editor in chief, this work's broader scope. "The new edition," he says, "may well be considered a new

book." There are new sections, some contributed by new authors, and revisions to other parts, many reflecting recent changes in specifications for commonly used materials. Among the new sections are those concerned with building systems; the effects of such hazards as wind and earthquakes on buildings; and lighting.

In all, 22 experts have contributed to this volume of 1,472 pages. Comprehensive in scope, the book covers every aspect of design and construction—major conditions affecting architectural practice; building materials; structural theory; soil mechanics and foundations; windows, doors and roof coverings; heating, ventilation and airconditioning; the estimation of building costs; construction management. The book's 662 illustrations complement the text.

Frederick S. Merritt, editor in chief, is a former senior editor of *Engineering News-Record* and a consulting engineer in building construction and design. He is the author of five parts of the book, as well as the appendix, which considers the factors for conversion to the metric system of units.

Management of Small Construction Projects. Alfred P. McNulty. (McGraw-Hill, \$24.95.)

As McNulty points out, a large construction project has construction management tasks divided among a team of specialists, but a small project has all the tasks and responsibilities assigned to one individual. He gives this person a guide through the construction process, providing an integrated system of control that can be adapted to the construction manager's own personal style of management.

McNulty first considers the overall building process and then describes four phases of construction management. First is planning and design, and in this section he considers such things as the owner's responsibilities, the design process and the architect, and early controls by the construction manager. The following section on design documents has three chapters that elaborate on the control of cost, the control of time, and reducing the bias to overdesign. McNulty then discusses off-site construction management—engineering the job plan, purchasing techniques, the off-site superintendent, and accounting as a tool for control. The final section of the book is devoted to on-site management and covers such topics as subcontractors, liability, safety, control of paperwork, closeout of contracts, and program review.

McNulty, who has nearly two decades of experience in construction management, gives the reader many insights into the managerial process. The book is published under the auspices of *Engineering News-Record* magazine. □



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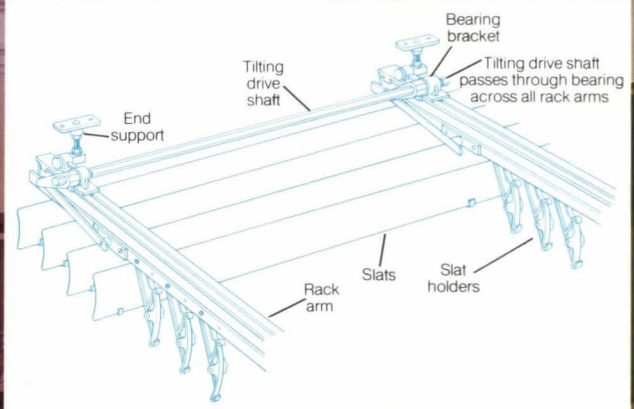
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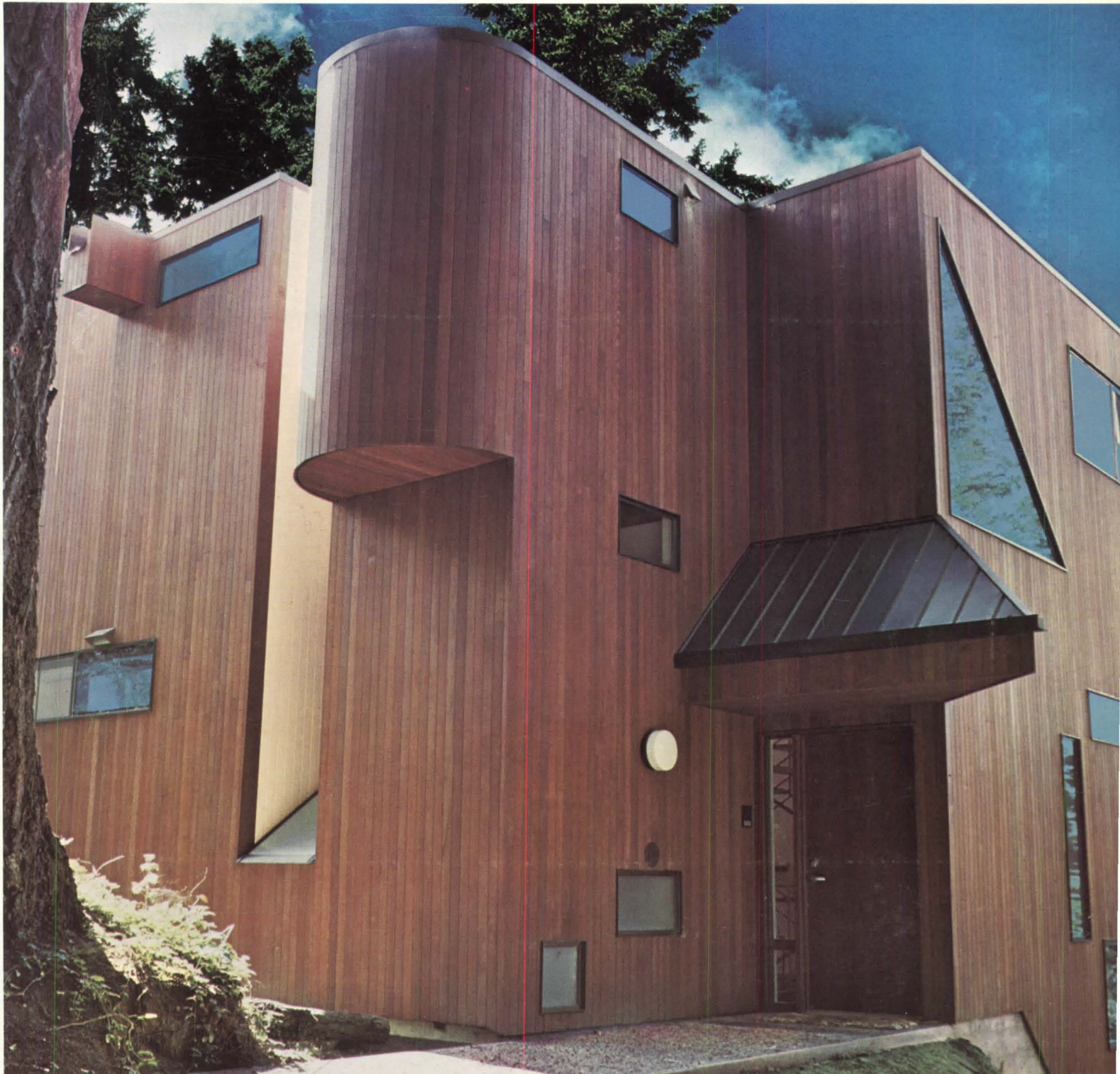
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