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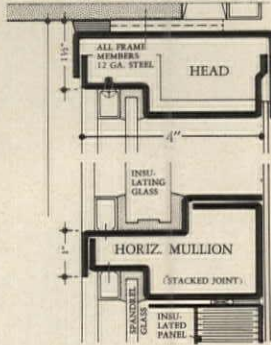
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# HOPE'S

## How Hope's Serves the Creative Architect

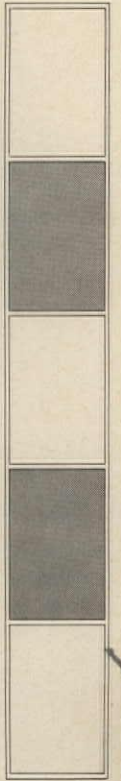
This three-section building for Standard Oil Company (Indiana) typifies the large scale, highly specialized project on which Hope's reputation for quality custom work has been built. Wigton-Abbott Corporation, designers and constructors, specified installation of more than 180 monumental size steel custom windows by Hope's. Constructed of 12-gauge pressed steel members, the fixed windows are 30 to 35 feet high and over five feet wide. The installation provides an intriguing example of pressed metal's broad adaptability; steel was chosen for its strength, durability, rigidity, and economy. Note that the detail of the horizontal mullion is designed to accommodate two different thicknesses of glass in the same member, while keeping the outside glass surfaces in the same plane. The

attractive appearance is enhanced by finishing frames, beads and panels each in a different color, with Hope's unusually durable Ultra-Coat finish.



The Hope's pressed steel subframes used in the Standard Oil research center were installed in five sections to accommodate three sections of clear glass, interspersed with two of opaque spandrel glass. The vertical unit, with spandrel surface covering structural

framing as well as ceiling and floor construction, functions as both window and window wall. The frames, formed in a tubular shape, provide the glass with a third-dimensional framing effect. The installation typifies the individual choices available to the architect using Hope's pressed steel subframes. They are custom made to suit the requirements of each installation, offering the designer broad versatility. Frames can be designed to accommodate: ventilated or fixed windows, panels, doors, grilles, louvers and all types of glass. Ask Hope's engineers to work with you on your forthcoming construction plans. Your creative ideas provide a challenge they welcome. Hope's Windows, Jamestown, New York 14701.



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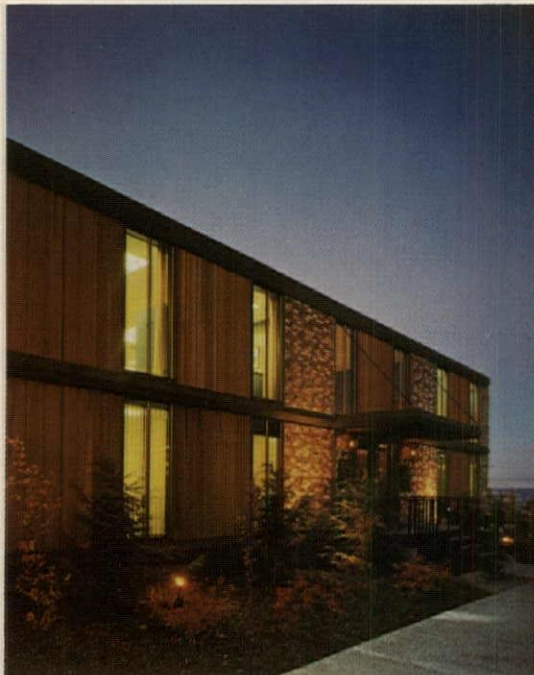
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Architectural Consultants: Donald W. McDonald, A.I.A., San Francisco, CA; Harris, Reed and Litzenburger, A.I.A., Tacoma, WA; Person and Person, Inc., Sumner, WA.  
Builder: Person and Person, Inc.



Erected in 7 days, this 2-story law office consists of 14 steel-framed modules, seven on the first floor and seven on top. Each module is 12 ft wide and 40 ft long. A high degree of interior flexibility is indicated by the office's attractive reception room (right).



This savings and loan building employs the same basic module as the 2-story law office. Steel framing permits the structure to be picked up and moved with relative ease to another location.



# Steel framing proves advantageous for modular construction

Twelve-inch steel channels, visible from an unfinished portion of an office floor, serve as the unit's primary framing members.



An attractive exterior siding and roofline transform the same basic module into a contemporary home. In this case, three 12-ft-wide by 44- to 48-ft-long units were attached to form the single-story residence.

Design adaptability, high strength, and the ability to maintain close field tolerances are several of the key reasons why the use of steel framing is increasing in commercial and residential modular construction.

The load resisting capacity of structural steel enables the modular units to be stacked atop one another. Design flexibility and versatility are almost unlimited.

## **Steel speeds erection**

The ability to maintain good field tolerances, up to  $\frac{1}{8}$  in. over a 60-ft span, is one reason why steel is so well suited to the modular concept. Virtually eliminated are erection delays due to misalignment of units.

Investors are able to save almost 10 per cent in construction and interim costs through the economies of factory construction and rapid field erection.

All of the buildings shown here were ready for occupancy within 45 to 60 days after contract signing . . . about a four month lead over conventional construction.

## **Steel improves portability of units**

The strength and rigidity of steel framing enables the individual units to be moved with relative ease, both on the assembly line and in the field. The portability of this type construction is of particular advantage to the owner who wishes to relocate the building at a later date.

## **Concept adaptable to variety of structures**

Steel-frame modular construction is well suited for office buildings, banks, schools, motels, retirement centers, apartment complexes, dormitories, and private residences.

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**Georgia-Pacific**



GYPSUM DIVISION, Portland, Ore. 97204

Architects: Charles Luckman & Associates

General Contractor: Hoffman Construction Co., Portland, Oregon



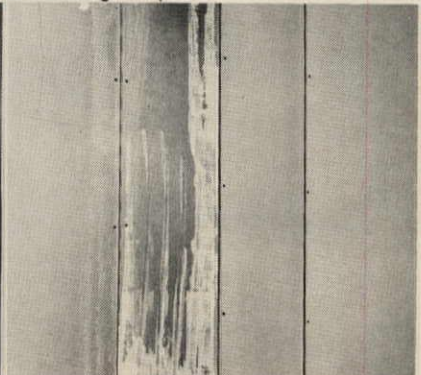
1. Installing floor track.



2. Installing core panel.



3. Attaching core to T-spline.



4. Applying finish layers.

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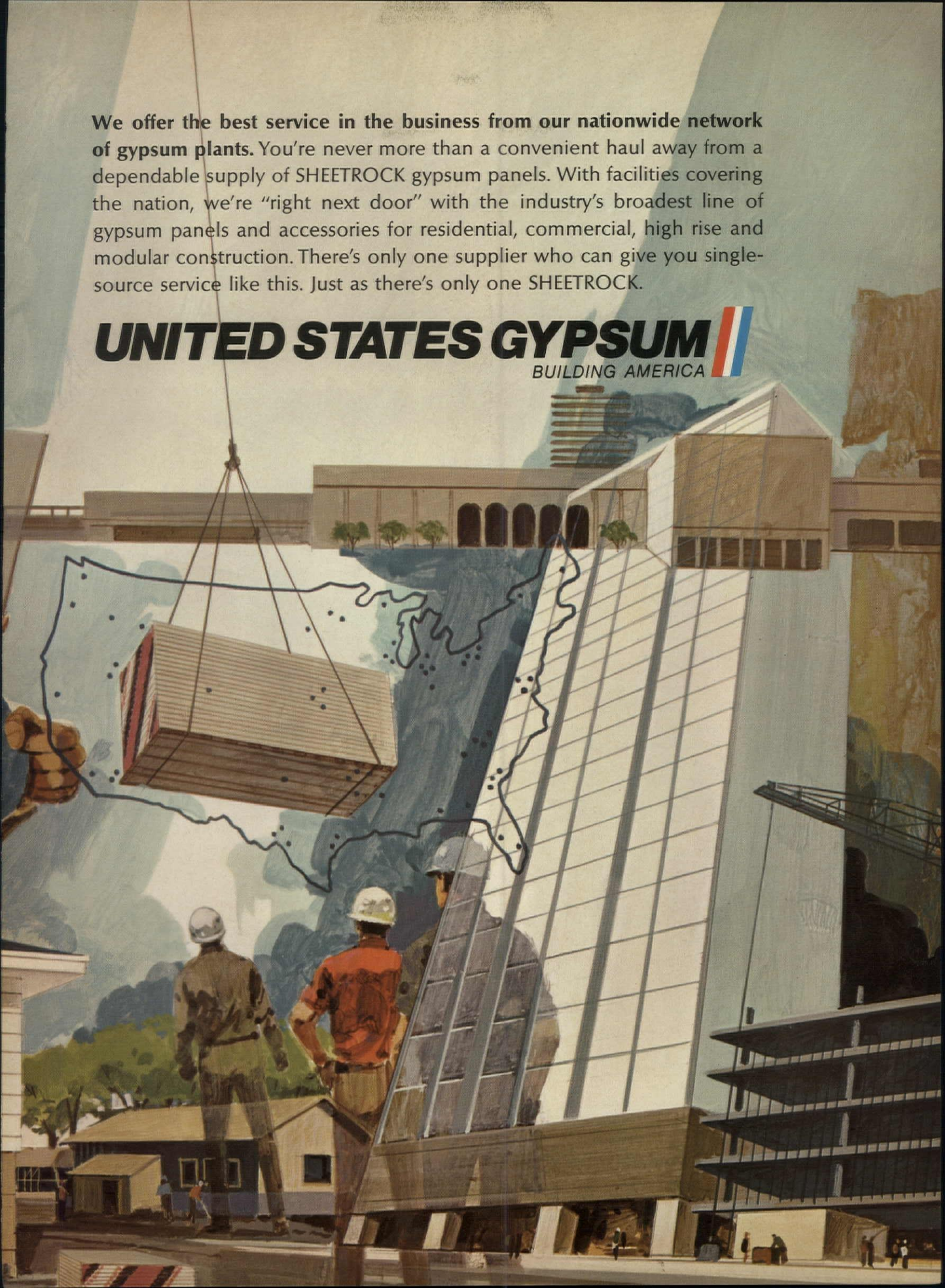
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# **UNITED STATES GYPSUM**

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# comment and opinion

**PRACTITIONERS AND POLITICS:** The proceedings of the annual convention of the National Council of Architectural Registration Boards, which are reported in Outlook in this issue, got off to an auspicious start. The host city's mayor, Wesley Uhlman, was on hand to welcome the 122 delegates (total registration: 300) and pointed out that Seattle's citizens are attempting "to preserve the old while building the new."

But the political welcomes didn't end there by any means. Mayor Gordon Johnston came up from Tacoma, 30 miles away, as did Governor Daniel J. Evans from Olympia, even farther to the south. Of greatest interest to the out-of-staters are their backgrounds: Johnston, an architect, and Evans, a civil engineer.

A member of The American Institute of Architects, Johnston, having been re-elected last fall, began his second two-year term in January. He traced briefly for the NCARB audience how he got into politics in the first place, serving as chairman of the City Planning Commission prior to his election. "I'm a profound believer in zoning," he told the AIA JOURNAL intially upon taking office. "But zoning should work two ways. The zoning ordinances should protect property, which is their intent. Also, in a growing area such as ours, they should have some incentives written into them. I think that when an enlightened developer wants to build a highrise in an attractive area, there are too many roadblocks that can defeat him. In the long haul, the city might be better off if there were some incentives to encourage developers."

Although Tacoma has a city manager form of government, the mayor's duties have become full-time and Johnston no longer can be seen at his drawing board. He told the NCARB delegates that he wished more architects would volunteer their services in those areas in which they have special skills and knowledge. He explained that he must realistically face up to the question, "What is the value of a good physical environment," adding the admonition that "citizens feel that they are being 'planned' to death."

While there are several other architects currently acting as mayors, Johnston, to the best of my knowledge, is the professional heading up the largest city, Tacoma's population being 151,000 as of the 1970 census. The JOURNAL, in fact, would like to secure a list of all architects who are serving in elective political offices. (Among the practitioners is at least one nominee for Congress: M. L. (Mike) McGee, AIA, of Columbus, the Democratic candidate from the 15th district in Ohio.)

Governor Evans, who was named Washington State's "Engineer of the Year" in 1965 and nationally acclaimed by the Consulting Engineers Council in 1969, perhaps is best known across the land as having been the keynoter for the 1968 Republican National Convention. He really talked the language of the NCARB gathering when he emphasized, "We should not measure progress in terms of 'the biggest is best.'" He added that the vital issue today is, "How can the population be handled to live in harmony with the natural environment?" And, as the delegates were about to consider the new examination procedure, he struck a responsive chord when he stated, "We must look ahead to different approaches, to new combinations of professionals." Having said all that, he could hardly be faulted for putting in a plug for his own "Washington Future" program, six bond issues which he sees as part of a total package: waste disposal, water supply, recreation, social and health facilities, public transportation and community colleges.

ROBERT E. KOEHLER

## ACKNOWLEDGEMENTS

- |   |   |
|---|---|
| 10 right — Spokane World Exposition                     | 24 below — courtesy Educational Facilities Laboratories |
| 10 left — <i>Flint Journal</i> , Bill Gallagher         | 26 — Robert Propst                                      |
| 20 — Max Prugger  | 40 — Jova Daniels Busby                                 |
| 21 above — German Information Center                    | 42 — Clyde May  |
| 21 below — Olympia Press                                | 44 right, 45 — Gerald Ratto                             |
| 22 — courtesy Educational Facilities Laboratories       | 50, 51 — Bill Rothschild                                |
| 23 above — George Zimbel                                | 53 right — Charles d'Emery                              |
| 23 below — courtesy Educational Facilities Laboratories | 54 — Louis Checkman                                     |
| 24 above — George Zimbel                                |   |

## NEXT MONTH

The title of the leadoff presentation, "The American Endless Weekend," is no idle phrase; it has become a fact with more and more of our population working a four-day week which means, in turn, that those who serve them in retail sales, recreational and other capacities may have their so-called "weekends" at any time. But what provisions are being made to accommodate these changes? The author of this article, with an assist from the AIA Committee on Architecture for the Arts and Recreation, raises some questions and suggests some possible solutions.

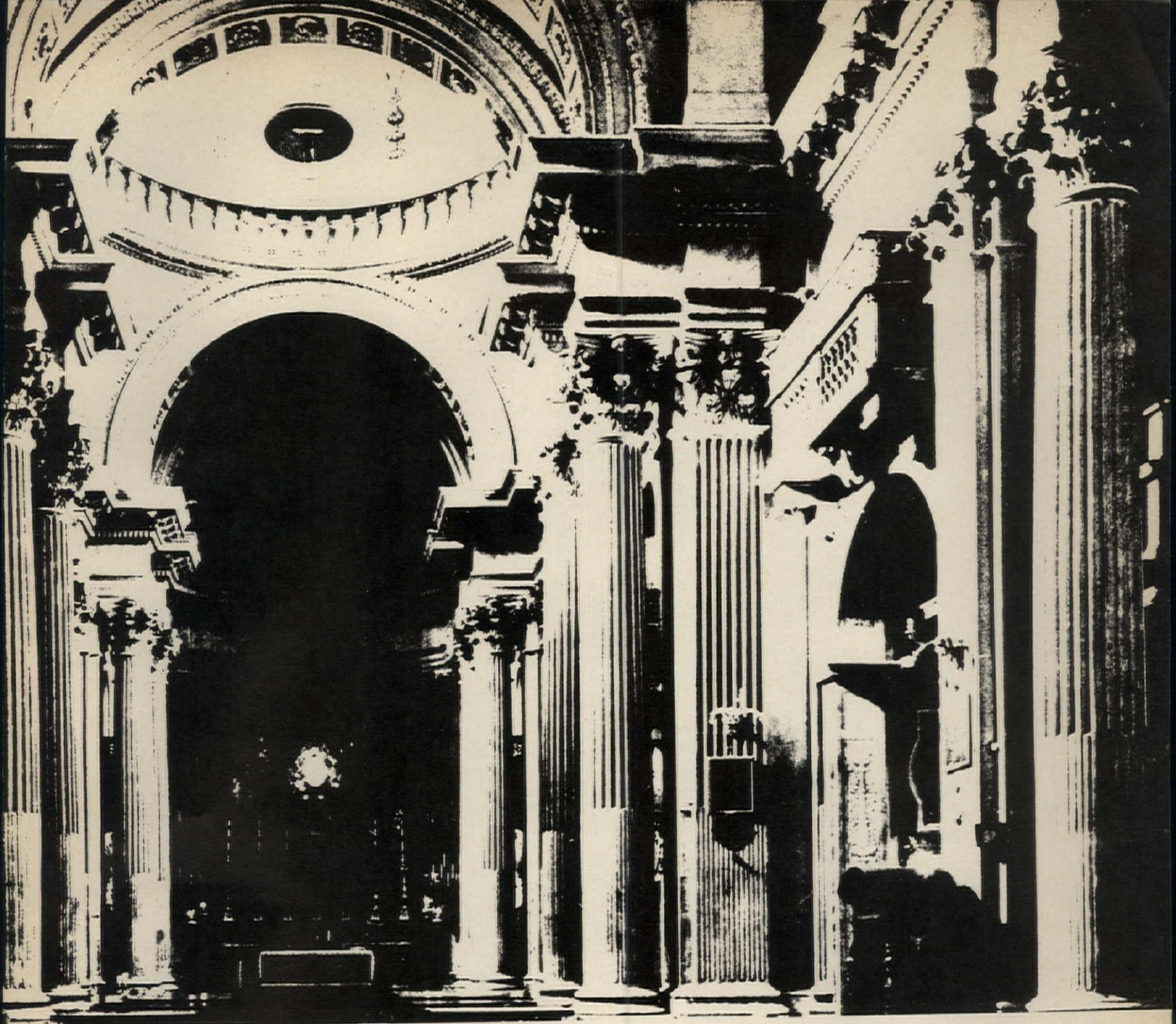
Tied in with the "endless weekend," as we have already mentioned, is the four-day week itself, a topic discussed in the Practice Aids series by a principal of a New York City firm which was the first architectural office in the nation to implement such a schedule.

Other features for September: an assessment of Raymond Hood, who played a vital role in the development of the skyscraper but whose contributions have gone all but unnoticed all these years; the second in the trio of articles on "Color and Man-Made Environments" by Faber Birren; another in the continuing Practice Profile series, this one devoted to a 40-man firm in the nation's capital which is establishing ever deeper roots through a healthy growth and infiltration in urban renewal areas; and a summarization of a report by New York City's Urban Design Council offering recommendations for an analysis and a complete overhaul — suggestions from which may be applicable for other metropolitan and governmental bodies.

## ASIDES

While the AIA JOURNAL is in no way attempting to compete with those premature promoters of the yuletide season, we would like to make it known that the wife of an architect is collecting Christmas-greeting or simply end-of-the-year cards from practitioners for possible use in an article. Such cards can serve as a public relations tool, good or bad, as they reflect the firm's image. Many architects, of course, design their own, using an unusual amount of ingenuity, as we can attest from those which we have been privileged to receive. And so we welcome favorites from our architect readers which we will send on to the potential author. Meanwhile, we'll take a peak ourselves to see what the profession is up to in this area and perhaps we can pass along a few pointers that might be helpful in 1973 or in future years for that matter.

Speaking of public relations, we are always interested in seeing the office brochures put out by architectural firms. They come in all sizes and shapes, in color and in black and white, and tell a lot about the organization — not necessarily in terms of down-to-earth statistics but certainly in a frame of reference. After we have had a chance to peruse them, these brochures are circulated among members of the Institute's professional staff and many find their way to the library which has a collection of sorts. □



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by Christian Norberg-Schulz

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## NCARB Gives Nod to New Examination Procedure with First Tests Set for 1973

Action to implement a new examination procedure highlighted the annual convention of the National Council of Architectural Registration Boards in Seattle.

Fifty-two member boards were on hand for the 51st gathering, the largest number ever to be represented (the missing three: Guam, Puerto Rico and the Virgin Islands), and elected Thomas J. Sedgewick, AIA, of Flint, Mich., as president.

During the June 28-July 1 sessions, the delegates approved steps to administer the equivalency exam in June 1973 and the professional one in December of that year. They further agreed to a two-year time limit, beginning January 1, 1973, for use of the present four-day, seven-part exam for those member boards which cannot, by law, implement the new procedure.

The exam to establish the basic equivalency of accredited degrees for 1) no or partial education, 2) nonprofessional degrees and 3) nonaccredited degrees will take two days. The first will be devoted to construction theory and practice (structures, construction technology and administration, and environmental control systems) and architectural theory (history, theory and planning)—all machine graded. The second day will be given over to design, which will be jury graded.



Sedgewick

The professional exam also will be a two-way exercise, divided into four parts: 1) environmental analysis, 2) programming, 3) design and technology, and 4) construction. All questions will be multiple choice.

Applicants who have passed four of the seven parts of the present exam, including site planning, architectural design and structural design, will be able to continue in this format through December 1974. Failure to complete all parts by that date will cause the applicant to start over with the new professional exam. It is NCARB's recommendation, however, that there be no time limitation on any part of the old exam within the two-year period.

If applicants do not fall into the above category, then 1) those with accredited degrees will immediately transfer to the professional exam and 2) those without accredited degrees will immediately transfer into the equivalency and professional examinations sequence.

(All inquiries concerning the new procedure should be directed to NCARB, 2100 M St. N.W., Washington, D.C. An article

describing the implementation will appear in an early issue of the AIA JOURNAL.)

Carl M. Sapers, legal counsel for NCARB, explained, "Some of those involved in the reform process have expressed concern that drawing a distinction between graduates and nongraduates for purposes of examination might be 'unconstitutional.' He then cited several cases to support his contention that the proposed reforms meet the standards laid down by the Due Process and Equal Protection clauses of the 14th Amendment.

"It is reasonable to conclude that an applicant for licensure with a degree from an accredited school of architecture has already been examined in basic architectural subjects," Sapers said. "On the other hand, an applicant without a degree may have gaps in his professional skills no matter how extensive his practice experience."

While in favor of the new exam procedure, Fay DeAvignon, president of the Association of Student Chapters/AIA, pointed out that "there has been little or no communication between students and NCARB."

Among several resolutions passed by the convention related to the new exam procedure was one which grants a holder of a master's degree from an accredited school of architecture the equivalent of one year's practical training experience.

In another area, William J. Geddis, FAIA, of Cambridge, Mass., chairman of NCARB's international relations committee, reported on the acceptance of reciprocity for architects between countries which began in the early '60s. He commented on two noteworthy goals achieved in the past year:

- The formal signing of the agreement between NCARB and the Architects Registration Council of the United Kingdom (ARCUK) in London last September.

- The first International Conference on Architectural Registration which was co-sponsored by NCARB and ARCUK, drawing 25 delegates from 11 countries to Amsterdam last October.

The second such meeting will be held in Dubrovnik, Yugoslavia, October 5-7, with Geddis presiding at the opening session. It will follow the 11th World Congress of the International Union of Architects set for Varna, Bulgaria, September 25-30.

NCARB's planning committee has established a task force on information retrieval which will serve as a central data bank. W. C. Muchow, FAIA, of Denver is chairman.

Besides President Sedgewick, the other officers are E. G. Hamilton, FAIA, Dallas, first vice president; John M. O'Brien, AIA, Memphis, second vice president; Carl F. Groos Jr., AIA, Denver, secretary; and Jack H. Swing, AIA, Urbana, Ill., treasurer.



Sited in the heart of Spokane, Expo '74 is part of a riverfront rehabilitation project.

## Environment to Be Featured in Expo '74, Slated for City in Washington State

America's first world exposition on the environment will open in Spokane, Washington, in May 1974 and will run for six months. The theme of Expo '74 is "how man can live, work and play in harmony with the environment." The exposition has been approved by the Bureau of International Expositions and by President Richard M. Nixon on behalf of the US. More than 75 individual exhibitors will be featured in major pavilions.

The site itself is viewed as a commitment to the environment. It includes 100 acres of riverbank, two islands and the spectacular falls of the Spokane River in the heart of the city. Plans to clean up the riverfront date back to 1963 but did not take on form until 1967 and were expected to take at least 15 years to realize (see AIA JOURNAL April '71). Now, with the event of Expo '74, the majority of it will be carried out before the exposition.

The Washington State Pavilion will run the length of a block along the riverfront, rising to a height of nine stories. It will be the cultural center of Expo '74, costing about \$7.5 million. Architects are Walker, McGough, Foltz & Lyeria. After Expo '74, it will be a hub for civic, cultural and convention events.

Total exposition costs will be about \$60 million including site development, major pavilions, permanent theme building, state and federal buildings, international pavilions, features and exhibits.

## Government Report Predicts Nation's Need for 50,000 Architects by 1980

In 1968, estimates the Bureau of Labor Statistics in *Occupational Manpower and Training Needs* (Washington, D.C.: US Government Printing Office, 1971, 75 cents), there were 34,000 employed architects. Projected 1980 requirements amount to 50,000, a percentage growth of 47.1.

About 4,200 architectural graduates will be needed annually to meet the projected requirements; thus over the 1968-80 period, degrees granted will have to be about 27 percent above 1969 levels. The US Office of Education's projections reveal that the average number of degrees in architecture are increasing roughly at the required level.

continued on page 51



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# Knowledge and Intuition in Combination

by DON CONWAY, AIA  
Director, Research Programs

The increasing dissatisfaction with the man-made environment is worldwide. In response, governments and professions are turning their attention to the solution of a whole set of environmental problems.

President Nixon's recent message on science and technology is an indication of the present administration's endeavor to create a "strong new effort to marshal science and technology in the work of strengthening our economy and improving the quality of our life." Although the rise in funding for civil research and development is less than what the President is requesting for defense research and development, the critical point is that the former has at last achieved some degree of recognition in its own right.

The AIA has made a similar acknowledgement both of the increasing environmental problems and of the potential that research and new knowledge can have on the solution of these difficulties. The principal manifestation of this awareness has been the revitalization of an office for Research Programs in the Institute's organizational structure. A second indication of interest in creating a strong research tradition in the profession is the recent establishment by the Board of Directors of the AIA Architectural Research Medal.

The presentation of the medal to Professor Christopher Alexander of the University of California, Berkeley, at the convention in Houston marked the first time in the history of the Institute that professional recognition has been given to anyone for his contributions to the advancement of knowledge relative to architecture and environmental design. His influence on research has been profound.

In his acceptance statement, Alexander neatly put it all together: "... The award is for 'research.' In my mind, research is a rather dangerous word. It implies careful and deep inquiry into the nature of human events

in buildings and towns, which we need very badly, because we know so little about it. But at the same time, the word also implies that there is an activity, separate from design, which can be expected to yield fruitful results. I don't believe that. Research, divorced from design, is almost always dry and lifeless. By being academic and separated from life, it can create terrible results. The only kind of research that I consider worthwhile is the kind that is carried out within the actual task of planning and designing towns and buildings, so that it is constantly being enriched by actual experiences and difficulties of the building task. I myself have always tried to combine research and design, and since this is the first time that the award has been given, I should like to hope that you will treat it as a precedent. Perhaps in future years, you might always try to give this award for the most fruitful combination of research and design, never for research which does not have direct and concrete bearing on the shape of towns and buildings. . . ."

Our understanding of the social and psychological consequences of the design decisions that architects make every day is inadequate. It also seems clear that for problems like this the adoption of a "research-like" attitude in the day-to-day practice of architecture can lead to hard knowledge with which we can, and must, reinforce the intuitive design process. Constant analysis by the practitioner will ultimately lead to a clearer understanding of the social and psychological impact of his design decisions.

If the architectural profession is actually to gain leadership in the improvement of man's physical environment, to which it has been so vocal in laying claim, many advancements beyond the profession's present state of knowledge are required. This is a research task that the entire profession must accept. □

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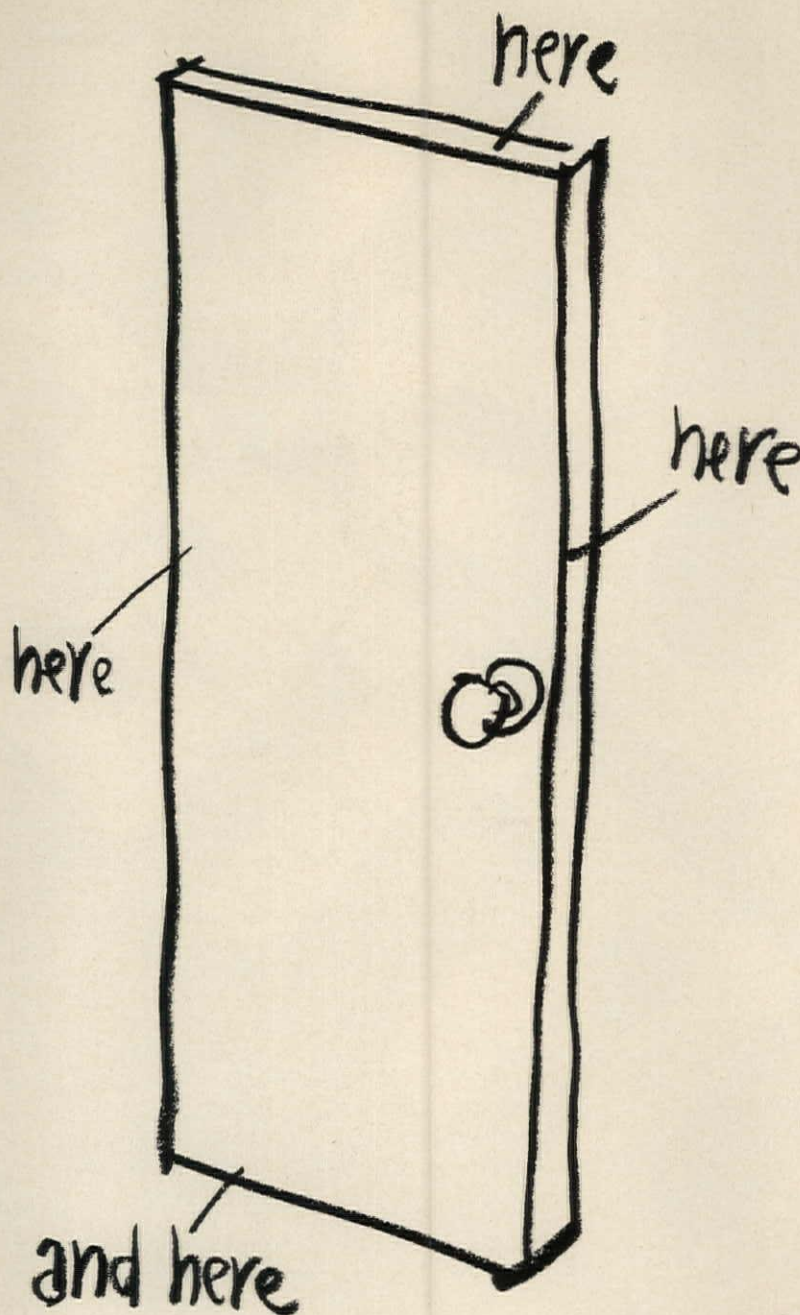
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Three grim specters are haunting us today: overpopulation, congestion and pollution. Unless they can be exorcised soon, they will increasingly threaten man's very existence on this planet.

Our environment was once natural, but it is becoming progressively artificial. Tomorrow it will be largely man-made. If we are someday to have entire cities enclosed under colossal domes that are artificially ventilated and lighted, as has been seriously suggested, they will present new problems of planning on a gigantic scale. Architects, engineers and city planners will be required to answer questions that they have never faced before. To find answers to these riddles, they will have to depend more and more upon new scientific research in many fields and on empirical experience covering many disciplines. The planning profession will have to know more about controlled environment, radiation and the effects of color and light, both natural and artificial, on plants, animals and human beings.

Faber Birren, the author of three articles to be published in the AIA JOURNAL, is in a position to answer many of the questions that will confront architects and engineers in the near future. Because of his vast experience with light and color, and his knowledge of related fields, he speaks with authority.

Color may become a major factor in a man-made environment. Its physical impact influences man's psychological reactions as well as his emotional life. Psychedelic lights, colors and sounds may induce the same sensory overstimulation as do drugs. On the other hand, absence of sensory stimulation resulting from isolation or confinement may bring about similar reactions and even hallucinations. These are vital considerations that must be taken into account in designing the man-made world. WALDRON FAULKNER, FAIA

ED. NOTE: Mr. Faulkner, a consulting architect in Washington, D.C., is author of the recently published *Architecture and Color* which is reviewed in the AIA JOURNAL this month.

# COLOR AND MAN-MADE ENVIRONMENTS

# 1. The Significance of Light

by FABER BIRREN

Environment is a broad term embracing problems of air and water pollution, birth control, urban transportation and everything that affects or threatens the survival of man. This article and the two that will follow in succeeding months are concerned, however, with the *architectural* environment, spaces small or large in which people may be gathered and in which conditions of light and color — and temperature and humidity — are of man-made design and control. The author draws upon materials published in his book *Light, Color and Environment* to show how the design of interiors influences behavioral patterns. Attention is first given to illumination in future man-made environments.

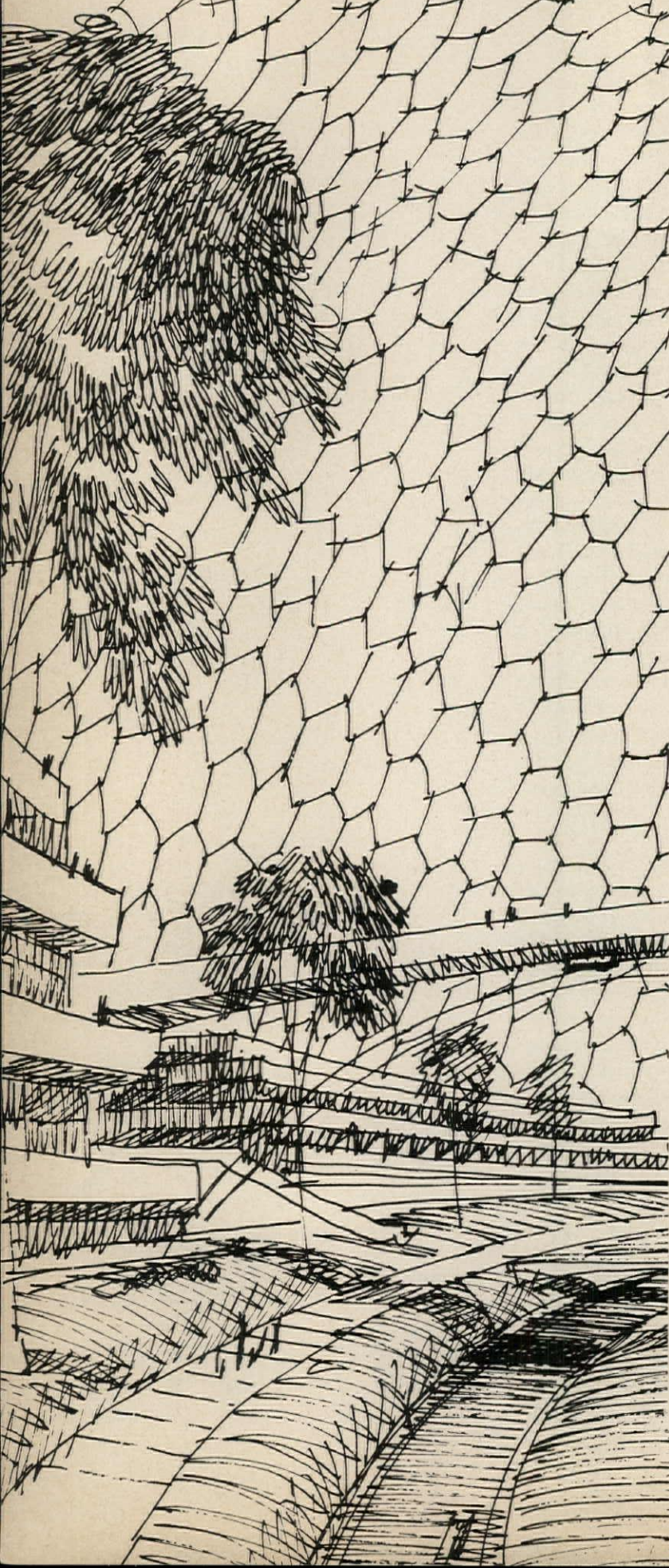
Man of future generations will travel into space and will spend time there. He will live under the sea and within domed cities. Life will be mighty complicated — and artificial. Man's environment will be away from nature, and he must master it or perish. Even now people young and old are spending increased amounts of time in schools, offices, hospitals and institutions with exposure to natural daylight ever less frequent.

Man in his natural environment is polluting and despoiling it. With his chemicals he is upsetting many of nature's balances. Mountains of waste are piling up everywhere and are being dumped into the sea and buried in caves. Man has even begun to laden the heavens with spent satellites, turning space beyond the clouds into the semblance of a used car lot. He won't have to destroy himself in an instant with a hydrogen bomb; he will slowly choke himself to death.

Yet the age-old dream of harmony between nature and man forever ends in a collision between the two. Man will have to do penance for his sins against nature, but for his own survival he will have to be independent of the natural world. A scientist proclaims that if man continues to denude the land of verdure, he will deprive the atmosphere of oxygen and all humanity will suffocate. Man, however, can make his own oxygen. For that matter, he can make his own food under artificial light and with fertilizers of his own concoction.

Nearly all of human effort these days seems to be leading toward the controlled environment. It is inconceivable that this trend can be reversed or stopped. Nature is being left out in the country where man has more or less decided that she belongs. The mountains and seashore are becoming no longer the habitats of man but simply places for him to visit on weekends and holidays. Man thinks that he is too busy to be discommoded by nature. He has things to do in a hurry and cannot submit to anything capricious, natural or otherwise. It is wholly possible that within not too many decades man will venture from his contrived abodes into the vast stretches of nature, point through the clear plastic shell of his conveyance and say to his children, "This may be hard to believe, but your ancestors used to live out there!"

Artificial light will be of vital if not first concern in the controlled environment; light, food, water and air are the primary ingredients of life itself. A publication of the Atomic Energy Com-



mission devoted to photobiology contains a report on no less than 15 different studies now being conducted at universities and independent research laboratories on the action of light on living things. Light is essential to life, but not all kinds of light.

The biological significance of light has only recently been properly considered by illuminating engineers. For years the makers of artificial light sources and the engineers who specified and installed them gave first attention to vision. The literature of the profession was dominated by references to recommended footcandles of light energy — any light energy — to enable men to see clearly at given tasks. As a consequence, efficient light sources involving sodium or mercury vapor were developed and widely applied as if the only function of illumination was to enable man to see. This is no criticism. As long as man could walk into the open, play softball, swim, sit in the yard in his undershirt, all was well, for he could absorb the healthful rays of sunlight and keep in fair shape.

But if man is to be confined for long hours, kept out of nature and away from the sun, he will need balanced light that emits a full or fairly full spectrum, including some ultraviolet. There is plenty of evidence that prolonged exposure to sodium or mercury vapor or to conventional fluorescent light will throw his system out of kilter.

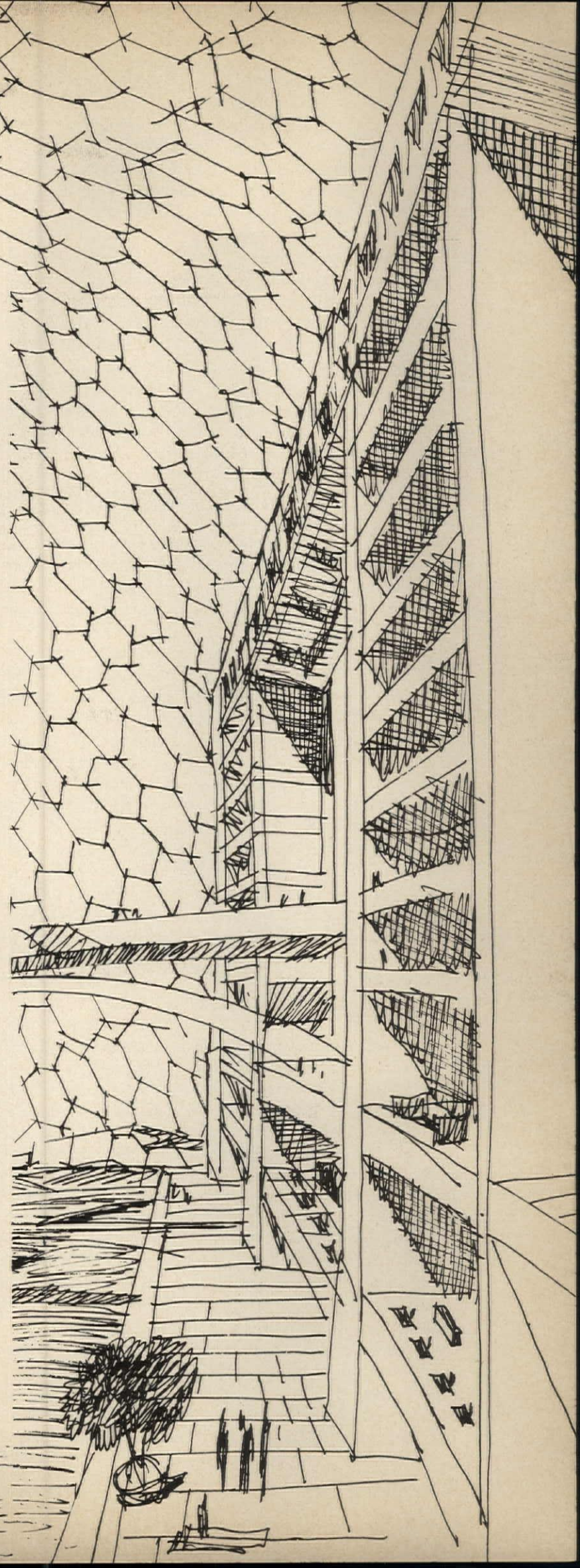
In a specious way it could be argued that given adequate diet and exercise, man could *survive* in total darkness. The blind man's world is dark only visually for his body still absorbs radiant energy. However, if man does not live by bread alone, neither does he live too well by bad light or no light. Prolonged exposure of animals, such as mice, to narrow bands of the spectrum has had inimical effects. Aside from the biological effects of light, however, man is a psychic creature as well as a physical one. Sensory deprivation, a topic to be discussed in the third article in this series, can drive him mad or at least out of his better wits. Anyone suffering from lingering mental or emotional shock will eventually have physical ailments and a shortened life span.

Just why is light important to man and why the critical need for balanced light? In international congress, the illuminating engineers of the world recently agreed to research the matter of biological lighting, and the Illuminating Engineering Society of the US has begun to publish articles on such topics as "Biological Implications of Artificial Illumination." The author of this paper, Richard J. Wurtman of the Massachusetts Institute of Technology states, "Environmental illumination acts as both an inducer and a timer of glandular and metabolic functions."

The medical profession speaks of *spasmus nutans* in infants — failure to thrive. It seems that light, any light at all, means a lot even to the newborn. In seven reported cases, infants were

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**Mr. Birren** is one of the world's leading authorities on the functional aspects of color. A consultant with offices in Stamford, Connecticut, New York City and Montreal, his publications and interpretations of research have been concerned with the way in which color can help benefit mankind. Illustrations for the entire series are by John J. Desmond, FAIA.



hospitalized for failure to respond to care at home. While all indicated "evidence of parental neglect . . . examination of the homes showed that each of these babies spent most, if not all, of his time in a darkened environment." Perhaps the mother watched TV or preferred to be isolated from life or the world. In any event, when the babies were exposed to light and were given love and affection, normal health and growth were resumed.

Artificially controlled environments have existed for a long time. Countless laboratory animals, mice, rats, guinea pigs, dogs, monkeys, animals in zoos, birds in aviaries and fish in aquariums have been reared under man-made conditions and often without exposure to natural light. Perhaps most have fared well enough with good care and healthful diets. How is one to know? Now much is being learned. Aside from that which is strictly biological, higher animals, such as monkeys, apes, lions and tigers, can be plagued by neuroses, too, if forced to stare at blank walls. Many will refuse to eat or to mate. Yet with more diverting and stimulating surroundings new vitality can be aroused and life prolonged. Because a lot of artificial light in the past has been without ultraviolet energy, recent studies have shown that some virus diseases of fish in indoor aquariums can be cured by the introduction of a moderate amount of ultraviolet. Equally good results have been achieved with reptiles, birds and animals. Many which have refused to eat or breed have shown amazing response when exposed to light sources that emit a well balanced daylight spectrum. This is a beginning.

It is generally recognized today that light and duration of light are the chief regulating factors in bird migration and in the sexual cycles of many beasts, including man. To increase egg production in chickens and ducks, extra light is often used to supplement and extend the duration of daylight. T. H. Bissonnette, a zoologist, was able to get weasels to turn white in summer rather than in winter by regulating exposure to daylight. He also succeeded in having goats provide milk at times of the year when they were not wont to do so — through light control.

According to an authority on the biological effects of radiation, Friedrich Ellinger, length of daylight seems to be the most important of all features in stimulating sexual activity — or inhibiting it. Horses and donkeys reproduce during seasons of long daylight, with a decrease in sexual activity from October to January. When mares are exposed to additional illumination during winter months, ovarian activity may be affected. Fertility decreases with cattle, sheep and pigs during the summer months.

As to cows, W. J. Sweetman, a researcher in Alaska, writes that he "obtained an improvement in wintertime fertility by illuminating the animals 14 hours a day, whereas at this time of year daylight lasted from six to eight hours." Another scientist, H. J. von Schumann, found "that the number of hours of sunshine is the most important factor for the forming of horns" in stags. He assumed that light was absorbed through the hide of the deer, causing the formation of vitamin D and stimulating horn growth.

Dutch and Japanese farmers expose song birds to extra illumination in order to induce singing. An English scientist found starlings living in and around Picadilly Circus in London to be sexually active at a time when other starlings at Oxford were not. Light of the great white way was assumed to be the cause and the reason.

With animals, including man, it is apparent that light and life go right along together. Studies indicate that radiant energy can actually penetrate into the mammalian brain. E. D. Brunt, a researcher, and his associates caused light to penetrate the skulls of sheep, dogs and rabbits. They demonstrated that "light does reach the temporal lobes and hypothalamus in a variety of mam-

malian species." The hypothalamus, incidentally, is that part of the brain, at its base, which is said to contain vital autonomic nerve centers and fibers which control such functions as respiration, heart action, digestion, etc. Where it is affected by light, the animal naturally responds according to its needs.

H. L. Logan, a leading lighting engineer, has gathered data on the effect of light on human beings. Logan points out that light dilates the blood vessels and increases circulation, thus ridding the body of toxins and lightening the load on the kidneys. Hemoglobin in the blood will be increased by light and decreased by darkness. Logan writes, "We are natural creatures originating in the subtropics, attuned to high levels of natural illumination. We can operate for less, for a penalty — poorer health, shorter life expectancy."

It has been shown that sudden exposure to bright light stimulates the adrenal gland. There is indeed a time clock within all men that is regulated by day/night rhythms. Wurtman states, "These cycles synchronize a large number of biologic rhythms." The stimulation of light may come through the eyes but it may also trigger effects through the skin and subcutaneous tissues. As Wurtman comments, "It seems clear that light is the most important environmental input, after food, in controlling bodily function."

Rhythms of light and dark are wholly natural to man's experience. Lightness and darkness cause different physiological actions in the body. Body temperature, for example, will change. The action of light may induce the secretion of hormones into the blood stream. Persons who fly by plane from west to east may feel spells of nausea, physical distress and mental disturbance. Space travel one day may demand light/dark cycles of artificial illumination for the human system to keep in good shape — not just light but regulated exposures to it. The whole matter is quite complex. Wurtman found, for example, that blind girls tend to reach an earlier onset of puberty than those with normal vision.

If man-made environments will keep people out of nature and away from the sun for long periods of their lives, then man-made light sources will have to take nature's place and provide the radiant energy needed to sustain life. Efforts in this direction are already in progress by the lighting industry. Yet man does not need a great deal of light either to see clearly or to safeguard his well-being. People who dwell in the tropics do not live longer than people in colder and less sunny climes. Wurtman writes encouragingly, "Although relatively little information is available relating the intensity of light exposure to its efficacy as a neuroendocrine stimulus, it seems likely that the range in which intensity may be rate-limiting in mammals is well below that provided by the systems of artificial illumination generally in use."

Most artificial environments today expose people to unbalanced light sources. Incandescent light is almost completely lacking in ultraviolet wavelengths. The glass tubes of most fluorescent lighting fixtures absorb and screen out ultraviolet. Some mercury sources, rich in ultraviolet, lack red and infrared frequencies. Clear mercury lighting, however, is objectionable because of the distortion of colors in an environment and the ugly appearance of the human complexion.

The current need in artificial light perhaps settles down to ultraviolet and how much of it should be given to man for a beneficial biological result. The ultraviolet radiation that lies next to visible violet can be conveniently classified as long wave or short wave. Long wave ultraviolet (adjacent to visible violet) will produce fluorescence in many substances. It is responsible for the fluorescent lamp or tube, activating phosphors that become highly luminous. Other waves cause suntan. As the waves grow still

shorter, erythema of the skin is caused. Here cholesterol is activated in the body and vitamin D generated. Where quartz is substituted for glass, which absorbs ultraviolet, energy is produced that will kill germs, sterilize liquids and food, generate ozone and perform other marvels.

Much can be said about ultraviolet light. Too much of it may cause damage, such as skin cancer; too little of it may result in vitamin D deficiency and rickets. According to W. F. Loomis, a biochemist, rickets is "the earliest air pollution disease." During the industrial revolution, black smoke darkened the sky and rickets became an affliction of epidemic proportions in the cities of England and Europe. Once attributed to poor diet, it has been proved to be a deficiency of solar ultraviolet radiation. Infants born in the autumn were more likely to become rachitic than those born in spring.

A measure of ultraviolet light is undoubtedly needed in artificial environments and sources emitting it are now being made. For years the Russians have been using ultraviolet radiation to supplement conventional fluorescent light in schools, hospitals and offices. In schools, children grow faster than usual, work ability and grades are improved and catarrhal infections are fewer. Russian miners are required to take ultraviolet treatments. What takes place? According to a report of the International Commission on Illumination, "the action of ultraviolet radiation intensifies enzymatic processes of metabolism, increases the activity of the endocrine system, promotes the immunobiological responsiveness of the body and improves the tone of the central nerve and muscular system." This is quite a great deal. Parenthetically, it may be noted that while favorable to the health of living things, ultraviolet can damage works of art, pigments, dye-stuffs and textiles. It thus may be good for schools but not for museums and art galleries. Incandescent light, which emits virtually no ultraviolet, is better.

The artificial environment can be properly illuminated to keep man in bang-up shape. The possibilities are there. But it is more than light and light alone that the world is seeking. How will one man look to another as a matter of appearance? What about color? There is the man of moods, feelings, emotions and not just someone who stands there and lets light penetrate his eyes, flesh and skull.

Beyond biological lighting, there must be psychological and psychic lighting. The former chief concern of the illuminating engineer — mere vision and visibility — seems now to be academic in the extreme. The problem of providing enough artificial light for man to see clearly and comfortably, regardless of his task, was solved years ago and hardly needs emphasis today. Other accomplishments need attention.

On the matter of illumination and color, the lighting industry today is seriously devoted to the development of sources that will duplicate light as encountered in average temperate zones and during most of the day. Such light is generally cool in tone and much like that showered from the sky around noon on a summer day. Most persons judge it as appearing bluish. However, the pink and orange light of dawn and dusk and the yellow light of the sun are also natural light. In arctic regions, months will go by during which daylight is always pink or orange and never white. As far as the human appearance goes, the warmer light sources are more flattering than the cool ones. This writer has matched colors for many years under north daylight. Although there is considerable variation in intensity and spectral quality summer and winter, on sunny days and cloudy ones, little trouble has been encountered.

After all, it is invalid to conclude that daylight types of light

sources will appear natural or normal or even assure true color rendition. A. A. Kruihof, a lighting expert, has aptly and correctly noted that the objects and surfaces of the world will have a "normal color appearance" under warm light at low levels of intensities and under cool light at high levels. In nature, dim light, such as at sunrise and sunset, is usually warm and golden in hue. So are firelight and candlelight. As daylight reaches higher levels, it shifts in tint from pink to orange to yellow and finally into white or even blue, as from a north sky in summer. Throughout these shifts in hue, as the light level rises, the colors of objects continue to look normal, i.e., no person will find the changing scene to be at all unnatural. In effect, white or daylight illumination at low levels will cast an eerie and altogether weird pallor over the world, while warm light at the same low levels will seem wholly proper. Thus for the sake of good appearance, warm light at low levels and cooler or whiter light at high levels should be regarded in the controlled environment.

Then there is the new and highly potential promise of psychic lighting. The whole idea seems to have been inspired by the taking of LSD and other psychochemicals. One of the first manifestations here is a "turned on" world of brilliant, blazing and flowing color. And with the advent of psychedelic art and the discotheque, a good part of man's environment may well be due for revolutionary change. When change comes, light will be a vital part of it.

What is significant here is that the *simulation* of mind-expanded states can be induced; one does not have to take hallucinogens. Turn up the lights, the colors and the sounds, and people can be emotionally transported. Barriers are broken down, and somehow people have less shyness and timidity. Although there may be a certain "wildness" today, there is a good chance that psychic lighting may become one of the most important, functional and rewarding contributions to the artificial environment of the future.

Psychic lighting has not come out of the laboratories of illuminating engineers. On the contrary, the psychedelic artist has scouted lighting equipment and made his own creative inventions. Recently scientists and artists have collaborated in an effort to see what can be done jointly. And there are new vehicles to exploit: polarized light, the laser beam, nuclear radiation.

The day is coming, and fast, when even the most conservative and austere environment will be given more life and vitality through the introduction of psychic lighting in some form or another. In an office, factory or school, daylight sources plus some ultraviolet may be utilized for a good part of the day. For psychological and emotional reasons other light in other intensities and tints may be programmed: warm light in the morning, increased intensity and whiteness as the day progresses, "complexion" lighting at coffee breaks or during the lunch hour, pink or orange light at dusk.

For those persons with neurotic or even psychotic troubles, "color therapy" of the psychedelic type may be prescribed as well as soothing music and other comforting sounds. As the practitioner of psychosomatic medicine knows only too well, a high percentage of human ailments, from asthma to ulcers, hives, stomach cramps, heart flutter and shortness of breath, all too often get started in the mind. The afflicted mortal gets to brooding over his misery and his condition worsens.

If light and color can help to save man from himself, draw him out of his despondency and get him agreeably involved in the world and the people in it, then light and color by all means must have an essential place in a new era of illumination for the man-made environments of the future. □



## The Olympics Landscape

**The last time the Olympic games were held in Germany was in 1936 when the world was in a serious mood, anticipating war. The airfield where Neville Chamberlain landed to sign the Munich Pact with Hitler in 1938 is the site of the XX Olympiad. But much has happened since those days, and this year the city of Munich has planned a gay festival. The planning and construction suggest ideas for planners everywhere who are concerned about the urban landscape.**

The architectural plan for the Olympic Games to be held in Munich, Germany, from August 26 to September 10 was based on the concept of an "Olympics in Green," the objective being to build an architecturally conceived landscape which combines buildings, terrain and plant life into a special quality of openness. Such an Olympic landscape with architecture and nature in harmony emphasizes a carefree festival of youth.

The focal point of the Olympics in Munich

is Oberwiesenfeld, once an airfield and exhibition ground and a dump for debris and subway excavations. About one mile square, it is only 2½ miles from the city center. "What was once a flat landing field," comments Carl Mertz, executive director of the Olympic Building Authority, in a progress report entitled *Olympische Bauten München 1972* (Stuttgart/Bern: Karl Krämer Verlag, 1970) has become a "sculpted landscape into which the various athletic fields are almost playfully integrated."

Architects Behnisch & Partner of Stuttgart in 1967 won first prize in an architectural competition for a design which was to be the basis for further development of the architecture for the 1972 Olympics. The firm was commissioned to carry out its design with subplanning projects executed by other firms within the framework of the overall plan. The Olympic Building Authority has been responsible for coordinating all construction.

The underlying theme of the complex was

derived from the idea that the landscape would offer a support into which all the individual parts would fit. "At every point the landscape must be present and recognizable," said architect Günter Behnisch early in the project. "It cannot be interrupted by large holes such as internal spaces, constructions, etc. It should not be 'alienated.' Water should be experienced as water, the mountain as a mountain, sidewalks as sidewalks (seen, felt, smelled, heard, tasted). Constructions serve to realize this idea; they are not self-serving. They cannot and must not be visible."

Thus the stadium is not to be viewed as a structure but as part of the landscape. It is embedded in a hollow, as is the athletic arena. The swimming pool arena is designed as an indoor garden pool with its service facilities below ground. The design of the buildings, the construction of walkways, squares and overpasses, the layout of the lake and the terrain are all elements in the concept. The athletic facilities are not single

monumental structures but are integrated into the landscape, connected by the tent roof which spans them.

The 800,000 square feet of tent roof over the main stadium, the swimming arena and the covered stadium is designed to be light and to add its own playful note. It is the work of the architects in collaboration with engineers Frei Otto and Ewald Bubner and the engineering firm of Leonhardt & Andrä. Its supporting structure is a prestressed cable net construction that required 255 miles of steel hawser. The outside hawser, 480 yards in length, consists of 10 cables of 55 strands each; seven wires go to each strand, making a total of 1,053 miles of wire. The roofing material is squares of translucent acrylic glass designed to prevent undesirable shadows for television purposes. The covered stadium and the swimming arena each has a separate roof suspended beneath the tent roof. The suspended ceilings provide for temperature, light, noise and weather control.

The artificial mountain, which adds an interesting dimension to the flat Munich urban area, is formed by land filling and excavations. The highest free access point in Munich, it permits the visitor to see the Olympic grounds to the north and the city to the south. It consciously emphasizes the landscaping of the total form; similarly artificial bodies of water are also for optical effect.

Plants add to the motif of the total concept. There are linden trees for the sidewalk system, white willows along the edges of the lake, pine trees on the mountain, ash and Norwegian maple for traffic and border landscaping. Not only are the plants decorative but they are also functional. There are no fences and barriers. Trees and plants form "optical landmarks."

There is a television tower 950 feet in height, a stadium to hold 80,000 spectators, a cycle track, the Olympic Village to house 12,000 athletes and team personnel — and more besides. Underground and suburban railway stations have been built. The transit trains from Hauptbahnhof (central Munich) or Ostbahnhof (east Munich) reach the Olympic grounds in 10 or 12 minutes. As

many as 85,000 spectators can be conveyed to and from the grounds in one hour. The "Olympia Stadion" terminus of the suburban transit network is built to accommodate trains at four platforms.

There are installations for equestrian events, rowing, fencing, judo, wrestling, weightlifting. There are wooden sculptures, turntables, seesaws, concrete cubes, water steps, benches, fountains. There is a cycle stadium, a warm-up gymnasium, a yachting course, shooting ranges, a canoe slalom course and other facilities as part of the overall Olympic program.

Festive lighting has been accomplished to

There are all the usual facilities for the athletic events and the necessities for crowds of people, including restaurants, health and first aid arrangements, etc. There is a Press City to accommodate the 4,000 newspaper, radio and television personnel who report on the Olympics. A religious center was designed with the future Munich district "Olympic Village" in mind, which for the duration of the games is available to all denominations and their services.

Because all this planning and construction costs a great deal of money—more than \$600 million—the city of Munich hopes to recoup some of the investment. The component parts



The gymnasium and swimming pool are covered by a tent; an artificial lake and a stage are in the foreground (above). Olympic Village (below left) houses competitors and other personnel.



add its own note to the landscape. In the progress report mentioned earlier, there is an essay on the construction of the landscape by Gunther Grzimek of the Büro für Grünplanung which has responsibility for this phase of development. He comments that there are three planned stages of lighting: 1) normal for main sidewalks; 2) permanent spotlights to provide a stagelike accent for terrain forms and plant life; 3) use of spotlights and light garlands for smaller areas. A variety of combinations are possible; chains of lights; sequences of light and dark areas; floodlights on the mountain; illuminated trees and plant life; etc.

Walking areas are designed for "stimulating possibilities" and lead to the athletic events, to playgrounds, to tranquil spots. Sixteen pedestrian overpasses have been constructed to separate motorized traffic from the walkers. These overpasses integrate with the forms of the terrain to give a profile of flatness.

of Oberwiesen have been planned and built for use afterward. The village for men athletes will be converted into modern apartments for Munich families; the women's section will house students. The radio and television center will become the Central College of Physical Education with three faculties initially and five more added later. Thus when the games are over, the University of Munich will possess a center with the latest equipment for sporting performances. It will be the largest university sports installation in Germany and one of the biggest in Europe. Press City will become a housing complex with its own shopping center. And, as a brochure urging people to come to the Olympics in Munich states, after the games are all over "the Olympic landscape will be a delightful leisure haunt for the people of Munich and their guests." To the rest of the world, and planners in particular, the "Olympics in Green" offers many provocative ideas for an urban landscape. □

# Making Open Space Work

by ROBERT PROPST

To date, the performance of open-plan schools has been frankly mixed. Some have been joyously successful, serving as the physical context for schooldays filled with creative teaching and learning, with diversity and pleasure. Others have not been successful at all. Indeed, they have often been a trial to their occupants. These checkered experiences are evidence of the urgent need for a clear understanding of the open space concept and the elements essential for its successful application.



Perfectly filled space in its best sense: enough enclosure, the right distances between groups, options for individuals and variable activities.



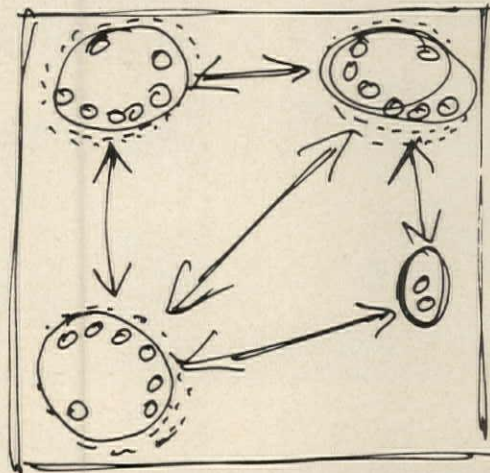


The open school interior is one of the happier developments of the 1960s. Though less than a decade old, it has been widely adopted and there are hundreds of such facilities in existence. Most of these are elementary schools, which have always been more friendly to innovation than our high schools. But even at the more fixed, more conservative high school level they are now beginning to appear. There is little doubt that with these first incursions, they will proliferate for the same reasons they were rapidly accepted at the low school level: They are the physical response to changing realities in education; when well planned they offer an environmental tool with surpassing possibilities.

Indecisive territorial markers (above): chairs, tables and desks. Open classroom without landmarks (below): a sea of space without territorial definitions, forcing occupants to the edges, resulting in less interaction and higher cost as unused footage becomes spatial buffer.

### Perfectly Filled Space

Because school costs have always been an issue, architects and administrators have always tried to "fill space perfectly;" i.e., they define some hypothetically correct number of people who presumably always will be present to fill a particular quantity of square feet. But shifting processes and group sizes that are never predictable or uniform always frustrate this illusory objective, especially when we try to meet it by methodical spatial definitions, i.e., classroom boxes.



Nonetheless, a concept of perfectly filled space does remain important because it deals with a basic human inclination. People in a space always seek the right fit. We are all familiar with the tension felt in an overcrowded room or the eeriness of being alone in a gymnasium. Such maladjustments cause persistent discomfort. In turn, this intrudes into the work at hand by draining energy into an unresolvable search for "the right feeling."

Reacting to this, many architects and educators turned to open school interiors. But with the lack of refinement that often accompanies a radical turnaround, many substituted large seas of undefined space for the boxes. In so doing, they exchanged one set of problems for another.

Large expanses without landmarks, human scale reference points or definitions of territorial edges are exceedingly difficult to inhabit. Teachers and students in such open interiors find themselves in a perpetual state of territorial tension. Where are we? Where do we camp? Which way do we face? How will we know





Space that breathes: allowing for negotiation of discrete, partially enclosed subspaces, using tools for spatial definition and visual privacy such as tall, rolling cases.



where to go? Can we find this place tomorrow? Where are the deer trails? Even a playing field must have definitions and limits.

In open school interiors where the space lacks definition, it is quite natural that groups will tend to cluster near the perimeters and especially in the corners. In this way they establish at least one side of a territorial enclave. (The teachers, as the shepherds of their nomadic flocks, unconsciously choose for themselves the most comfortable spot, backs to the walls, and arrange the students with their backs vulnerably exposed.)

This psycho-spatial reaction subverts the dynamic interactive potential which is a major virtue of open interiors. And once again we are back to imperfectly filled space with new discomforts and new inefficiencies as well: Inordinate quantities of footage are needed to serve as spatial buffers between groups, and as much as 50 percent of the space may be uninhabitable.

How then, can we reconcile the powerful human desire for a comfortable sense of enclosure with the undeniable advantages of open space? And what is an open school space at its best?

### Space That Is Negotiable

Properly viewed, an open facility is a space that breathes. Its elastic properties allow choice and variety, including enclosure to the degree desired. It lends itself to the formation of non-regimented but discrete subspaces of varying size and shape. It allows individuals comfortable personal territory, while it allows any size group to arrange itself in a natural geometry for the task at hand and feel sufficiently surrounded. Its subspaces can maintain a deliberate degree of contact and interaction with the rest of the school. They have intimacy and they have vista. And through the breathing of these discrete, well marked, partially enclosed subspaces, perfectly filled space can be achieved.

This is openness that is not insistent. It is openness with option. It is ideal. But can the physical environment incorporate all these possibilities? If so, how?

The answer is that it can, given the support of appropriate hardware and services. Part of the problem to date has been the lack of these supportive elements, and also the concepts of management. Walls, even when demountable, do not seem very negotiable and, what's more, never seem to know how to stop making rooms or being rectilinear. The more movable units, such as chairs, tables or desks and cabinets, are quite indecisive as territorial devices. They, in fact, have some of the same problems as the humans they serve: where to be. Moreover, the more critical aspects of territoriality have to do with communication privacy.

### Visual and Auditory Privacy

The matter of visual privacy can be solved by vertical separation at the level where the communicating elements of the body are located: the eyes, ears, face, hands. Usually, this is in a zone well above the levels of desks, chairs and most cabinetry. Thus, screening units whose vertical dimensions cover an area the length of an up and down armstretch will provide the dividers that satisfy the visual requirements of privacy (including those of floor-sitters). A good many devices can be used for this purpose: Small, rolling or skiddable panel sections, framed fabrics,

display boards, tall plants, and vertically oriented storage furniture can all serve well and provide variety in the surroundings to boot.

Auditory privacy is governed by the same general order and constraints as those of subspaces in relation to the total open space described earlier. It requires its own version of intimacy and vista. Most important, it requires that auditory zones agree functionally with the subspaces. If there is inconsistency between them, the result is unnerving. The effect is like that of being in a closed room where we can still hear the speech of unseen outsiders and know that they can clearly hear and understand us. It is a disagreement that is most insidious in that it promises with one hand and takes away with another.

### The Reserve Space

Once the micro-environments of individuals and groups are defined, what remains is the space around and outside these enclaves. This is the area for miscellaneous byways, for traffic, service and for the storage of reserve space. (It might be noted, incidentally, that a "perfectly filled space" is one that has space in reserve. The paradox here is that the negotiability of open interiors resides precisely in the reserve space which is a necessary element for creating comfortable subspace definitions. It is the elastic used to contract or expand territorial units.)

One of the niceties of open plans is that by using a less formal definition of space, they can freely trade some of the general use areas with traffic functions. Thus, they salvage for profitable activities the nonprofit footage normally wasted on circulation corridors. In addition to traffic and service functions, the general reserve space is valuable for the byways it provides, for its free zones used for small informal groups, individual work and miscellaneous activities.

### Spatial Adjustments

Adjustment of territorial units is a game of imperfect numbers. The likelihood that a perfect module jump in size or shape can be matched to a perfect increase or decrease in numbers of people is so improbable that it should be abandoned by anyone who wishes to survive as a facilities manager. In real life it is random change in the numbers of people, services and activities that is the dominating reality. And it is far more common to require adjustments of territory that are matters of inches. For this reason, modular systems designed to make horizontal module jumps of four or five feet are less than successful. They provide too gross an adjustment, particularly if they are confined to rectilinear increments.

### In Essence

To return to a position every planner or administrator recognizes: Large numbers of people cannot use an open facility well without a sense of order and method. Such a facility without

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Mr. Propst is president of Herman Miller Research Corporation, Ann Arbor, Michigan. This article is adapted from his *High School: The Process and the Place*, a report from Educational Facilities Laboratories, Inc.

formal intelligence assumes a shanty-camp quality with teachers and students staking out turf and conducting continual brush wars over where and how much territory is theirs.

With all its lack of constraint, with all its freedom, an open-plan facility makes possible a remarkably proficient use of space. But freedom throws its own curves. And in the end, as philosopher Friedrich Engels put it, "Freedom is the recognition of necessity." To exploit all its options and realize its full potential there are, at the least, two distinct necessities that must be recognized in open-space schools.

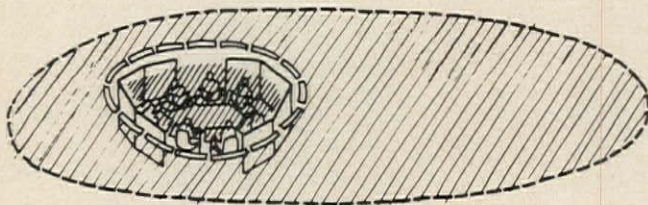
The first has to do with the preparation of teachers. The difference between teaching in an open school and a traditional one is at least as great as the gap between college training and the realities encountered in the work world. The open setting requires that teachers, both novices and seasoned professionals, be readied for far more interaction with their colleagues, aides and students than they are likely to have experienced elsewhere. They must also be readied for less "lecturing" and more fostering of self-





directed learning, for fluid operational modes, and the like. Without such preparation there is a strong chance that they will feel inadequate, resentful and incapable of working effectively.

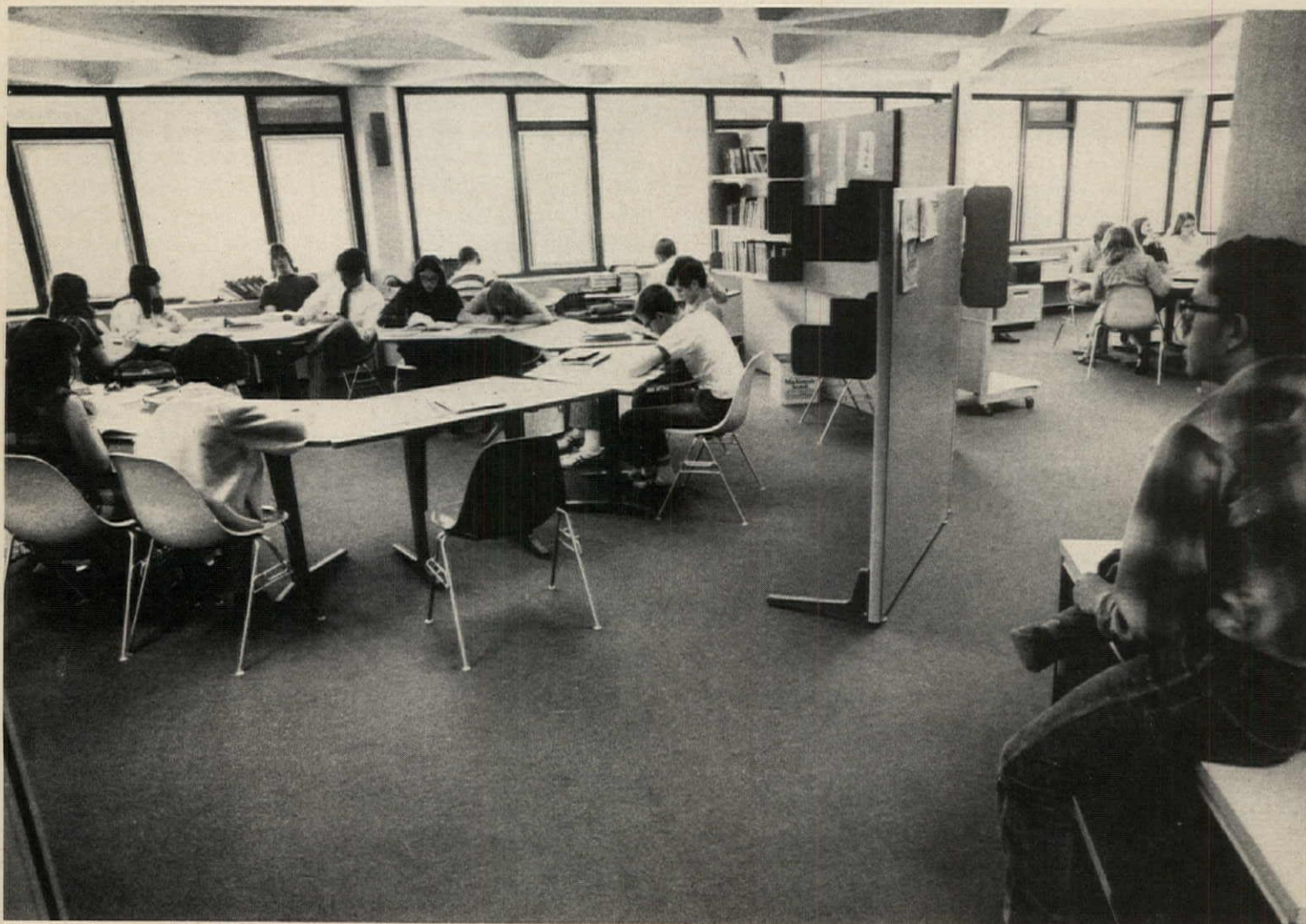
The second necessity has to do with the environment itself. Flexible design has little to do with flexible use. Teachers and administrators must learn to think like designers. They must approach open space in terms of the manipulation of subspaces. Traffic and communication effect has to be incorporated into their thinking. And since change and motion are central to the open school, all this means quite frankly that management of the environment must become an ongoing process. It must become a familiar tool used with the same kind of purpose and validity as teaching itself. □

**Credits:** P. 22, Sidney Elementary School, Sidney, N.Y.; Warren H. Ashley. P. 23 above, Ernestine Matzke Elementary School, Houston; Wilson, Morris, Crain & Anderson. P. 23 below, Mariemont High School, Mariemont City School District, Cincinnati; Baxter Hodell, Donnelly & Preston. P. 24 above, Harlem Preparatory School, New York City. P. 24 below, Kearsarge Regional High School, Sutton, New Hampshire; Warren H. Ashley. P. 26, Clear Creek Secondary School, Idaho Springs, Colorado, Nixon, Brown, Brokaw, Bowen.

Visual and auditory objectives within the micro- and macro-spaces: consistency between what can be specifically seen and heard.



-  Macro-auditory environment of the entire school, providing lively tone and masking content.
-  Macro-visual territory—the interior limits of the school.
-  Micro-auditory zone with specific message content and privacy objectives.
-  Micro-visual zone with specific interactive demands.



# The Issue: Personnel Practices

## The Answer Lies Not in the Unions

by DAVID M. BOWEN, AIA

For years, the employed architect has felt himself sliding down the economic ladder as mechanics in the various construction trades and other professionals passed him by. Young architects soon learned that they could grow quite thin on a diet of prestige sprinkled with tradition. This unhappy situation has continued because employers who had experienced the same process also felt a pinch in their wallets as cost increased and profits fell.

Efficiency is the first casualty as unhappy employees work at various other jobs in order to survive economically. Moonlighting is a byword in the architectural profession only because it has become necessary in order to survive until you reach the green pastures of a principal.

Unfortunately, the promised land no longer appears quite as pleasant, and many architects have decided that being an employee, if you can make a decent living, is all right. After all, who needs to worry about errors and omissions claims or third-party law suits if you don't have to? There really isn't enough money in it and if your ego doesn't require it, why bother?

The problem remained for the employed architect how to make his wants known and secure changes in the system. Many opted for more lucrative positions in industry or government; others played musical jobs changing employment for larger paychecks and short-term prospects.

In investigating the employed architect's position in comparison with other areas of employment, it appeared that he worked longer hours, enjoyed fewer fringe benefits and had no pension plan he could ever hope to enjoy. Through all this, the profession slept until a shock struck. In 1969, the Bay area of San Francisco suddenly discovered that it was facing an attempt to unionize its architectural offices by a group called the Organization of Architectural Employees. "You cannot have a union and be a professional," was the first cry, but it has happened or was happening to teachers, engineers and others. In reaction to the "threat" of unionization, architects began to form committees and task forces.

The AIA began to recognize that publishing criteria for good personnel practices (AIA JOURNAL, Oct. '64; *Architect's Handbook of Professional Practice*, Chapter 6) and implementing them were two different things. The AIA Task Force on Employee/Employer Relations' first major declaration was the "white paper," which sounded very much like the same issues raised by the OAE. The profession had discovered that the needs of the employed architect were not unreasonable and, in fact, are really modest. The second step was the development of a "Guidelines for a Personnel Practices Manual," due to be released this month. The third step was establishment of the Personnel Practices Committee, which is attempting to implement programs that will make available to AIA members and their employees various new benefit programs.

The committee invited Peter A. Ekstein, one of the founders of OAE, to join in a discussion of the issues at the AIA Houston convention. Following are the presentations of David M. Bowen, AIA, chairman of the Personnel Practices Committee, Ekstein and William R. Fleming, personnel director of a 500-man architectural firm.

STEVEN H. ROSENFELD  
Director, Professional Practice  
AIA Department of Professional Services

In 1966 the Joint Committee on Employment Practices was formed by seven professional organizations, including The American Institute of Architects, for the purpose of providing a national forum for the latest ideas on professional employment practices.

In 1969 the chairman of the committee, an AIA member, stated that "it used to be that unionization trends occupied a good deal of our committee's attention. While still a concern to many—particularly the professional engineer in the aircraft, electronics and related industries and the licensed surveyor—I believe it fair to say that unions as presently structured and programmed are not seen as answers to the professional employee's need and right for representation."

Why then have we seen so much union activity in California, New York, Michigan and Illinois, to name just a few areas? It would appear that the alternatives which the chairman suggested were available were not being pursued by the employers.

Recognizing this the AIA Board of Directors in April 1971 reaffirmed that the Institute is, and shall remain, an organization for both employer and employee architects. The board passed the following resolution:

"Resolved, that The American Institute of Architects develop recommended standards of employment within the profession, including, but not limited to, basic compensation, employment benefits such as health, life, accident and liability insurance and personnel practices including vacations and sick leave, with portability where applicable, and that the Institute study such internal changes as may be necessary to insure and encourage participation and representation by employee architects on chapter, regional and national boards of directors and policy committees."

At the same time the question was raised whether the AIA, as presently constituted and administered, can develop programs to enable all members of the profession to participate in determining their personal destinies.

In September 1971 a "white paper" was issued jointly by the task forces on Employer-Employee Relations and Personnel Practices Guidelines. The report was based on the premise that the AIA not only can but will develop a plan and procedures to enable its employer and employee members to meet this challenge. Their recommendations were

# The Issue: Personnel Practices

made on the assumption that it is the intention of the AIA to maintain its integrity as a professional society whose members have a broad community of interest in advancing the well-being of the architectural profession as a whole, rather than distinguishing employee architects from employer architects.

The task forces stated that the dilemma facing a professional society, such as the AIA, in determining its course of action in the field of employee/employer relations is how to maintain a professional role encompassing the interests of both employee and employer members. They concluded that the AIA can maintain its integrity as a professional association without compromising these interests. The task forces then made the following recommendations:

1. A definite and formal statement of policy should be made by the AIA, setting forth its official views on employee/employer relationships within the architectural profession.
2. The AIA should provide for both employer and employee representation on its Board of Directors. Similar representation should be encouraged within the boards of state and local components.
3. At the national level, a top-level committee should be established with employer and employee representation to develop programs responsive to the improvement of personnel practices.
4. The AIA should establish a professional staff responsible for the coordination of its employer/employee relations program.
5. Existing group life insurance, group hospitalization, major medical and disability plans, retirement and pension plans should be reviewed at the national and regional levels.
6. The AIA should prepare and issue to state organizations and local chapters de-

**Mr. Bowen**, who is associated with the firms of The McQuire & Shook Corporation and Burns•Clark•Jacob•West Architects in Indianapolis, is chairman of the AIA Personnel Practices Committee and president-elect of the Indianapolis Chapter AIA.

scriptions for standard positions typically found in architectural firms of various sizes and report on regional salary ranges for these positions.

7. The AIA should prepare and issue to state organizations and local chapters a manual of recommended personnel practices (such a manual is now being printed).

8. Continuing education should be used by the AIA as a device for improving personnel practices and employer/employee relationships.

In response to the recommendations contained in the "white paper," the 1972 Board of Directors established the Committee on Personnel Practices and charged it, in general, with considering the specific problems of the *employee* member. The areas of concern are broad based and involve primarily:

- to improve communications between employee and employer and the Institute
- to make an analysis and recommendations on employment practices covering both salaries and working conditions.

Specifically, the board charged the committee with developing material to improve employment practices within the profession. The committee realized at the outset that:

- The need for better relationships between employer and employees has been well documented and needs not be proved further.
- For every 1,000 employees there are 1,000 different ambitions, concerns and personal problems which are unique to each person and which will change from day to day.
- When we speak of employees we are not merely speaking of AIA member employees but everybody from the designer to the print boy, all vital to our profession. They must be included if they are to share in the pride of their firm and the profession.
- Our recommendations must be objective, with the purpose of generating self-analysis, not setting levels. We cannot tell members what to do but only what can be done and how to go about doing it.
- The objectives cannot be met without the cooperation of all employees and employers.

With these thoughts in mind we are developing the following studies, each on its own merit but all interrelated:

**Employment categories and salary scales:** A poll must be conducted and information retrieved which can be analyzed and returned to the members in a form which they can relate to their own standards.

**Communication:** In most offices this goes in one direction: from the top down. A two-way communications system is the key to reality and the most effective bar to dissatisfaction. Unless employers develop a system of listening to employees, others will listen instead. Members must be advised of successful communication procedures between employers and employees.

**Employee pools:** To stabilize employment and give offices more flexibility, methods should be established for component members to form employee pools or job placement services.

**Continuing education:** The typical employee, regardless of his formal education, receives little or no training in the rationale of contemporary, economic business systems. He must understand the purpose and philosophy of firms as an economic and service entity and must be shown that the business of architecture can be exciting and challenging, requiring systems of creative arts, capital acquisition, job promotion, assignment of roles and proper selection of skilled personnel to fill them. The AIA must develop continuing education programs nationally and locally to reach the employee within his means and satisfy his educational needs.

**Membership:** Categories of membership for employees must be reevaluated and membership of employees actively sought. A study must be made as to how the employee might be better represented within the structure of the AIA.

**Benefits:** Portability is the key word! Means are being investigated to develop all

# The Issue: Personnel Practices

## Through Unionization Can Come a New Spirit

by PETER A. EKSTEIN

existing benefit packages into portable programs. (The committee's work is showing that this is not as unrealistic as thought in the beginning.)

**Employee guidance:** There is a good market for qualified employees. It is in the interest of all members of the profession to assist them in marketing their abilities.

It is too early to draw conclusions on any of our studies but we will have definite recommendations by the end of the year.

I agree with the statement of the chairman I quoted earlier: The answer to the interests of the employee is not unions with collective bargaining and power to strike. When employees seek to have their interests represented by a third party, there has already been a breakdown in the employer/employee relationship. In some way the employer has failed either by lack of attention to the legitimate aspirations of his employees or by his failure to communicate effectively with some of his employees in matters of wages, working conditions, etc.

Another overwhelming factor that will cause the professional to turn to a union is the feeling that this is the only way he can satisfy his need for self and public esteem. If he is given an opportunity for meaningful involvement in decisions that fundamentally affect his working life, the union has little appeal.

Edward Janke, a student at California Polytechnic College and a member of our committee, has surveyed architectural students throughout the country, asking what they seek as employees. Their overwhelming response has been that they are not concerned about salaries. They want a voice in the profession, with a broader exposure to architecture throughout the early years of employment. These students are looking to the profession for change, not the unions.

The answer to the desires of the employee in our profession is the commitment of the AIA and of employers to care. □

This marks the first time in the history of The American Institute of Architects that an employed professional in the architectural field has been called upon to speak for other employed professionals to express their needs and interests as a cohesive group. Perhaps it is even the first time the AIA formally has recognized the employed members of the profession as a viable entity. I think it can be safely said that this idea of recognition is an idea whose time has come.

The history of the Organization of Architectural Employees in the San Francisco Bay area has been the classic lesson of the growth and development of a union. It started with five associate members of the AIA who sensed serious problems within the profession. As they attempted to deal with these through the existing machinery, they discovered more problems, and soon it became quite clear that the employed professional in architecture is completely disenfranchised.

The fact is that the AIA represents only two-thirds of the licensed architects and none of the unlicensed, who comprise a sizable, permanent and important part of the profession. Taking them into account the AIA represents well under half of the profession. What this means is that the majority of the profession exists without any representation. Further, where representation does exist, around issues of employment, the condition is desperately polarized. So without really being aware of it at the outset, what we were

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**Mr. Ekstein** is secretary and one of the five founders of the Organization of Architectural Employees, a San Francisco-based union attempting to organize the profession. He is a graduate architect and an associate member of the AIA.

doing was to enfranchise architectural employees.

Our many attempts to deal within the AIA left us severely frustrated. So we formed a new organization and as it grew, it soon became clear to us that unionization would be the best solution to the multiple problems that face the architectural employee and the only way to enfranchise all such employees throughout the country. In November 1970 we started the election process; the rest is history. The OAE is now negotiating for the employees of three major San Francisco firms and contracts should be signed in the near future.

The members of the OAE average 36 years of age; 65 percent are licensed; 25 percent are AIA members; we possess an attitude that being an employee is a perfectly acceptable condition and we are looking for ways in which to advance the position of the employed members of the profession. Our goals are as diverse as those of any group; they include higher pay, better fringe benefits, professional recognition, a platform for expression, a more viable means for the profession to become directly involved with the community and the environment, etc.

We know that management people generally have negative attitudes about unions and what they mean. But without a union the profession already suffers from many of the conditions you would accuse unions of fostering or generating: mediocrity of achievement, too many rules and regulations to follow, discriminatory hiring practices, people locked into work activities which are narrow in scope, etc. We feel that the situation cannot get much worse and that through unionization a new spirit can be generated.

At issue today is the enfranchisement of some 40,000 to 50,000 architectural employees throughout the country. Right now there are active employee groups operating in San Francisco, Los Angeles, Detroit, New York and elsewhere. And it is a very good thing. The profession needs internal (yes, we are internal) stimulation. The involvement of the nonmanagement members of the profession could be that stimulation. You should welcome it and encourage it. It may be the last internal force left at our disposal to return architecture to the keystone position in the construction industry. □

# The Issue: Personnel Practices

## The Keys to It All Are Personnel Administration and Development

by WILLIAM R. FLEMING

Good personnel practices, programs and procedures initiated by employers and managers and supported by a vital personnel office are basic to business efficiency and success as well.

Some say that the word personnel is inhuman but I don't agree—not if we treat personnel as people. The term personnel implies a two-way loyalty, a person-to-person relationship. This positive relationship is the goal of all personnel practices. But what are the keys to good personnel practices? In my opinion, they are personnel administration and personnel development.

Included under the first are compensation and benefits. If we believe psychologists, money is not the prime motivator in job performance. Based on practical experience, however, we must work to raise our standards of compensation and employee benefits. A regular system of recognition, evaluation and change is a vital aspect of personnel practices.

The second aspect of personnel administration is assistance to employees. Architects have a real opportunity in this area because the vast majority of architectural firms are small. Even the very large architectural firms are only small- to medium-sized corporations. We *can* find answers to employee problems and supply individual help for their needs.

Personnel administration also concerns itself with avenues of communication. The word communication is a much-maligned, nonspecific and ill-defined catchall for many personnel difficulties. The only solution to these difficulties is a formal system of communication which is available to and understood by all employees; a system through which they can express their opinions and which answers questions such as "How can I be heard?" "Will my suggestions be considered?" "What is really happening in my firm?" An open-door policy is not in itself real communication; it is only the beginning. Communication is not one way; it is a viable relationship between the employee and his firm. There are no guarantees that a small firm communicates with its employees better than a large firm simply because of its size. Whatever the firm size, effective communication is of critical importance. In short, help with the smallest problem is a step toward positive employee relations.

The second key to good personnel practices is personnel development. Employers have an obligation to help their employees grow and enrich their personal and professional lives by means of training, continuing education and counseling. These programs should be made available to all employees. Consideration of programs suggested by the employees themselves is also important. The personnel office has primary responsibility in seeing that these programs are implemented.

A second aspect of personnel development is the assignment of additional responsibility to employees who warrant and deserve it. Such decisions should be based upon the ability of the employee, as well as his potential for accepting the responsibility and responding to additional pressures and demands of his new position. The career goals of the employee should be considered, since any increase in responsibility must be consistent with his plans and aspirations, as well as with those of the firm. Can each employee have the feeling that he has an input into decisions

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**Mr. Fleming** is personnel director, Smith, Hinchman & Grylls Associates, Inc., Detroit, and consultant to the AIA's Personnel Practices Committee.

made by the firm? Does he believe he can go as far as his ability permits?

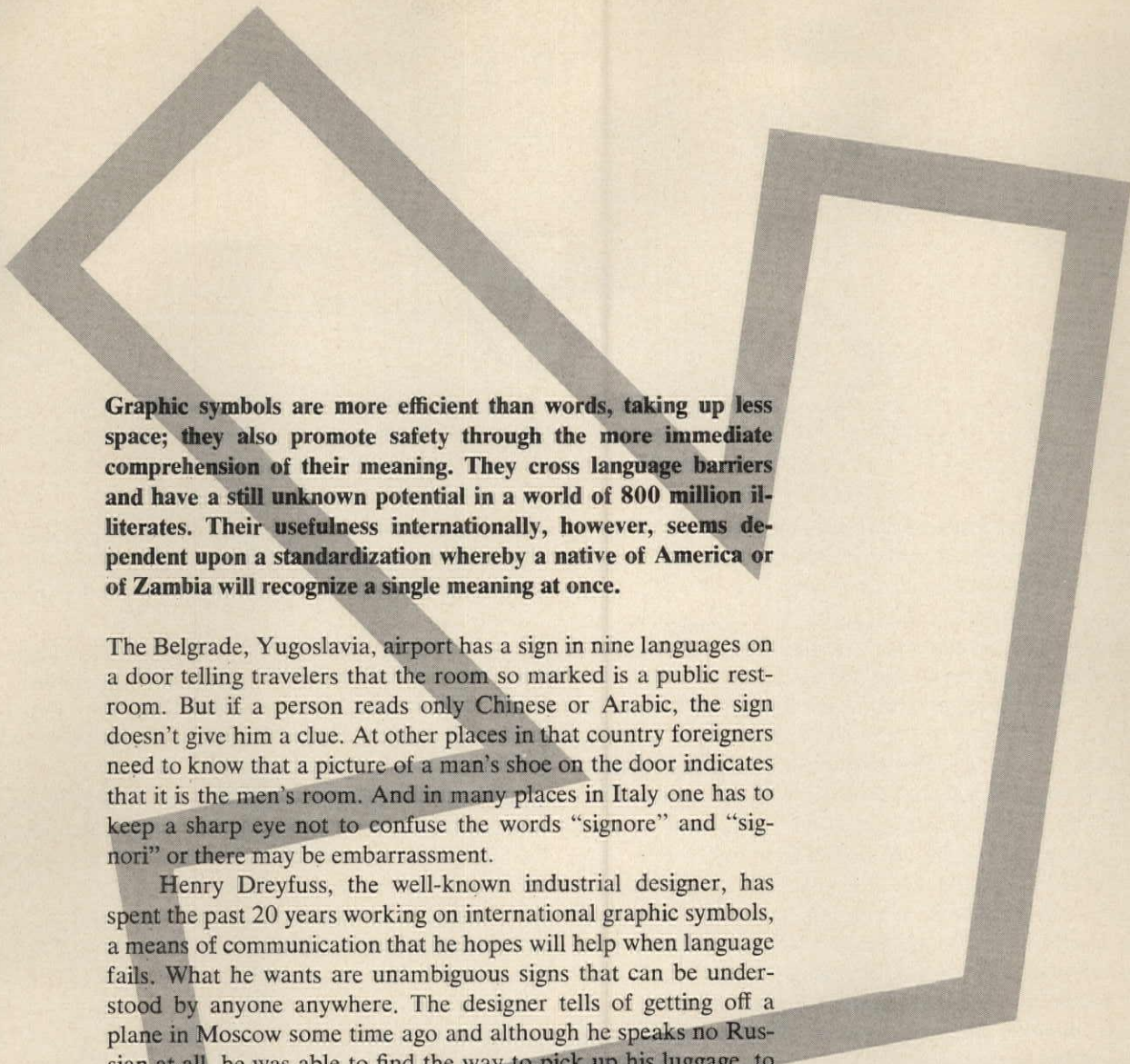
Recognition of employees and their accomplishments is important to good personnel practices. The firm, however structured, should come to know and appreciate the talents and needs of its employees, not in a superficial way but as a solid statement of his value to the office.

The crucial factor in personnel administration and personnel development, and particularly in the latter, is an evaluation system. This continuing evaluation system should be a private, comprehensive interview and review of the employee's performance, attitudes and career goals. The sharing of these insights will be valuable to the employee as well as to the firm. To be meaningful, this evaluation must be a two-way communication between the employee and his supervisor. Such meetings should be a regular part of a personnel program and provide a forum for the exchange of honest and open criticisms and suggestions.

Good personnel practices do not occur without a viable system of communication, evaluation and organization. Such a system can be a combination of formal and informal procedures for dealing with personnel matters. Confusion can too easily result from a system that is too informal and where policies and procedures are not clear.

Effective employment practices, far from being cheap, easy or accidental, aim toward full professional treatment of an individual from initial contact through recruitment, hiring, introduction, retention, training and even termination. In short, we must truly know our people and work toward fulfilling their needs. □





**Graphic symbols are more efficient than words, taking up less space; they also promote safety through the more immediate comprehension of their meaning. They cross language barriers and have a still unknown potential in a world of 800 million illiterates. Their usefulness internationally, however, seems dependent upon a standardization whereby a native of America or of Zambia will recognize a single meaning at once.**

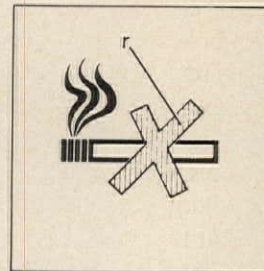
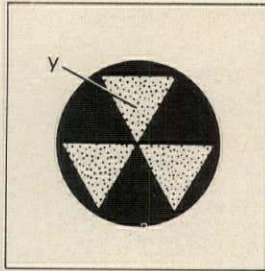
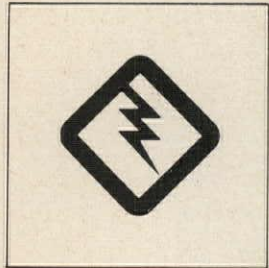
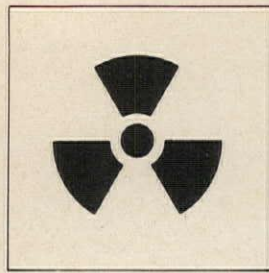
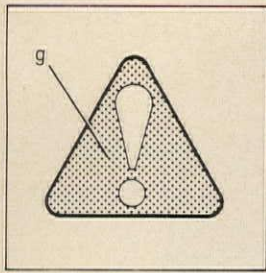
The Belgrade, Yugoslavia, airport has a sign in nine languages on a door telling travelers that the room so marked is a public restroom. But if a person reads only Chinese or Arabic, the sign doesn't give him a clue. At other places in that country foreigners need to know that a picture of a man's shoe on the door indicates that it is the men's room. And in many places in Italy one has to keep a sharp eye not to confuse the words "signore" and "signori" or there may be embarrassment.

Henry Dreyfuss, the well-known industrial designer, has spent the past 20 years working on international graphic symbols, a means of communication that he hopes will help when language fails. What he wants are unambiguous signs that can be understood by anyone anywhere. The designer tells of getting off a plane in Moscow some time ago and although he speaks no Russian at all, he was able to find the way to pick up his luggage, to the customs, to a bank to buy rubles and to a taxi. Symbols made it all possible.

Dreyfuss also relates that a West German firm once sent a fragile and complex piece of machinery to a New York buyer. The package was stamped carefully with symbols that anyone could understand. They denoted that the package should be upright, kept dry and handled with care. It was in perfect condition on arrival in the United States, but the New Yorker, upon opening the package, found that all the keys, levers and switches were labeled in German. He couldn't read German and his purchase was useless to him until the information was translated. "If the machine itself had used symbols instead of words as on the package," Dreyfuss comments, "the English-speaking purchaser would have been able to operate it at once."

Dreyfuss first became interested in the problem of international comprehension without language when he was designing farm machinery for Deere & Co. for export. "The need to translate the various instrument identifications and instructions into the language of the respective import countries was time-consuming and expensive. Symbols obviated this entirely," Dreyfuss states. Safety was the primary concern, however, since symbols are comprehended more quickly and directly than words, especially when color is used with form. Symbols are also more prac-

## Substitutes for Words



ticable, Dreyfuss found, because they are smaller than words and can be used on buttons and small controls.

Symbols cross language barriers. Dreyfuss, whose product designs have included everything from telephones, cameras and vacuum cleaners to planning work for airlines, railroads and ocean liners, thinks their advantage will be realized eventually by most American manufacturers. Some international standardization is necessary, however, he believes. For example, the hare and the tortoise are considered basic symbols recognized by many people to denote the concepts of "fast" and "slow." But Dreyfuss remarks that if you live in a culture unfamiliar with Aesop's fables, you may not grasp the meaning. He thinks that in some parts of the world a cheetah and a snail may be comprehended more readily. As Lawrence K. Frank has remarked in an essay called "The World as a Communication Network" in the book *Sign, Image, Symbol* edited by Gyorgy Kepes (Braziller, 1966), a symbol "becomes more meaningful and evokes human responses when, and only when, a perceiver of that symbol projects meaning into it and responds to it in terms of the meaning which he has learned as appropriate for that symbol." Thus the designer of a graphic symbol must use a form that is known and accepted or must have some way in which to teach the symbol to the audience for whom it is intended.

Symbols are recognized more quickly when in context. Dreyfuss has tested symbols with preschool children who can't read, thinking that prelanguage signs can often save young lives. When he shows little children a skull and crossbones, nine out of ten will exclaim, "Pirates!" But if the same symbol is on a bottle, they will cry, "Poison!" It was recently reported in newspapers that a Pittsburgh research group has found that in that city children tend to confuse the skull and crossbones with the official emblem of the Pittsburgh Pirates baseball team. For bottles containing materials injurious to children, the group recommends a green label portraying "Mr. Yuk," an ugly character whose tongue hangs out.

With some 5,800 languages and dialects in a world where international trade and travel are constantly increasing and the demands of a technological civilization to communicate across language barriers is a growing problem, some system of effective international graphic symbols appears to be a necessity. As Dreyfuss puts it, "a system that would be equally recognizable in Lagos and Lapland" is required. He believes that the use of half a dozen

or more symbols to convey a single meaning makes for confusion. Universal artificial languages have failed "to bridge this global communications gap." The designer thinks that symbols may ultimately do the job.

For years, Dreyfuss collected symbols wherever he went, filing them in his pockets on scraps of paper. Over the past two decades, he has been soliciting information, and his firm's data bank now contains over 20,000 symbols from almost every place imaginable. Dreyfuss thought that the symbols should be codified and assembled in one place if they are ever to be an international means of communication. He doesn't consider them a language but rather "a supplement to *all* languages to help create a better and faster understanding in specific areas."

Recently Dreyfuss brought his years of work to fruition with the publication of his *Symbol Sourcebook: An Authoritative Guide to International Graphic Symbols* (New York: McGraw-Hill, 1972, 292 pages, \$28.50). The sourcebook was officially endorsed by The American Institute of Architects, the American Institute of Graphic Designers, the American Society of Agricultural Engineers, the Industrial Society of America, the International Council of Graphic Design Associations and the International Council of Societies of Industrial Design. Dreyfuss also worked on standardization of symbols with such groups as the Air Transport Association and the Society of Automotive Engineers. Other bodies have aided his work, including Unesco's US National Commission, the National Bureau of Standards, the Departments of Transportation, Agriculture and Interior, the American Standards Institute and the International Organization of Standards.

The sourcebook's table of contents is in 18 languages. There is a section on basic symbols, a selective grouping of symbols common to all disciplines. These symbols appear and reappear, their meaning remaining constant. Dreyfuss calls them the "A,B,C's." For example, there are directional arrows pointing right or left, up or down, in or out; the hourglass for time; male and female figures, etc. Combined with other symbols or changed in some way, they become more complex and "a kind of Semiotics evolves." For example, the arrows can follow one another clockwise and denote a traffic circle; they can be broken to indicate movement.

The major portion of the book is devoted to disciplines arranged alphabetically that range in topic from accommodations

and travel, agriculture, architecture, engineering, medicine, etc., etc., to traffic and vehicle control. Each one's own symbols are demonstrated graphically. Under architecture, there are symbols for electrical outlets, shower stalls, drinking fountains, etc., and more complex concepts such as pedestrian density, arena enclosure, short corridors, etc.

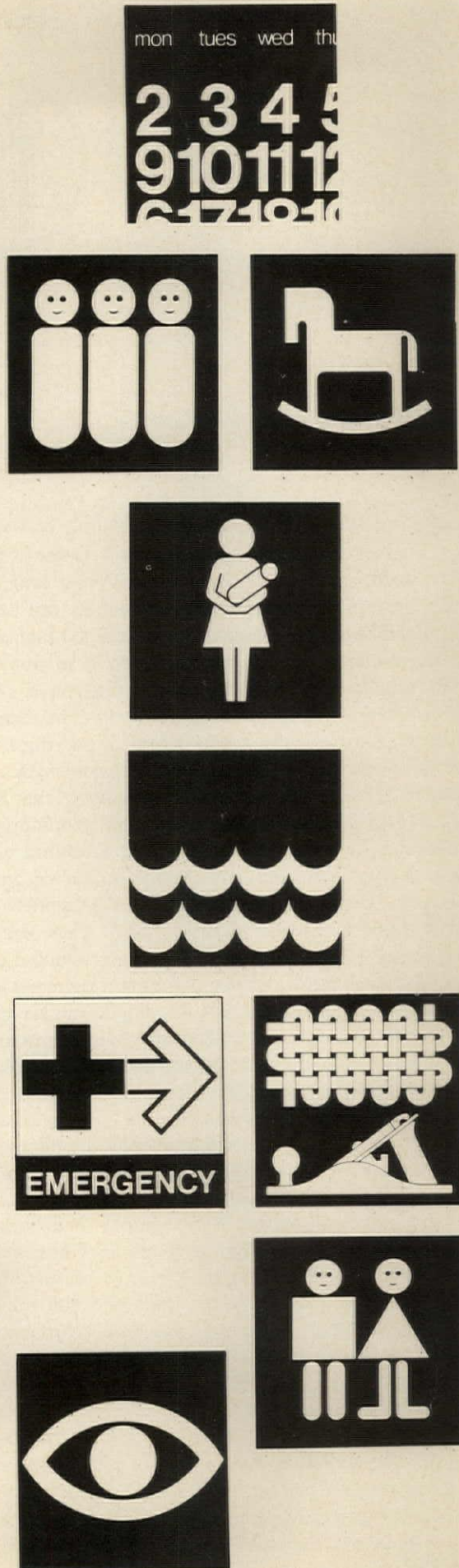
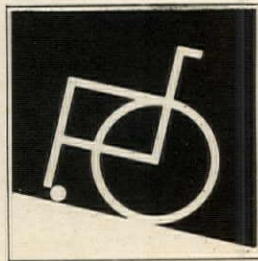
A graphic form section follows which permits identification of symbols out of context. Symbols are grouped according to "key forms" and their variations. The form is pictured in the page margins, introducing each major classification and subclassification. In each grouping, the symbols are arranged from simple to complex. The user of the book is referred back by page references to wherever each symbol has appeared in the section on disciplines. The purpose of this part is to give a designer a frame of reference for devising new symbols.

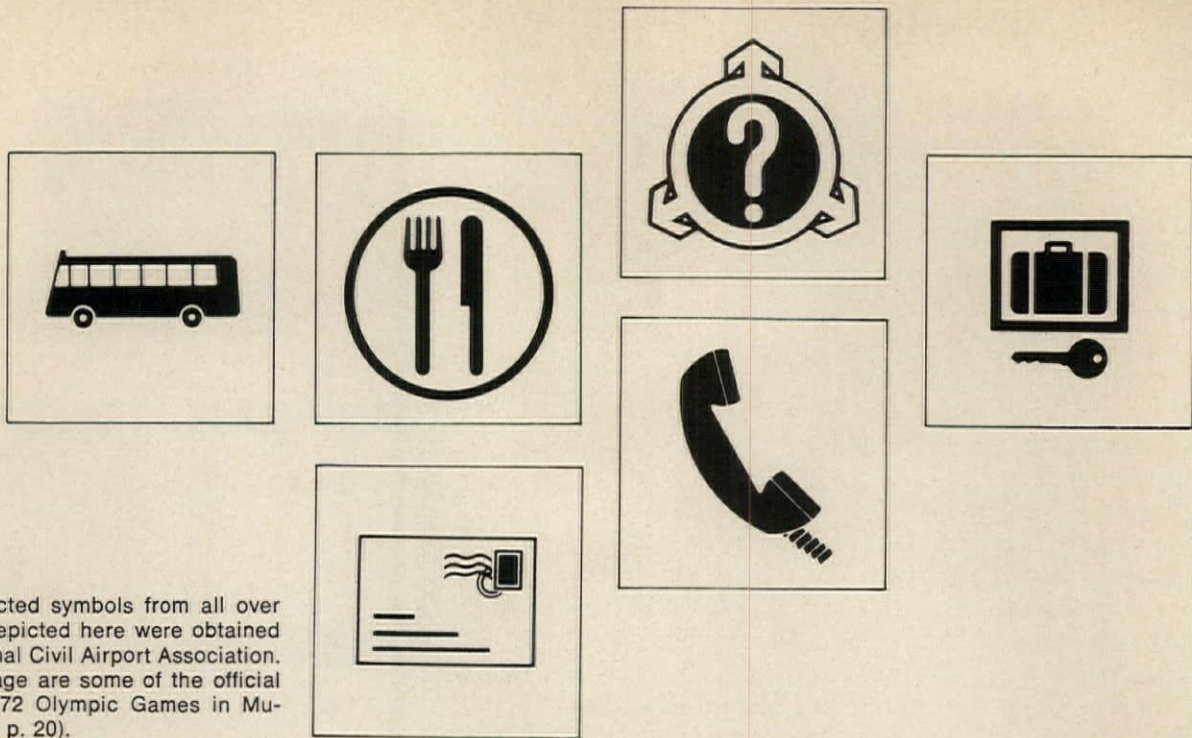
A brief chapter on color follows. Dreyfuss apologizes for its brevity, reminding the reader that the book is primarily a collection of graphic symbols. But the importance of color is recognized because color intensifies meaning and has instant impact. For example, almost universally red means "no"; blue signifies "yes." The geometric forms to symbolize six colors, devised by color expert Faber Birren (see p. 15), are used and shapes have been assigned to the remaining colors as well. This section of the book gives the positive and negative associations of each color and outlines how the color has been used in art, astrology, heraldry, language, medicine, travel, etc. Red's positive associations, for example, include blood (life), valor, patriotism; negatively it connotes wounds, war, danger.

A foreword provided by Buckminster Fuller states: "Henry Dreyfuss' contribution to a new world technique of communication will catalyze a world preoccupation with its progressive evolution into a world language so powerfully generalized as to swiftly throw into obsolescence the almost fatally lethal trends of humanity's age-long entrapment in specializations and the limitations that specialization imposes upon human thinking. Thus humans can be liberated to use their own cosmically powerful facilities to communicate what needs to be done in local Universe, as humans are uniquely capable of doing — and uniquely advantaged to do — by the phenomenon love and the truthfully thinking mind." Dreyfuss believes that some day a central symbol archive will be established "in which all symbols used throughout the world will be cataloged and available for reference."

Meanwhile, his interest in symbols continues unabated, and he has issued a plea that people everywhere keep on sending him information for the data bank he maintains in South Pasadena,

The symbols on the opposite page are from the data bank maintained by Dreyfuss in South Pasadena, California. To the right are some of those devised by graphics design consultant E. Christopher Klumb Associates for New York City's municipal health facilities.





Dreyfuss has collected symbols from all over the world. Those depicted here were obtained from the International Civil Airport Association. On the opposite page are some of the official symbols for the 1972 Olympic Games in Munich, Germany (see p. 20).

California. He hopes that eventually the symbols will be put on microfilm, becoming "an archive without walls, available to universities and standards organizations around the world."

In this country and abroad, a number of efforts are being made to use symbolic signs that even a preschool child can comprehend. One example is the work of the National Park Service in cooperation with Unesco's International Committee for Breaking the Language Barrier. Signs have been designed that illustrate activities in parks for swimming, hiking, fishing, etc. A large question mark is the nonlanguage symbol for an information center; a sign with an egg, barn and apple in the outline of a piece of bread tells that a grocery store is nearby; a giant snowflake indicates winter recreation spots.

The Federal Highway Administration has issued a mandate to states to install identical signs to direct motorists with pictures instead of words. Sixteen states have adopted a uniform system of signs, pavement markings and traffic signals and the plan will be in use nationally by the end of 1974, the deadline for state implementation. Words such as "Stop" and "Do Not Enter" will remain on a few signs, but symbols will be the thing on most traffic directionals. Nearly all signs that prohibit something such as parking or U-turns will bear a red circle and slash as found on Western European roadways.

Other examples of the use of pictographs include those developed for worlds' fairs and Olympic games. Symbols have been utilized to direct and inform crowds of people who speak differing tongues with the list of organizations and authorities who agree with Dreyfuss that there are dividends in communication without words going on and on.

A recent effort is especially interesting to the architect. The New York State Health and Mental Hygiene Facilities Improvement Corporation and the New York City Health and Hospitals Corporation have adopted a uniform system of signs and symbols to guide patients and visitors in New York City's municipal hospitals and health facilities. Extensive research proved that existing hospital signage is inadequate and ineffective. Industrial and graphic design consultants E. Christopher Klumb Associates were employed to devise a uniform series of symbols and pictographs

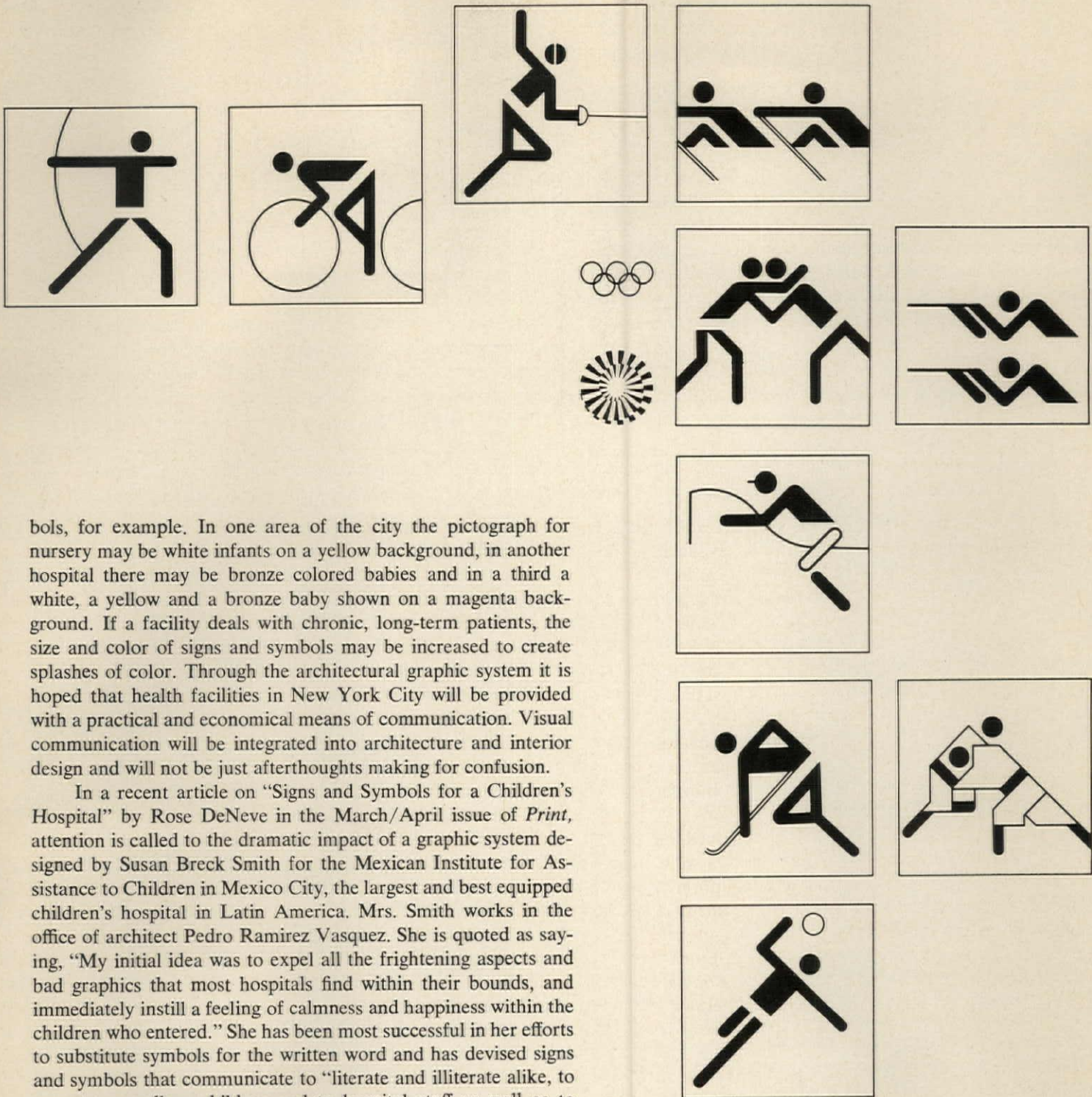
to be used in identifying hospital areas, services and directions. An *Architectural Graphics Manual* has been issued for use by architects who design new health facilities. The manual is provocative for any architect who wants intelligent directional signage in a hospital or health facility.

A major problem with existing signage in the New York City hospitals is "its lack of priorities." A cluttered mass of information only makes for confusion rather than communication. In the New York City scheme, information is separated into primary and secondary levels. The primary signage directs patients and visitors unfamiliar with the facilities to such areas as admission, X-ray, physical therapy. Visually subordinate is the secondary level that is used for identification of staff functions.

It was found that a public with various ethnic languages did not understand such terms as pediatrics, ophthalmology, radiology, etc. So to make identification clear and straightforward, these outpatient facilities have been renamed: child care, eye care, X-ray, etc. In addition, a series of symbols and pictographs aid in humanizing hospital and clinic functions and in overcoming language barriers. The nursery, for example, is indicated by three bundled babies; hydrotherapy by waves; appointments by an enlarged section of a calendar. The symbols are unmistakable regardless of the viewer's language capabilities.

The manual also sets forth standards for sign size, letter spacing, typographical fonts and materials from which the signs are made. In facilities serving both Spanish-speaking and English-speaking patients and where words are necessary for one reason or another, the signage will be bilingual with slight variations in letter-forms to improve clarity and prevent confusion of similar looking words. The scope of the signs standardized under the program is large. There are exterior offsite indicators at major intersections and public transportation stops; the hospital identification sign; directional guidance to major buildings; vehicular guidance signs; the interior hospital directory; signs designating floor levels, wings and other areas; directional guidance at corridor intersections; symbols and copy panels identifying the varied services, and room signs.

The system is flexible. It allows for color changes in the sym-



bols, for example. In one area of the city the pictograph for nursery may be white infants on a yellow background, in another hospital there may be bronze colored babies and in a third a white, a yellow and a bronze baby shown on a magenta background. If a facility deals with chronic, long-term patients, the size and color of signs and symbols may be increased to create splashes of color. Through the architectural graphic system it is hoped that health facilities in New York City will be provided with a practical and economical means of communication. Visual communication will be integrated into architecture and interior design and will not be just afterthoughts making for confusion.

In a recent article on "Signs and Symbols for a Children's Hospital" by Rose DeNeve in the March/April issue of *Print*, attention is called to the dramatic impact of a graphic system designed by Susan Breck Smith for the Mexican Institute for Assistance to Children in Mexico City, the largest and best equipped children's hospital in Latin America. Mrs. Smith works in the office of architect Pedro Ramirez Vasquez. She is quoted as saying, "My initial idea was to expel all the frightening aspects and bad graphics that most hospitals find within their bounds, and immediately instill a feeling of calmness and happiness within the children who entered." She has been most successful in her efforts to substitute symbols for the written word and has devised signs and symbols that communicate to "literate and illiterate alike, to parents as well as children and to hospital staff as well as to general public." She believes color makes for a happier place and has color-coded each of the hospital's floors, making the walls of each one a different color with color codes for all furniture, rooms and laundry — even nurses' uniforms.

As we become ever more involved in the lives of people who dwell in the remotest corners of the earth, the need increases for graphic devices — a silent language — that will work when spoken or written communication fails. Dreyfuss would ask perhaps, "How else can we break down the cultural barriers raised by the world's many languages?" As one writer comments who has written a critique of the *Symbols Sourcebook*, it "may lay a few sticks of constructive dynamite at the base of Babel's tower."

MARY E. OSMAN

# The Occupational Safety and Health Act

by ARTHUR T. KORNBLUT, AIA

**Following are some helpful suggestions for architects and engineers concerning the 1970 Williams-Steiger Occupational Safety and Health Act (OSHA), which has caused much concern in the design professions due to its extensive and detailed provisions.**

This act, signed into law by President Nixon on December 29, 1970, presents architects and engineers with a number of important considerations, many of which involve professional liability ramifications in addition to the serious penalties which may be assessed for violations. A working familiarity with OSHA and its relation to other laws, regulations, building codes and the contract documents should alleviate much of the uncertainty that presently prevails. As actual experience with the act builds, it is anticipated that architects and engineers will be guided by its requirements rather than by a fear of the unknown.

Looking beyond the generalities about how architects and engineers must be wary of this new law, there appear to be three specific areas of concern affecting design professionals. The three major thrusts are how the act affects:

- employees of the design professional (safety in the office),
- personnel directly involved in the construction of the project (safety at the site)
- design of the project (safety for the eventual occupants and users of the project after it is constructed).

The first area of concern, involving compliance with OSHA in the office, requires the architect or engineer to provide his employees with a safe and healthful place of employment. The legislative history of the act states, "Employers have primary control of the work environment and should insure that it is safe and healthful."

The work environment must be free from recognized hazards likely to cause death or serious physical harm. The act distinguishes between serious hazards and incidental exposure to accidents which may occur in the reasonable course of employment. Hopefully, a well-managed professional office already is in compliance with the OSHA requirements, but a review may be in order to insure that stairs have safe railings, the office has adequate ventilation, mechanical equipment has required protective guards and the rest rooms are clean and sanitary. There are other items of this nature but the common-sense approach should enable the architect or engineer to anticipate whether OSHA requirements apply.

The act requires the employer to allow representatives of the United States Department of Labor to make inspections of the premises. It also requires that certain records be maintained for "recordable" occupational injuries and illnesses. Competent professional advice should be sought when one is faced with an inspection or the need to prepare records.

The second area of concern involves compliance with OSHA

at the construction site. Once again, the act requires the *employer* to provide employees with a safe and healthful place of employment. Section 1518.20(b)(1) states, "It shall be the responsibility of the employer to initiate and maintain such programs as may be necessary to comply with this part." Subpart (2) of this section requires that frequent and regular inspections be made by competent persons designated by the employers. Section 1518.32(f) defines "competent person" as "one who is capable of identifying existing hazards in the surroundings and working conditions which are unsanitary, hazardous or dangerous to employees, AND (emphasis added) who has authorization to take prompt corrective measures to eliminate them." Read in this context, the importance of using the AIA or NSPE standard General Conditions (AIA Document A201; NSPE Document 1910-8) becomes quite apparent.

In the AIA General Conditions, Article 10 and in the NSPE General Conditions, Article 6.20 require that the contractor be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. This includes compliance with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority for the safety of persons and property. In addition, the General Conditions require the contractor to designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. Normally, this person is the contractor's superintendent, and he has full authority to act in his behalf.

With the addition of OSHA to the long list of regulations affecting safety at the site, the architect or engineer is well advised to adhere to the recommendations issued by the AIA and NSPE in recent years, and embodied in their respective General Conditions. The professional should not interfere with the contractor's responsibility as the employer at the site for compliance with the OSHA requirements. The architect and engineer should *not* include a safety program in the specifications or elsewhere in the project manual, for he would be exposing himself unnecessarily to allegations of duplicity and responsibility when the contractor failed to comply with either the OSHA or the design professional's required safety program.

The OSHA *Compliance Operations Manual* (OSHA 2006, Chapter VII) reinforces the view that the contractor is responsible for compliance at the site. Although the manual recognizes that places of employment in the construction industry are not easily separable into distinct establishments, the employer's establishment normally would be at the construction site. When an inspection is to be conducted at the site pursuant to OSHA, the

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**Mr. Kornblut** is administrator, Department of Professional Services at AIA headquarters. This article is reprinted from "Guidelines for Improving Practice" with the permission of Victor O. Schinnerer & Company, Inc., Washington, D.C.

Labor Department inspector must notify the contractor's superintendent of his intentions, and the superintendent in turn must notify each subcontractor of the impending inspection. The language found in Section 1518.16(b) of the act states, "By contracting for full performance of a contract . . . the prime contractor assumes all obligations under the standards contained in this part, whether or not he subcontracts any portion of the work." Subpart (c) goes on to state that the prime contractor will be responsible for the entire contract and the subcontractor will be responsible for his portion of the work. However, the *Compliance Operations Manual* states that there is no general rule that prime contractors will be cited for violations by subcontractors, and this is in accord with the basic philosophy of the act that employers are responsible for their own employees.

Nowhere in the act or the manual is mention made of having the architect or engineer become involved in the OSHA safety inspection process at the construction site. However, concern has been voiced in some quarters that the architect or engineer may be exposed to greater allegations of professional negligence because of the OSHA requirements for safety at the construction site. A violation of the act on the part of the contractor, as employer, may prompt a civil action against him, with the possibility that the design professional may be drawn into the action as a third party defendant. Regardless of the existence of OSHA, the threat of legal action is always possible, and it is important to maintain adequate professional safeguards such as use of AIA Document A201 or NSPE Document 1910-8, and avoidance of involvement in safety programs at the site. This should enable the design professional to establish his defense and to extract himself with a minimum of expense and involvement.

The third area of concern involves compliance with OSHA in the design of the project. This may present the greatest problem for the architect or engineer, since the finished conditions in the building must provide a safe and healthful work environment for the occupants in accordance with OSHA and other requirements. In this regard, the act clearly supersedes state or local building codes if its provisions are more stringent than comparable code provisions. However, the act does not supersede local codes per se — only in those areas affecting occupational health and safety does the act take pre-eminence. Just as an architect or engineer must review applicable building codes prior to embarking on design solutions, the labyrinth requirements of OSHA must be navigated at the same time for the same purposes.

The act itself does not specify standards or design criteria. The Secretary of Labor has been given authority to promulgate health and safety standards by making use of established federal standards and national consensus standards developed by recognized standards-producing organizations such as the American National Standards Institute and the National Fire Protection Association. The standards already adopted by the Department of Labor cover, among others, such diverse items as stairways and other floor and wall openings, fire protection and prevention, illumination, ventilation, sanitary and first aid facilities and noise control. In addition, a number of ANSI and NFPA standards have been adopted which already may be included in local building codes. However, even if they are not, the design professional now must comply with the OSHA requirements. A list of those standards which have been adopted should be procured from the nearest regional office of the Occupational Safety and Health Administration, US Department of Labor, or from the Office of Information Services, Occupational Safety and Health Administration, US Department of Labor, Washington, D.C. 20210.

Although the employer has the primary responsibility for

providing the safe and healthful work environment, he may seek recourse against the architect or engineer when the project design places him in certain violation of the act. If the owner is cited for a violation as a result of the design professional's failure to take cognizance of OSHA requirements, liability may ensue for the cost of remedial work to correct the deficiency and any consequential expenses that the owner incurs.

Clients should be made aware of the increased costs which probably will result from the operation of the act. In some instances, more stringent design criteria may have to be met to ensure compliance by the eventual employer(s) occupying the building. In addition, contractors may have increased operational costs to enable them to comply with the act's safety and health requirements during construction.

In a brief article of this nature, it is impossible to present a detailed picture of the extensive applications and procedural processes that exist in connection with the Occupational Safety and Health Act or the standards already adopted. Design professionals must be aware of the act's applicability, variances and exceptions, record-keeping, and enforcement and inspection procedures.

The act permits individual states to continue enforcing existing occupational safety and health laws pending the development of permanent state-enforced plans approved by the Department of Labor. Most states have filed a notice of intent to develop their own plans, but the eventual state plans must be at least as effective as the federal program. In the interim, however, employers must look to both the new federal standards and existing state standards. Architects and engineers must recognize that occupational safety and health is now established as a matter of federal law, and governmental influence in this area is destined to increase. □

### Checklist for Architects and Engineers

#### In the Office: Know Your Responsibilities as an Employer

1. Contact the Occupational Safety and Health Administration for copies of pertinent documents published in connection with the Occupational Safety and Health Act.\*
2. Examine safety and health facilities in your office for compliance with the act.
3. Post required notices furnished by the OSHA.
4. Hold periodic meetings with your office staff to review safety and health requirements.
5. If an inspector calls, be aware of the extent of his authority.

#### During the Design: Know Your Responsibilities as a Design Professional

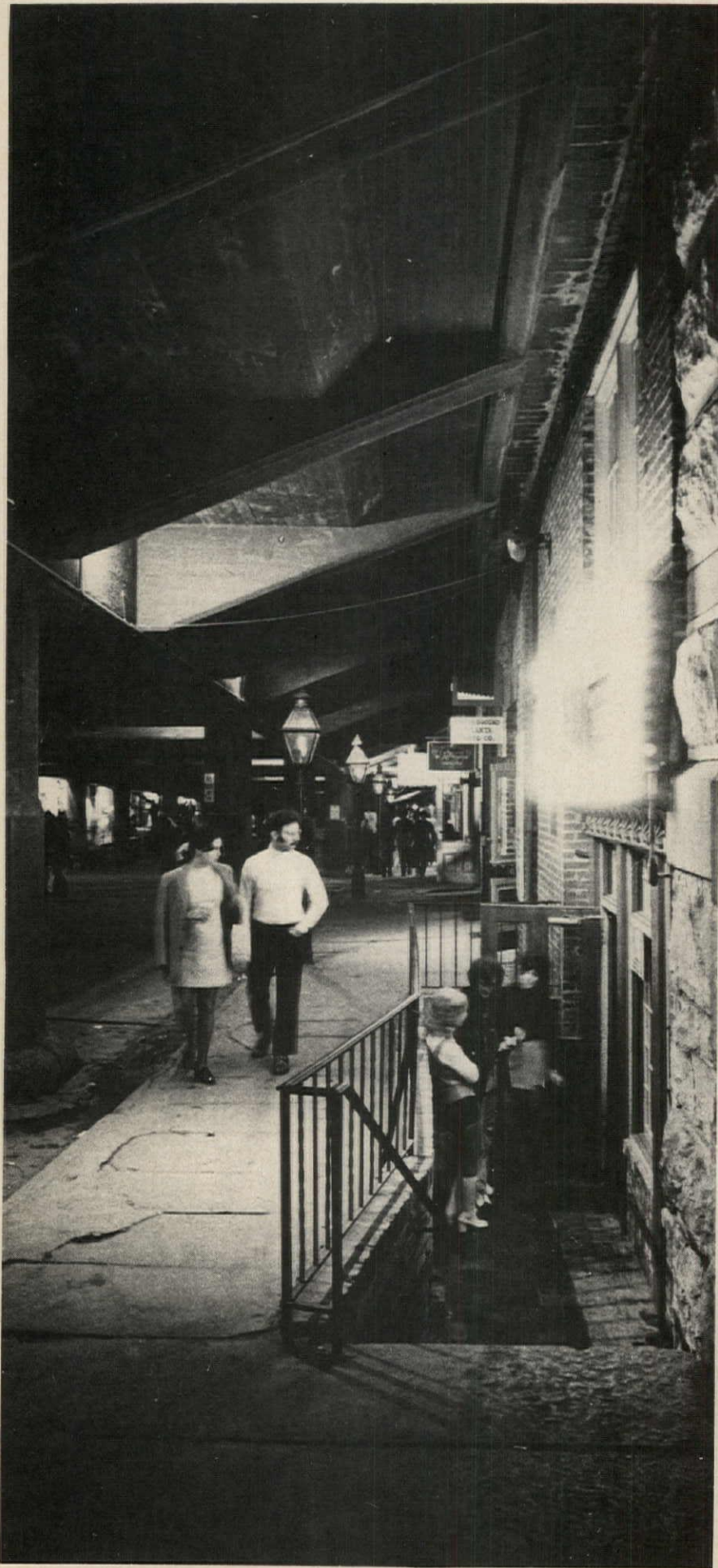
1. Be aware of OSHA standards which affect design.
2. Review applicable building codes in conjunction with a review of OSHA standards to determine when the act takes precedence.
3. Advise the owner of budgetary adjustments necessitated by the act's requirements.

#### At the Construction Site: Know Your Responsibilities as an Architect or Engineer

1. Instruct your employees not intentionally to expose themselves to hazardous conditions during periodic visits to the site.
2. Do *not* include a safety program in the project manual or the technical specifications.
3. Do not interfere with the contractors' responsibilities to provide a safe work environment for their employees.

\*Part II of the Federal Register, May 29, 1971 (Vol. 36 No. 105) containing Title 29, Chapter XVII, Part 1910, Occupational Safety and Health Standards. This may be purchased for 20¢ from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

# Underground Atlanta



by HENRI V. JOVA, AIA

Neglect and delapidation may once have been the fate of a district unique in urban America, but now mod shops, taverns and restaurants celebrate its restoration to the living. About 7,000 people a day come to enjoy it all, making the Underground one of Atlanta's top attractions and a vibrant contribution to the revitalization of the city's downtown core. Now it's a "swinging" place.

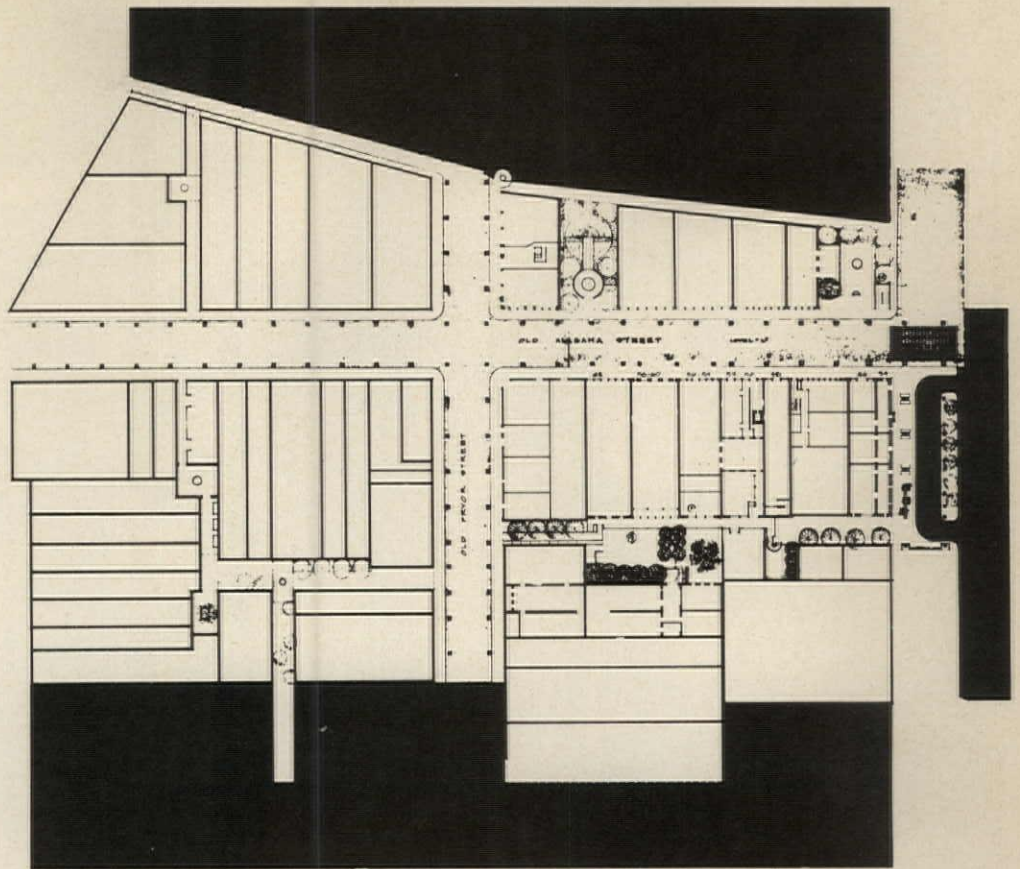
When the ashes had cooled after General Sherman's big bonfire, Atlanta rebuilt itself following the tracks of the railroad that was its original reason for being. The area around the depot proliferated with new three- and four-story buildings, the ground floors of which housed feed, grain and hardware stores and, in remarkable number, saloons and taverns.

As the city prospered and grew, so did pedestrian and vehicular traffic and the railroads. When waits at grade crossings became too frequent and too long, overpasses were built. Downtown traffic became channeled through a series of viaducts and finally, as the areas between viaducts were filled in the '20s, downtown Atlanta became a platform city. The grain stores and taverns were abandoned below while new places of business were opened on the new ground floors. For many years, Atlanta lived over its abandoned self, and a complete street system with lighting, storm sewers and boarded up storefronts was left to empty deterioration or occasional warehouse use.

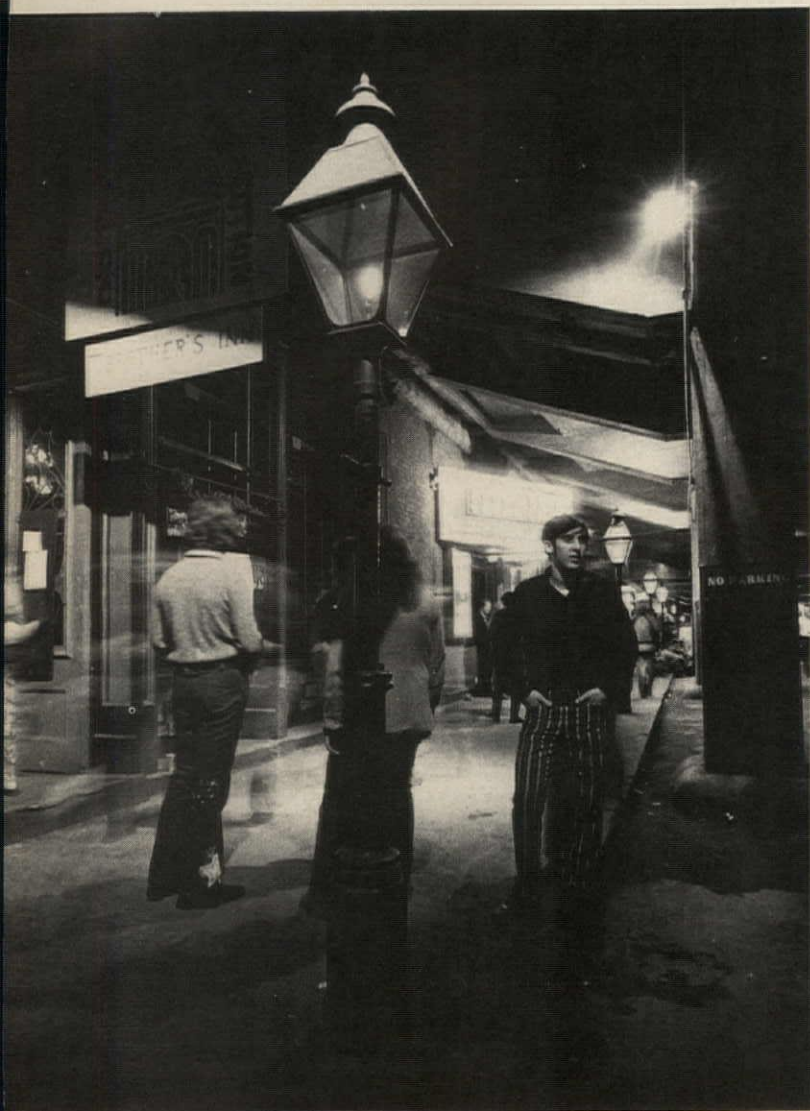
Sporadic visits by curious history buffs and

Visitors stroll down streets, now closed to vehicular traffic, enjoying the sight of shops, restaurants and old-fashioned saloons, as music wafts on the breeze.





The Board of Aldermen declared the area an official historic district, placing controls on subsequent developments (preliminary master plan at right). Gas lights (below) cast shadows and add to the Victorian atmosphere.





Cast-iron storefronts now have a new beauty (above), having been saved from former delapidation (below). The restored district draws crowds (across page), with many spots looking as they did in their heyday back in the gay '90s.



architectural students were conducted in an eerie half-light that seemed more welcomingly appropriate to the winos who filled the vacuum. The idea of putting the abandoned Atlanta to some good use occurred to many visitors, but it amounted to little more than a subject for a few minutes' discussion at cocktail parties.

A couple of graduates of the Georgia Institute of Technology, Jack Paterson and Steve Fuller, were more persistent in their interest, however. In 1967 they formed Underground Atlanta Incorporated to develop and rehabilitate the area. The architectural firm of Jova/Daniels/Busby was approached to produce a master plan and design concept. "Since all of our work is in the contemporary idiom, the Underground Atlanta assignment was an unusual one for us," says Stanley Daniels, AIA, one of the firm's principals. "But we were excited about it because it was a one of a kind project and meshed with our interest in the revitalization of the urban core."

An important use of the initial drawings was for presentation to the Atlanta Civic De-

sign Commission and the various aldermanic governmental and historical commissions whose approval and cooperation facilitated the progress of the development. The area was declared a historic district by the Board of Aldermen, thus placing some valuable controls upon the subsequent development of the project. The material was invaluable also as a tool in obtaining the financial backing necessary for land acquisition and actual construction.

Underlying the layers of delapidation were several blocks of cast-iron storefronts and more or less fine examples of the brick architecture of the late 19th century. Jova/Daniels/Busby used this as the matrix upon which to base the overall design concept. After evaluation, an attempt was made to restore examples of genuine worth. New detailing, not necessarily authentic but in the spirit of the period, was used to fill the voids. Local wrecking yards were canvassed for usable

**Mr. Jova** is a principal in the Atlanta architectural firm of Jova/Daniels/Busby that developed the master plan for the city's Underground.

fragments, and on one occasion the architect and the developer flew to Dallas to acquire a truckload of doors and windows for future incorporation.

The total underground area, approximately seven city blocks, was too vast for the first bite. Therefore it was determined that a master plan for four blocks would be developed with initial construction effort being concentrated in a one block area. The firm thought it was essential that the first phase be large enough to establish the environmental character. It was necessary also that it be large enough for the establishment of a variety of shops and restaurants because a multitude of choices in one place was essential to economic success.

It was determined to allow the overlying

canopy formed by the concrete viaducts to remain essentially unchanged while lighting and restoration efforts were concentrated upon the shopfronts and sidewalks. The street area itself thus became a neutral viewing ground from which to observe the panoply of activities. In addition to the existing street and alley patterns, several buildings have been developed as malls of smaller shops and entertainment facilities, permitting an endless variety of circulation routes within the area.

While most of the district was covered by the supporting structures for the new streets above, a few areas remained open. These outdoor spaces were especially prized. New "widow's walks" were built on several levels overlooking the newly planted courtyards and

alleys, opening the upper levels for commercial pedestrian traffic and enhancing the multidimensional vitality of the entire area.

The vocabulary of materials was established by the existing structures. Old cobblestones were reused to good effect. While second hand brick was a staple ingredient, a great deal of color has been introduced both in paint and in stained glass. It is important to remember that what we had here was not Williamsburg. We were creating an entertainment environment, and the grain and feed store gave way to the saloon and tavern in establishing a slightly raunchy atmosphere that swings—at least a little.

The major thrust of the firm's activity took place over a period of approximately one and a half years. During that time, we developed





Kenney's Square is the major open space, most of the district being covered by supporting structures. "Widow's walks" are on several levels.

the documents for the first phase of the development, supervised construction, revised submissions by designers who had been retained by individual shop owners and in general established the Underground's basic character.

While our judgment prevailed much of the time, we were not necessarily victorious in every case, and some shops and restaurants varied from the standard that we had hoped would be maintained. Contrary to our advice, signing and graphic design were not considered as coming under architectural control. In addition, while the developer controlled the majority of the property in the underground precinct, there were other ownerships represented and these people were not subject to our controls or even advice. Nevertheless, the total effect is one of vitality, if not necessarily authenticity; and some of the discordant notes, although we were chagrined by them at the time, make their contribution to the overall vibrancy of the area.

As the major activities subsided and the construction activity slowed down, our firm

began to assume a less active role in Underground, and we became consultants and advisers to the developer. He retained the young firm of Kenneth Miller & Associates to continue various aspects of the design, and they have been responsible for some of the more recent developments at Underground.

Jova/Daniels/Busby is now in the act once again in an effort to bring Underground above ground, and studies are being made for the further extension of the entire district. The street level development will not be subject to as many design constraints as the underground portion, and we hope to develop a compatible but more free-wheeling approach to the new areas.

Underground Atlanta has proved to be an unqualified, popular success. With 150,000 square feet already developed, there are now 67 establishments operating under lease with 60 of them installed and open to the public. It has become one of the major tourist attractions and can be credited with a large share of the renewed vitality of the downtown. □

# The Adaptable Hospital

by REX WHITAKER ALLEN, FAIA

**A hospital houses a conglomerate of functions whose organization is comparable to that of a small city and, therefore, it too should be open-ended. The architect faced with the challenge of designing one must constantly search for new solutions to prevent stagnation. Some of the pressures for change and some restraints are discussed here, and some tentative answers are given.**

"My quarrel is not with the tall building, it is with the tall special-purpose building . . . because this present crop of 'sown dragon's teeth' is mostly predicated upon one way of life, one method of doing business, a method which just might be obsolete soon, and then what?"

Although hospitals generally are not "tall buildings," this quote by Nathaniel A. Owings, FAIA, is surely applicable to them. In fact, even more so because the complexity of a hospital makes it more susceptible to obsolescence.

A simple building like a loft or warehouse can be made to accommodate almost any activity. The more a building is designed to meet special requirements the less flexible it becomes. In a hospital the special requirements are increasing rapidly because of new developments in medical practice and equipment. In addition, new health care systems, new construction techniques, new labor practices, rising costs and new funding arrangements are exerting curiously parallel pressures on design.

To compare a hospital with a city suggests an approach to hospital design: the establishment of a framework of fixed elements. Such a framework is similar to the city's streets with their utility networks which are established long before decisions are made about what will occupy each of the city's buildings. As with the city, there are many possible patterns and modules. Street layouts may be rectilinear or radial, block sizes may be 200 feet or 600 feet, but once established they are difficult, if not impossible,

to alter. On the other hand, individual buildings in the city are built, demolished and rebuilt as needs and uses change. Utility lines can be rerun because streets provide ample space. So also in a hospital it is essential to establish the fixed circulation pattern and to provide adequate space for utility distribution systems. As in the city plan, the difficult and sometimes arbitrary decision is to determine what the size of the basic module should be. The module, once established, sets a pattern for the future because it cannot be easily changed.

Another consideration in planning is that human activities generally take place on horizontal surfaces. Therefore, to obtain maximum adaptability, it is desirable to provide unobstructed floors by eliminating as many fixed vertical elements as possible.

The separation of incompatible activities is also a desirable objective such as, for instance, utility maintenance from commerce traffic. (How much more pleasant a city would be if utilities were run in accessible tunnels rather than having to suffer the interference caused by street excavations!)

Another parallel is zoning. A hospital's activities need to be zoned, from large-scale site zoning to departmentalization to specific room use assignments. At each scale of activity, consideration must be given to the advantages of single versus multiuse restrictions. As in the city, overspecialization can result in stagnation. Opportunities for interchange and cross-fertilization are essential to vitality, yet the development of multiuse space is often resisted by overly self-protective individuals.

As in the city, all planning should be open-ended. Hospital departments designed for growth and change should be able to

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Mr. Allen, a former Institute president, heads the San Francisco firm of The Rex Allen Partnership, architects of some 70 hospital projects. He is currently president of the American Association for Hospital Planning.

realize these objectives without disruption either of their own activities or interference with that of other departments. These parallels to city planning suggest some ways to make the hospital more adaptable, more capable of meeting the challenge of change.

The pressures for change are fairly obvious, but perhaps they might bear brief restatement. First, the entire system of health care is in a state of flux. In the January 1, 1970, issue of *Hospitals*, Ray E. Brown, executive vice president of Northwestern University Medical Center in Chicago, put it this way: "Until we see the delivery of medical and health care in this country as a matter of *arrangements*, we will make no progress. It is how you relate resources as well as how you relate the personal components of those resources that counts. . . . I would define the hospital of the future simply as an *organization*. In other words, it will no longer be seen as a beautiful structure on a hill; it will be simply a matter of arrangement. In many instances it will be the delivery of medical care by different types of individuals from different locations within a city."

To design facilities for such a dynamic situation requires that architecture be considered a process, a process for meeting human needs. The static situation, the beautiful structure on a hill, is not enough. The "doctor's workshop" is not enough. Instead there must be a resolution of relationships; there must be responsibility beyond meeting budgets; there must also be response-ability — the ability to respond to human and community needs.

Unfortunately, city planners have traditionally too often overlooked hospitals and other health care facilities in their plans. Perhaps this can be explained by the unwillingness of many people to recognize the existence of sickness, either physical or mental. Whatever the cause, the growing involvement of the consumer has significantly changed the outlook of planners. There is

a growing rapprochement between these and health officials which can only result in better service to the public.

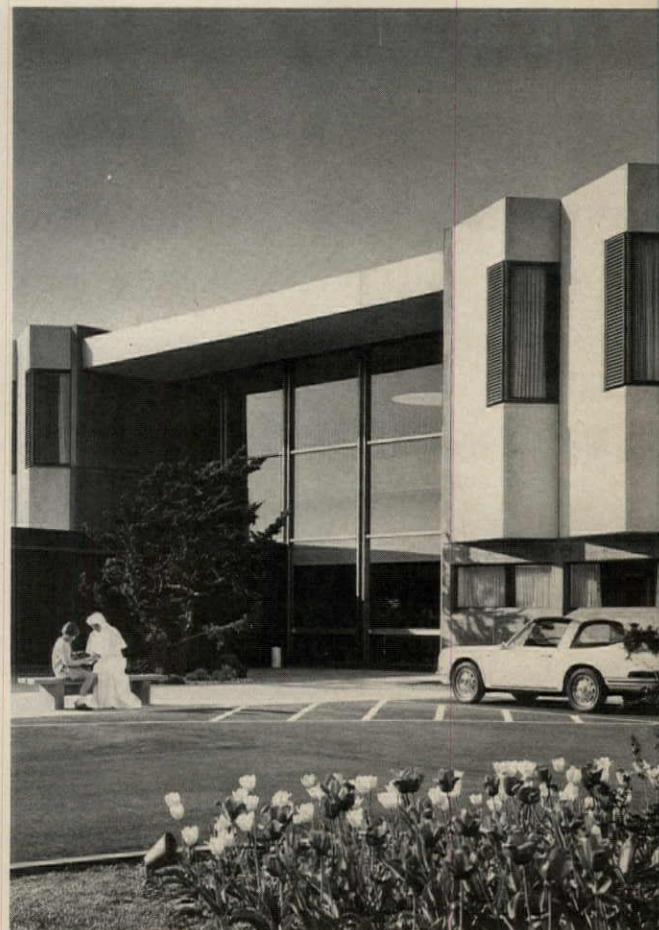
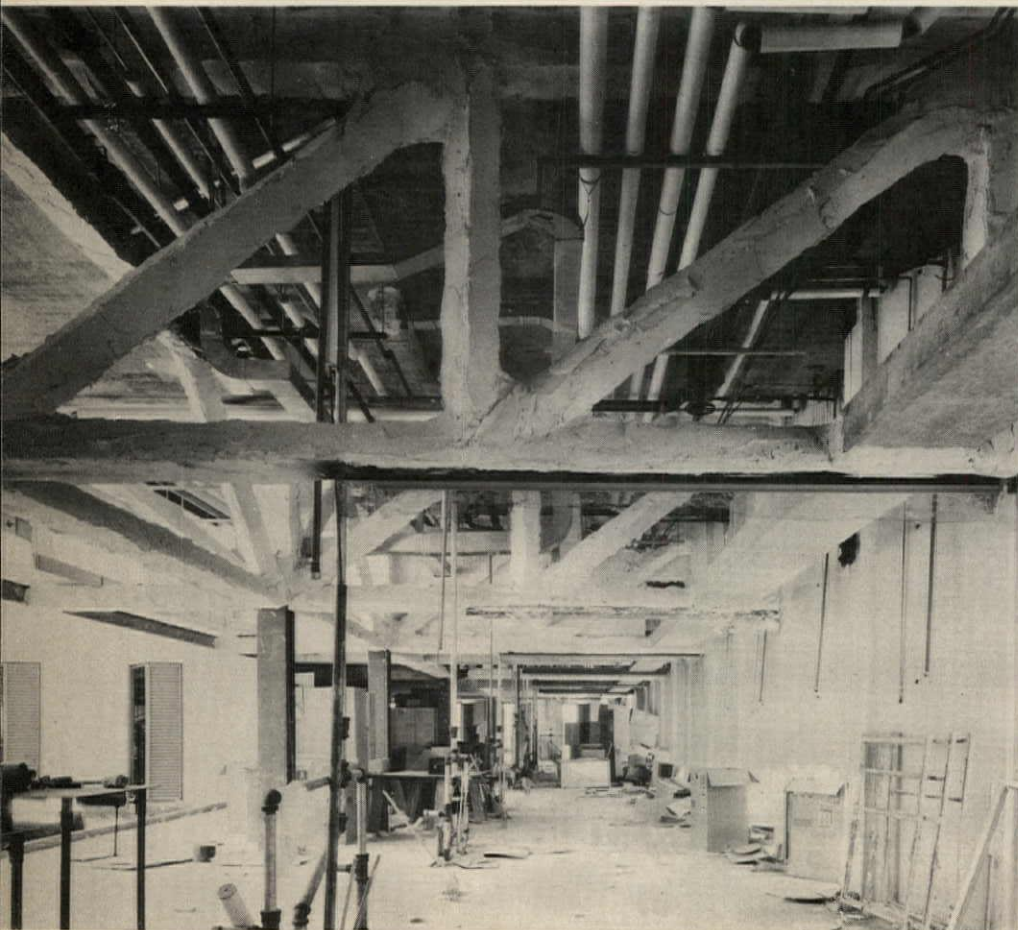
Even the term hospital is no longer used in the limited sense of a building for inpatients only but rather to designate a facility to accommodate comprehensive health care programs: preventive, curative and rehabilitative. The emphasis on preventive care, both through early diagnosis of variations from individual norms and through an increasing understanding of immunology, as well as the recognition that it is less expensive and more humane to treat patients while they are vertical rather than after they become horizontal, suggests a reevaluation of hospital design, particularly with respect to an expanded outpatient department.

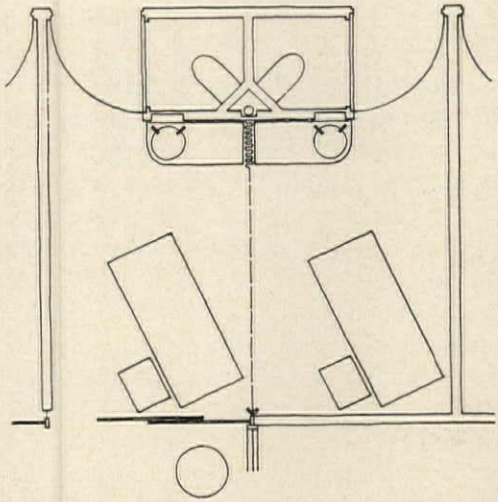
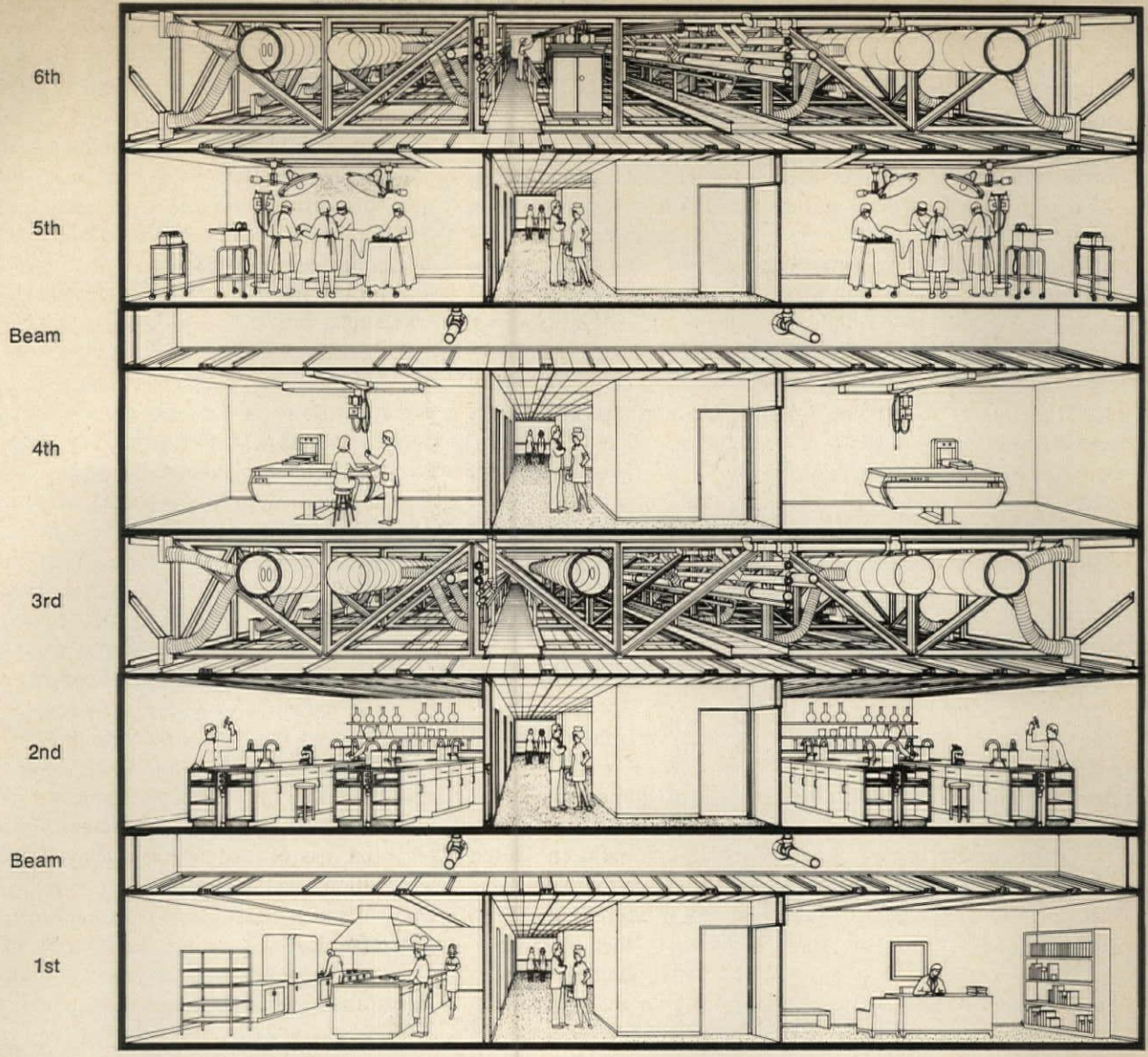
At the other end of the spectrum, expanded rehabilitation programs and home care programs may also have the effect of reducing the need for intermediate and long-term care beds. The return of psychiatric patients to local facilities and the integration of such care with other medical services is also a significant change of emphasis. Increasing use of chemotherapy as well as the development of new diagnostic and treatment equipment create obvious pressures for change.

Equally significant are the changes taking place in the construction industry, which up until now has been slow to recognize the need for change. Increasing complexity of construction projects and rising labor costs are, however, creating pressures to develop new management techniques and new construction methods. Coupled with this, the increased cost of money and the potential loss of income from delayed occupancy have required reevaluation of schedules and the realization that acceleration of construction can result in substantial economic advantages.

The most obvious answers to these challenges is to build the disposable hospital, a structure that will not outlast its usefulness. Unfortunately, but perhaps fortunately for our ecological system,

Systems floor under construction at Dominican Hospital, Santa Cruz, California, and the facility completed. Rex Whitaker Allen & Associates.





Simulated section, Sacred Heart Hospital, Eugene, Oregon (top). Rex Whitaker Allen & Associates; Balzhiser, Rhodes, Smith & Morgan, associated architects. Main entrance, Madera Community Hospital, Madera, California (left) and duo-room of the same facility (above) with folding partition, permitting privacy or social contact. Rex Whitaker Allen & Associates.

our technology does not permit this alternative. Safety and disposability do not seem to be compatible. The alternative is an adaptable hospital which, like a living organism, can be constantly altered to meet the challenges of change. Louis I. Kahn, FAIA, suggested a solution with the design of the Salk Institute. In 1967 our firm completed a new hospital in Santa Cruz, California, for the Dominican Sisters; this incorporates a similar concept throughout, placing the mechanical services on a separate accessible "systems floor" or interstitial space between the two occupied floors of the building.

Since then we and Hugh Stubbins/Rex Allen Partnership\* have found that this solution is gaining wide acceptance for highly complex buildings such as hospitals and research centers. It employs common and routine fabrication and erection processes of the construction industry.

The systems floor is a mechanical or service floor sized to accommodate the supporting systems of a hospital. On inpatient

CONSTRUCTION COST TABULATION, INTERSTITIAL HOSPITALS

Project	Bid date	Unit cost per square foot	Total cost \$ million
Dominican Santa Cruz Rex Whitaker Allen & Associates	5/66	35.20	4.4
Health Sciences Centre McMaster University Craig, Zeidler & Strong	1/69 through '70	40*	70 (est.)
Madera Community Hospital The Rex Allen Partnership	9/69	43.50	3.4
San Diego Veterans Administration Hospital Charles Luckman Associates	6/69	40	28
Pacific Medical Center Stone, Marraccini & Patterson	8/69	50.10	14

\* Represents bid costs to date and estimate for remaining items.

levels it may be provided for every other floor; for ancillary service levels it should be provided for each floor as these services require more extensive medical, mechanical and supporting systems, which generally feed down from the interstitial space through the ceiling to the hospital floor. On inpatient levels the systems floor feeds both up and down. Access for maintenance personnel is accomplished through catwalks which thread through the truss members.

The reasons for and advantages of the systems floor are:

1. As the awareness grows that the true costs of a building are its life costs, a system which simplifies maintenance and facilitates repairs and remodeling becomes more desirable. This has been adequately illustrated in the recent design and construction of research and medical laboratory buildings such as McMaster University in Hamilton, Ontario, the State University of New York at Buffalo and the Salk Institute at LaJolla. The modern hospital is similar to these in complexity and structure.
2. Time can be saved during the design process since the structural, mechanical and electrical systems are designed to accommodate the maximum internal environment demands, thus permitting decisions on basic systems to be made much earlier in the design process.
3. For the above reasons it is possible to consider the start of construction on foundations and structural frame while depart-

mental planning is made final. Potentially this offers tremendous savings in time and dollars.

4. Separation of mechanical systems from finished spaces permits overlapping the work of several trades, thus reducing construction time. The shorter construction time reduces the cost added by inflation during an extended construction period and places the facility in operation sooner.
5. The systems floor offers an exceptional opportunity to take maximum advantage of an appropriate automated cart transport system.
6. The ability to readily remodel the spaces above and below with minimum disturbance will bring about savings in future construction costs.
7. Maintenance personnel can easily inspect, maintain, replace or revise the supporting systems without disrupting operations anywhere.
8. Noise, dirt and the passage of inspectors and mechanics through the hospital are all but eliminated.
9. It permits the use of structural trusses to reduce the number of columns and thus the number of fixed vertical elements.

The successful planning of a systems floor requires a synthesis of the following major systems:

- structural
- utility and piping distribution
- air handling
- electrical
- materials handling.

Maximum economies in time and money will be achieved when the design of all systems is coordinated and their influences on one another are properly understood. Our experience has indicated that even without complete integration of systems we have effected savings of as much as three months in time and 10 percent in the cost of the mechanical systems. In large projects with adequate standardization of structural elements and off-site fabrication of trusses even the widely spaced columns (60 feet or more) are a standoff with conventional construction.

Another and final aspect of adaptability, one that has direct meaning for the hospital patient, is the design of the patient room. Several surveys that we have conducted indicate that the controversy over private versus semiprivate accommodations is not merely a matter of construction or operating cost but also relates directly to patient response. There is strong evidence that many hospital patients actually prefer sharing a room even if cost is no object because when they are ill they are apprehensive. The presence of another human being who can call for help in an emergency is a positive reassurance to them.

There are, however, operational disadvantages to the semi-private room. It involves many patient transfers due to incompatibility and a higher percentage of vacant beds due to differences of sex or diagnoses. The all-private room hospital can operate at a 10 to 12 percent higher average occupancy which more than offsets any added cost of nursing. One resolution of this debate is the duo-room which accommodates two patients, each with his own window, door to the corridor and toilet. A folding partition can separate the beds for privacy or, when open, permit social contact at the patients' option.

These then are some of the current possibilities for building the adaptable hospital. Perhaps the question is: Will the health facilities we build really facilitate the practice of health care? If they don't it will be ironic, since the word "facility" implies from its root "promotion of ease of operation." Unfortunately, facility is too often used to designate a building type that hinders operation by its inability to adapt to change. □

\*Formed in 1968 as a joint venture of the two firms, Hugh Stubbins & Associates of Cambridge, Massachusetts, and Rex Whitaker Allen & Associates of San Francisco, to undertake the design and master planning for the redevelopment of Boston City Hospital. The joint venture has also worked on other projects in the medical facilities and educational area.





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# How Soviets Plan Their Urban Housing

Early urban housing efforts in the Soviet Union received considerable negative commentary from American writers. However, in many instances such commentary used American standards and values as a basis for comparison. Soviet housing, holds William L. Roberts, AIA, should be judged by standards and values of its own society, not by those of our own. Roberts, a doctoral candidate at the University of Southern California's Andrus Gerontology Center, participated in the 12th International Seminar on Family Research in Moscow last May and spent several weeks in the USSR. He relates here how Soviet planners have studied the many unique needs of their society and are developing solutions accordingly, but for the most part authoritative value judgment of these solutions is not intended. Data was gathered mostly from members of the Institute for Concrete Social Research of the USSR Academy of Sciences.

Since 1946 urban housing in the USSR has been and is still being constructed to replace or augment that destroyed by war. Among the planners of such housing are groups of highly trained coordinating architects who have studied not only the specific physical environment but also aspects of relevant social environment. They have been educated as architects and sociologists and are thus better able to understand and satisfy the particular requirements of their society.

Practical examples of their work can be found in the ongoing Soviet program for urban housing. Working as coordinators with a team of social and physical scientists, these architects have been able to develop unique solutions to old problems. Among these are, for instance, single highrise community/apartment complexes which do more than simply house their occupants: They provide a viable physical and social environment and include educational, recreational, child-care, food supply, medical and other service facilities. Beyond this, they are partially self-governed and give tenants a sense of civic pride. In short, they are functioning as miniature communities.

How did these unique buildings come into being? One early step in their development was comprehensive social research. Typical of this endeavor were studies done in Moscow, from which Soviet social scientists discovered that most families wanted to remain in the heart of their city because it furnished services which were scarce elsewhere. It also was a center for social and cultural activities.

But a special problem emerged: Population density was increasing in the central city, with resultant overcrowding. How could satisfactory decentralization be accomplished? The answers were multiple. To lure people

away from central service functions it was obvious that many selected facilities would have to be duplicated in decentralized locations. Of course, all such facilities could not be decentralized. For this reason excellent underground transportation was planned and implemented, which made remaining centralized services more easily accessible to suburban areas. Building sites were chosen that were adjacent to the new transportation arteries. In this way planning for city development began to follow a logical sequence, the fundamentals of which were rapid transportation and adequate services.

As research and planning continued, studies were made concerning the basic nature of Moscow families. What were their needs? What was their composition? How were they evolving? No simple answers were expected or discovered but in-depth studies did provide better initial understanding of such problems and better tentative solutions. One early realization was that no single plan could satisfy all requirements. For this reason a variety of pilot plans were proposed, developed and tested.

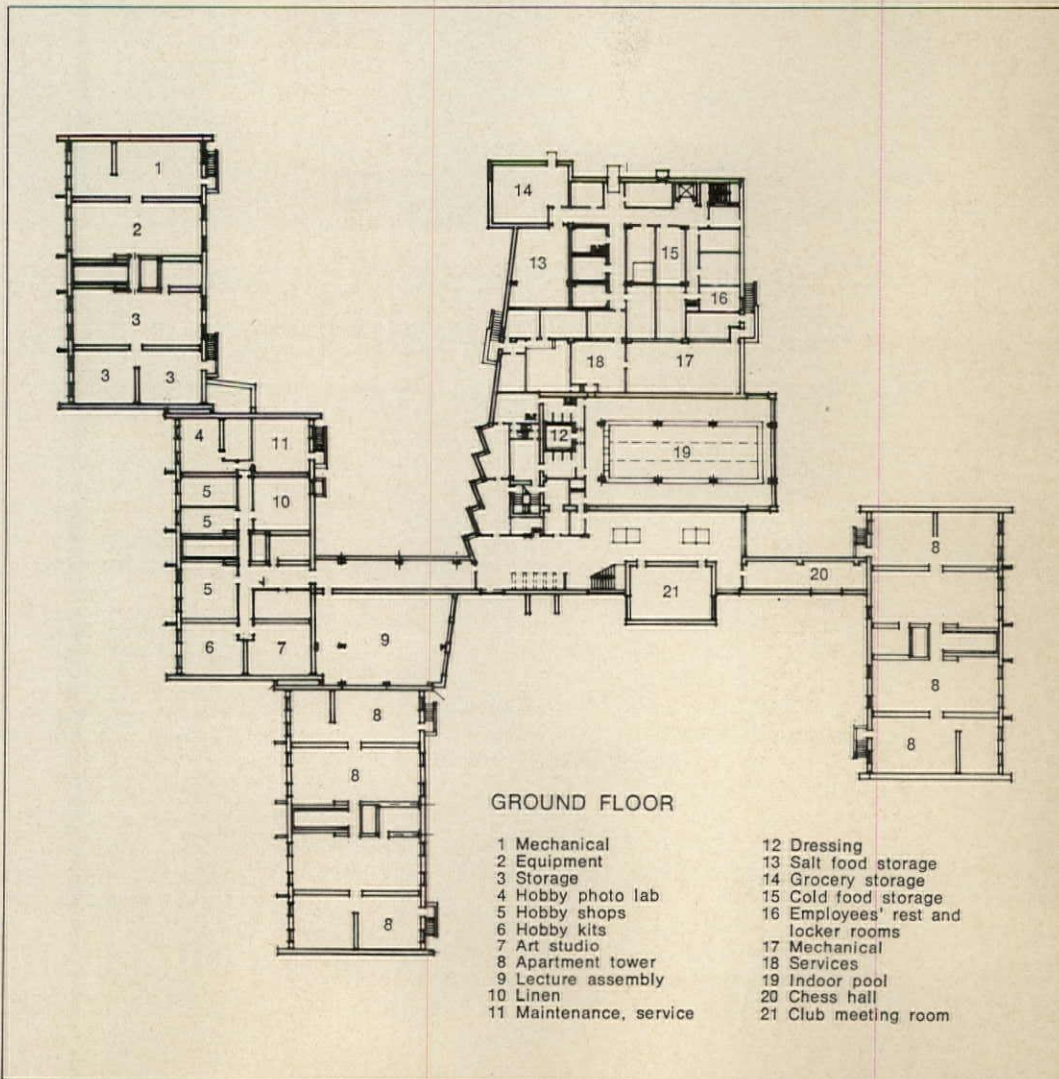
One of these proposals was to establish living complexes which would be self-contained in a single building. The eventual results of this proposal are the highrise community/apartments.

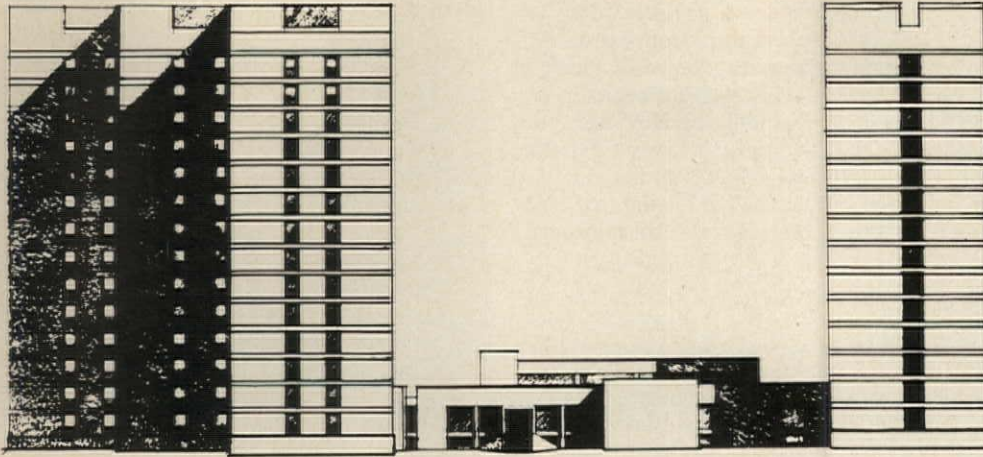
During the preliminary research on these facilities it was found that approximately 400 families could be accommodated in a single

complex without losing a sense of unified community spirit. Also, this particular size permitted a wide range of local services that could not be justified in smaller buildings, such as gymnasiums, restaurants, educational facilities for the young, child-care centers, auditoriums, and medical facilities staffed with physicians and nurses.

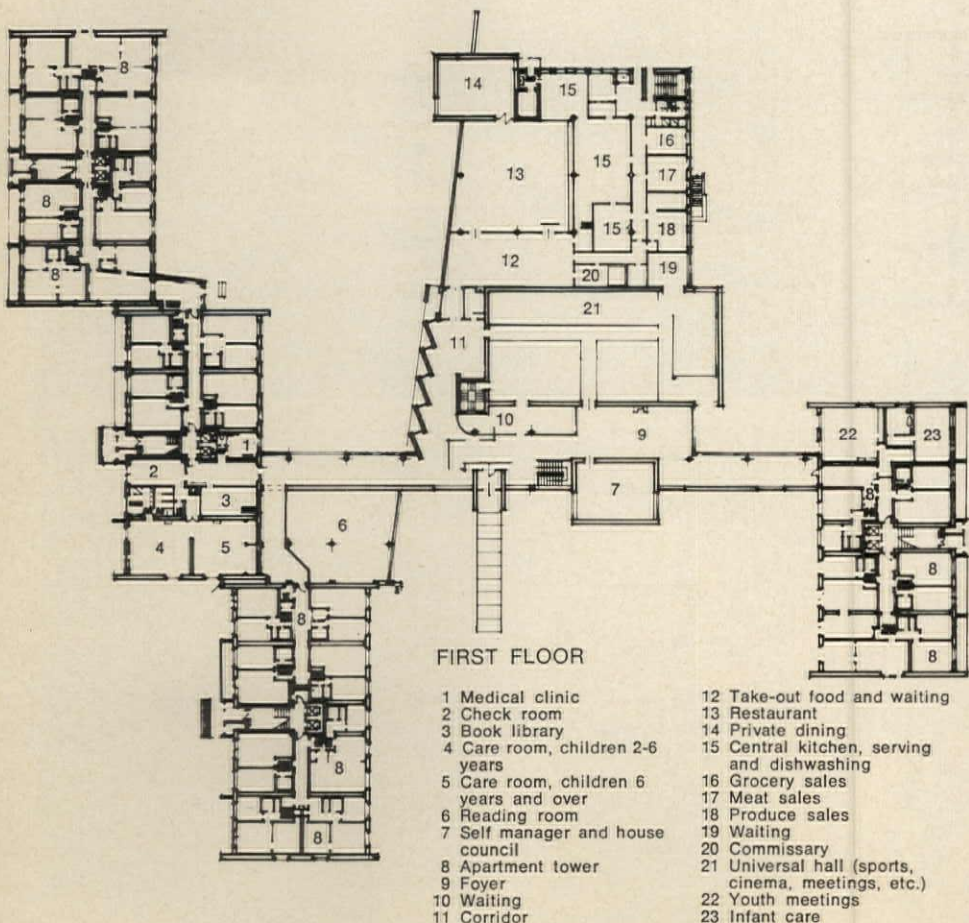
Site planning for the apartments also included social aspects. The individual buildings were grouped together in parklike settings with social interaction between units being encouraged by sports and recreational facilities. Since children at play are often initiators of contact between families, these sports and recreational facilities were considered as a means of achieving such interaction. Beyond this, service facilities in buildings also created meeting places and areas of contact. In these ways both buildings and site worked together toward the same ends.

Notwithstanding visionary ideas and planning, physical amenities in early models of the apartments were rather sparse. Few of them went beyond providing bare spatial minimums and urgent equipment necessities. But new, more commodious models were developed. As each came into being it was tested and researched to discover problem areas and potentials for innovations. This accumulation of ongoing test information and the incorporation of resulting new ideas was of great importance to the development. Errors were made once, but rarely twice. A de-





Soviet apartment community complex has four 14-story towers which accommodate 400 families. Connecting the towers is a two-story administrative and service link. The principal materials of construction are concrete and masonry. The ground floor contains a large indoor swimming pool, a major innovation; the first floor has typical living units, restaurant, etc.



velopment system was used which profited by its own mistakes.

During gradual evolution, these minicomunities became increasingly sophisticated. More amenities were incorporated such as indoor swimming pools, full-range hobby shops and chess halls. Most of these innovations resulted from genuine desire and interest expressed and generated by tenants. Regardless of the sources, however, all innovations possessed functional usefulness or stimulated community cohesiveness.

Parallel to physical refinement was the development of social methods which were designed to make the facilities successful. Criteria were established that helped ensure a positive social environment. First, prospective tenants were screened for attitude. Only those who expressed real desire to live in a community were permitted entry. Second, most tenants were required to have common social backgrounds with other residents because it was felt that friendship existing between families before they moved in would help create early rapport and mutual understanding. Third, most tenants were required to have compatible vocational interests and activities. These three criteria were not rigid or inflexible. Nevertheless, the general intent of establishing a community's nucleus prior to its inception was basically adhered to.

Beyond such selective screening, partial self-government helped create a successful social environment. Because of it, discipline was more easily maintained and tenants came to identify the building as being partly their own. As individual participation increased, there was proportionate growth of personal interest.

A wide variety of contributive factors led to the success of these highrise housing ventures. First, early social research, together with technical physical knowledge, provided guidance and direction. Second, continuing research and accumulation of results created a fund of experience for future planning. Third, some understanding of what is required for social success, and implementation thereof, helped increase the probability of success.

All three of these factors might be subsumed under a single rubric: "Physical and Social Environments Are Inseparable." They are a combination of forces which cannot be parted without arbitrary disruption of their constituent. Planning of physical environment cannot really be accomplished without thorough and complete consideration of its matched social environment. The coordinating architects in Soviet Union practice seem to recognize such mutual inclusiveness. Because of their training in sociology they seek solutions which are compatible with the values and needs of their own society.

Thus new highrise urban housing developments in the USSR are based on study of their own country's particular problems. They recognize the interwoven nature of the urban housing environment, insofar as social needs are inseparable from the physical. Judged by our standards some of these housing solutions may seem inadequate or arbitrary; judged by Soviet standards most of them seem to be adequate reflections of social research and physical reality. □

# Low Income Housing with Amenities

**Now fully rented by the Town of Ramapo Housing Authority in Suffern, New York, a federally subsidized project for low income and elderly tenants blends into its suburban neighborhood and possesses characteristics which make it a pleasant place to live.**

The proposed advent of low cost housing into a neighborhood often causes alarm on the part of established residents. Among other things, they envision institutionalized sterile design and poorly maintained buildings. But if the housing is well designed and an asset within itself, blending into the neighborhood, some of the fears can be allayed.

An example of such design is the Department of Housing and Urban Development project for the Town of Ramapo Housing Authority in Suffern, New York. It was necessary for the owners at a public hearing to stand up against a crowd of some 2,500 people who feared what low income housing would do to their neighborhood. If an attractive addition to the residential area which gracefully becomes a part of its surroundings is any criterion for acceptance, the project is a good neighbor.

Located 30 miles north of New York City near a bus line and with medical facilities and a shopping center nearby, this HUD turnkey project was planned for a mix of 75 percent elderly occupants with the rest from the younger generations. Ten percent of the units for the elderly are equipped with facilities for the handicapped, and all units for the elderly have personal emergency alarm systems in all rooms.

Consisting of 78 units on an interior 4.6 acre site located in a high density single-family residential area, the housing was designed by architects Meckler-Koepfel. The problem was to design a noninstitutionalized senior citizens and low income housing development which would preserve the amenities of the neighborhood and take into consideration the individual lifestyles of the applicants for occupancy who were to come from private homes primarily.

Each unit is built around a utility core in pinwheel design, thus affording direct outside access from each apartment. Exterior materials are similar to those of existing residences in the neighborhood, and the low height of the clusters help in blending the housing into its environment. Individually controlled heat and hot water are provided by undercounter packaged gas boilers.

At HUD's request, brick veneer is used at the lower portion of nonelderly units. Interior finishes include painted gypsum board throughout, vinyl asbestos tile, carpets in the

living rooms, ceramic tile wainscots and ceramic mosaic floors in the bathrooms.

Among the other amenities is a community center for the elderly. An existing house on the site was refurbished at low cost for this purpose. An area was set aside for the use of low income families and was designed for easy access to a children's play space but removed from the environs of the units inhabited by the elderly. But there's nothing to stop an older person from watching children at play if he desires.

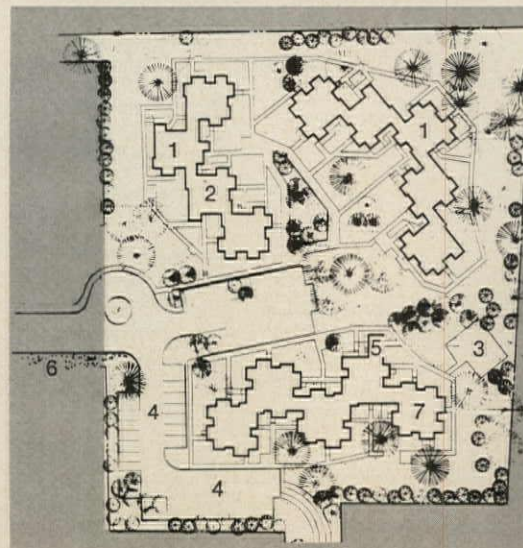
The total cost of the project came to \$1,707,484. This expenditure is broken down into six areas: site acquisition—\$170,000; site improvements—\$172,484; dwelling construction — \$1,061,000; nondwelling construction — \$72,500; A/E fees — \$58,500; profit and overhead—\$173,000.

Completed in October 1971, the low cost project in Suffern is an example of subsidized

housing in the suburbs. The issue has caused considerable controversy in many localities with some opponents saying that too few projects are being built in inner cities. As Don Loomis writes in the February issue of *House & Home*, the interminable disputes over policy, authority and legalities confuse the picture of national efforts to build housing for the poor. He thinks that suburban opposition will increase and sees no quick solution to the problem. But some well-designed subsidized housing projects do manage to get built as the development in Suffern testifies. □



This project is a winner for contractor George Faist of an award for low income housing sponsored by the National Association of Home Builders. Each unit has direct access to the outside (right) and clusters blend unobtrusively into the environment (bottom).



- 1 Elderly units
- 2 Management
- 3 Playground
- 4 Parking
- 5 Family community center
- 6 Senior citizen community center
- 7 Nonelderly units

The report states that this country is shifting toward white collar occupations and estimates that by 1980 more than 50 percent of employment will be in this category. The nation is moving away from producing goods to producing services. This requires higher levels of education and skill acquired through formal training.

### President Nixon's Report on National Growth Disappointing to AIA, NAHB

The AIA stated before Congress' House Banking and Currency subcommittee on housing recently that President Nixon's 1972 Report on National Growth advocates "no policy" and is unacceptable. Members of the AIA National Policy Task Force told the committee that the President's report is a "clear reversal of his earlier bold statement" calling for the development of a national growth policy in his first State of the Union address.

Archibald C. Rogers, FAIA, of Baltimore, AIA vice president and chairman of the task force, declared that the President's report "overemphasizes the difficulties and challenges in defining the objectives of a national growth policy." He said that the report "does not address itself to the concerns of Congress as expressed in Title VII of the 1970 Housing and Urban Development Act." Saying that the concept of revenue sharing is valid, Rogers continued, "Pumping money into fragmented local governmental units without some powerful incentives for reforms can only further entrench unacceptable government arrangements at the metropolitan level."

He further declared that of the five major forms of assistance for new community development authorized by Congress that the Administration had implemented only one: the mortgage guarantee program. Rogers was of the opinion that the first report of the AIA National Policy Task Force "addresses itself more forcefully and squarely to the issues of growth in this country" than does the President's report.

The National Association of Home Builders, in testimony before the same committee, also declared that the President's report "falls far short of builders' expectations" and that the report treats "the entire subject in an elementary fashion that failed to throw any light on the complex problems of urban growth and the ways to solve them." NAHB President Stanley Waranch urged the committee "to delete or to sharply modify more than a dozen provisions in the proposed measure."

### Air Rights School/Apartment Complex Enjoys and Shares Many Benefits

A 25-story middle income apartment building, Highbridge House, and a public school in the Bronx in New York City have been combined in joint occupancy with financial advantage to both.

The apartment development, financed by New York City at a cost of \$1 million, was built on air rights of a \$4 million school

funded by New York City's Educational Construction Fund and operated by the city's Board of Education. It is the first combined school and housing project developed by the fund.

It's "more than just a marriage of financial convenience," states George D. Brown Jr., FAIA, partner in the architectural firm of Brown Guenther Battaglia which designed the complex. "An interesting silhouette was created by arranging the high and low elements in relationship to each other. There is a logical succession of buildings, and the same family of concrete exterior materials is used to give a unity of appearance." He continues, "We also took advantage of the sloping grade to add amenities, such as using the garage roof for a playground which can be entered from street level on the higher side of the site." The apartment house, the three-story school, the 1½-story gymnasium, garage and playground were all planned to use the four-acre site to good advantage.

Originally, Highbridge House was designed to rise directly above the school. While this would have resulted in less occupancy



The school's low height is a suburban gain.

of the site, Brown says that it would have been more expensive. "We made a number of studies," he relates, "of the best ways to separate the elements. Our solution was to place the structures side by side and get more school space onto the ground. The resulting arrangement of classrooms off double loaded corridors is more efficient. There are some open plan classrooms, a good sized cafeteria, a combined gymnasium and auditorium, as well as sufficient outdoor play space."

Entrances are separated, but children of tenants can walk to school without crossing a street. Moreover, they can play in the shared facilities of the playground.

### Historic Post Office in St. Louis May Be Saved; Bill Near Passage

For years preservationists have worked to save the old post office in St. Louis from destruction. One of only two surviving buildings designed by Alfred B. Mullett in the Second Empire style (the other is the Executive Office Building near the White House in Washington, D.C.), the four-story structure on a prime downtown site was designated as a national historic landmark last year by the Department of the Interior.

Some people have found the structure a "derelict, moldering in decay" that should have been destroyed long ago. Others have wanted to save it, find an economically feasi-

ble way of restoring it and make it a "productive part of the downtown scene."

Recently the House Government Operations Committee approved a bill which, if passed, would permit transfer of surplus historic federally owned buildings to state and local governments for redevelopment and commercial use. The Senate and House have passed similar bills which are now in conference. If the bill is finally passed and signed by President Nixon, this and other historic structures may be saved by making possible revenue-producing uses. Existing federal law prohibits commercial ventures in surplus property under regulations of the General Services Administration. If all goes well for the preservationists, the old post office may become an economic asset for the city of St. Louis. The latest proposals for it include its use as a downtown airline terminal with other money-making undertakings.

### World Conference on National Parks Will Draw Participants to West in September

More than 90 nations will send park leaders and conservationists to the Second World Conference on National Parks to be held at Yellowstone and Grand Teton National Parks from September 18 to 27.

A major event of the year-long commemoration of the founding of Yellowstone National Park in 1872, the first national park in the world, the conference is sponsored by the National Parks Centennial Commission, the International Union for Conservation of Nature and Natural Resources and the Department of the Interior and its National Park Service.

The conference will begin with tours of Yellowstone with emphasis placed on park history, administration and environmental protection. Technical sessions will start on September 22 at Grand Teton where panel discussions on national park problems and development will be featured.

### Federal Council Announces Grants, Plan to Save Artistic Heritage

Admirers of Michelangelo's incomparable Pietà were anguished when it was tragically defaced recently in St. Peter's Basilica in Rome. Newspapers carried a story later about a man who walked into Rome's Church of St. Peter in Vincoli the day after the Pietà was assaulted, climbed the protective balustrade and swung a hammer at Michelangelo's famed statue of Moses. He didn't harm it, but he could easily have shattered the masterpiece. He was a newspaper reporter making the point that other magnificent works of art go unprotected.

In the US as well as in other parts of the world, an irreplaceable heritage is being destroyed by vandalism, pollution and poor gallery conditions of uncontrolled humidity, lighting and temperature. The National Council on the Arts believes that it is essential for the public to be informed about the urgent problems of those who are charged with the responsibility of caring for priceless works of art and that only a major concerted effort can safeguard our heritage.

The council recently issued a policy state-

ment on the subject which was accompanied by an announcement of 69 grants totaling \$1,190,579, including \$186,078 in private funds, to 58 organizations in 23 states, the District of Columbia and the Virgin Islands to be made by the National Endowment for the Arts. Nancy Hanks, chairman of the council and the endowment, stated that "while conservation and renovation are primarily local responsibilities, the council hopes that federal funds from the endowment will help focus attention and encourage increased private and local/state support."

The grants in conservation are aimed at "strengthening established conservation centers and creating new centers to serve whole regions, training more qualified conservators and encouraging museums to develop long-range plans to meet their conservation needs." Renovation grants will enable museums to assess requirements for security and environmental control and will help in installing control systems and equipment.

Application grants for fiscal 1973 must be received no later than December 1, 1972. For additional information, write the National Council on the Arts, Washington, D.C. 20506.

#### AAUW Grants for Architectural Study Expand Scope of Fellowship Program

For the first time, the American Association of University Women has awarded graduate fellowships to students who will be working for master's degrees in architecture and environmental design. The four are Belinda Carol Reeder, Richmond, Va.; Sandra Moore, Trenton, N.J.; Andrea Nagode, Boston; and Mary M. Murtagh, Fort Lauderdale, Fla.

Nationwide competition for the 1972-73 grants was keen, said Dr. Elizabeth B. Stanton of Athens, Ohio, chairman of the Committee on Fellowships to American Women. She reports that there were 10 well-qualified candidates for each of the doctoral fellowships awarded—83 in all to women from 27 states and the District of Columbia—and that 19 in the professional fields were selected from a top-flight group nominated by professional schools around the country.

Individual stipends range from \$2,500 to \$6,000, with a grand total of \$300,000 being awarded this year.

#### \$1 Billion Complex Under Construction East of the Loop in Chicago

"Exciting and innovative" is the way Chicago's Mayor Richard Daley describes an in-city office/residential/recreational complex that is rising on the shores of Lake Michigan. Illinois Center, a \$1 billion development of offices, hotels, shops and apartment buildings on an 83-acre site east of the Loop is programmed for construction over the next 20 years. The site, formerly a railroad yard, is bounded by Lake Michigan on the east, Randolph Street on the south, the Chicago River on the north and Michigan Avenue on the west. The complex is a joint venture of Metropolitan Structures and Illinois Center Corporation, a subsidiary of Illinois Central Industries.

Illinois Center will have 9 million square

feet of office space; up to 15,250 apartments; 4,500 hotel rooms; and 1.4 million square feet of commercial and retail space. There will be 35,000 to 50,000 permanent residents, plus a daytime working population of about 80,000. There will be educational and medical facilities, a six-acre park, an esplanade on the Chicago River, arcades for shopping, restaurants and entertainment and cultural cen-

ulation; arcade/promenade level with walkways, shops, restaurants, theaters and no vehicular traffic; auto level with arterial thoroughfares for vehicle traffic; and service level for trucks and commercial traffic.

Many traffic and parking studies were made with the results incorporated in the planning. The complex will introduce new traffic separation techniques to Chicago.

#### Message from President Nixon on Design Stresses Federal Architecture Quality

President Nixon has asked the National Endowment for the Arts "to appoint a special ad hoc task force committee to review and expand the publication *Guiding Principles for Federal Architecture*," which was issued by President Kennedy and reaffirmed by President Johnson. Architectural critic Wolf Von Eckardt, Hon. AIA, has commented that the recommendations from the government itself to date have "met with sullen silence" and that "the General Services Administration, which is in charge of the design, construction and furnishing of government buildings, proved particularly adamant in brightening the mediocrity of its red tape."

The principles assert that "major emphasis should be placed on the choice of designs which embody the finest contemporary American architectural thought" and that "design must flow from the architectural profession to the government, and not vice versa." Also it is stated that "the advice of distinguished architects ought to, as a rule, be sought prior to the award of important design contracts."

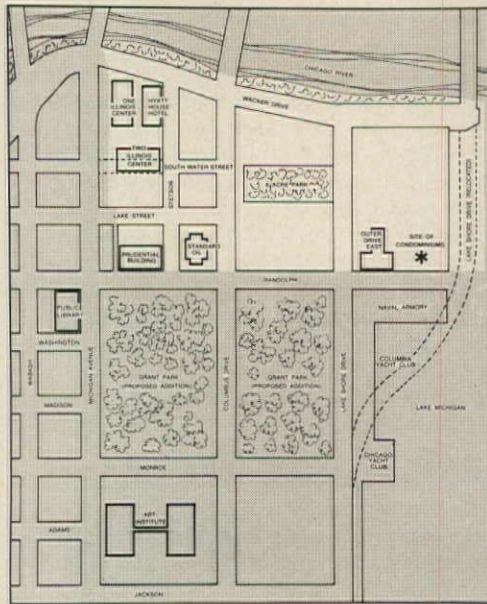
Nancy Hanks, chairman of the council, read the President's message to the assembly and said that Mr. Nixon's words reflect "his understanding of an attitude in the country regarding the importance of quality and beauty as they affect our everyday lives." He also endorsed an annual Design Assembly for federal administrators and artists and initiated programs to improve federal graphics and publications.

Miss Hanks has named Bill Lacy, AIA, director of Architecture + Environment, National Endowment for the Arts, executive director of the ad hoc task force committee referred to in President Nixon's message.

#### Good Design for Small Federal Building, Architectural Competition Asked of GSA

The Ann Arbor, Michigan, City Planning Commission has unanimously passed a resolution concerning excellence in design of a federal office building to be erected there. The resolution and a letter from Planning Director Michael R. Prochaska have been forwarded to Robert L. Kunzig, administrator of the General Services Administration, in which a recommendation is made that the Ann Arbor Federal Building "be made a model of outstanding design in a small government building."

Arguing that the nation's population "is going to be encouraged to settle in smaller cities" and that architectural talent "be redirected toward the smaller central city," Prochaska states that small city office buildings for the most part have been "miniature ver-



The map shows building progress in first phase of construction; One Illinois Center, a 30-story office building, is completed.

ters. The most sophisticated communication, fire and security systems available will be included.

Already completed or under construction are: a 35-story office building; a twin-tower office building; Standard Oil Co. Office Building; Hyatt Regency Chicago, the city's first major downtown hotel to be built in 20 years. Architects are the Office of Mies van der Rohe and Solomon, Cordwell & Buenz, both headquartered in Chicago. The unusual design concept is for a multilevel deck with space divided according to function: plaza level for local traffic serving the center's pop-

sions of design solutions originally developed for big cities." He voiced misgivings about proposed GSA "purchase contract authority to give developers responsibility for the design as well as the construction of government office buildings."

The planning commission has asked that a national architectural competition be held for the purpose of choosing the architect and the design for the proposed federal building.

### Arts Festival Called a Great Success, Baltimore Chapter AIA Participates

The Baltimore Arts Festival, held recently, is an annual four-day affair which takes place in the Charles Center urban renewal area. More than 200 local artists participated in the event. Along with their displays were continuous demonstrations of crafts and live entertainment. There were a sculpture exhibit and a sidewalk cafe.

The Baltimore Chapter AIA always lends a hand for the festival, and Thomas Jewell, AIA, is a yearly member of the Festival Steering Committee. This year the chapter participated with even more than its usual enthusiasm. Its Special Task Force Committee, which was formed to handle innovative projects concerning the architectural profession and the community, decided to become



Visitors to the festival enjoy the Architectorium planned by the Baltimore Chapter AIA.

more deeply involved in the festival and to increase the architectural participation.

The overall planning and design of the festival were contributed by Meyers & D'Aleo, Inc. Under the chairmanship of Richard Donkervoet, AIA, the task force planned the "Architectorium," which was designed and executed by Nathan Leblang, AIA.

Architectural firms submitted display boards and graphics for the Architectorium, as did the Neighborhood Design Center, Baltimore's effective Community Design Center. The chapter designed a logo especially for the festival for use on buttons and bumper stickers that were given to visitors to the Architectorium. It also gave a successful cocktail party for community leaders during the festival. The chapter did even more to make this year's festival a memorable event, including the placement of an ad in local newspapers to help publicize the occasion.

### Council in Chicago Recommends Plan To Assure Contractor Competency

An efficiently run construction project, completed in a minimum amount of time and in a competent and sound manner can only be accomplished if the contractor selected is capable of performing properly.

This opinion is expressed in a recommendation on "Bidder Qualifications" issued by the Construction Industry Affairs Committee of Chicago. The committee is composed of representatives from the Chicago Chapter AIA, the Mechanical Specialty Contractors Associations, the Chicago Chapter of the Associated General Contractors, the Consulting Engineers Council of Illinois and the Chicago Chapter of the Construction Specifications Institute.

It is unfair to the owner or the bidder to wait until bids are in to determine whether the low bidder should be awarded the contract, the committee says. The bidder suffers the expense of preparing a proposal, and the owner runs the risk of awarding a contract to a contractor who is incapable of performing the work properly.

The recommendation declares that it is "imperative that the current status of prospective bidders be made available to the construction user in ample time for a proper evaluation of his qualifications before the bidding documents are issued."

The bidder candidate should be examined on the basis of information supplied both by himself and others. The committee has prepared a "Confidential Qualification Form" to give information about the contractor's financial status, organization, experience, availability and references.

A copy of the committee recommendation, a project information form and the bidder qualification form may be obtained from the Construction Industry Affairs Committee, Suite 1553, 228 N. La Salle St., Chicago, Ill. 60601.

### NAHB Membership Hurdles 60,000 Mark, Convention Moved, New Headquarters

Membership in the National Association of Home Builders is now at 61,000—and still increasing. Action by its board of directors at the spring meeting recently took this advance in membership into account when it decided to move the association's annual large convention and exposition from Houston to Dallas beginning with the 31st annual session in 1975 and continuing through 1976 and 1977.

NAHB's board also voted to build an \$8 million National Housing Center and headquarters building in Washington, D.C., to replace outgrown facilities.

Board action withdrew support of legislation that would have created a federal Department of Community Development as a reorganized replacement of the Department of Housing and Urban Development and opposed President Nixon's plan to transfer housing programs of the Farmers Home Administration to the proposed department.

Its Institute of Environmental Design has suggested that "particular attention" be paid to "environmental pollution, historic preser-

vation, open space development, consumer affairs, public education and other slow-changing but far-reaching aspects affecting the development of housing." Aid of housing products manufacturers is being enlisted to develop "more useful solutions to architectural and planning design problems."



The Victorian mansion is a beautiful reminder of those past days of gracious living.

### Victorian Architectural Pacesetter Made a National Historic Landmark

The Lockwood-Mathews Mansion in Norwalk, Conn., has been designated as a Registered Historic Landmark under the provisions of the historic sites act of 1935. Appropriate ceremonies were held recently at which time a plaque was presented to Mayor Donald Irwin which has been placed beside the main entrance to the house.

Designed by architect Detlef Lienau in 1864 for financier LeGrand Lockwood, the mansion contains 60 rooms and 14 bathrooms. It is believed that Frederick Law Olmsted landscaped its 30 acres of ground at a later period. The mansion is noted for its parquetry and marquetry, its painted ceilings and etched glass.

From 1876 to 1938 the mansion was in the hands of the family of Charles D. Mathews, and then it was sold to the city of Norwalk, present owner of the house and its surrounding grounds.

In 1962 a group of citizens banded together to work toward saving the Victorian house from destruction. The Junior League of Stamford-Norwalk, Inc., took charge of the mansion in 1966, and its members and other concerned citizens formed the Lockwood-Mathews Mansion Museum. Richard Bergmann, AIA, is architect in charge of restoration and John Milner, AIA, is consultant. The aim is to recreate the 1865-75 era of the house as closely as possible. It is hoped that the history of the grounds will be researched for an accurate restoration of the original property.

The mansion is used by the community for a variety of activities. It is open to visitors every Sunday afternoon for guided tours of its elegant ground floor rooms.

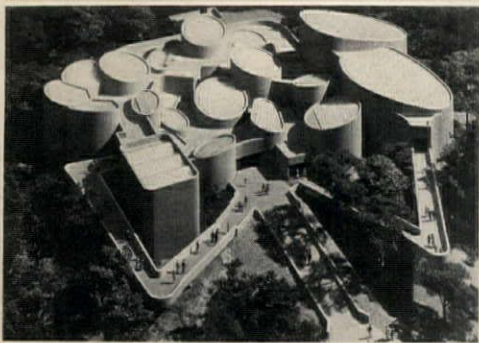
### New Concept in Bird Exhibition at Zoo, Six Years in Planning, Construction

The Bronx Zoo in New York recently opened a dramatic "World of Birds" exhibit building. The \$4 million structure was a gift of

Mrs. Lila Acheson Wallace, who with her husband publishes the *Reader's Digest*. To the visitor, it seems as though each of the 25 exhibit areas is an enclosed slice of nature with plants, live trees and birds in happy combination.

Morris Ketchum Jr., FAIA, of New York City worked closely with the New York Zoological Society in designing the 30,000-square-foot structure. There is a series of large interconnected cylinders with skylight roofs whose height and angle are arranged to admit maximum daylight. Most of the exhibit areas are either glass- or open-fronted. Visitors enter directly into two huge two-story exhibit areas and view the birds from an angled walkway. The building, which also contains a small theater, art gallery and lounge, has no foundation as such; its concrete block walls rest on a large rock outcropping.

There are built-in watering systems and an elaborate climate control plan. The equip-



Skylights admit maximum sunlight to the dramatic bird exhibits within the cylinders.

ment operates through a complex of hot and cold water pipes and air ducts. Each habitat has individual heating units, supplementing the central heating unit.

Ketchum's firm also designed the Bronx Zoo's "World of Darkness," another exhibit building devoted to nocturnal animals, where day becomes night for the zoo visitor. He has also collaborated on a comprehensive master plan for the Bronx Zoo.

#### Chicagoan Will Combine Graham Foundation Duties with Practice

Carter H. Manny, FAIA, a partner in the Chicago architectural firm of C.F. Murphy Associates, has been appointed new director of the Graham Foundation for Advanced Studies in the Fine Arts. A trustee of the foundation since its inception, Manny will continue with his regular professional activities while also serving as director.

The foundation was founded by the late Chicago architect, Ernest R. Graham. It has provided grants for study in the area of contemporary architecture, for planning and research into the solution of urban problems and for other of the arts as they may relate to architectural situations. It has also given direct assistance to individuals and to major museums and universities.

The foundation's headquarters are in Chicago in a restored house known as the Madlener Residence which has been designated as a landmark of Chicago architecture.

#### Newslines

■ **Housing for the elderly** is being funded at an all-time record by the Department of Housing and Urban Development this fiscal year. Under HUD's public housing and Section 236 subsidized rental housing programs, 66,000 specially designed units will be funded. Also accommodations for over 14,000 people will be provided this year under the nursing and intermediate care facility program and a substantial number of this year's nearly 600,000 HUD-assisted housing units will be utilized for the elderly. HUD also will extend the mortgage maturity for its FHA-insured nursing home program up to a maximum of 40 years.

■ **The National Sculpture Society** recently presented its Henry Hering Medal to the Toledo architectural and engineering firm of Richards, Bauer & Moorhead for its design of the Ohio State University Student Union Building.

■ **Improved thermal treatment** of homes and apartments would reduce the nation's use of gas, oil and electricity for heating and air-conditioning by 8 to 16 percent over the next 10 years, according to a study recently published by the National Mineral Wool Insulation Association, Inc. Entitled *Impact of Improved Thermal Performance in Conserving Energy*, the publication is available from the association, 211 E. 51st St., New York, N.Y. 10022.

■ **Archibald C. Rogers, FAIA**, vice president of the Institute, has been named Graduate School Alumni Trustee of Princeton University by vote of the entire alumni body. He will serve a four-year term on Princeton's governing body.

■ **Architects who design health facilities** will find many inexpensive but extremely useful publications listed in "Publications Report" issued by the National Center for Health Services, Research and Development, Department of Health, Education and Welfare. Copies of the catalog may be obtained from HEW, Public Health Service, Health Services and Mental Health Administration, Rockville, Md. 20852.

■ **Wayne S. Hertzka, FAIA**, chairman of the board of the architectural firm of Hertzka & Knowles in San Francisco and former vice president of the AIA, was recently appointed by Governor Ronald Reagan to the new California Council of Product Design and Marketing. He is the only architect named to the council.

■ **Reduction of costs** of light-frame construction is highlighted in the *Manual of Lumber & Plywood Saving Techniques*, available for \$3.50 from NAHB Research Foundation, Inc., P.O. Box 1627, Rockville, Md. 20850.

■ **An information packet**, "Preservation for the Bicentennial," may be ordered for \$3 from the National Trust for Historic Preservation, 740 Jackson Place N.W., Washington, D.C. 20006.

■ **Richard Meier, AIA**, of New York City has been awarded the Arnold W. Brunner Memorial Prize in Architecture by the National Institute of Arts and Letters.

■ **The Los Angeles Architectural and Building Products Mart** will be established early next year. Display spaces will be available by January 1, and by spring 1974 a total of 200,000 square feet of indoor exhibit space and 80,000 of outdoor space will be ready. The new center is located at 1625 W. Olympic Blvd., Los Angeles, on the periphery of the downtown.

■ **John R. Baldwin**, Armstrong Cork Company, was re-elected president of the Producers' Council, Inc., at its annual meeting in Houston.

■ **Natural disaster prevention** is highlighted in a bibliography prepared by the Royal Institute of British Architects and available at the cost of \$5 from the General Secretariat, International Union of Architects, 4 Impasse d'Antin, Paris 8, France. Its title is *Natural Disasters: A Selective List of Publications in English*.

■ **All billboards will be banned** in San Diego with a phase-out of the 2,000 advertising signs along its streets and highways. The ordinance passed by City Council members recently includes a schedule for removal by April 1, 1973, of all signs valued under \$500, allowing up to four years for removal of those with a market value of more than \$20,000.

■ **Clarence Kivett, FAIA**, chairman of the Kansas City architectural firm of Kivett & Myers, recently was presented the 1972 distinguished alumnus award from the University of Kansas School of Architecture and Urban Design.

■ **The Italian government** recently honored four Columbia University experts on Italian art and architecture by awarding them the title of Commendatore dell' Ordine al Merito della Repubblica Italiana, accompanied by a medal. Recipients of the awards were Romaldo Giurgola, AIA, Ware Professor of Architecture; Mario Salvadori, professor of civil engineering and architecture; Janos Scholz, member of Columbia's Art History and Archaeology Advisory Council; and, posthumously, Rudolf Wittkower, who was Avalon Professor Emeritus in the Humanities at his death last October.

■ **Robert Martin Engelbrecht, AIA**, of Princeton, N.J., has been appointed to the National Academy of Science's Building Research Advisory Board. He served three terms as director of the Academy's Building Research Institute. All BRAB members are appointed as individuals, not as representatives of any organization.

■ **Plumbing and waste vent systems** will be studied in an 11-story laboratory to be built on the campus of the Stevens Institute of Technology in Hoboken, N.J. A contract was awarded by HUD to American Stand-



ard, Inc., for the building which will become the property of the college upon completion. The laboratory tower, designed to test innovative plumbing systems, has been planned by the Somerville, N.J., engineering firm of Tectonic Associates.

■ **The Pacific Design Center** has been established at 8900 Beverly Blvd. in Los Angeles to provide 700,000 square feet of showroom and exhibit space for the contract, interior design, decoration and furnishings trades. Its new building, designed by Gruen Associates, will be under construction by this winter.

■ **Richard G. Stein, FAIA**, of New York City has been awarded the 1972 Arnold W. Brunner Scholarship by the New York Chapter AIA to continue study on architecture and energy.

■ **The American Concrete Institute** issues nearly 300 publications. A free catalog may be obtained by writing ACI, P.O. Box 4754, Redford Station, Detroit, Mich. 48219.

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**Deaths**

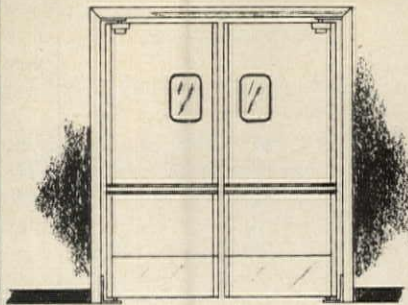
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*Lakeland, Fla.*
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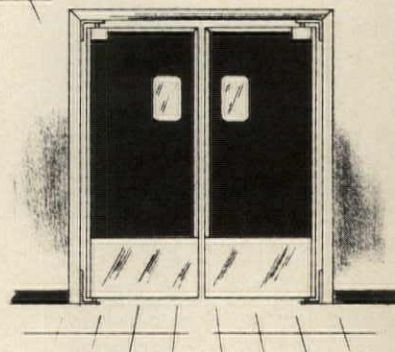
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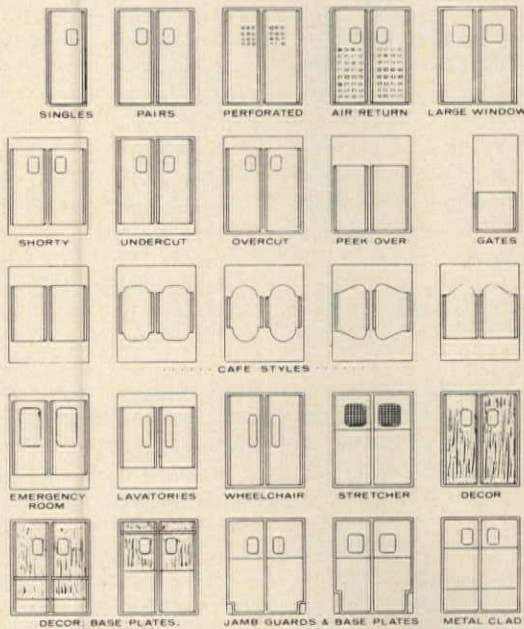
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**Architecture and Color.** Waldron Faulkner, FAIA. New York: Wiley-Interscience, 1972. 146 pp. \$12.75 members, \$14.95 nonmembers.

This is a concise, interesting and informative book about a part of architecture that is all too often neglected by the profession. The author, developing his thoughts on the matter from simple to complex, has done a thorough job. He is aware of the problems confronting the practicing architect in the selection and coordination of colors. He stresses the importance of fully developing the color possibilities of a building. As he states frankly in his discussion of the manner in which final colors are often selected, "All this must usually be done under great pressure to meet fixed deadlines."

It is obvious that a great deal of time was spent in the preparation of the book. The completeness of the coverage of all aspects of color reflects Faulkner's years of work with The American Institute of Architects and the Inter-Society Color Council. The insertion of many appropriate quotations at the bottom of various pages, often poetic, adds insight and gives the reader an understanding of the text. They are a welcome innovation.

The first section of *Architecture and Color* explores the many esthetic aspects of color. A discussion of symbolic color is well justified. The part of "functional color" explains such uses of color as identification, visibility, emotional effect, etc.

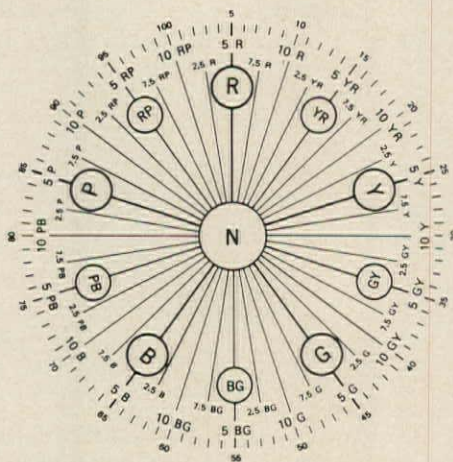
In a part of the book entitled "The Selection of Building Materials," the author describes the types of samples available from manufacturers and distributors and points out the advantages and, more often, the disadvantages of these samples. He makes a plea for industrywide color standards with reasonable tolerances and for better control in manufacture. As a rebuttal to the argument that color standards would limit manufacturers, he claims that in addition to the standard industrywide colors, each manufacturer would be free and able to produce any special colors that he might wish to or which he might be requested to do.

Faulkner describes his work on ISCC Subcommittee, Problem 17, Color in the Building Industry, which set up standards for the color classification of limestone. He also cites the success of work done in England by the Royal Institute of British Architects and the Paint Industry Committee in establishing standards for a specific number of house paints.

In the discussion of colored building materials, Faulkner gives a brief but accurate description of most of the materials in use today. One wishes for many more color plates, however. There are eight of them of various materials that are intended to indicate to manufacturers the high quality reproduction

necessary to make photographic samples useful to the architect.

The second part of the volume is devoted to an illustrated discussion of the technical aspects of color, color definition and color measurement. Colorimetry and spectrophotometry are closely examined. In addition,



The Munsell hue circle

several systems of scientific color arrangement in use today are outlined and their advantages and disadvantages noted.

In the section on "A Universal Color Language," the author explains the method used for six levels of color description and categorization. The method was originally published in a paper by Kenneth L. Kelly called "A Universal Color Language" (*Color Engineering*, March/April 1965). This system was endorsed by the AIA Board of Directors in 1970. At the first level, a color may be described by using one of 13 designations, such as "brown carpet." At the second level, there are 29 designations, i.e., "yellowish brown carpet," while at the fifth level, there are 100,000 divisions with the color described in terms of the Munsell System.

The final chapter of the book is devoted to a discussion of color harmony. Faulkner describes this as a matter of likes and dislikes which result from the juxtaposition of colors selected according to an orderly plan that can be recognized and emotionally appreciated. This relation between harmony and the selection of color "according to an orderly plan" is based upon the Munsell Color Solid and, according to the author, should appeal to architects. It means that the selections are not left to pure chance. For example, in the Munsell Color Solid, colors having one attribute in common lie in the same plane or surface. Colors with the hue lie in the same vertical plane. Colors of constant lightness lie in the same horizontal plane and colors with constant saturation lie in the same surface of a cylinder whose axis

is centered on the neutral pole of the color solid.

The book contains valuable and helpful information for architects, builders and manufacturers of building materials. It is required reading for those who are interested in color.

ALBERT O. HALSE, AIA

**After the Planners.** Robert Goodman. New York: Simon & Schuster, 1971. 231 pp. \$6.95.

My encounter with this book came at a moment when I felt low about the planning profession. I had returned from an environmental conference at a university where for three days I had listened to lectures which, to me, had little connection with daily realities and human needs.

The "new academia," I thought, had retreated into pure research, esthetics and doctoral dissertations. Inhabiting beautiful and secluded campuses and enchanted by its own importance, the university population seemed to have become an elite unresponsive to its dynamic mission in society.

But even before opening *After the Planners*, a bold-printed statement on the dust jacket caught my eye: "We architects and urban planners aren't the visible symbols of oppression, like the military and the police. We're more sophisticated, more educated and more socially conscious. We're the soft cops."

What kind of school would produce a Robert Goodman? As I found, he is a product of a "regular" school, but he learned the things he now advocates later. "In architectural schools," he writes, "we were told that the most important thing to do was to make a 'strong statement.' We were told to be the 'Master Builders,' setting the pattern of new visual conditions for people to perceive." But how did he overcome his "education?" I suppose like most other students who outgrow the shallowness of the academia. "It was only after I left school and began to work with people who had little to do with 'architecture' that I realized how far removed the profession had become from real needs," Goodman comments.

In searching for the nature of people's "real needs," Goodman made two discoveries: One is socioeconomic, the other personal. His own search "for the role as a person with planning skills, in a movement of people trying to change this society," he recalls, led him to work with the underprivileged and through them to become an advocate planner.

He was the founder of Urban Planning Aid and one of the organizers of the "Architects Resistance" group. "Working with a number of architects, city planners, engineers and other urban specialists, I offered my services to neighborhood people who were usually poor and sometimes black. Since that time I have come to realize that it was not lack of expertise that was at the root of these communities' problems," he writes. This realization led him to a string of socioeconomic "discoveries" which he describes.

Here the book is at its best. It is rich with reflections on the urban crisis and its contemporary and historic ramifications. We

read about the FHA, HUD, OEO, zoning, land speculation, racism, unemployment, the urban industrial planning complex and the Establishment's urban strategies. Goodman sees through his "elitist" colleagues as well as the "strategists" in public offices. He is not fooled by the esthetic gamemanship that substitutes symbolic architecture for social compassion.

His coverage of the socioeconomic aspects of the American urban crisis and architecture takes in such diverse figures as Moynihan and Logue, Le Corbusier and Breuer, Buckminster Fuller and Soleri and Louis I. Kahn and Venturi. His comparisons of the pictures of the new Department of Housing and Urban Development building in Washington, D.C., with the Third Reich in Berlin—or Le Corbu's Voisin plan (1922) with New York City's view of highrise housing (1968)—show the depth and breadth of Goodman's social consciousness and knowledge of architecture and urban design.

This book was not written in a vacuum, of course. In fact, it should be viewed, and read, as a component of a new social philosophy revealed in such recent books as *The Making of a Counterculture*, *The Greening of America*, *The Pursuit of Loneliness*, *The Urban Guerrilla*, *The Struggle for Justice* and *The Dissenting Academy*. Only then can one appreciate fully the impact of Goodman's thought. This richly illustrated book should be a "must" for architects and planners in practice or education. It is an important book.

JAN REINER  
Architect  
St. Petersburg, Fla.

**Suburban Land Conversion in the United States: An Economic and Governmental Process.** Marion Clawson. Baltimore: Johns Hopkins Press, for Resources for the Future, Inc., 1971. 406 pp. \$12.50.

It is increasingly accepted, reluctantly by some and enthusiastically by others, that urban growth through the balance of this century will occur largely on the edges of metropolitan areas. Clawson calls this growth process "suburban land conversion" and has written this book with the basic premise that we as a nation can produce much better suburban land conversion than we have in the past.

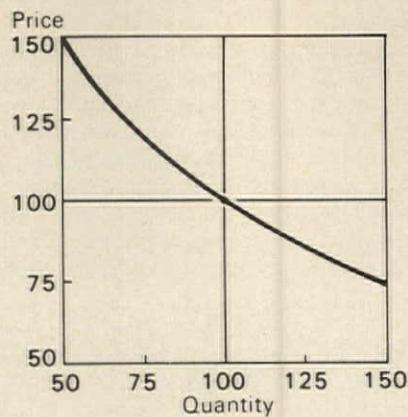
This reviewer felt quite comfortable with the familiar diagnoses of the problems and the frequently discussed treatments. This could be an indictment of this somewhat wordy and overqualified book, but it is not. Almost nowhere before has such a perceptive and thorough discussion of the problems, the process and the potential solutions been contained within the covers of a single book.

Architects and planners who are concerned about the urban design aspects of accommodating the expected 60 million additional Americans by the year 2,000 will find this book's insightful analyses and thorough coverage a timely reference work.

The book is particularly interesting for the AIA which through its National Policy Task Force is formulating a policy on urban growth and the means of implementing such a policy.

Clawson's recommendations include strengthening zoning by requiring that it be

based on comprehensive plans; improving local governmental institutions; public acquisition of large amounts of land to control growth; maintaining income as a fundamental way of improving the environment for the poor; changing tax laws to stimulate building as, for example, by ending multiple depreciation on rental property; involving the states to a greater extent in planning and controlling metropolitan development; and finally, increasing radically the amount of ur-



Suburban housing in relation to its price

ban research so that a logical base can be developed for urban planning.

While none of these recommendations is new, the explanation of their interrelationships and relevance to the process of land conversion is. For too long we as a profession have been proffering solutions whose implications we do not fully understand. Clawson's book is part of the beginning of an effort that our profession and the nation must make in understanding where and how the government should intervene in the urbanization process.

MICHAEL B. BARKER  
Administrator  
Department of Environment and Design

**Architecture in Wood.** Edited by Hans Jurgen Hansen. New York: Viking Press, 1971. 288 pp. \$40.

The coffee table genre is an interesting segment of the publishing industry. Usually brought out just before Christmas, these lavishly illustrated tomes on insignificant subjects are given back and forth and then forgotten. It's profiteering of our compulsive consumption and our guilt-ridden need to give presents to people we don't like.

This example, however, is so well done that it makes one forget all the plotting on our pocketbooks. Too good to give away, this book will be in your family for several lifetimes. Covering two continents and several centuries, the text unobtrusively informs the senses. All the favorites are there, up to the turn of the century. The only two modern examples are a Wright and a Pallesmaa.

There are some minor objections. The brilliancy of the Ektachromes are hard to believe. Although they make incredible photographs, you know in your heart that the buildings really don't look like that. Also there are few color pictures of wood itself. Basically, the color photos are of painted buildings, and the black and whites are of natural wood structures. Yet wood left to

itself, depending upon species and climate, will display an enormous range of colors.

But this is carping, really, and may be cause for a different book altogether. In the meantime, buy this one, or at least go to your bookstore and look at it surreptitiously.

DAVID CLARKE  
Executive Secretary  
Association of Collegiate Schools  
of Architecture

**1972 AIA Membership Directory.** Washington, D.C.: The American Institute of Architects, 1972. 303 pp. \$5 members, \$25 non-members.

Invaluable for architectural offices, trade and professional associations, architectural schools, university and public libraries and others, this directory contains a complete listing of all AIA members and their addresses and chapter affiliations as of March 1972. Fellows of the Institute are noted in a separate section with addresses in the main body of the directory.

The book also contains a list of AIA officers and board of directors and principals on the headquarters staff. There is a description of the Institute's medals and awards and names of the distinguished persons and organizations who have received these honors, as well as of those persons upon whom the AIA has conferred honorary membership and honorary fellowship.

Also the book gives names and addresses of state architectural boards, of component presidents and executives and of associated organizations. The nation's professional and trade associations of primary concern to the architect are listed alphabetically with addresses and names of head officials.

The AIA's scholarship program is outlined, followed by addresses of architectural schools. Also included are titles and addresses of foreign architectural societies which are members of the International Union of Architects.

In brief, this is a reference book to which the architect will turn every day, in all probability, and which no library of any considerable size can be without.

**The Environment Index 71: A Guide to the Key Environmental Literature of the Year.** New York: Environment Information Center, Inc., 1972. 582 pp. \$75.

The Environment Information Center, publisher of this volume, is an independent organization whose main purpose is "to facilitate access to environmental information and to increase the speed with which it can be assimilated." Its services include a twice monthly abstract journal called *Environment Information ACCESS* that covers 1,000 journals, government documents, books, films and legislation. The present index is an annual cumulation of data from the journal, the intention of which is to give a reader's guide to the key environmental literature of 1971. The plan is to publish the index yearly.

The major portion of the volume is a subject index arranged by key word with information given about the title of the work, source, date of publication, volume and number if a periodical, page number, length and accession number which permits loca-

tion of the abstract in ACCESS. If an asterisk is used, it indicates that the document is available on microfiche. Information is given about how to obtain abstracts or full transcripts of the indexed materials (except books).

Among the subjects indexed are such topics as "American Inst of Architects," "Billboards," "Junkyards," "Smog," "Zoning," etc., etc. The AIA JOURNAL is among the magazines covered.

In addition to 42,000 citations by subject, the volume includes an array of helpful information including a listing of all patents issued for pollution control devices in 1971, a survey of the year's environmental legislation with a summary of the current status of major bills, a guide to significant environmental books published last year, a select listing of recent films, and a newly revised directory of state pollution control officials.

This is a valuable reference work, especially for university, public and special libraries.

**Design & Planning.** Series Editor: Paulhans Peter. New York: Van Nostrand Reinhold, 1972. 4 vols. Each: \$12 hardbound; \$7.95 paperbound.

Four volumes have been published in this new and commendable series that is intended as a tool for architects and planners. Each volume is devoted to a specific building type with examples of recent structures that are considered worthy of inclusion. Each volume is filled with helpful floor plans, elevations, specifications, etc., including costs.

The volume on *Libraries for Schools and Universities* is by Friedemann Wild. It contains data and plans for 36 different libraries, 10 of which are in the United States. Emphasis is on open plan libraries, and a range of different sized buildings is given.

Wild is also the author of the volumes on *Factories* and on *Centers for Storage and Distribution*. The former is an analysis of 71 factories from small to moderate size. The production flow for each factory is given. The range of products manufactured in the structures vary and include chemicals, precision instruments, electronic goods, building materials, heavy machinery, etc.

It is hard to find published materials on the building of storage and distribution centers. The volume that covers this building type contains data and plans for 48 such buildings in Europe. The flow of goods into and out of the system is indicated and, where applicable, connections with transportation routes.

The final volume is edited and compiled by James J. Morisseau, a former staff member at Educational Facilities Laboratories. Its subject is *The New Schools*. Only American buildings are included. The volume documents the trends toward open plan, flexible design, giving data and plans for 65 schools.

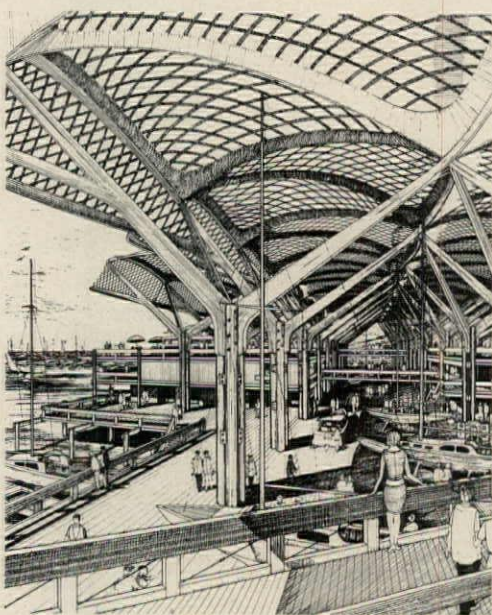
**The Therapeutic Effect of Environment on Emotionally Disturbed and Mentally Subnormal Children.** Kenneth Bayes. London: Privately printed (distributed by the Society for Emotionally Disturbed Children, Montreal, Canada), 1970. 58 pp. \$2.50.

An investigation was carried out in 1965

and 1966 on the value of form and color in the treatment of the emotionally disturbed and the mentally subnormal child. The intent was to collate results of research and to suggest aspects and methods for future research. Many persons, including architects, psychiatrists, educators and sociologists, were consulted, and their findings are presented in this report.

**Architecture in a Revolutionary Era.** Julian Eugene Kulski. Nashville, Tenn.: Aurora Publishers, 1971. 307 pp. \$30.

The author, a member of the AIA and an international urban development and design consultant, here analyzes the trends in contemporary architecture and urban planning. He finds a dichotomy between social psychology and urban design that is the outcome of "viewing architecture as a purely physical creation—mass rather than space—and the tendency in psychology to look at



the interaction of people without relevance to the world of physical space."

There are two parts to the book, the first of which considers space and man's environment. In conclusion to this section, Kulski calls for a development corporation for the nation to provide a new source of funds and innovative ways to implement economic growth and to resolve environmental problems (see his article "Toward a Better Environment," AIA JOURNAL March '71).

The second and major part of the book concerns environmental design of the late 20th century. There are many drawings and photographs here of examples in all parts of the world, many of which are in color. They range from transportation complexes to places of work and learning to "the evolving microshelter."

**The Technique of Drawing Buildings.** Richard Welling. New York: Watson-Guptill Publications, 1971. 157 pp. 10.95.

After telling the reader something about the materials and tools he will require for drawing in line, tone and color, Welling gives him some explicit information on how to render the characteristics of buildings. He explains textures, sunlight and atmosphere

effects, reflections in glass and perspective and proportion. He also has tips on developing techniques and experimenting with different ones. The major part of the book is given over to specific architectural drawing problems and their solutions. A helpful book for anyone who draws or wants to begin.

**Architectural and Interior Models: Design and Construction.** Sanford Hohaus. New York: Van Nostrand Reinhold, 1970. 211 pp. \$20.

An exhaustive treatment of general model making with hundreds of illustrations and charts to provide comprehensive coverage. If models are required, this book will teach you how to build them economically and well. There is detailed information also on how to display and photograph them.

**Contemporary Japanese Architecture.** Maria Lluisa Borrás. New York: Tudor Publishing Co., 1971. 103 pp. \$12.50.

Primarily a book of photographs, the work of Yukio Futagawa, this little volume serves to show what the Japanese are now doing in the design of buildings. The text is in Italian, French, German and English.

**Your Vacation Home: How to Plan It, How to Live in It.** William E. Hague. New York: Doubleday, 1972. 178 pp. \$6.95.

This book may help an architect's client who wants to build a vacation home, although Hague says that "most architects are unwilling to work on a vacation house that costs under \$50,000." There is information for the layman on choice of site and materials, utilities, swimming pools, etc.

**The Work of Frei Otto.** Ludwig Glaeser. New York: Museum of Modern Art, 1972. 128 pp. \$6.95.

Last year the Museum of Modern Art in New York City had an exhibition of Frei Otto's work. This book is based on the exhibition, giving a complete survey of Otto's major executed projects and experimental studies. There are tents, pneumatic structures, lattice domes. In addition to a biographical sketch of the German architect, there is a systematic catalog of his structures with technical data, explanatory text and complementary illustrations. The author, formerly Curator of Architecture at the museum, was director of the exhibition.

**Places and Things for Experimental Schools.** New York: Educational Facilities Laboratories, 1972. 134 pp. \$2.

Gathered up here is a great deal of scattered data about the school environment with names and addresses of people who "know the most about a particular subject." It's really a visual catalog that tells the user how to get more information about such things as found space, modernization of old buildings, mechanical equipment, innovations in furniture, planning procedures, etc., etc. It fairly jumps with ideas about ways to improve schools.

**The World of Art.** Robert Payne. New York: Doubleday, 1972. 534 pp. \$12.50.

This author's account of the "unbroken

sequence" which is the tradition of art is an interesting one. He covers a vast array of eras from the cave paintings to the present. He views contemporary art as "nihilist," a condition we must endure "while the poison works its way out of the physical system of the artists." Not everyone will agree with him that modern paintings and sculptures are "made in derision and hatred of men." But if those who disagree can bear with this opinion, they will find much in the book that is entertaining as well as informative.

**Terminal Iron Works: The Sculpture of David Smith.** Rosalind E. Krauss. Cambridge: MIT Press, 1971. 200 pp. \$15.

David Smith died in an accident with his carryall truck in 1965 at the age of 59. An intensely original creator, he is viewed by many critics as one of America's most important artists. This study of his work by an art historian is a sensitive and scholarly insight into a man whose sculptures are "as yet unrivaled by any artist working in America." Almost 150 halftones of Smith's work add significantly to the text.

**Roman Bath Discovered.** Barry Cunliffe. London: Routledge & Kegan Paul, 1971. 108 pp. \$17.50.

A description of how Roman remains in Bath, England, have gradually been unearthed, and insights into what the town and its inhabitants were like. Well illustrated with drawings, plans and photographs.

**Shelter in Africa.** Edited by Paul Oliver. New York: Praeger, 1971. 240 pp. \$15.

A collection of perceptive essays by architects and planners, anthropologists and writers who are native to the communities they discuss. The contributions range from consideration of the domed dwellings of the Zulu to shelter in urbanizing and industrializing present-day Africa.

**Beyond the Oxus: Archaeology, Art and Architecture of Central Asia.** Edgar Knobloch. Totowa, N.J.: Rowman & Littlefield, 1972. 256 pp. \$10.

The historical and cultural development of Western Turkestan is the focus of this book. Divided into two parts, the first concerns the land and its people; the second is about sites and monuments. It's unfortunate that the beautiful minarets, mosques and mausoleums are not illustrated in color.

**The Arts and Crafts Movement: A Study of Its Sources, Ideals and Influence on Design Theory.** Gillian Naylor. Cambridge: MIT Press, 1971. 208 pp. No price given.

An examination of the handicraft esthetic as it developed in England in the 19th century and its impact on other countries, including the US. Handsomely illustrated.

**Textile Art in the Church: Vestments, Paraments and Hangings in Contemporary Worship, Art and Architecture.** Marion P. Ireland. Nashville, Tenn.: Abingdon Press, 1971. 283 pp. \$27.50.

The aim of this handsome and beautifully illustrated book is to stimulate an interest in the use of creative designs for textiles in the

contemporary church. Any architect, interior designer or artist who is responsible for the beautification of churches will find inspiration here.

**Stately Mansions: Eighteenth Century Paris Architecture.** Michel Gallet. New York: Praeger, 1972. 196 pp. \$25.

A decade of research went into the writing of this contribution to architectural literature. Beginning with an account of 18th century Paris, the author discusses the organization and financial structure of the building industry. Present-day architects will enjoy his chapter on the role and remuneration of architects and their relationship to clients. There are also chapters on taste among the

nobility, the middle class home and the nobleman's hôtel. Gallet considers as well such things as pavilions and follies, artists' and writers' homes and comfort and decoration. Scholars in particular will welcome the extensive register of architects and decorators. There are many illustrations, including photographs of buildings still standing.

**Lost London.** Hermione Hobhouse. Boston: Houston Mifflin, 1972. 250 pp. \$20.

This "catalog of destruction" concerns the buildings of London that have been lost over the last 100 years. Some of the structures were lost in fire and by enemy action in World War II, but most of them have been the victims of "progress." If you think the

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United States is the only place where buildings are destroyed willfully, perhaps you will be surprised that even in countries that have more of a respect for heritage than we do, much of architectural history is passing into oblivion. The only note of cheer is that lovers of London will be glad to have the photographs of past splendors.

**Persia: The Immortal Kingdom.** Roman Ghirshman, Vladimir Minorsky and Ramesh Sanghvi. Photography by William MacQuitty. Greenwich, Conn.: New York Graphic Society, 1971. 224 pp. \$35.

Last year many Americans watched spellbound as television revealed the ceremonies that marked the 2,500th anniversary of the founding of the Persian Empire by Cyrus the Great. The drama of that country's history and the magnificence and opulence of its civilization are presented in this book that commemorates the anniversary. Photography and readable prose by three authorities unite to present a fascinating survey.

**Architectural Drawing and Planning.** 2nd edition. William T. Goodban and Jack J. Hayslett. New York: McGraw-Hill, 1972. 336 pp. \$8.95.

A solid nuts and bolts how-to book for the paraprofessional or beginning professional student. Emphasizing workable procedures for the improvement of drafting techniques, the book has been updated to reflect current practices. This revised edition contains additional explanations and illustrations and a set of light commercial drawings.

**Architectural Design, Site Planning: Past Examinations, Problems, Solutions.** A. M. Kemper. Los Angeles: Architectural License Seminars, 1970. 255 pp. No price given.

This is a catalog of site planning solutions developed by aspirants to the registration examination in a cram course. Here you can see what causes failures or successes and read the jury's comments. You also learn what items the jury thought were important in design and get tips on what constitutes a successful presentation.

Cram courses are not for everyone. Unless you are particularly weak in an area of practice or have been out of school for a long period of time, you can pass the registration exam by allocating a reasonable amount of study at home. The best advice: Be prepared and stay loose. Such books as this one aren't particularly helpful in this regard.

**Examination Handbook 6.** Los Angeles: Architectural License Seminars, undated. 69 pp. No price given.

This is simply an example of a NCARB exam. The questions it poses come close to the real thing. If you are one of those planning to take the exam and want to see something of what it is like in order to study for it, this booklet may be worth your investigating. Just how the new NCARB procedures scheduled for 1973 will affect such a handbook's usefulness is anyone's guess.

**Take Part.** San Francisco: Lawrence Halprin & Associates, 1972. Unpaged. \$2.95.

In response to request for information

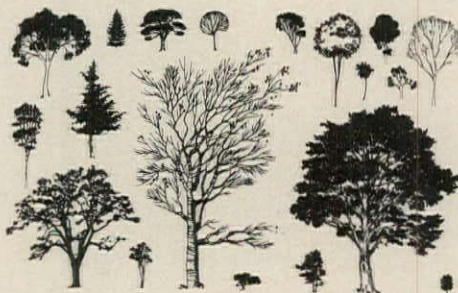
about its multidisciplinary workshops in Experiments for Environment, Lawrence Halprin & Associates has issued this attractive booklet that explains concepts and techniques. Well illustrated, the publication tells of new ways in which people can participate in planning their own environments. It explains what the workshops intend to accomplish, who can participate, why the workshops are used, how they are useful and what they solve.

**City Planning Bibliography.** 3rd edition. George C. Bestor and Holway R. Jones. New York: American Society of Civil Engineers, 1972. 518 pp. \$9.

This revised edition of a work first published in 1962 has 622 more entries than the earlier work, reflecting in some degree the publishing explosion of books and articles about urbanization. The bibliography is divided into three major divisions: nature and form of cities; history of cities and city planning; and contemporary comprehensive planning. About 75 percent of the entries are annotated, increasing the usefulness of the bibliography.

**Instant Landscape Architectural Illustration Guides.** Larry Evans. San Francisco: Instant Landscape, 1972. 30 pp. \$15.

The publisher states that over three years were spent in perfecting these drawings by Larry Evans. They provide a ready source



of reference for the architect who wants drawings of trees, people, cars, etc., for use in renderings.

Simply rendered but effective, the drawings are designed to save time in the architect's office. They are also a source of ideas if he wants to use his own pen.

**A Comprehensive Plan for Downtown Buffalo, New York.** Philadelphia: Wallace, McHarg, Roberts & Todd, 1971. 56 pp. No price given.

This plan prepared by the architectural, urban and ecological planning firm of Wallace, McHarg, Roberts & Todd is for the revitalization of downtown Buffalo. If that city is to "remain fiscally solvent, if it is to offer the high level of service necessary to make it an attractive and humane place to live, then a major effort will have to be made to develop downtown to its full potential." The plan sets forth the ways in which this goal can be accomplished. It considers the long-range plan, the Main Street mall, transportation and transit, the convention center, the community college, housing and, finally, "timing and next steps."

Well illustrated and handsome in format,

the publication will be of interest to anyone concerned about the downtown in any American city.

**The Saving of San Francisco Bay: A Report on Citizen Action and Regional Planning.** Rice Odell. Washington, D.C.: Conservation Foundation, 1972. 115 pp. \$3.

The struggle to save San Francisco Bay from excessive encroachment by developers began a decade ago. This report tells of the beginnings of a citizens' movement and moves on to the strategy and functioning of the San Francisco Bay Development and Conservation Commission, established by the California Legislature to regulate the uses of the bay and to plan its development. The battle is not yet won entirely, but this book functions as a means of taking stock and of recounting accomplishments to date. It also provides an example for concerned citizens elsewhere.

**Environmental Planning and Geology.** Edited by Donald R. Nichols and Catherine C. Campbell. Washington, D.C.: US Government Printing Office, 1972. 204 pp. \$2.75.

Geologists "have long shuddered as they watched structures rise on flood plains, near active faults and on landslide-prone hillsides. Less obvious hazards have also been ignored as man has sought places to live, work and play. For too long, geologists have lamented these actions without admitting and sharing the blame for them."

In order to give geologists an opportunity to present their views about the application of earth science data to planning, a Symposium on Engineering Geology in the Urban Environment was arranged by the Association of Engineering Geologists. This book contains the proceedings of the symposium. It suggests measures that can be taken with environmental planning based upon geologic information.

**Signs, Symbols & Form.** Louise Bowen Ballinger and Raymond A. Ballinger. New York: Van Nostrand Reinhold, 1972. 191 pp. \$18.50.

The husband and wife authors of this book on "one of man's most important and oldest art forms" travel widely, always with a camera ready to capture signs and symbols of merit. The many beautiful photographs collected here are by them as well as the explanatory text. There are signs from almost all parts of the world—the United States, Europe, Bermuda, etc. They vary in materials, being of wood, iron, gold, silver, ceramics, plastic. The book is a source of ideas for anyone who thinks that a sign doesn't necessarily have to be tawdry.

**Mobile Homes: The Unrecognized Revolution in American Housing.** Revised edition. Margaret J. Drury. New York: Praeger, 1972. 234 pp. \$15.

An updated edition of a study first published in 1967, giving the reader more current information on what is happening in the booming mobile home industry.

The author emphasizes the institutional structure of housing, believing this is where we can learn "the most about what we need

to do to change the production and operation of housing" in this country. Of particular interest are the chapter on institutional resistance to the mobile home as a competitor in the housing market, the one that makes recommendations for further research and an appendix on the design of mobile homes and mobile home parks.

**Industrialized Housing: The Opportunity and the Problems in Developing Areas.** Ian Donald Turner and John F. C. Turner. Springfield, Va.: National Technical Information Service, 1972. Various pages. \$3.

In recent years HUD's Office of International Affairs has been called upon to advise housing producers on the appropriateness of industrialized housing techniques abroad. This report's aim is to discuss the design, production and marketing of housing systems and components in developing countries, giving both positive and negative aspects of the subject.

**Housing: New Trends and Concepts.** Edited by Kenneth L. Bernhardt. Ann Arbor, Mich.: Industrial Development Division, Institute of Science and Technology, University of Michigan, 1972. 169 pp. \$3.

Collected here are a number of papers presented at several conferences in 1971. Emphasis is placed upon industrialized housing with consideration given to manufacturing operation, innovations in technology and approaches to marketing.

**Homes and Home Building.** 5th edition. Washington, D.C.: National Housing Center Library, 1972. Unpaged. \$10.

Nearly 4,000 articles are cited in this annual cumulative index to the periodical literature of housing, home and home building and related fields. The selection is made from some 300 journals received in the National Housing Center Library. The arrangement is by subject. The AIA JOURNAL is among the magazines indexed.

**The Ergonomics of Lighting.** R. G. Hopkinson and J. B. Collins. London: Macdonald & Co., 1970. 272 pp. \$12.

A summary of research on the frontiers of lighting technology, particularly those aspects which concern the relation of the physical environment to the individual's subjective responses. Among the topics covered are visual performance, glare evaluation and control, visual fatigue, light source color and color renderings, and apparent brightness and adaptation.

Emphasizing how lighting design can affect the comfort and efficiency of persons, the book gives attention to artificial lighting practices, lighting design in offices and hospitals, and such problems as color, integration of daylight and artificial light and windowless buildings.

**Transportation: Proceedings of the Fifth Boston Architectural Center Lecture Series.** Boston: Boston Architectural Center, 1971. 64 pp. \$5.

This publication evolved from a series of lectures given at the Boston Architectural Center on transportation systems. The five

papers published here are by Serge Chermayeff; Alan Altschuler; Archibald C. Rogers, FAIA; David A. Crane, AIA; William Seifert; and George Wald. They will be provocative to any reader who is concerned about transportation in this country.

Other Boston Architectural Center publications of interest are *Architecture and the Computer* (1964); *The City as a System* (1967); *Forces Shaping the Role of the Architect* (1966); *The New John Hancock Building: An Example of Public & Private Decision Making* (1968); and *Systems* (1970). Each is \$5, including mailing. The address of the center is 320 Newbury St., Boston, Mass. 02115.

**Administrative Manual for Consulting Planners.** Berkeley, Calif.: American Society of Consulting Planners, 1971. Various pages. \$50.

This manual tells the consulting planner how to run his office and is based on the experience and knowledge of ASCP member firms with inputs by the management consulting firm of Case & Company. Among the topics discussed are professional ethics, staffing and personnel relations practices, client relationships and compensation.

**The Pros and Cons in Financial Management for Professionals and Executives.** Victor I. Eber. Miami, Fla.: E. A. Seemann Publishing, Inc., 1971. 156 pp. \$10.

If a professional person wants to put his financial planning on a sound basis, the author advises him to seek the counsel of experts early. Specialists in law, accounting, insurance, taxation, etc., can help him, and it's best to have them work on a fee-for-service basis.

**Engineering Aspects of the 1971 San Fernando Earthquake.** H.S. Lew, E.V. Leyendecker and R.D. Dikkers. Washington, D.C.: US Government Printing Office, 1971. 412 pp. \$3.

Soon after the earthquake struck the San Fernando, California, area on February 9, 1971, the National Bureau of Standards sent a team of engineers to the disaster site to make observations on structural damages. This is a report of the four men who made on-site inspections. Its intent is to serve as a firsthand source of information and to make recommendations. Some definite suggestions are made about the improvement of building and other structural design and construction practices.

**Progress in Construction Science and Technology.** Edited by Roger A. Burgess, Peter J. Horrobin and John W. Simpson. New York: Barnes & Noble, 1971. 322 pp. \$18.50.

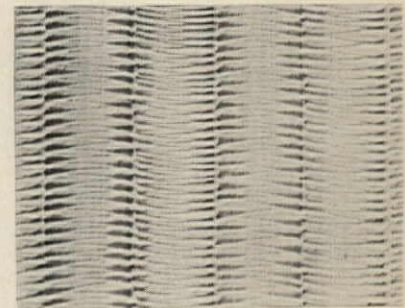
The first of a projected annual series, this book is a review of articles on many aspects of construction science and technology. The topics covered by international experts include sound insulation of partitions; plastics and plastic-based composites; weather as a factor in building design and construction; the computer as an architectural design aid; the weathering of organic building materials; structural fire resistance; etc. □

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## Explaining the Merits of Nonzoning

I have just read the article "Urban Dynamics of Nonzoning" by Joseph W. Santamaria, AIA, which was published in the April issue of the AIA JOURNAL and reprinted in the *Houston Business Journal*.

I wish to compliment the author on his concise and accurate evaluation of our local way of life. It is difficult for public officials like me to explain the merits of our "system" to out-of-town builders and developers and to visiting governmental officials who have never lived here nor done business in a city which functions in an atmosphere based on the free enterprise system and the laws of real estate economics.

The article will certainly be of assistance to me in this regard, and I am sure that it is of interest to many Houstonians who may take life and business in Houston somewhat for granted.

RONALD A. HEISER

Assistant Director  
City Planning Department  
Houston

## Aims of the National Park Service

The publication in the April issue of Devereux Butcher's lengthy letter on "Park Mutilation" and my appointment to a new position in the National Park Service occurred at almost exactly the same time. One of my earliest assignments after joining NPS 15 years ago was to prepare some sketches for the express purpose of convincing Mr. Butcher that the then proposed ramp and viewing tower for Clingman's Dome in Great Smoky National Park were not irreconcilable to the site. I don't know if he was ever convinced, but I do feel that his continuing criticism, offered as constructive advice, is the sort of response essential to the functions of those, like myself, responsible for the achievement of quality in public planning and design.

The NPS system, a conglomeration of almost 300 diverse areas, is different in many respects from what it was in 1935 when the book *Park Structures and Facilities* was published. Many of us in the NPS who are charged with planning and design frequently turn to that book and the subsequent *Park and Recreation Structures* (1938), not for nostalgia or ready-made designs but for a better understanding of tradition and the reinforcement of philosophies regarding park purposes and values.

When we ponder our projects in terms of available means and desirable ends, we consider the current availability and adaptability of log and stone construction systems and question the esthetic desirability and functional value of ox-yoke or wagon wheel lighting fixtures. These books have much to offer, but a clue to the schizoid nature of

much of the criticism of planning and design in parks is provided by the fact that the body of each of the publications is preceded by an "apologia," in effect putting man down as worthless before "nature" and prescribing dicta for everything from siting to the selection of hardware.

I believe that the National Park Service has not permitted itself to become strangled by the standards syndrome or hampered by heavy handbooks. What I would welcome from the readership are objective comments and suggestions concerning planning and design in the parks. Suggestions that would consider the wilderness isolation of an Isle Royale National Park as well as the urban immediacy of a Washington Mall; comments concerning every aspect of planning and design, from circulation systems to incidental graphics.

In direct response to Mr. Butcher's hopes and observations expressed in the last paragraph of his letter, our objective — in design as in service to the public at large — is not to preclude the "freak" because it does not happen to conform to some apologetic dictum of the past. The objective for which we will strive is that of providing parks for use and enjoyment in concord with the protection and preservation of the resources for which they were established.

J. WALTER ROTH, AIA  
Acting Director, Office of Design Quality  
National Park Service  
Washington, D.C.

## Architects Pleased

I should like to express my appreciation for the news item in the June issue on the Built-Up Roofing Systems Institute.

We have held our first two sessions of the institute and have been very pleased with the results. The architects who attended these sessions expressed great satisfaction with the course content and indicated that the time spent was valuable to them.

J. C. ROBINSON  
Director  
Built-Up Roofing Systems Institute  
Denver

## Meeting Students in Great Britain

Last year the AIA JOURNAL published a notice which invited American architects to speak at British schools of architecture. The response was very encouraging, and to date two architects from the US have made successful extended tours of schools of architecture here. They are Stuart A. Kessler, AIA, of the New York City firm of S.J. Kessler & Sons and Rex Lotery, AIA, of Kahn Kappe Lotery, architects and planners in Santa Monica, California.

These architects spoke to students at Newcastle, Bath, Leeds, Nottingham and Univer-

sity College Dublin. Feedback indicates that the meetings were educative and stimulating for both sides and should be developed further. About 10 other offers to speak were received and regretfully turned down because of schedule problems.

I am now planning for the 1972-73 session and wish to hear from US architects who would like to speak to student audiences in schools of architecture in the course of a visit to Great Britain. The Royal Institute of British Architects requests brief details concerning the background and special interests of those American architects who respond. They should indicate whether they prefer to give a lecture or illustrated talk or to hold a seminar or some other form of confrontation.

The RIBA will contact schools of architecture with the aim of setting up a meeting. Speakers do not normally receive a fee, but travel expenses within Britain will be paid if desired. The best months for scheduling the meetings are October through May. I may be written at RIBA, 66 Portland Place, London W1N4AD.

MICHAEL MERCHANT  
Student Relations, RIBA  
London, England

## Serving the Public Interest

It must be tempting for anyone professionally trained in designing new buildings to put down old historic architecture that stands on the site of a pristine project. Obviously, without it the problem of new design and construction is far simpler.

Some architects can cynically refer to the existing old building as "mimicry wallpaper" or contemptuously call it "a wart" that would detract. But whether they advise demolition or design the new in a nose-thumbing way, The American Institute of Architects has committed its members to take a more sensitive course. Even without AIA urging, should responsible architects not respond as professionals with concern for the quality of the man-made environment and the careful evaluation of irreplaceable architecture?

For several generations the Institute has attempted to maintain a public image of leadership both in respect for and preservation of historic architecture. Furthermore, its code of ethics reminds us that "an architect shall above all serve and promote the public interest in the effort to improve the human environment." But the public reads an architect's actions, not his words.

Some individual firms continue to find their own reasons for ignoring these stated obligations. They refuse 1) to use available resources to determine whether a venerable building really qualifies as architecture worth preserving; 2) to exercise imagination and talent in the sympathetic study of various ways of conserving and using the distinguished older buildings (as the AIA has done in the exemplary "show window" case of its new multistory headquarters in Washington, D.C., placed respectfully behind the historic Octagon House); or 3) to lead their clients vigorously as architects to alternative solutions rather than to follow meekly as mere draftsmen the surrogate client's "dictate to demolish."

Practice of this sort is questionable enough



in dealing with domestic, commercial, industrial or institutional work. However, when the commission involves large public buildings or a prominent public square or the preservation or demolition of a 100-year old civic landmark vouched for by local and state historians and even the National Trust for Historic Preservation, then the architectural decision has far wider implications.

Whatever reservations AIA members may have privately, the public attributes the architect's indifference to the size of his fee; they see closed decisions as highhanded and interpret them as a wide credibility gap between the AIA public relations image and the actions of the individual firm involved. Does the AIA code also require the profession to look the other way?

When their cultural heritage is in the balance, the people feel that they have a right to decide the economic issues involved. The attempt to "blame the client" really won't do, at least not for the general public who considers itself the client. Also people have been told that "an architect shall represent truthfully and clearly to his prospective client his qualifications and capabilities to perform services." If he is unable to evaluate historical architecture, or to provide expertise, or to design sympathetically within the given context, should he not so state before recommending demolition of a landmark? How many "Architects' Sundays" are needed to redeem the profession from the actions of a few on weekdays? BUFORD PICKENS, FAIA  
St. Louis

### Prepare Now

The AIA convention in Houston, in retrospect, was excellent in spots but much less so in others. The things that were less than excellent are of concern to me and others—two elements in particular.

The time scheduled for the national growth policy debate was seriously shortened, and the rostrum control of parliamentary procedures was weak through all business sessions. We are called a learned profession, but it seems that there are still areas of our national structure where we are not.

Now is the time to prepare for the corrections to these weaknesses, not a month before the next convention.

CHARLES E. NOLAN JR., AIA  
Alamogordo, N.M.

ED. NOTE: In our view the conduct of the business sessions, while filled with some emotional issues and complicated motions, was done in an unusually fair manner to all concerned.

### Information Requested

Since 1968 I have undertaken research into the subject of artificial stone—its history, secrets and techniques, impact and uses in the fields of civic and landscape architecture, ornament, sculpture, etc. I hope that sufficient data will become available to justify publication of the results of my research.

The subject is frustrating, however, especially in the matter of early discoverers and pioneers in this country, namely, Richard

Holt (with Thomas Ripley or Samuel London), Batty Langley, Daniel Pincot (or Pincat), the Misses Eleanor Coade (with Sealy or Croggon), Van Spangen-Felix Austin-John Seeley, Blashfield, Blanchard, Ransome, et al. Of particular interest to me are the original sketches and drawings of actually commissioned work with details as to their original and present locations.

Any information, including documents, publications, correspondence, illustrations, photographs, ledgers, accounts, etc., will assist me and I will be grateful to receive them. Very great care will be taken of the materials while in my custody.

I will be pleased to supply more details to any reader who has information on my research subject.

PETER A. ROBB  
The Fairway, Keyworthy  
Nottingham NG12.5DU  
England

### Architecture and Photography

It is difficult for me to put into words how pleased I am with the interesting and beautiful presentation of my "Refractions" in the May issue. The insight, layout and introduction are so very much to the point regarding what I have labored so long to achieve. With great perception you have proved my point: the validity of the use of the medium of photography coupled with present-day architecture. Bravo!

PETER FINK  
Photographer  
New York City

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# events

## AIA State and Region

- Aug. 25-26:** Alabama Council of Architects Convention, Grand Hotel, Point Clear, Ala.  
**Aug. 31-Sept. 2:** Northwest Regional Conference, Anchorage Westward Hotel, Anchorage  
**Sept. 14-16:** Architects Society of Ohio Meeting, Sheraton-Columbus Motor Hotel, Columbus, Ohio  
**Sept. 27-30:** South Atlantic Regional Convention, Carolina Hotel, Pinehurst, N.C.  
**Sept. 28-30:** New Jersey Society of Architects Convention, Playboy Club, Great Gorge, N.J.  
**Oct. 11-13:** Central States Regional Conference, Hotel Fort Des Moines, Des Moines, Iowa

## National

- Sept. 7-8:** Structural Fabrication Details Institute, University of Wisconsin, Madison, Wis.  
**Sept. 22-24:** Focus: Shelters for Mankind Conference, California State University, Los Angeles  
**Sept. 24-27:** National Environmental Information Symposium, National Environmental Research Center, Cleveland  
**Sept. 28-29:** Financing and Designing Housing for the Elderly Institute, University of Wisconsin, Madison, Wis.

## International

- Sept. 1-30:** International Housing Exhibition, Santiago, Chile  
**Sept. 10-15:** International Association for Cybernetics Congress, Namur, Belgium  
**Sept. 25-30:** International Union of Architects Congress, Varna, Bulgaria

## Competitions

- Sept. 5:** Entries postmarked. AIA Honor Awards Program. Contact: Mrs. Maria Murray, AIA Headquarters, 1785 Massachusetts Ave. N.W., Washington, D.C. 20036.  
**Sept. 15:** Registration closes. Design competition for the plaza facing the new Rainbow Center Convention Center, Niagara Falls, N.Y. Contact: Charles G. Hilgenhurst, AIA, Professional Adviser, N.Y. State Urban Development Corporation, 1345 Avenue of the Americas, New York, N.Y. 10019.

## Fellowships

- Nov. 1:** Applications due, Grants for study or research abroad and for professional training in the creative or performing arts. Contact: Institute of International Education, 809 United Nations Plaza, New York, N.Y. 10017.

## Call for Papers

- Oct. 10:** Abstracts due, Papers for presentation at the May 7-9, 1973 International Symposium on Urban Housing. Contact: Dr. Vasily Kouskoulas, Civil Engineering Department, Wayne State University, Detroit, Mich. 48202. □

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