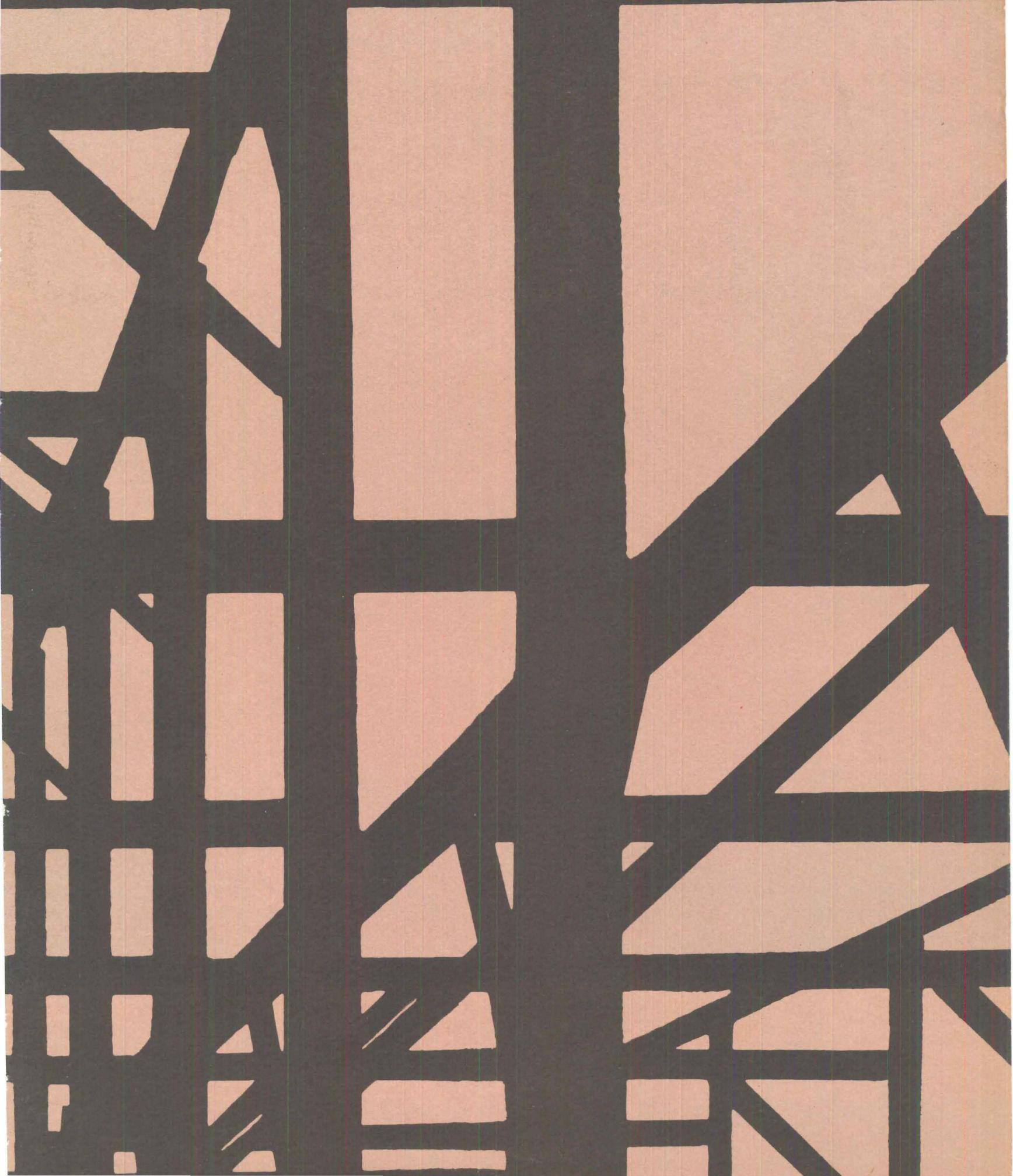


ARCHITECTURAL FORUM THE MAGAZINE OF BUILDING OCTOBER 1962

FORUM





W.S.TYLER elevator cars and entrances equip the new International Building in San Francisco. Architects: Anshen & Allen. General Contractor: Dinwiddie Construction Company. Elevators by Westinghouse. The W. S. Tyler Company, Cleveland, Ohio; St. Catharines, Ontario.  Offices in principal cities.

PUBLISHER'S NOTE

More than half the editorial content of every issue of FORUM is photography, yet the editorial staff of 30 includes not a single professional photographer. Instead, the editors call on the services of many independent architectural photographers, residing in all parts of the country.

During the past 12 months, the work of 132 photographers has appeared in the main editorial section of the magazine. At the top of the list is George Cserna of New York, who carried out 19 assignments for FORUM in nine states and was represented in all but two issues. This month he provided the photographs of the new Bell Labs in Holmdel, N.J. by the late architect Eero Saarinen (page 88). Long a portrait photographer, Cserna, 43, turned to architectural photography five years ago while on a trip through Italy and Greece. These pictures were by chance seen and admired by FORUM's art director, and Cserna has been photographing buildings ever since. Cserna seems to have photographed everything but himself—the only available



CSERNA (right)

self-portrait is his unintentional reflection in the glass wall of the Bell Lab (above).

Two other photographers vie with Cserna for top billing in FORUM: Baltazar Korab of Birmingham, Mich., and Ezra Stoller of Rye, N.Y. An architect by training, Korab, 36, holds a Beaux Arts degree, is registered to prac-



STOLLER Korab tice in France, and expects to earn his U.S. registration next year. He has worked in the design offices of Le Corbusier and Saarinen, and it was in the latter office in 1957 that he began his career in architectural photography—shooting Saarinen models. Among his most memorable recent photographic contributions to FORUM were his beautiful pictures of John Carl Warnecke's Columbus, Ind., school (Aug. '62).

On the basis of his long experience and reputation, Stoller, 46, is recognized as the dean of architectural photographers. He was trained in architecture at New York University, but embarked on photography immediately upon his graduation in 1939. That year he photographed for FORUM a new house by Architects Edward Durrell Stone and Carl Koch. Since then, more of his architectural photographs have appeared in the press than those of any other photographer, and a year ago he was awarded AIA's Architectural Photography Medal for "his unique leadership in raising the standards of architectural photography to a high level of performance unmatched by others." The latest example of his four-color work to appear in FORUM was the sensitive interpretation of Angkor Wat in Cambodia (Feb. '61).

To these and the scores of other unsung recorders of the architectural scene FORUM and its readers owe a deep debt of gratitude.—J. C. H., JR.

BELL TELEPHONE DIALS THE MOON 88

A report on Eero Saarinen's remarkable Holmdel, N.J., labs

HOSPITALS

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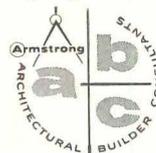
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67	FURNISHINGS		Published monthly by TIME INC., Time and Life Building, Rockefeller Center, New York 20, N.Y. This issue is published in national and separate editions. Additional pages of separate editions numbered or allowed for as follows: Western edition: W-1, W-2. Entered as second-class matter at New York, N.Y. and at additional mailing offices. Subscription price \$7.00 a year. © 1962 TIME INC. All rights reserved. Member, Audit Bureau of Circulations and Associated Business Publications.
87	EDITORIAL		
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This imaginative and practical installation of Armstrong Tessera Vinyl Corlon flooring is on a stairway at the American Society for Metals Building, Metals Park, Ohio—architect John Terence Kelly, A.I.A. The tough, flexible sheet vinyl material is wrapped completely around the stair treads and installed on the tops and undersides of the landings. Versatile as well as decorative, Tessera was used in offices, hallways, the cafeteria, and other areas throughout the building.

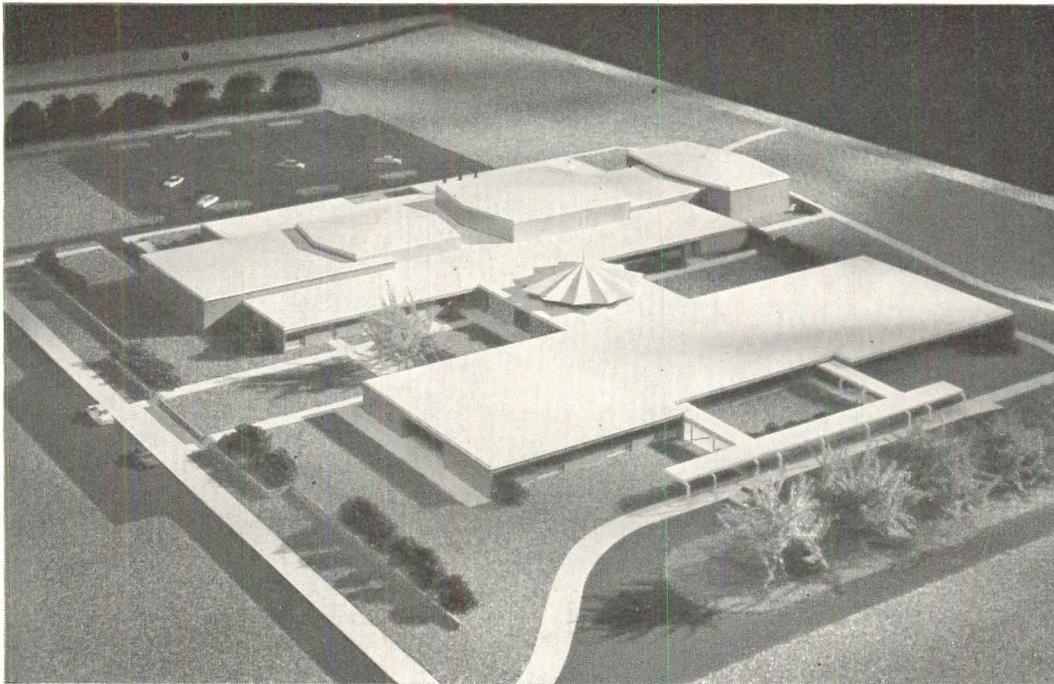
Technical Data on Tessera: uses: heavy-duty commercial and de luxe residential interiors, above, on, or below grade; **grease and alkali resistance:** excellent; **dimensions:** .090" gauge in rolls 6 ft. wide and lengths up to 90 ft.; **stylings:** colored vinyl chips set in translucent vinyl in monochromatic and multicolor designs, 20 colorings. Style 86532 pictured at right.

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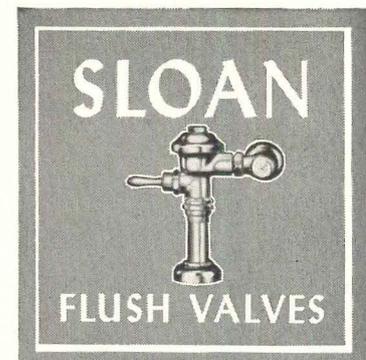
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Evidence of America's cultural explosion (below)

ORRRC shows open-space action (page 7)

Vision of 1985 city jolts planners (page 9)

Coming elections reflect urban worries (page 11)

U.S. CULTURE STARTS BUSTING OUT ALL OVER

Last month, the eggheads were definitely "IN": from Washington, D.C., to that most unlikely of all seats of culture, Los Angeles; from Manhattan to Tulsa, Okla., culture was news—and most culture meant temples (of one sort or another) to one Muse (or another).

At Newport, R.I., in the presence of the architect and 350 fund-raising stalwarts, Jacqueline Kennedy unveiled a 7-foot-long model of Edward Durell Stone's design for the National Cultural Center in Washington, D.C. (photo below). Said Chairman of the Center's Board Roger L. Stevens: "the building will be a symbol of our country's excellence in the performing arts." All of these arts will have their day in the 1,200-seat theater, the 2,750-seat Symphony Hall, and the 2,500-seat auditorium for opera, musical comedy, and ballet. Before Stone's 300 by 630-foot "symbol" is realized, however, individual and group donations must complement funds raised by a nationwide closed-circuit TV show on November 29. The handsome marble, concrete, and steel structure alone will cost an estimated \$30 million, and, hopefully, will be constructed by 1965.

In Manhattan, on September 21, the first building of the \$142 million Lincoln Center for the Performing Arts was opened to the notes of Beethoven's "Gloria." It was, of course,



A Quincy Street view of Corbu's Arts Center at Cambridge, Mass.

the carefully tuned, 2,646-seat Philharmonic Hall, designed by Architect Max Abramovitz. In a democratic touch, the first audience was composed of 1,300 construction workers and their wives.

Everybody's jumping on the band wagon for the arts

In Los Angeles, one of the three buildings comprising Architect Welton Becket's \$25 million Music Center complex was rising on its site overlooking the downtown freeway exchange. And three new pavilions by William L. Pereira & Associates have been projected to form the Los Angeles County Museum of Art.

In Cambridge, Mass., Le Corbusier's Visual Arts Center at Harvard University neared completion (photo above).

At Oakland, Calif., three Saarienen Associates-designed art museums remained in the preliminary drawing stage. One snag had been overcome: a troublesome taxpayers' suit was beaten.

In Trenton, N.J., an 11-acre, \$6 million State Cultural Center has been projected. Designed by Architects Frank Grad & Sons, it includes a museum, library, theater, and planetarium (FORUM, Sept. '62).

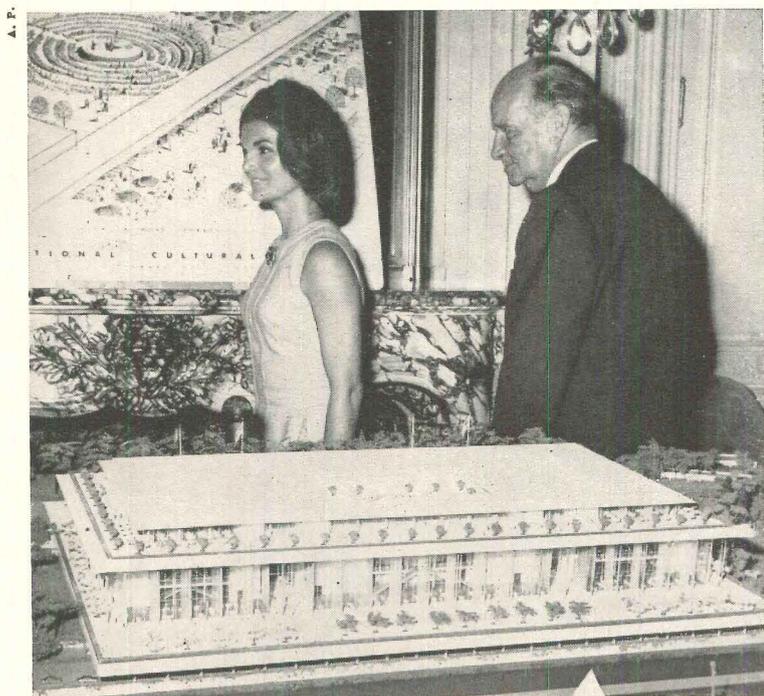
As Seattle's Century 21 Fair approached its termination date, residents began to look forward to use of the various culture-dedicated buildings. Included among them is a plush, 3,100-seat opera house, and a 800-seat theater.

In Oklahoma, the \$6 million Tulsa Assembly Center by Architect Edward Durell Stone (with Murray, Jones & Murray, associate architects) was under construction. Occupancy of the eight-block complex is due in 1964.

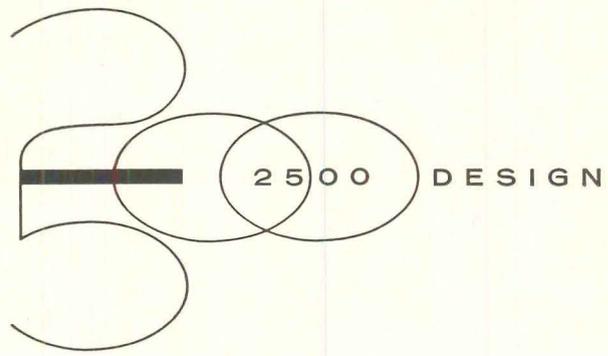
In Atlanta, Minneapolis, Baltimore, Asheville, N.C., Ypsilanti, Mich., and a host of other places, theaters, museums, concert halls, and art centers have been planned or are under construction.

What does all this activity add up to? Undoubtedly, Americans have more leisure time than ever before, hence more time to devote to the arts. Undoubtedly, too, the American scene is getting uglier at a rapidly increasing pace,

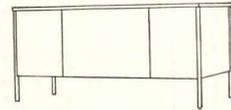
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The First Lady, the architect, and the National Cultural Center



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continued from page 5

and Americans are beginning to think more self-consciously about their country's "cultural image." And, finally, there is the New Frontier with its determination to do right by the arts. As the President put it: "The elevation of the human spirit that is the highest effect of art affords us a glimpse, however brief, of the ful-

fillment to which free men can aspire."

If there has been a hitch, it has been obtaining money, and ex-Labor Secretary Goldberg had the answer for that almost a year ago; he would treat the arts like facilities for health, education, and welfare, as a "community responsibility."

vide money for a large-scale acquisition program.

Beyond full acquisition, the author reports, the governments can aid the conservation of open space by other means. Less heavy taxes on open land near urban centers—e.g. farms, golf courses (left)—will certainly help. So will government purchase of the continuing right to preserve privately held open land.

Whyte also lists some general findings. Among them:

- ▶ Big programs are easier to get through than little ones.
- ▶ The most unexploited opportunity for open space is the conservation of privately owned land.
- ▶ Open-space action will advance to the degree that city and country people make common cause.

Whyte continues with a series of specific examples of what can be accomplished through legislative channels. Other studies in the ORRRC series pick up where Whyte leaves off; they show what outdoor recreational open space means to people, and further methods for its preservation.

Congressional action so far

To date, despite Secretary Udall's and others' good work, Congressional open-space action, on the whole, has been less than anticipated. The proposed Wilderness Bill, for example, has been kicking around the Hill for over a year, generating more controversy than enthusiasm. Last month, the House Interior Committee approved a watered-down version of the Senate's previously passed bill. The big difference: the nation's almost 8 million acres of "primitive areas" are not now included in the House bill. Said the *New York Times*, this "is a betrayal of the proposal to establish a sound national wilderness bill."

The strength of future open-space action, whether the burning issue be wilderness, or Padre Island (Texas), or Rainbow Bridge (Utah), lies in the fact that the citizen tends to side, a priori, with preservation of open space. Why? Because, another ORRRC report points out, open space jibes with a "national geography of hope."

URA PUSHES DESIGN

Better design in urban renewal projects seems to have become a personal crusade for Urban Renewal Commissioner William L. Slayton (*FORUM*, Aug. '62). After a spate of speeches and broadsides over the past year and a half, Slayton has solidified his position into a policy statement which went out to all local public agencies recently. Although the statement does not include any new tools for implementing better design criteria, it does make clear to cities that URA is going to insist on high design standards in every phase of the renewal process, from site selection and delineation of project boundaries right through design criteria instrumental to land disposition.

Slayton stressed especially that design specifications should be solidly enconced in the urban renewal plan itself, so that potential developers would have no doubts about the controls involved in the project. The URA statement noted that "design as an important renewal objective may lead in certain cases to disposition through fixed price offerings which can make design quality the basis for award of land." But, with past sadnesses in mind, it added that "competition requirements should



Commissioner Slayton

assure that submissions are kept appropriately modest. . . ."

The URA statement also hopefully noted that local architects "can render informal assistance to the local planning agency, either as individuals or jointly through the local chapters of the national design associations."

In a related action Slayton announced the appointment of Architect Roger Montgomery as URA's Urban Design Consultant.

continued on page 9

FAIRCHILD AERIAL SURVEYS



THE CARE AND UPKEEP OF OPEN SPACE

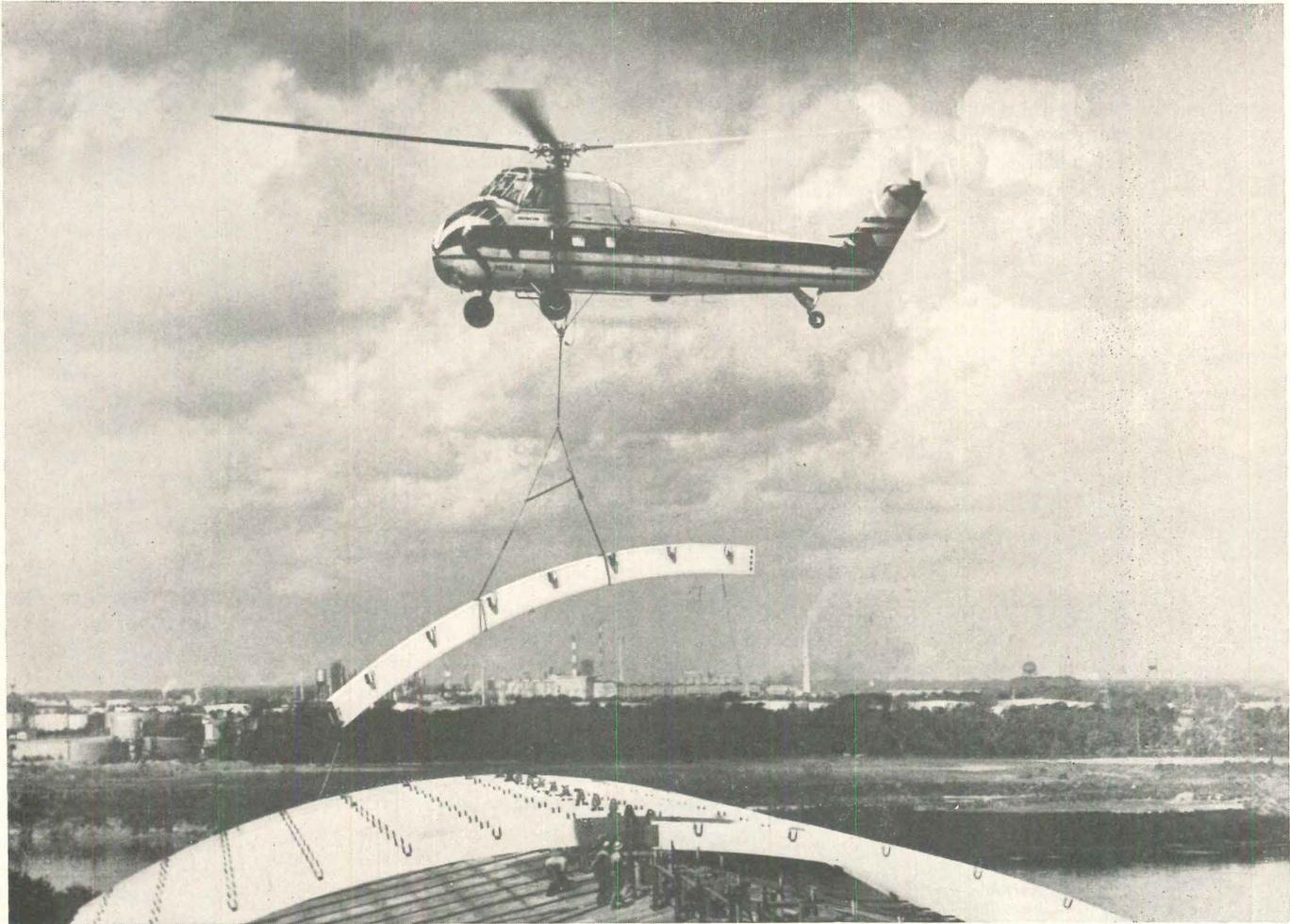
The Outdoor Recreation Resources Review Commission, created by an act of Congress in 1958 and headed by Laurance Rockefeller, published its first summary report—"Outdoor Recreation for America"—early this year (*FORUM*, March '62). Since then, other component studies in the ORRRC series have been appearing as fast as the printing presses can turn them out. While each examines a more narrow topic than the first definitive statement, each points to the same general conclusion: an expanding, more leisured population is putting heavy pressure on the (at best) static resource of outdoor recreation open space. Plans have to be made to meet this pressure—at the same time preserving open space.

For the ordinary urbanite who enjoys the prospect of open land enough to want to do something to keep it open, ORRRC Report No. 15 is probably the most useful of the series. In this study, Author William H. Whyte shows what can be done.

A few lessons in the preservation of the Great Outdoors

A legislative start was made in 1961. It has been successful, according to Whyte, for one principal reason: open-space action appears to have "political sex appeal." Not only has the federal

government taken an increasing interest in the nation's open space, but state and local governments are following the lead of New York, New Jersey, Wisconsin, and Pennsylvania in beginning to pro-



(Photo courtesy Unit Structures, Inc.)

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continued from page 7

EDWARD CLARK—LIFE



A LOOK AT A METROPOLITAN NIGHTMARE

The Regional Plan Association, which keeps an eye on the New Jersey, New York, and Connecticut metropolitan region, issued its 100th bulletin last month. It caused an uproar. Entitled "1960-1985 Spread City," it predicts the uncontrolled creep of urbanization over the neighboring countryside. Bases for the work were independent research, and the New York Metropolitan Region Study by the Harvard Graduate School of Public Administration.

The authors deliberately focus on the pieces that make up life in this, the most populous area in the nation. Assuming that present policies and trends will continue, they carefully construct a mosaic using projections of the information available. And instead of producing a final, glowing, harmonious entity, their mosaic depicts a sloppy, chaotic, costly superspread by 1985.

Not so harsh as George Orwell's 1984, the RPA's vision is equally unattractive—but in a democratic way. By 1985, the authors say, the region's population will have increased by another 6 million over the present 16 million inhabitants. As much land will have to be urbanized in the next 25 years as in the previous 300. That means a built-up urban ring with a radius of over 50 miles will surround New York City.

Homes, of course, will occupy

the outer peripheries, but jobs will remain concentrated near the deteriorating core. Taking an average of the many different zoning regulations in the region, each single-family home will occupy a $\frac{3}{4}$ -acre plot. Thus, vast areas will be consumed by home building alone, and the automobile will be necessary to get anywhere—to school, work, stores, friends' houses. The inevitable result: highway tapeworms, traffic jams, disintegration of community life. Local government will have to spend about \$16,800 per added household—not only for highways, but also for water, power, parks, education, and other facilities. This adds up to about \$145 billion in new spending.

Since property taxes alone will not pay for these improvements, say the authors, "tax revenues cannot be relied upon to rise painlessly and automatically to take care of the needs." Because of such fiscal considerations, there will be intercommunity competition to attract industry.

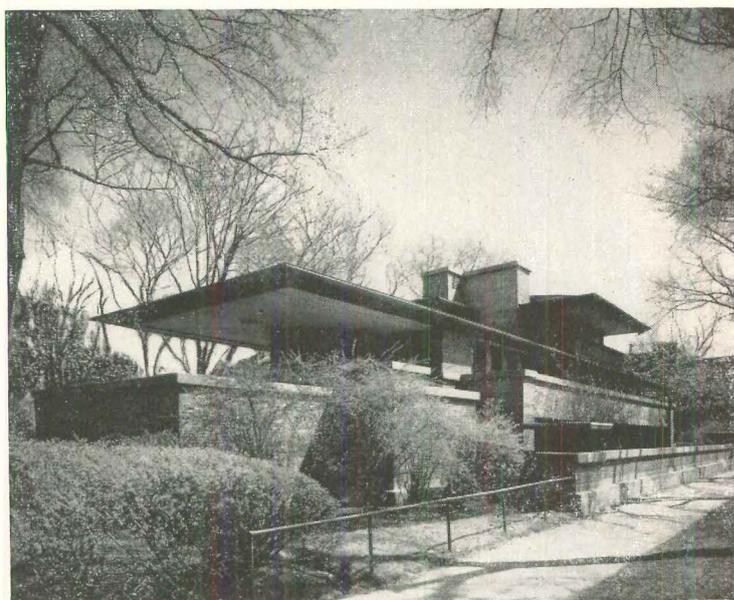
By 1985, if present trends persist, concludes the RPA, the tri-state metropolitan region "will give most of us neither the benefits of the city nor the pleasures of the countryside." Alternative: the development of a comprehensive set of coordinated plans. The RPA will be doing exactly that in the near future.

AGBANY ASKS AND THE MAYOR PROMISES

The presidents of the Municipal Art Society and the N.Y. Chapter of the AIA accompanied representatives from the spirited group of architects and critics that formed the Action Group for Better Architecture in New York (AGBANY) to see Mayor Robert Wagner of New York last month. Their purpose: to ask for action on Penn Station before the demolishers get to it. Specifically, they urged the mayor to: 1) direct the Landmarks Preservation Committee to report on the architectural and planning importance of the station; 2) instruct the City Planning Commission to investigate the need for a new master plan for the station area; 3) deny demolition permits for the building until all results of the investigations had been

thoroughly considered; and 4) call a public meeting on the variance required for the construction of the new Madison Square Garden complex.

Mr. Wagner assured AGBANY that members would have an opportunity to discuss their objections with the city agencies concerned—especially with James Felt, Chairman of the City Planning Commission. Mr. Felt confirmed that the developers would need a special permit to build the sports arenas on the Penn Station site but added that the city could not block the station's demolition. He disqualified himself, however, from any matters concerned with the Penn Station problem. Reason: Felt's brother, Irving, is chairman of the Madison Square Garden Corp.



HEDRICH-BLESSING

FRANK LLOYD WRIGHT LABORED HERE, PRODUCED A LANDMARK

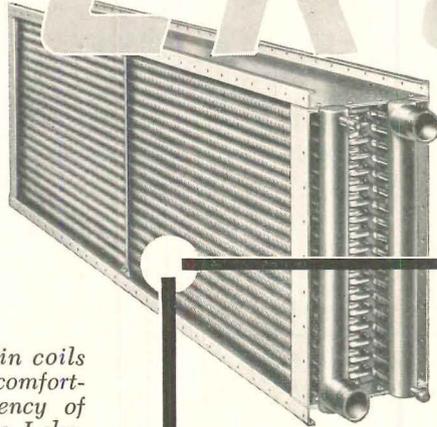
5757 South Woodlawn Avenue, Chicago (above), is probably the most famous modern house in the world. Also known as Frank Lloyd Wright's 1906-designed Robie House, the building has been threatened periodically with demolition. In 1957, when there was some talk of tearing down the Robie House, public outcry and an eleventh-hour purchase for \$125,000 by William Zeckendorf saved the building and led the Commission on Chicago Landmarks to declare it a "landmark."

Zeckendorf's Webb & Knapp Inc. used the house as its Hyde

Park redevelopment project office until recently, when it was turned over to the University of Chicago. This August, the Robie House Committee, chaired by Chicago Commissioner of City Planning Ira J. Bach, met to discuss the further fate of the building. Outcome: the Committee hopes to raise \$250,000 from various sources to restore the building to its original condition, and then use it possibly as the president's home, or as a residence for visiting scholars. In either case, a portion of the house would be open at times to the public for educational purposes.

continued on page 11

AEROFIN

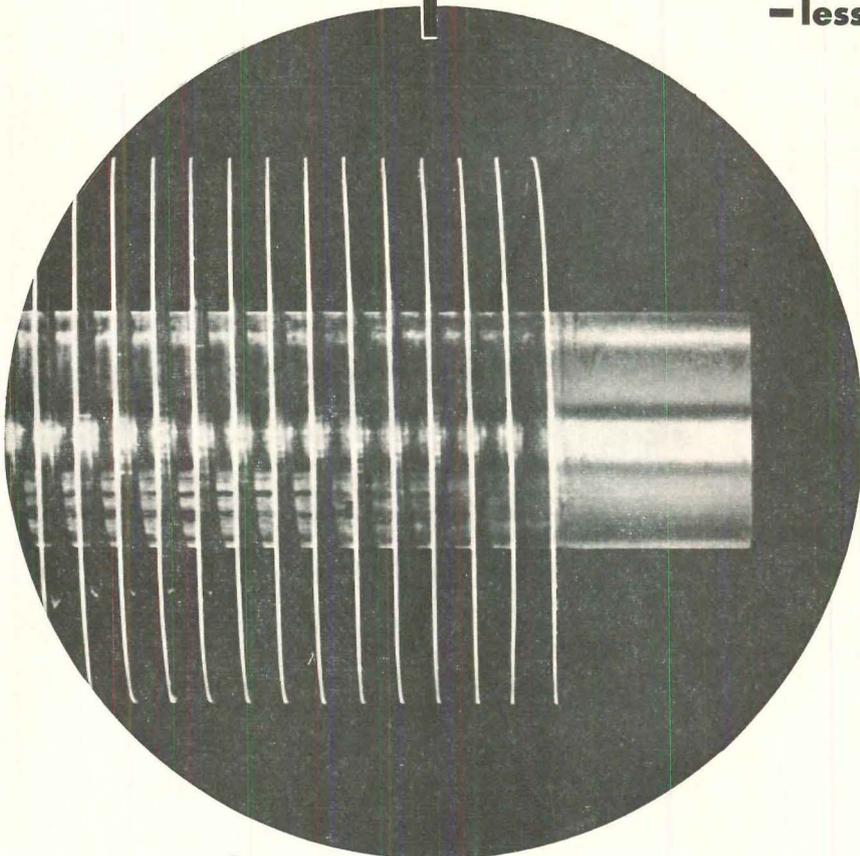


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ENGINEERING OFFICES IN PRINCIPAL CITIES

continued from page 9

"GREATEST SINGLE EVENT IN HISTORY"

While forty pile drivers pah-pahed in the background, speakers at a September 12 meeting of the directors of the New York World's Fair 1964-65 Corp. supplied the dactylic oomp.

Chairman of the Executive Committee Thomas J. Deegan led off with the statement that the forthcoming exposition would be "the greatest single event in history." This remark was followed by others somewhat less hubristic in attitude, but still memorable. To Parks Commissioner Newbold Morris, the new municipal stadium being erected near the fair grounds is "the most breathtaking structure for organized sports in the entire world." Arthur S. Hodgkins, assistant to the fair president, described the fair's road building and improving program as "the most ambitious ever attempted in a metropolitan area." Inevitably, supporting, if thrasoni-

cal, statistics were aired: it was learned, for example, that the 2,000 nozzles in the Fair's Pool of Industry can maintain 100 tons of water in the air at one time. By next year, one per cent of 1 million construction workers will be working every day at Flushing Meadows.

More soberly, officials also announced that nearly \$18 million of space had been leased in the fair's industrial and transportation section. An advance ticket sale of \$2 million is expected by next April. Already, 68 foreign nations have announced their participation. A somber note was reported by Operations Vice President Stuart Constable: there would be no girlie shows at the fair. (He did not say how many tons of girls the fair could maintain in the air at one time.) But, he did add, happily, that there will be a western Indian village.

CAMPAIGN ISSUES STIR URBAN VOTERS

The big urban issues of the last two years—reapportionment, mass transit, open-space preservation, conservation, antibiotics in housing—have become election campaign material to some candidates for the November elections.

Republican Congressman John V. Lindsay of Manhattan is one. He has come out against a road on Fire Island and for saving Penn Station.

In California, Governor "Pat" Brown has been accused of allowing the proliferation of freeways through scenic and historic areas—although he has favored a master plan for the state's development.

Candidate Charles Weltner of Atlanta opposed incumbent James C. Davis in the Georgia Democratic primaries, making much of Davis' several anticity votes. He was, of course, angling for the reapportioned big-city vote which counts, for the first time, as much as the rural vote. At press time, the Sept. 12 primaries indicated no clear majority for either candidate, forcing a run-off primary at the end of the month.

In Michigan, candidate for Sec-

retary of State Norman O. Stockmeyer (Rep.) had to clarify his stand on racial issues before gubernatorial hopeful George Romney would endorse him.

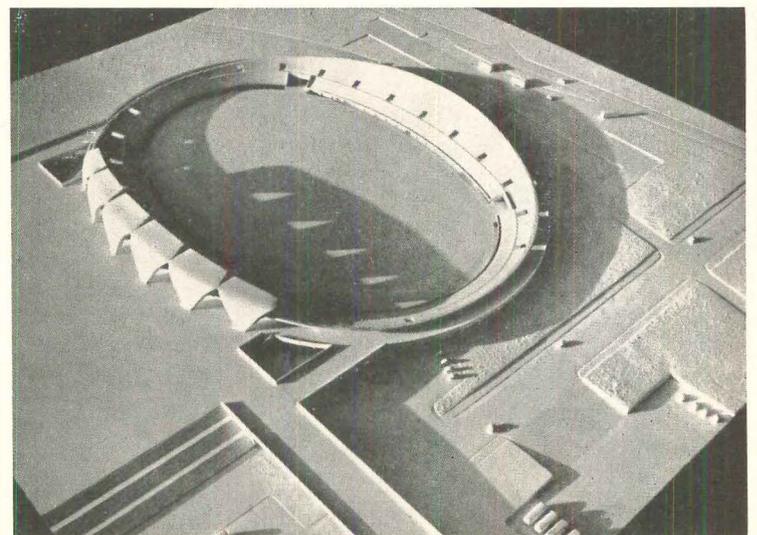
In a California campaign for the state legislature, Democratic candidate Leroy F. Greene is basing his appeal on his background as a civil engineer—an important qualification at a time when the biggest water development scheme ever conceived by a state has captured the voters' imagination. Greene also has made a campaign issue of preservation of the state's scenic beauty.

But on the whole, the big issues have been lost in the campaigns. Few candidates really oppose something like integrated housing in public, and the problem tends not to be aired. Also, the most potentially explosive issue—creation of a Department of Urban Affairs—never came to an actual head (the Senate voted on the motion to bring it up prematurely). Thus, in Pennsylvania's gubernatorial race, one champion of municipal affairs, Philadelphia's reform mayor, Democrat Richard Dilworth, can-

not make political capital out of the fact that his opponent, William B. Scranton, voted against the Administration's proposed urban affairs post.

California is putting some preservation issues to its voters, however. In the southern part of the state, Proposition 4 has won the backing of farmers and large land investors. It would create a tax deferral scheme by which the farm land would be taxed at a

lower rate than the surrounding commercial, industrial, and residential land. When a farmer sells, however, the purchaser pays the difference in taxes between farm and other land (retroactive up to seven years). Proposition 11 does more or less the same thing for historic or scenic areas: they are taxed at a different rate from the land's "highest and best" use. Result: an incentive to preserve California's open space.



COURTESY THE JAPAN ARCHITECT

NEW JAPANESE STADIUM FOR THE NEXT OLYMPIC GAMES

Designed by the architectural firm of Masachika Murata & Associates, the oval structure shown in the model above will be the track stadium in Tokyo's 1964 Olympic Games. It is planned to seat 20,000 people, and will be located in Komazawa Athletic Park. Employing bold engineering techniques necessitated by the elliptical shape, the stadium also has a cantilevered,

sheltering roof over the stands. All aspects of the building's relation to its setting were worked out by the University of Tokyo's Takayama Research Department. A traffic-flow pattern, for example, will bring spectators from the east and west where they will enter central gates. After the 1964 games, the park and its buildings will be used as a recreational area.

BUILDING RESEARCH IN WASHINGTON

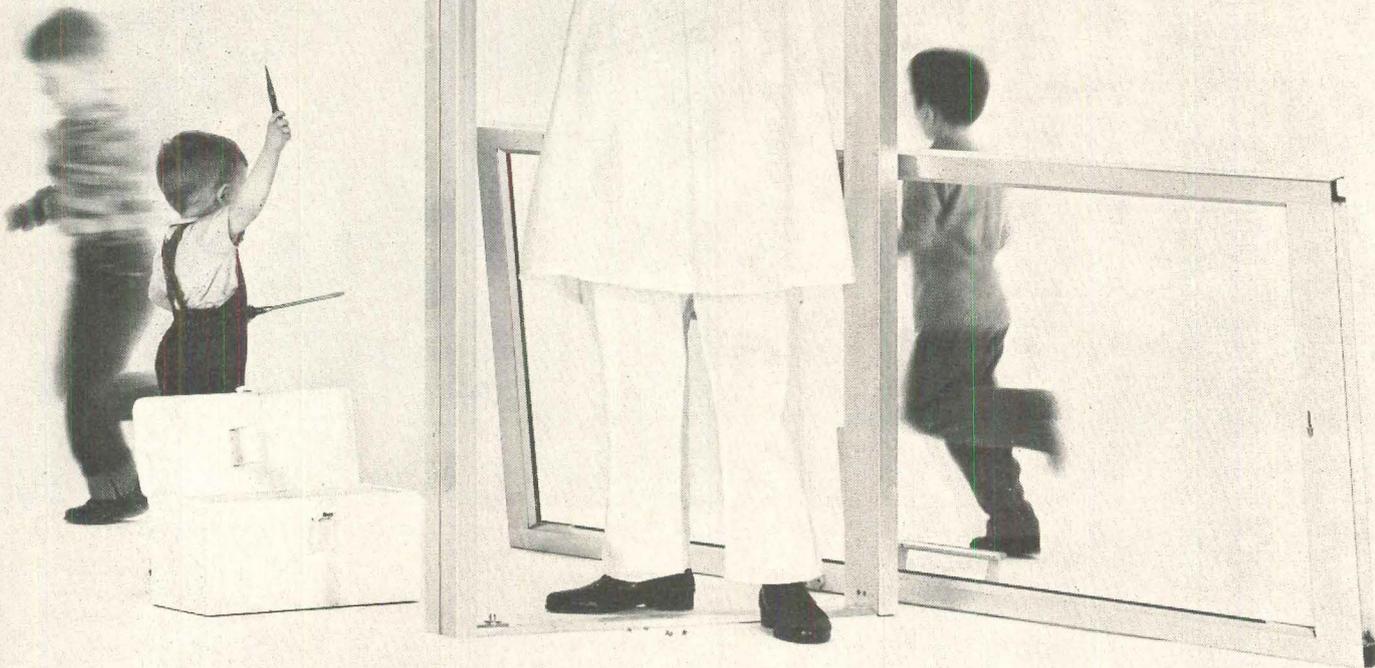
On September 1, the Building Research Institute, which has been a part of the National Academy of Sciences-National Research Council since 1951, became an independent technical society. As planned, the BRI will not change its activities, but some insiders speculate whether the BRI will become the National Institute of Building Research recently proposed by a Special Advisory Committee to the Building Research Advisory Board. According to this committee, the NIBR should be set up under the National Bureau of Standards to do building re-

search and to disseminate new findings (as does the BRI).

In a related development, the newly created Panel of Civilian Technology is looking for bottlenecks the government has unwittingly put in the path of technological advance. One such discovery is the slowness with which the FHA approves new materials and new building methods. The panel plans to recommend removing this task from the FHA and giving it to the Bureau of Standards, which is better qualified to judge the feasibility of innovations; and can also approve them quickly.

continued on page 13

*Don't dig; not when you
can conceal a closer over-
head in the transom bar.*



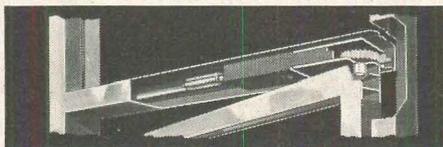
Kawneer's ECONOMICAL way to conceal a closer

□ It costs time and money to locate a cement case for a floor closer in exactly the right spot. And it costs even more when, in spite of all precautions, the cement case ends up located in the wrong spot. Not to mention the fact that ripping into the cement with a jackhammer in an effort to correct the mistake can be dangerous . . . broken reinforcement or ruptured waterproofing. □ Kawneer provides a simple, easy solution; a closer concealed overhead in the transom bar. □ Consider the advantages. The architect gets a clean looking entrance—same as with a floor closer, but doesn't have to allow for the reinforcement and waterproofing being

placed deep into the slab. □ Contractors can pour floors faster, without waiting for cement case forms to be built and located. □ The sub-contractor saves because his installation costs are much lower than with floor closers. □ Yet, even though it offers all these advantages, The Kawneer Concealed Overhead Closer sells for the same or less than floor closers. □ The Kawneer Concealed Overhead Closer comes complete with door and frame. □ Specify a Kawneer Concealed Overhead Closer entrance package; it's the economical way to conceal a closer.



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The Kawneer Concealed Overhead Closer fits neatly into the 1 $\frac{3}{4}$ " x 4 $\frac{1}{2}$ " transom bar. It is the only concealed overhead closer that has been time and work-proved for over four years.

People in the News

QUOTE . . . UNQUOTE

"The source of the most sizable body of undistinguished [Washington, D.C.] building is probably the government semimodern style. . . . Known also as Castrated Classic, or Penitentiary style, this is the most ambivalent and unsuccessful kind of architecture in the capital."—*Critic A. L. Huxtable.*

"The Art Market for paintings is up 975% since 1946 (versus a little over 200% for the stock market). . . . And individual artists have gained up to 61,900%—just since the war . . ."—From *Art Market Guide and Forecaster.*

"We are approaching the Age of Copernicus in adjusting to the fact that the urban universe no more revolves around highways, transit systems, or home building than the sun revolves around the earth."—*Sen. Harrison A. Williams, Jr. (Dem., N.J.).*

"There is something to be said for the visual interest which multi-story buildings can add to the flat suburban scene. Such buildings provide a note of verticality in an all-too-horizontal landscape which has often been further leveled by the bulldozer."—*Planning Consultant Anshel Melamed.*

"I would argue against those who contend that architecture must be overwhelmingly strong, even to the point of brutality. . . . Today in an America where we stand proudly for the human rights of man, where we believe that kindness and gentility are an integral part of our concept of our nobility, such 'strength' in architecture cannot be a true expression of our ideals. I would argue against the frantic search for new forms, a search which avoids any form done in the past."—*Architect Minoru Yamasaki.*

"The architect, the theater consultant, the engineer, the real-estate operator, and the theater artist each speak a different language, and seldom have any real exchange of ideas." — *Drama Critic Henry Hewes.*



Othmar H. Ammann

BRIDGE DESIGNER HONORED

One high light of the opening of the \$145 million lower level of the George Washington Bridge in late August was the unveiling of a bust of the bridge's designer, Engineer OTHMAR H. AMMANN. Now a senior partner in the firm of Ammann & Whitney, he planned, back in the 1920s, for "Martha" (as the Port of New York Authority irreverently calls the new lower level) and allowances were made for it in the foundations, towers, cables, and suspension system. The George Washington Bridge (which, in its more elegant single-level days, LE CORBUSIER called "the most beautiful in the world") is only one of the Swiss-born engineer's bridge-designing accomplishments. Others include major work on San Francisco's Golden Gate Bridge, the Delaware Memorial Bridge at Wilmington, New York's Throgs Neck Bridge, and Philadelphia's Walt Whitman Bridge.

NEW YORK CRUSADER

Ever since the plans for a federal and municipal government complex in Manhattan's City Hall-Foley Square area were announced two years ago (FORUM, Nov. '60), Architect NATHAN R. GINSBURG has been opposing them on the grounds that they were "ill-considered." His major objections: too much potential open space would be consumed, and the buildings would sit "like islands in a sea of traffic."

Indeed, Ginsburg felt so strongly about a civic center "worthy of the world's greatest city" that he drew up his own master plan for the area "as a constructive suggestion." The plan was briefly

noted and has since been scarcely mentioned.

Undaunted, Ginsburg gathered support in his crusade against nonplanning where he could. Such diverse organizations as the New York Chapter of the AIA, the Citizen's Union, the Municipal Art Society, and the Architects' Council of New York (of which he was president in 1960 and 1961) have come to back him. Prodded by his efforts, the N.Y. Planning Commission instigated a movement to review the situation in late 1961. Last February, the Board of Estimate appropriated \$86,500 to have a survey made by Architect MAX ABRAMOVITZ with ROBERT CUTLER and SIMON BREINES, and Traffic Specialists Day & Zimmerman. At latest report, the study should be ready later this month—about the same time that the GSA intends to solicit bids on the projected \$80 million, 41-story Federal Building on Foley Square.

BLACKSTONE STUDIOS, INC.



Nathan R. Ginsburg

But even if this overwhelming structure is built, Ginsburg plans to keep right on fighting for a truly worthy civic center. So far he has almost singlehandedly caused a reassessment of the whole project, thus disproving once again the old maxim, "you can't buck City Hall."

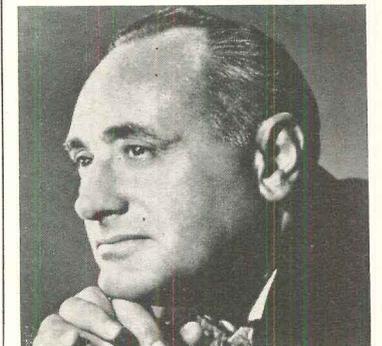
NEW FINE ARTS MEMBER

Its function is to advise on esthetic questions and matters of design "involved in the orderly development of Washington, D.C." as well as to furnish expert advice on art subjects to the federal and district governments. But the Commission of Fine Arts tends to wield a good deal of additional, discretionary power. (Its latest task is to review plans for private buildings facing on public land.) Each of its seven members serves a

four-year term. Some weeks ago, when President Kennedy announced that landscape architect and professor at Harvard's School of Design HIDEO SASAKI would be the newest Fine Arts member, some capital observers took the appointment as the beginning of a "liberalization" of the Commission. Sasaki replaced MICHAEL W. RAPUANO as landscape architect on the Commission, which at present is composed of three architects, one painter, one sculptor, and a layman. Sasaki, who was one of the finalists in the recent FDR Memorial Competition, has landscaped a part of the Rhode Island School of Design, Oakbrook Shopping Center near Chicago and several projects abroad.

LAPIDUS' LATEST

Architect MORRIS LAPIDUS, a specialist in hotel design, is just completing his gigantic yellow-striped Americana (see page 17), which follows close on the heels of the Summit and the Sheraton Motor Court in Manhattan, and two "inns" being constructed in Washington, D.C. While most of these structures are somewhat more subdued than his tangoing trio on Miami Beach, the Fontainebleau, Eden Roc, and Americana still apparently haunt him.



Morris Lapidus

"They were built for fun," he said last month, "the only trouble is, people take them seriously." Criticizing simple glass-walled edifices because "they all look like office buildings, no matter what goes on inside," Lapidus predicts a trend toward a "freer, more dramatic, more exciting architecture"—like Saarinen's Dulles airport and Abramovitz's Philharmonic Hall. As for his boom-

continued on page 15

NEW BUTLER WALL SYSTEMS

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Available through the nationwide Butler Builder organization. For full information write Butler Manufacturing Company, 7400 East 13 Street, Kansas City 26, Mo.

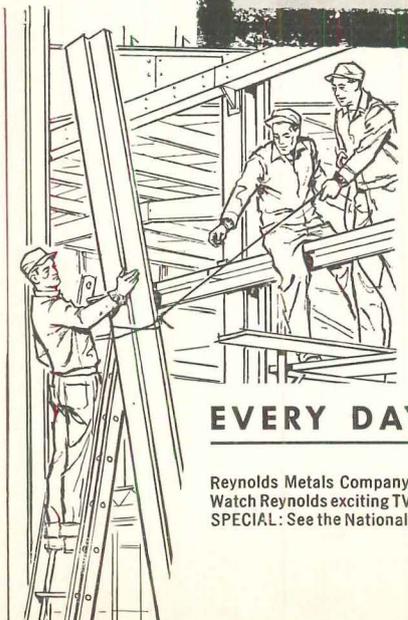
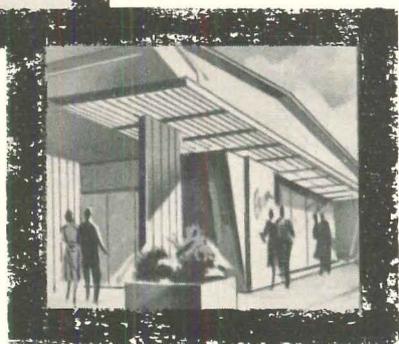
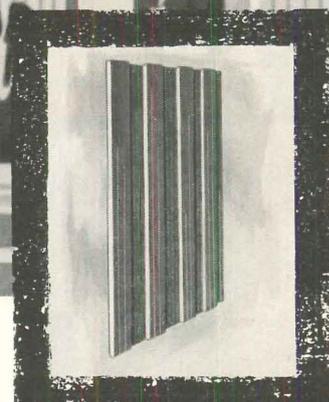
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continued from page 13

erang-shaped International Inn, Lapidus said: "I don't think it should set a mode for Washington architecture, but it blends in without getting lost." This latter fact, according to some critics, may not be entirely fortunate.

TEXAS AWARDS

The results of the "Texas Architecture '62" annual competition were announced last month. Sponsored by the Texas Society of Architects with the help of the Dallas Chapter of AIA, the competition received 78 entries which were judged by Architects RALPH RAPSON, JOSEPH AMISANO, and MAX FLATOW. Five Honor Awards were made: the First National Bank in San Angelo by GEORGE PIERCE & ABEL B. PIERCE; First National Bank in Giddings and Montrose Elementary School (FORUM, Feb. '61) in Laredo, both by CAUDILL, ROWLETT & SCOTT; "Mo-Rose" Citrus Fruit Packing House in Olmito by TANIGUCHI & CROFT; and an office building in Houston by NEUHAUS & TAYLOR for Oil Base, Inc.

LISTENERS STUDY SOUND

"Although the human being's adaptability and tolerance to noise or lack of privacy never fails to astonish us," said Acoustical Consultant ROBERT B. NEWMAN last month, "there is still a very definite limit to what will be endured by occupants of buildings and people in the street." Criticizing the U.S. as the only major country in the world with no building-code requirements for controlling noise in multifamily and multiuse buildings, Newman pointed out that Americans have to put up with annoyances that are two to three times louder than they would be, say, in England. The occasion for this blast: the firm of Bolt Beranek & Newman, who helped tune Philharmonic Hall last July, has been hired by the FHA to study the world's building codes in order to recommend acoustical standards for possible FHA adoption. According to Newman, acoustics should be included in the technical design of buildings along with ventilation, heating, structure, and lighting. Until such a step is

taken, he added, the well being of urbanites is unnecessarily threatened "in terms of cost, health, and reduced efficiency."



George L. Ramsey

RAMSEY LEAVES CHICAGO

Chicago's building commissioner for the past seven years, Architect GEORGE L. RAMSEY, has announced that he will resign from the post this month for "personal reasons." He added that he will leave his native city and practice "a little" in St. Petersburg, Fla. One of Mayor Richard J. Daley's first appointees in 1955, Ramsey has received national notice for his work in Chicago. His recent reorganization of the department, his concept of team inspections, his controversial stand on the use of prestressed concrete (FORUM, Aug. '60), and his interest in conservation and rehabilitation of worthwhile buildings all led Mayor Daley to classify Ramsey as "one of the outstanding building commissioners in the history of Chicago." His successor has not yet been appointed.

OBITUARY

Architect HENRY HEBBELN, 47, died last month in an automobile accident on Cape Cod. Cornell-trained, and a former Cranbrook Fellow (in regional planning), Hebbeln worked under Finland's ALVAR AALTO in 1939 on a lumber town for 10,000 people. In the U. S., he was associated with Architects GARDNER DAILEY, ANTONIN RAYMOND, and WILLIAM LESCAZE for short periods of time before establishing his own practice in 1946. Among his best-known buildings are private homes in Tryon, N.C., and Sabattis, N.Y., as well as rebuilding work in Sherman, Conn., and in New York City for Bonnier's store. END

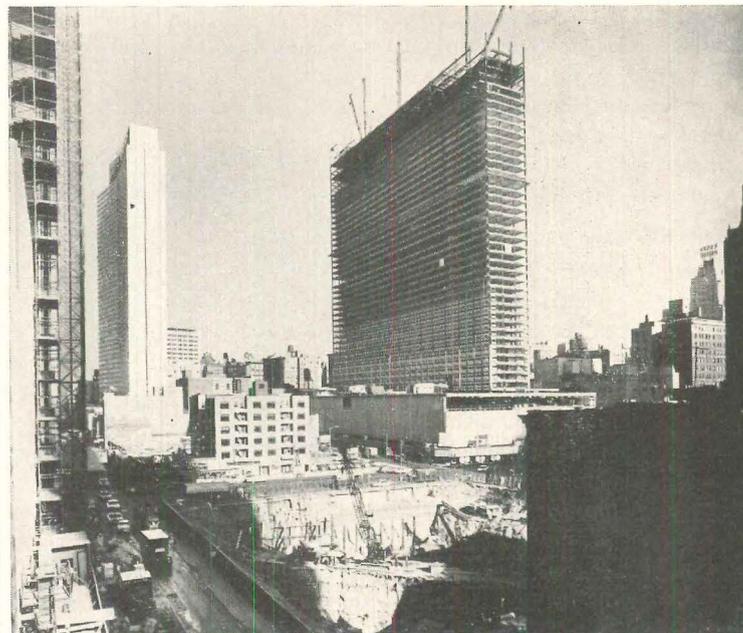


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Building in the News



N. Y. DAILY NEWS



R. PARTRIDGE

NEW YORK NEARS COMPLETION—ALMOST

"New York will be a great city if they ever get it finished," Frank Lloyd Wright used to observe sardonically. His remark seems truer than ever in 1962. This month, a host of important buildings neared completion, while others were just getting under way.

Biggest of the lot is the Pan Am building (above), rising 59 rock-ribbed stories above Grand Central Station on Manhattan's mid-East Side. The \$100 million skyscraper, scheduled to open in February, will be the largest commercial office building in the world (2.4 million square feet)—and will dump an estimated 25,000 new office workers into the already congested mid-town area.

The octagonal tower was designed by Emery Roth & Sons with Walter Gropius and Pietro Belluschi consulting, for the Wolfson-Cotton Anglo-American combine. (Behind Pan Am, at top right in photo, is the final unit of Kips Bay Plaza, I. M. Pei's \$23 million apartment project for Webb & Knapp.)

Farther north on 72nd Street and Third Avenue, Tower East, a new 35-story cooperative (right), is being readied for December occupancy. Also designed by the Roth firm, it gives up the usual wedding-cake setback envelope in favor of the cleaner look encouraged by bonuses in the city's new zoning laws.

Most of the activity, however, is concentrated on the West Side, where construction has been booming since Rockefeller Center expanded across Sixth Avenue with the Time & Life building (map, right).

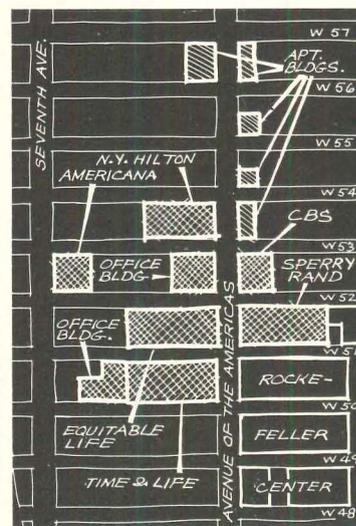
Hotels loom large. Beyond the hole for a new CBS office tower rises the Americana, just completed, and the New York Hilton at Rockefeller Center, fast catching up (left and right in photo, above). The Hilton, designed by William B. Tabler, has 46 stories containing 2,153 rooms. Its narrow tower, which rises from a five-story base, provides a bay

window for every room, to be filled with blue glass. The \$75 million hotel is owned by Rock-Hill-Uri, Inc.

From the east, the 50-story Americana looks slim, tall, and elegant. The view from the west, however, is another story (below, right). Designed by Morris Lapi-

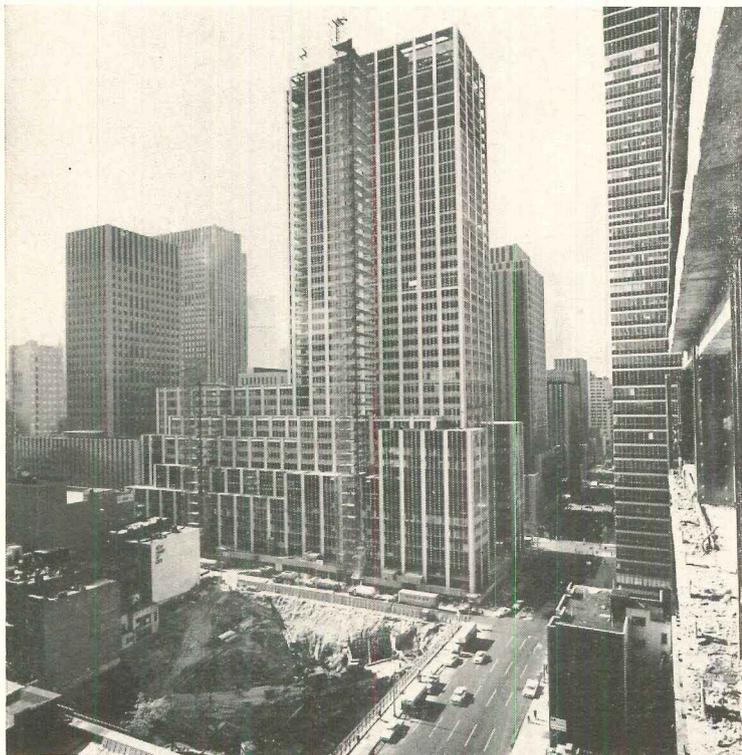


R. PARTRIDGE



us, Liebman & Associates for Loew's Hotels, the \$50 million Americana has 2,000 rooms.

Many experts argue that hotel space in New York is being overbuilt and point to the remarkable number of hotels and motor inns which have suddenly sprouted on the West Side. Against this opinion, Loew's Hotels have announced plans for a new 751-room motor hotel diagonally across the street from its Americana.



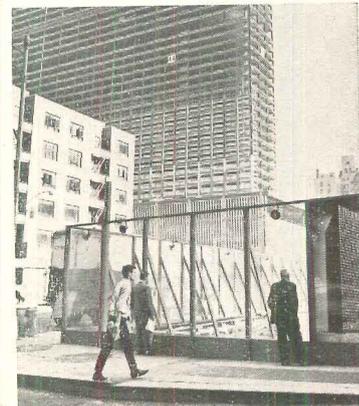
Next to the CBS hole is the 43-story Sperry Rand building (above), a \$55 million rental office building owned by Rock-Uris, Inc. The design, again by Emery Roth & Sons, reverts to setbacks to make it the fifth largest in the city, counting Pan Am.

Sperry Rand, the Hilton, and CBS, together with the new Equitable and Time & Life buildings, represent a fantastic amount of activity within a stretch of four blocks on Sixth Avenue. Uris

Buildings Corp., as well as Rockefeller Center, Inc., is deeply involved. Uris owns 50 per cent of both the Hilton and Sperry Rand, and also will be the sole owner of a new 45-story rental office building, designed by Shreve, Lamb & Harmon, to occupy the block between Equitable and the Hilton. Altogether, Uris will have built and will own, at least in part, 4.4 million square feet of space, worth \$155 million, in a three-block area within a period of four years.



During construction most of these buildings have made few concessions to Manhattan's legions of sidewalk superintendents. In place of plywood walls and portholes, however, CBS has installed clear plastic panels along its site (right). From loudspeakers the voices of Red Barber, Betty Furness, and other CBS regulars dispense facts about the future skyscraper designed by Eero Saarinen, historical lore about the site—and an occasional plug for CBS.



In the midst of all this commercial building, culture is having its innings too. At Columbus Circle, slightly north, Manhattan's new Gallery of Modern Art (above) seems finally within reach of completion. The 10-story museum, designed by Edward Durell Stone for A&P heir Huntington Hartford, was originally estimated at \$1.5 million, is now expected to be about \$5 million. The concrete structure, sheathed in white marble drilled with window holes,

faces Central Park (at left).

Finally, a few blocks uptown, Philharmonic Hall (below) last month became the first of Lincoln Center's six buildings to open, although it is not quite finished (the entire Center will not be ready until 1966). Designed by Max Abramovitz (of Harrison & Abramovitz), the \$15.4 million structure has windows extending full height behind massive, travertine-faced columns in a tapering cross shape. END



How to end up in the

middle

It is certainly possible to design an air conditioning system by specifying a variety of major components made by different manufacturers.

You may even save the owners a few dollars—with refrigeration equipment from one source, cooling and heating coils from another and fans from somewhere else.

But each added source of supply multiplies the owners' problems when they try to fix responsibility for performance. There they are—right in the middle.

Whom will they call if mechanical trouble develops? Which component

needs attention? Where will they turn for service?

The answers come easily when you specify equipment from one responsible supplier of major components—able to keep the equipment in first-class operating condition.

Although not the only air conditioning manufacturer offering a broad line of components, Carrier is best prepared to serve the owner should trouble come. For our company and our dealers maintain the largest and best-trained service organization in the business—over 11,000 men strong.

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U.S. ARCHITECTURE AT THE FAIR

Forum: I wish you could have heard the mental applause your editorial received on the selection of an architect for the U.S. pavilion at the 1964 New York World's Fair (FORUM, Sept. '62). I was thinking of sending it to the President, but then he's having enough trouble without adding to his worries.

FRANK EDWARD DUSHIN
Peekskill, N.Y. Architect

Forum: Bravo! Your restraint is admirable. These things need to be said. What a shot in the arm to architects, to allied professions, and to the public if such projects could be open competitions! This would promote good work and discourage the "influence peddlers."

ARMSTRONG & SHARFMAN
Los Angeles Landscape Architects

Forum: We found your editorial on the New York World's Fair quite interesting. We are calling it to the attention of the Secretary and the Fair Commissioner here.

HENRY SCHARER
Washington, D.C. Director, Public Information
U.S. Department of Commerce

AIRPORT PLANNING

Forum: I disagree that the construction of a federal airport at Chantilly has "doomed Friendship to join the nation's growing number of ghost airports" (July '62).

Considering the fact that air travelers from east of 16th Street in Washington, throughout the central, western, and eastern shores of Maryland, as well as south-central Pennsylvania, can reach planeside at Friendship more rapidly than at Dulles; that the air carriers will be able to operate much more economically at Friendship than at Dulles; and that Baltimore is a great industrial center with a high potential for air cargo, I do not see the likelihood of Friendship becoming a "ghost."

CHARLES P. CRANE
Baltimore, Md. Chairman, Airport Board

WASHINGTON'S ARCHITECTURE

Forum: Re your editorial concerning architecture in our capital city (Aug. '62), Washington's problem is a unique one in that any federal building, before construction has begun, has passed through a most formidable series of approving authorities and committees.

That any building comes into existence is testimony to its sponsors' persistence. Its design has usually been modified so often to comply with suggestions of the reviewing authorities that its final form has little relation to the original proposal.

I am pleased that some of the great names of architecture in our country today are to enhance the Washington scene. Some of them have had previous experience with federal projects. I think specifically of some of the fine work which was done under the Eisen-

hower Administration in improving our overseas building program.

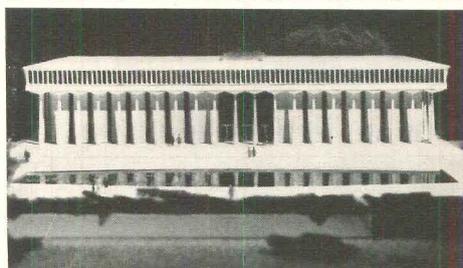
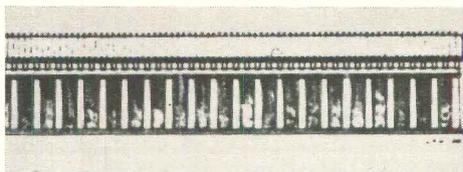
I hope they can provide better answers to Washington's peculiar space problems than the complex of federal buildings presently under construction along Independence Avenue.

Utilitarianism is fine, but I do not feel that a series of shoe boxes is necessarily expressive of any peculiarly federal problems. Perhaps we should take a very careful look at the direction which our federal government is taking. Has our government become so impersonal that its buildings have as much personality and character as a celled honeycomb?

LEVERETT SALTONSTALL
Washington, D.C. United States Senator
Committee on Appropriations

Forum: I wholeheartedly support the viewpoint you express.

FRANK THOMPSON, JR.
Washington, D.C. House of Representatives

**YAMASAKI'S GREEK**

Forum: Yamasaki's Woodrow Wilson School at Princeton ("Projects," Aug. '62) shows a departure from his much-publicized Gothic tendencies to a new, classic Greek—very much like the South Stoa at Corinth (above).

MAURY M. LIPOWICH
Chicago Architect

BOSTON CITY HALL

Forum: Congratulations on your fine article on the Boston City Hall Competition (Aug. '62). I was beginning to think that a notable competition, and what should prove to be a notable solution, were going to go unrecognized.

WALTER A. NETSCH, JR.
Chicago Architect

Forum: I was astonished to see the article praising the project for the Boston Town Hall. The ground plan of my Shell building was damned in 1946 because "it was hard to distinguish from straight academic." What do you think of the unhuman and lifeless, the stiff and stuffy, superacademic floors of the Boston project?

To me it is a disappointing building which

is an outgrowth of what Saarinen (whom I admired so much in his early works) initiated so unhappily in his London Embassy.

Architecture is following a strange way at present. It does not bring development of the original intentions. It seems to be esthetically kept alive only by injections of versatility.

J. J. P. OUD
Wassenar, Netherlands Architect

CANADA

Forum: You deserve to be commended warmly for the interesting treatment of "The New Architecture of Canada" (August '62). Members of the profession in Canada are proud of the progress which has been made since the end of World War II.

Your readers may be interested in knowing that the Smithsonian Institution is sponsoring a photographic exhibition of Canadian architecture in libraries throughout the U.S., commencing with a Washington opening by mid-October. The exhibition will portray the best buildings entered in the 1961 Massey Medals competition.

ROBBINS ELLIOTT
Ottawa Executive Director
Royal Architectural Institute of Canada

CANADA

Forum: May I extend the thanks of the Division to you and your colleagues for the fine job you have done on building in Canada.

ROBERT F. LEGGET
Ottawa Director, Division of Building Research
National Research Council

Forum: Your August cover of Canadian maple leaves was superb—a simple, strong design, but intricate and enriched through variations on a theme.

CHESTER NAGEL
Cambridge, Mass. Architect

PARKS WITHOUT GRASS

Forum: Thanks for the excellent August issue. I enjoyed every page, particularly the "Editor's note" about French *places*. Your thoughts are very helpful, because I have been making speeches to groups in our area arguing for the creation of these delightful parks in our communities.

JOHN N. RICHARDS
Toledo, Ohio Architect

MORE ON AIRPORTS

Forum: You have pointed up the anomaly of air travel, the ground lag. Fitting airports to cities and seeing the traveler home would be vastly eased and the airlines would make money if certain ground rules were changed:

1. *Rationalize field configuration.* Ignore wind directions. A linear airport would take two square miles instead of ten.
2. *Condense terminal structure.* Require sharing of facilities by carriers and bring plane to gate ready to fly, engines running.

continued on page 20

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3. *Speed up boarding process.* Allow five-minute boarding time. Board according to seat number.

4. *Telephone check in.* Dial your arrival from convenient points in parking deck, arrival dock, restaurant, etc.

5. *Supermarket baggage checking.* Standing in line is one of the most degrading aspects of air travel.

6. *Provide multideck parking.* The jet traveler deserves and can pay for multideck parking an easy stroll from his arrival or departure lounge, all under one roof.

7. *Safety.* Allow once again the length of the runway in grassy allée used as a park, but provided so that in that 30 seconds of decision, a takeoff could be aborted.

With these and other changes in the habits and mores of carriers and administrators, the airport could begin to become architecture (like Dulles).

Chicago

HARRY WEESE
Architect**MATTER OF OPINION**

Forum: We appreciate your considering our new Illinois facility sufficiently newsworthy to be included in your August issue ("Building in the News," and photo above).

However we do not agree with your use of the word "odd" with regard to the placing of the Georgian building against the plain backdrop of the modern factory wall. Obviously these things are matters of opinion, but we believe that the latter provides an unpretentious background for the precisely authentic Georgian office building.

WILLIS G. COE
Vice President Operations
Milltown, N.J. Personal Products Corp.

PLAYBOY ARCHITECTS

Forum: It was a great pleasure to read the article on "Playboy Architecture" by Sigfried Giedion (FORUM, July '62). "Am I a Playboy Architect?" is the most important question each architect has to keep on asking himself seriously—and answering honestly.

Cambridge, Mass.

TAO HO

PENN STATION

Forum: A cloud of shame hangs over London as a result of the demolition of the splendid Euston Arch. With the dust from this act of vandalism hardly settled it is tragic to hear that New York is to follow London in destroying its finest railroad structure (FORUM, April '62 *et seq.*).

The destruction of a fine building can be truly justified only if it is to be replaced

by something finer. There is no indication that either the Euston or Penn Station sites will bear worthy buildings; it is more likely that they will produce the maximum financial return for the minimum quality.

Philadelphia

GEOFFREY A. COLLENS
Architect**HELPFUL POSTERS**

Forum: Your "Great Architecture for the Sixties" posters will be most helpful in a series of talks on American architecture which I am presenting for various German groups here.

BRUCE F. RADDE
Oberursel/Taunus, West Germany

GRIEVOUS ERROR

Forum: With the picayunishness of which only a college registrar is capable, I note Walker Evans falls into the grievous error of referring to the Poland Spring House as the Poland Springs House ("Come on Down," July '62). No one has told me whether the present management is so sensitive, but if it is, it hides its chagrin successfully behind the convention business which still keeps the establishment humming.

GEORGE H. CROSBY, Registrar
Orono, Me. University of Maine

THAT INSTITUTE AGAIN

Forum: I am an unknown, unarrived sculptor who has been invited to share the International Institute of Arts and Letters' roster of illustrious men of accomplishment in the arts (April '62 *et seq.*).

As much as I would like to receive a commission, not to mention an *authentic* honor, who are they trying to kid?

South Bend, Ind.

THEODORE GOLUBIC

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NOW FROM THE MAKER
OF ARMSTRONG FLOORS

Armstrong
WALL CORLON

a new kind of embossed
vinyl wall covering with an unusual
combination of properties and
performance ratings



AMERICAN NATIONAL BANK, DENVER, COLORADO. ARCHITECT AND INTERIOR DESIGNER: JAMES SUDLER & ASSOCIATES

On these circular elevator housings, Armstrong Wall Corlon in Frostone White adds elegance and practicality to this striking lobby area. Soil and scuffs clean away easily with detergent and water.

The decorative and functional properties of Armstrong Wall Corlon

The origin of Wall Corlon was unusual. Some 200 architects and designers worked with Armstrong to make sure this new vinyl wall covering would provide the blend of traits most needed for commercial and institutional interiors. The properties that resulted are:

Subtle embossed textures. They create elegant wall surfaces without compromising the maintenance advantages of vinyl.

Handsome fade- and stain-resistant colorings styled to today's trends in interior design. The 20 colors are shown on the preceding page, identified on the second page following. Wall Corlon and scores of Armstrong floors are color coordinated. Throughout the wearing surface, color is homogeneous.

Durable surface layer composed of polyvinyl chloride which is essentially **unfilled**. Fillers are used only in minimal amounts to achieve desired opacity and shade. This vinyl content gives Wall Corlon superior stain resistance, abrasion resistance, and resistance to surface marring. Wall Corlon comes in two gauges: .030" and .040" in rolls 54" wide and up to 80' long.

Hydrocord backing, a product of Armstrong research, composed of inorganic fibers en-

tirely unaffected by moisture, mildew, and rot. Its resilient formulation cushions the vinyl surface from impact damage.

Ease of installation. Wall Corlon is easy to cut . . . forms hairline seams . . . and is so flexible it conforms to almost any curve or angle. It can be installed directly over plaster, plasterboard, wood, metal, and many other subsurfaces.

Dimensional stability. Seams won't open; seams won't peak. Yet, as the adhesive dries after installation, the Hydrocord Back draws up to smooth out minor bubbles and wrinkles . . . a real saving in installation time.

Low flame spread. Wall Corlon's rating is 20 on gypsum board in 25-ft. tunnel test (ASTM-E84); less than 10 in Radiant Panel Test (ASTM-E162).

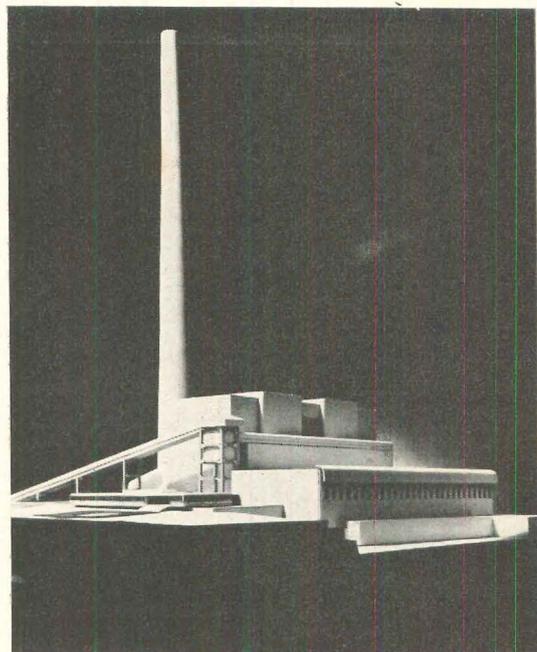
Strength and safety. Test measurements of breaking strength, tear strength, abrasion resistance, volatility, toxicity, etc., are highly favorable—and available on request.

Armstrong distributors in 135 cities throughout the country will provide quick, efficient service through wall covering contractors. All colorings are available in the three embossings in either gauge.

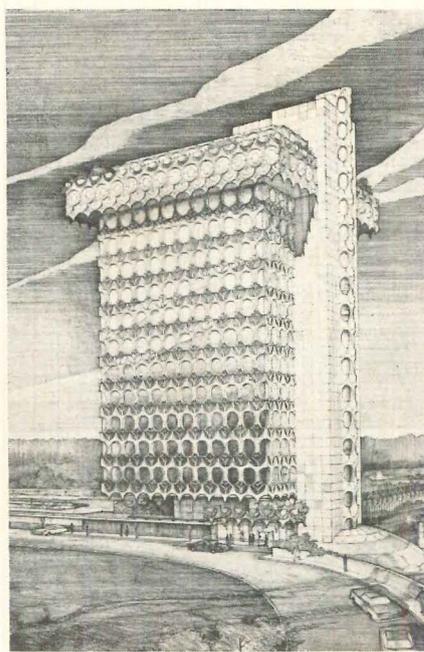
Taliesin design for an insurance company in Louisville (below)

Two Raymond & Rado schools (page 57)

Octagonal bank tower in Los Angeles (page 59)



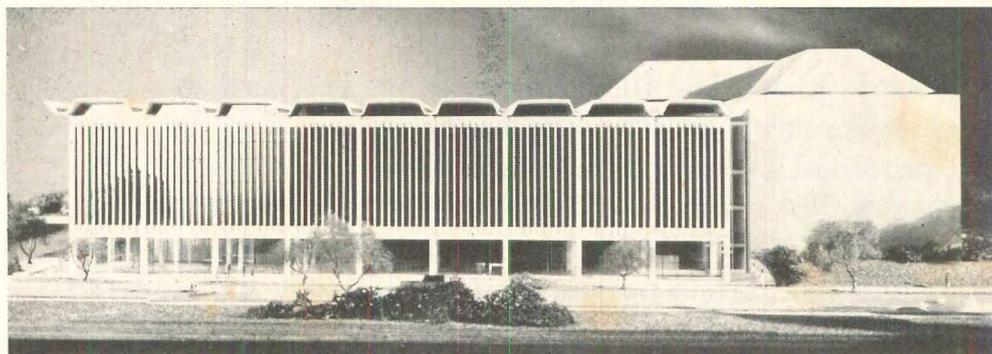
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1. OAK RIDGE STEAM PLANT. The biggest turbogenerator in the world, outside Oak Ridge, Tenn., is part of TVA's \$125 million Bull Run Steam Plant. Mountains of coal, carried up the incline at the left, will disappear into giant boilers. The 900,000-kilowatt turbogenerator will be housed in the structure in the foreground. Vincent G. Kling is consulting architect to TVA's design staff.

2. TALIESIN IN KENTUCKY. Louisville will never be the same: wags are already at work coining names for the Lincoln Income Life In-

urance Co. home offices, designed by Taliesin Associated Architects, to be built on a quadrant of the interstate highway exchange. The 15 stories are to be enclosed by a grille of gold anodized aluminum, set in front of plastic panels. The lower floors will hang from deep cantilever trusses holding steel members in tension; these, in turn, support the floors. A bubble car will ride the transparent exterior elevator shaft to the top.

3. MICHIGAN LIBRARY. In Grand Rapids, Mich., a brand-new \$3

million public library will adjoin the old library (right) in the city's new Civic Center development. The new design, by Detroit Architects Ralph R. Calder & Associates, will be a four-story concrete-and-steel building. An entrance separate from the library's will lead into a 300-seat auditorium. Associated architects: Robinson, Campau & Crowe, Inc.

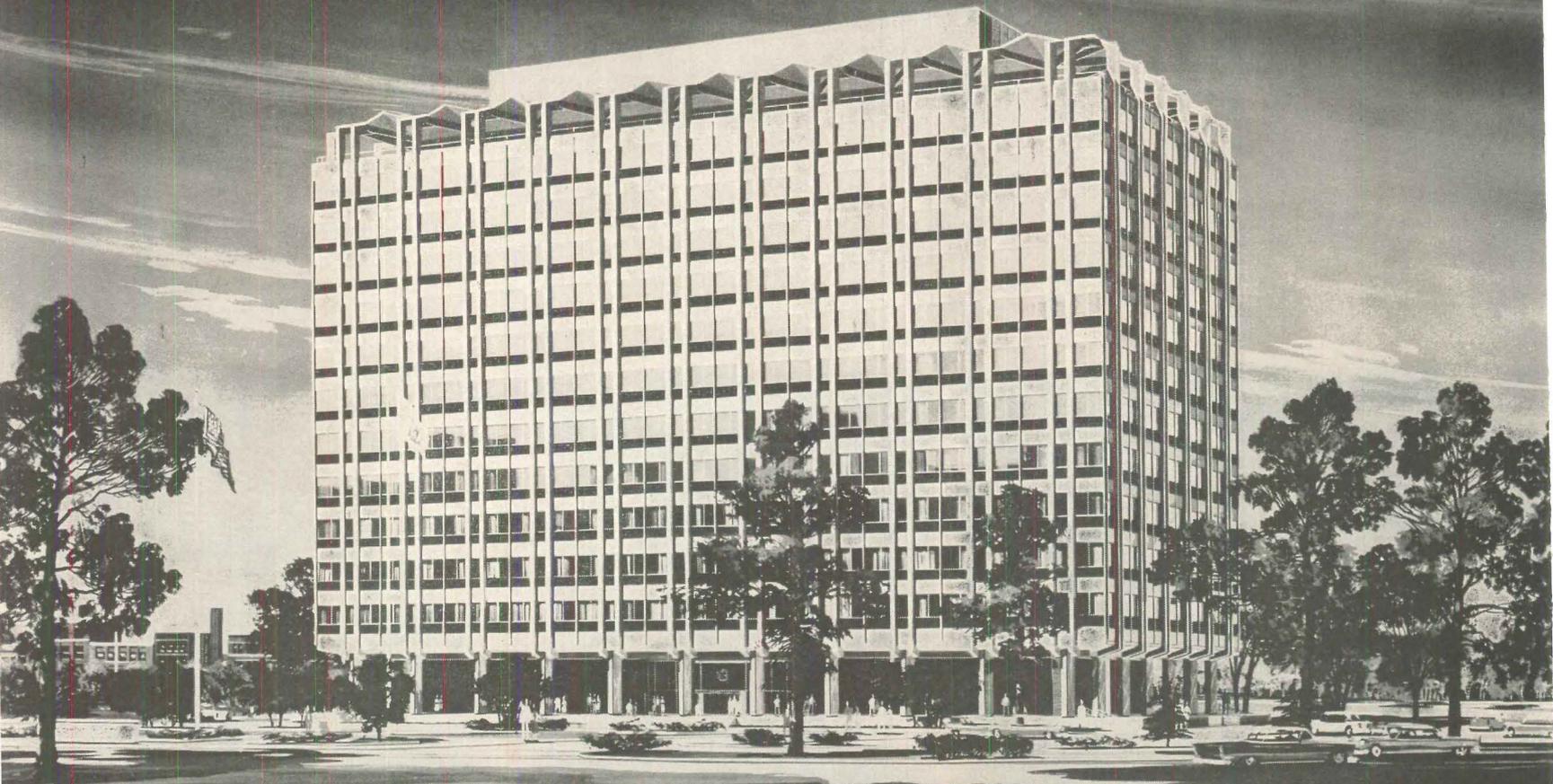
4. LOS ANGELES OFFICES. "The largest privately financed office structure in the western U.S." is the proud boast of Occidental Center, the \$16 million head-

quarters of the Occidental Life Insurance Co., under construction in Los Angeles. The 32-story center is intended to be impressive from the air as well as the ground—the site lies beneath an approach lane into the Los Angeles International Airport. With this traffic in mind, William Pereira & Associates plan a garden around the observation roof and a paved patio on the 11-story service building (right). Aluminum sunshades on the exterior will contrast with granite sheathing, gray tile, and gray glass.

continued on page 57

State of New Jersey, Department of Labor and Industry Building, Trenton.

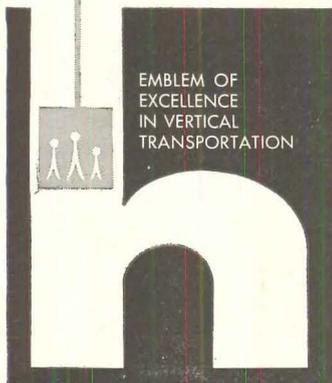
Architects : Frank Grad & Sons, Newark, New Jersey ■ Gen'l Contractor: Belli Construction Co., Trenton, New Jersey



From HAUGHTON Elevonics* . . .

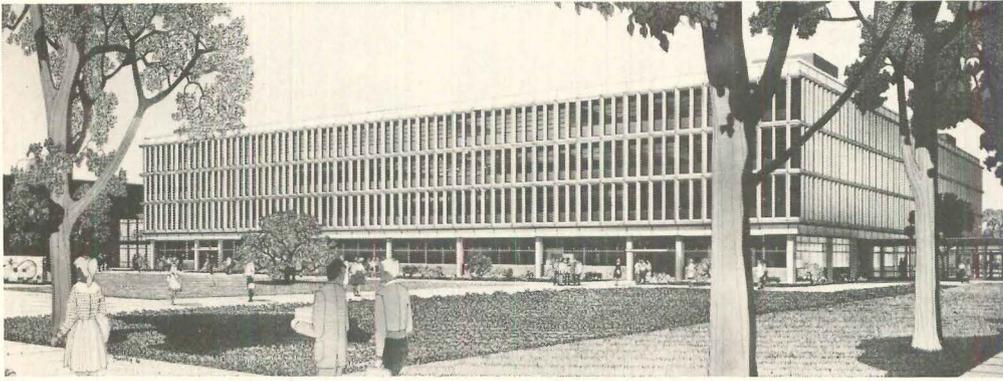
exciting new concept in elevating for an exciting new building

Buildings are for people. ■ And people who use the elevators in Trenton's new Department of Labor and Industry Building will enjoy speed, comfort and convenience that can be provided only by Haughton Elevators under fully-automated electronic control. ■ Not even peak demands at "coffee breaks" or rush hours can cause service to deteriorate. ■ An automatic electronic computer constantly receives and analyzes data pertaining to amount and character of traffic, and makes adjustments to match traffic needs exactly. ■ Such is the magic of Haughton Elevonics*, key to superior elevator performance in new buildings and old. ■ For complete information on our design, modernization and maintenance capabilities, contact your Haughton sales office (listed in the Yellow Pages), or write: Haughton Elevator Company, Division of Toledo Scale Corporation, Toledo 9, Ohio. ■ Passenger and Freight Elevators, Escalators, Dumbwaiters.



* *Haughton's advanced program in systems research and engineering with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance. Registered in U. S. Patent Office.*

continued from page 55



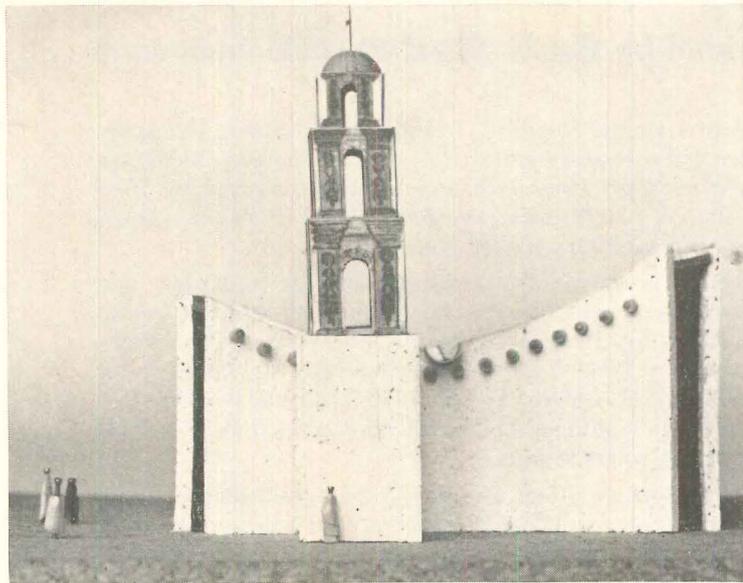
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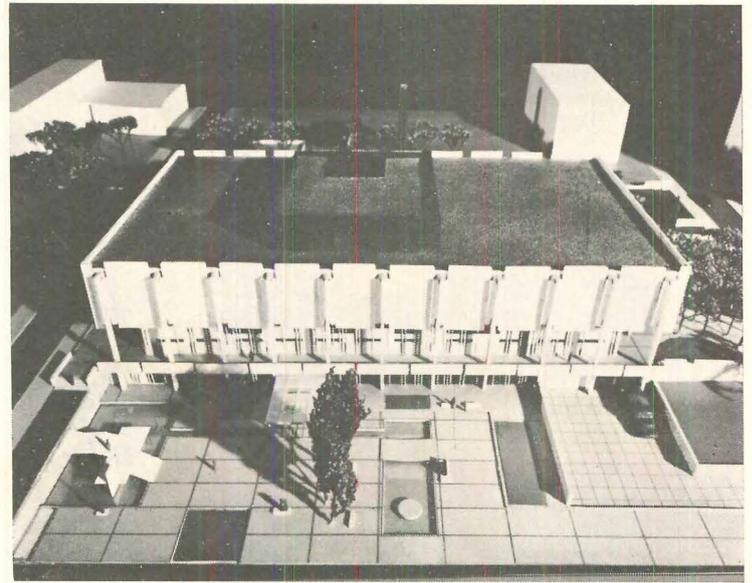
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5. BROOKLYN HIGH SCHOOL. The largest academic high school ever designed for New York City's Board of Education is the Central Brooklyn High School. To make the school seem a little less overpowering (there will be 3,800 students!), Architects Raymond & Rado split up the necessary facilities into four buildings connected by glass passageways and surrounded by landscaping.

6. LONG ISLAND GRADE SCHOOL. Another school designed by Raymond & Rado is the Hillel School in Lawrence, N.Y., a private

school for 400 boys and girls which will take them from kindergarten through the eighth grade. The shape is a square doughnut with a chapel and a courtyard in the center. A series of cantilevered concrete eyebrows extending from the second story will support cedarboard fins.

7. MANHATTAN HOUSING. Getting away from the dreary image that "public housing" often brings to mind, Architect Richard G. Stein has designed for the New York City Housing Authority a vest-pocket project on 119th Street

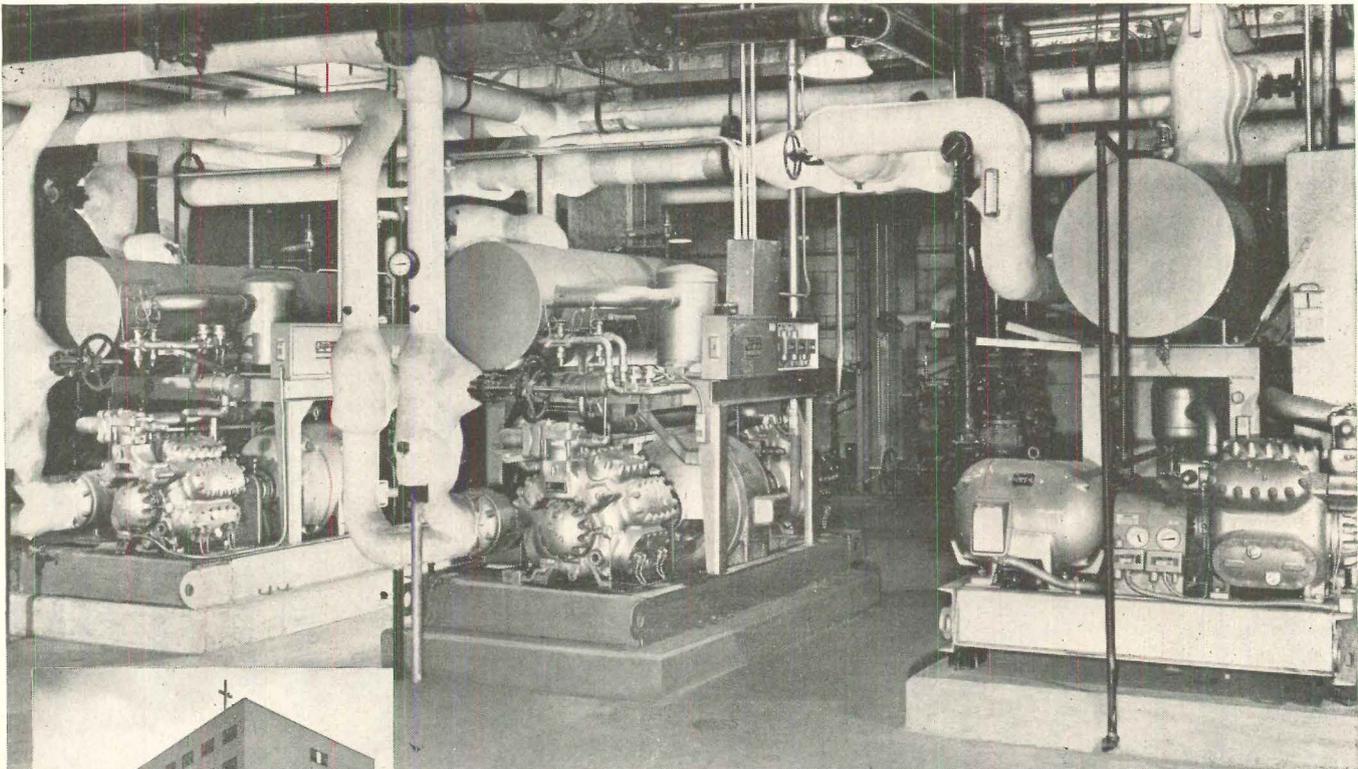
which is a far cry from the usual. The variegated plan creates interesting shapes for every apartment in the building. The structure will be 13 stories high, with five apartments to a floor.

8. ADOBE CHAPEL. Four concave walls of white adobe, partly reinforced by steel, will enclose this small private chapel at Circle Diamond Ranch, Hondo Valley, N.M. Corners will be glazed from floor to ceiling, and the warped roof will be punctured by a skylight above the altar. Designed by Herbert Bayer, the chapel will

stand beside a seventeenth-century stone portal and bell tower brought from Guanajuato, Mexico.

9. UNIVERSITY LIBRARY. Two libraries in one is the plan for Temple University's new library—sectioned off so that freshmen and sophomores have the ground floor to themselves, and upperclassmen, graduate students, and faculty have the upper four levels. The upper levels will also hold the major library collection. This is the sixteenth design by Nolen, Swinburne & Associates for the Philadelphia campus.

continued on page 59



Air conditioning is provided by this battery of B&G Package Liquid Coolers



Lutheran General Hospital,
Park Ridge, Illinois

A complete "Package" of Heating, Cooling and Service
Water Supply provided by **B&G Hydro-Flo** equipment



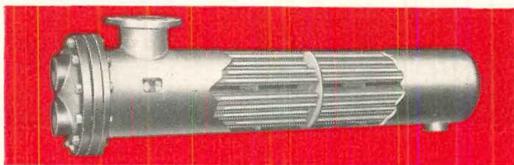
B&G Universal
heating pump

In the Lutheran General Hospital, Park Ridge, Illinois, the space heating, service water heating and fuel oil preheating are all effected by water heated in B&G Heat Exchangers and circulated by B&G Pumps. For the air conditioning systems, B&G Package Liquid Coolers provide the necessary chilled water.

This installation is an excellent example of the versatility and economy of circulated water for creating controlled comfort conditions within a structure. It exhibits the fundamental reasons for the phenomenal growth of B&G *Hydro-Flo* mechanically circulated water systems for heating and cooling. Today there is virtually no limit to the height or area of buildings which can be equipped with a B&G *Hydro-Flo* circulated water system.

The *Hydro-Flo* System offers unique advantages because of its adaptability to zone control. It can deliver water at any temperature, in any amount, to any zone, at any time and for any size building.

You are invited to send for a copy of "Zone Control with Primary-Secondary Pumping"—a power and fuel saving design method conceived and developed by B&G engineers.



B&G steam-to-water heat exchanger



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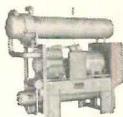
Dept. HH-62, Morton Grove, Illinois

Canadian Licensee: S. A. Armstrong, Ltd., 1400 O'Connor Drive, Toronto 16, Ontario

PUMPS...HEAT EXCHANGERS...AIR CONDITIONING AND PROCESS COOLING EQUIPMENT



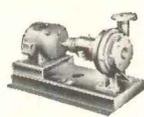
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Centrifugal Pumps

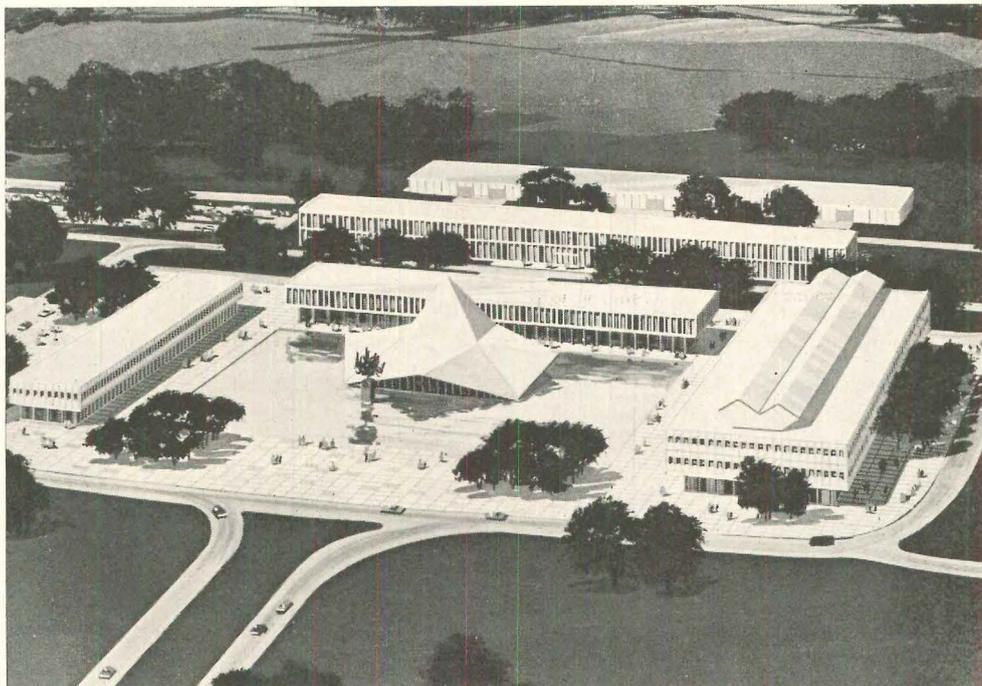


Heat Exchangers

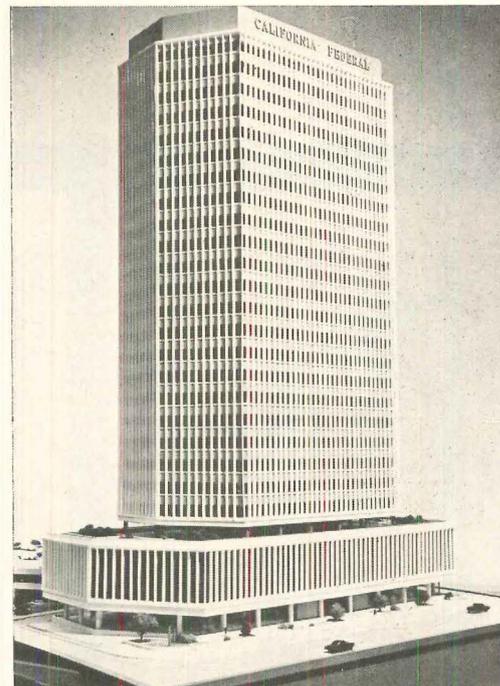


Oil-less
Air Compressors

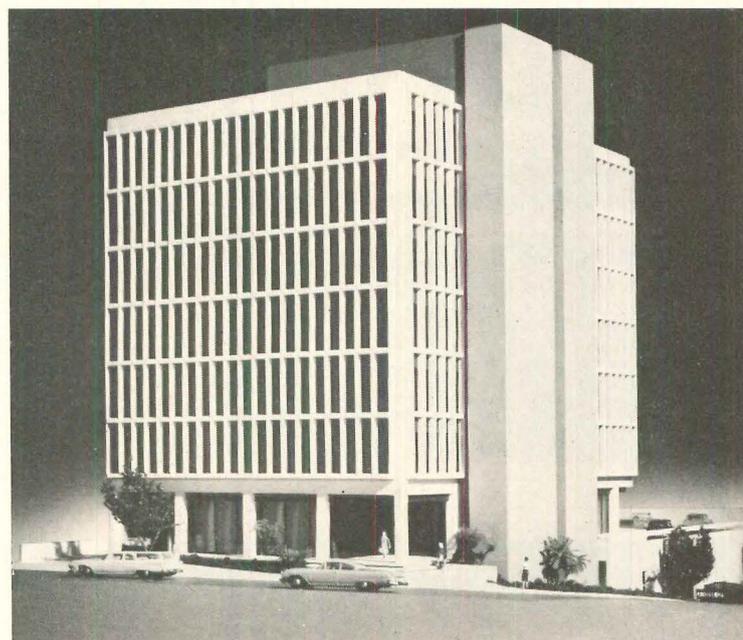
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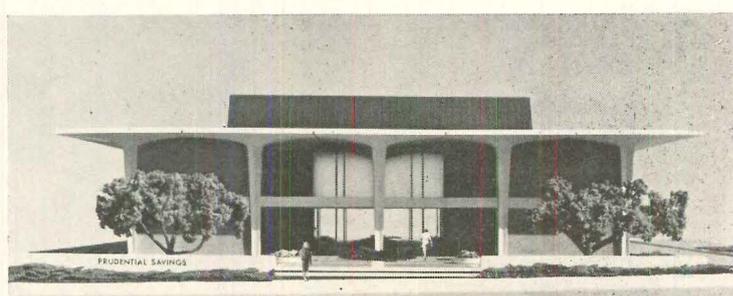
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14

10. ALCOA'S SCIENCE CITY. Alcoa's big new technical center in Merwin, Pa., 28 miles northeast of Pittsburgh's Golden Triangle, will be built in stages over the next decade, at a cost of \$30 million. By that time, Alcoa expects to have an army of at least 1,000 at work in its "science city." Designed by Harrison & Abramovitz, the main buildings surround a large pool and exhibit island.

11. CALIFORNIA BANK. The faceted tower of the California Federal Savings & Loan Association headquarters will stretch up 24

stories from a broad base, occupying a full block along Wilshire Boulevard in Los Angeles. A separate garage (left), plus two levels underground, will supply 1,100 parking spaces. At the special request of the company president, there will be an auditorium and art gallery on the third floor for community and employee use. Topping off the base and the tower: a roof garden and a large heliport. Architects: Charles Luckman Associates.

12. HOLLYWOOD OFFICES. Precast concrete units one story high and

one window wide will form a shadowed wall around seven stories of an office building in West Hollywood, designed by Daniel L. Dworsky for the Appel-Slaten Development Co. Underneath, and accessible from one side of the steep site, will be three levels of parking for office tenants.

13. PAVILION FOR SAVINGS. The 15,000-square-foot pavilion that Ladd & Kelsey designed for the Prudential Savings & Loan's new offices in Alhambra, Calif., should make thrift a pleasure. Tapered columns, a flat roof, and shallow

vaults at the roof line add up to a dignified look for the building.

14. PENNSYLVANIA RESEARCH. The Spring House Research Center, which Rohm & Haas is building in suburban Philadelphia, consists of three buildings now under way—an applications laboratory (above), a synthesis laboratory, and a utility building, to be finished next summer. Reinforced concrete, natural stone, and Plexiglas, a company product, are the chief materials. The design is by Rohm & Haas' engineering department and Wigton-Abbott Corp.

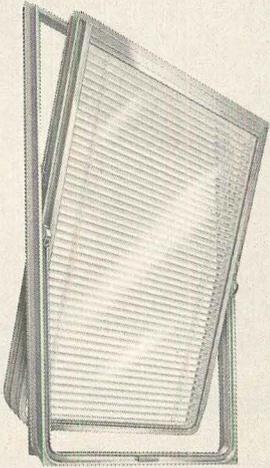
AMELCO WINDOWS

specified for **JOHNS HOPKINS** University

School of Advanced International Studies

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Architect: Justement, Elam, Callmer and Kidd • Contractor: John McShain, Inc. • Amelco Distributor: James A. Cassidy Co., Inc. Wash., D. C.

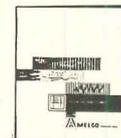


**CONTROLS
HEAT, LIGHT,
SIGHT & SOUND**

- Dual Glazing
- Venetian Blind
between panes of glass
- True Thermal break in
vent and frame
- Pivots 180°
Horizontally



The Amelco Window offers many advantages . . . dual glazing with venetian blind *between* the panes of glass reduces solar heat gain by 65%. Just think of the savings in air conditioning equipment costs . . . and operating costs. Two inch air space and true thermal break in vent and frame offer 55% less heat loss in winter. Air space and efficient seals reduce noise transmission more than 50%. Horizontal pivoting offers ventilation if you need it and cleaning of all glass surfaces from inside . . . more savings. Many leading architects are specifying Amelco . . . the most versatile, most economical window in America. Write for full story.



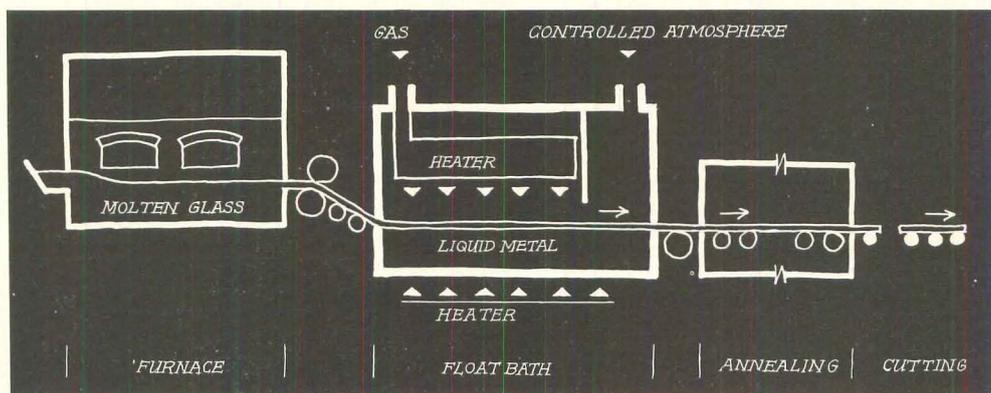
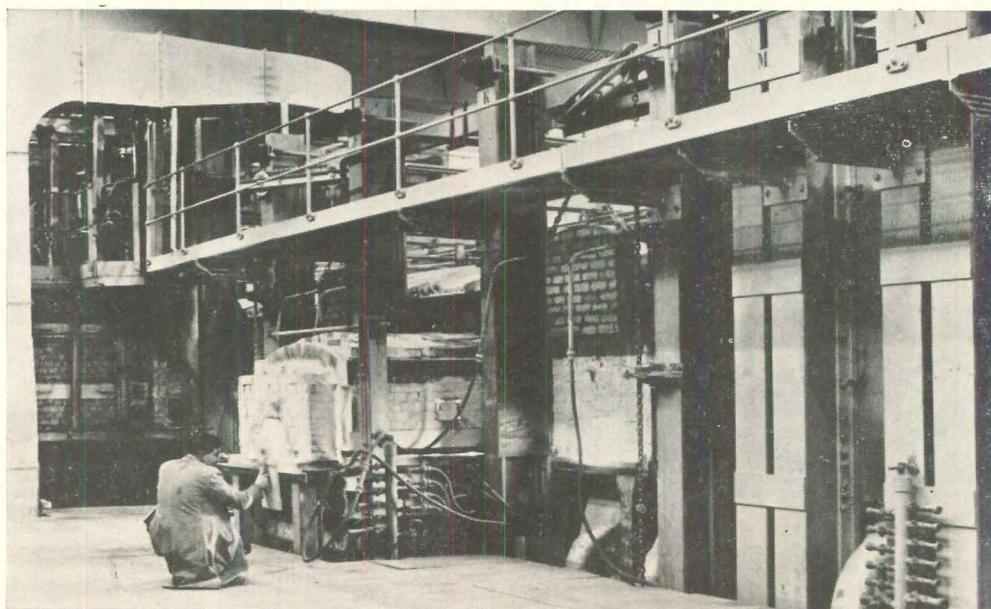
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Cheaper glass: a new process from England (below)

Portable, multipurpose school laboratories (page 63)

Extruded structural shapes of glass fiber (page 65)



FLOAT GLASS

Under the terms of a licensing agreement with Pilkington Brothers Ltd. of Great Britain, Pittsburgh Plate Glass becomes the first U.S. manufacturer to use the float process for making glass. This process proved so successful in Britain that Pilkington has shut down all its plate-glass operations except for one remaining plant. Glass made by the float process approaches the quality of plate glass but is a great deal cheaper, since it eliminates all grinding and polishing. While Pilkington has found it a perfectly acceptable replacement for plate glass, PPG prefers to call it a "middle" quality product, ranking in price and quality somewhere between sheet and plate. At the time FORUM went to press, PPG expected to start production in

about a year but was undecided whether to build a new plant for the float process or convert an existing one to it.

While new to this country, the float process has been developed in Britain since 1952, when Alastair Pilkington conceived the idea of floating a ribbon of glass on a surface of molten tin, the glass taking on the metal's flat surface. Controlled heating melts irregularities in the glass, and it comes from the furnace cool and ready for cutting. Pilkington began production in 1959 and opened a new Lancashire plant this year, the largest ever built by the company. Limited at first to 1/4-inch glass, the float process has been developed to the point where other thicknesses can also be produced.

Manufacturer: Pittsburgh Plate Glass Co., 632 Fort Duquesne Blvd., Pittsburgh 22.

SQUARE COLUMNS

A new product with the seductively feminine name, *Sleek/Forms*, is actually a very practical device for molding concrete columns. Sleek/Forms, so the manufacturer claims, are the first fiber forms that will mold square or rectangular columns.

Made of 15-ply paperboard and plastic coated to repel moisture and insure a smoothly finished surface on the column (see close-up), Sleek/Forms are available in two standard lengths and widths, 4 and 5 feet long, 12 and 16 inches square, with a wall thickness of 1/2-inch as a minimum. Forms of other dimensions can be made on a custom basis. The cost is about \$4 per linear foot, which, according to the manufacturer, is competitive with plywood forms that have to be assembled on the site.

Manufacturer: Alton Box Board Co., Alton, Ill.



BIG, LIGHT PLANTERS

The "executive greenery" found nowadays in and out of corporate offices often grows in ceramic or concrete tubs, the bigger the more prestigious. Now Architectural Pottery, a firm known for ceramic tubs, is transplanting greenery into glass-fiber containers for certain uses, such as roof-top terraces, temporary exhibits, and fairs, all of which need a lighter or more portable container than the clay tub. Then, too, in glass

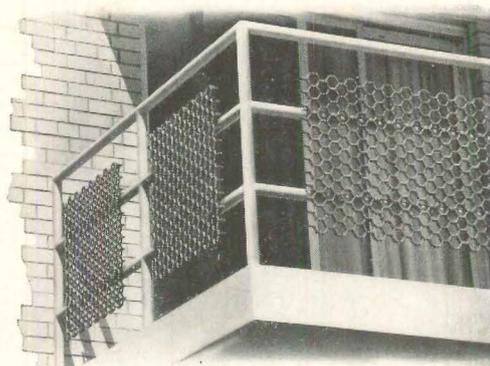
continued on page 62



NEW CLASSICISM in EXTERIORS with ARCHITECTURAL GRILLES

Functional, durable and economical, IRVICO architectural grilles as guard rail components provide an element of classic simplicity, balance and harmony. They give an appearance of lightness and airiness; yet inherent "third dimension" affords complete privacy when viewed from below.

Minimal installation costs make IRVICO architectural grilles, with their aesthetic and functional advantages, most economical. Framing is not required and panels are simply and rapidly secured to tubing by specially designed clips.



- 85% open mesh.
- Available in finished steel and color anodized aluminum.
- Flexible panels for contoured installations.

For complete information write

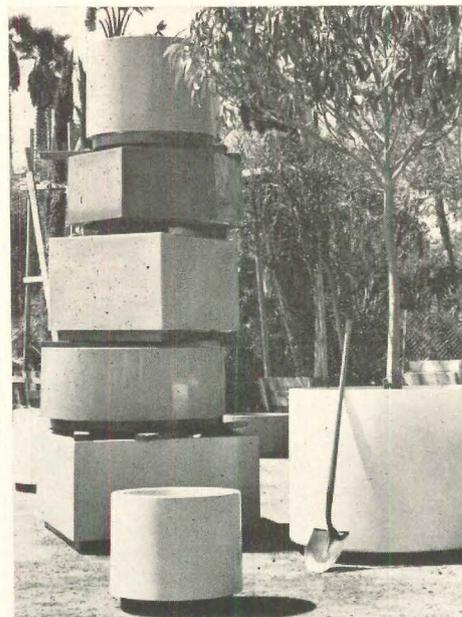


**IRVING SUBWAY
GRATING CO., Inc.**

ORIGINATORS OF THE GRATING INDUSTRY

Offices and Plants at

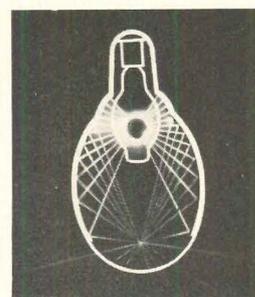
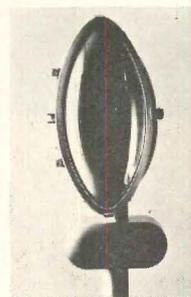
50-61 27th ST., LONG ISLAND CITY 1, N. Y.
1861 10th ST., OAKLAND 20, CALIFORNIA



fiber the containers can be made in larger sizes than are possible with clay or concrete, and they stand up to a good deal of abuse in public places—shopping-center malls, city parks and plazas, for example.

Besides the cylindrical planters shown in the foreground, *Architectural Fiberglass Planters* come in hexagons, squares, and rectangles, as shown in the stacked planters, and triangles and semicircles, which are not shown. There are six colors—gray-green, warm gray, sand brown, blue-gray, off-white, and white—all in a matte finish that resembles a fine stoneware glaze. Sample cylinder prices: 2 feet wide, 1 foot 4 inches tall, \$150; 4 feet wide, 3 feet 3 inches tall, \$550.

Manufacturer: Architectural Fiberglass Planters Division, Architectural Pottery, 2020 S. Robertson Blvd., Los Angeles 34.



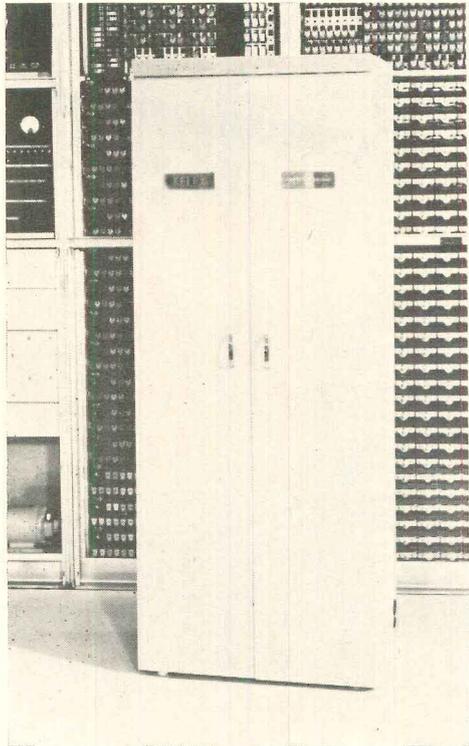
WIDE-BEAM FLOODLIGHT

This new mercury floodlight, the *Cat's-Eye*, casts a beam 164 degrees wide for maximum effect and minimum number of fixtures in lighting building façades, parking lots, and sports areas. According to the Revere Electric engineers who developed it, the reflector's combination of elliptical and parabolic curves casts the widest usable beam of any floodlight (see photo diagram of horizontal cross section).

The reflector itself is a deep oval with

a narrow lens in a gasketed, weatherproof frame. For pole-top mounting, a Cat's-Eye with a built-in ballast costs \$153.90; the same model, but with a remote ballast, costs \$89.83.

Manufacturer: Revere Electric Manufacturing Co., 7420 Lehigh Ave., Chicago 48, Ill.



SMALL SWITCHBOARD

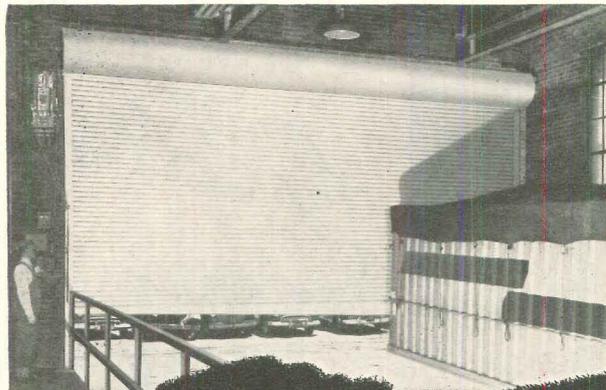
ITT Kellogg has developed a pint-size switchboard, fully transistorized, which fits 100 telephone lines into a cabinet the size of an office file (see photo): it is half as big as the smallest conventional electromechanical system and weighs about 400 pounds. The *Kelex 2000* is designed for private telephone systems in factories, schools, hospitals, and offices—wherever internal systems are needed. It is the first of a series of electronic switchboards, extending later to automatic branch exchanges and community dial offices, all compatible with existing equipment.

Manufacturer: ITT Kellogg, International Telephone & Telegraph Corp., 320 Park Ave., New York 22.

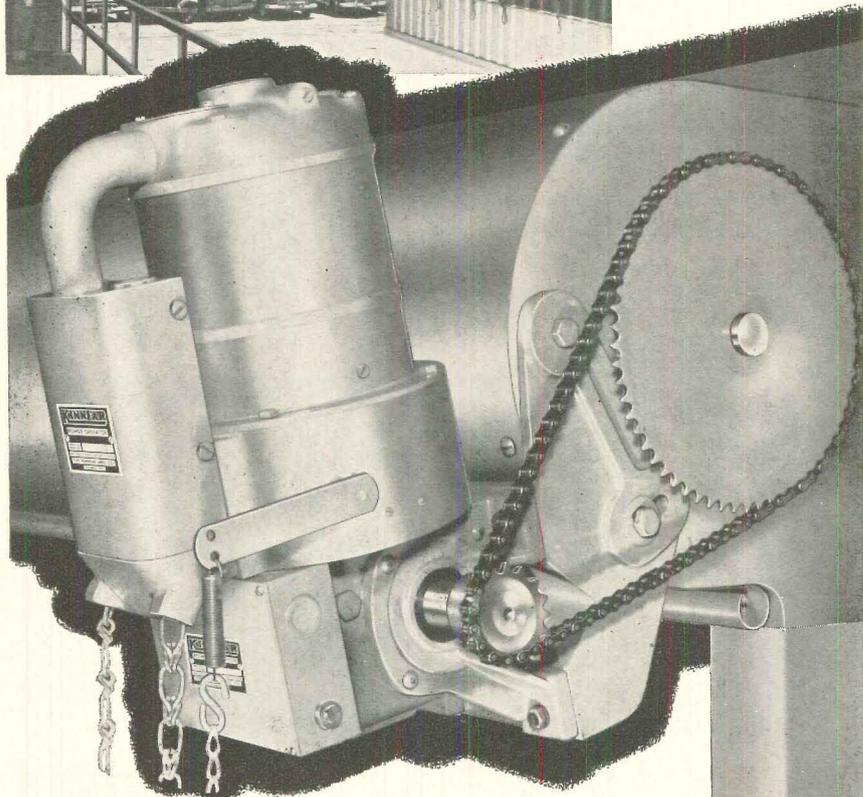
SCHOOL LABORATORIES

Mobile labs for grade schools and junior highs may be set up for displays, teacher demonstrations, or simple group experiments. One unit has lodgings for a couple of animals and a tank for fish, with a small herbarium on top. Other units like the one on the following page have sinks, electrical outlets, tote trays, and storage cupboards. The most elaborate in the series (second photo) has a folding table which provides

continued on page 64



**Kinnear
has the
Door**



**And the Finest
POWER OPERATOR
ever devised . . .**

. . . Built specifically for operating rolling doors, here's an efficient integrated unit that will withstand years of hard gruelling service. It's offered in a size for every door need for either wall or bracket mounting — vertically or horizontally. And it's packed with such features as built-in thermal protection, shock-proof centrifugal clutch, disc type brake and highly rated worm gear and bearing system. To insure maximum door operating efficiency and years of lowest possible maintenance cost insist on the Kinnear Power Operated Rolling Door — by the people who originated the interlocking slat door construction.

The KINNEAR Manufacturing Co.



FACTORIES: 1640-60 Fields Avenue, Columbus 16, Ohio
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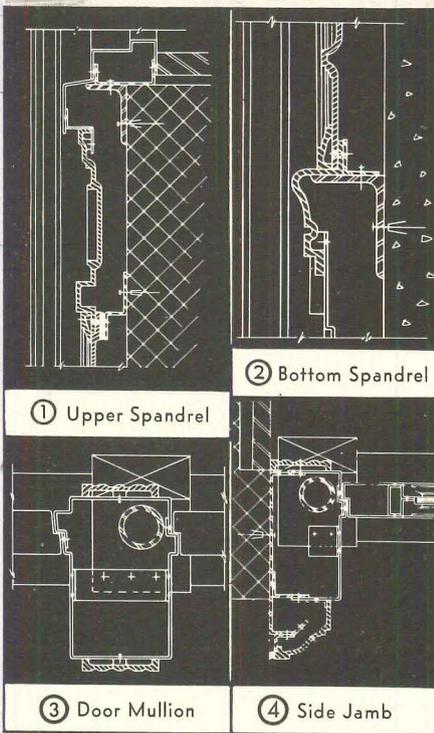
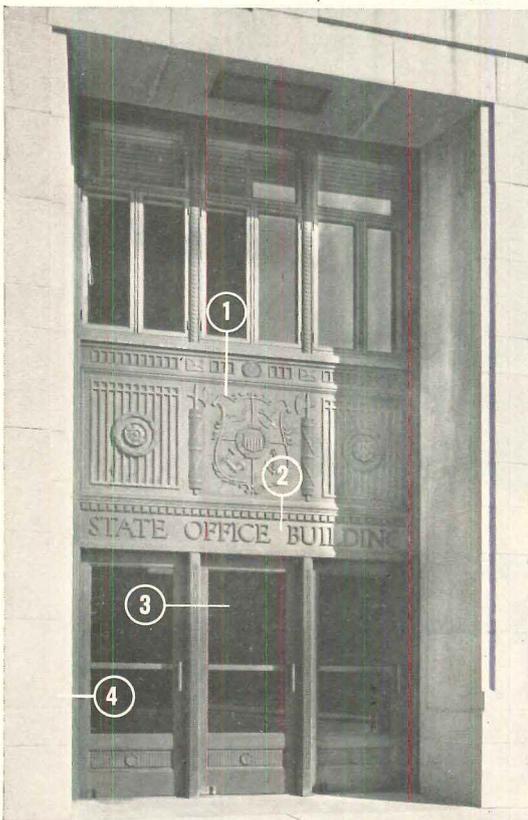
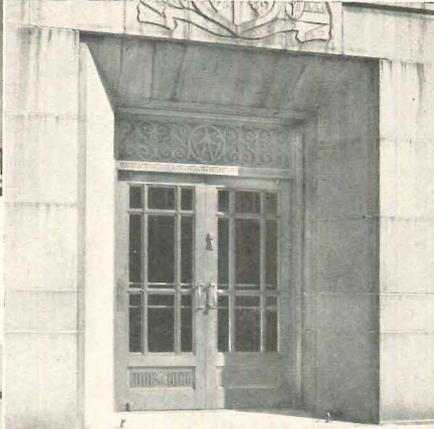
by Ellison



STATE OFFICE BUILDING, Madison, Wisc.

Ellison Ornamental Bronze entrance enclosures including 6 Ellison Balanced Doors.*

ARCHITECT: Karel Yasko, State Architect



You get more than doors from Ellison

Complete Bronze entrances within the marble enclosures of the State Office Building, Madison, Wisconsin, were engineered and built by Ellison including the seals and ornaments. *ELLISON ENGINEERING is available to assist in planning integral entrance units including doors and custom ornamental framing.

*the door that lets
TRAFFIC through QUICKLY*



Ellison

the BALANCED DOOR

representatives in 72 principal cities in U. S., Canada and Puerto Rico
ELLISON BRONZE CO., INC. • Jamestown, N. Y.

Ellison Engineers are at your service to help solve any entrance problems — call Jamestown, N. Y., 61-594



work space for eight students, upright rods for experiments, storage, water, and gas connections.

All units are faced with birch veneer and mounted on square steel tubing; table tops are four-ply resin with an acid-resistant enamel finish. Most expensive is the animal unit, which costs \$495; the others range down from that, to a low of \$230.

Manufacturer: Hamilton Manufacturing Co., Two Rivers, Wis.

TEDLAR LAMINATE

Pure acrylic adhesive bonds DuPont's polyvinyl fluoride film, Tedlar (FORUM, June '61), to galvanized steel, a process developed jointly by the National Steel Corp. and DuPont for the roof and wall panels in National's Stran-Steel line of pre-engineered steel buildings.

For this process, National uses a minimum-spangle galvanizing that absorbs the adhesive evenly and gives it good formability after coating. Tedlar is bonded in a thickness of 2 mils to the base steel, on which the galvanizing is 1 mil thick. The acrylic adhesive is applied in a depth that will harden to 3/10 mil. Tedlar's high tensile strength—12,000 to 15,000 psi—extends the life of the base metal, making it impervious to light, moisture, and many chemicals, sol-

vents, and staining agents. Cost will be "in the same range as other organic film-coated materials."

Manufacturer: National Steel Corp., Grant Building, Pittsburgh 19.

RIGID VINYL PANELS

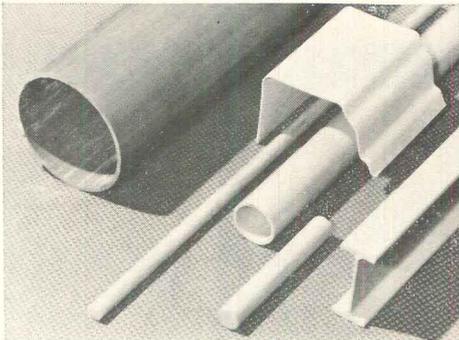
Monsanto and Butler Manufacturing Co. are marketing rigid vinyl building panels made by Monsanto that are self-extinguishing and translucent. A transparent version of the same panel will be marketed later.

The translucent panels are currently available in corrugated, ribbed, and flat surfaces and in two light transmission ranges, from 50 to 80, and 30 to 40 per cent. Standard dimensions are: width, 50½ inches; length, 8, 12, and 16 feet; weight, 8 ounces per square foot. In color, the choices are two greens, neutral, and yellow, all with different light transmitting properties. Cost: 35-60 cents per square foot, depending on thickness and quantity.

Distributors: Building Products Dept., Monsanto Chemical Co., St. Louis 66; Butler Manufacturing Co., 7400 E. 13th St., Kansas City 26, Mo.

STRUCTURAL SHAPES IN PLASTIC

EXtren (accent on the first syllable) is the name of a glass-fiber reinforced plastic produced by a new continuous automatic process. From a series of giant machines

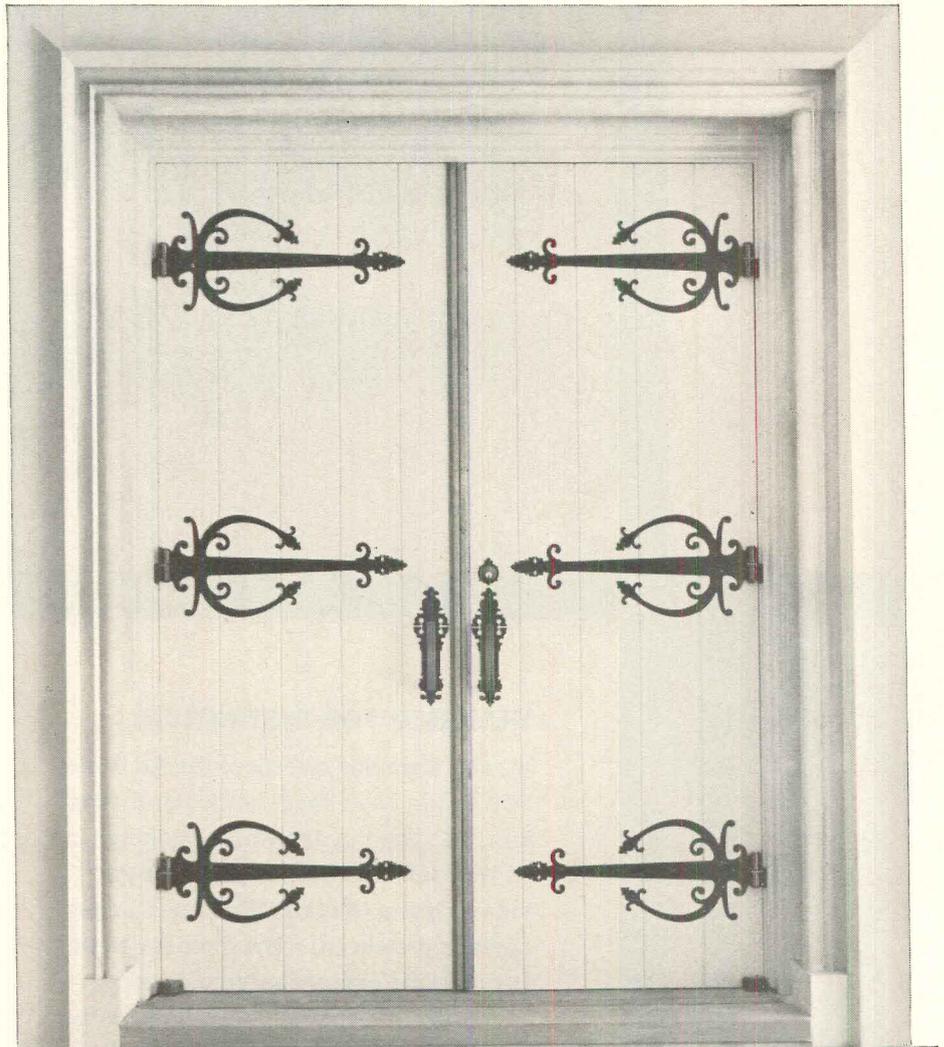


developed by Universal Moulded Fiber Glass come structural shapes, piping, corrugated panels, rods, and other shapes which can be thought of as extrusions (see samples above). These machines are able to produce sheets up to 52 inches wide and other shapes whose cross sections do not exceed 14 inches, with still bigger ones to come.

Along with the basic material, others may be added during production, so that structural shapes, for instance, emerge with reinforcing steel in place.

Any of these shapes has strength, light weight, low thermal and sound conductivity, a slow to self-extinguishing burning rate, and dimensional stability—with some shapes lighter than aluminum and stronger than steel, the company says.

Manufacturer: Universal Moulded Fiber Glass Corp., Bristol, Va. END



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Graceful lines, beautiful finish with unsurpassed quality are evident in every piece of McKinney Forged Iron Hardware. Creative design in traditional architecture demands this unequalled elegance. Next time consider . . . then specify for the whole job fine McKinney Forged Iron Hardware . . . choice of quality-conscious consultants.

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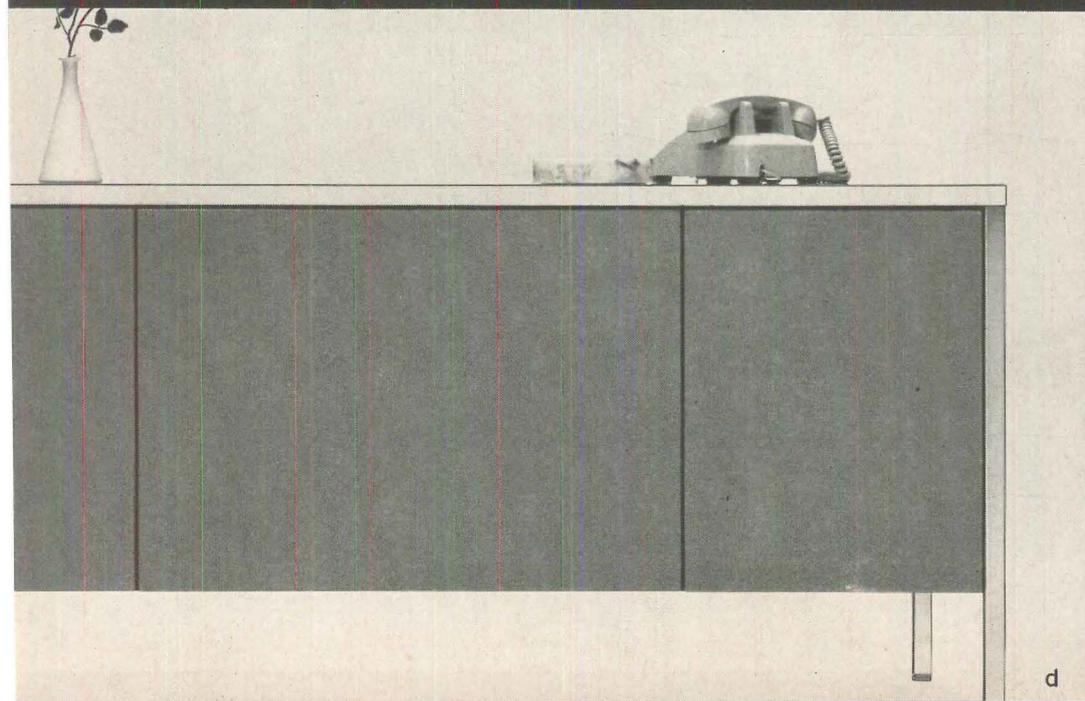
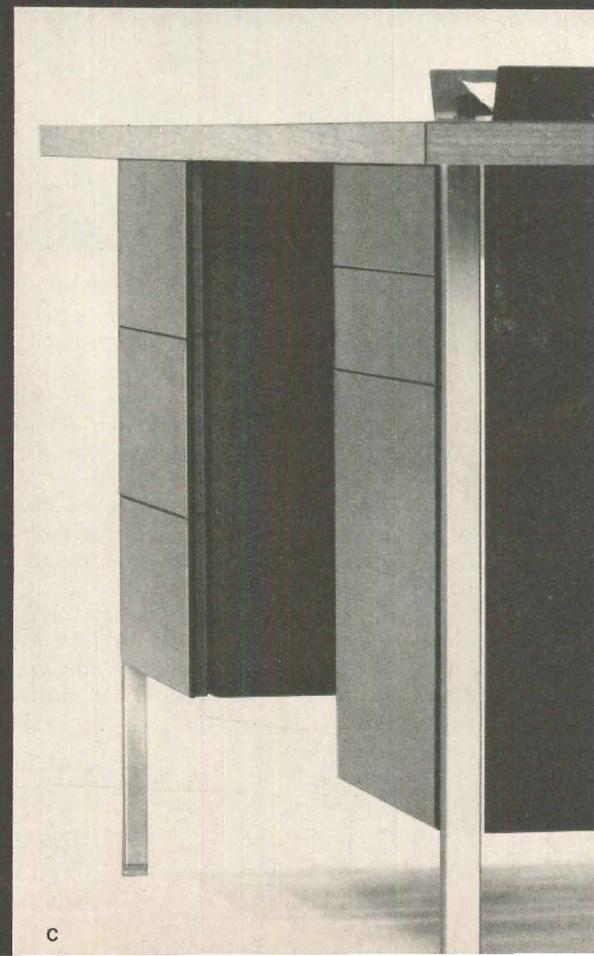
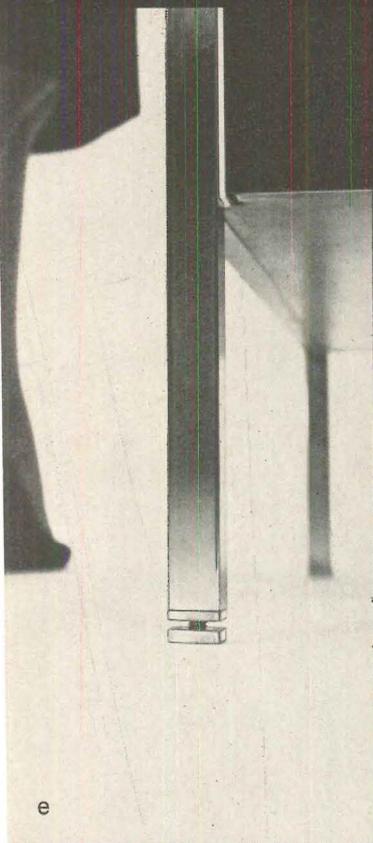
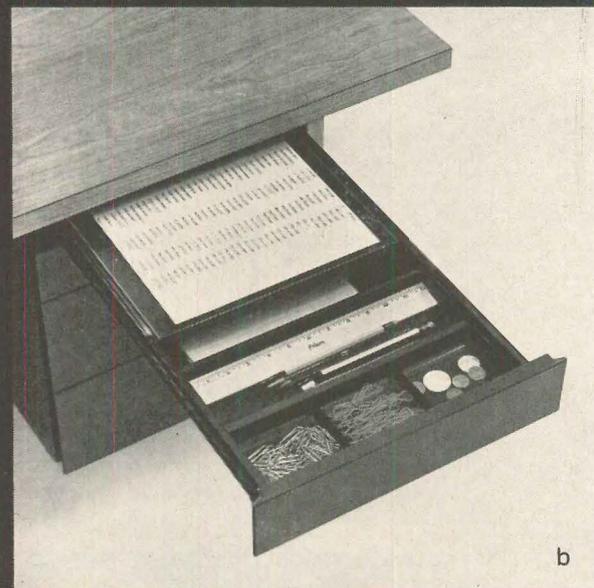
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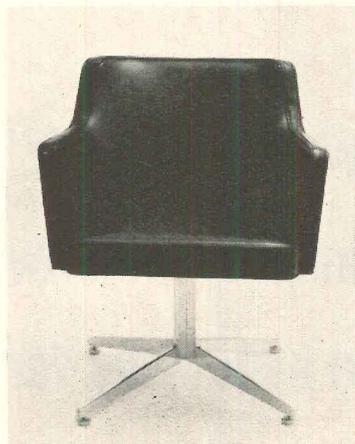
DESIGNED FOR DISTINCTION

Viewed from any direction, the Art Metal 500 Group desk has a particular distinction. Designed by the Knoll Planning Unit, its well-defined lines (a) perfectly suit today's office interiors. Rabbeted edges on each drawer (b) allow the desk front (c) to be simple and uncluttered. Vertical and horizontal spacer bars delineate the separate components of the desk (d). The clean line of the leg is maintained by square glides (e) which adjust only in quarter turns. All of these details, and many others, make the 500 Group desk ideal for your specifications. For information on the 500 Group, write:

ART METAL, INC.
Dept. F1, Jamestown, New York



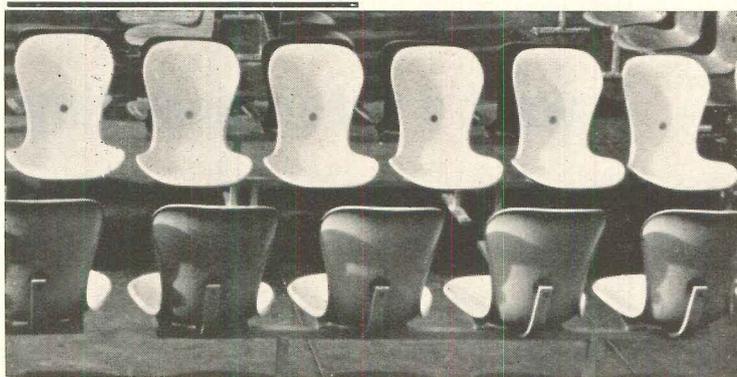
Adaptable shell seating, coupled bench



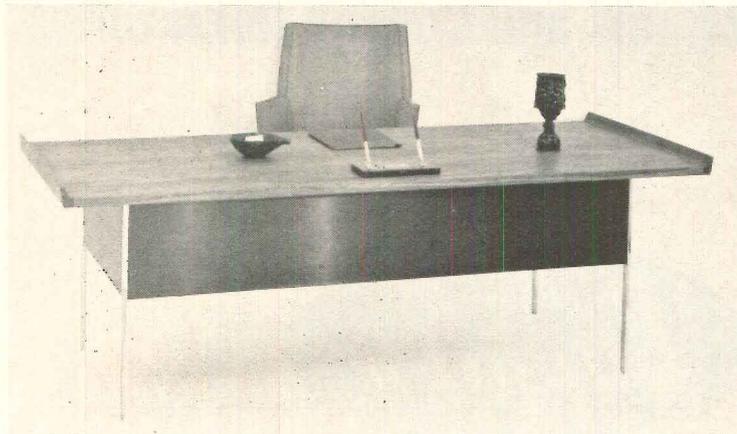
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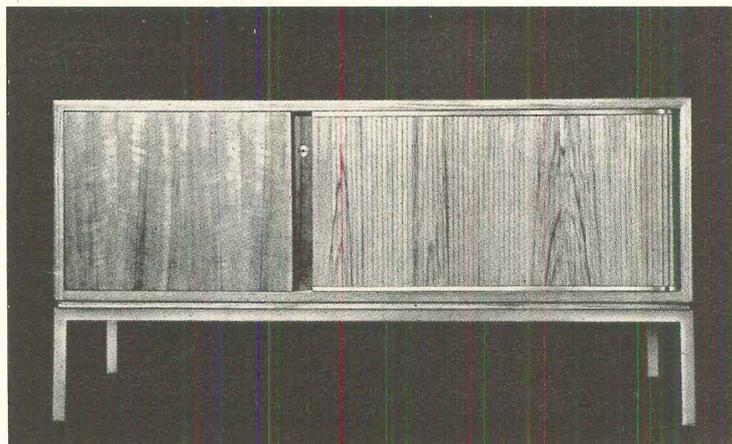
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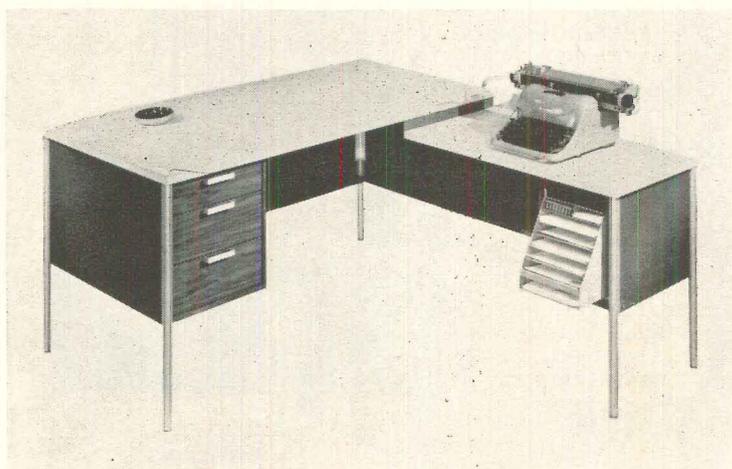
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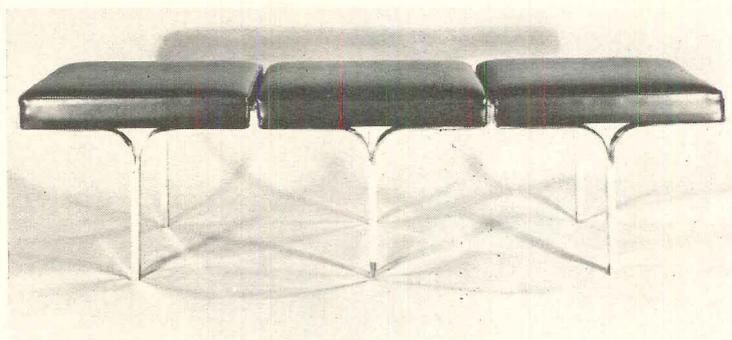
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5



6



7

1. EXECUTIVE SWIVEL CHAIR. A new shape in Harvey Propper's "Inner Office" line is this executive chair of seamless construction. The chair swivels on a polished aluminum base, or may be fixed in one position. Cost: \$270, plus the cost of 4 yards of fabric; \$310.50 in leather or Naugahyde, plus the covering.

2. FLOATING SEAT. A wooden frame inside the upholstery of this lobby chair is attached to the frame only at the back—the seat floats free. Fabry Associates, Inc., for whom Ed Secon designed it,

calls it the Lateral Chair. A wider version makes a love seat. Cost of the chair: \$395, plus fabric.

3. MULTIPLE SEATING. The Ion Chair by Gideon Kramer adapts to multiple seating like this or works well as a single chair with a polished stem. The dots in the chair backs are mechanical joints hooked into rubber spacers on the other side, which are joined to the back supports. The shell material is polyester resin-reinforced glass fiber. Brickel/Ep-pinger, Inc. markets the chair. Cost of single chair: \$38.90.

4. WINGED DESK. The upswept ends of this new desk from Harvey Propper are supposed to keep papers from sliding onto the floor. The walnut top rests on a double pedestal base of ebony-finished walnut; the legs are mirror-finished stainless steel. Cost: \$1,290.

5. TEAK CREDENZA. A file drawer on one side and a tambour compartment on the other divide the space in this teak credenza from Edgewood Furniture Co., Inc. The base is polished stainless steel. Cost: \$666.

6. DESK ON SLOTTED LEGS. Slot-

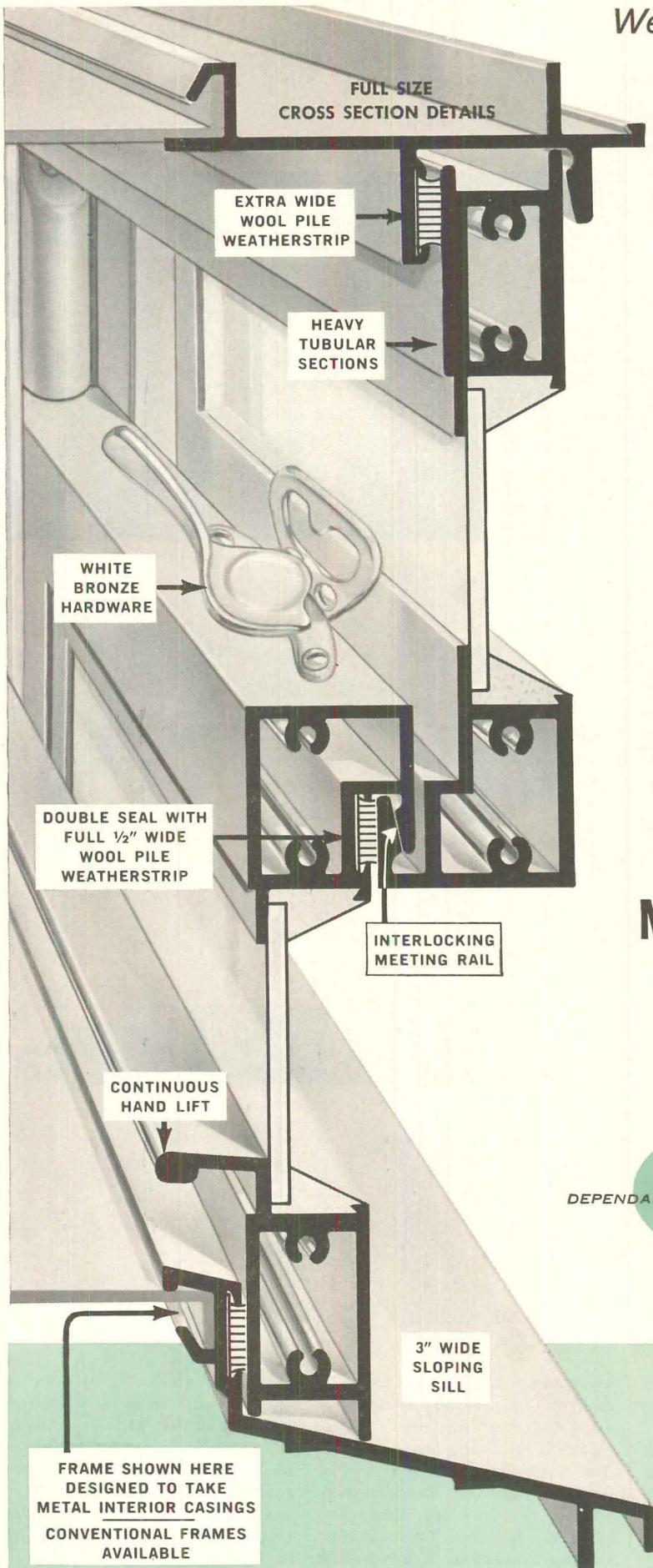
ted aluminum extrusions form the legs of a new series of desks from Art Woodwork Ltd. of Canada. This model, a secretarial L shape, has three drawers and a steel compartment for stationery. It is available in the U. S. from Cranbrook, Inc. in a plastic laminate or walnut for \$336 to \$352.

7. BALANCED BENCH. Poised delicately on slender chrome-plated steel legs, the Link Bench by John Behringer for Fabry Associates is intended for airports, lobbies, and reception rooms. Cost: \$192 per link, plus fabric for the cushion.

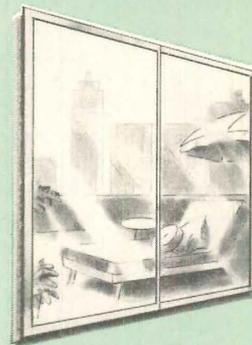
We designed this aluminum window to be

STURDIER..

Cupples new "Series 300" double-hung aluminum window was designed especially for architects and owners who want a better-operating, stronger, sturdier window for use in Apartments, Hotels, Motels and College Dormitories.



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CUPPLES SERIES 1100 SLIDING GLASS DOORS

For rooms leading to balcony or terrace. Beautiful Alumilite finish. Extra strong, sturdy construction with tubular vertical rails. Adjustable ball bearing rollers. Interlocking meeting rails plus double wool pile and vinyl weatherstripping. In 2, 3 and 4 door units from 6 ft. to 20 ft. width. Sliding screens available.

FRAME SHOWN HERE DESIGNED TO TAKE METAL INTERIOR CASINGS
CONVENTIONAL FRAMES AVAILABLE

QUALIFIES UNDER DH-A2 SPECIFICATION

Approved for Mitchell-Lama Housing under New York State Division of Housing and Community Renewal.

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INSTEAD OF TAKING METAL OUT, and designing the Cupples "300" window downward to a price, or to fool bargain hunters, we beefed up the sections to make it stronger and sturdier. We used double width wool pile weatherstrip all around the window and at the meeting rail to keep out dust and dirt as well as rain and cold drafts. We made the "300" a foolproof, easy-operating window that will give satisfactory, maintenance-free performance for many years to come. It's a window you should specify for any apartment house or for the hard, rough usage of hotels and college dormitories.

Sure the Cupples "Series 300" costs a few dollars more (approximately \$3 to \$4) than lightweight minimum standard residential windows, but its heavier sections, better weather-tightness and foolproof operating qualities make it a worthwhile investment that will pay handsome dividends in lower maintenance and tenant satisfaction.

Before you specify or order aluminum windows for your next job be sure you investigate the Cupples "300." Remember, too, that when you deal with Cupples you get **DEPENDABILITY** of product, quality, service, delivery and a well-established Company behind the product (Cupples is a division of ALCOA). Our representative in your area will be glad to consult with you at your convenience. Write for full size details and complete information. Address Dept. AF-210.

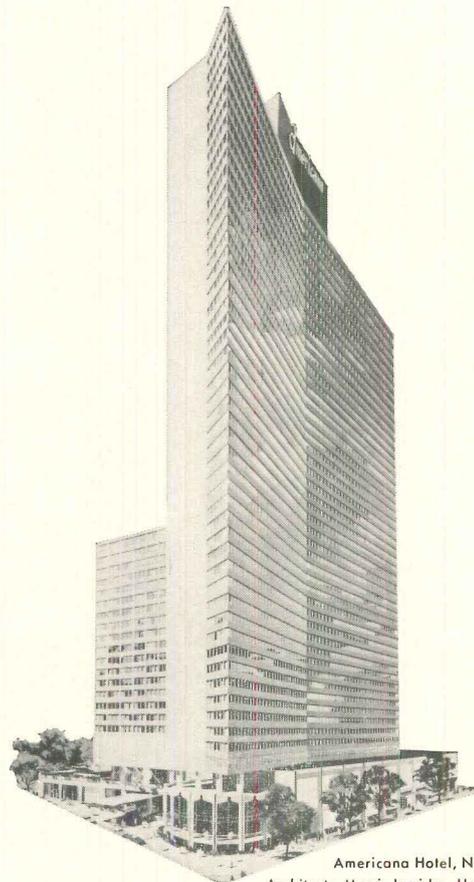
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A Division of Aluminum Company of America
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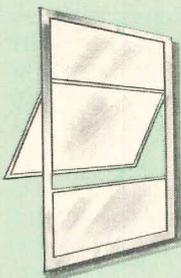


Americana Hotel, New York, N. Y.
 Architects: Morris Lapidus, Harle & Liebman
 Contractor: Diesel Construction Co.



Bronx Park East Apartments, Bronx, N. Y.
 Architects: Brown & Guenther
 Contractor: Golham Construction Corp.

FOR USE IN APARTMENTS, HOTELS, MOTELS AND DORMITORIES



CUPPLES SERIES 600 PROJECTED WINDOWS

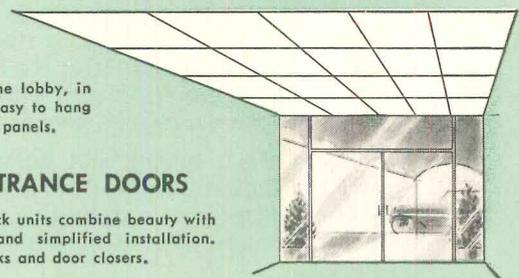
These strong, sturdy projected windows will take usage for many years. All horizontal rails in frame and sash are tubular for extra rigidity and strength. Adjustable, patented 4-bar operator mechanism. White bronze hardware, 3/8" glass rabbit. Interior or exterior metal snap-in bead glazing optional.

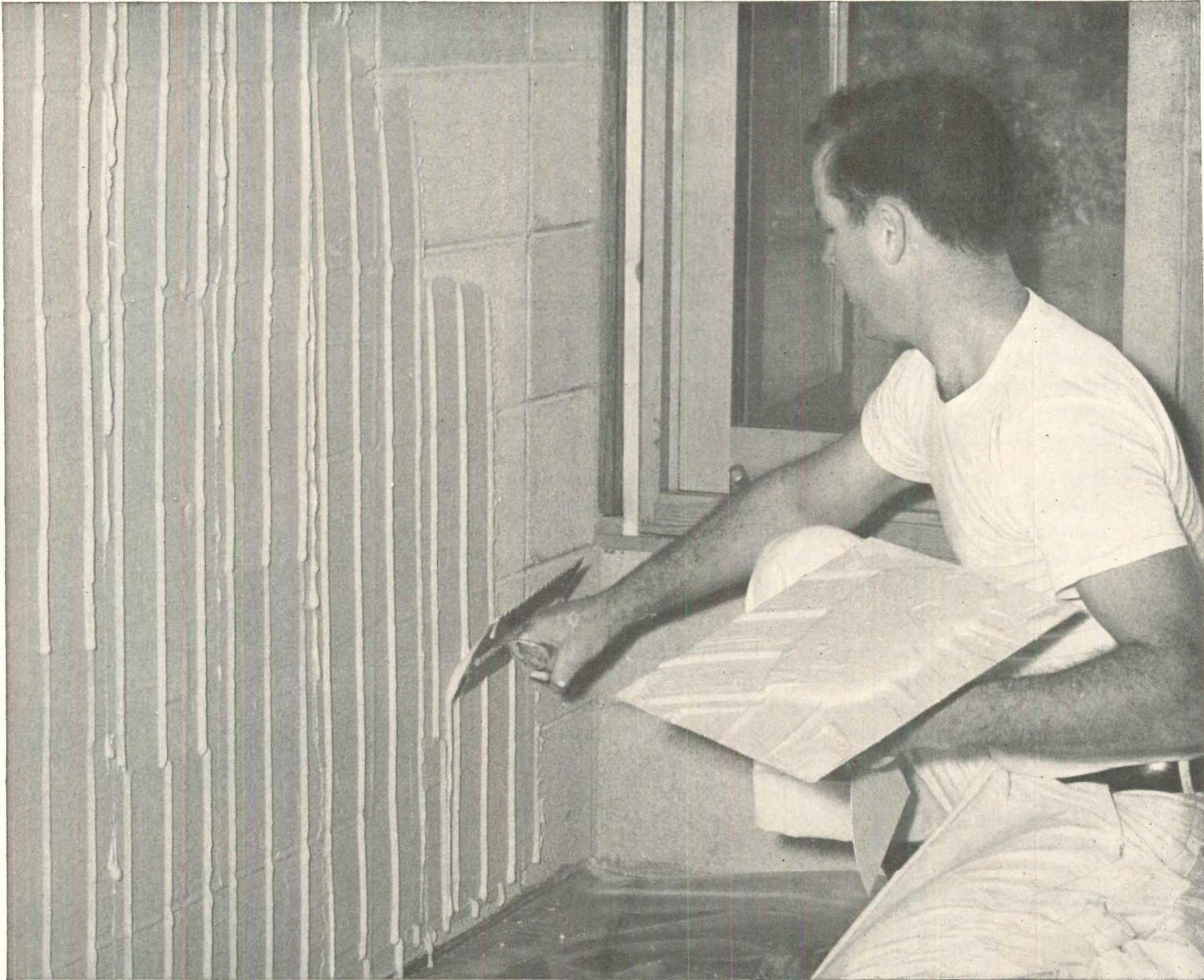
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For luminous or acoustical ceilings in the lobby, in kitchens and bathrooms. Inexpensive. Easy to hang aluminum grid. Holds 2' x 2' or 2' x 4' panels.

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New "40 LINE" of stock units combine beauty with flexibility of design and simplified installation. Choice of hardware locks and door closers.





After Styrotac™ bonding cement is applied to either the wall or to Styrofoam, the insulation is pressed in place (center). After overnight setting, gypsum wallboard is either spot-coated or notch-trowelled with Styrotac and pressed in place over the Styrofoam insulation (right).

STYROFOAM®

Here's a new step-saving, cost-saving method using Styrofoam insulation for insulating masonry structures which produces permanently high insulating values, provides a solid base for wallboard, and eliminates the problem of nail-popping . . . all in a single operation.

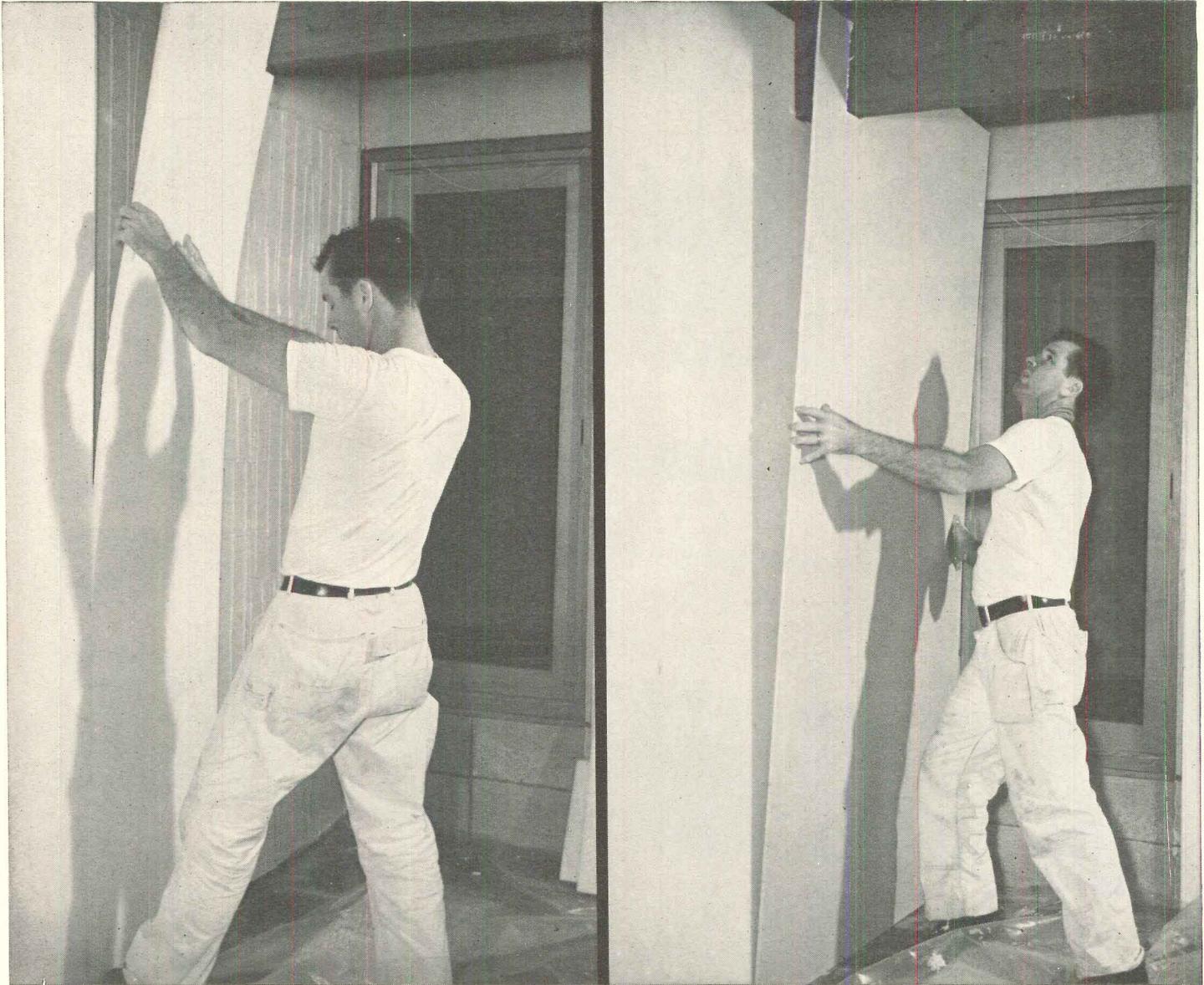
This new method makes use of Styrotac to bond Styrofoam brand insulation board directly to the inside face of the masonry wall, as illustrated. After the bonding cement has set overnight, gypsum wallboard is then adhered to the Styrofoam insulation using the same material.

Using this method, furring and lathing are eliminated, producing a solid insulated wall with no hollows. There is no wood present for insects to feed on, no nail holes to fill and "pop," and the completely-supported wallboard will

not bow in or warp. This new insulating method, developed by Dow, offers architects a means of building-in the quality of double-laminate walls, using only a single thickness of wallboard.

Styrotac can be applied to dry absorbent masonry surfaces without first wetting the surface, or it can be applied to the Styrofoam. Either spot application or full coverage using a notched trowel is recommended. Only firm hand pressure against the boards of Styrofoam is required to bond them solidly to the wall.

For wet plaster installations, Styrofoam insulation is first bonded to the masonry wall with Styrocrete® or portland cement mortar. Wet plaster is then applied directly to the face of the Styrofoam. The cellular structure of Styrofoam



New insulating method saves money, saves steps in masonry construction

insulation provides positive keying action to the plaster, producing maximum bond strength.

STYROFOAM insulation board provides permanent insulating values for masonry buildings because of its high resistance to moisture, and its low "K" factor. Styrofoam rigid foam insulation contains millions of tiny non-interconnecting air cells which don't soak up water or moisture, don't rot or mildew. *No separate vapor barrier is needed!* And because Styrofoam insulation has no food value, it doesn't attract insects or vermin. In addition, the high insulating efficiency of this insulation keeps heating and cooling costs to a

minimum, year in, year out.

For more information on the time-saving, cost-saving advantages of using Styrofoam insulation and this new insulating method for masonry construction, write THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Dept. 1301LH10.

Styrofoam is a registered trademark of The Dow Chemical Company. It is applied only to the homogeneous expanded polystyrene made according to an exclusive Dow process. Styrofoam brand insulation board is available only from Dow and its authorized representatives.

THE DOW CHEMICAL COMPANY



Midland, Michigan



Hertzka & Knowles and Skidmore, Owings and Merrill, associated architects.

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Goodyear Vinyl can actually pay for itself in maintenance savings! Because it is so tough and wear-resistant, it doesn't require wax. Machine cleaning and regular polishing with a commercial buffer are all it takes to maintain high-luster beauty.

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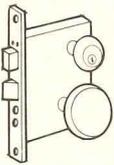
Available in new multiple marbled colors. In $\frac{1}{8}$ " gauge for commercial and heavy traffic use and in $\frac{1}{16}$ " for light traffic areas. For specifications, see your nearest Goodyear Floors Distributor, or write: Goodyear, Flooring Dept. V-8110, Akron 16, Ohio.

GOODYEAR

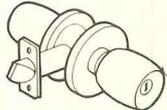
 FLOORING PRODUCTS

Hardware Flexibility

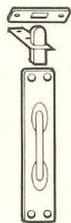
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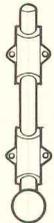
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Gov't. 86 series
and ASA strike



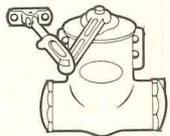
CYLINDRICAL LOCKS
Gov't. 161 series
and ASA strike



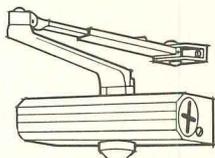
FLUSH
EXTENSION
BOLTS



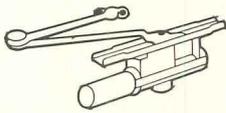
SURFACE
BOLTS



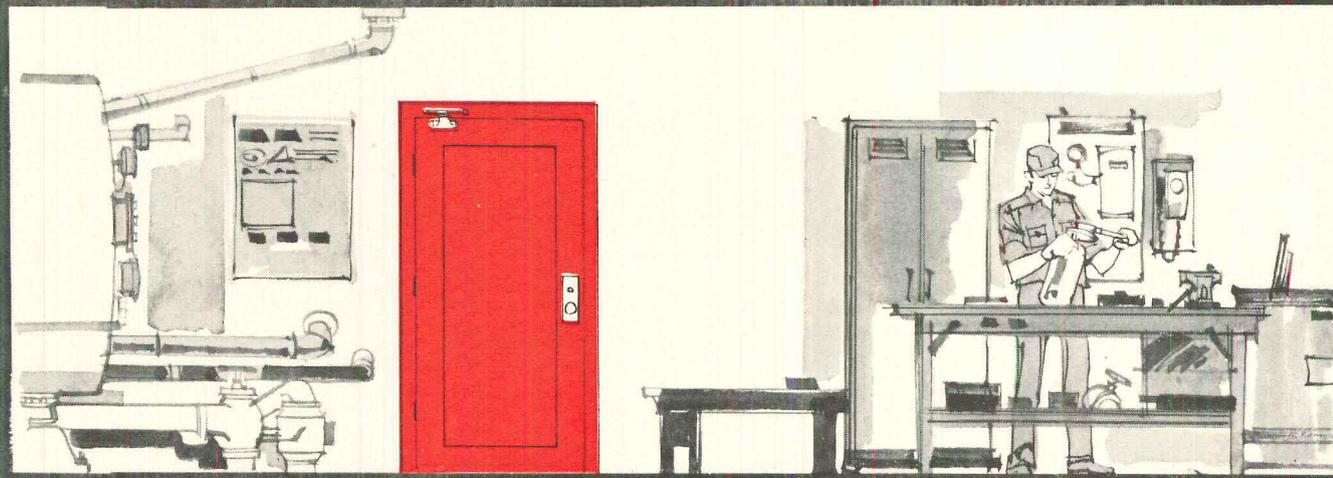
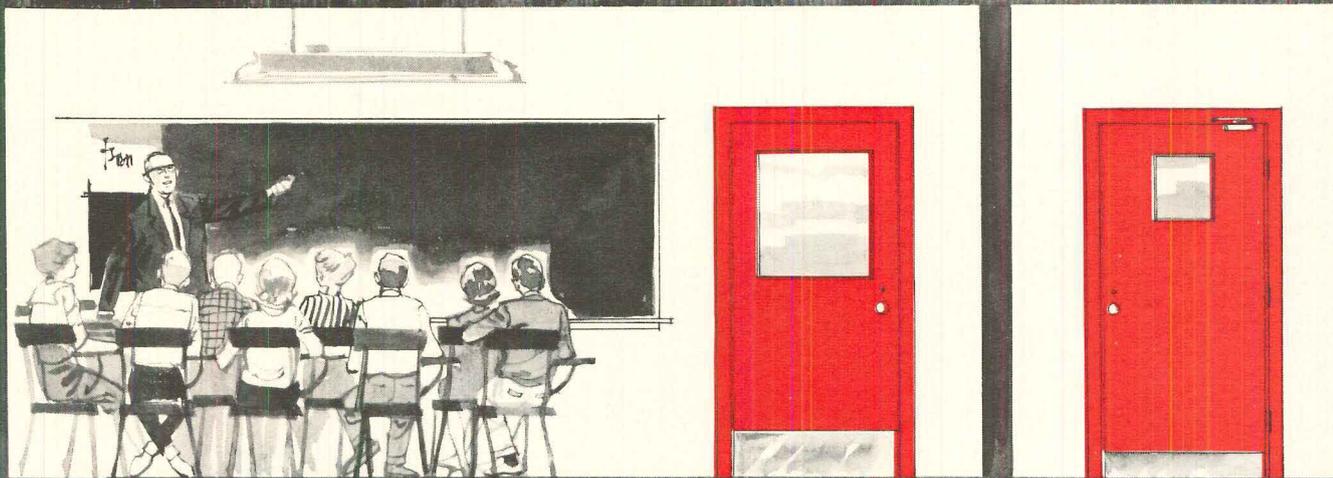
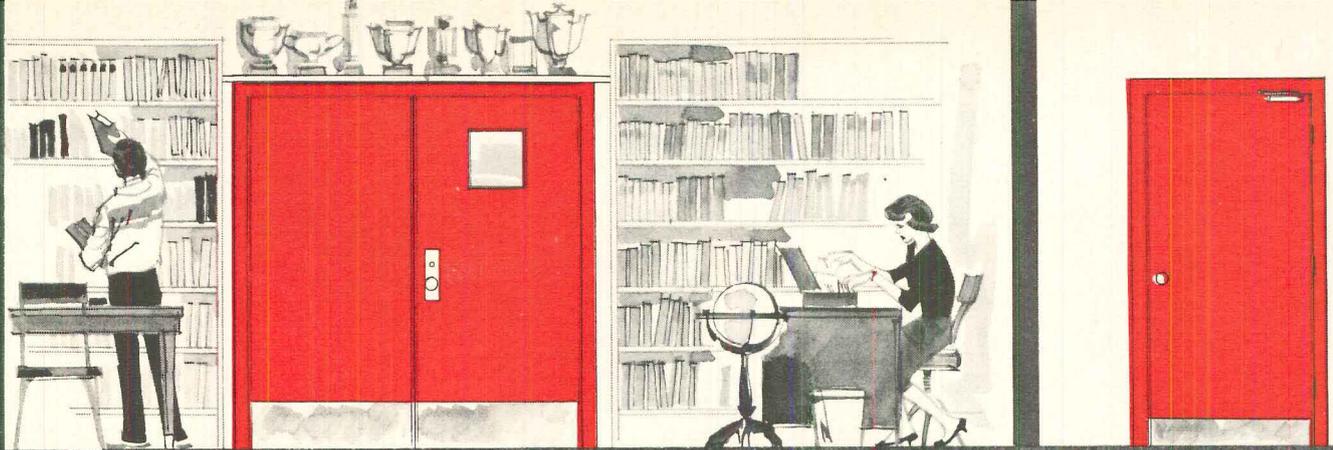
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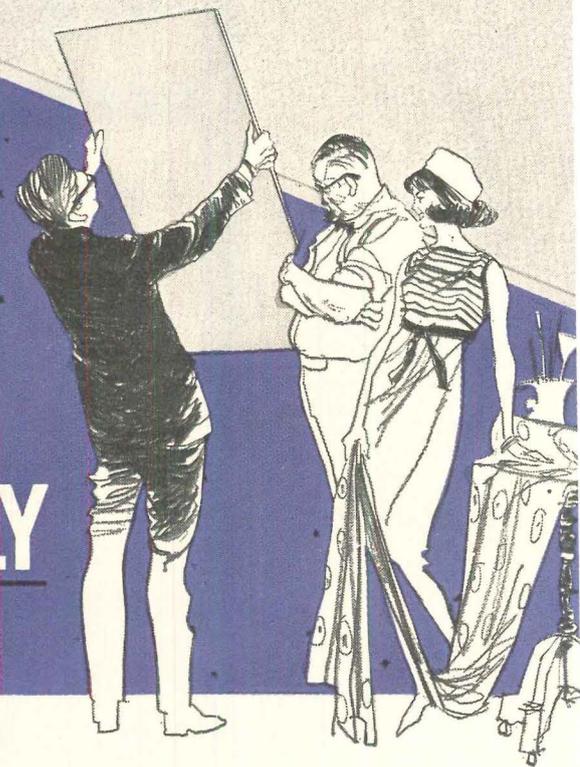
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Natural Fissured	Square edge, kerfed for concealed suspension system	12" x 12" x 3/4"	1 Hour	Wood deck over wood joists
Plaid† Striated		*12" x 12" x 3/4" to 24" x 24" x 3/4"	2 Hour	Concrete deck over steel bar joists
Natural Fissured	Tongue & grooved and kerfed for concealed suspension system	*12" x 12" x 3/4"	4 Hour†	Concrete slab over cellular steel deck, steel beams
Embassy‡ (formerly Tiffany) Random Perforated	Beveled, kerfed for concealed suspension system	12" x 12" x 5/8"	1 Hour	Wood deck over wood joists
		*12" x 12" x 5/8" to 24" x 24" x 5/8"	2 Hour	Concrete deck over steel bar joists
	Tongue & grooved and kerfed for concealed suspension system	*12" x 12" x 5/8"	4 Hour	Concrete slab over cellular steel deck, steel beams
Embassy Panels (formerly Tiffany) Fashion-Fissured Panels	Trimmed edge for exposed suspension system	*24" x 24" x 5/8" and *24" x 48" x 5/8"	2 Hour	Concrete deck over steel bar joists
Acoustiform Panels	Trimmed edge for exposed suspension system	*24" x 24" x 1" and *24" x 48" x 1"	2 Hour	Concrete deck over steel bar joists

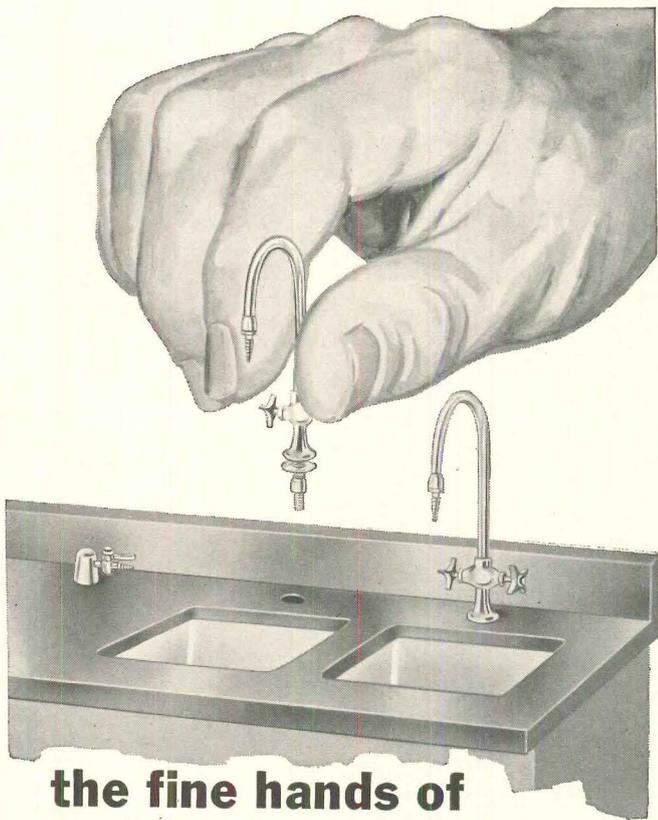
*Includes penetrations (recessed light fixtures and air diffusers)
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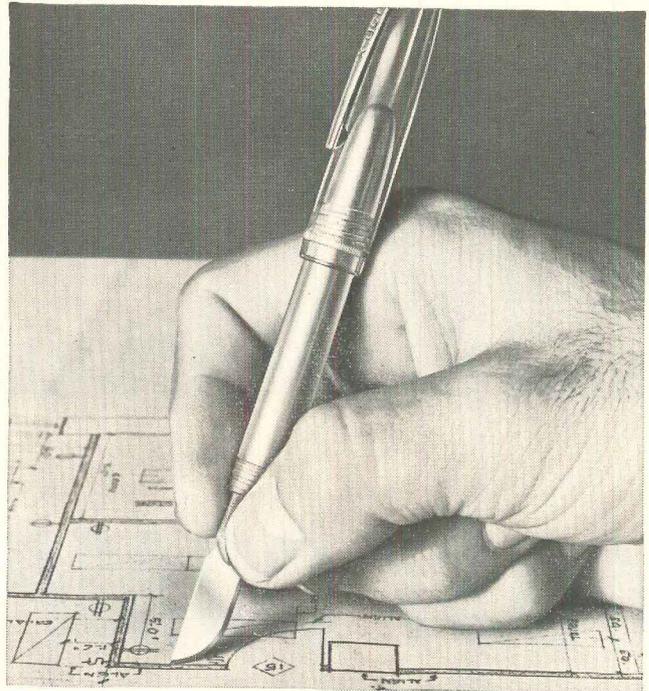
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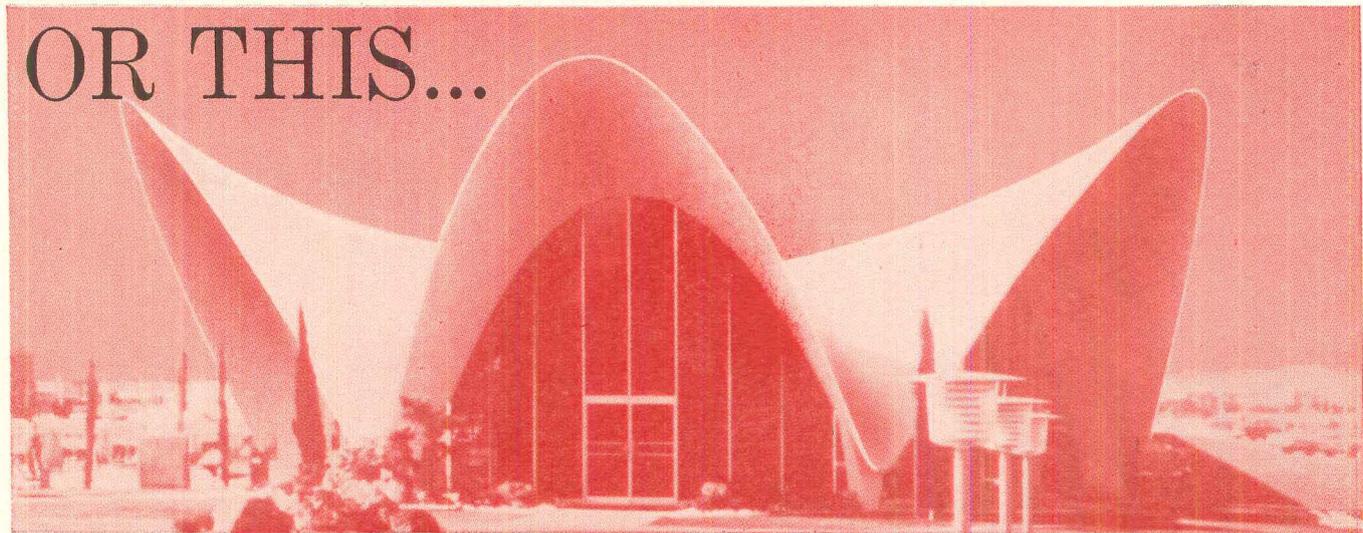
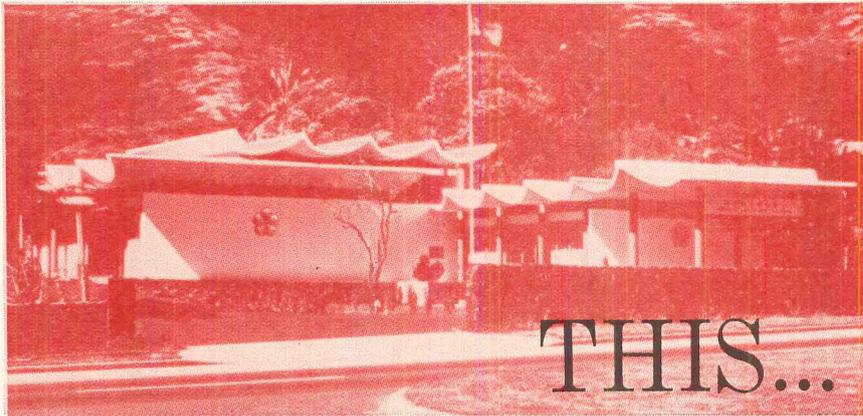
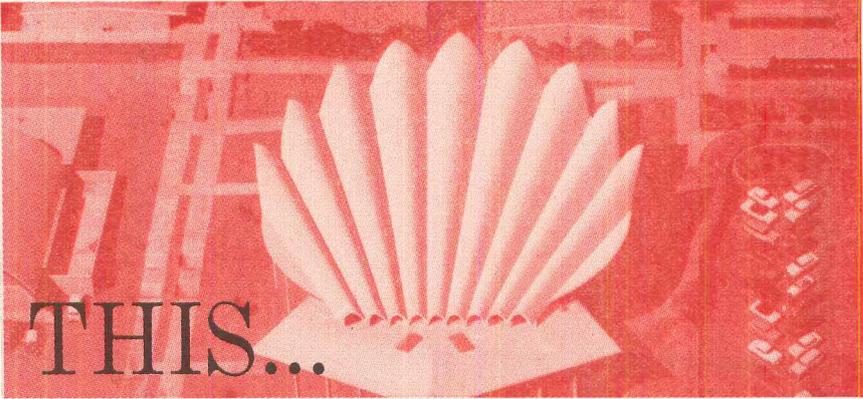
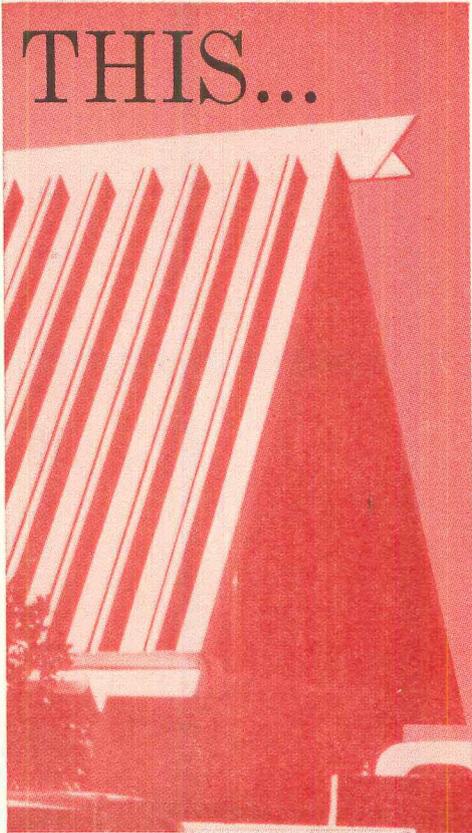
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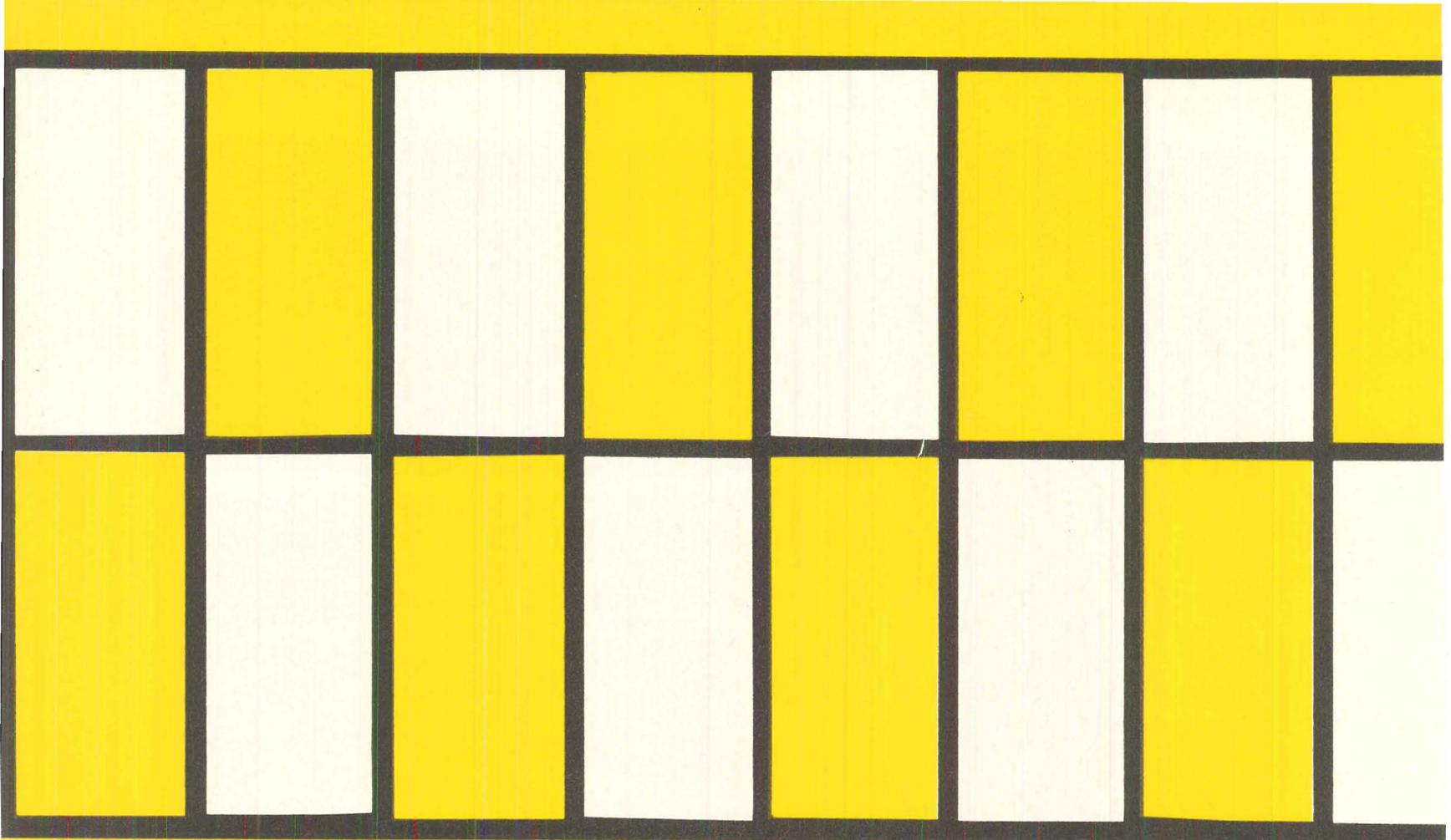


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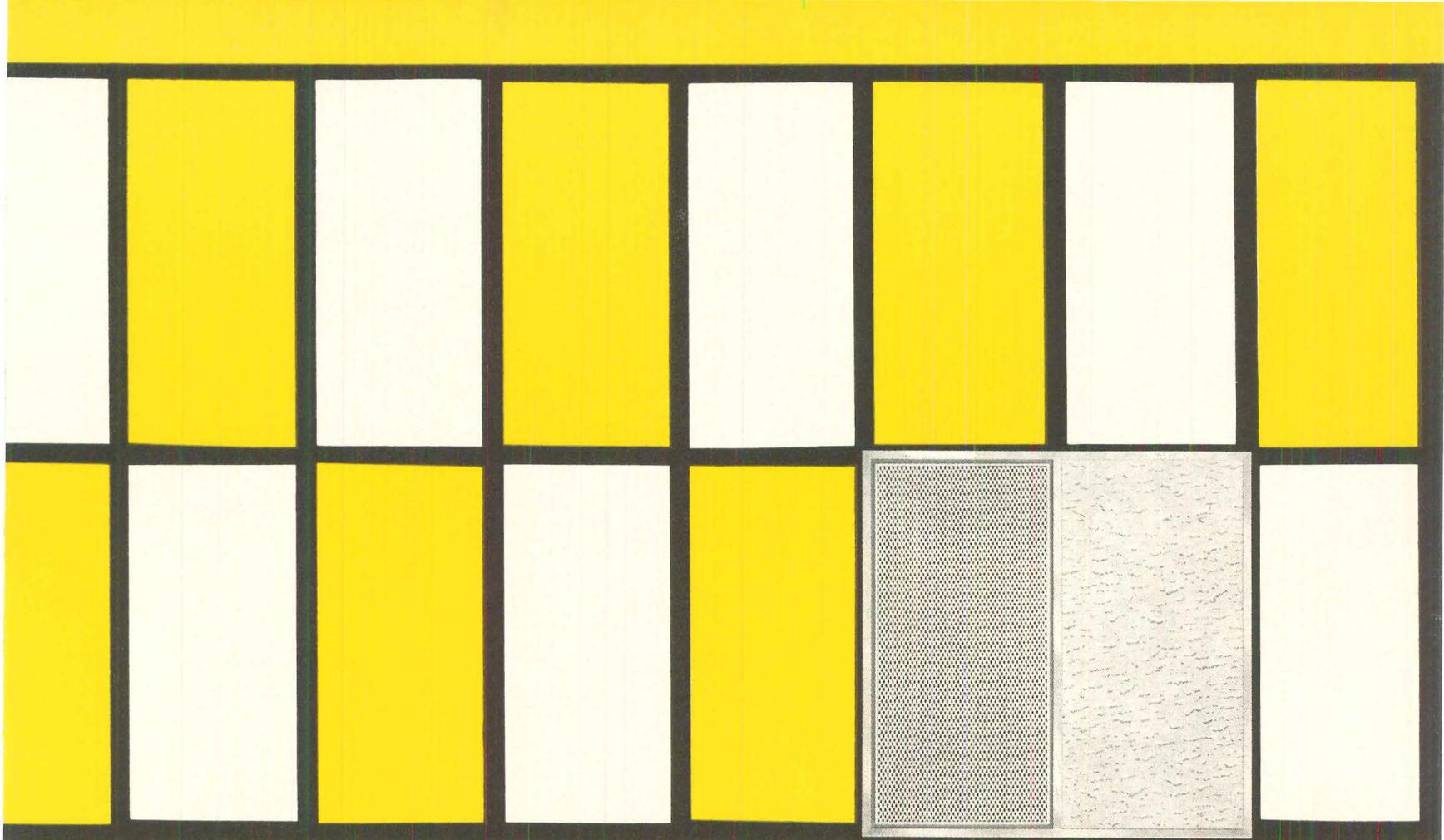
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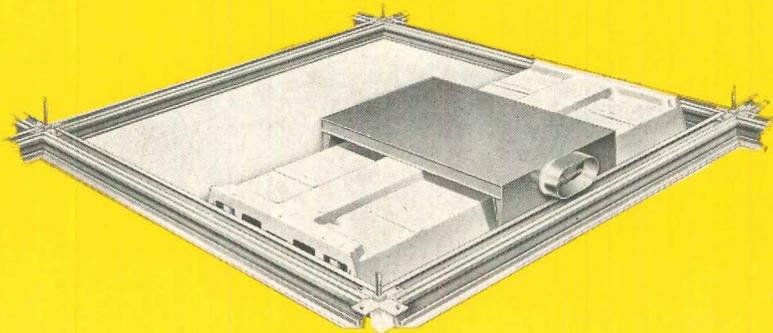




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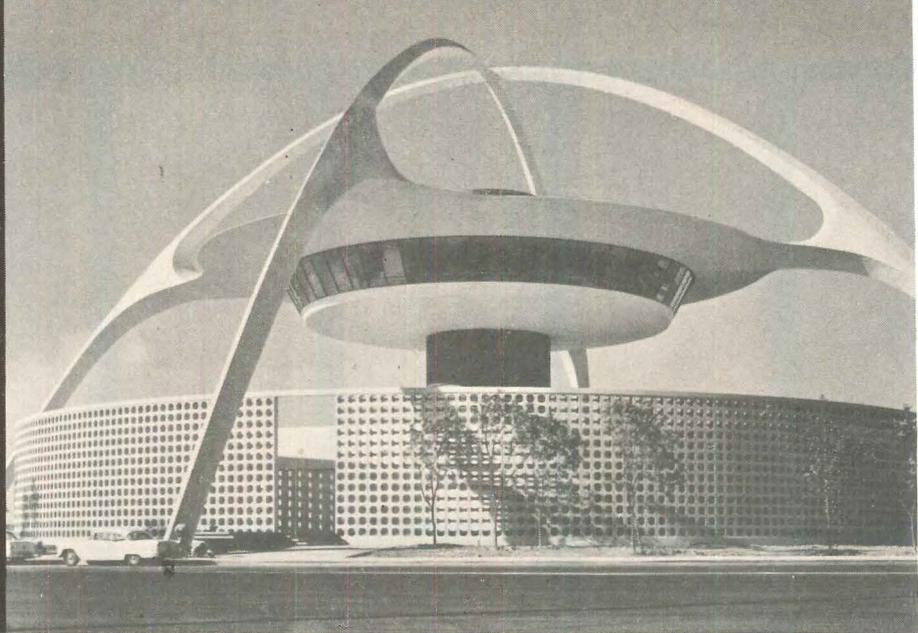


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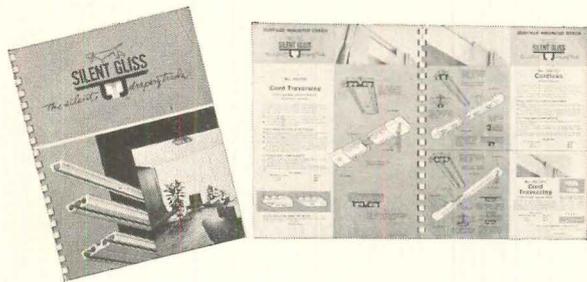
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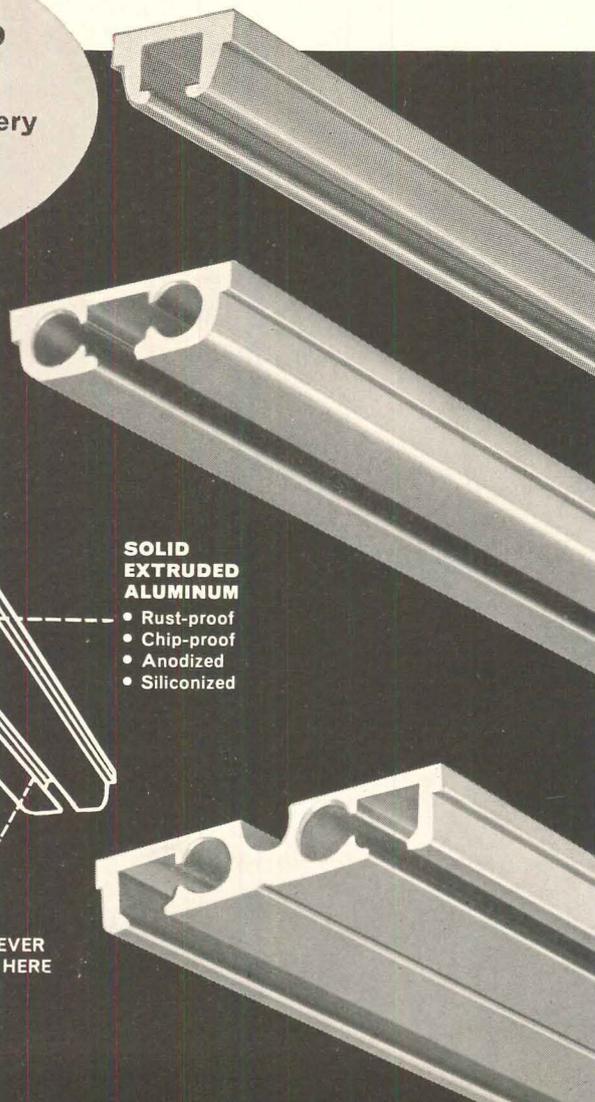
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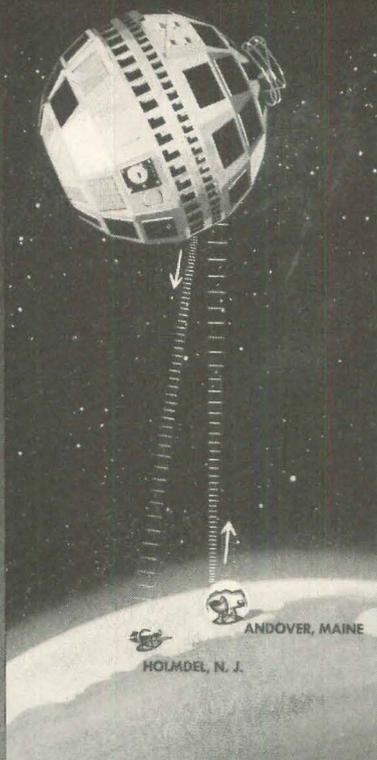
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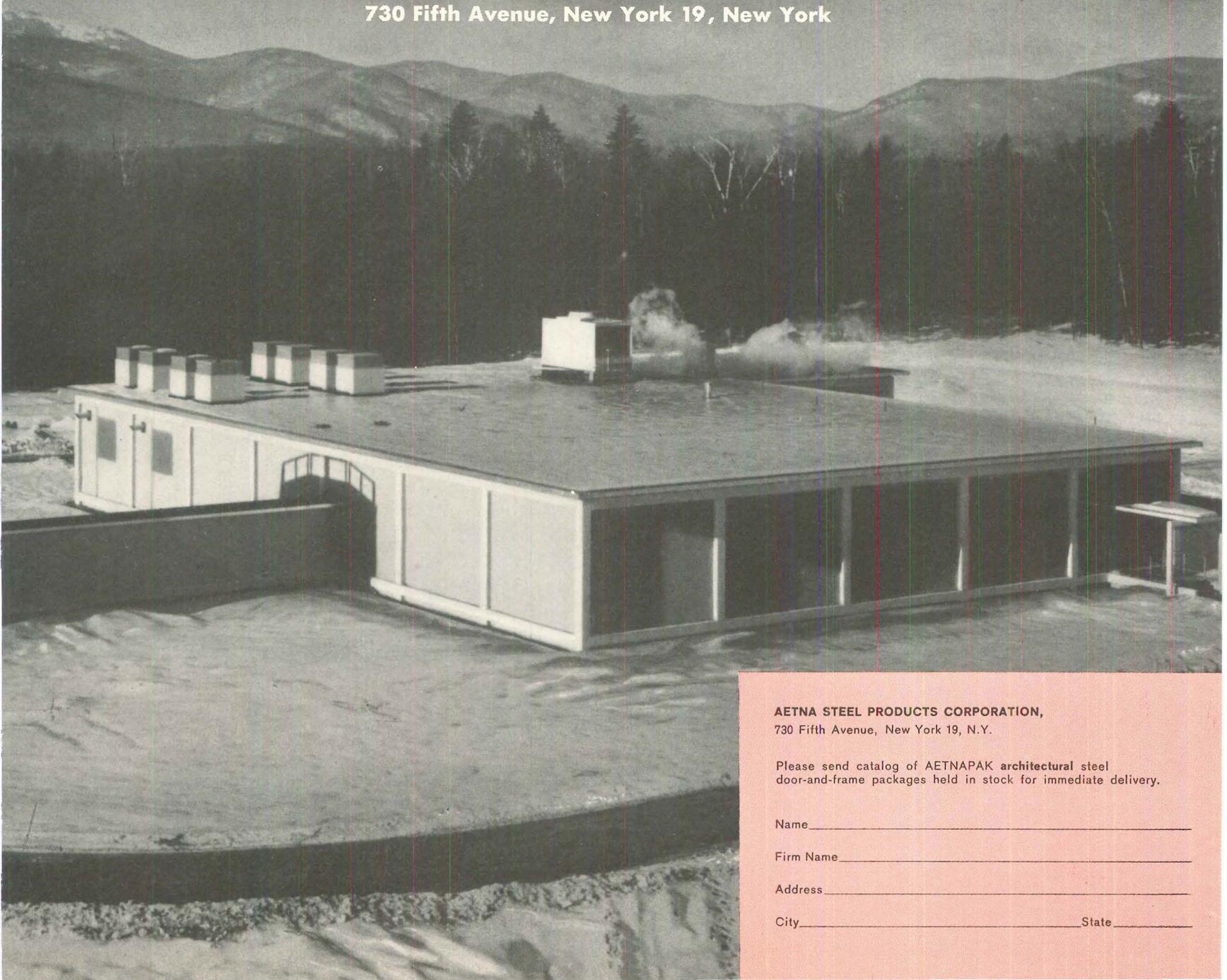
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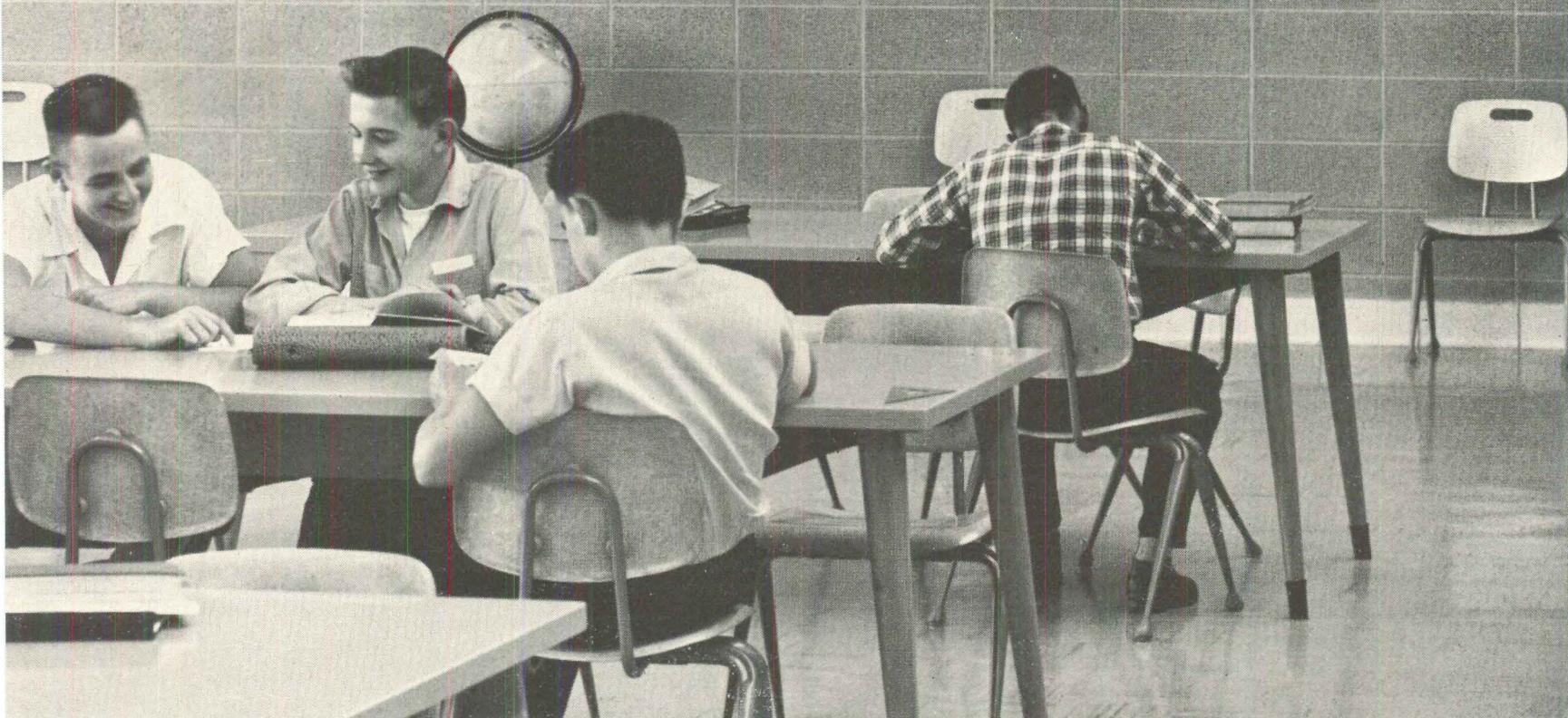
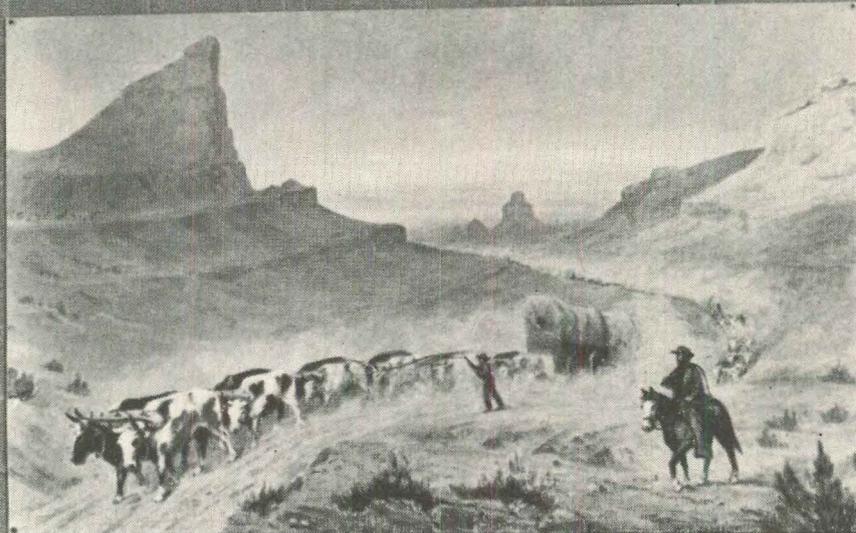
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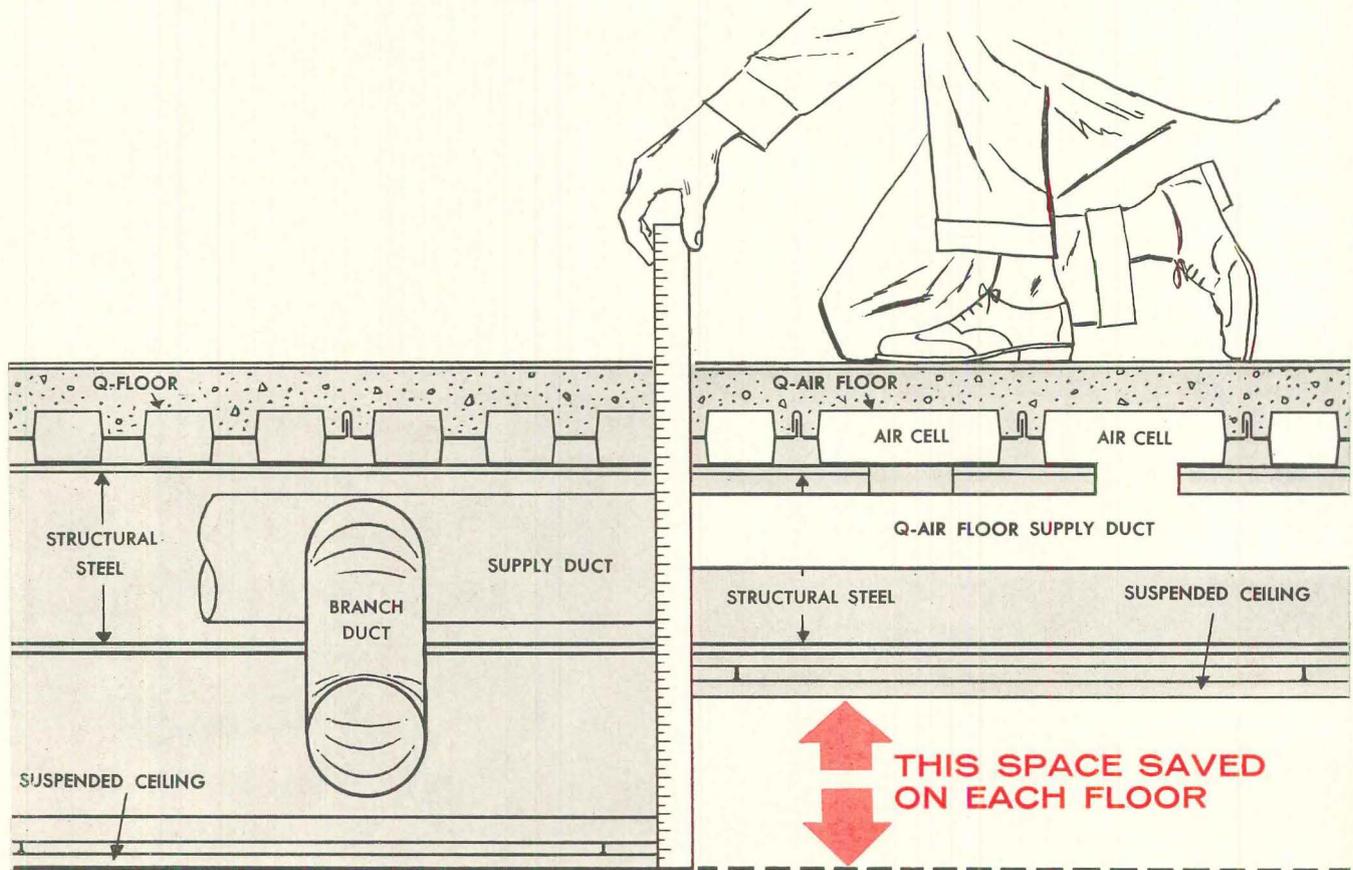
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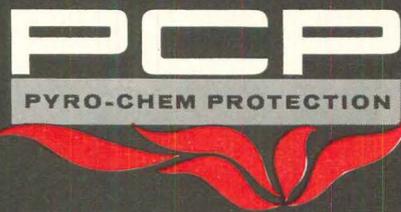
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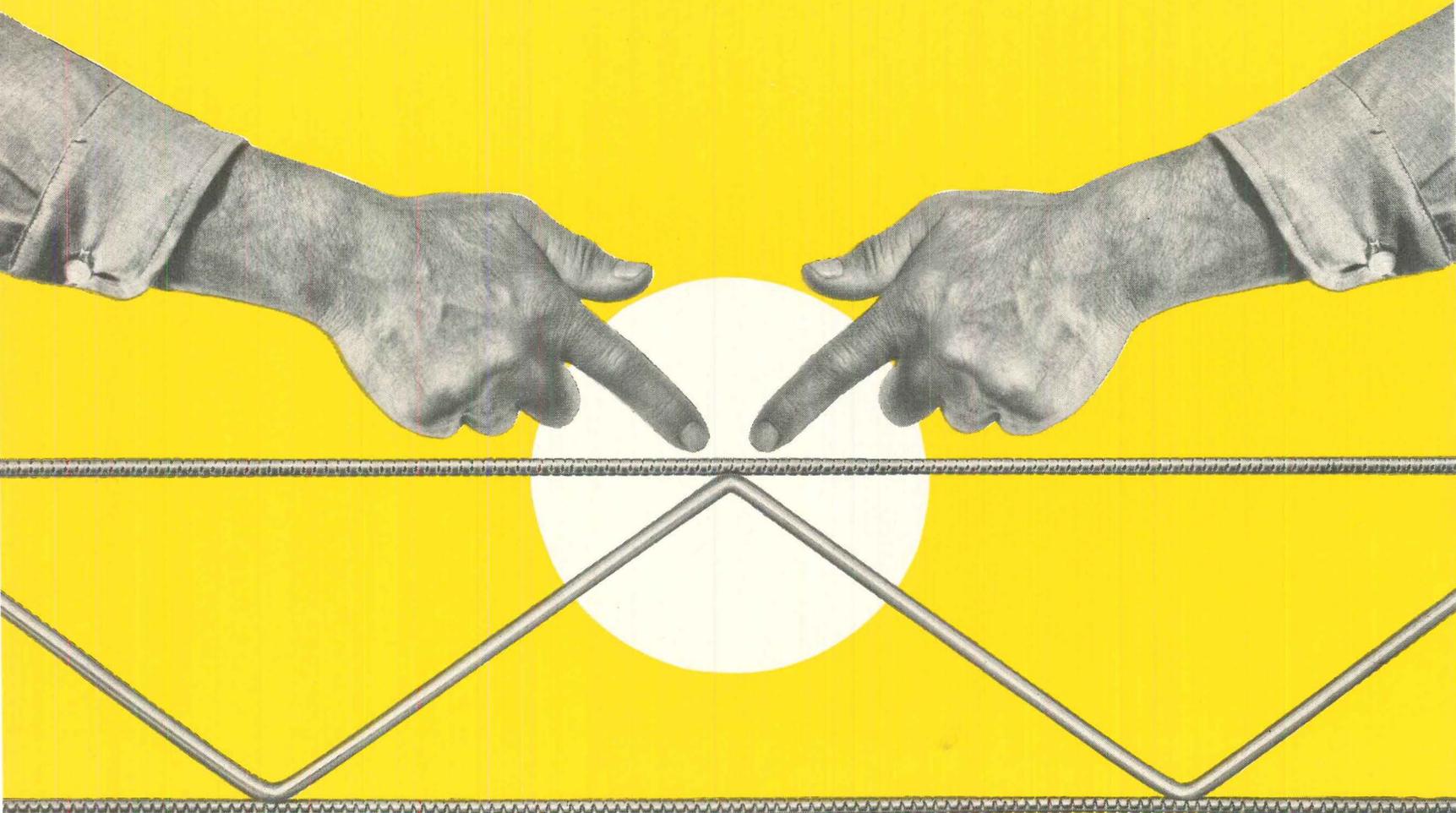
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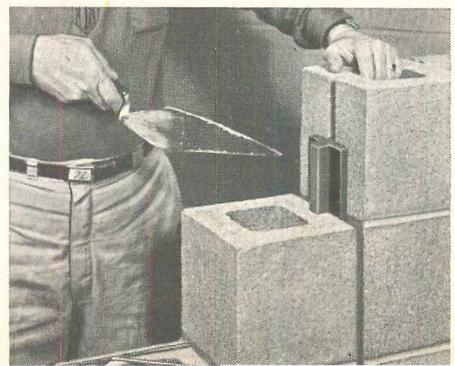
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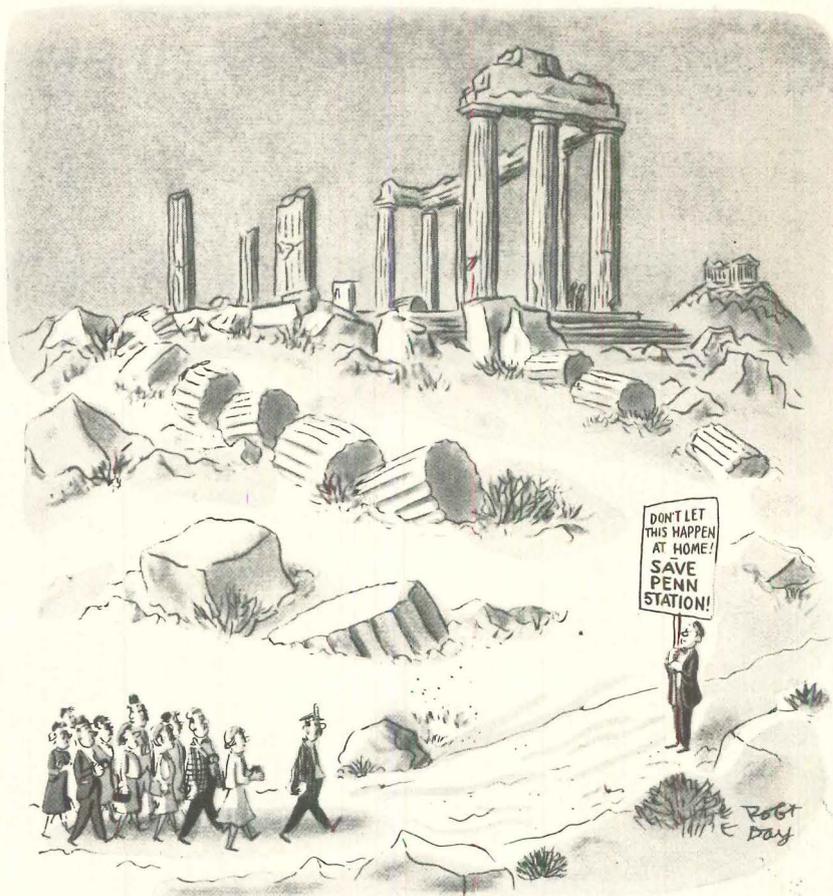
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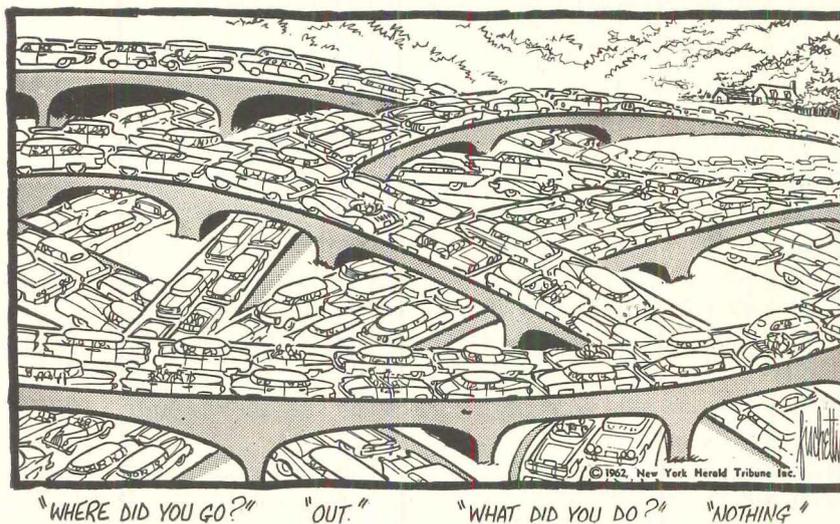
Editorials without words (well, very few words, anyway). Last month, the nation's cartoonists said most of what needs to be said about the American scene—about cities, about planning, about traffic, about tradition. Here are two samples:

About efforts to preserve New York's Penn Station:



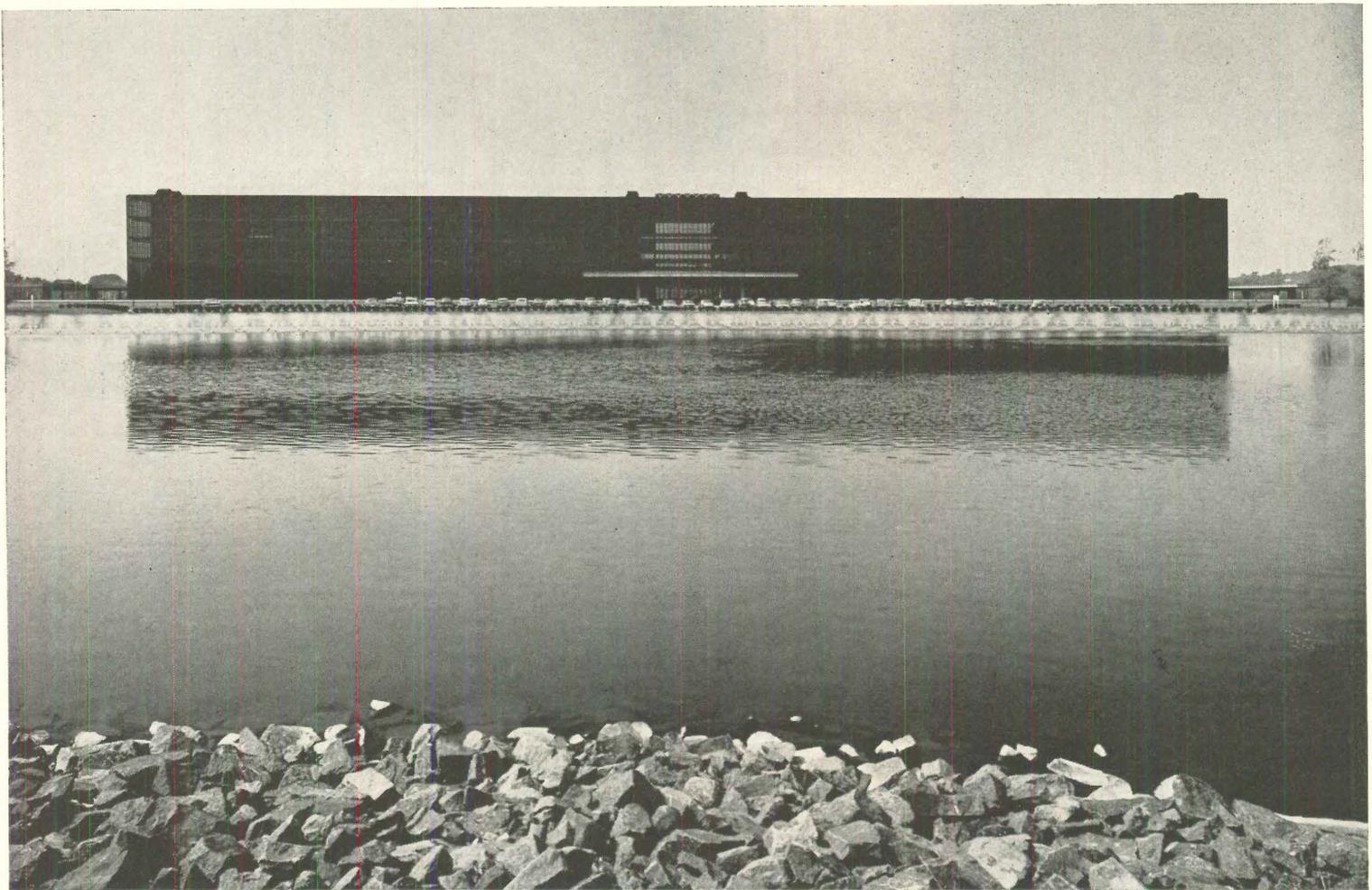
Drawing by Robt Day; © 1962 The New Yorker Magazine, Inc.

About the Labor Day weekend:



Fischetti; © 1962 New York Herald Tribune, Inc.

THE TELEPHONE COMPANY DIALS THE MOON



PHOTOS: GEORGE OSERNA

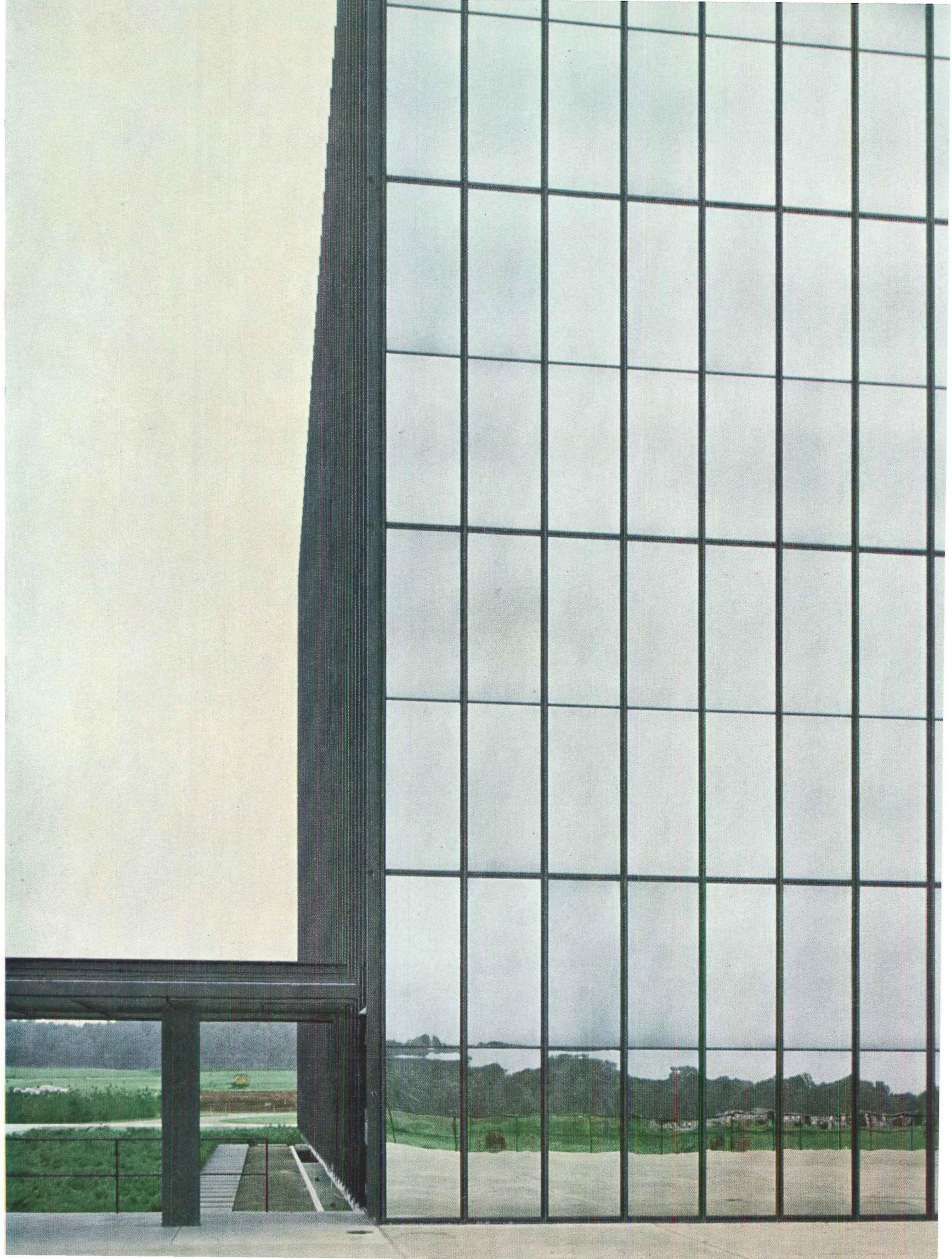
Behind the biggest mirror ever made by man (for part of it, see facing page) the new Bell Laboratories face inward; to see the view, the scientist must step out into the hallway.

This is not the only startling aspect of the building, though it may be the one that strikes a visitor most forcibly. More surprising, perhaps, is the immense change in corporate policy implied by this piece of architecture. In the past the telephone industry has seemed determined to hide its technology behind façades of studied mediocrity. Until recently most components of the gigantic American Telephone and Telegraph Company have been wrapped in buildings made very well of brick but immersed in colonial design as conservative as the creosote bath given telephone poles.

Yet it is for a division of AT&T that Eero Saarinen and Associates designed this gleaming scientific instrument and

set it behind a carefully composed lake on 456 rural New Jersey acres at Holmdel, an hour's drive from Manhattan. The new Bell Lab is not only symbolic of modern science, but symbolic also of the yielding of architecture to science. It is clear at last that the good old telephone company has stepped out of its village-uncle role and accepted a frank new characterization, that of the futurist scientist.

There are other evidences of this change outside architecture, of course. One such indication was the appearance recently of Frederick R. Kappel, AT&T president, on the inaugural of intercontinental TV transmission via Telstar. Kappel thus identified his company not as it traditionally had been linked with home and hearth, but with the transistor, with microwave transmission, with radio astronomy, and with the other leaps forward taken in its labs.





Perhaps it was also with this new image in mind that the telephone company* in 1957 decided to come out from behind its middle-class mask and to pick the Saarinen firm to do the new lab.

The laboratory building, like the best of technology itself, is beautifully made, precisely controlled, and of great authority.

It is called by the client an economical triumph in both first cost and upkeep. Functionally it is a superb diagram of the task assigned to its designers. In some aspects it also expresses the high-strung poetry of technology, the occasional glint of man's ambition, and his grace.

But, like much of modern science, this building, inside and out, is also a very strange phenomenon, and a terribly formidable one. Its graces are not intrinsic to its central design, but, like its concrete canopies, attached. Its mass sits in the center of a Versailles-like landscaping plan (below, right) yet remains remote from it. All in all, in its fantastic approach to scientific symbolism, this weird beauty may be one of the most paradoxical designs ever.

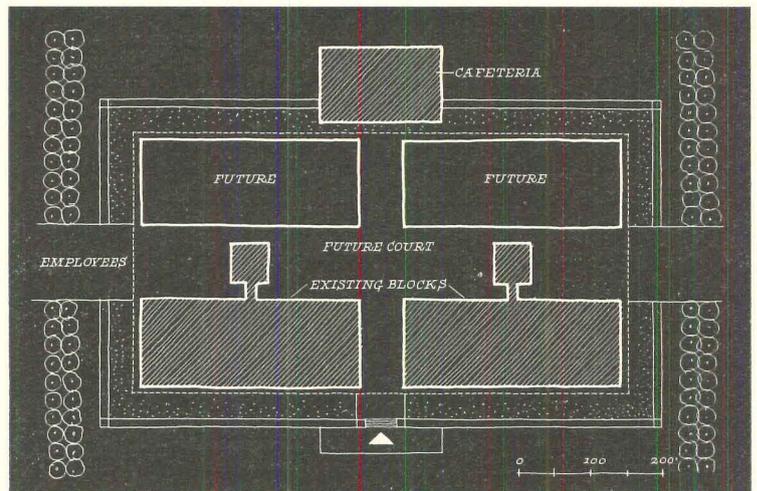
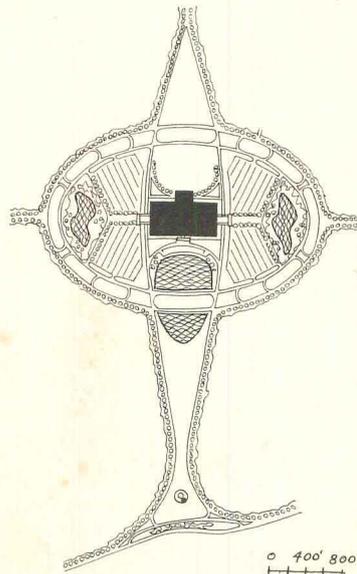
The most immediately amazing part of the building is its special glass wall: Saarinen intended this to be an actual mirror, covering all sides of a building which ultimately will be 700 feet long, 350

* AT&T is the parent company; Bell Laboratories Inc. is the child, a very mature one, engaged in research and development. The other parent is Western Electric Co., which manufactures telephones and other equipment and builds and owns many of Bell's buildings, including this one.

feet wide, and six stories high. In itself this idea of a totally reflective wall is not new. It merely pushes a familiar modern architectural axiom—glass seen from the outside is seldom transparent but almost always reflective—to the ultimate, attempting to create a building which in a way denies its gigantic existence, a building which isn't there, but is a caged reflection of the surrounding sky, landscape, and parking fields.

The architect was ahead of his time in this ambition; his glass suppliers could not make enough of the one-way reflective glass up to standard to enclose even the first half of this structure, so only the south wall wears a mirror. (The other walls and even part of the south were clad in glare-reducing tinted glass instead, until the suppliers can catch up.) However, clear or mirrored, a glass wall—2½ acres of it—framed in elegant black aluminum—today does surround all the functions of the building except for two independent stacks of elevators.

Yet inside, not one laboratory or office has an exterior window. Only the endless corridors have



Exterior corridor, seen below from the center of building, rings labs



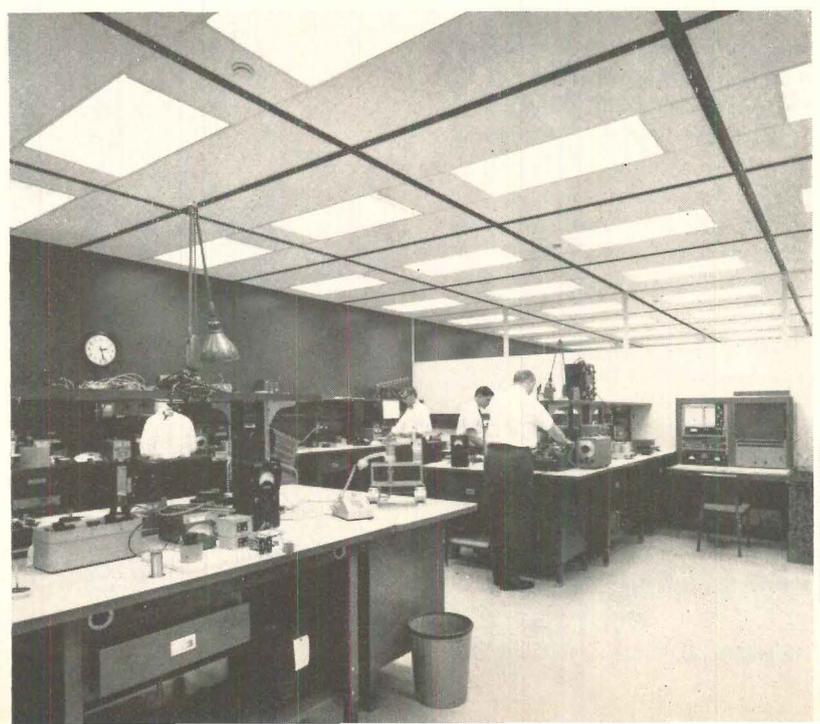
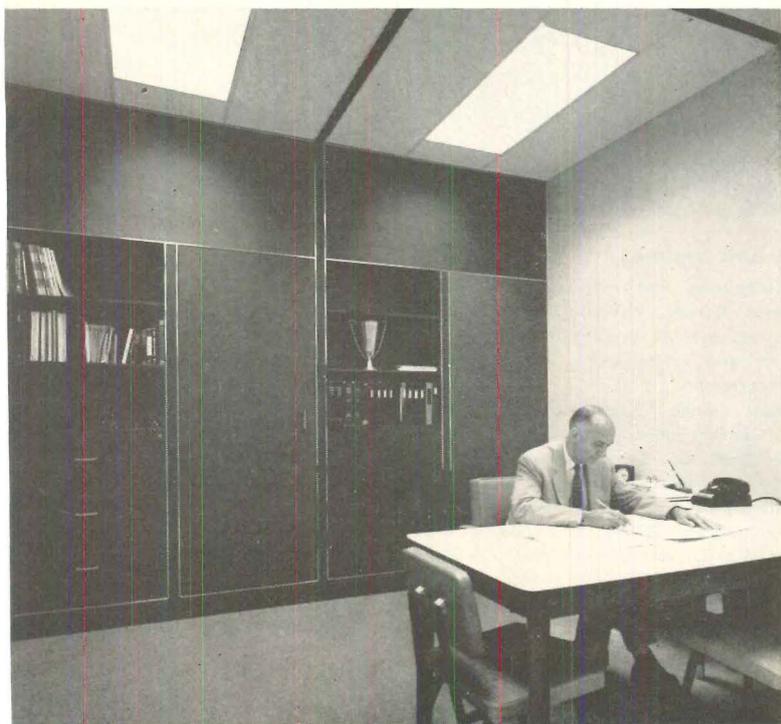
FACTS AND FIGURES

Bell Telephone Laboratories Development Center, Holmdel, N.J.; Owner, and overall director of construction and engineering, Western Electric Co. Architect: Eero Saarinen and Assoc. General contractor: Frank Briscoe Const. Co. Structural engineer: Severud-Elstad-Krueger Assoc. Electrical and mechanical engineer: Jaros, Baum & Bolles. Landscape architect: Sasaki, Walker & Assoc. Traffic consultants:

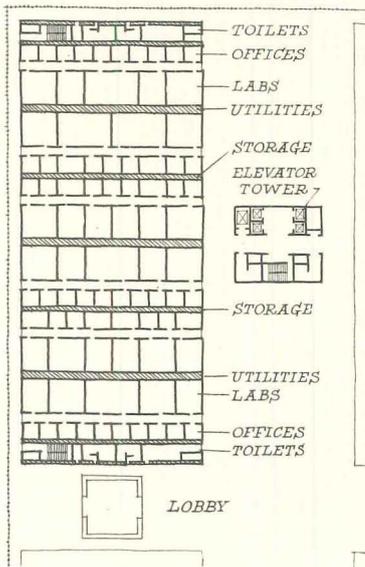
Barton-Aschman Assoc. Acoustical engineer: Bolt, Beranek & Newman Inc. Foundation: concrete piles; structural frame of office-laboratory units: reinforced concrete; exterior wall: aluminum framed glass, in 3 by 6-foot lengths. Exposed concrete wall surfaces are bush hammered. Total cost: approximately \$20 million. Total floor space enclosed: 711,172 square feet.



*Interior access hallways cross the blocks of offices and labs; at left is a laboratory; handy across the hall from lab (right) is its office
Trim storage walls, plastic faced and movable, back all the offices Ceiling is the source of light, heating and cooling—on a six-foot module*



them. There is not even a corner office for the corporate boss. Instead, within the climate maintained by the secretive glass wall are built two reinforced concrete buildings like the one shown in the diagram below. They are arranged on interior hallways. Separating these from the glass walls are the corridors. H. G. Wells would have loved it.



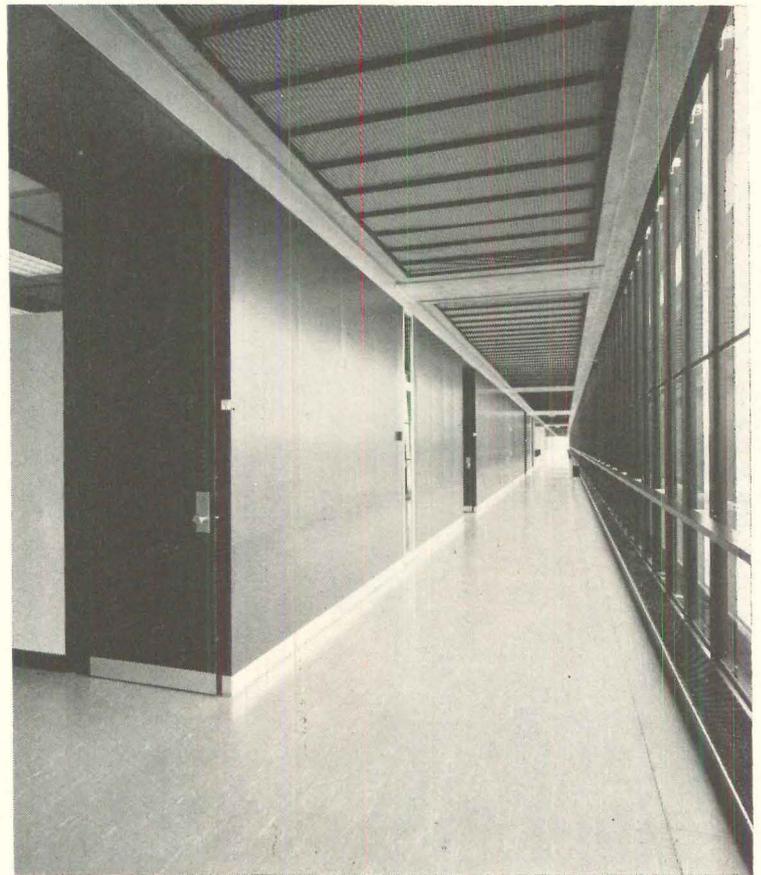
The derivation of the design reveals penetrating logic—right up to the brink of the concept. The client's requirement was for a structure housing about 4,500 scientists and staff. Bell has had experience with other large laboratories and had decided that the sprawling "campus" type stretches communication and walking distance beyond humanity. One immense building was not wanted either—the feeling of separateness and of neighborhood was to be preserved. Bell has come to believe the best research is done in "university-sized" units, of somewhat more than a thousand people each. Another requirement was that the labs should be close to office space.

It was with a double domino of space—one lab, one office—that Saarinen and his co-designers—chiefly Kevin Roche—began.

Soon they came up with an office-lab layout similar to their IBM scheme (FORUM, June '61). The basic block, housing about 1,000, was to be six stories high, built on a structural bay 45 feet 9 inches by 18 feet. On either side of alternate rows of transverse columns were placed lines of 24-foot-deep laboratories, with six-story-deep utility spine cavities between them absorbing the columns. Then rows of 12-foot-deep offices were also placed back-to-back, so that their standard storage wall partitions absorb the other transverse rows of columns. An interior corridor separates labs from offices. Four of these six-story blocks would have filled the client's prescription for space. Two were enough for present needs. The blocks of offices and labs were rendered with the exquisite taste and precision which the design world has come to expect of the Saarinen office (the office-ending storage wall shown opposite is a good example).

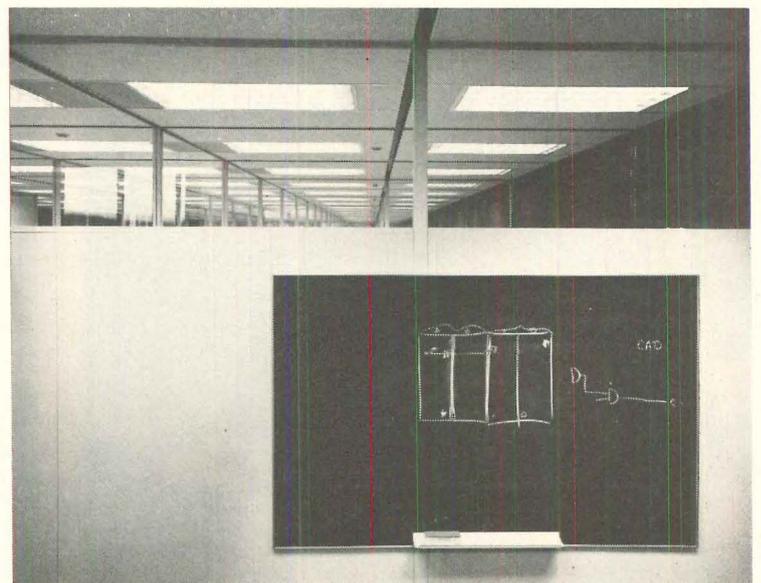
But then the problem was: how should the blocks be related? Saarinen decided to put them all under one roof and it was with this decision that the building began to develop its immensity. For, despite his efforts to define the separate blocks within the building, it remains a single building in its impression, both inside and out: a vast building, of many tidy office-lab spaces, and a few rooms so big they are grandiose.

The first of these enormous rooms is the immense space between the two completed six-story interior office-lab blocks (see page



Interior halls, left, are traffic tributaries to the peripheral corridors

Portable partitions wear blackboards, become glass above eye level

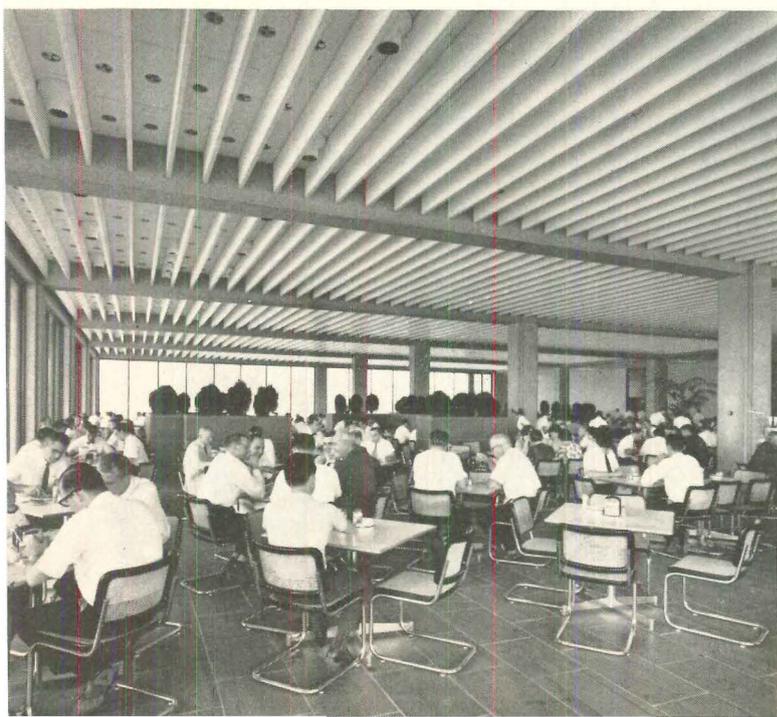




Technical library is in the buried side of the first floor. The site's natural slope is used to open up the cafeteria (below, left) on this same level.

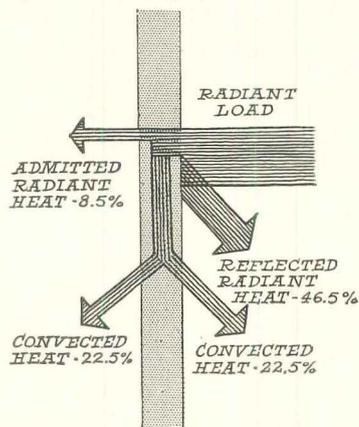
Executives lunch in part of the big glass-walled cafeteria room

Movable partitions can simply be omitted, thus producing a big drafting room



90.) This void is ringed with galleries; below, it has the world's biggest conversation pit sunk into the floor—the building's reception area. When the next two blocks of offices and labs are added alongside the first two, they will produce not only another room just as big as the reception area, but there will also be a long interior court, five stories high, topped by a skylight. Present plans label this space as a landscaped interior court, and the second lobby as an employees' lounge, including a staircase down to the cafeteria-restaurant. The renowned Pennsylvania Station train room in New York City is only 26 feet taller than any of these rooms.

There are thoughtful reasons for everything in the Bell Lab design. For example, the reflective



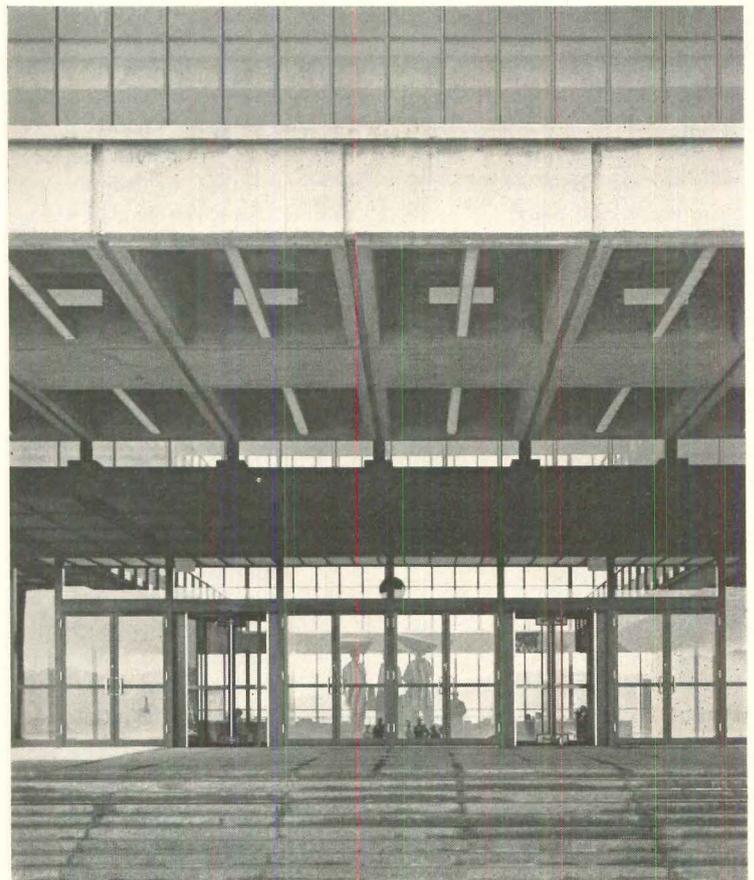
glass was justified visually, from outside, by the desire to break up the massive building, playing cloud movement down its length. From inside, the justification was environmental: specifications for the glass called for it to reflect back roughly 70 per cent of the sun's energy (i.e. heat) while admitting 15 to 25 per cent of its light. (In diagram, above, a constant temperature is assured inside and outside the wall of reflective glass to demonstrate how

much radiant energy is admitted. Lower figures are for convected heat from glass.)

The most interesting technical aspect of the building is the inside-out air conditioning.

Most buildings, particularly glass-walled ones, accept the peripheral air-conditioning zone as the big challenge, and, having licked that, can condition the central spaces with relatively simple zone systems. The Bell Lab turns this idea inside out: it is the labs and offices in the core of the building which are most carefully conditioned, with individual controls. The corridors along the exteriors are cooled largely by air on the return cycle. The periphery is, for once, of secondary importance, because it is not inhabited full time.

Grand as the lab appears, company officials say flatly that it is nearer the low end of the spread of costs compared with other labs they have built, and that the upkeep is 25 per cent less than in another comparable laboratory they operate nearby in New Jersey. Moreover, the mock-up built before the design was frozen turned into an immense money saver: R. H. McCarthy, director of plant design and construction for Western Electric, says that the mock-up, which cost about 1/2 of one per cent of the building budget—or “about \$150,000”—eventually saved more than a million in actual building costs. About total building cost, Western Electric will only say that it is in the vicinity of \$20 million for the first stage. McCarthy adds that Saarinen's design “represents a simple, scientific approach . . . which, as a public utility, we like.” Saarinen said, before his death: “For Bell Laboratories . . . the



Concrete canopies shelter the formal approach to main visitors' entrance

Employees enter under covered walks from parking lots beside building



right character seemed to be a rather formal building, dignified and restrained . . . not just any ordinary office building. It should express itself as a building where important and serious developments for our time and for the future are taking place."

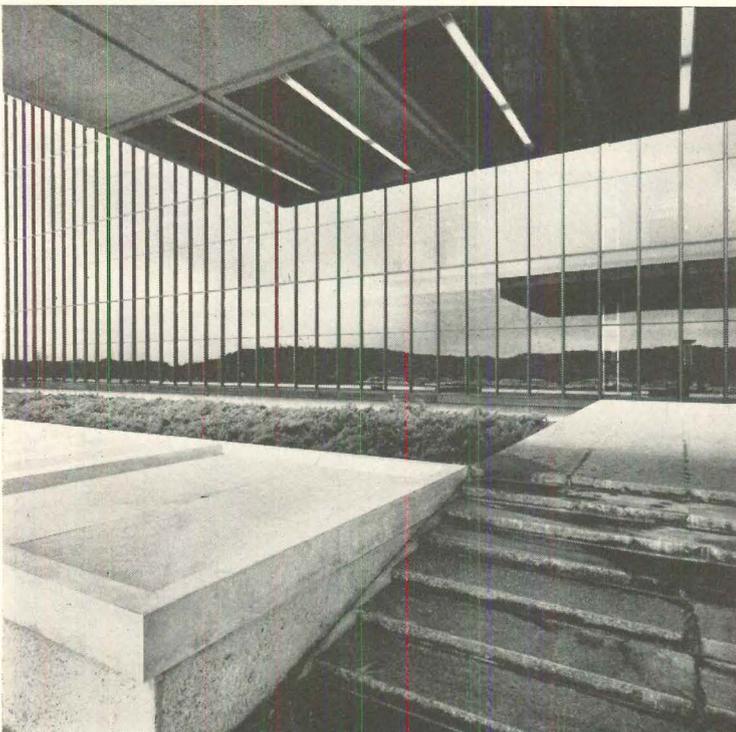
Formal, dignified, and restrained—the building is all these things, to the degree that it seems almost unreal.

It is true that there are human touches—the elegant canopies before the entrances and over the walks to the employees' parking. There also is a very good-looking sculptural water tower standing a mile from the building, made of steel—although it looks like concrete. There is a handsome cafeteria-restaurant downstairs with hundreds of elegant metal chairs

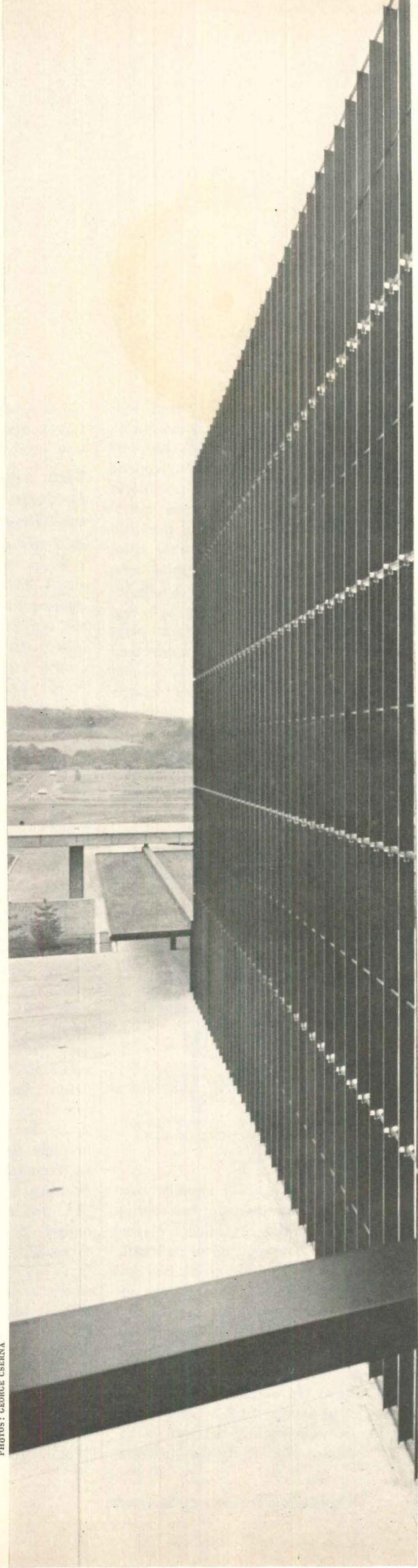
in it (and the only incandescent lighting obvious in the building; all the rest is fluorescent). The small paradoxes at Bell, the stuff of which credible architecture is made, are very delicately handled, sometimes too delicately: for example, the concrete-clad elevator towers miss their chance for contrast in shape or finish; they are halfhearted.

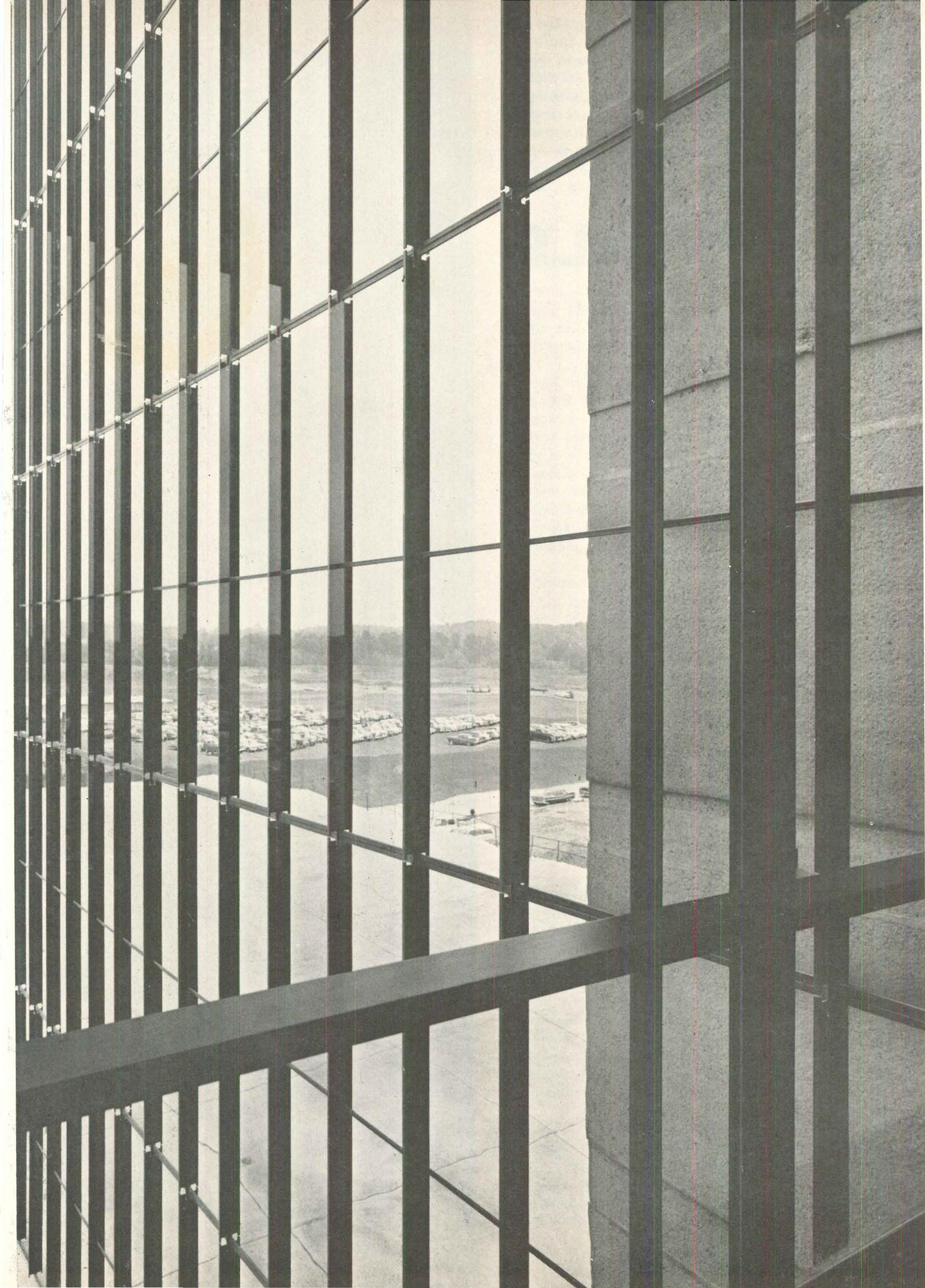
But it is not small failures that make the mood of this building so strange, so withdrawn. It seems beyond people, as an overall environment. They appear overawed by it as an architectural totality. When you see a person in the endlessly long corridors, or in the vast lobby, you do not seem to see him completely. Usually he is silhouetted, moving quietly against that immense glass wall. In this spectral design dignity was created only in the details.

Dark glare-resistant glass gives a moody portrait of the New Jersey hills surrounding the site; right, the wall of bright reflecting glass.



PHOTOS: GEORGE CSEBNA





The U.S. will spend \$3.6 billion to modernize and replace obsolete hospitals and health facilities in the 1960s. Whether they are replaced handsomely, with more useful structures on better sites and in more functional groups, depends on some pioneering just beginning. On the following pages is an appraisal of progress in hospitals, community planning, and medical centers—plus a report on the influential consultants, and an exceptional new hospital.

BY RICHARD A. MILLER

HOSPITALS

One of the first questions the casual observer of a new hospital is likely to ask is: "Why is it so ugly?" The question is usually apt. For the most part, the new hospitals are hulking buildings, grimly clad, with odd protrusions containing things that apparently wouldn't fit into the main envelope.

But the answer to the question is at least implied by those bulges—and even more in the slice of a hospital floor plan shown at right. No other building contains such a range of functions, each with special space and equipment requirements, interrelated and connected by intricate webs of traffic and networks of mechanical and communication systems.

To make the task of the hospital architect even tougher, these functions and their relationships vary widely from hospital to hospital, and each function is likely to grow and change at rates independent and unpredictable, quite beyond the ability of most structures to absorb them.

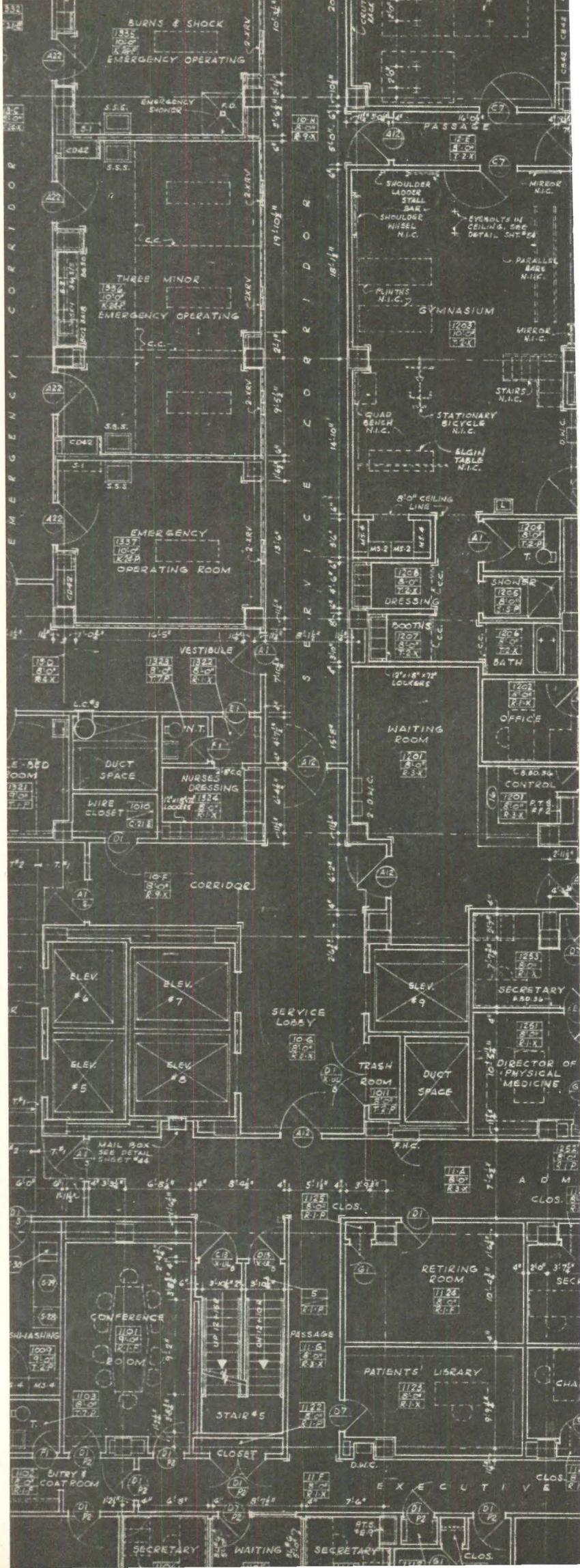
In efforts to cope with these problems, the hospital has become the most researched building in architecture, and such innovations as the square or circular nursing unit (which reduces the distance from nursing station to patient's bed) have been among the well-publicized results. However, it is not the form but the principle that counts: traffic patterns and operations throughout the hospital must be scientifically observed and evaluated.

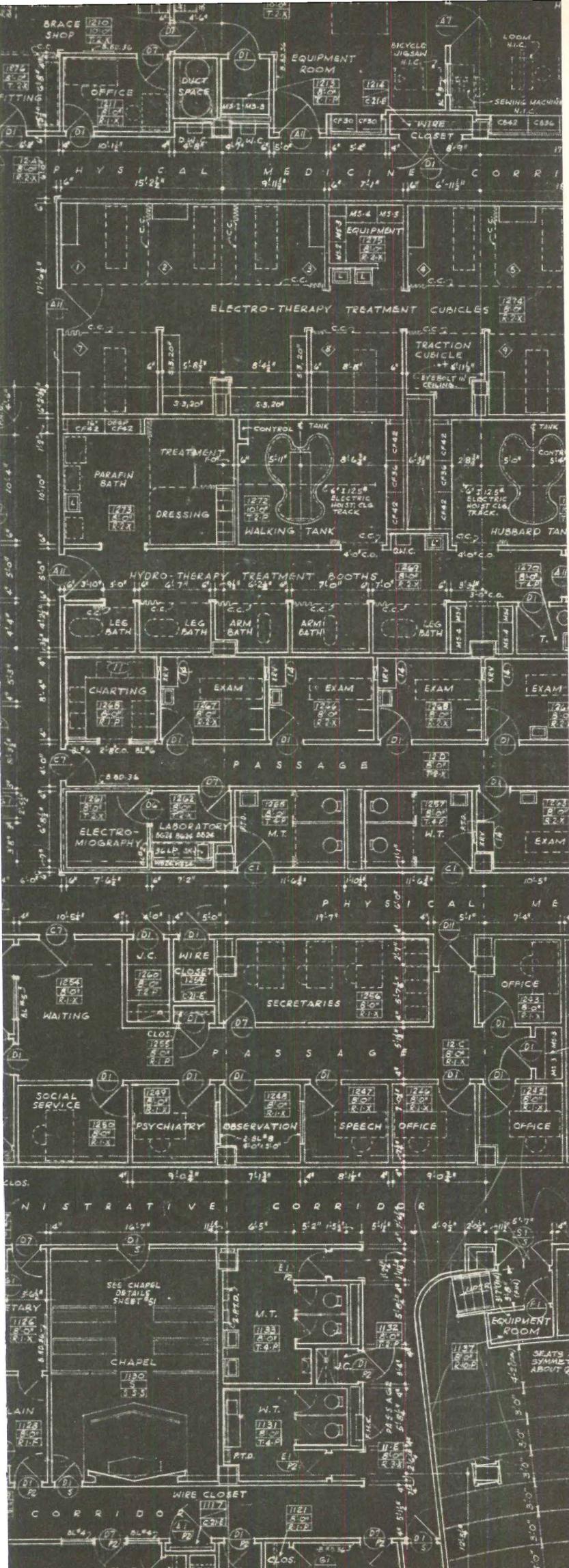
But even the most sophisticated tracings of this research do not make architecture. In fact, largely missed is the point that detailed knowledge of the hospital as an organism is important for two reasons: first, to solve the details of a hospital plan, and second, to obtain data which can be generalized into terms that make architecture.

Indeed, a good hospital can be judged, first of all, in terms of several attributes, which in their broadest sense can be applied to almost any building:

- ▶ Does it have clear networks of traffic for service, staff, patient, and visitor which do not intersect or merge until they get close to the patient's bedroom, the operating room, or the examination and treatment room?
- ▶ Does it have separate systems for mechanical equipment which allow any space to be plumbed, wired, and air conditioned to exacting and special demands, and does it provide for such diverse distributions as medical records and drugs?
- ▶ Does it have a module or planning unit that allows for changes ranging from the slight modification asked for by the most difficult staff member to major shifts in space allocation and use—each accomplished without major disruption of hospital operations?
- ▶ Does it have a plan with interior voids or other "breathing space" and an open perimeter to allow expansion of various functions of the hospital independent of each other?

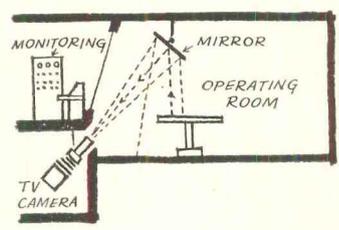
A hospital with these features, if it could be achieved, would probably end up handsome in the proper hands, just as the finest functional architecture is almost always handsome.





PARTIAL FLOOR PLAN OF UNIVERSITY OF COLORADO HOSPITAL, DENVER. SCHEMIDT, GARDEN & ERIKSON, ARCHITECTS

Much of the change in hospital design is caused by changes in medical science and health care. A good case in point is the development of surgical techniques which call for more personnel and equipment in the operating room. These techniques not only require larger operating rooms, but more complex operating suites containing more space for sterilization, galleries for new monitoring equipment, and separate facilities for anesthesiology. A special example is the surgical wing added to the National Institutes of Health Clinical Center by Architects Kiff, Colean, Voss, and Souder (section, right).

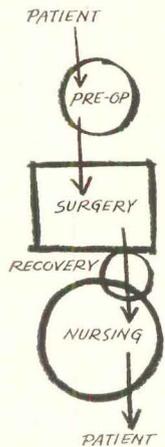


The tendency to simplify operating suites by allowing all things to go on in the operating room itself or in multi-purpose corridors is now reversed.

The new surgical techniques are accompanied by the persistently increasing threat of staphylococcus infection. A hazard throughout the hospital, "staph" is most prevalent and most serious in connection with surgery. Careful zoning of suites into outer, intermediate, and interior zones and the organization of procedures to control the movement of patient, personnel, and equipment from one zone to another is common in the best new hospitals. More radical solutions are also being proposed, the most noteworthy being the proposal of Architect Robert Hyde Jacobs to bring patients to surgery without encountering the dangerous hospital breed of staphylococcus by admitting them to a special preoperative nursing unit for preparation (right).

After surgery, the trend toward early ambulation is having broad effects on the design of nursing units. Day-room use by patients is on the increase, and separate visitors' rooms are likely to become more prevalent. Toilet facilities in each room are now almost mandatory and the increased use of showers and baths by patients is resulting in their more common installation in individual rooms. Moreover, patients are ranging more freely throughout the hospital, which not only complicates traffic but increases the importance of safety precautions such as the installation of non-slip floor surfaces and protective railings, and the elimination of steps.

A significant change in nursing units is caused by the increase in



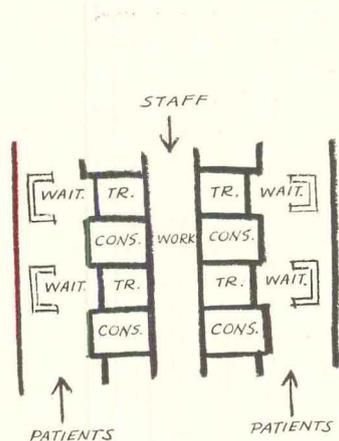
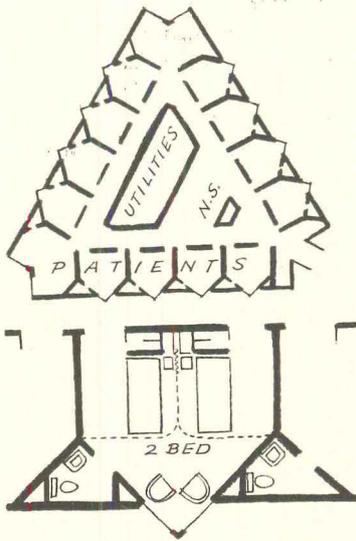
prepaid hospital insurance. Most insurance programs provide semi-private patient accommodations. This fact is so significant that wards are often going empty, and many new hospitals are designed with mostly two-bed rooms. The proposed new nursing units for Point Pleasant Hospital in New Jersey by Architect Gordon Powers (right) are exceptionally well-considered examples.

Strangely enough, many administrators agree that the two-bed room is psychologically the worst of accommodations. Under the circumstances, one might expect a trend to single rooms. But increased costs aside, many administrators claim that the single room is preferred only by upper- and upper-middle-class patients; and, often it is the family and not the patient who really wants it. (A vigorous dissenter is the administrator of the hospital shown on page 108.)

Other examples of change are equally apparent. In the diagnostic and treatment section of the hospital, new techniques of diagnosis calling for more laboratory samples has resulted in a large increase in flexible and better-equipped lab space. At the same time, increased dependence on (and a new need for control of) X-ray facilities has resulted in new demands on radiology facilities. In large hospitals and medical centers the use of massive radiation in the control of cancer growths has caused construction of new treatment facilities surrounded by thick concrete walls.

Going along with these changes is a far-reaching change in the hospital as an institution.

The most common example of this change is the sharing of expensive diagnostic and treatment facilities by outpatients and inpatients. In most conservative form, this implies a "medical arts" building on the hospital grounds, while, in more radical form, it implies a full-time hospital staff of specialists working in a new kind of outpatient clinic within the hospital. This clinic is nothing like the old-fashioned welfare clinics which still represent a substantial (and depressing) aspect of medical care in the largest cities. Rather, combinations of examining and consultation rooms are ideally ranged along a service space on one side and a public waiting space on the other (right). These facilities, op-



erated on appointment schedules, are used for group practice of medicine, with its manifest advantages to doctor and patient.

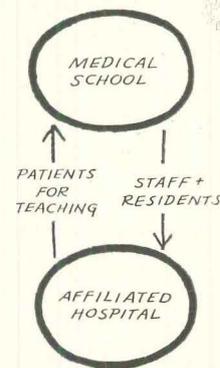
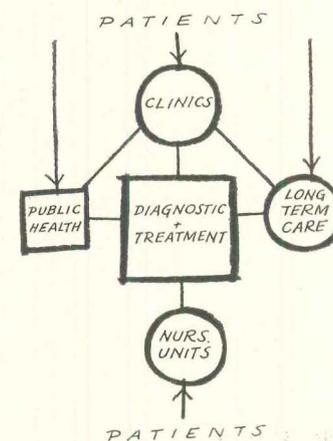
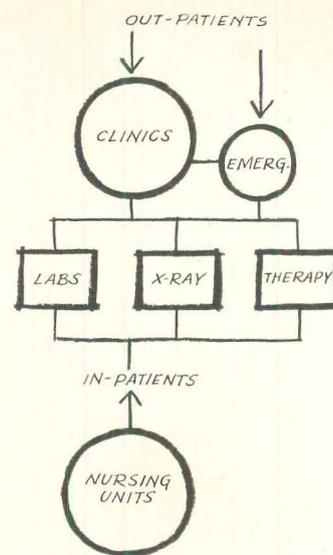
Thus, the hospital becomes a center for medical care, with outpatient and nursing departments served by surgery, diagnostic, and treatment facilities (right). This nexus—accompanied by special subtypes of nursing units (such as pediatric, maternity, and psychiatric inpatient units), and special subtypes of clinical facilities (such as pediatric, obstetric, and psychiatric outpatient facilities)—shares diagnostic and treatment facilities including laboratories, radiology, physical and occupational therapy, pharmacy, and emergency, and is served and surrounded by ancillary supply, dietary, and administrative facilities.

More - or - less typical community institutions tend to be surrounded with several additional health facilities.

These usually include long-term patient-care facilities (better known as nursing homes) and public health facilities which relate to the hospital by providing health maintenance and education services to the community (right). This larger institution tends to affiliate (either at long-range or in medical-center complexes) with other hospitals and medical schools.

Of course, this pattern is an ideal one, and will never be universal. In fact, communities often build hospitals too small to be properly staffed and equipped or economically operated, but they build them nevertheless for reasons of prestige and independence. But with the increased influence of the Hill-Burton program (out of \$766 million expended in non-federal hospital construction, \$317 million was spent under Hill-Burton in 1960) the trend is toward fully developed institutions of 200 to 400 beds planned on a community-wide basis (see page 103).

One of the most important forces for this consolidation and affiliation is the medical profession itself. The best doctors are interested in teaching and research opportunities, and the medical school and its affiliated teaching hospitals afford the best opportunities. Then, too, the larger hospital and especially the affiliated hospital have some chance of obtaining residents and interns (diagram, right).



The shortage of trained personnel is working even more specific changes on the design of hospitals, however. Not the least of these is the replacement of barracks-like nurses' homes and resident quarters with apartment facilities adjacent to the hospital. Within the hospital, special research laboratories and offices for medical staff are being built close to special research nursing units or to clinical facilities. Auditoriums and conference rooms are being provided, which double for continuing professional education and public health activities.

The shortage of nurses is working some profound changes in the design of nursing units.

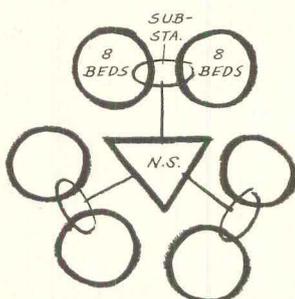
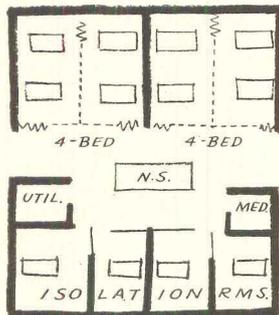
Prime among these is the trend toward splitting off the intensive-care patients and the self-care patients from the regular nursing unit. In the intensive-care unit, patients are located in a wardlike room under the eye of a nurse at a special nursing station (as in Abreu & Robeson's Tri-County Hospital in Fort Oglethorpe, Ga., shown at right).

There is considerable controversy over the soundness of the intensive-care unit. Consultant Gordon Friesen, for example, entirely opposes it, largely on psychological grounds (see page 105). And certainly the intensive-care unit can be a hygienic hazard. Isolation rooms within the unit alleviate the hazard, but whether the benefits, even then, outweigh the disadvantage can still be debated.

At the other end of the scale is the introduction of self-care quarters where ambulant patients are housed in motel-like units and receive minimal nursing attention. These patients generally take care of themselves.

Within the nursing unit itself, the shortage of nursing personnel is causing the development of team nursing systems where larger nursing units (up to, say, 48 beds) are controlled from one nursing station, with substations installed for every eight beds (diagram, right). At any rate, the trend to larger nursing units is apparent everywhere, although the newly released study of nursing units by the Public Health Service sets a maximum of 35 beds. Many new hospitals, in fact, pair nursing units back-to-back with interconnecting nurses' stations so that they can be operated by a single head nurse at night,

GABRIEL BENZUR



which makes the night-time nursing unit as large as 70 beds.

Without being committed to any particular numbers, larger nursing units allow some significant changes in what nurses do—and in what other, less highly trained personnel do. Ward clerks, for example, can be economically employed to maintain records and manage supplies. Receptionists, often volunteers, can control traffic at the entrance to the nursing unit. And orderlies and aides, with the help of advanced conveyor systems and such innovations as "Nurservers" (see page 106) can put supplies into convenient reach of the nurse at bedside.

Of course, two large nursing units per floor, totaling, say, 70 beds means a floor area in excess of 12,000 square feet—a block about 60 by 200 feet. Thus, a good-sized hospital would have three to five floors of these units, and perhaps two or three floors of other facilities. All this would seem most logically to arrange around vertical circulation, at the base of which a monumental public entrance can be arranged at the front and a service entrance can be set at the back. In several instances, this block would need to be enlarged slightly. For example, since obstetrics and maternity nursing should be on the same floor, and since nurseries add additional space, the maternity floor usually is marked by a protrusion of some kind. Or again, since lower floors containing clinical, diagnostic and treatment, and service facilities want to be even larger than the nursing floor, these floors sometimes stick out beyond the upper nursing floors.

Thus it is that the hospital is ugly, because that's the way it works . . . or does it?

An obvious answer is to look at a hospital a few years after it is built. As often as not, the day rooms have been turned into wards; "flower rooms"—seldom used in any hospital—have been turned into storerooms; downstairs lounges have been fitted with temporary partitions to house a burgeoning administrative function; and laboratories have replaced conference rooms. A pattern of constant construction is evident by the roll of blueprints on the administrator's desk and the mounds of plaster being emptied from the building. Still to come is the major addition which will double the size of the

hospital or add special functions not originally contemplated.

Many hospitals—which take from three to five years to complete from drawing board to occupancy—are out of date before they are occupied. As Mo Katz, administrator of New York City's famed Montefiore Hospital, puts it: "What we need are hospitals that could be built so cheaply that we could tear them down and build new ones every ten years." But no such easy answer is presently available, and a constant process of addition and modernization goes on, usually without master planning because there is not time to develop one or the one the hospital has is out of date.

Katz's ten-year hospitals may not be such remote possibilities at that, however, for despite increased construction costs (now in the neighborhood of \$30 per square foot in the New York area), operating costs are causing a great pinch. It is these costs, even more than construction costs, which most profoundly affect the design and planning of hospitals.

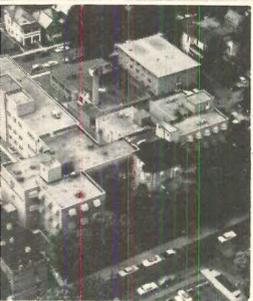
The hospital building after Florence Nightingale was a loose and airy stretch of ward pavilion buildings connected and linked to surgery, kitchen, and administrative pavilions by long, open arcades or glazed passages. With labor plentiful and medical personnel more leisured, such extended connections were no great liability. But increasingly in the postwar U.S. the hospital has been squeezed into tall, big-floored structures.

Two inventions have made this possible: the elevator and air conditioning. Thus hospital architects tend to turn hospital design into time and motion study. Whether or not some other concerns—such as the physical comfort and psychological well-being of patients and visitors—have been neglected is a real question. But the significance of the tendency should not be underestimated. Indeed, in no other field of architecture has such an impressive body of research into the function and traffic of buildings been developed. Whether this research will now be used to produce architecture is one of the most penetrating questions in architecture today.

Architect Richard A. Miller, a former Senior Editor and now a consultant to FORUM, is the head of Columbia University's graduate program in design and planning of hospital and health facilities, a joint undertaking of the Schools of Architecture and Public Health and Administrative Medicine.



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PHOTOS: 1) MARIUS © EZRA STOLLER; 7) HERB TOPY; 8) CHARLES R. MOOR

COLUMBUS: SUCCESS STORY IN HOSPITAL PLANNING

In many communities across the U.S., there exist crazywork patterns of overlapping and fragmented hospital services. Through poor planning, overloaded hospitals are turning patients away or putting them on waiting lists only a few miles away from half-empty facilities. Many of these same communities are paying off heavy bond obligations for hospitals. Mistakenly equating high cost with the best in health care facilities, local governments are unaware that lack of coordination and duplication of equipment and services is giving them neither proper care nor even an adequate return on their investment.

The widespread competitive race for patients among hospitals is inefficient, dangerous, and expensive. In Allegheny County, Pa., where there is a progressive hospital planning body, one hospital recently was able to revise its expansion budget downwards from \$11 million to \$2 million, simply through learning the plans of other hospitals in the vicinity and fitting its expansion into overall community needs!

Since Hill-Burton funds are involved in nearly half of all current general hospital construction in the U.S., a modicum of required planning has been introduced to most communities. But few have come anywhere near the thoroughgoing approach long practiced by Columbus, Ohio. With years of careful planning, study, and statistical research, the city's \$73 million program of renovation and expansion has come within two per cent of meeting current bed and facility requirements. Actually, Hill-Burton funds used to date have totaled only \$628,000. Explains Delbert Pugh, executive director of the Columbus Hospital Federation: "By the time Hill-Burton started, we were on our way."

The Columbus Hospital Federation was founded 17 years ago, at a time when hospitals were dangerously overloaded and inadequate as a result of a wartime industrial boom and a mushrooming population. From 1940 on, the population began to increase at an average rate of over 13,000 a year. By 1945, whole hospital wings were being condemned as below fire department and building inspection requirements, and five hospitals failed to qualify for maternity licenses.

The problem of inadequate hospital facilities was left largely in the hands of the Columbus Hospital Council, a

dedicated volunteer group working in spare time with no permanent leadership. CHC realized that the scope of the problem was too great for study on a part-time basis, and obtained funds from the Community Chest for an independent survey, conducted by the late Fred Carter, M.D., a consultant.

When Dr. Carter's report was made public in 1944, it was a shocker: the city needed more than twice the number of existing beds. Adequate facilities would cost at least \$14 million. Carter recommended a federation of all seven of the community's voluntary, nonprofit hospitals, regardless of denomination or ownership, into a cooperative organization with a permanent staff which would combine long-range planning for expanded facilities with information on day-to-day operations such as personnel policies and daily census.

The beginning: \$10,000, a small staff, and a few volunteers

Thus the new Columbus Hospital Federation was born, as a nonprofit organization under the General Corporation Act of Ohio. At his first meeting with Columbus civic leaders, Director Pugh asked about his office and budget. A local businessman handed him a pencil and said, "Here's your first piece of furniture. You use it to figure out what your budget should be."

Pugh began with \$10,000, a small staff, and a few volunteers. The Federation was organized around him as one group representing the whole community—hospital trustees, administrators, businessmen, and civic leaders—and incorporating the three major concerns of planning, capital financing, and hospital services.

The Federation is in on planning from the very beginning, providing specific advice on new additions, architecture, and engineering, and even acting as the central office for all contract bidding and payments. The Board of Trustees chooses one-third of its 42 members among hospital administrators, one-third among hospital trustees, and one-third

among citizens at large. The Expansion Committee, composed of 40 business and civic leaders, is on tap for advice, and for approval of plans as they develop. "If businessmen are in on the planning from the beginning," says Pugh, "it's much better all around when the money has to be raised."

Slow start, pay as you go

In spite of its sound organization, the Federation at first moved slowly. Voluntary contributions and foundation grants helped clear the initial financial hurdles. The next problem was to gain the participation of all seven hospitals, with the understanding that each hospital would plan for its own expansion but would be guided by the Federation's recommendations as to the best relation between facilities and community needs. One by one, all the hospitals joined and by 1947 the Federation was finally able to begin some long-range planning. Dr. Carter agreed to join the staff as a permanent consultant while updating his earlier study and adding projections into the future as

COLUMBUS' HOSPITALS: 1) New \$14 million Riverside Methodist; 2) remodeled Doctors with 63-bed addition; 3) Mount Carmel: school of nursing and other additions; 4) new \$7.6 million Grant; 5) Mercy: remodeled, 38-bed addition; 6) Children's: new wing, nursing school addition; 7) St. Ann's: expansion; 8) St. Anthony's: expansion, new nursing school. County, state hospitals are also included in planning.

far ahead as 1960.

By late 1947, a united campaign was launched for funds to start the first stage of badly needed renovation. Studies showed that a maximum of \$6.7 million could be raised from public canvassing—less than one-half of the \$14 million estimated as necessary for renovation of all the member hospitals. Nevertheless, the groundwork had been laid and for the first time the city's hospitals began cooperating with each other in deciding how the money could best be distributed.

There were also some disagreements and ruffled feathers among the more impatient hospitals as the money came in slowly. Only by patiently proceeding step by step and distributing funds so evenly that every hospital was able to finish some phase of its reconstruction were Pugh and his staff able to keep the Federation working together. A strictly pay-as-you-go policy was followed. Even before the money was in hand, architects and engineers were at work on plans, dividing them into three construction stages for each hospital. Only when enough money for each complete phase was available was work allowed to go ahead—so that whatever was begun was insured of completion.

Biggest supporter: business

By 1954, Columbus had 400 new beds provided from \$5.2 million raised in the campaign (out of a total subscription of \$5.9 million). With that amount, the city had one entirely renovated hospital, a new wing on another, and five hospitals improved or expanded. Bringing businessmen directly into the Federation for counsel and a share in planning has proven to be a tremendous asset. Business groups in Columbus have consistently contributed the largest share of each public fund campaign.

With 400 new beds, the Federation had proven its effectiveness as a coordinating and fund-raising group—but it was still only a beginning. An updated Carter survey showed that Columbus would need 1,000 more beds by 1960 and

a staggering increase of facilities (e.g., 50 per cent more diagnostic services, 35 per cent more surgical facilities, and 40 per cent more obstetrical facilities). The estimated cost was equally staggering: \$30 million, far more than could possibly be raised by contributions in a city of 500,000.

Just when future planning seemed snagged, a prominent Columbus businessman on the Federation board—the late Edgar T. Wolfe, owner of the Columbus *Dispatch* and WBNS radio and TV stations—came up with a solution used many times in business transactions: the leaseback. Why not issue general obligation bonds to pay for new hospital construction and then, since the municipality would in effect own the buildings, lease them back to the individual hospitals?

The Wolfe plan was an audacious one, since the Ohio State constitution had no provisions for using public monies for private property. But, flying in his private plane, Wolfe covered the state rounding up support for his project. With only six dissenting votes, the Ohio Legislature passed a bill in 1955 authorizing a county commission to accept property deeds from each hospital, to issue bonds for the construction and equipping of new buildings, and on approval by the voters, to lease back the land and hospital (including the new facilities built by the county) for \$1 a year under a 50-year lease, renewable for a like period. Each hospital was thus left free to manage itself and had the right to buy back the property and buildings at depreciated value at any time.

The bond issues since passed in Columbus have covered only new construction, not rebuilding costs, so that the public fund drives have continued. Many Federation members feel that this has created an excellent situation in which members of the community have retained an interest and sense of responsibility and not lapsed into a "let-the-government-do-it" mood.

With these diversified sources of funds, the Federation has helped to raise and spend a total of \$73 million for hospital expansion.

To date, a total of 1,199 new beds have been added to Columbus' rolls. Two new hospitals (Grant, designed by Karlsberger, McClellan & Gallogly, and Riverside Methodist, by Schmidt, Garden & Erikson) were completed last year. Six older hospitals have completed alterations and additions at a total cost of \$24 million. Other architects who have contributed to the Federation's program of expansion and renovation are: Dan A. Carmichael; Inscho, Brand & Inscho.

Close liaison pays off

The CHF has worked closely with the Columbus City Planning Commission, the Regional Planning Commission, and local housing authorities.

The 500-bed Riverside Methodist Hospital, which replaced an older facility, is an example of how this close liaison has paid off. At the time the new site was purchased some six years ago, Pugh and his staff were criticized for approving a location which seemed too far from the center of town. The Federation knew, however, that a new superhighway would soon be built with rapid access to the city. Since then, Riverside has been surrounded by rapidly burgeoning suburbs. Both new hospitals have been placed within a planning pattern which will enable every citizen of Franklin County to reach an emergency room within 15 minutes' driving time.

Columbus has already begun a third stage of planning, looking ahead to 1970, in an effort to keep up with the community's constantly changing needs. The degree of success already achieved by the Federation was recently recognized by the U.S. Public Health Service, with a three-year demonstration project grant. On the basis of the planning program which has worked so well in Columbus, the CHF will extend its scope to include 36 counties in central and southeastern Ohio. The immediate aims are to establish the first prototype hospital council embracing a region of this size, and to provide a long-range, coordinated plan to give the whole area the best in patient care.

—ANNE PEYTON

THE CONSULTANT: CAN HOSPITALS BE MECHANIZED?

"When I started designing buildings for doctors," a Midwestern architect said recently, "I discovered how little they knew of what they should have. Now I tell them they're the patient and we're the doctor. All we want from the doctor is his name, rank, and serial number."

Behind this obvious frustration is the fact that most doctors and hospital administrators are involved in only one or two building programs, if any, during their careers, and have little opportunity for architectural or planning education. On the other hand, not many responsible architects feel qualified to go it alone in planning a hospital, one of the most complicated structures in modern society. Fortunately for doctors and architects, a new professional, the hospital consultant, is now joining the planning team with experience in all levels of hospital planning, organization, and operation.

The gap in coordination between medicine and architecture became glaringly apparent around 1946, when the end of World War II and the Hospital Survey and Construction Act (Hill-Burton Program) brought a headlong rush by most communities into hospital construction. Very few hospitals had been built in the depression and war years, and a great deal of the new construction was without adequate planning or coordinated design. Consultation services were available but often on a hit-or-miss basis. Consequently, a handful of doctors and hospital administrators experienced in planning studies and building programs got together in 1948 and formed the American Association of Hospital Consultants, with the recognition and encouragement of the AIA and American Hospital Association.

Among the purposes of the new organization was to insure sources of expert and ethical consultation with definite standards of experience and ability.* The Association has also provided valuable channels of communication with architects and other professionals involved in hospital administration and planning.

Today, many hospital boards believe that a good hospital consultant is as important as a good site. Consultants can take a considerable load off the shoulders of architects and administrators in the analysis and layout stages, without overreaching their professional bounds (they do not provide plans or draw up specifications). Architects and consultants usually

agree that the best results occur when they join the planning team simultaneously—and early; for example, early enough to conduct a local or regional survey of existing facilities so that a new hospital can avoid overlapping services and can make long-range plans with population, transportation, and industrial growth trends in mind. As planning becomes more specific, the consultant goes to work on such problems as use of automation, staffing, work flow patterns, layouts and coordination of various departments, and size and location of patient care units. After the project is completed, the consultant often stays on for continuous audits on the quality of medical care and the efficiency of management. More and more, consultants are being called upon to anticipate the future expansion needs as well as changes in medical pro-

GORDON A. FRIESEN



*Members of the Association must have at least ten years experience in the general field of hospital administration and must have been doing hospital consultation work full or part time during the past three years. The 40 members and eight associates, who are scattered across the U.S. and Canada, must also abide by a stringent code of ethics: no fee splitting or rebates; no advertising for jobs; no commissions or other reward from contractors or suppliers.

cedure, nursing, social legislation, and the relationships of medical practice—all with an eye to heading off the early obsolescence that is the plague of hospital building today.

In the forefront of this new breed of consultants is Gordon A. Friesen of Washington, D.C. In fact, Friesen has been so far ahead in the current trend to hospital mechanization that until fairly recently, many of his ideas were dismissed as radical and farfetched. In 33 years in the hospital profession Friesen has kept on jogging the traditionalists with an infectious enthusiasm and sense of urgency. "Ninety-five per cent of all new hospitals are twenty years old by the time they open their doors," he says. "Hospital planning has not kept pace with the remarkable advances in medical science. Many refuse to recognize that mechanization could be, and is, applicable in running a hospital. If American industry operated the way some hospitals do, it would go bankrupt overnight."

Cutting costs by automation and assembly-line techniques

At 53, Friesen has outgrown the revolutionist label and is now one of the most influential and frequently quoted experts in the field. Conversations among hospital men in the U.S. and abroad almost invariably return to his concepts of automation and industrial assembly-line techniques. Whether or not they agree with his specific ideas, there is no doubt that many hospitals are not being run at maximum efficiency. It cost U.S. hospitals nearly \$1 billion more to operate in 1961 than in 1960, according to a recent American Hospital Association report. Nearly two-thirds of the costs in both years went for payroll: \$5.6 billion in 1960; \$6.2 billion in 1961. And these cost increases do not necessarily mean that patients are getting better treatment. A recent study at a hospital in Akron, Ohio, showed that nurses spent up to 60 per cent of their time in work unrelated to direct patient care—and this is not unusual.

Since Friesen's first hospital project in his native Canada in 1946 (he was also the hospital's administrator), he has been con-

cerned with cutting labor costs and tightening up hospital efficiency by planning supplies and services on a production line around the patient, and by giving the nurse the supplies she needs right at the bedside and saving her from endless walking and unskilled messenger duties. By putting everything on an assembly line *except* the patient, Friesen believes that much better use can be made of the nurse's specialized training, leaving her more time (without constant interruptions) for treatment and consideration of the patient as a human being, with mental anxieties as well as physical handicaps.

The first U.S. showcase for Friesen's ideas was the chain of ten hospitals built in the West Virginia-Kentucky mountain mining region for the United Mine Workers' welfare fund (FORUM Aug., Sept., Nov. '53). Friesen was appointed senior hospital administrator and took a leading part in advance planning for all ten hospitals. Working with an exceptional team of architects, clients, and contractors, he was able to centralize all supplies and

distribute them mechanically to patient floors; to handle delivery of records by pneumatic tube; to install patient-nurse call systems; and to replace requisitioning with a complete system of supplies covering department and nursing floor needs for 24 hours.

Friesen is a peripatetic evangelizer on the subject of functional planning. Much of his time is spent traveling around the country speaking (usually with arm-waving intensity) at universities or at small seminars for clients. A colleague recently described Friesen's ability to cover the whole map in planning a hospital, coming up with new ideas for every possible corner or closet: "Gordon is a 'brain stormer.' He will produce 100 ideas to get a single sound one. But he is never gimmicky for the sake of being so. You may criticize some of his ideas, perhaps his whole philosophy; but it is hard to question his sincerity and dedication to the improvement of hospitals."

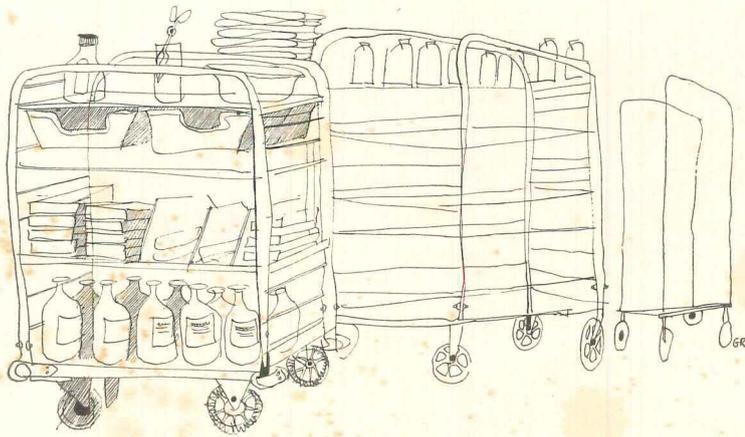
Friesen manages to combine his brain storming with thorough evaluation and testing, using mock-ups and custom-made equipment to perfect methods, many original, others adapted, that date back to his earliest projects. Among them are:

The "Nurserver," a double-door supply cabinet between each patient's room and the corridor, now in use in two recently completed hospitals (sketch above). The cabinet is divided vertically into clean and soiled compartments. A supply technician, standing in the corridor, can remove soiled linen and supplies from one compartment and replenish clean supplies in the other, without ever entering the patient's room or disturbing him. "The less traffic going in and out of patients'

rooms, the safer the hospital," says Friesen. The nurse is relieved of supply-carrying duties and can use the pass-through cabinets without leaving the patient's bedside. The clean supply cabinet is kept stocked with the basic supplies needed for all patients. Additional supplies, according to the patient's needs, are requisitioned in advance and placed in the Nurserver ready for use. Because deliveries and pickups can be made at night or off-hours, this method also lessens corridor traffic. Emergency supplies can be



ordered by the nurse without leaving the room, through a unique two-way conversation system. From the "service area" in the patient's room, she is able to call the floor-nurse's station, the floor-supply technician, or the dispatcher at the central supply room. Using this system, for example, Carroll County General Hospital in Westminster, Md., has been able to staff 1.38 employees per patient (against the national average of 2.4), and achieved an unusual operating surplus of \$8,500 in the seventh month of operation, with surpluses consistently thereafter. With smaller staffs, hospitals should be able to pay higher salaries—and hire better-trained personnel.



The service area (Nurservers, wash basin, shower, and toilet) in each patient's room is a must in Friesen's opinion. "Even a third-rate motel has a shower in every room. With early ambulation in our hospitals today, it is a necessity," he says. Friesen also believes that each room should be self-sufficient so that it can be used for intensive care or isolation if necessary, instead of moving the patient to a special area. Many of his colleagues disagree with him vehemently on this point, but Friesen says: "Intensive-care units are a throwback to the old bullpen or ward principle: they say that patients don't care if they're in a room with ten other critically ill people when they're that sick themselves. But



the patients are not necessarily unconscious, and there are psychological implications in knowing you're in serious enough condition to be in an intensive treatment area. We feel better care can be given to the patient in his own room, where his family can be with him, by the use of mobile monitoring units [to record temperature, pulse, respiration, etc.] and taking full advantage of automation." Friesen is in favor of having as many single rooms as possible, each large enough for a convertible chair-bed for next of kin.

The central dispatch area (first used by Friesen in Canada and considerably developed since then) is a production-line system of processing and dispatching supplies from a master control point (as distinct from many hospitals where utensils and instruments are still washed or rinsed by hand in each department and nursing floor and sterilized in many separate machines). Maintenance, equipment, and labor costs can be lowered by building large and fast ultrasonic cleaners and autoclaves which process instruments and equipment for the whole hospital under uniform conditions. "We feel soiled goods should not be sorted for decontamination according to what seems most likely

to be contagious; doctors now feel that the most dangerous case is the latent one that is still undiagnosed," says Friesen. In his hospitals, soiled supplies are bagged in plastic on each floor and sent unsorted to the decontamination center (usually on the first level) by special vertical conveyors which carry eight trays a minute. The supplies are then cleaned mechanically, sterilized, and dried in a double-door autoclave, passed through a processing center where they are wrapped, and finally placed in storage ready to be returned by clean supply conveyors to the patient floors when needed.

Supply carts with shelves or drawers (sketch above), developed from Friesen's own design, are used to store processed and prepackaged equipment (e.g., surgical, linen packs) both in the central storage area, where they are ready for quick transportation on wheels, or in the clean supply room on each patient floor. Just as in a battle line, the object is to move supplies as far forward and as close to the area where they are being used as possible. Once the clean equipment is back on the nursing floors, it can be wheeled from Nurservers to Nurservers to replace diminished supplies. The same basic carts — assembled with different modular components for dual reasons of function and avoiding cross contamination—are used to pick up soiled equipment from Nurservers, and are kept separately in a soilage holding room on each floor.

Central food preparation, with the goal of good food, easily and economically prepared and quickly served, has long been a preoccupation of Friesen's. With a limited number of people in the kitchen ("less handling means better control and less cost"), patient

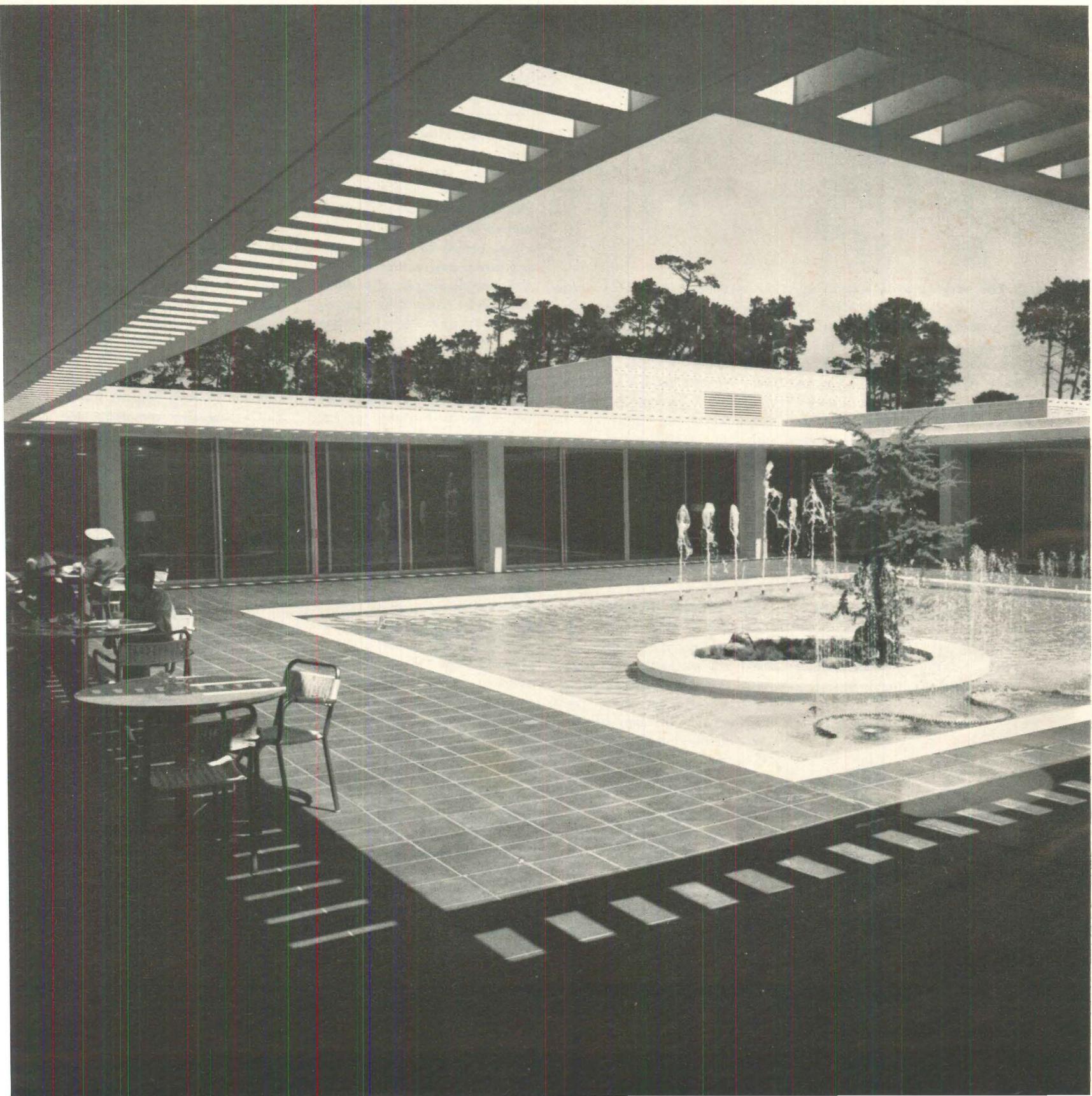
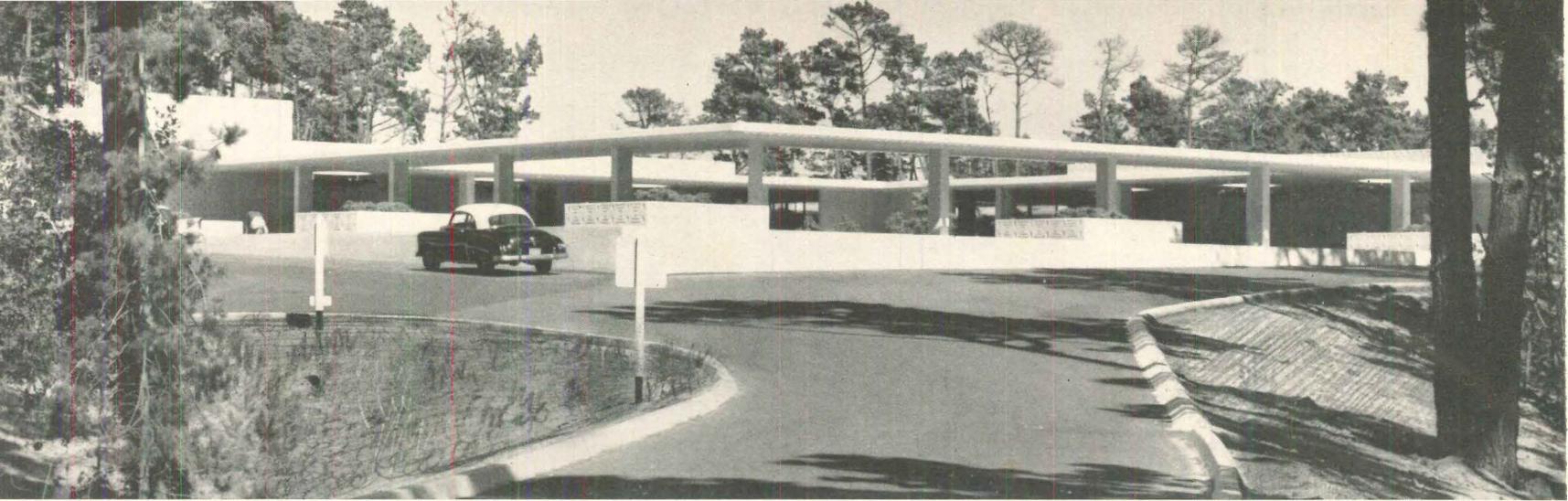
trays can be put together on a moving belt assembly line with a vertical conveyor at the end for quick transportation to the patient floors (sketch, below). At the Westminster Hospital, 60 patients can be served in 12 minutes (from assembly line to bedside). Used trays are returned to the central dishwashing room by a separate conveyor to guard against cross contamination.

Friesen does not put all his trust in automation: "Mechanical devices cannot compensate for inefficiency. The success of automation lies in highly developed organization, qualified personnel, and correct application of new techniques." To insure these, the services of Friesen's staff are available to each hospital for at least a year after completion for



guidance and training.

With the proper groundwork taken care of, automation is proving to be not only the most efficient but also the most economical method in the long run, according to Gordon Friesen. "So far, the capital cost of building a hospital this way is no greater than that of a traditional hospital," he says. "Moreover, we are sure that a properly mechanized hospital will be able to pay off its capital costs—with real savings in operations—in twenty-five years at the very most."



AN ELEGANT EXCEPTION IN HOSPITAL DESIGN

Monterey Peninsula Community Hospital sits serenely at the top of a small knoll, gleaming greenish-white against the dark, wind-shaped Del Monte Forest. Entry is through a chaste and formal court enclosed by a wide arcade whose soffit is the only unpatterned surface in view. The windowless walls, the wide columns, even the large concrete planters are stamped with the mark of Edward Durrell Stone: a delicate tracery of squares and rectangles.

Remarkably, the elegance and almost temple-like repose of the entrance court is maintained throughout the building. The vernacular is that used by Stone in his sprawling, unsatisfying Stanford Medical Center—the patterned walls, the symmetrical plan arranged around open courts. But here it works. The Monterey hospital fulfills the early promise of the Stanford project, and in doing so achieves an architectural distinction not often found in hospital design.

Undoubtedly its success is due in part to the site, 22 acres at the entrance to the magnificent 17-Mile Drive past Pebble Beach (donated by the Monterey Peninsula's civic-minded social lion, Samuel F. B. Morse III). The building literally shines against the dense pines and cypresses, and each of the 100 private bedrooms looks out on the trees, the bay, or both.

It is also a matter of scale. Monterey Peninsula is very nearly as small as a new hospital can be built and still make medical and economic sense, and this compactness helps to keep the ubiquitous pattern from becoming tiresome. From the entrance, in fact, the hospital seems a one-story building; the two-story elevations at the downhill slope of the knoll are screened from the driveway and parking lots.

The open spaces are also of a manageable size. The entrance court is the first of three placed corner to corner on an east-west axis. Just beyond it is a water court which is the central element of the plan, and beyond the water court a good-size plot that will be landscaped as the hospital's "great garden." Porches notch the north and south corners (eventually, when expansion is required, two-story hollow squares of 50 beds will sprout from both). Stairways in the bedroom wings are in generous wells brightened by big bubble skylights. And finally, each main-story bedroom opens to a semiprivate, skylit balcony and each lower-story bedroom to a patio; the balcony floors are of glass block to allow the sun to shine through to the patios below. The foggy coastal climate limits their use, but it also makes the natural light which they and the courts admit all the more welcome.

PHOTOS: RON PARTRIDGE



Most hospitals today, as is shown elsewhere in this issue, are designed from the inside out. Esthetic considerations come well after their complicated functional requirements. Monterey Peninsula obviously was designed with at least as much attention to form as to function. This approach produced a handsome building, but it also created a few peculiarities of plan.

Some are relatively minor, such as the odd locations of the laboratory and the physical-therapy unit. More serious is the bisection of the hospital into equal but surprisingly separate wings. The only main-floor link between them is the water court, flanked on two sides by public facilities—admissions, business, offices, a lounge, the coffee shop, the pharmacy—and on the other two by what must be a freeway among hospital corridors. The kitchen is in one wing and the central supply room in the other, creating a steady cross traffic. (The nurses need not trot back and forth for basic supplies, however; carts restock shelves at their stations daily.) The busy corridor also seems somewhat public for bringing patients from, say, the maternity side to surgery.

Nursing units are L-shaped, with bedrooms in clusters of four around the balcony-patios. Thomas E. Tonkin, administrator of the hospital who acted as consultant in its design, traces the decision to make them all single rooms back to the April 1956 is-

ssue of FORUM. An article in that issue by Gordon Friesen (see page 105) contained a scheme for a nursing unit without wards. Tonkin gave the idea an 18-month trial in a mock-up at Monterey's old hospital, and liked it. "We know from detailed cost studies that it is no more expensive to care for the patients in a private room than in a ward," he says. "Why go on with the antique idea of compulsory togetherness primarily as a means of justifying higher rates for privacy?"

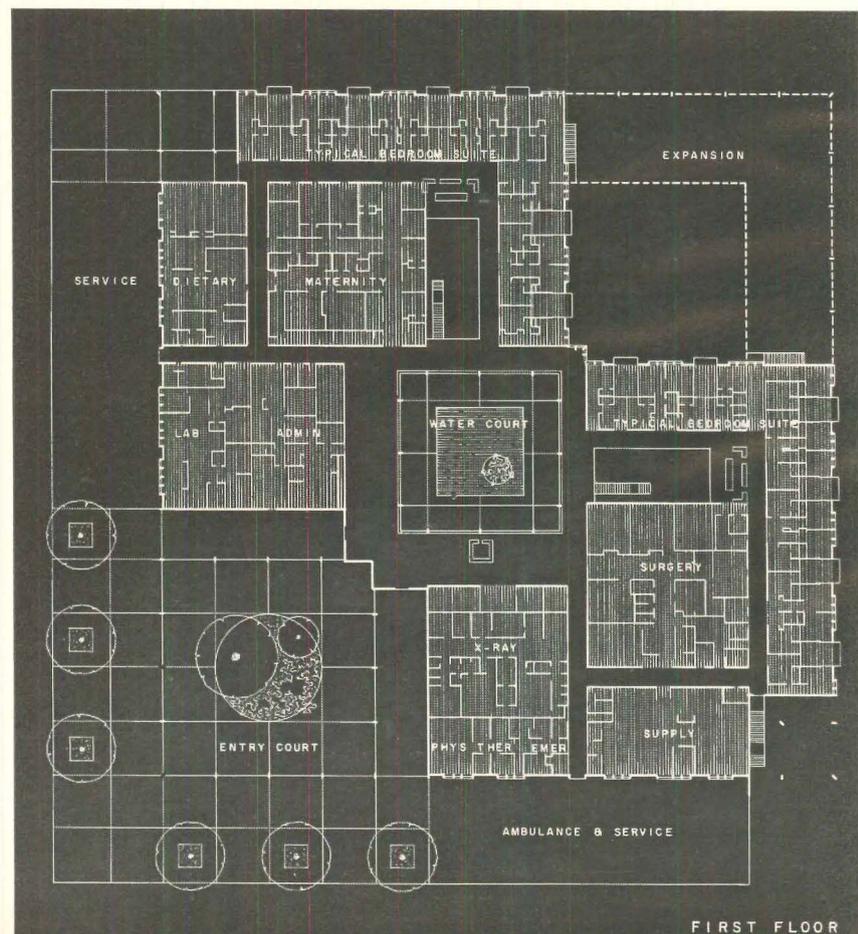
Half the hospital's patients pay no more for a single room than they would for a ward bed elsewhere. The rates at Monterey Peninsula, in fact, are 10 per cent below the across-the-board average in San Francisco and Los Angeles hospitals, according to Tonkin. Even so, Monterey Peninsula earned a 1 per cent operating surplus in the first month after it opened. The building itself came in at \$28 per square foot (some 13 per cent below nine other California hospitals bid the same year, Tonkin says) or an unextravagant \$27,000 per bed.

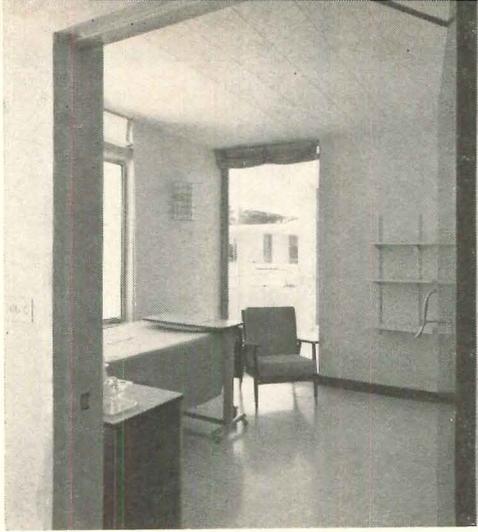
The moderate initial and operating costs can be explained in part by the small outpatient load and the absence of auxiliary facilities such as an auditorium. Nevertheless, Monterey Peninsula seems to have been a genuine bargain. Tonkin has one final statistic: The call lights go on 25 per cent less in the new hospital than in the old, a good sign of contentment among the patients.

FACTS & FIGURES

Community Hospital of the Monterey Peninsula, Carmel, California. Architect: Edward Durrell Stone (John C. Hill, resident architect). Engineers: Pregnoff & Mathew (structural), G. M. Simonson (mechanical and electrical). Landscape architect: Georg Hoy. Gen-

eral contractors: Daniels & House Construction Co. and Stolte, Inc. Building area: 77,500 square feet. Construction cost: \$2,175,992; \$28.08 per square foot; \$21,759 per bed. Financing: \$1,750,000 in donations, a \$600,000 mortgage, the balance from the sale of two old hospitals.





Main-floor nursing units have balconies (left and above) for every four bedrooms; those on lower floor have recessed patios. The round skylights, patterned surfaces, and wide overhangs with slotted soffits are characteristic Stone touches.

Bedrooms (above) are tight but adequate in size and crisply appointed. The concept of having only private rooms is a subject of debate among hospital authorities, but most agree that it works best in high-income areas.

Corridors (above right) are fairly long for a small hospital—nurses walk about 60 feet to the most remote room in each unit. The building abounds in fine details: note the handsome nurses' desk and continuous corridor lighting.

Stair wells (below) are pools of natural light, making balconies of the corridors around them. The hospital's moderate cost is especially notable in view of the amount of space which Stone has devoted to such amenities as these.



MEDICAL CENTERS: NEW NUCLEI FOR URBAN DESIGN

The trend toward concentration of health care into large and highly specialized medical centers is posing a serious challenge to many urban hospitals, whose jumbled growth on constricted sites may soon be compounded by explosive advances in medicine itself. In meeting the challenge, however, a handful are pointing the way toward a new kind of city subcenter through which hospitals and other institutions can have profound good effects on urban design.

Most of today's finest medical centers stand in older central areas, surrounded by swirling traffic, with as much as 40 per cent of their land given over to an outdated pattern of small blocks and narrow streets. Expansion is difficult; proper planning is all but impossible.

As more and more hospitals are discovering, however, one answer to their plight lies in the federal urban renewal program, which contributes funds in the ratio of \$2 to every \$1 spent by the city for redevelopment. The city's contributions may be in cash, or in non-cash "credits"—and these credits, under Section 112 of the amendments to the 1961 Housing Act, can include the expenditures of hospitals and universities for their own land acquisition and demolition costs. The Tufts-New England Medical Center, for example, recently spent \$4 million toward its projected expansion and redevelopment of Boston's South Cove; this has resulted in a federal credit of \$8 million for the city's overall renewal program, without any effort or expenditure by the city itself. Obviously it is to the interest of the city to work closely with its hospitals toward their common redevelopment goals.

Under such programs, hospitals and their teaching and research arms are taking over increasing amounts of surrounding blight and insuring themselves more orderly growth. With the help of the city, streets are being closed to allow more comprehensive design and development on larger blocks of land. Consultant architects and site planners are helping to project space requirements two and three decades ahead, allowing rational evaluation of the relative merits of future buildings as they come up for design at later stages.

Because of their size and imaginative design projections, the three medical centers shown on these pages promise major architectural contributions to the profiles of their cities. Aside from providing better medical service in more efficient and pleasant surroundings, each will encourage peripheral invest-

ment in new staff housing, doctors' offices, shops, schools, parking—all of which, properly integrated into an overall scheme, will more than compensate the city for taxes lost as the tax-exempt medical buildings themselves spread out over more land. But perhaps most significantly, these three centers and others of their kind give hope of new texture, new personality, new cohesion within the urban fabric; they can become important models of neighborhood planning, as well as sources of pride to the cities of which they are a part.

MANY COURTS FORM A NEW HARVARD YARD

Edward Gruson, the planning officer of the Harvard Medical Center, was the first in the Boston area to investigate to the full the implications of Section 112. Under his direction the Harvard Medical Center (right) is evolving from the existing Harvard Medical School and six hospitals already in close proximity. The six hospitals are strongly individualistic (each is privately endowed by certain Boston families) and each of them wishes to retain its own identity.

The objective has been to make one institution of these seven hitherto unrelated parts, to create a single "medical university" for medical care, teaching, and research. At the same time it will be woven into the larger program of the city's urban renewal program to make a positive contribution to the architectural character of the new Boston. No definite time schedule has been set, although ten years is spoken of; the cost estimate is \$50 million, but eventually this may rise to \$100 million.

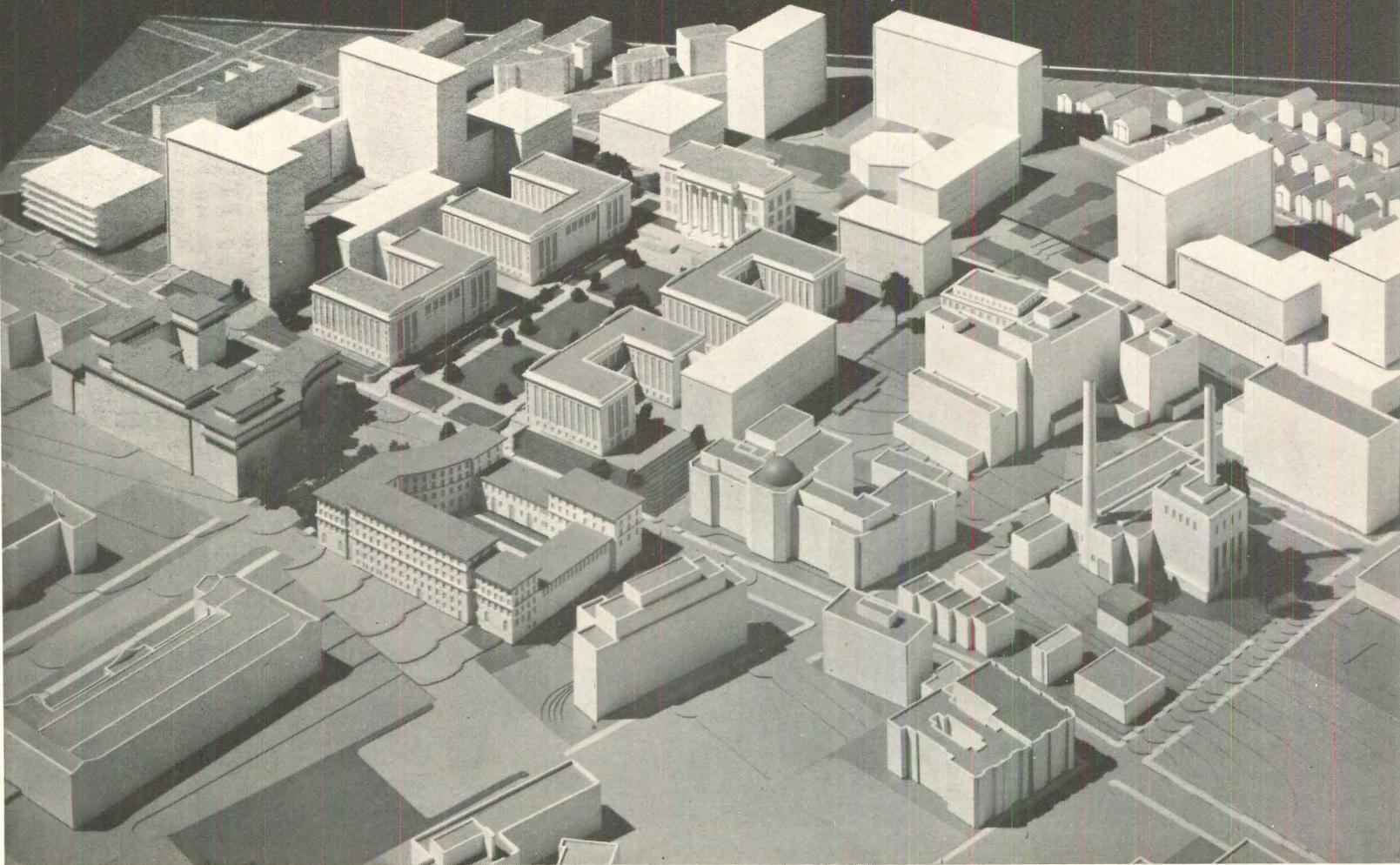
The grouping also reflects a new conception of medical teaching. In recent years Harvard has been developing new approaches to treating the "whole man." This is greatly strengthened by having such specialized hospitals as

the Hospital for Women, the Children's Hospital, and the Massachusetts Eye and Ear Infirmary as integral parts of the new medical center. The number of patients will not increase, but it is estimated that the number of students will increase two to two-and-a-half times.

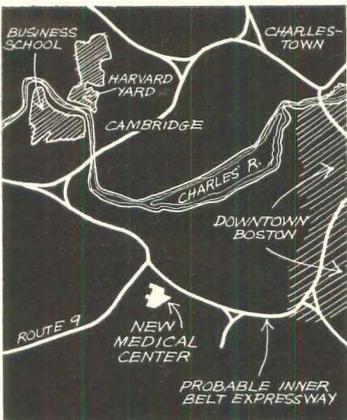
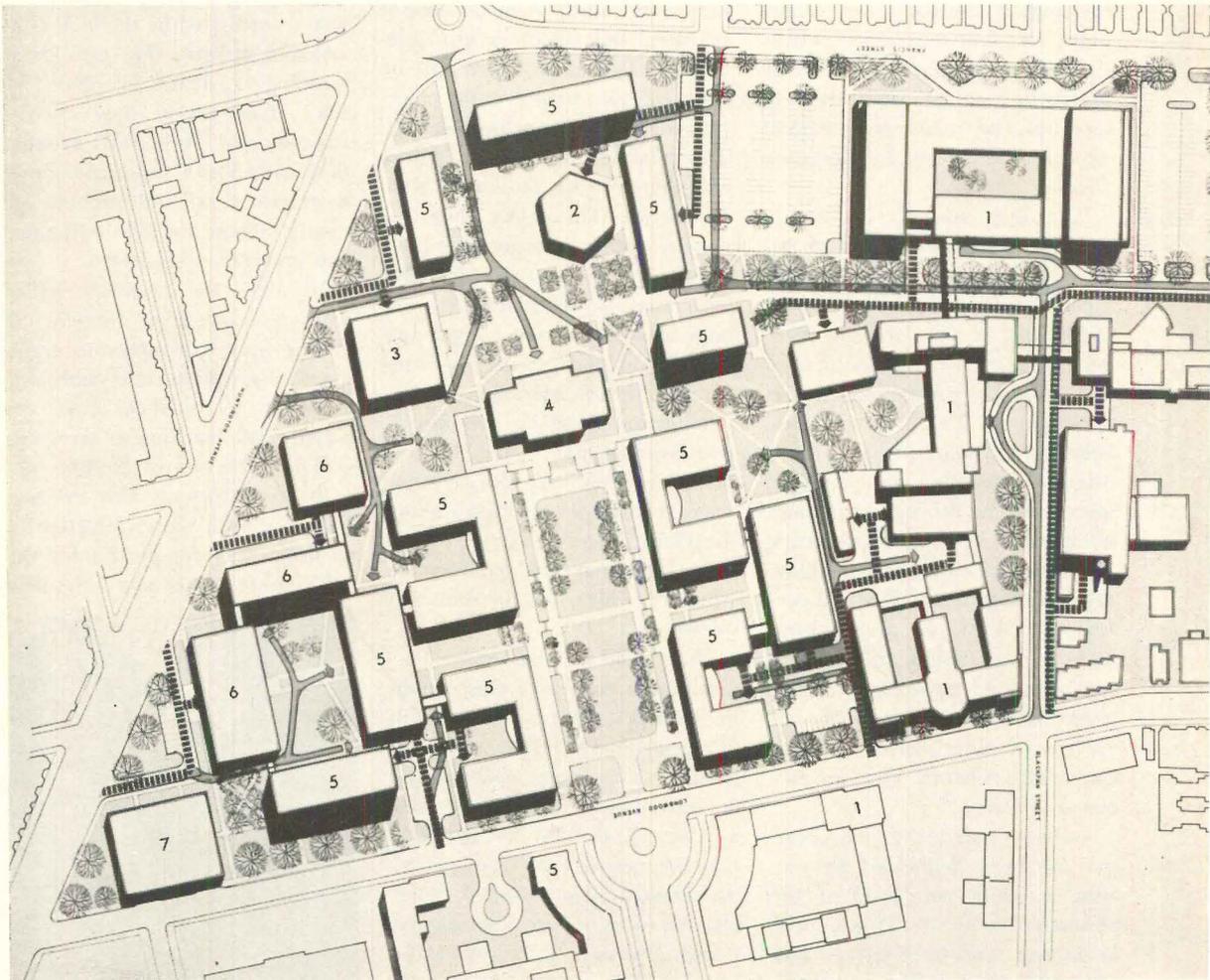
The solution arrived at by Gruson and Sasaki, Walker and Associates, the consultants for site planning, is strongly reminiscent of Cambridge University and its constituent colleges, each of which has a strong personal identity yet remains an integral part of the whole. The symbol of the coming together of these institutions will be a new library building, the focal point of the whole project. This is the Florence A. Countway Medical Library, which will consolidate the existing Harvard Medical Library with the Boston Medical Library and form the second largest medical information center in the U.S. Hugh Stubbins, the architect of the new library, has captured the spirit of the new medical center in an arresting design which is a worthy foil to the strong Beaux Arts detailing of adjacent buildings.

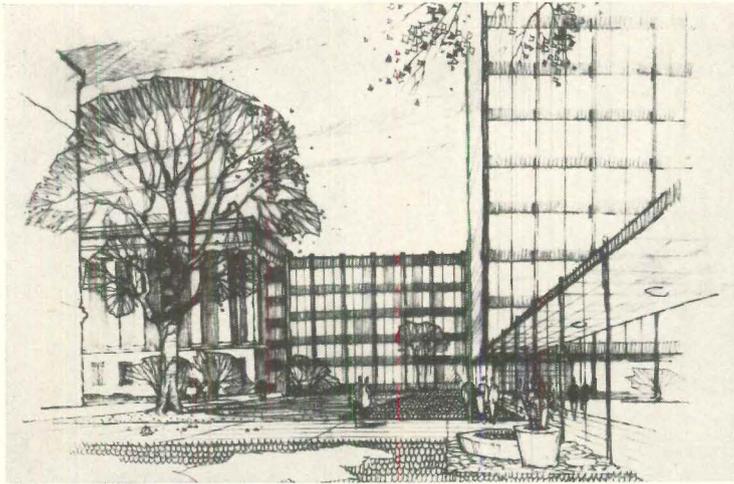
The grouping together of the medical care facilities and the medical school will permit a "common market" approach to

David Shoesmith, MA (Arch) ARIBA, is a graduate of Cambridge University and London's Architectural Association School, and completed an advanced study program on hospitals and medical buildings at Harvard's Graduate School of Design. His most recent practice in the U. S. has involved hospital work.



BOSTON: A new medical university is being created by Harvard's medical school and six nearby hospitals, which will share costly facilities and equipment. The city has closed streets to allow development on a large scale. Using the school's porticoed administration building and mall as a hub, Planners Edward Gruson and Sasaki, Walker Associates have made a tight pattern of new buildings and courts to be built in several stages. The buildings (new ones are shown in white in model photo above and site plan, right): 1) patient care, 2) new auditorium, 3) new library, 4) administration, 5) classrooms and laboratories, 6) public health school, 7) parking garage.





Old and new classroom buildings at Harvard join to form pleasant courts

the sharing of laboratories, supply units, and costly treatment facilities. This pooling of ancillary units will eliminate duplication of facilities and unnecessary capital expenditures on new buildings, increasing efficiency.

The easy solution for a city medical center is a group of tall slab blocks, as at Columbia and other medical schools of the 1930s. But at Harvard the planners have resisted this temptation and adopted a precinctual type of development in which the new buildings are placed so as to form small courtyards and intimate spaces, which, although sometimes small, will be made interesting and varied by careful landscaping. The buildings themselves will present a variety of architectural mass and expression, and a diversity of spatial experience as one progresses through courtyards reminiscent of older universities like Cambridge, Oxford, and the Sorbonne in Paris.

Architecturally, the new campus has been delineated by creating a major ring road at the perimeter of the site. Parking will be in one multistory garage and one parking lot (by compari-

son with other medical center schemes, this seems hardly adequate). The inner roads will be reserved for service and emergency traffic and pedestrian use. The treatment of this inner area will therefore be similar to Harvard Yard. To achieve this, sections of public highway have been closed by the city and the land purchased by Harvard. An old high school has been bought and demolished and on the site construction has started on the Environmental Hygiene and Nutrition Building, part of the Harvard School of Public Health. A later stage contemplates demolishing the Peter Bent Brigham Hospital, a low, uneconomical, pavilion-like structure which has become obsolescent.

On the land freed by the hospital and a section of closed public highway the new auditorium of the medical school will be built together with more teaching and laboratory buildings. These buildings have been skillfully placed so that the reverse face of the heavily classical administrative building, the focal point of the original Beaux Arts axis, will also be the focus of the new complex.

A MEDICAL NEIGHBORHOOD IN DETROIT

A somewhat different case is that of Detroit's Medical Center, which has no existing medical school. Four large hospitals stand close together in an area of poor housing interspersed with dilapidated commercial and industrial building.

The site is near the center of Detroit, comprising some 250 acres broken up into a large number of small, heavily traveled blocks (sketch right). The four hospitals—Grace, Woman's, Harper, and Children's—are some of the oldest and finest medical institutions in Detroit. (The original buildings of Harper, the oldest, were constructed by the U.S. Government in 1864; the "new" main building is shown in photo below). Collectively they have a capacity of 1700 to 1800 patients, deal with 60,000 inpatient admissions per year, and provide annually about 250,000 outpatient and emergency services.

In 1955 the hospitals joined with the College of Medicine of Wayne State University to evaluate the possibility of establishing a center for medical care, research, and teaching to serve the whole of the city of Detroit.

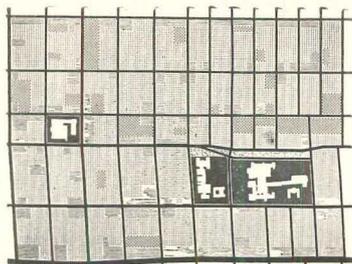
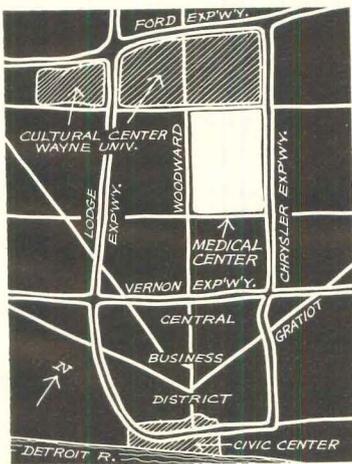
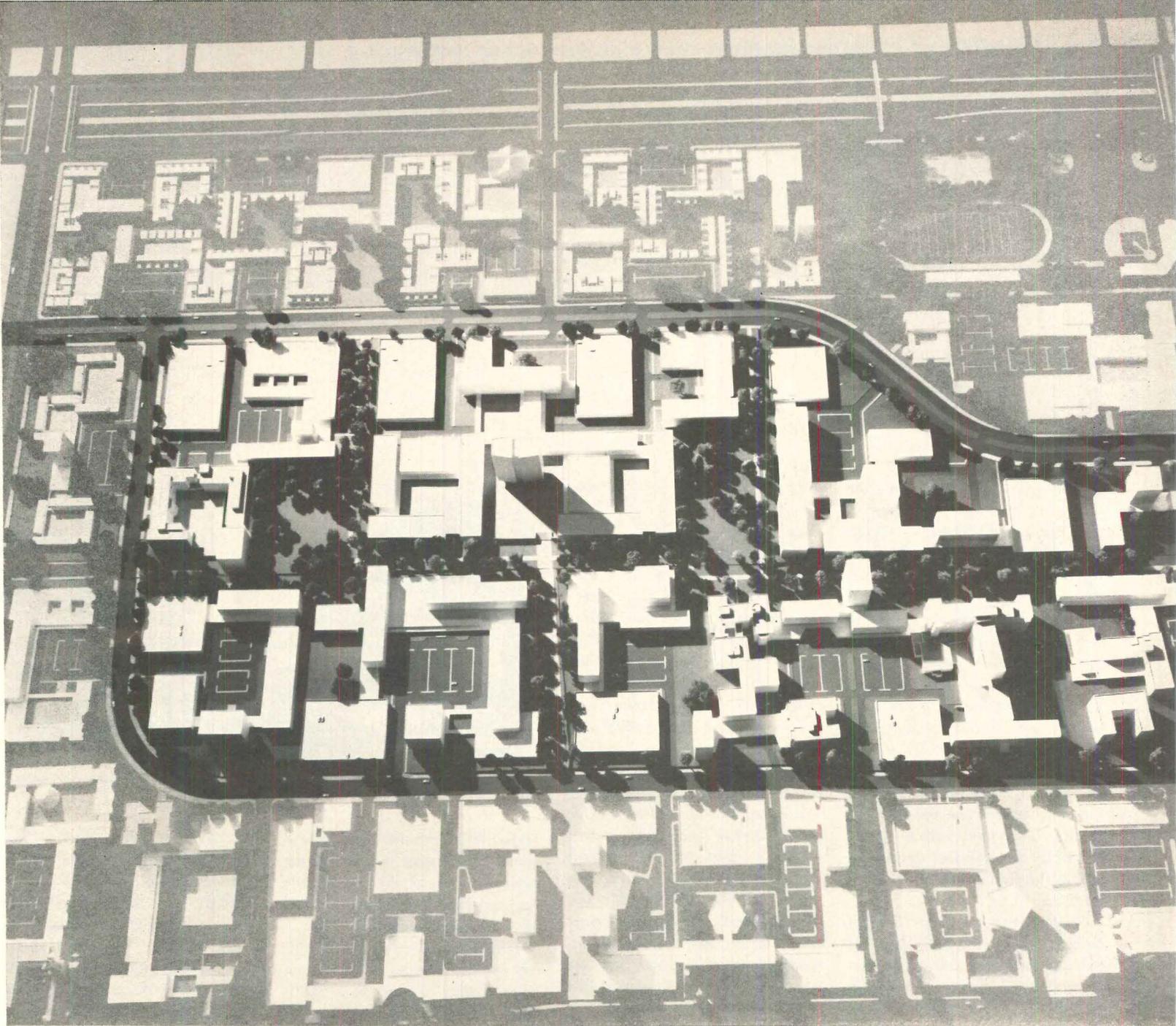
By good fortune, this decision coincided with the formulation of an urban renewal project for the city's entire center core: the new

civic center; the new central business district, the rebuilding of which is under way; the site projected for the campus of Wayne State University; and the cultural center, which is being developed around the main public library, the historical museum, and the Art Institute. The medical center is, therefore, an integral part of the renewal plan for the future city of Detroit.

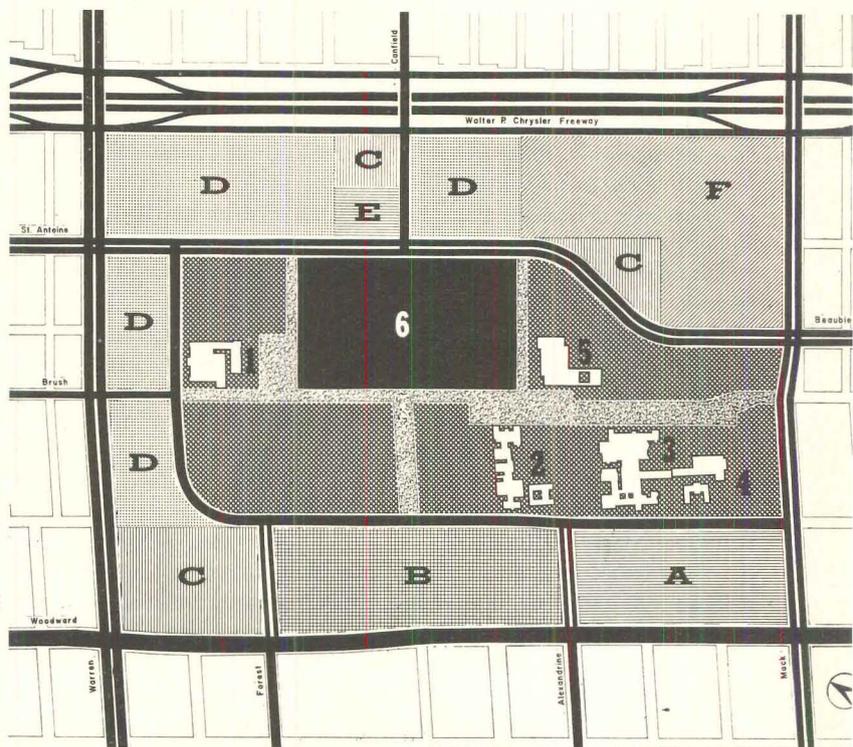
In the first phase of the project some 60 acres are being demolished and construction should start shortly. The cost of land clearance and site improvements amounts to \$30 million; total cost of reconstruction is estimated at \$250 million.

The project's architect-planner, Gerald E. Crane, has seized the opportunity to design a scheme which will emphasize the medical center visually as part of the panorama of the city, as well as creating a unique quality in the spaces within the center itself. Working within the framework of the Detroit Master Plan, Crane has based his land use on four principles: 1) the elimination of superfluous streets and the creation of a planned road pattern; 2) the assembly of existing city blocks into large superblocks, rebuilt with single or compatible uses; 3) the separation of pedestrian and vehicular traffic; 4) maximum utilization and enhancement of existing institutions. The comparison of existing and future land use (sketches right) shows that a significant breakthrough has been made against the tyranny of an outdated gridiron street pattern. The number of city blocks has been reduced from 65 to about ten, thus increasing considerably the real estate available. Internal feeder roads have been





DETROIT: A green pedestrian mall, with courts and walkways branching off, will form the spine of the new Detroit Medical Center, bringing four existing hospitals and a new Wayne University medical school into easy walking relationship. The project, fitted into the city's ambitious renewal program (map, left), will replace 65 small, blighted blocks (sketch below) with a handful of large ones served by concentric loop roads (sketch, right). The hospitals are: Woman's (1), Grace (2), Harper (3), the Rehabilitation Institute (4), and a new Children's Hospital (5), all of which are given room to expand. The tower of the new Wayne Medical school (6) will be the center's landmark. Fringing the center will be planned commercial development (A), medical agencies (B), churches (C), housing (D), and a neighborhood shopping center (E), and school (F). Architect planner for the project is Gerald E. Crane.



reduced to two, and these enclose about 100 acres in which is situated the center core of hospitals and medical facilities. Between this core and the bounding expressways, a peripheral belt is planned to include a number of uses related to the Medical Center. These will be mainly residential, for staff, but the aim is to produce a balanced community which will include commercial development, a junior high school, playing fields, and new churches, in addition to doctors' offices and social agencies connected with the Center. This land will be made available to private developers within the framework of the master plan.

Within the 100-acre central core, Crane has skillfully laid out two superimposed circulation systems, one for motor vehicles and the other for pedestrians. Cars

keep to the feeder ring road and are parked in one of eight multi-story garages placed at intervals to one side of the road. All buildings are serviced from the rear, leaving a central mall of green quietness which forms the spine of the whole project. This pedestrian space becomes an architectural statement of major significance, linking the major elements together so that each building is within a few minutes walking distance of the others. The tall tower block of the new medical school will be to the new Detroit what the cathedral spire was to the medieval city—it will become part of the cityscape, stating that "here" is the Detroit Medical Center. And, within the center itself, Crane has created an *arrondissement* of Detroit which will have a character and personality of its own.

MICHIGAN'S MULTILEVELED URBAN PLAN

In his design for the new medical center of the University of Michigan at Ann Arbor, site planner William Johnson has made another significant contribution in integrating the many medical center functions while keeping the feeling of an intense urban area.

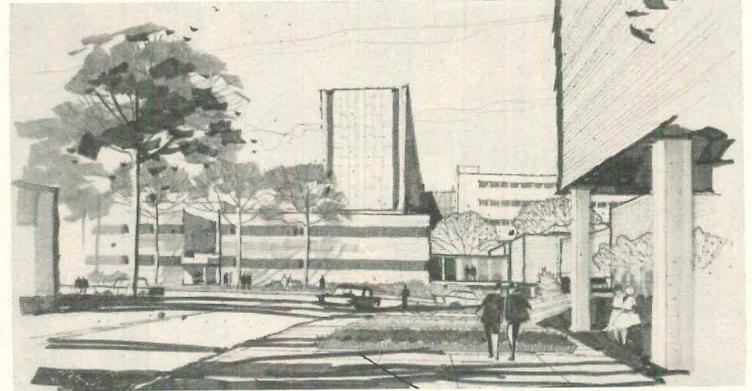
The site is on the southwest side of the steeply sloping Huron River Valley at a point where the river makes a U bend among wooded slopes. To the northeast there are long and impressive views to the horizon and to the North Campus. To the east is the University Arboretum which will insure permanent landscape diversity and charm.

At present there are three recognizable groupings of buildings on the site—medical care, medical science (teaching), and medical research. The teaching role will remain dominant and will

receive high building priority. The patient care function is expanding rapidly with emphasis on the outpatient service. Research is probably the most explosive in future needs.

Each of these functions requires that close interdepartmental relationships be maintained and this unified operation becomes a special characteristic of the center and the key to its architectural expression.

The new buildings will be close to the old so that all are within easy walking distance of each other. By keeping all but emergency traffic to a perimeter road the internal spaces have been arranged as truly urban courts and squares designed to create "identifying spaces" for each of the major elements of the projects: teaching, care, and research. By reason of their volume and land-



Michigan's underground parking permits a landscaped pedestrian campus

scape treatment these spaces will give a personality to each of the elements and at the same time fuse together and create a character for the center as a whole.

Johnson's brilliant solution utilizes the steep slopes of the Huron River Valley to produce a multi-level system of circulation. The steepness of the slopes will be decreased by careful cutting and filling and four- to five-story garages are to be inserted. These are partly underground, at the center side, and partly open, on the valley side (sketch below). Siting these garages into the slope in a staggered way means that there are no buildings at the edge to become a "fortress wall" ignoring the valley, but rather that the long views across the Huron Valley are exploited and the North Campus is brought into relationship.

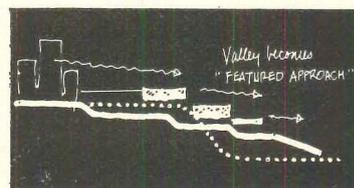
Drivers will approach from the lower level, and having parked, will ascend to points which will be within a few minutes walk of

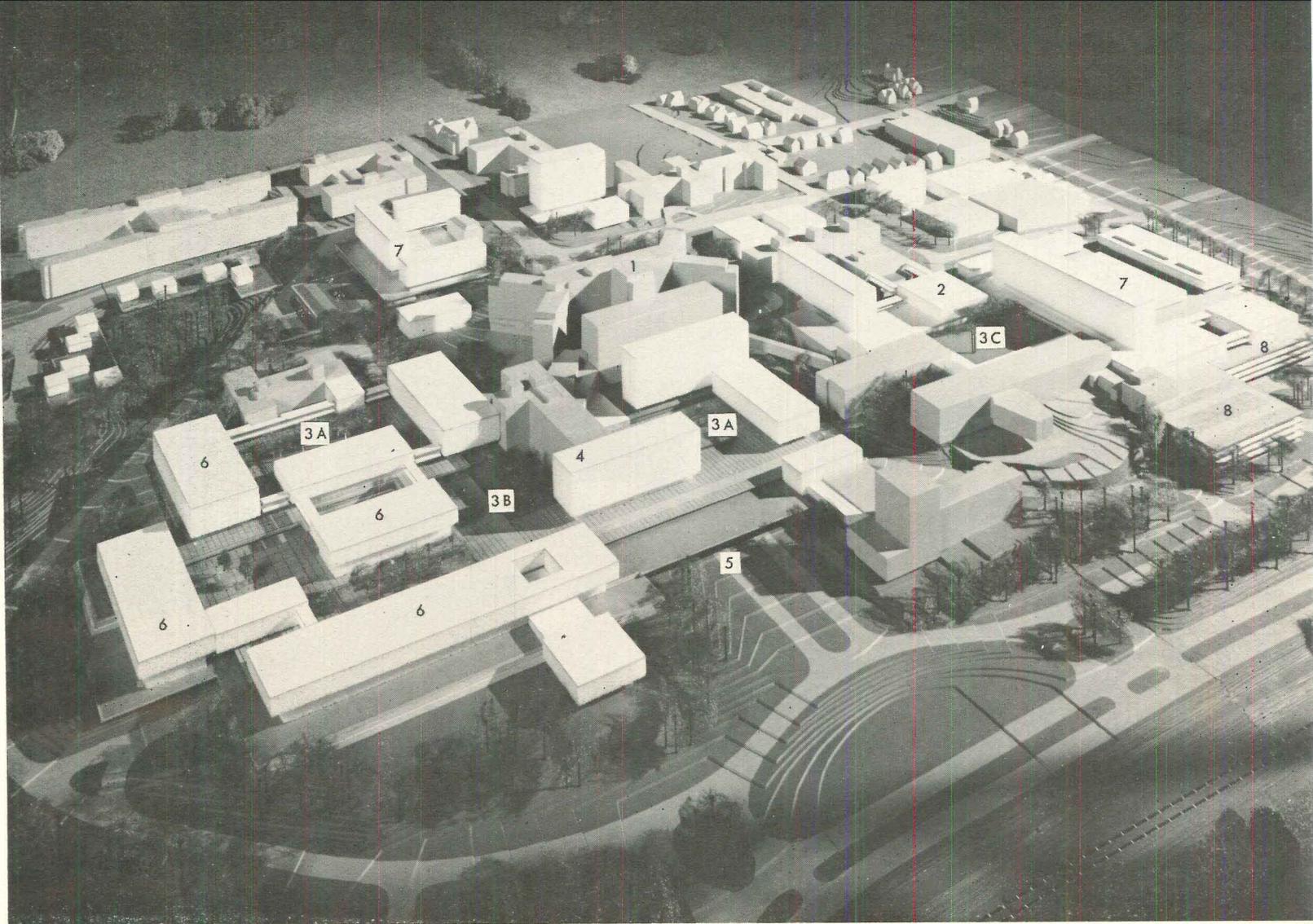
all parts of the center. This achieves a compactness of vehicle and pedestrian circulation which hitherto was not possible. The roof decks of these garages become in fact "reclaimed land" at no extra cost, used either as landscaped terraces linking adjacent buildings or as the basement stories of new structures.

The relationship with the community has been considered in detail. The medical center is very much in the midst of a thriving and expanding city.

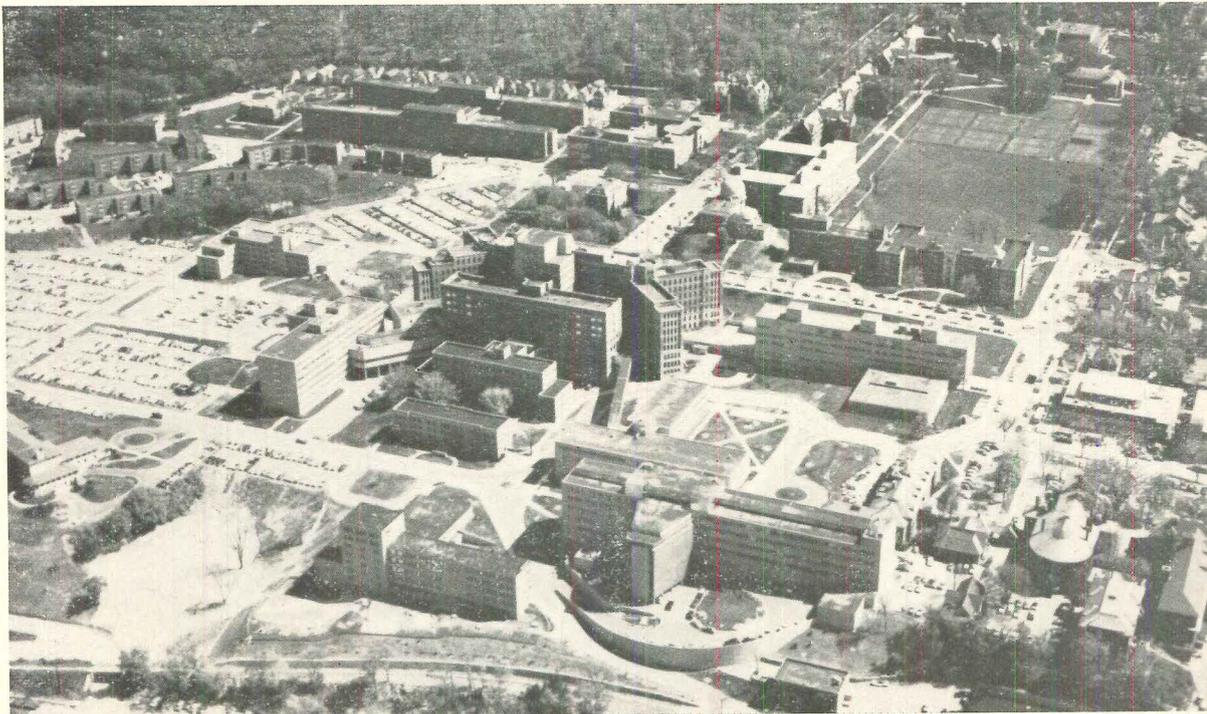
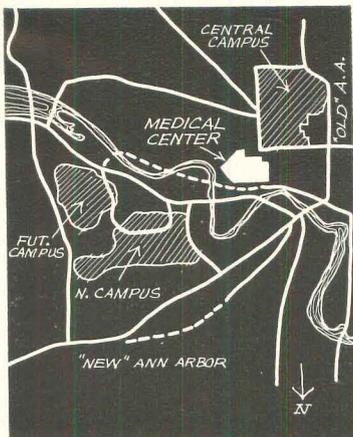
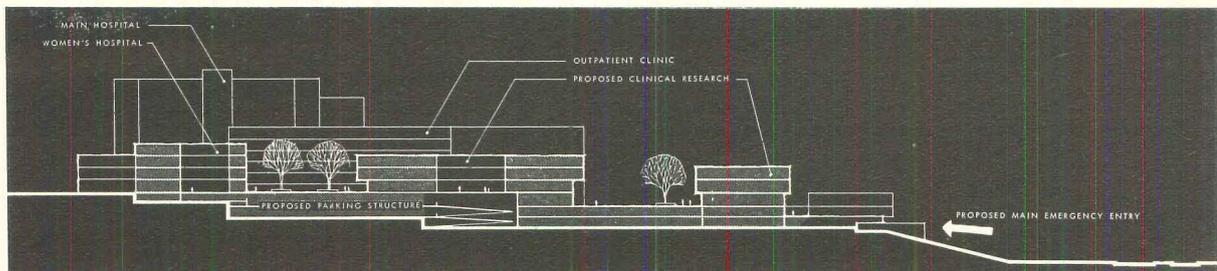
In the last decade both town and gown at Ann Arbor have leaped over the Huron River so that the river valley now becomes the natural land form giving access to the center of the enlarging community. The entry up the Huron Valley will therefore have a symbolic quality, and this will be enhanced by the new Medical Center to one side and the enlarged North Campus to the other (map right).

Possibly the "dreaming spires" of traditional university cities are outdated, but the new architecture of the medical center and the new campus will make a positive contribution to the profile of the new Ann Arbor, setting it apart from other cities of its size.

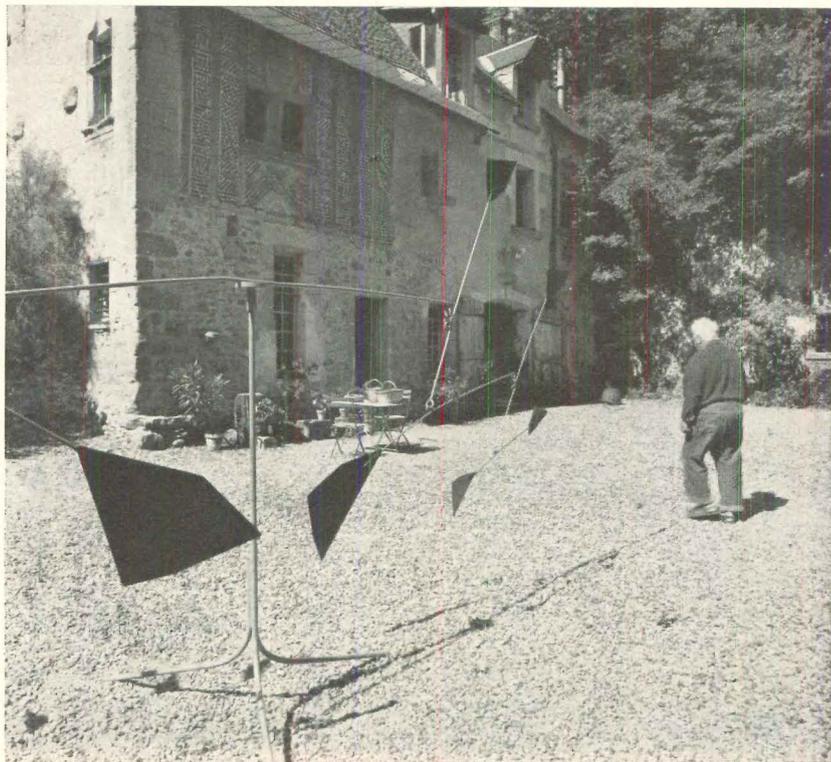




ANN ARBOR: The proposed University of Michigan medical center is the most advanced in its urban circulation scheme: Site Planner William Johnson has made use of slopes toward the river (foreground) to place multilevel garages under buildings and courts; cars will use access road (center) and move out of sight close to their destinations. Key: 1) existing main hospital, 2) new library, 3) main courts (A—patient care, B—research, C—teaching); 4) outpatient clinics, 5) entry to underground garages, 6) garage areas with research labs above, 7) research, 8) five-story garages. The center will rise at the head of the valley (map, below).

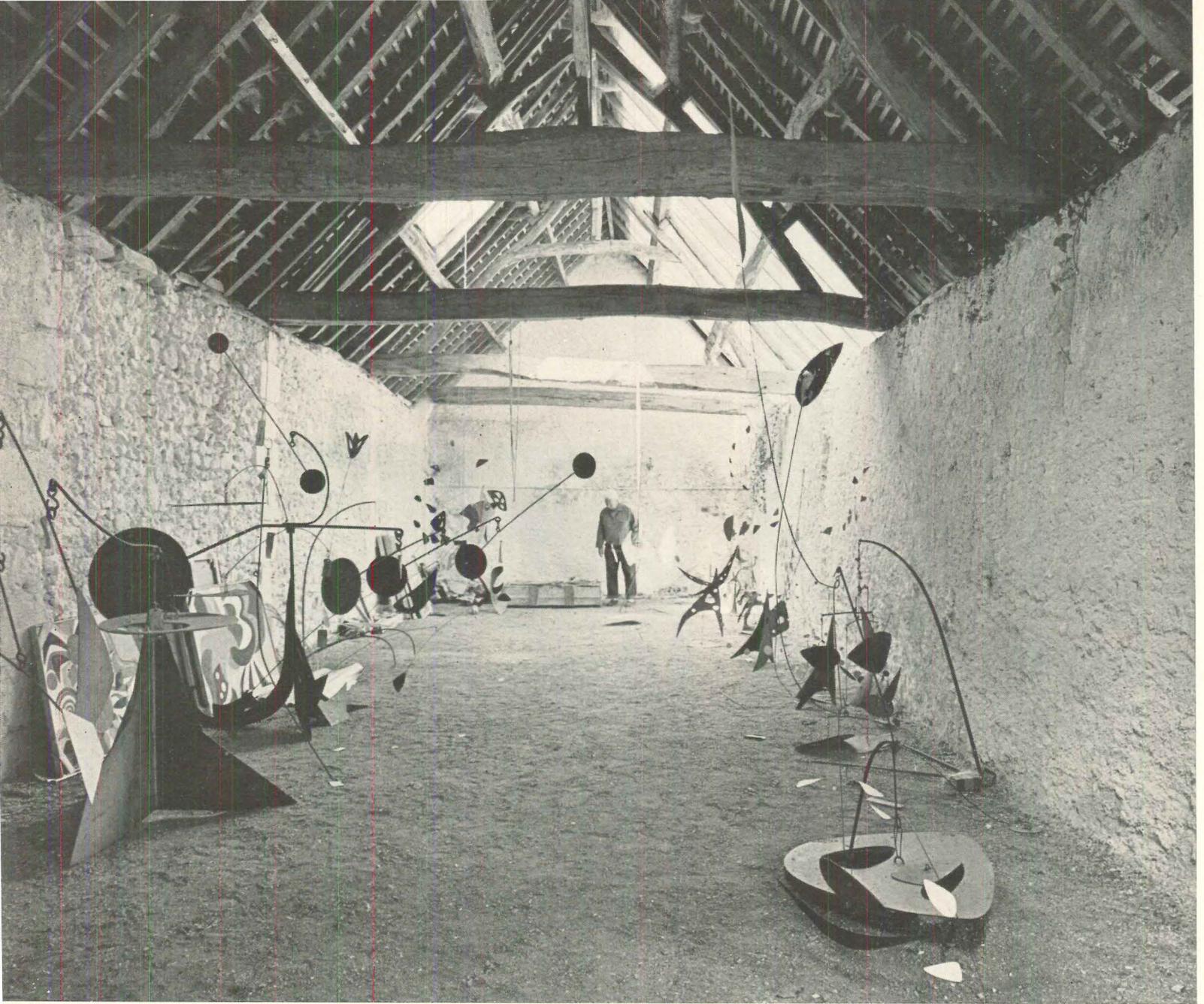




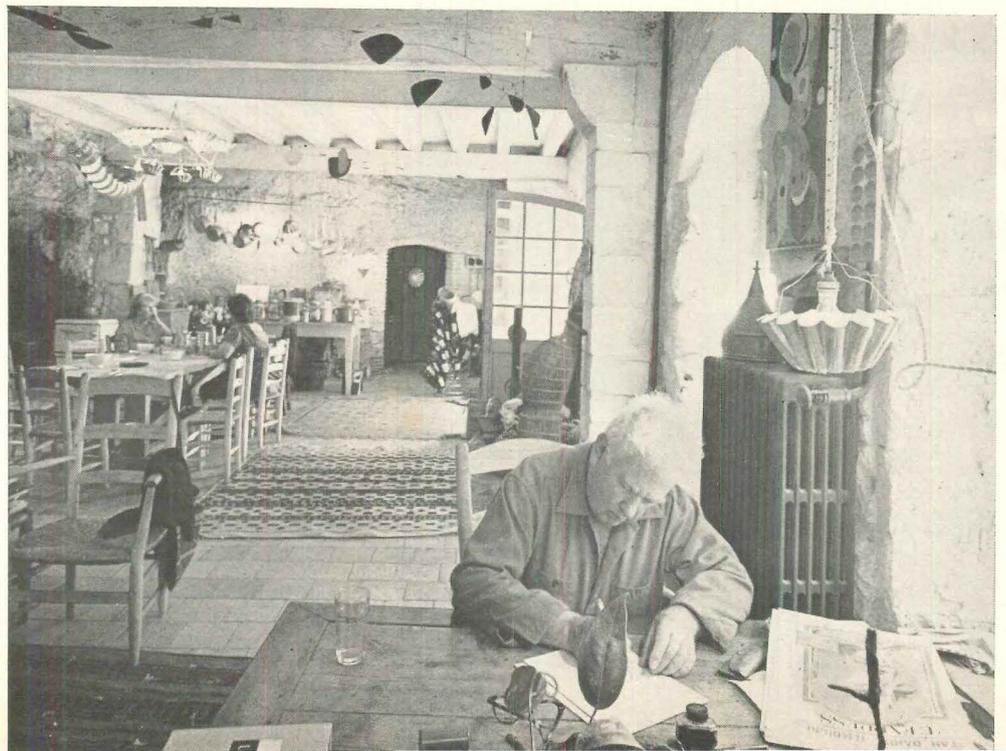


SCULPTOR'S RETREAT

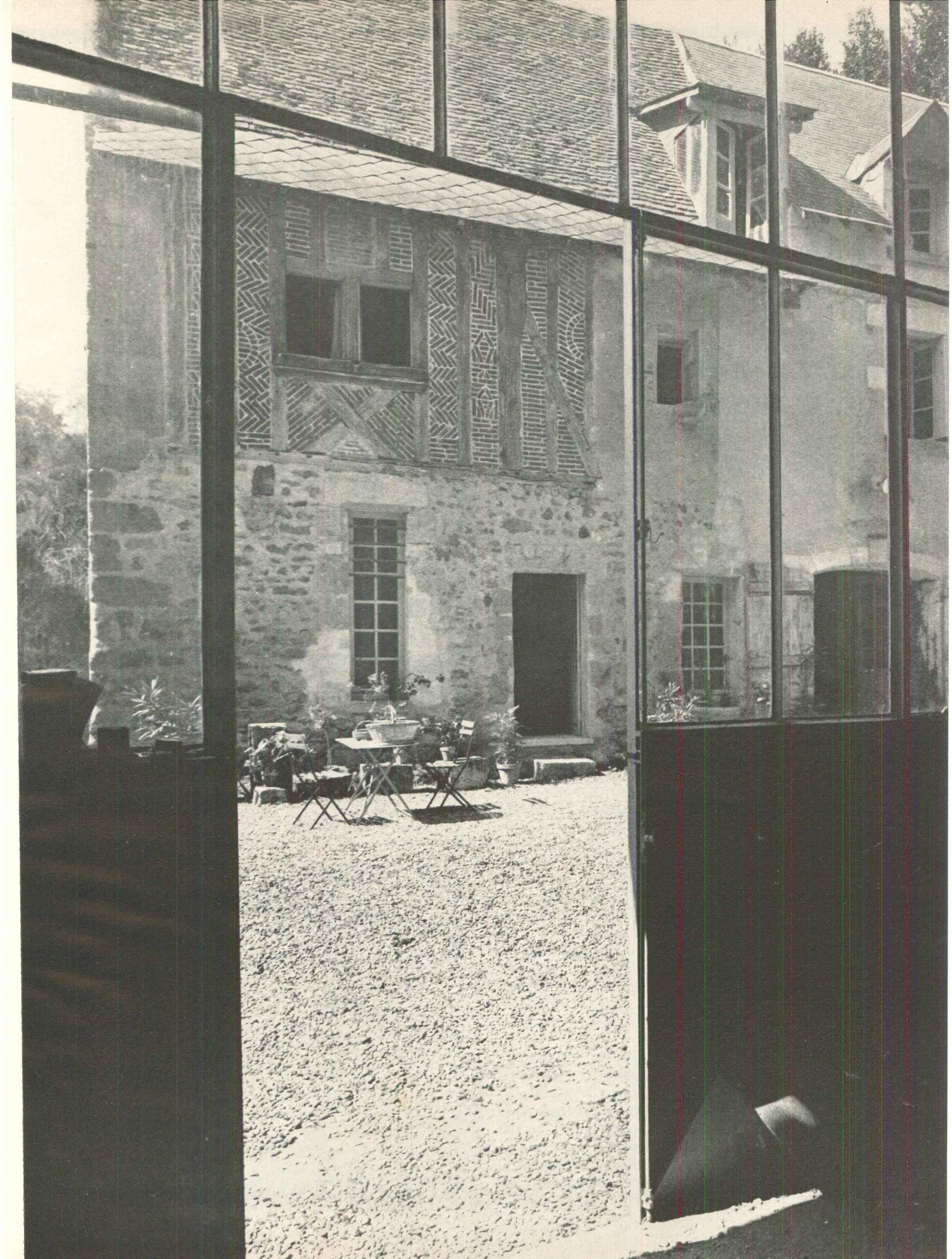
Alexander Calder summers in Saché, France. The light-dappled Loire countryside nods in the heat; the river Indre maunders a stone's throw from the house. And inside the workshop, this great bear of a man stalks placidly amidst the bits of wire, sheet metal, vanes, bolts, and flanges which will eventually become part of his special world of designed movement. A third-generation sculptor who combines a personal view of nature with an engineer's education, Calder creates around himself an entirely human atmosphere. The old provincial house in Saché shows this; it is large, simply furnished, and rough—reflecting the spontaneity and warmth of “Sandy” and his wife, Louisa. Nearby, one converted barn serves as a studio, another as a storage area. Within each building drift the mobiles, stand the stables, hang the paintings. And here—as at Idlewild or Pittsburgh airports, the UNESCO building in Paris, Stockholm's National Museum, or Calder's home base in Roxbury, Conn.—his work defines the space it occupies with ingenuity and humor, with changing shapes full of color, balanced motion, and dancing light.



Calder stores some of his work in the narrow, skylit barn shown above. Its starkness contrasts with the welcoming simplicity of the living room (right), the unkempt studio (previous page), and the charming façade and courtyard of his old stone house (opposite).



PHOTOGRAPHS BY HANS NAMUTH



WILL COMPUTERS DESIGN OUR BUILDINGS?

A memory made of tiny beads like those at right, each 1/50 of an inch across, can store a hundred times the amount of information that a dedicated reader could scan in a lifetime. Electronic circuits can manipulate this information a million times as fast as the minds of men.

Scientists in other disciplines know this; yet the building industry is only just beginning to realize that such fantastic talents make the computer something far more than just a highly refined adding machine. For example:

Computers today are helping engineers predict the behavior of structures with more realistic precision.

They are providing invaluable guidelines in choosing basic materials and structural design directions.

They are capable of doing the actual design of structural frames—and turning out the working drawings as well.

They are showing contractors how to schedule the work of construction on complex projects for maximum efficiency.

And they are spotlighting potential trouble spots, and showing how the best use can be made of available time, manpower, and materials.

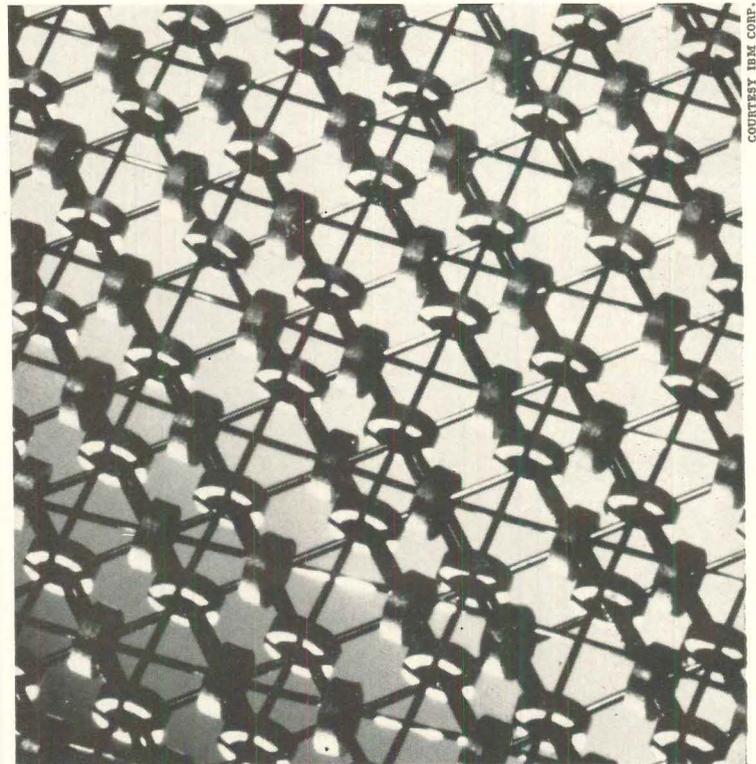
All this is only the beginning. Every new step opens up a vision of others. It is now safe to predict a major role for the computer deep within the design decisions in architecture and in city planning.

Structural analysis made easier

The building industry's earliest and still most common use of computers has been for stress analysis of structural elements. For the solution of recurring problems, computers can cut costs substantially—and relieve engineers of hours of drudgery. Where little repetition is involved, of course, it still takes longer to find or prepare special programs for the computers than to make conventional calculations. But the balance is tipping in favor of the machine as the stock of readily available programs increases.

In stress analysis, the computer is a good deal more than a high-speed substitute for a desk calculator. It opens even wider horizons in the study of structural behavior. Until now, analysis of the behavior of complex structures has been based on assumptions that are merely safe approximations. In the past few years theorists have worked out mathematical models which are obviously more precise, but these are staggeringly difficult to apply. For the computer, such analyses are easy.

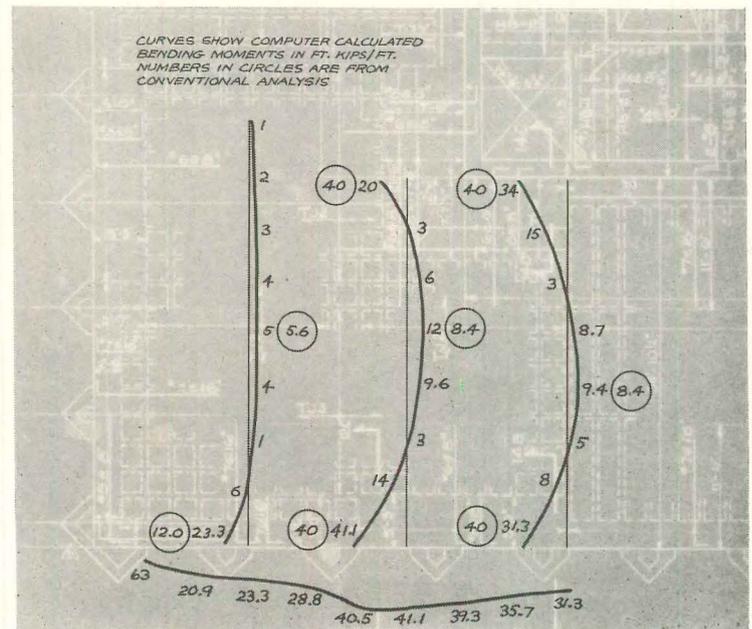
Take the case of the floor slab for Eero Saarinen's CBS



COURTESY IBM CORP.

Millions of doughnut-shaped magnetic cores, above, make up one type of computer memory. Each can hold a single "bit" of information.

Precise pattern of bending moments for slab of CBS tower, below, established by computer calculation, revealed economy of the design.



skyscraper now under construction in New York. Analyzed through the conventional method of approximation used by engineers, the slab appeared overly costly because of its unusual configuration. Engineer Paul Weidlinger remained unconvinced, and worked out a complicated mathematical analysis requiring simultaneous solution of some 50 equations—weeks of work for his staff. Fed into a giant IBM 7090, they were solved in a few minutes of rented time. The original design, which might have been discarded on assumptive evidence, proved cheaper than a conventional alternative.

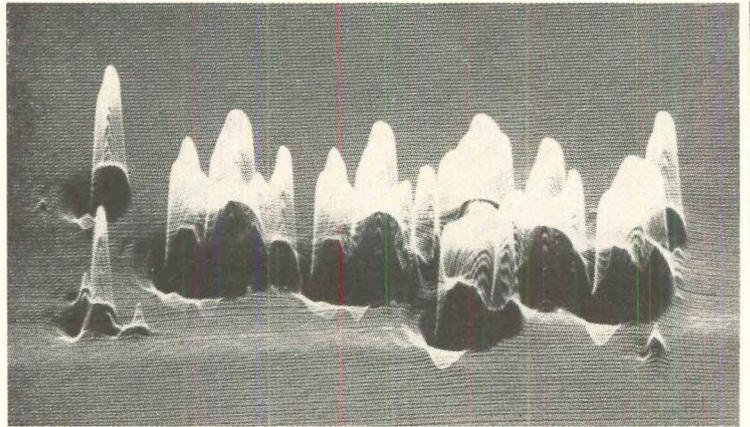
Not only can the computer come up with fast and accurate solutions: it can also help the engineer be sure he is posing the right problems. The difficult first choices of the basic structural design approach and materials have, again, been traditionally made on the basis of assumptions. A computer can be programmed to run through scores of alternatives until the engineer is satisfied that he has found the best path.

Meissner Engineers in Chicago have taken an even more venturesome step towards the ultimate in the structural use of computers. They have set up a roomful of computers that can translate calculations for structural frames that are up to 40 stories high and 20 bays wide into detailed working drawings. The computer automatically guides an electronic plotting device as it makes its calculations. Dr. Frank R. Berman, a structural engineer engaged in computer research for Univac, believes that, eventually, programs will be set up interrelating all of the structural parts of large buildings in a single computer calculation. The cost and availability of every conceivable structural material could be deposited in the computer's memory, and it could be instructed to continue redesigning until the best solution emerged.

Contracting made more efficient

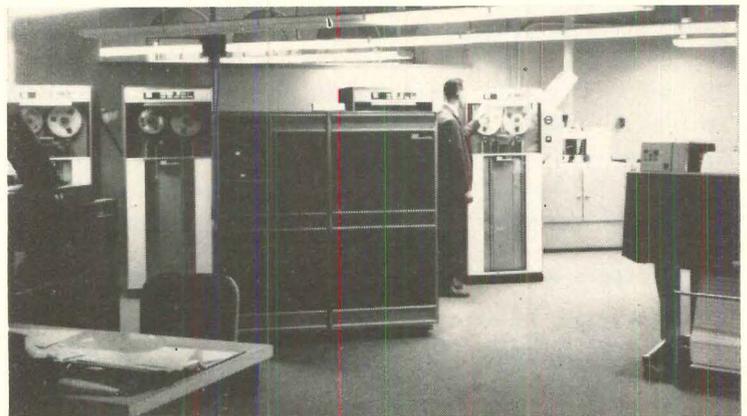
Any wide-awake general contractor planning to bid on government contracts would be wise to find out all he can about a new computer-aided scheduling technique called the Critical Path Method (CPM). For the Department of Defense and the National Aeronautics and Space Administration already require that CPM or the closely related PERT (Program Evaluation and Review Technique) be used on all contracts. So successful have these programs been so far that they will almost certainly be required for all government building projects before long.

The key step in CPM, which was developed by Remington Rand scientists and DuPont engineers, is the construction of arrow diagrams, some of which run to 40 feet in length. Each arrow represents a single definable unit of work, and is located in the diagram to show how it relates to any other



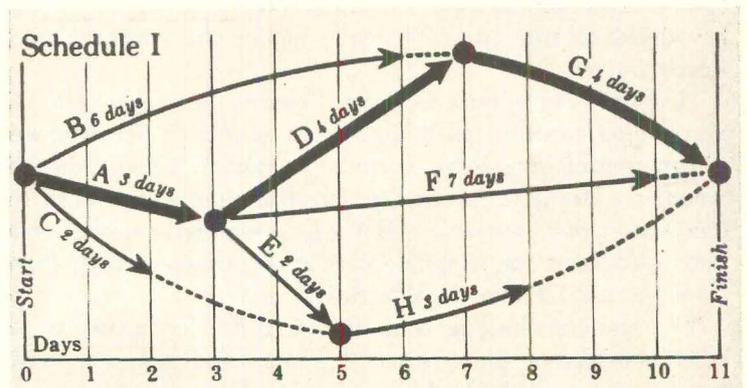
Design possibilities are suggested by computer-actuated light patterns. Experiments were made by students of MIT's Robert Preusser.

Room full of equipment at Meissner Engineers office can do structural calculations, then translate them into working drawings.



Simplified arrow diagram, below, shows basic step in computer-aided scheduling technique. Heavy line represents the critical path. No

computer is needed to calculate schedule for simple job shown. Only a computer can cope with all the steps in construction process.



activity that must be finished before it starts—or that cannot start until the unit of work in question is completed. Each activity is then assigned a realistic time span, and the data is translated into the computer's peculiar language.

The computer calculation tells the contractor not only how long the total project will take but, more importantly, which activities are on the "critical path"—which ones, if themselves delayed, will delay the whole job. Amazingly, only 2 to 10 per cent of the units of work turn out to be critical. So instead of the usual shotgun effort to speed every part of the job, the contractor focuses on expediting the few critical tasks. For those less critical, the computer points out the amount of extra time they may take before they too enter the critical list.

A recent refinement of CPM allows a more realistic choice of an overall timetable for the project. The normal cost of each activity is fed into the computer along with the highest possible cost that would result from an all-out crash program. Sometimes, on projects with high fixed overhead or financing costs, the computer shows that it pays to put some of the work on a crash basis. It also tells just which activities to rush to achieve the lowest total cost.

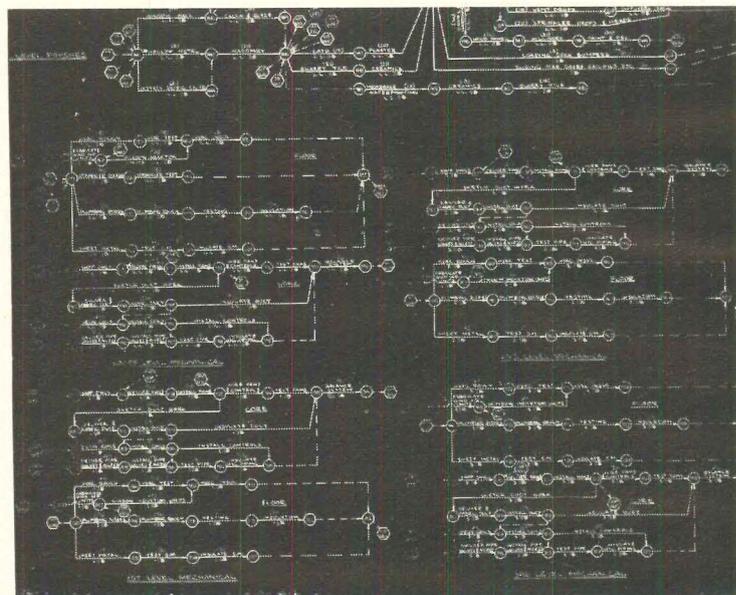
Moreover, if cost records are kept on the basis of arrow diagrams for several projects, a program can be written that makes the computer the contractor's chief estimator.

Architecture made more rational

IBM, as might be expected, now requires all contractors bidding on its buildings to include a skeletal arrow diagram proving ability to organize the work for completion on schedule. The successful bidder must then submit a full-scale, computer-calculated diagram. But IBM goes one significant step further than the government: another diagram is made to keep tabs on the progress of the job through the programming, design, and bidding stages. Thus IBM and its architects and engineers have a well-defined schedule for all the key decisions that must be made before the contract documents go out.

Hospital Consultant Gordon Friesen (see page 105) is also having a critical path analysis made for the planning and design phases of a large hospital in Akron, Ohio. And the American Hospital Association late this year will publish the final report of a four-year AHA-AIA sponsored study of computer programs for hospital planning, conducted with funds from the U.S. Public Health Service.

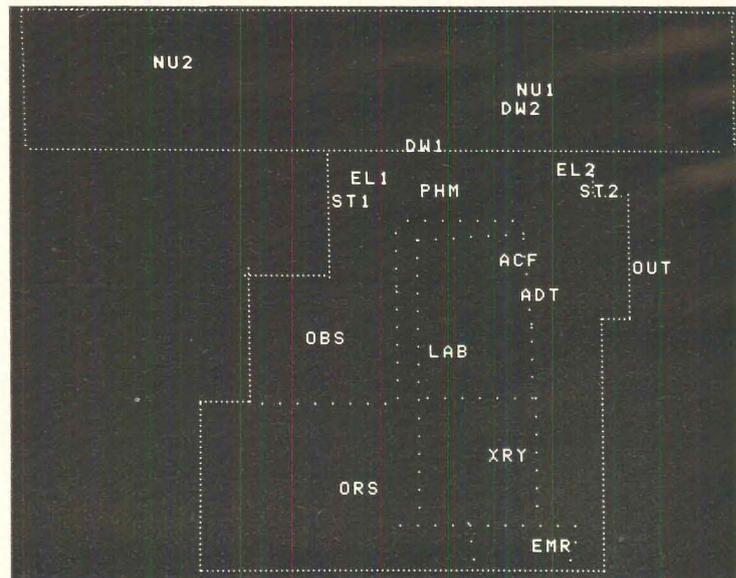
The study technique is to first feed the computer a detailed analysis of movements of people and supplies within a group of typical existing hospitals. The machine is pro-



Above, a small segment of the 35-foot-long arrow diagram used to plan construction of the new IBM Corporate Headquarters building.

Hospital plan (below) was set up on scope of computer to analyze circulation efficiency. Print-out (top) shows travel distances.

locations	x(feet)	y(feet)	z(floors)
csr	21	73	0
kit	-19	-11	0
sto	-14	-51	0
caf	-14	25	0
nu1	48	99	1
nu2	-80	108	1



grammed so that trial plans can be sketched with a light pen on a scope, showing location of major departments on all floors. The computer tracks the sketch and puts the plan in its memory along with the movement analysis. The two are compared, and the computer types out a list of the relative time and cost of all the movements under each trial plan.

With this kind of data, architects could continue to revise their plans until the most efficient circulation scheme possible (within other design limitations such as site, structure, etc.) is achieved. The technique could be easily extended to other building types and other design parameters than circulation, bringing a whole range of basic architectural decisions out of the realm of guesswork.

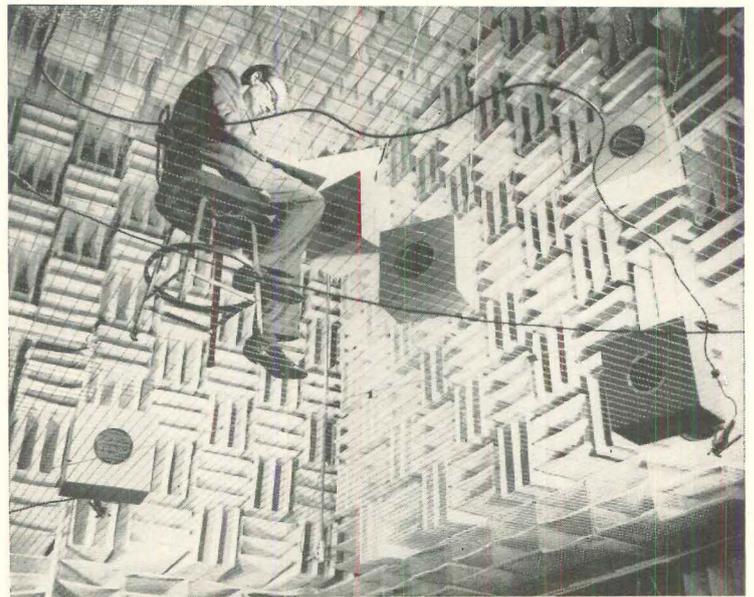
Computer help in design of environmental control systems is also beginning to be explored. Computers are now used for complex systems of piping, power distribution, and air handling for industrial processes; such programs could be adapted to large buildings with relative ease.

Planning made more comprehensive

Finally, there is a natural correlation between computers and city planners: both thrive on complexity. An enormous amount of data is involved in any city or regional planning problem. Organizing this data and plotting it graphically on maps is difficult and time consuming. Again, such a task is swift and simple for a computer. In the Chicago Area Transportation Study, for example, seven characteristics of each of 20,000 field-monitored trips were recorded in a computer's memory. Light maps, like the one shown at right, were made on a display tube connected to the computer output. In seven minutes, the planners could get a reading on the intensity and direction of any traffic pattern.

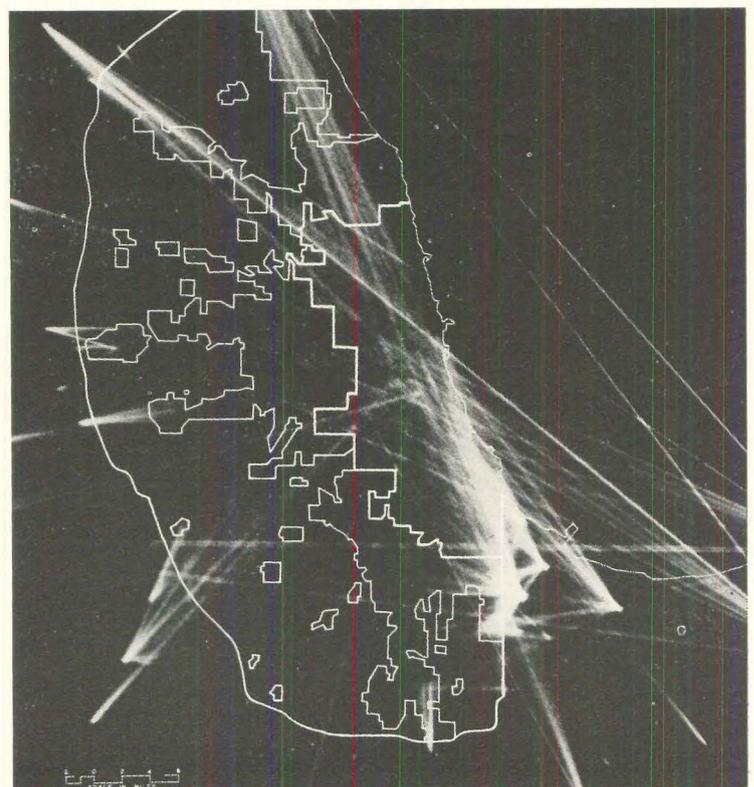
An even more sophisticated planning use of computers is in sight. In several demonstration projects now under way, current and constantly updated data about every phase of a city's life are being fed into computers, giving instantaneous access to the kinds of information needed by planners; and the next step is the creation of programs which will simulate future growth patterns. The effect of any number of planning approaches could then be measured against this simulation. The community would thus have an accurate picture of the consequences of basic policy decisions.

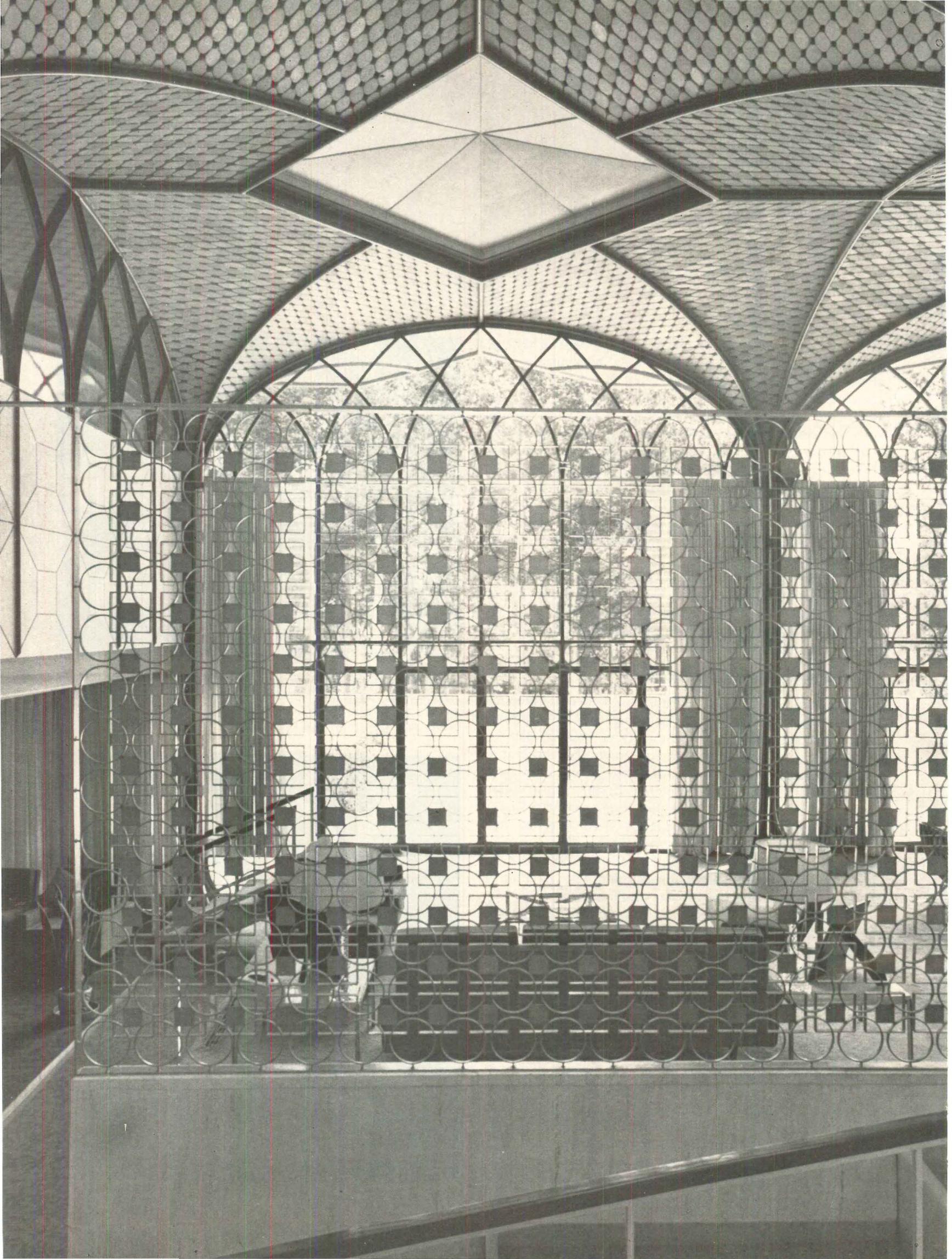
The electronic handwriting is on the wall for people who plan, design, and build. Most have to be re-educated to learn how to read it, and this is the only limiting factor on the computer's use. The machines and programs are available, but the handwriting comes out at 300 words per second. Man must move quickly to keep up. BERNARD P. SPRING.



Computer-actuated speakers in Bell Laboratories anechoic chamber (above) simulate reverberation and echoes of rooms in design stage.

Truck traffic pattern (below) was one of many graphic analyses produced by computer for the Chicago Area Transportation Study.





AMERICANS ABROAD: BROWN AND DALTAS IN IRAN

Few architects have among their first commissions a palace for a real-life princess. For Benjamin I. Brown of Albany, Ga., and Spero Daltas of St. Paul, Minn., it has been the high light of a five-year adventure in expatriate architecture. Their firm of Brown & Daltas, Teheran, Iran, has specialized in a modern adaptation of native materials and techniques. Their architecture, in the words of an admirer in the Iranian royal family, is "more Persian than the Persians'."

If this is the case, it is partly because Iranian architects want to be anything but Persian in these days of rapid Westernization. But it also reflects the two young Americans' sensitivity to the ancient arts of the Middle East. Brown & Daltas have used the marvelous geometric patterns of the Persians in tilework, masonry walls, coffered ceilings, light grilles, and even a heavy steel structural frame. They have exploited the Iranians' traditional skill at building brick vaults, and revived the dormant art of glazing. Finally, they have gratified the Persians' reverence of water by making it an integral element of both buildings and gardens.

Brown, 37, and Daltas, 42, met in Iran when both were architectural consultants to the engineering firm of Amman & Whitney-Husted on \$60 million worth of military bases for the U.S. Army Corps of Engineers. Brown had been a partner in the Memphis firm of A. L. Aydelott & Associates, and had come overseas in 1953 as chief architect for several Amman & Whitney projects in France and Greece. Daltas came directly to Iran in 1956 after five years with Eero Saarinen (he had been job captain for the successful Saarinen entry in the London embassy competition). Brown & Daltas soon found that they shared the feeling of having worked for other people long enough, and their office opened in January 1957. Their first major project was a Coca-Cola bottling plant, their second the palace of Her Imperial Highness Fatemeh, sister to the Shah, in the royal gardens of Saadabad above Teheran. The firm was off to an auspicious start.

At the outset, however, Brown & Daltas found the difficulties of practicing in Iran formidable. Drafting-room talent was hard to find (eventually they developed a hard core of a dozen men, mostly Armenians, and farmed out most production work on large projects). Brick and gypsum were literally as cheap as dirt, but anything that had to be shipped in was exorbitant. The Iranian bricklayers (many in their early teens) were masterful, and refinery projects had developed a pool of skilled steelworkers. Even they had to be closely supervised, however, and the Iranians had to be taught other building crafts almost from scratch.

But the most persistent problem was financial. Building costs are amazingly low—hence, so are fees. Moreover, the French-trained Persian architects charge from 3 to 5 per cent, making it hard to convince hard-bargaining Iranian clients that they should pay at a state-side level. Even 8 per cent is unrealistic considering the amount of supervision required to do a conscientious job. After two struggling years, however, Brown & Daltas began to get some of the Army bases on which, mercifully, the Corps of Engineers does its own supervision. "It was the military work that kept our heads above water," Brown frankly admits.

The firm is now beginning to branch out. The partners are completing negotiations for a series of U. S.-aided college projects in tropical Africa, and starting a new 6,000-student campus for Rangoon University financed by the Agency for International Development; it will be designed in conjunction with the Burmese national building bureau, and used as a training ground for the university's architectural students. Full use will be made of local skills and materials: Daltas is experimenting with glazed, prestressed sections of Burmese terra cotta as both structure and finish.

Brown & Daltas recently established an office in Harrisburg, Pa., and plan to open another in Europe. There is still work to be completed in Teheran, but continuance of their Iranian practice will depend on the future course of the nation's presently sluggish economy. The Harrisburg office is more for production of the overseas work than for U. S. projects: Brown & Daltas are enjoying their role as ambassadors of American architecture abroad.

Mr. Daltas (left), Mr. Brown, the princess, and her new palace (opposite)



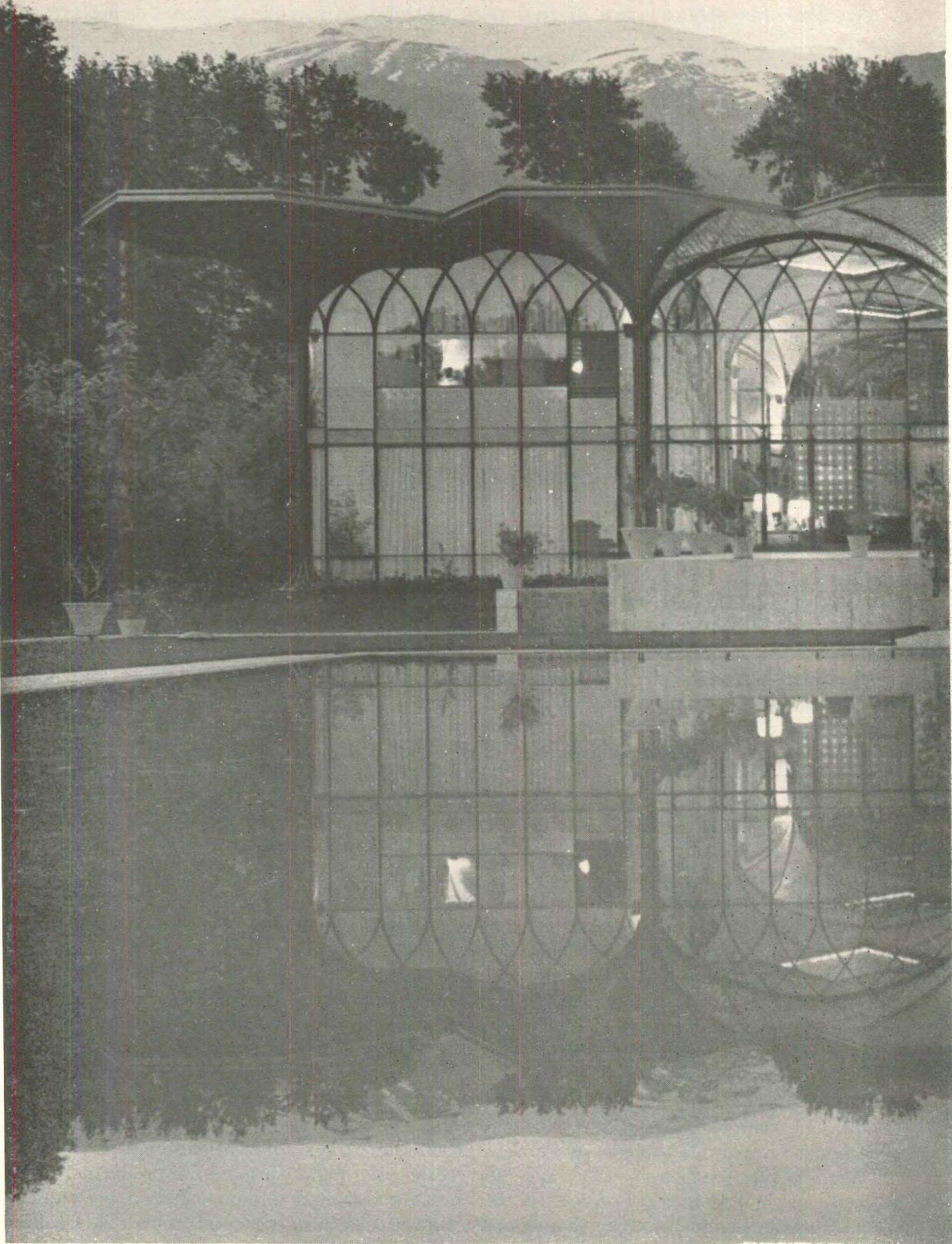
The palace of Princess Fatemeh is roofed by a composite canopy of concrete, steel, and glazed-brick vaulting

The roof of Princess Fatemeh's palace is composed of 24 octagonal umbrellas whose undersides are graceful brick vaulting. The umbrella frames are 2-inch pipes which cluster as central supports, then flare outward. The vaults were built from their outer edges in, without formwork—Iran's dry climate allows use of a gypsum mortar that bonds almost instantly. The bricks doubled as finished ceiling and forms for a layer of concrete. The concrete, in turn, was tied to the ribs with shear bars to create a composite structure.

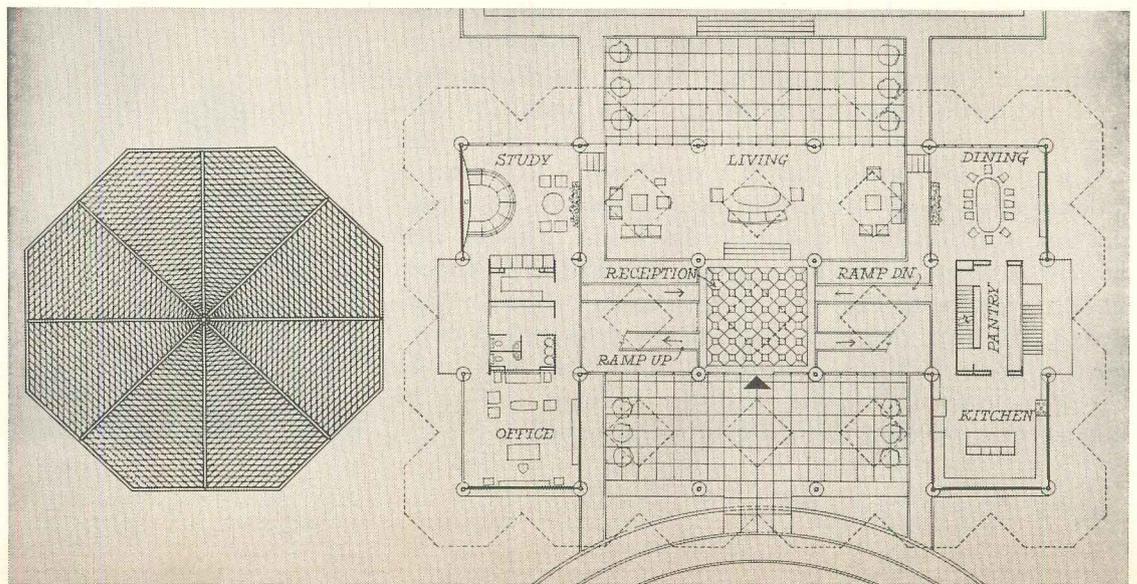
Exposed sides of the handmade bricks, shaped to provide acoustical recesses, were glazed by an Iranian craftsman trained under an Italian technical-assistance program. They were given eight muted and closely related colors. During the day the greens predominate, and at night the brick vaults take on a golden glow.

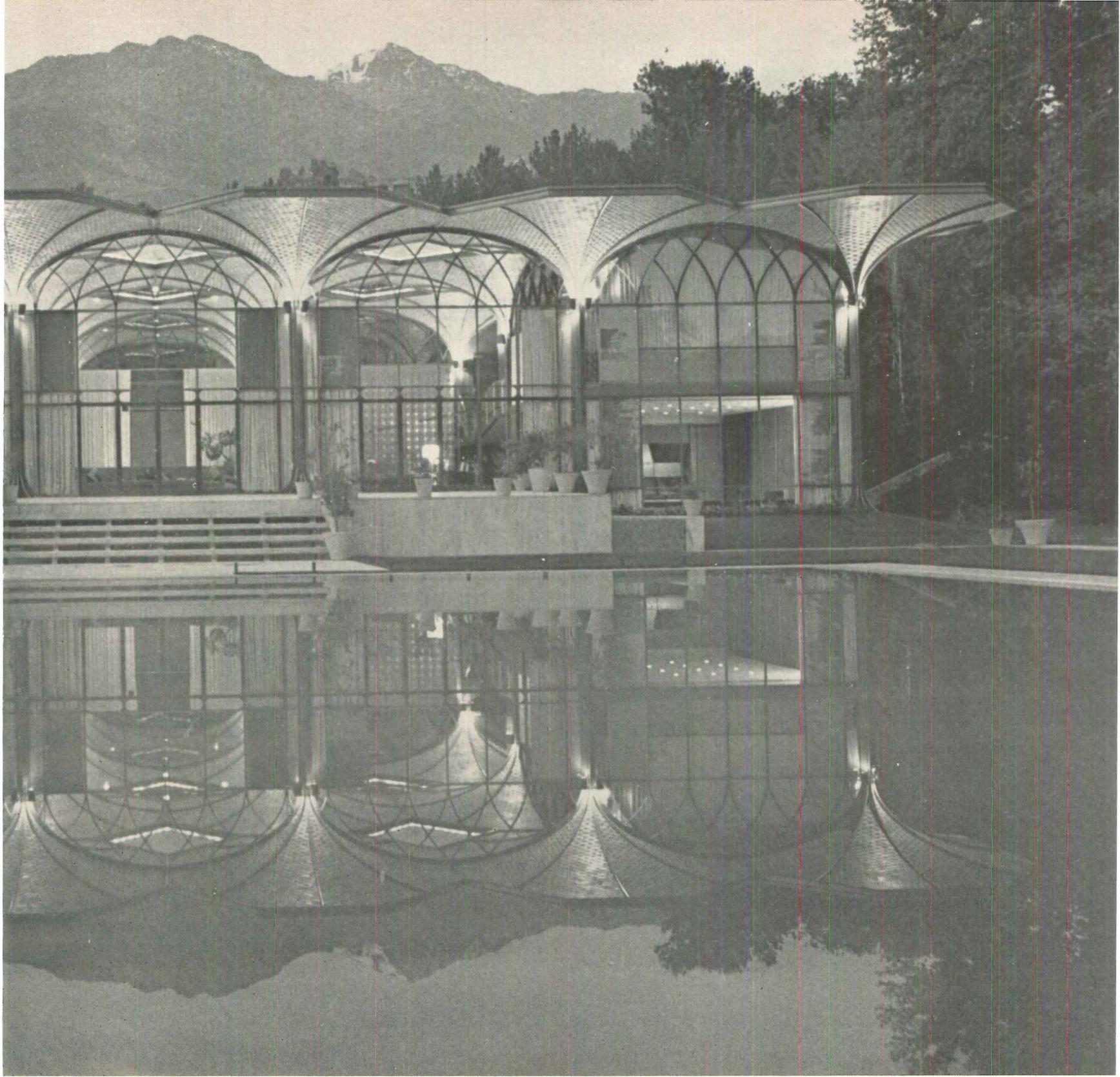
The central portion of the palace is one great space, divided into an alabaster entrance terrace, a central reception room, and the large living room. On either side of the reception room, ramps bridge across a series of staggered pools to two-story wings on either side of the main volume. The water, brought from a mountain stream, cascades through glazed tile courses which ring around the driveway and meet at the entry. It continues through the palace's interior, feeds the air-conditioning system, and is thus warmed for the large swimming pool. Finally, it winds up in a complex network of fountains and reflecting pools in the rear gardens.

Construction cost was \$14 per square foot. Engineers: Frank Newby and G. Megeroumian (structural), F. & R. Farman-Farmaian (mechanical). General contractor: Hoch-Tief Iraniane.



PHOTOS: RON PARTRIDGE

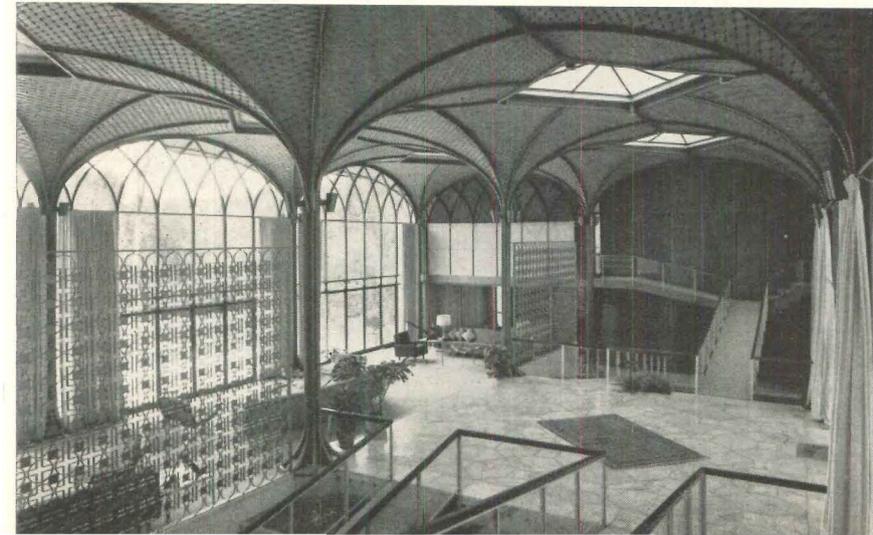




Swimming pool reflects the play of light on the glazed-brick vaults of the glass-walled palace. The garden site is in the foothills of Teheran

Ramps to the palace's two-story sections bridge over multilevel pools

The voluminous living room: skylights join clusters of four umbrellas



The ceiling of the Coca-Cola plant at Meshed, a glass-walled pavilion on the arid plains, is almost equally palatial



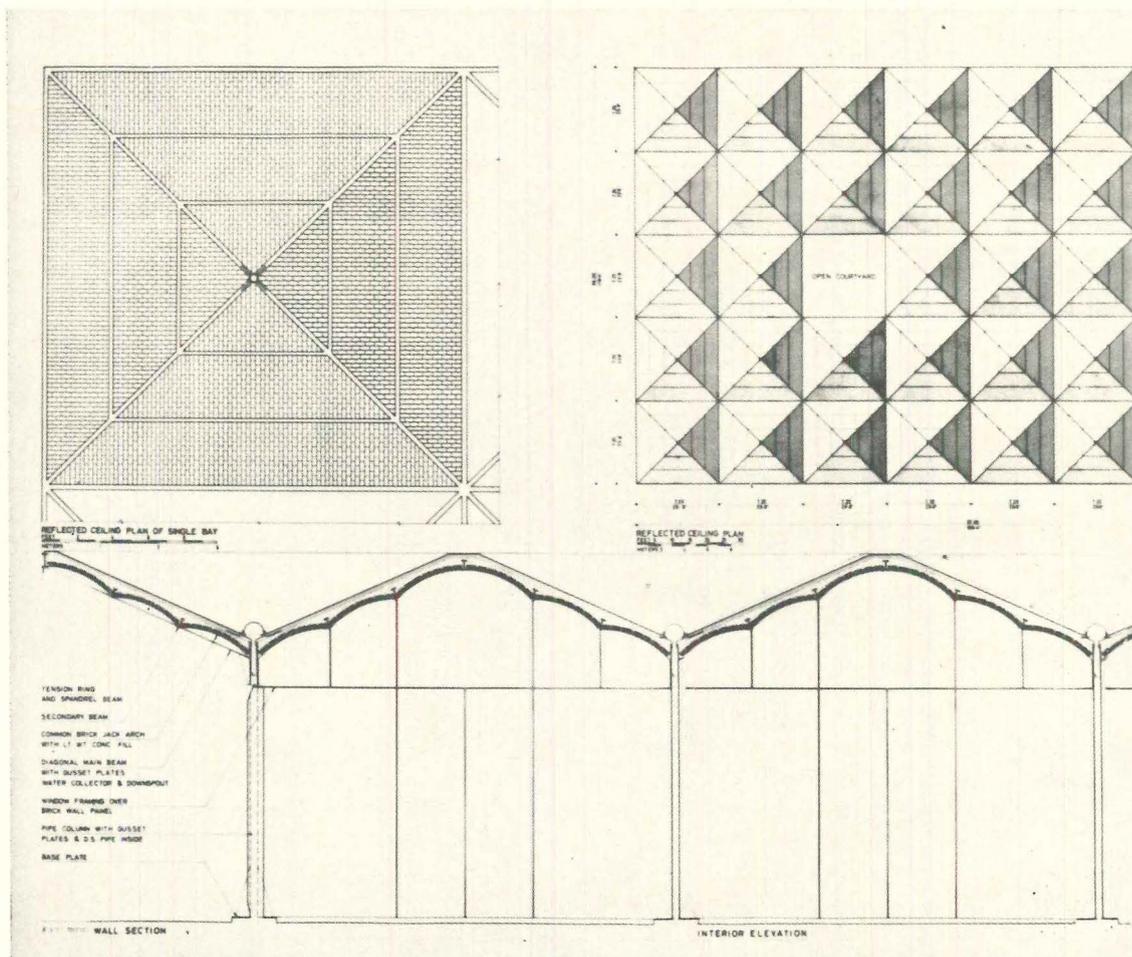
East meets West on the road to Meshed. Below, the composition of building's vaulted, steel-ribbed roof.

The owner of this Persian Coca-Cola bottling plant wanted something different—and certainly got it. The usual way to put up a small industrial building in Iran is to have a prefabricated steel structure shipped in. Brown & Daltas' client, however, wanted to make his plant a pavilion, the focal point of a new development on the outskirts of Meshed (400 miles from Teheran toward the Russian border) including subdivisions and housing for his 385 employees. But he preferred to do so without paying a premium price.

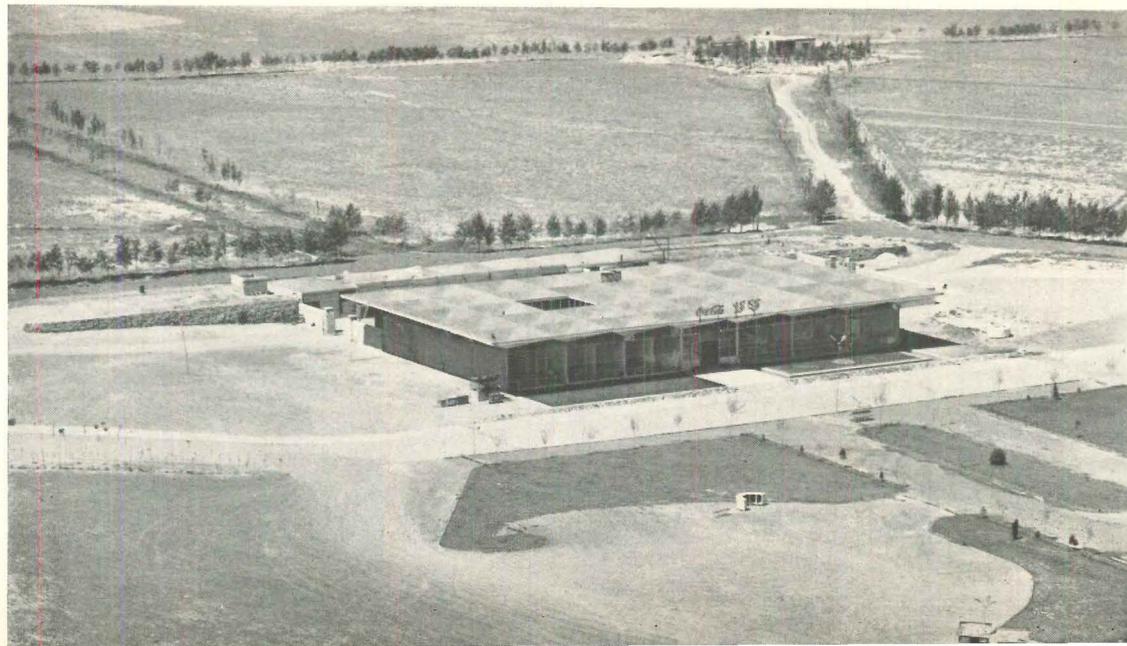
The voluptuous ceiling which raises the building considerably above the architectural level of most bottling plants is similar in concept to that of the palace—a tightly knit composite structure of steel, concrete, and brick vaulting. Here the bricks are common bricks, left unglazed, but they were built with the same native skill in shallow arches with a lightweight concrete topping. They are supported by a wiry frame of steel bars which doubles as a tension ring, resulting in a continuously framed building of surprising strength and economy. The roof tested to six times its design load. The cost figures are other-worldly: 15 cents per square foot for the bricks in place, 2½ cents per pound for fabrication of the steel members, and \$3.90 per square foot for the completed building.

Except in the warehouse, the walls are glass, and a steady stream of travelers and pilgrims stops to watch the bottling process in operation. At the main entry is a wide reflecting pool. The surrounding land is laid out in an octagonal pattern, and sale of the subdivided parcels more than paid for the building.

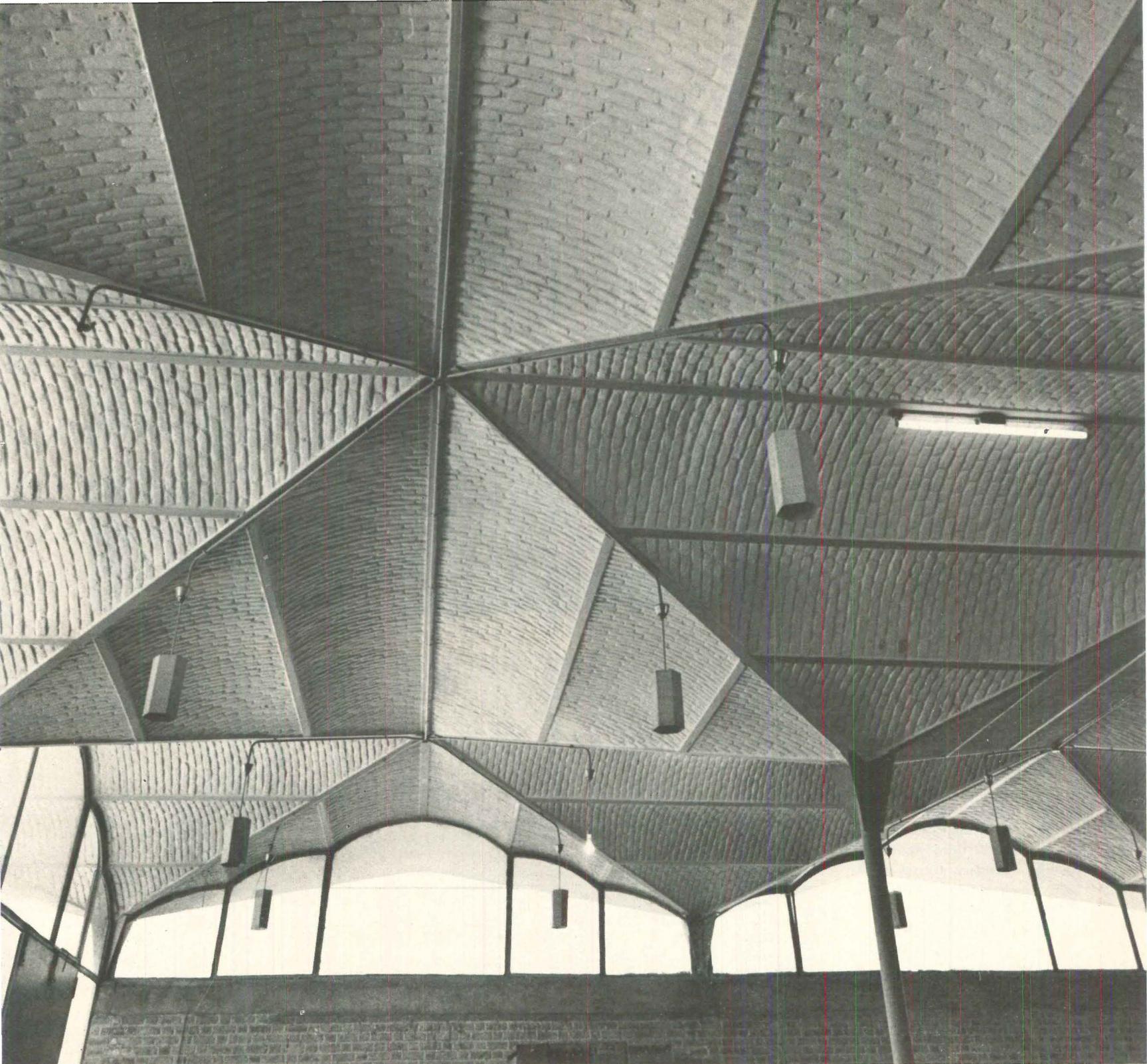
Engineers: G. Megerdumian (structural), M. P. M. Engineers (mechanical and electrical).



The plant sits pavilion-like in a subdivided octagon of land. Project also included employee housing.



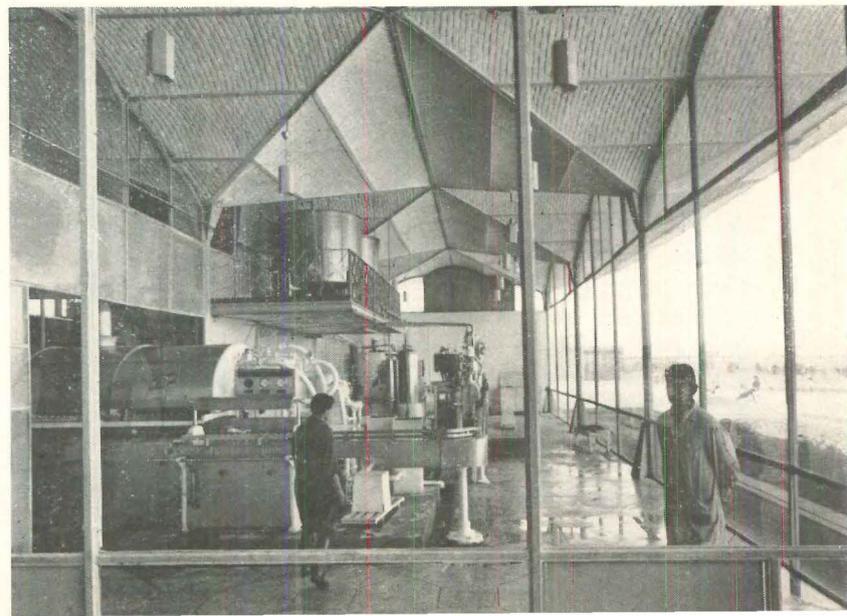
PHOTOS: RON PARTIDGE



The ceiling rises in an undulating series of brick arches. Thinness of the frame was a key cost-saving element—steel is expensive to ship in.

A wide reflecting pool flanks the walkway to the plant's front entry

The bottling equipment was put on public display behind glass walls



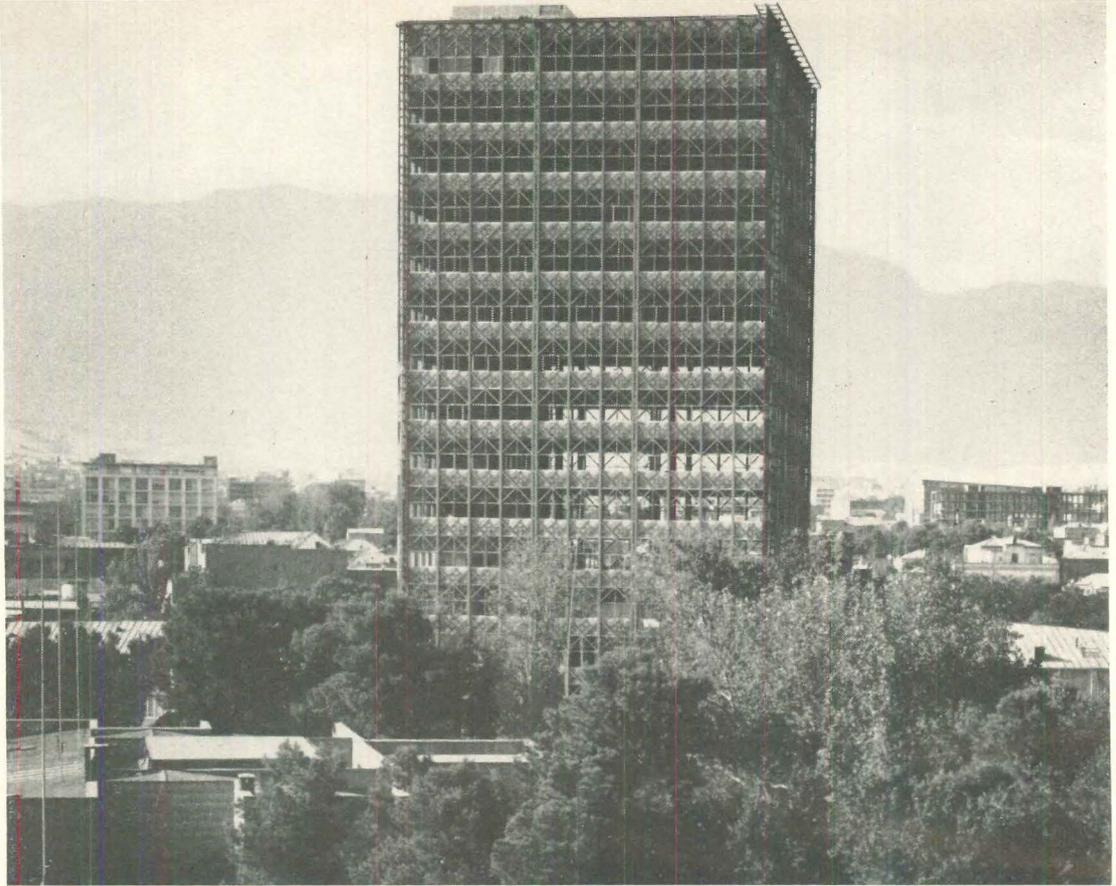
A lofty and exotic bazaar opens from a Teheran office tower that is wrapped in a rigid structural steel grille

A 16-story office tower and shopping center are, of course, far more difficult to relate to Persia's exotic heritage than is a palace, but Brown & Daltas have tried. The tower is on a narrow frontage along Teheran's teeming main commercial street, and the shops are in a five-story arcade on a thin finger of land behind.

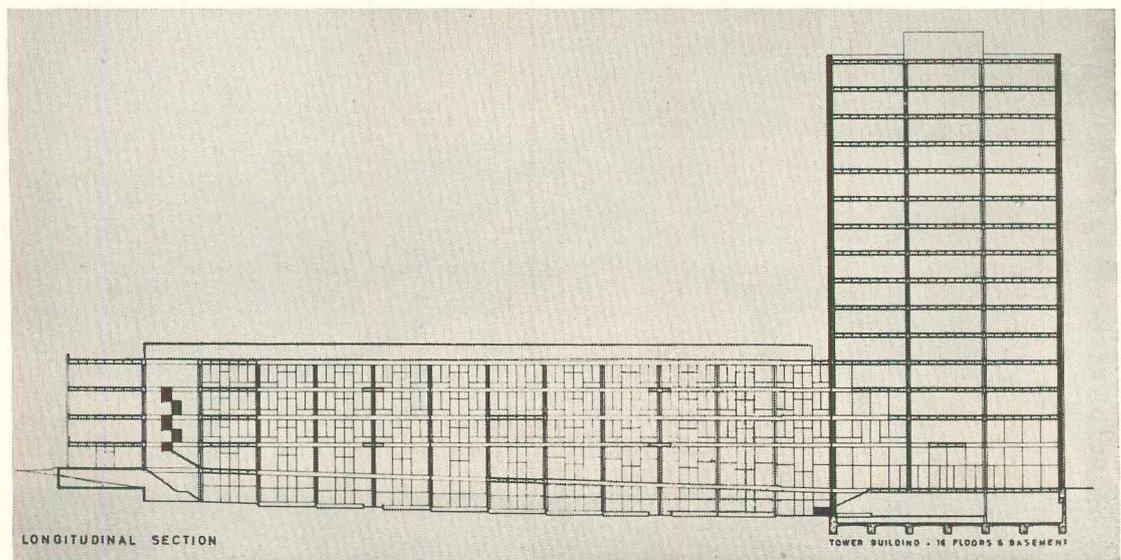
Around the tower's exterior is a stiff frame of steel columns and X-braces—last month's tragedy in Iran was fresh evidence of the need to respect earthquake forces. And around the Xs Brown and Daltas have developed a geometric Persian pattern in steel which provides additional seismic bracing and a degree of sun control. Main trusses run through the square tower at third points, supporting secondary trusses on 4-foot 5-inch centers. A coffered concrete slab is cast around the top chord of the secondary truss to create a composite floor structure; the angles of the bottom chord are used to support a cast-in-place gypsum ceiling, with utilities in the space between. At right angles to the secondary truss, on the same 4-foot 5-inch module, is a suspension cable anchored to ends of the floor slab.

In the arcade, a similar structure produces a spectacular space. Its roof is a continuous, steel-framed, opaque glass skylight; its floor is a series of alabaster-rimmed pools. The first two stories are a flavorful bazaar, the upper three are offices. Railings of the balconies and bridges repeat the pattern of the tower's grille.

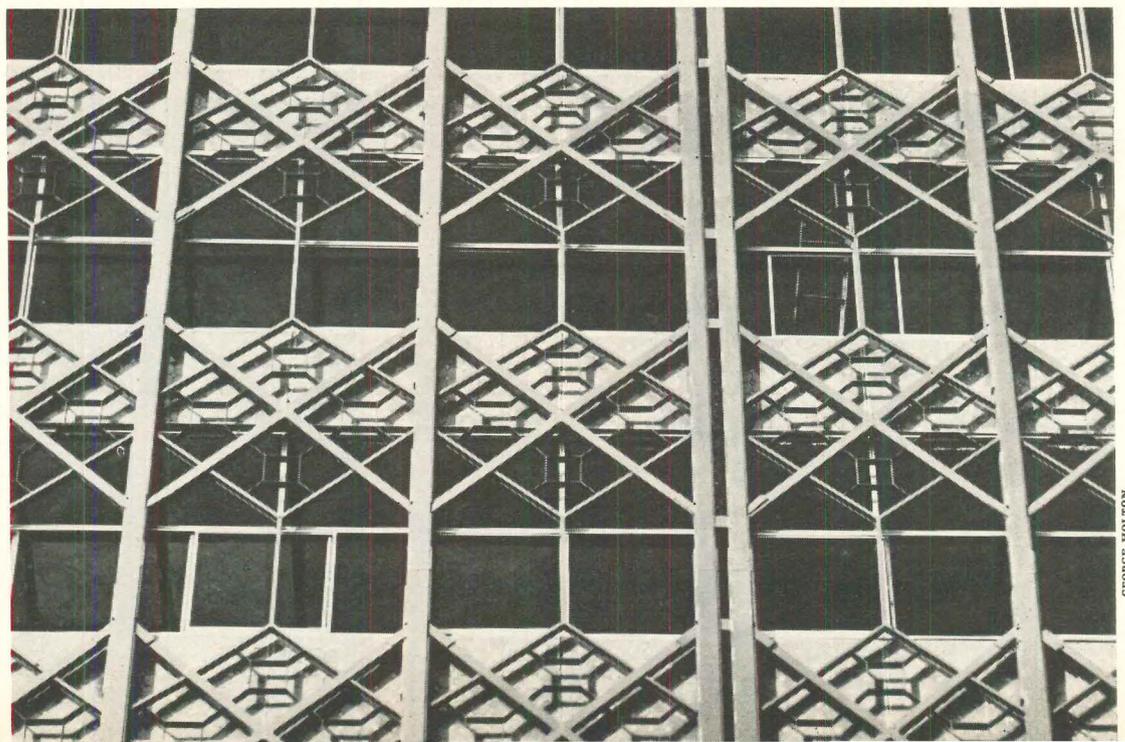
Construction costs were \$7.50 per square foot for the tower and \$5.50 for the arcade. Engineers: Newby, Megerdounian, and Walter Mahkan (structural), R. Costain (mechanical and electrical). General contractor: Rah-Bana Co.



The spectacular arcade (opposite) leads directly from the tall, glazed lobby of the square office tower

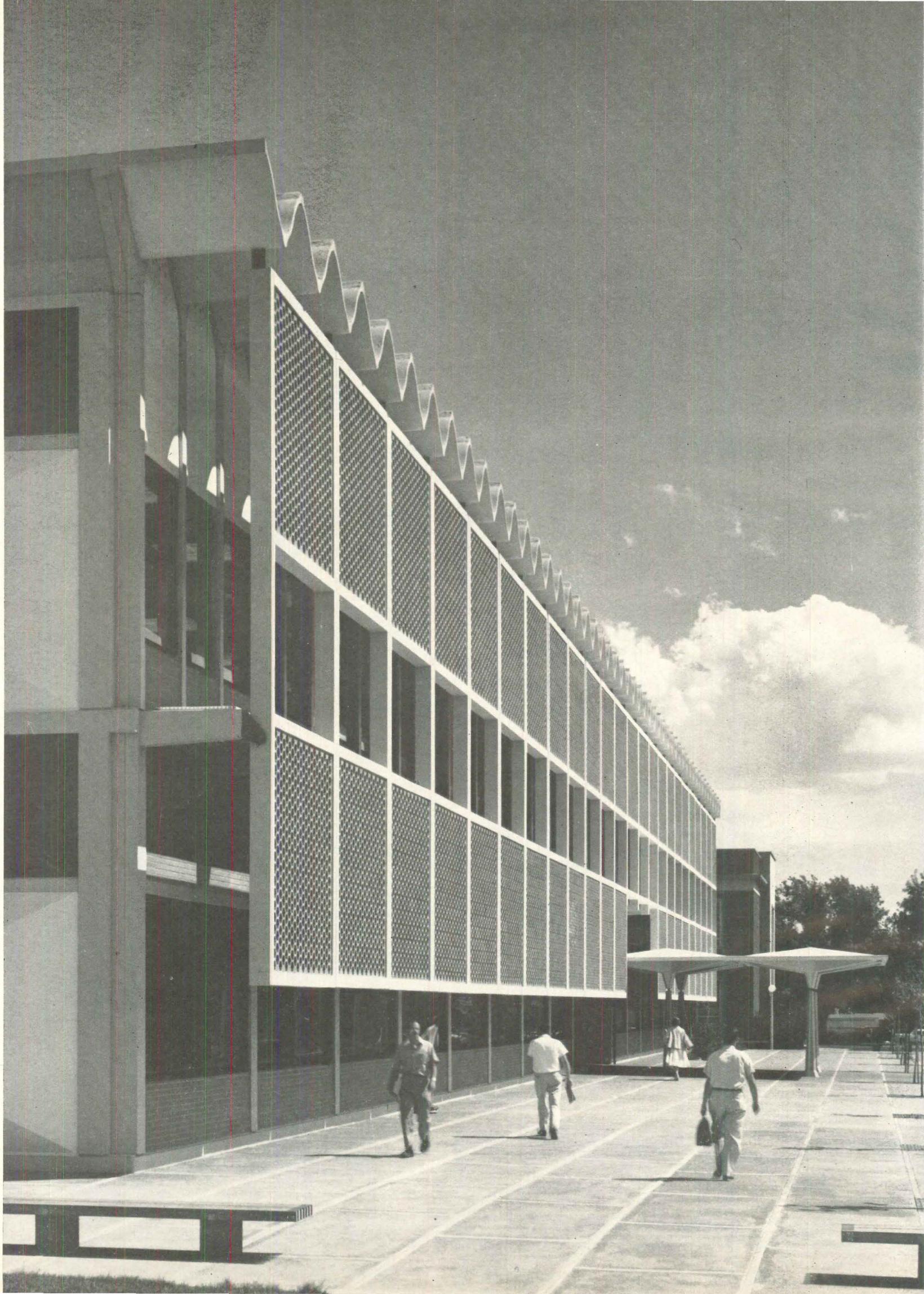


Geometric pattern in steel makes a Persian grille of the tower's frame. Spandrels are sky-blue mosaic tile.



GEORGE HOLTON





A UNIVERSITY LIBRARY OF MANY FINE PARTS

The building shown at left has both the virtues and the faults of some fresh approaches by architects who have not done many large structures before: it has the virtues of imagination, liveliness, very careful attention to detail and to costs; and it has the faults of having perhaps too many different shapes and forms for what is, essentially, a simple structure.

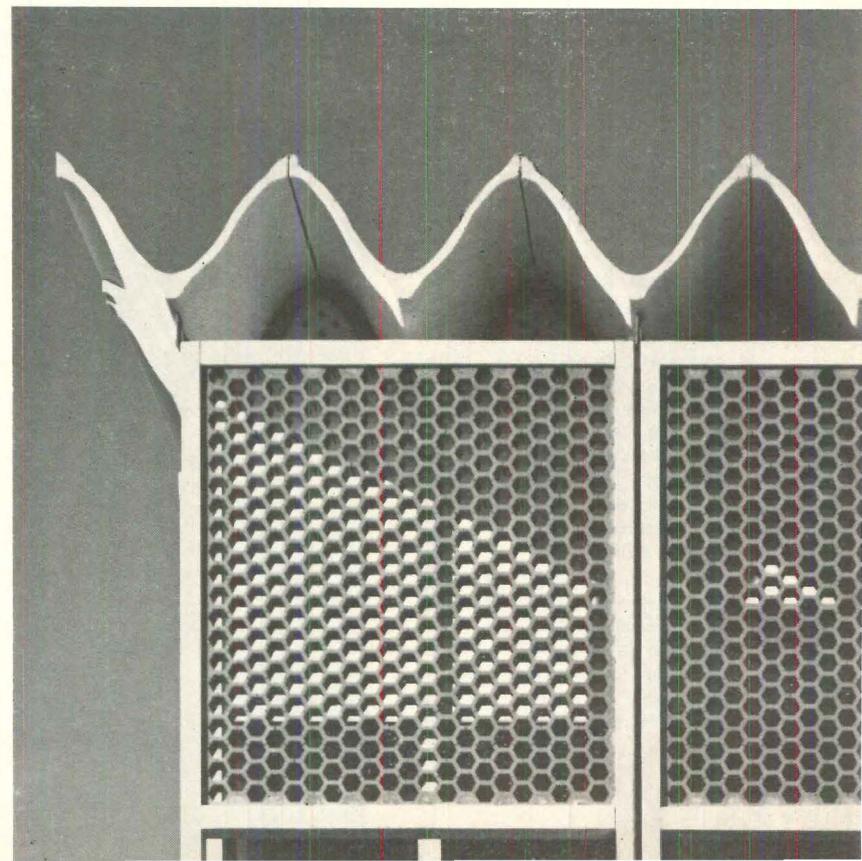
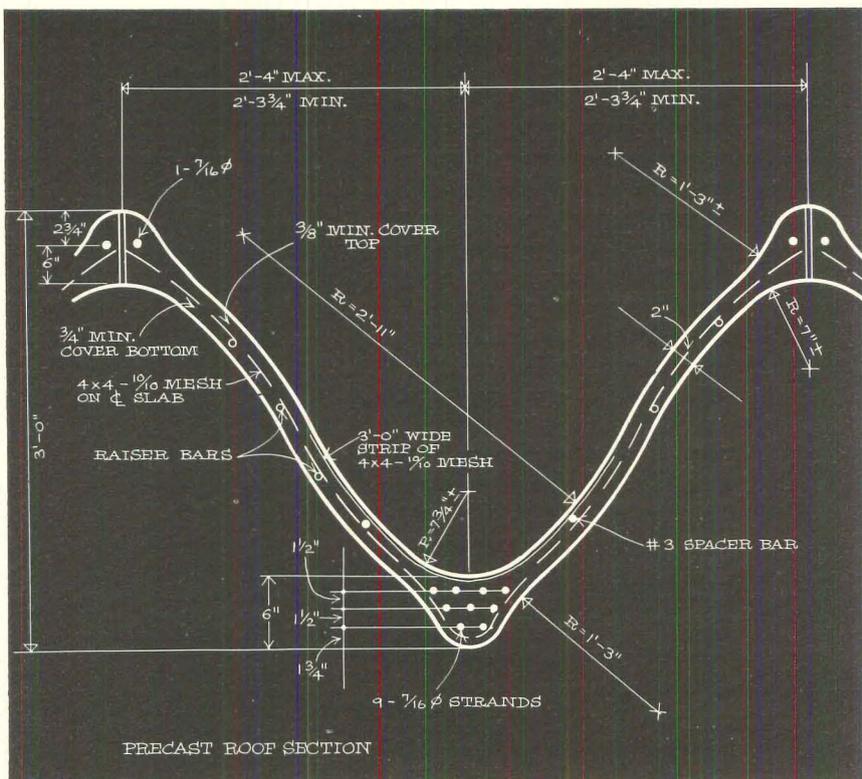
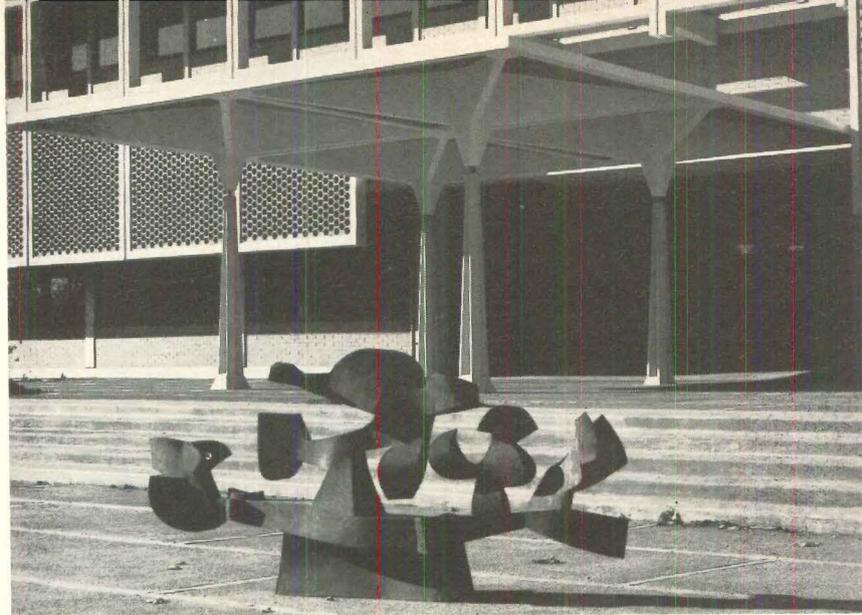
The structure in question houses a library for the Central Washington State College at Ellensburg, Wash. It was designed by Seattle Architects Bassetti and Morse—a firm well known in the past for its fine houses in the Northwest. Bassetti is intrigued by the delicate concrete work being done in Italy, and the details of this building reflect his interest.

Taken separately, these details are elegant, carefully studied, and quite rational: the sun screens, roof overhangs, hoods, and saw-tooth patterns on the very different façades of this library were determined by problems of orientation (the long axis of the building runs north-south), and such problems become doubly important in a building devoted to reading.

So the architects designed two-story-high screens of hexagonal clay tile and suspended these screens in front of the east and west façades. The south wall, meanwhile, was left virtually blank to keep out the maximum sun (behind this wall are the visual-arts rooms, which require no daylight). The north wall, on the other hand, has a saw-tooth pattern of precast concrete panels, each of which shields an individual study carrel. The windows on one side of each concrete panel face northeast, so that no sun enters the carrels after 8 A.M.

Above these four dissimilar façades there floats an elegant zigzag roof (right), made up of prestressed, precast concrete elements that span 65 feet and thus eliminate many interior columns. There are 98 of these wishbone-shaped concrete sections; they are joined at the top where the risk of water penetration is least, and they are thickened at top and bottom to take reinforcing against compression and tension, respectively. At their thinnest points, these roof planks measure only 2 inches. The system cost \$3.20 per square foot of floor area covered, and required only half the concrete and two-thirds the steel normally needed in such a span. However, because contractors were unaccustomed to the curved formwork, few cost reductions were achieved on this "test run."

Opposite: Main façade of library faces west, is shielded by an 8-inch-deep sun screen. Entrance is marked by a canopy of four concrete umbrellas. Top, right: Entrance canopy with sculpture by Harold Balazs. Right: Details of precast, prestressed roof and suspended sun screen.



Dividing the library's roof line down its long axis is a massive concrete hood (below and opposite) which contains ventilating ducts and stiffens the building longitudinally against seismic forces. The bottom edges of the hood are turned up to form two continuous gutters. These gutters pick up rain water from the zig-zag deck and carry it off through projecting scuppers over the north and south façades.

The ventilating system dramatized by this concrete hood is operated from a fan room on the second floor. A complex system of mixing boxes, thermostatically controlled, provides each of the 39 zones in the building with the exact temperature desired.

The plan of the library (right) is a two-story arrangement, each floor measuring about 165 by 225 feet. All the problems of library planning seem well and generously solved: good control, good and dispersed storage (capacity: 225,000 books), good staff facilities, many well-equipped departments.

The architects are especially proud of having successfully collaborated with five artists in creating this building. Since only \$12,000 was made available for art, the architects chose relatively little-known, local men and women, asked them to work on the campus. The results, according to Bassetti, have been highly gratifying: they range from the oxidized copper sculpture by Harold Balazs (see previous page) to various items of graphic design—a total of 8 major and 60 minor works of art.

FACTS AND FIGURES

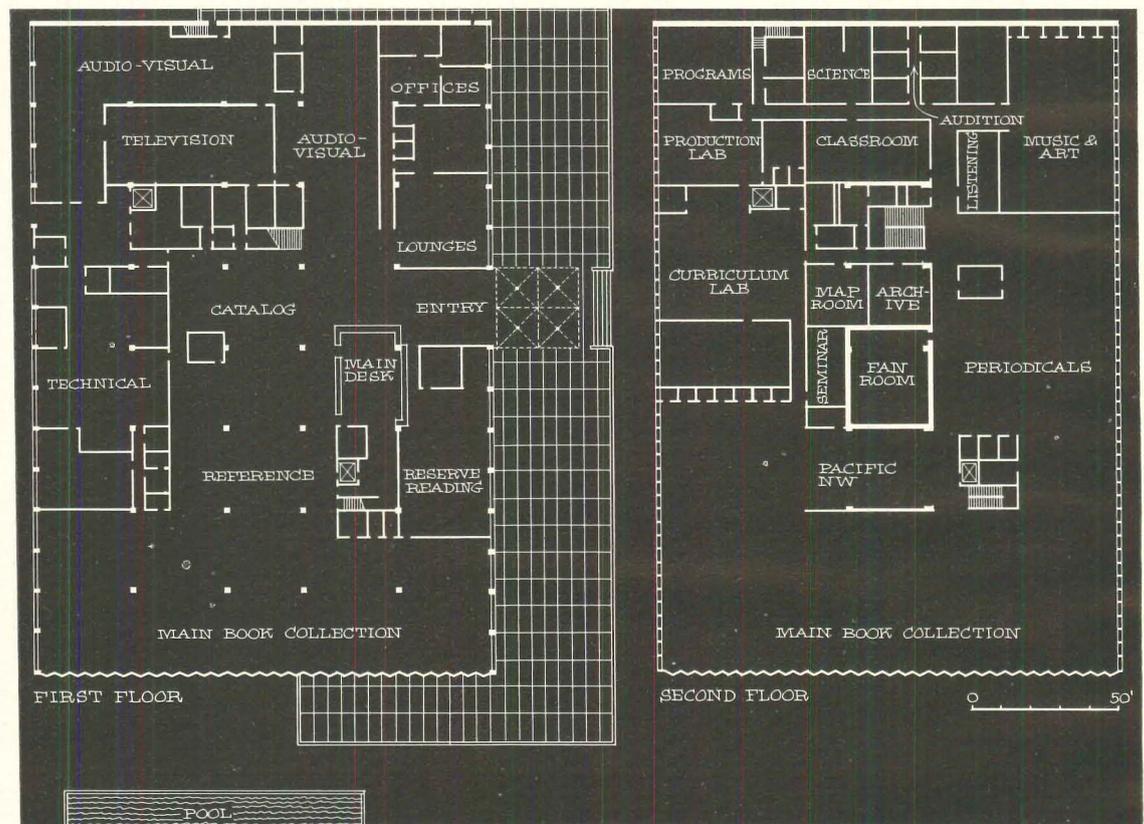
Library, Central Washington State College, Ellensburg, Wash.

Architects: Bassetti & Morse. Landscape architect: Richard Haag & Associates. Interior designer: George M. Schwarz Jr. Artists: Harold Balazs, Mignonne Keller (sculptors); Noel Carawan Osheoff, Robert James (potters); Emily Morse (painter). Engineers: Worthington, Skilling, Helle & Jackson (structural), Beverly Travis (electrical). General contractors: Newland Construction Co.

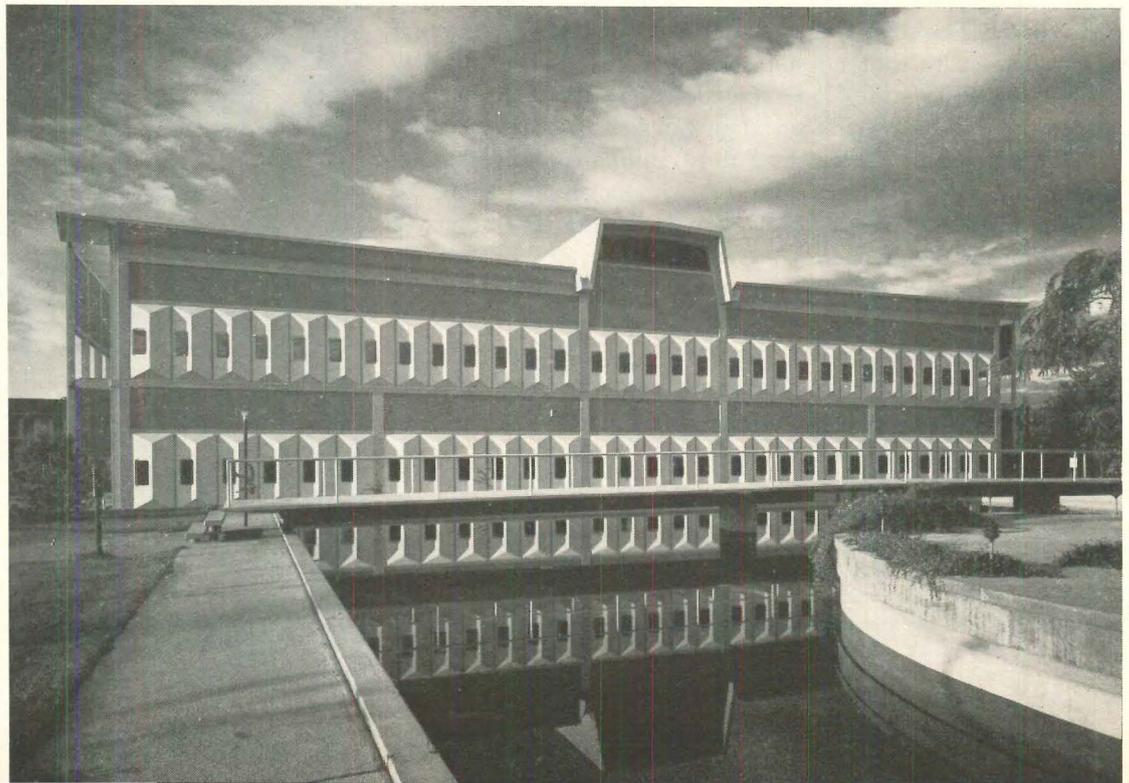
Total cost: \$1.46 million. Gross floor area: 74,628 square feet. Cost per square foot (including fees and taxes): \$19.58. Financing: state bond issue.

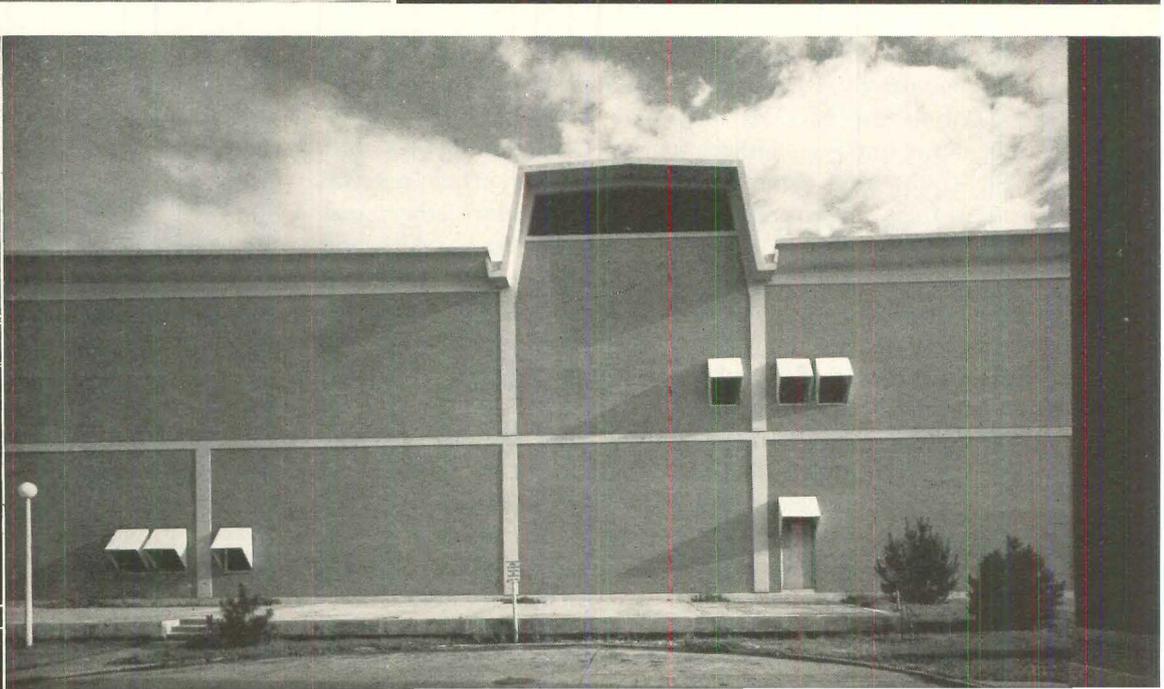
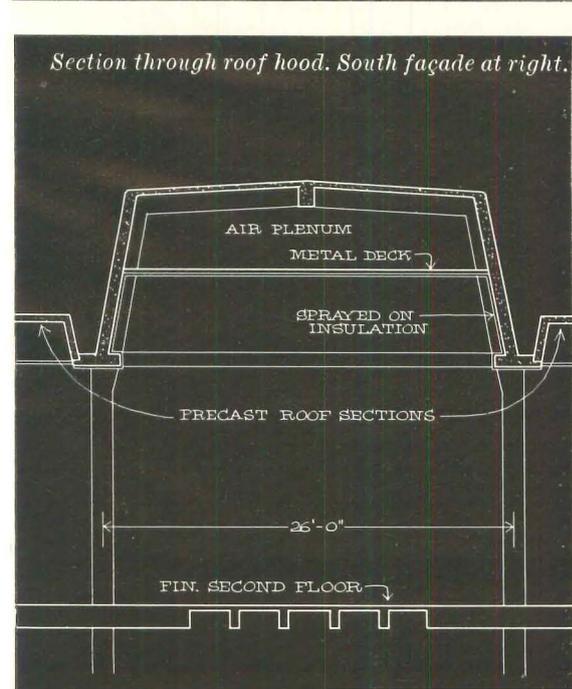
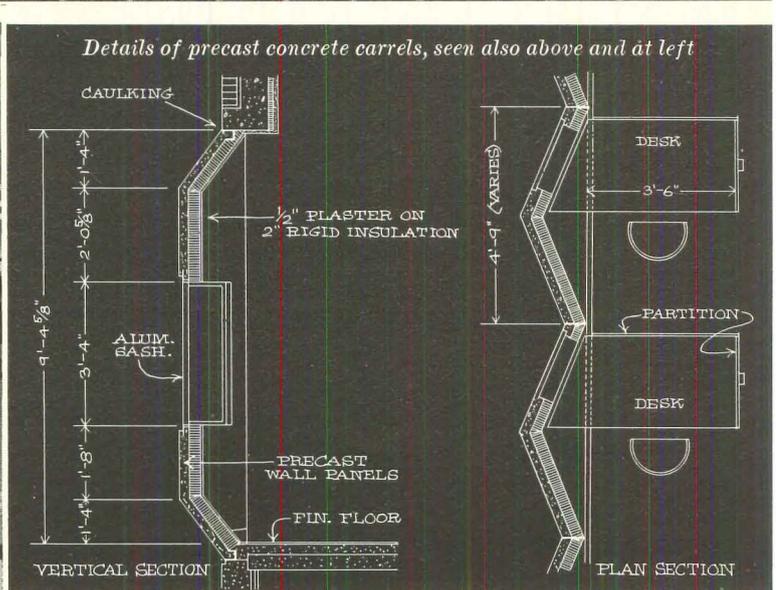
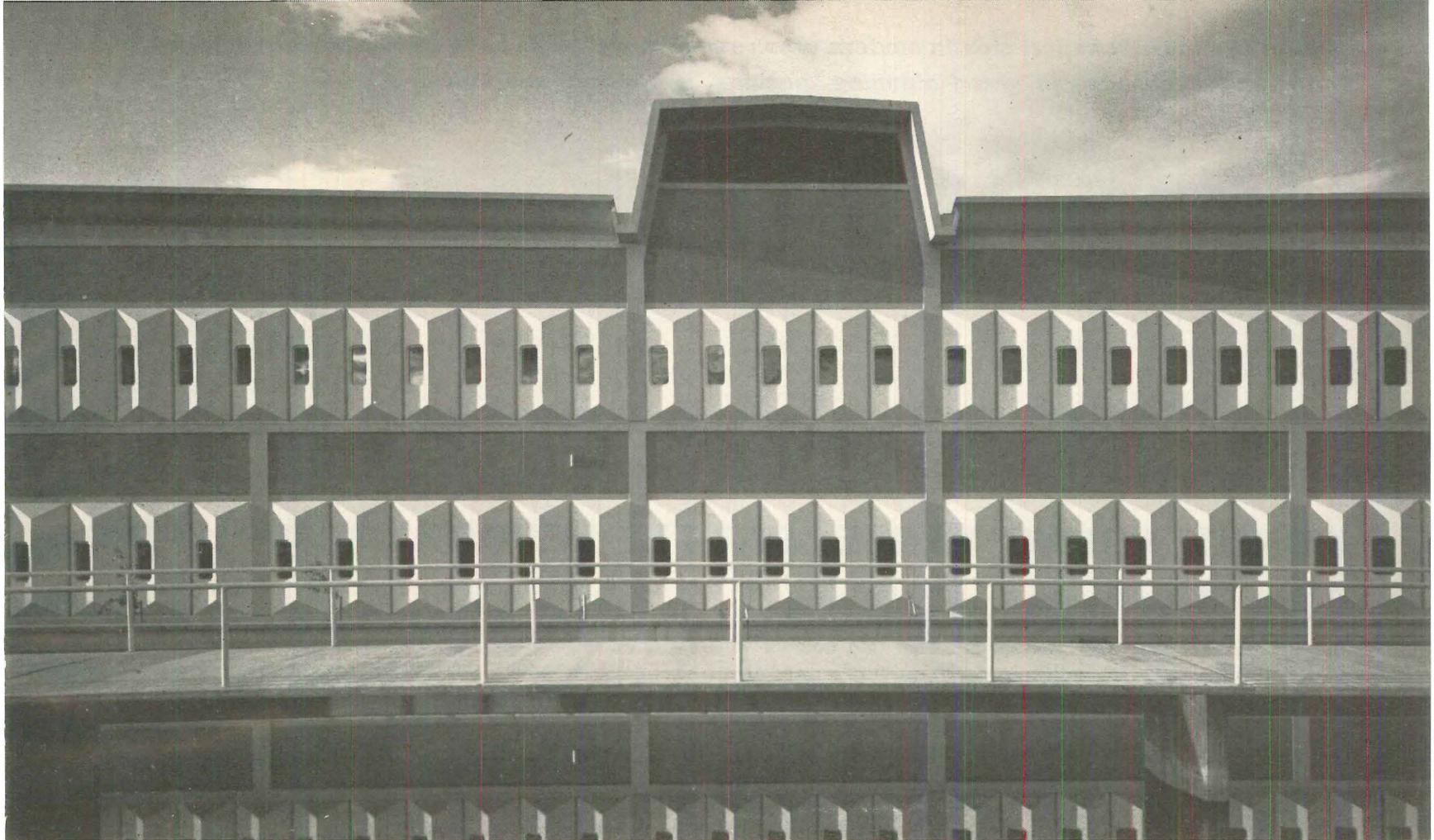


Above: Second-floor reading areas, with carrels at left. Ceiling system is hung from corrugated roof deck.



Below: North end of library has bold patterns of precast concrete units, each concealing a reading carrel.





FORUM ROUND TABLE: BATTLE REPORT ON ST. LOUIS

This report on St. Louis is a sort of combined battle report and credo. For urban renewal has characteristics of war, and has little to do indeed with the benign belief that millions of little individual decisions built up on a gridiron of streets add up to a prosperous city. What urban renewal does is quite generally misunderstood: It does not seek to replace the many private decisions upon which a city is built, but it battles to put them within a modern instead of an obsolete framework.

The fight for renewal requires generalship, setting up objectives to be secured, and the means of reaching them. St. Louis was in the fight early, and her leaders have battle experience. That is why FORUM turned to them. It joined forces with Downtown St. Louis, Inc., which in turn is linked with the famous Civic Progress, Inc., and also with the St. Louis Chapter of the American Institute of Architects. Together they invited as many top leaders of business, municipal government, architecture, and education as could be got around a big table. The object was to induce these men to pause, tell what they have been doing, and divulge some of the strongest beliefs that all share, growing out of what they are doing. This should be of value in turn to battlers for renewal in other sister cities.

The list of those who participated is on page 138c. For those who know St. Louis no comment is necessary as to the group's authority. The list also includes a few people from out of town who have been active in reference to the city, among them Urban Renewal Administrator William L. Slayton. Before giving this group the floor, a brief comment is in order on St. Louis.

No question about it, she is battle scarred. Worse than that, she is plagued by persistent false reports which ascribe the scars not to the frictions of progress but to deterioration. There is no question, either, that the situation invites this; for St. Louis, most astonishingly, started her urban renewal course in fully modern terms some 14 years before other great American cities did. And she has suffered from delays and dust while the country as a whole caught up with her thinking, and worked out the devices. It was 1935 when some 85 acres of decaying water front were cleared of slums for the Jefferson National Expansion Memorial—cleared by joint federal and city action. Anyone who doubts that, even prior to the famous competition which begat the famous Gateway Arch by Architect Eero Saarinen, the aims of St. Louis could be modern and comprehensive need only read his April 1944 FORUM. (Architect Harris Armstrong, a Round Table participant, was an author.) St. Louis anticipated every major

instrument and concept of today's urban renewal method. (Zoning, the key planning instrument of the past 35 years, originated in St. Louis in 1916.) St. Louis was precedent, not outcome. Here now is the Round Table itself reporting:

1. Forward-looking renewal involves city and region.

Knowledge of the economic potential and the historic mission of the region as a whole is indispensable. Never should this total interest be obscured by minor frictions between the surroundings and the central city.

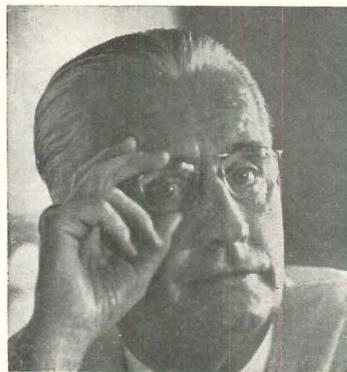
No city has suffered from more misunderstanding than St. Louis. If industrial growth was slowed within the city itself, this was a problem shared with all large cities. It does not reflect on the region. The St. Louis metropolitan area is still the gateway to the West and a prime transportation center. There is no truth in the frequent averment that all is past with the "romance" of the great Mississippi River; for not only is the St. Louis of today the nation's greatest inland port, but river traffic is setting new records, both in volume and in value, way ahead of the Mark Twain days. St. Louis is also the nation's second largest railroad center, exceeded only by Chicago, and despite a remediable lack of adequate highways is the nation's

second largest trucking center also. She thus attracts industry as transfer points always do, and not only have major automotive and appliance industries been brought to the outlying areas, but there has been an increase of some 200 industrial establishments within the last seven years within St. Louis itself.

Inside the city the urban renewal campaign narrows down to new adjustments within a thriving area. (See the section on industrial strategy below.)

Leadership within the region as a whole is the second necessity of forward-looking renewal. The sorry fact in the case of St. Louis is that the external areas have committed themselves thus far to no form of interrelated planning in any way. Until efforts succeed to get the metropolitan area covered by a single instrument of government—and there are virtually no such instruments in the U.S.—the city must exercise great care not to impose its thoughts about land planning or land use on areas which are not a portion of the central core, and must seek every avenue of discussion and negotiation. Of course the mere fact that a central city is organized while surrounding units are slow about it gives added force to the central city's viewpoint. Yet the city cannot give up its organized effort simply to match the delay in the surrounding effort.

A definite transportation pattern for the region is an inescapable urban renewal framework. Rigid



MAYOR TUCKER

master plans are out of fashion today; but there is no such thing as a successful half-hearted transportation commitment. We estimate that the development of St. Louis has been retarded by at least ten years because of earlier failure to develop modern access to the center and through it.

Today the city of St. Louis possesses a comprehensive, exhaustive transportation study supported by St. Louis County also. It is the so-called "Gilman Re-

port," by W. C. Gilman Co. of New York. It poses both highway and mass transit solutions.

Expressways already completed include the \$13 million Third Street Highway along the river, the \$75 million Mark Twain expressway out past Lambert-St. Louis Municipal Airport. There is being completed the \$49.5 million Daniel Boone expressway coming into downtown from the west and being extended across the river as one of three projected east-west, and one north-south, distributor expressways. Completion of the first comprehensive expressway program will also put a ring around the city.

Of course mistakes in transportation patterns can occur, and for two chief reasons: 1) wrong guesses about future land use; 2) shifts (all too seldom discussed)

in future transportation technology bringing forth different kinds of vehicles demanding different kinds of trafficways. Who, asked a



CHARLES FARRIS

Round Table member, would have believed ten or 15 years ago that we would have men in orbit? Already there is talk of "overbuilding expressways." Yet no error in transportation pattern is as disastrous as having no pattern.

To minimize the effect of possible wrong guesses, those traffic

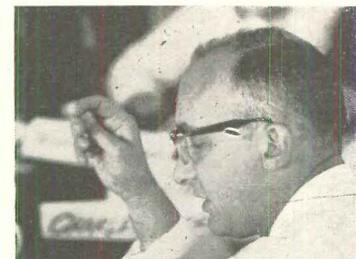
patterns are best which serve the foreseeable need, but are convertible also to a maximum variety of far-out possibilities. As a home-ly example, an expressway so designed that it can be given a middle strip for bus-carried mass transit, like the bus strip on Chicago's Congress Street expressway, is preferable to the kind of standard expressway whose grass dividing strip may be too narrow for this purpose. The Round Table



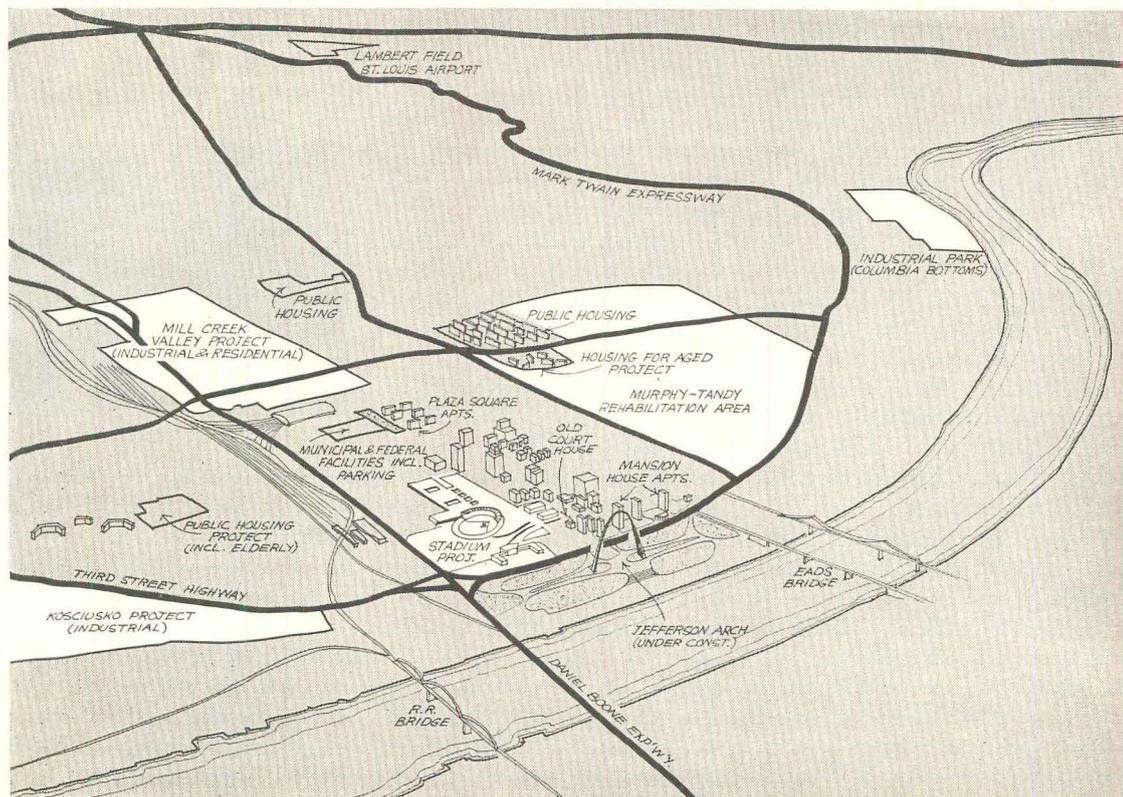
CLARENCE M. TURLEY



P. KAUFMANN, O. O. MCCRACKEN



ARTHUR E. WRIGHT, JR.



also noted but did not commit itself on new downtown devices to correlate traffic movement and vehicular storage. One idea is a radical separation of levels, as proposed recently in Dallas (Forum, May '62). Briefly, this concept drops certain kinds of through movement or service movement to substreet levels, putting them so to speak into the city's downtown basement, while reserving the open air above to people, especially pedestrians.

Meanwhile, the leaders of St. Louis anxiously await release of the federal government's new transportation study, for the city's future guidance.

2. Forward-looking renewal requires new industries.

Specialization and selection, not simple growth, will produce successful in-city industries. The older type of multistory warehouse is going forever, because it is no longer needed for changed techniques of commercial distribution; and the J. C. Penney Building, one of the white elephants of the city, was finally donated to the University of Missouri for entirely different, educational purposes. At the opposite end of the scale, a new industrial park just outside the city boundaries, which the Metropolitan Chamber of Commerce is doing on \$7,000-an-acre land below the confluence of the two rivers at Columbia Bottoms, is solid and conventional. In the metropolitan area as a whole, some 100 times as much industry has been installed since



CHLOETHIEL SMITH

1946 as there would be room for on the 116 industrial acres of the Mill Creek or the 105 acres of the Kosciusko project in the city.

What can be expected nearer the center is in part the expansion of industries which are already rooted in the city. Beyond that, there is provision for bringing in such special activities as the graphic-arts industry, smaller, highly concentrated types such as electronic plants, and the smaller kind of warehouse used by the "manufacturer's representative." And, never to be overlooked is

the kind of smaller research facility which grows up naturally in the vicinity of universities such as Washington University and St. Louis University. Since the land acquisition cost was approximately \$115,000 to \$120,000 per acre (before "write-down"), it can be seen that the ultimate use must be denser, for higher dollar value per unit of output, than in the outlying areas. Moreover in industries of this high-value type, close-by attractions are important. Not only cultural facilities are appreciated, but also the fact that good housing is being built nearby to create a new quality of living; important too is a new kind of education, which prepares for the new world of automation: e.g., new technical high schools and junior colleges.

It can be put this way: the white-collar worker is replacing the blue-shirt worker. A higher proportion of employees work with minds and paper than with their bodies and heavy machinery. This, incidentally, includes the employees of such users of multistory buildings as insurance companies. There has not yet been explored the full possibility of converting other kinds of industries to multistory arrangements. Bulldozer techniques creating outside loading docks at more than one level are an example of new possible patterns, to offset high land cost by multiple coverage in an economic manner.

In any event we have faith that the wonderful diversification of industry in the St. Louis area—375 types have been counted—will operate to send a share of the plants into the central area, and in fact the Kosciusko and Mill Creek redevelopment areas are 90 per cent under land purchase contracts.



JOSEPH PASSONNEAU

3. Forward-looking renewal means new types of homes.

Outstanding problems of residential renewal strategy are three: 1) there has to be a rounded overall community approach; 2) there have to be entirely new techniques for estimating and financing the residential market—techniques advancing well beyond accepted FHA techniques; and 3) democracy has to provide freedom and fairness for all its people. Forward-looking urban renewal requires a "community approach" with several aspects.

The city must furnish many kinds of housing beyond those which are built new at a profit in the open market. St. Louis has built housing under a wide variety of arrangements. She has built massive public housing projects, costing close to \$100 million, for the lower-income groups. Often the occupancy has been Negro, because Negro income averages so much lower. Then there is middle-income housing in areas like the Plaza Square apartments at an average rental of \$37.32 per room, or Mill Creek Valley, at \$32 to \$40. Then there are somewhat higher rates in the new fashionable Mansion House project behind the Gateway Arch, at something like \$45 to \$50, and finally, at the top, fashionable new apartments on Lindell Boulevard, where the monthly rental per room is approximately \$100

In the future yet another approach is in prospect, in the so-called Murphy and Tandy area, where existing structures will be rehabilitated at low prices.

The "community approach" means that new housing must be part of a scheme for a total neighborhood. Producing neighborhoods for attractive living requires the most thoughtful analysis and interlacing techniques. For example, it means supplying "project" housing with local stores, not only of the "momma-and-poppa" types, but also some of the new kinds of "fractional" supermarkets, which overcome the objection that "new projects cannot support full-blown supermarkets." It means available schools of all kinds, even private dancing schools, and entertainment. It means imaginative projection. Thus the new Mansion House high-class apartment development now being built is placed behind the new river-front park and its arch. Never before in history had



I. E. MILLSTONE

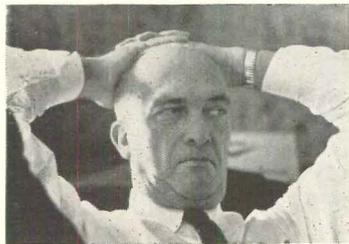
residential building been done on the river front. Such building is justified by the presence in the St. Louis area of enough people of means, who will go for the excitement of the view, for the proximity of all cultural facilities and night life, and for the closeness of the new stadium, which will attract as many as 50,000 people to single spectacles.

Forward-looking urban renewal

involves completely new ways of analyzing the residential market. The fact is that the urban renewal product is something quite new. It differs markedly from conventional spot building as a product. This forces marked differences in three operations: market prediction, financing, and the phasing of production.

Much greater "lead time" is required to bring around a newer, more complicated, but more potent, basically improved, and sounder product. Like other cities, St. Louis has been plagued by so-called "overbuilding" which is definitely not that. Actually the financial difficulties have arisen from trying something which resembles creating space in an ocean liner on financial terms designed to build family motorboats and sailboats. Most especially the trouble has been trying to create and finance the ocean liner in little fractions. In other words, even Nature requires more time to produce an elephant than a mosquito, and she doesn't try to produce the elephant out of an aggregation of mosquitos. As William L. Slayton remarked, "Effective renewal may mean building more than the *apparent* market will absorb, because you need to create something that was not there before (a fully equipped and more attractive community), and something that people have

not experienced before" (e.g., being able to walk to work downtown from such a community). Accordingly there has been the paradox that despite the prospect of an almost certain growth of the St. Louis area by 1980 to 3 million, attractive redevelopment projects such as Plaza Park have been slow at first in filling. There



LEWIS KITCHEN

can be not the slightest doubt that shortly the curve of occupancy will run sharply upward.

"In the meantime," the Round Table would suggest that HHFA and FHA be approached to supply the basically new approach of urban renewal with one more adaptation. Already they have made many other adaptations, with the result of improving vendibility and solvency. (Thus, for example, FHA has long since extended its financing insurance to cover the building of local stores, which are not "housing" but are indispensable to a viable housing project.) Our proposal is in the direction of giving redevelopers more "lead time." In brief it

would mean allowing the individual redeveloper a considerably longer period than the customary two or three months after completion, within which to get the project occupied and to start paying interest and amortization out of income. This delay does *not* mean that over the early period, before there was adequate occupation, such charges would be "forgiven." On the contrary, to discourage the redeveloper from dawdling, the delayed debt payments would be treated as interest-bearing first charges against future income.

In a sense this delay is mere fairness to the redeveloper who today "holds the bag" during the first stages when the project stands without its important adjuncts.

Speaking again of the workings of this new kind of market, the Round Table has concluded that there is need, in every city, for far stricter *phasing* of the planning and building operation. This is especially true when a large redevelopment tract is cut up into many different parcels, each to be handled by a different redeveloper. Obviously the success of each depends on his neighbor finishing on time too, since it is a tough assignment to try renting a grouping which is set up apparently in a dust bowl. Once again, the total renewal job has to be treated as the building of an ocean liner is,

even despite the fact that *this* ocean liner can be divided up and built independently, by sections.

As for the third point, about residential strategy, it relates to fair treatment of minorities.

Curiously enough the best reason to treat Negroes like people is that they act like people. One of the dividing lines that are found among them is the same



SAM MICHELSON

as afflicts other races. Those groups who have hopes and a decent income and a secure place to live have also a fine record; the others do not. The worst areas in the city, thus far, are those where sudden crowding took place, by those who had to leave areas like Mill Creek, which was bad itself. In many places where Negroes are seeking out homes in nice areas, these homes are nicely kept.

The Round Table accordingly goes along with the proposition that all urban renewal areas must be opened for occupancy without regard to race, creed, or color, and we have to eliminate the

continued on page 198

ROUND TABLE PARTICIPANTS

OFFICIALS

Mayor Raymond Tucker, St. Louis
William Slayton, Urban Renewal Commissioner, Washington, D.C.
Charles Farris, Chairman, St. Louis Housing Authority, Land Clearance for Redevelopment Authority

BUSINESS LEADERS

Aloys P. Kaufmann, Director of Commerce of Metropolitan St. Louis
Lewis Kitchen, Lewis Kitchen Realty Co., Kansas City

Hugh A. Logan, Vice President, St. Louis Union Trust Co.

O. O. McCracken, Executive Vice President, Civic Center Redevelopment Corp.

Sam Michelson, Michelson Realty Co.
I. E. Millstone, Millstone Construction, Inc.

James Scheuer, President, Renewal & Redevelopment Corp., New York City
Alvin Siteman, The Siteman Organization
Clarence M. Turley, Realtor

Arthur E. Wright, Jr., Executive Director, Downtown St. Louis, Inc.
Roy Wittcoff, President, Downtown St. Louis, Inc.

ARCHITECTS AND PLANNERS

Harris Armstrong, Architect
John Dinkeloo, Partner, Eero Saarinen & Associates, Architects
Arthur Schwarz, Schwarz & Van Hoeffen, Architects
Chloethiel Smith, Satterlee & Smith, Architects, Washington, D.C.

EDUCATORS

Eugene Johnson, Director, Civic Education Center, Washington University
Joseph Passonneau, Dean of Architecture, Washington University

PRESS

George McCue, critic, St. Louis Post-Dispatch

MODERATOR

Douglas Haskell, Editor, Architectural FORUM



OLD BARN BECOMES A HANDSOME CHAPEL

The gloomy, rafter-riddled interior of a 150-year-old dairy barn might seem an unlikely space from which to fashion a contemporary chapel. But the handsome room shown at left resulted from just such a remodeling, executed with fine restraint by Architects Garber, Tweddell & Wheeler. The chapel is for The Grail, a service group of Catholic laywomen, in Grailville, Ohio.

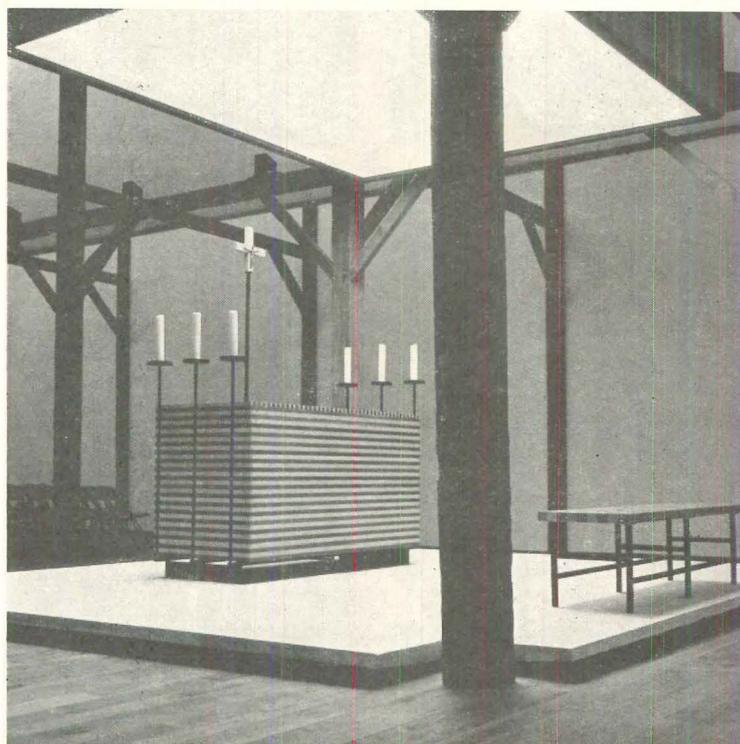
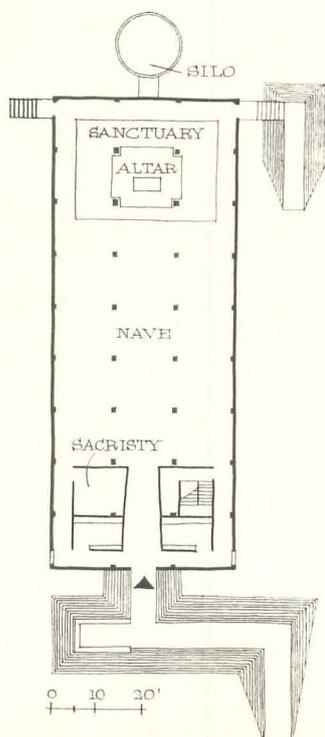
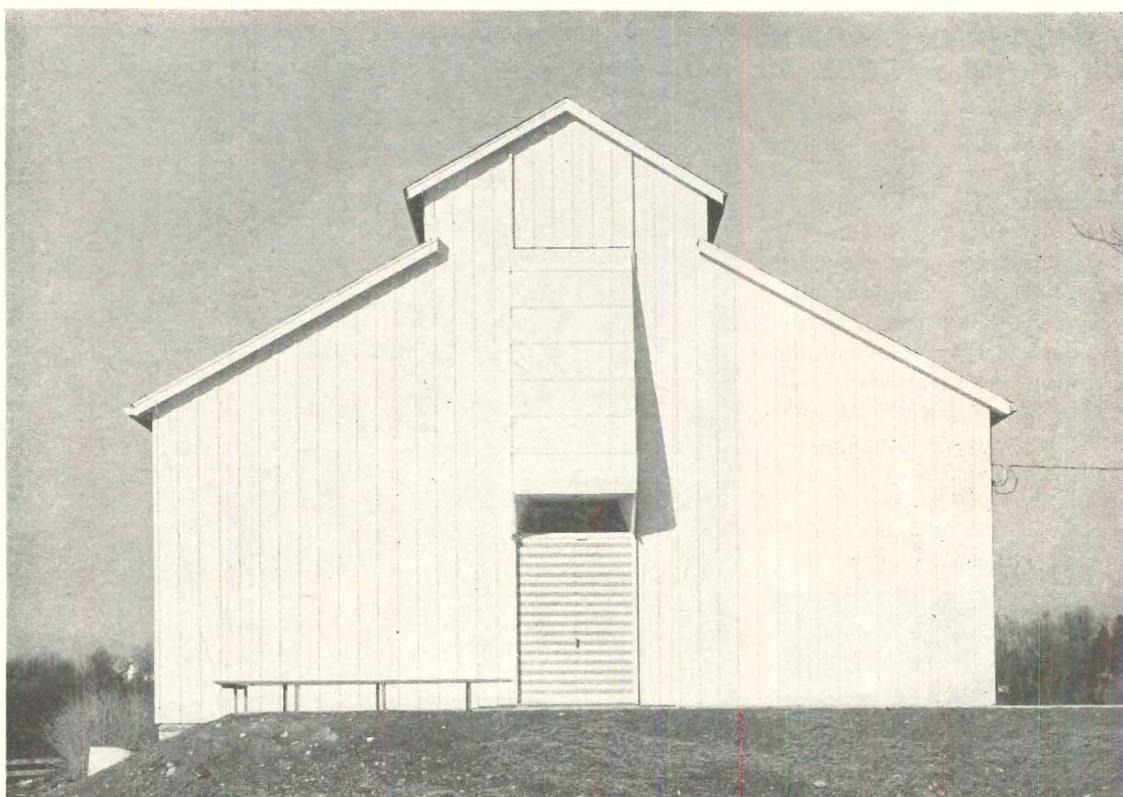
Vertical boards and battens, painted white, were applied to



the exterior. On the new façade (above, right) a sheet-metal hood shelters the main doors, which are reached by a raised ramp.

Just inside the entrance, new sacristy, coatrooms, and basement stairs are enclosed by low, free-standing partitions (plan, right). The chapel's rough-hewn oak beams, stained dark, stand out dramatically as a framework of many crosses against fresh white surfaces illuminated from existing clerestories, and from a massive new light shaft suspended over an altar by Liturgical Designer William J. Schickel. The space is simple and unadorned to permit seasonal decoration.

Cost of remodeling came to only \$50,000, or \$7.20 per square foot (compared to new churches ranging up to \$25 per square foot). Structural engineer: Harry Balke. Contractor: Jacob Boettcher Co. Financing: by donations.



PHOTOS: J. E. DURRELL, JR.

AN ELEGANT OPENING ON THIRD AVENUE

For something under \$30,000 (\$10 per square foot), a boarded-up pizza joint on Manhattan's up-and-coming Third Avenue (below) was transformed into this elegant and airy store purveying bric-a-brac and foods from afar.

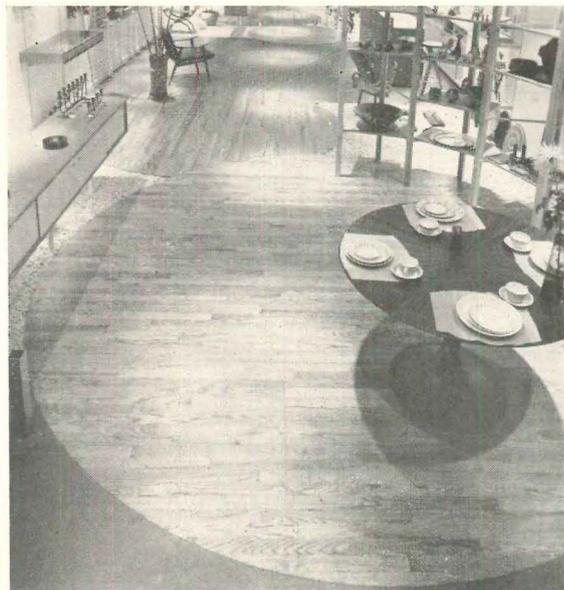
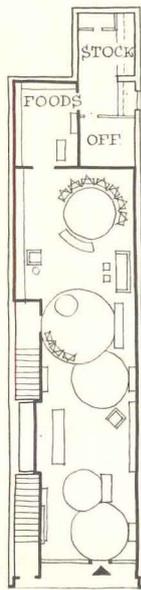
The fact that Wilburt, Inc. now can (and does) compete with the best shops on better-known Fifth Avenue is not precisely an accident. Its backers, for example, include a prominent architect, a realtor, a financier, and an importer, all of whom live nearby in the Grammercy Park area



from which most of the shop's clientele comes. And its designers are well versed in New York's razor-sharp market for high style.

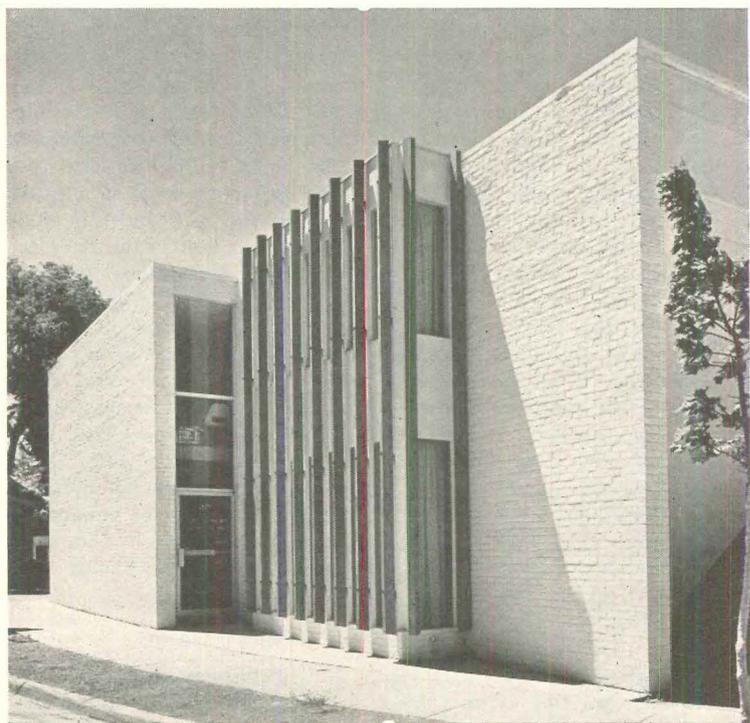
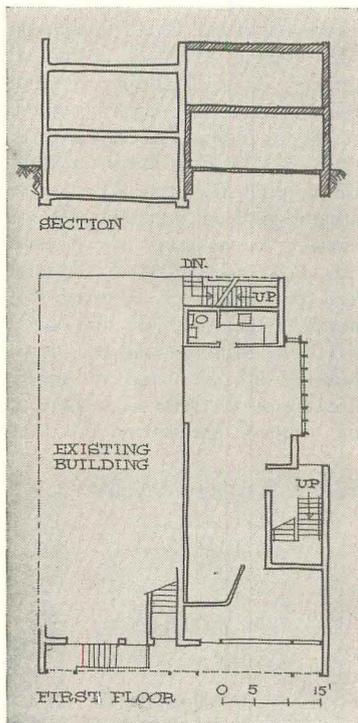
The most arresting aspect of the store, of course, is its openness to the street: it is shielded only by plate glass, recessed 3 feet from the building line. There is a minimum of clutter; all items are in clear view—most of them on the floor, planted in beds of white marble chips surrounding circles of oak planking which define display areas.

Designers: Space Design Group, Inc.; Marvin B. Affrime, director. Consultants: Martin Lovett (structural), Wheel-Garon (lighting). Contractor: H. L. Lazar.



OFFICE BUILDING STARTS THIRD LIFE

This striking little rental building in Birmingham, Mich., was actually built around an old brick office addition to a still older house (both seen in photo below). Since the house was over 100 years old and in none too sound condition, Architects Glen Paulsen & Associates decided to tear it down. The problem was to replace it with a two-story office wing and tie the new structure gracefully to the previous brick building, which was partly sunken into the ground. This was accomplished by adding a high wing wall to the left side to match the new building on the right, then concealing the uneven old windows and roof line with a screen of 2 by 6-inch fir slats hung on a dark-gray, tubular steel

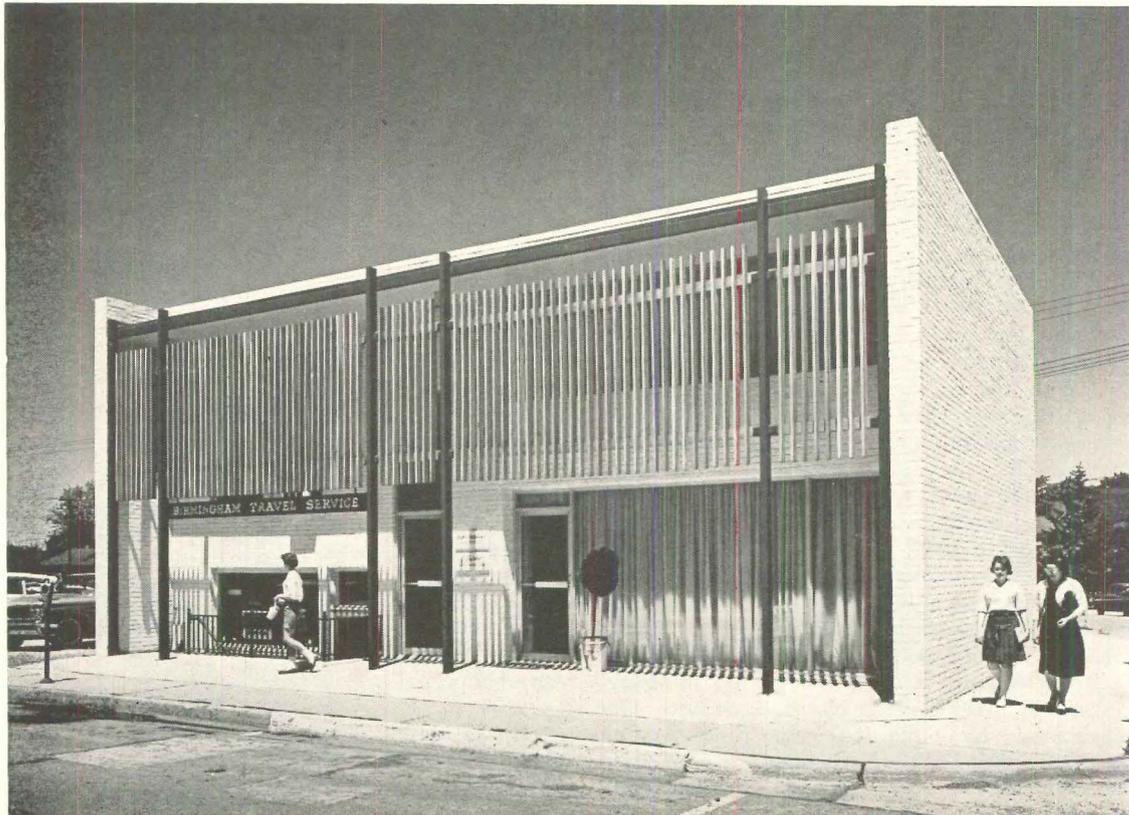


BALTZAR KOHLER



frame (photo below, right). The screen also helps to give the building horizontality and pattern, and does a fair job of filtering out hot southern sun as well as keeping the offices private from the street. To stay within a curving property line while providing separate access to the suites above, the new wing was jogged back around a glass stair well on the side (photo, top). A travel agency occupies the old wing; a beauty parlor, the new.

Cost of the remodeling came to about \$40,000. Engineers: Theodore Letsche (structural); Edwin Siegel & Associates (mechanical). Contractor: Frederick Davis.



BALTZAR KOHLER

NEWSPAPER ARCHITECTURE

Just what would happen if every small-town paper in the U.S. were to begin discussing architecture tomorrow? Such a possibility must be approached with circumspection. Google architecture might be no worse than google "criticism." Translate into building terms the kind of report that gets written on the latest charity bazaar or on the latest double feature in the movie, and there you have it. The local Lewis Mumfords writing criticism in Prairieville would resemble the more striving local motels in their literary contours—and content.

An alternative would be boiler plate from national syndicates.

Happily the problem has not arrived yet. The number of newspapers, mostly in medium-big towns, that has recently picked up the art of architectural criticism in the U.S., corresponds roughly to the number of available and competent critics. The thought of the *San Francisco Chronicle* brings up the name of FORUM Consultant Allen Temko; the *Examiner* has Bob Anshen; the *Louisville Courier-Journal*, Grady Clay; the *Washington Post*, Frederick Gutheim (and again the ubiquitous Temko); *The New York Times*, Ada Louise Huxtable (the *Times* has run to girls always); *Time* has Cranston Jones (though unsigned); the *St. Louis Post Dispatch* has George McCue; and there are others also. For more topnotchers one has to go to the magazines and pick up Fisher or Lynes in *Harper's*, FORUM Senior Editor McQuade in *The Nation*, and after that the writers for little magazines where prose is much more precious.

Of course top honors go to *The New Yorker*, whose "Skyline" department has been conducted by Lewis Mumford since 1931.

Happily the growing group of papers that has picked up discussion of architecture as an art has been skillful, too, in knowing what to talk about. Even in San Francisco, which is about as sophisticated a town as any on the subject of architecture as a cultural instrument, the *Chronicle* has avoided an excessive commitment to the fine points of new buildings, and has been a big success mostly because it has picked big, broad, uncomplicated city issues, and has been audaciously causal. It joyfully smote the engineers of superhighways because

they cut off the best views in town with their fancy snake work; it is joyfully smiting billboard makers for junking up still other important views (illustration); it fought for and got a responsible bridge design for the route across the Bay at San Mateo, replacing a design that had been drawn out of a bureau (Governor Brown made Architect Steven Allen the consultant); it has temporarily lost to a parking lot the spot where the American flag was first planted by the Pacific, Portsmouth Plaza, but it is impossible to imagine that this will continue.

The busy *Chronicle* had no sooner begun to teach its city to scorn the use of beautifully situated Alcatraz, out in the Bay, for a walled-up penitentiary, when a couple of convicts obligingly escaped, starting a chain of events that is getting the penitentiary transferred elsewhere; and now that the newspaper is digging to get Market Street back into useful operation by "renewing" away its worst honky-tonk, unquestionably its action will be supported by some other miracle. And the *Chronicle* is but one among several fighting newspapers.

How newspapers learn

It is immensely cheering to see newspapers rise so well to a growing need, and there is every reason for faith that this will thrive and spread further. Actually the deployment of architectural discussion even into the smallest sheets may not at all debase the subject as I have suggested that it might. The reasons are obvious.

A new push, such as the push into architectural criticism in the papers, does not occur simply because some men of genius felt the need to write about it. Healthy democracies create their own instruments and on a broad front. Some organization, as well as good will, is needed. Thus the journalism schools, which in recent years have been calling briefing sessions for working newspapermen on new subjects such as urban renewal, have reached out naturally for architects to help outline the issues. Through these many an editor and publisher has first got hip to today's best architectural purposes. One step leads to another. At Columbia University in New York this month such a briefing session is to be conducted jointly by the school of journal-

ism and the school of architecture. Out of such multilateral sources grows the architecture of good health, and so grows a healthy architectural commentary for the people.

ERIN GO BRAGH

The Honorable Neil T. Blaney, Minister for Local Government of Ireland, is touring the U.S. in the company of Mr. John Gavin, Secretary of the Department, and Mr. Gerard Meagher, Principal Officer, Town Planning Branch; but the Irish have about as much to tell us in some departments as they have to learn in others. Public housing has gone further in Ireland than in any other Western country to the point where there are now vacancies developing; and the new kick is urban renewal, which explains the study trip. The Minister said that Irish families are admitted to public housing on the basis of income at the time of application but that

once in, they are never bothered again about making income statements because the guiding principle is that they should be able to stay in the neighborhood where they have friends and where their children are going to school.

Occupants of public housing also have the chance to acquire ownership of their dwellings—but only in rural areas. In cities the Minister felt that it was better to keep the situation more fluid and to discourage the pre-empting of publicly-aided housing by those who would otherwise have been able to acquire housing for themselves in the private market.

The general information concerning the high standing of Ireland was supplied by Ireland's consultant on urban planning, Cathal Ó hAracháin. In plain English, Charley Abrams.

Douglas Haskell

San Francisco Chronicle
 THE VOICE OF THE WEST
 Charles de Young, Founder, Editor and Publisher
 George T. Cameron, Publisher 1925 to 1958
 Founded 1863 by Charles and M. W. de Young
 PAGE 38 Thursday, March 27, 1962 CCCC

Too Many Billboards in The Way of S.F. Views
 Planners Draft Ordinance To Regulate Outsize Signs That Impair Enjoyment Of the City's Skyline

CITY HALL Unwed scaffolding and a pile for which beds one of America's most beautiful public buildings.

FREEWAY Cluttered billboards obstruct drivers as they approach the Bay Bridge.

SKYLINE A wall of billboards on 4th Ave obscures the Bay Bridge view of a famous skyline.

"TO PROTECT THE CHARACTER and stability of residential, commercial and industrial areas, to improve the orderly and beneficial development and use of such areas, to protect the public investment in the character and quality of public buildings, signs, streets and thoroughfares, to encourage and enhance property values, to improve the appearance of the city and county and preserve its inherent attractive features and beauty, promote the public health, safety and welfare . . ."

This does a proposed city ordinance define the purpose—namely, to regulate the size, location and use of signs and billboards in order to protect the public investment in the character and quality of public buildings, streets and thoroughfares, to encourage and enhance property values, to improve the appearance of the city and county and preserve its inherent attractive features and beauty, promote the public health, safety and welfare . . ."

This does a proposed city ordinance define the purpose—namely, to regulate the size, location and use of signs and billboards in order to protect the public investment in the character and quality of public buildings, streets and thoroughfares, to encourage and enhance property values, to improve the appearance of the city and county and preserve its inherent attractive features and beauty, promote the public health, safety and welfare . . ."

Billboards cluttered bridge freeway and obscure signs obscuring the historic area skyline. They frequently dwarf, tower high over the tops of the city's residential skyline, Bay and surrounding hills; they detract the attack of the Coast Center and intrude upon public and scenic points of local interest. Not only are they an aesthetic offense, they have become a menace to the neighborhood along freeways, reflecting dangerous distraction to the passing motorists, especially at night when they flash an undimmed light.

It is a foregone conclusion that the advertising industry will fight the proposed ordinance in detail if not in its entirety—even though for the most part it is a synthesis of common and time-tested measures already enacted in a somewhat faith attempt at regulation. The spokesman for the firm has been quoted as saying: "If the ordinance is passed, we are out of business." We are inclined to doubt the veracity of this statement. Some 60 California communities, including Oakland and Los Angeles, have enacted comparable ordinances and through the dividends to the public have been tremendous, outdoor advertising still does business at a profit.

AS NOTED, THE INDUSTRY will have every opportunity to present its case to the Planning Commission, before its recommendations to the Board of Supervisors and thereafter to the Mayor before they act on the ordinance. It will, under these conditions, receive the benefit of open discussion.

The need of the community is clear and it is felt that, while it cannot appear to be being drafted with the consideration of signs in preparing natural assets and property values alike, in drafting the ordinance now for consideration, the City Planning Board is properly notified. A city without signs would be a senseless and unrecognizable place. The ordinance would permit signs of reasonable size in their proper places in their respective neighborhoods, but the Planning Commission would have the right to regulate the size, location and use of signs in order to protect the public health, safety and welfare of the city and county and preserve its inherent attractive features and beauty, promote the public health, safety and welfare . . ."



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In format, the Report is a handsome, 32-page magazine with a wealth of color illustration. Its editorial range is considerable. Forthcoming issues will contain articles on collectors and collecting and the shifting attitude toward fakes, and reports on a superb new group of demountable picture frames, a little-known

collection of baroque recordings, and a series of children's books printed today from woodblocks cut in 1870. Major fine arts publications of the preceding three months will be described and often illustrated.

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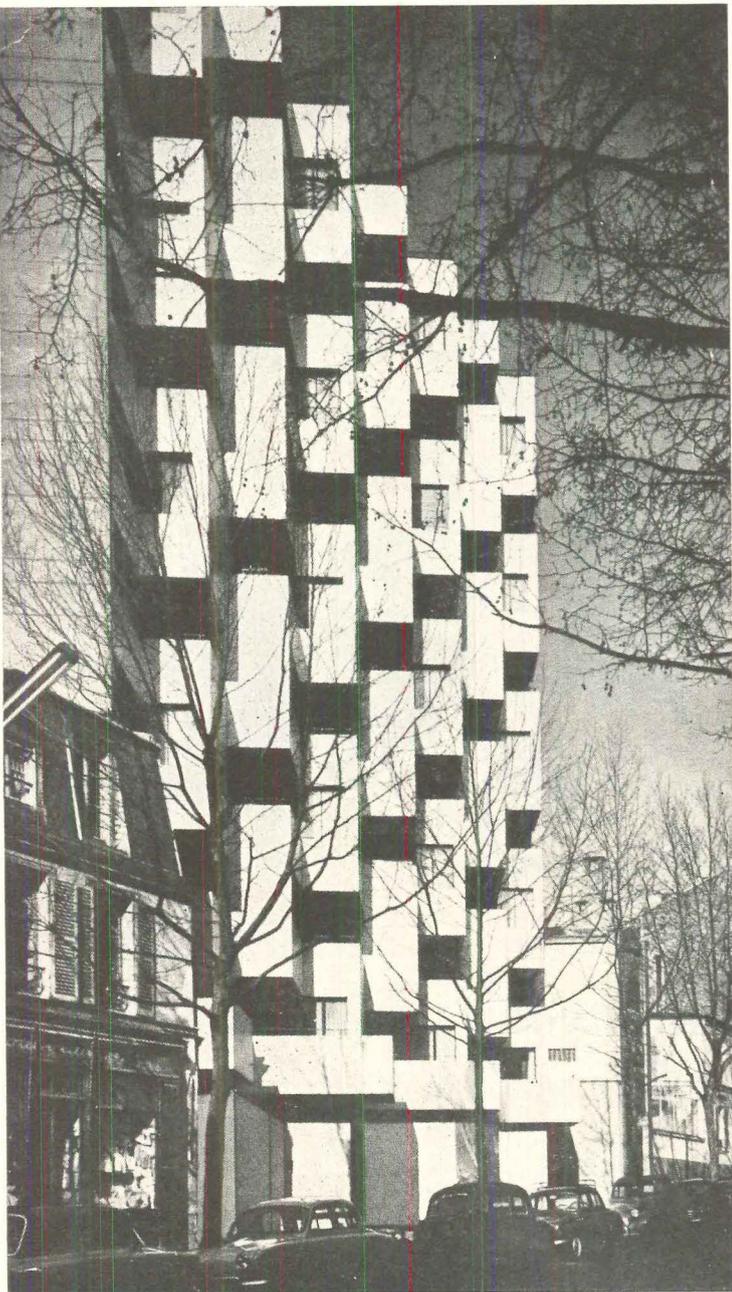
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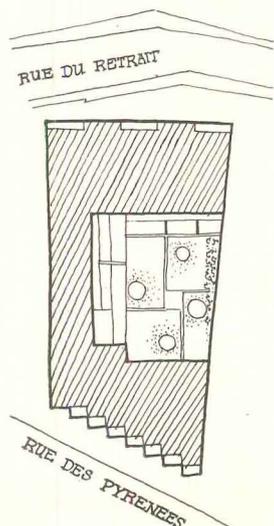
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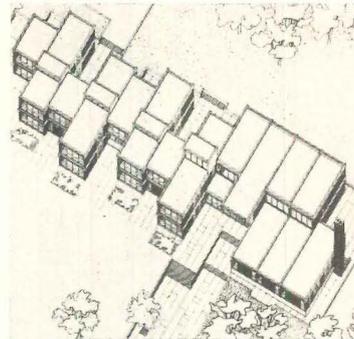
TECHNIQUES ET ARCHITECTURE



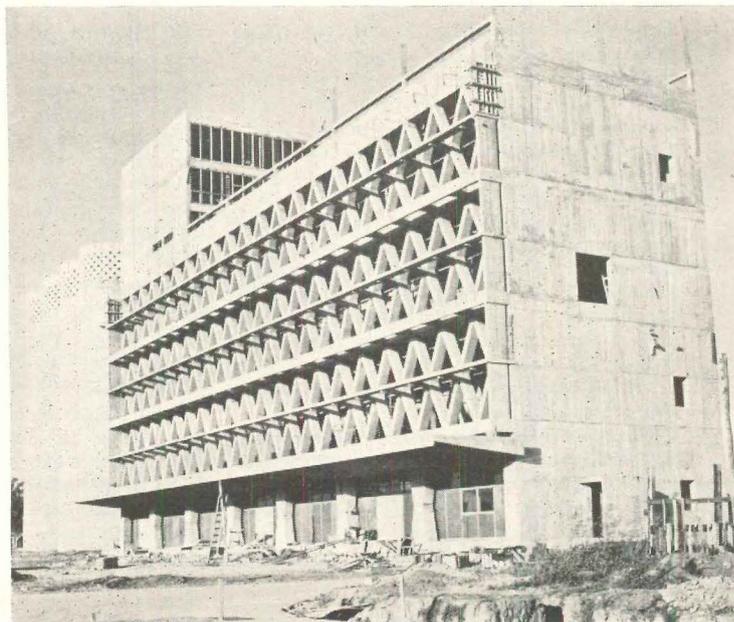
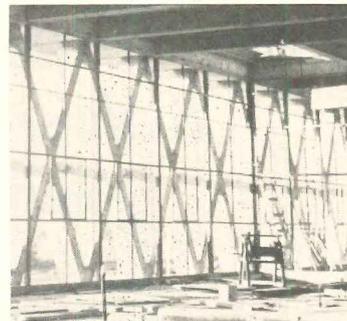
PARISIAN APARTMENTS. An imaginative solution to an irregularly shaped site (see plan, right) has resulted in this handsome, boldly serrated façade for a Paris apartment house by Architects R. Anger and A. Puccinelli. The block-through plot on the Right Bank runs between Rue des Pyrénées and Rue du Retrait, with no two sides parallel. To preserve normal, rectangular room shapes, the architects staggered the Rue des Pyrénées façade and accented the jagged line with overlapping balconies. Each balcony has a double (south and east) exposure. An open, landscaped court gives natural light to all of the interior apartments.

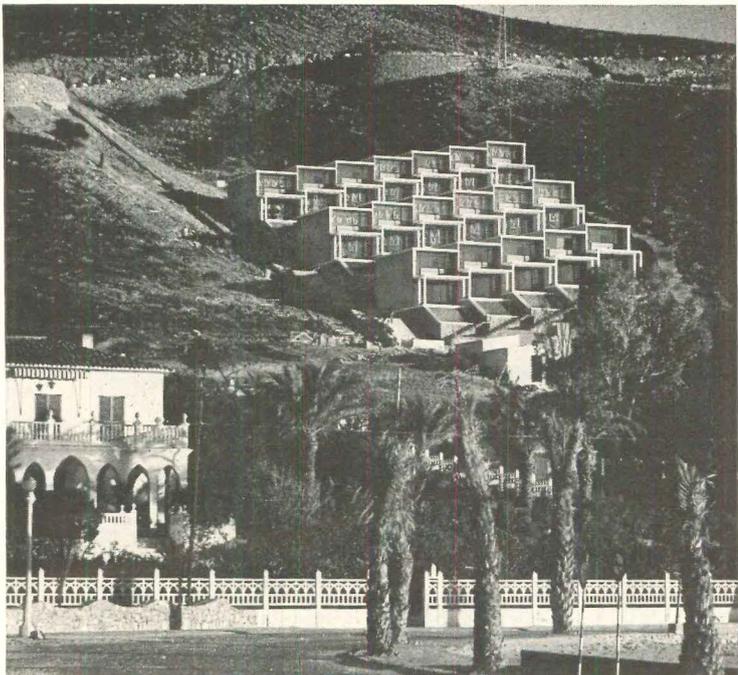


ENGLISH SCHOOL. Staggered patterns, in an otherwise no-nonsense façade, give a lift to the British "factory" esthetic at the Upholland School by Lyons, Israel & Ellis in southwest Lancashire. The red-brick and glass building is set on a narrow site; units are moved back and forth to create a play of building masses and open courts, some of which are used for recreation. One long corridor traverses the entire school.



CHILEAN MILL. Bold concrete trusswork running the length of its façade gives pattern, sun protection, and earthquake reinforcement to this new flour mill for the Carozzi company in Chile. Designed by Architect Emilio Duhart (in association with Luis Mitrovic), the 16-silo mill was completed this summer at Nos, 13 miles south of Santiago. Cost: about \$15 per square foot.



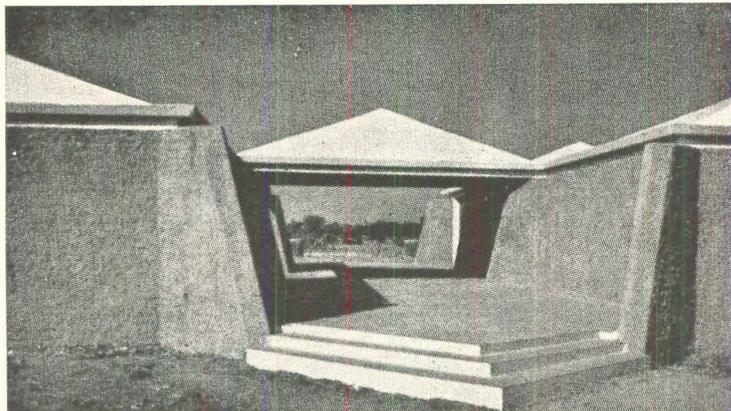
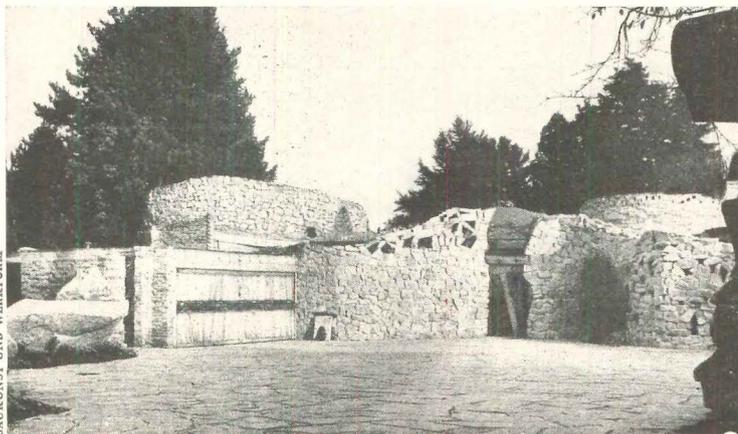


SPANISH DUPLEXES. This glassy honeycomb of co-operative apartments hovers gracefully on a difficult hillside site above Spain's Mediterranean Coast near Benidorm. Each of the 18 seven-room

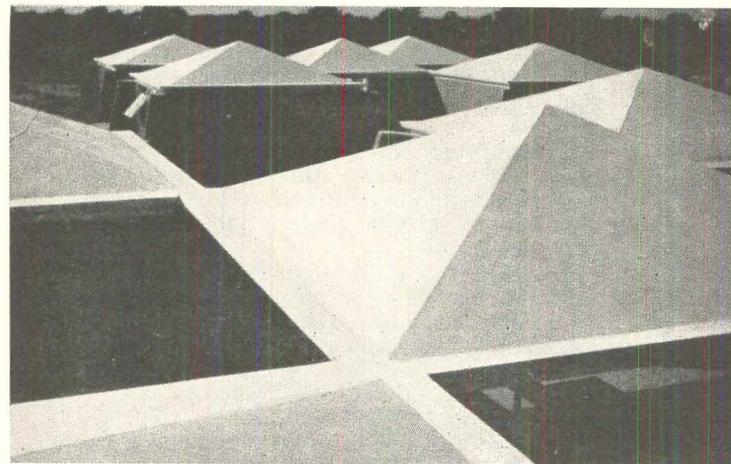
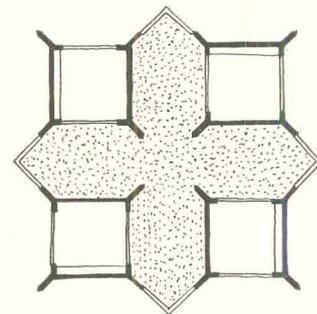
units is staggered for privacy and a sweeping view of sand and sea from two hacienda-sized rooms on each level. Apartments sell for the equivalent of \$6,700 each. Architect: José M. Dominguez.



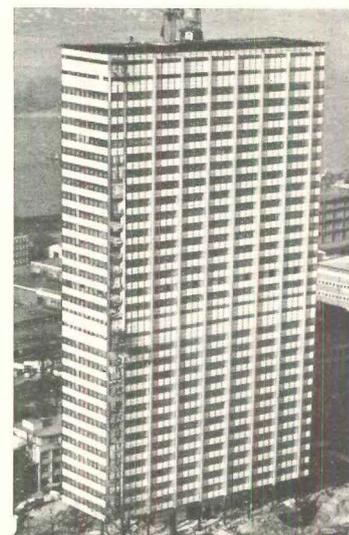
SWISS FANTASY. A machine for "far-out" living, this house on the shore of Lake Geneva was designed by Architects Robert Frei and Christian Hunziker in collaboration with Sculptor Henri Presset. The fragmented granite walls (below) suggest a romantic ruin but also secure maximum privacy for the façade facing inland. The main entrance is a door of helter-skelter wooden slats (center) with an adjoining garage (left). At the center of a round living room (photo, left) is a swirling chimney-fireplace designed by Sculptor Presset.



INDIAN SCHOOL. A lesson in geometry by Architect Uttam Jain, this school at Kuha, near Ahmedabad, has a basic unit of four corner classrooms, each 20 feet square. They are superimposed on the sides of a larger square (see diagram, right) of paved open corridors with angled entrances and a central covered court for exhibits and meetings. More units will be added later.



GERMAN SKYSCRAPER. Bearing a striking resemblance to New York's Chase Manhattan building and other U.S. corporate towers, the new headquarters of Farbenfabriken Bayer (chemicals, dyes, plastics) rises 33 stories on the sky line of Leverkusen, 16 miles southeast of Düsseldorf. Sheathed in glass and aluminum, this newest and highest German skyscraper provides air-conditioned office space for 2,200 employees. An underground concourse connects with neighboring office buildings. Architects: Helmut Hentrich and Hubert Petschnigg. Associates: Fritz Eller, Robert Walter, Erich Moser, Hans Köllgen, Hans J. Stutz. END





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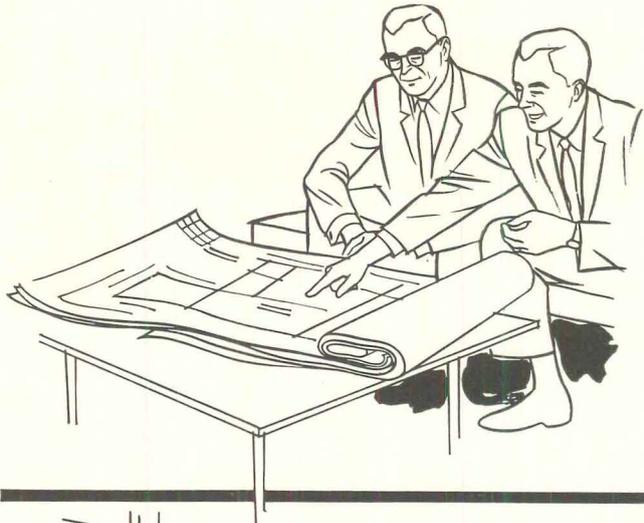
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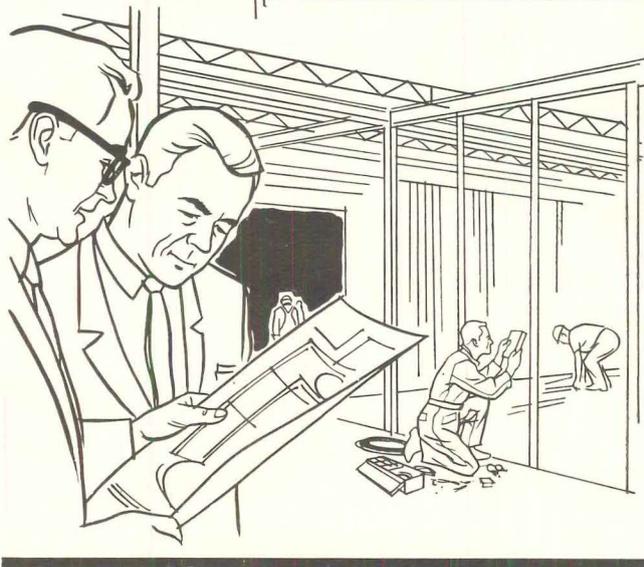
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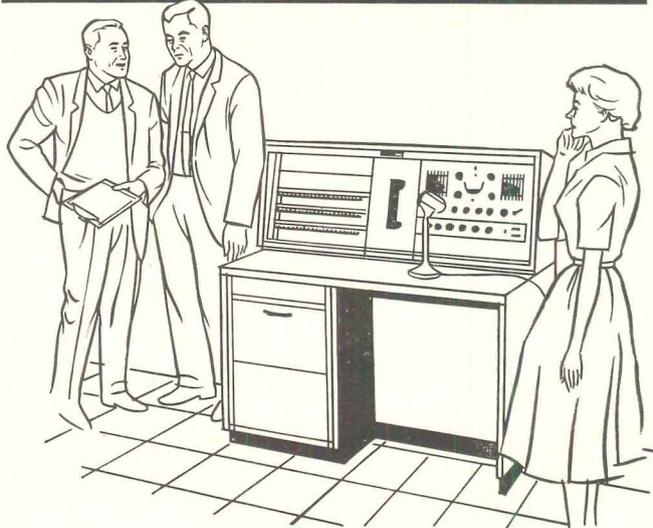
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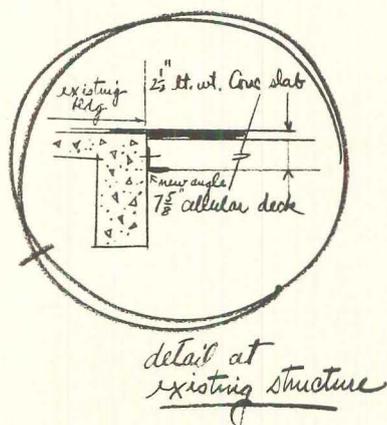


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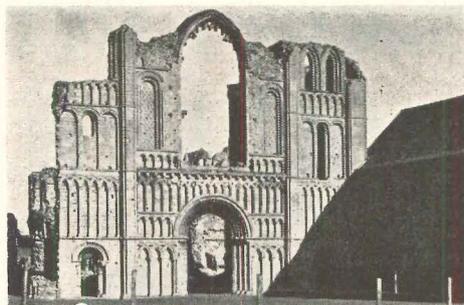
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THE BUILDINGS OF ENGLAND: NORFOLK. By Nikolaus Pevsner. Published by Penguin Books Inc., 3300 Clipper Mill Road, Baltimore 11, Maryland. Vol. I: North-East Norfolk and Norwich. 390 pp. Vol. II: North-West and South Norfolk, 438 pp. 4 3/8" x 7 1/8". Illus. Paperbound, \$2.25 each; hardcover, \$2.95 each.

Pevsner rides again across the English countryside: "Norfolk is no doubt the biggest county job I have had to do so far . . ." the unmatched architectural scholar writes in his introduction, "it contains 659 churches earlier than the year 1700. It also contains Norwich, which is my biggest town job up-to-date, apart of course from London."

Backed by the Leverhulme Trust, Arthur Guinness Son & Co., Ltd., and ABC Television Ltd., Nikolaus Pevsner has by now completed no fewer than 23 books tabulating and commenting on the native architecture of England, and Penguin has produced them nicely in both soft and hard cover. Norfolk, like London, takes Pevsner two volumes, each packed with explicit information and opinion on old buildings—presented, as always, with very few airs.



12th CENTURY NORMAN PRIORY, CASTLE ACRE

The rules of inclusion and exclusion remain as before: "all churches prior to 1830, selected ones after that date; all country houses, town houses etc., provided they are of more than purely local architectural interest; no movable furnishings in houses (exceptions excluded); no bells, hatchments, and chairs in churches; brasses after the Reformation only occasionally; chests only occasionally; early decorated coffin lids only occasionally; church plate only if of silver, and after 1830 only rarely; no village stocks; and only here and there one of the characteristic ploughs preserved outside churches."

Eventually, of course, Dr. Pevsner, who is, after all, only 60 this year, is going to get to those ploughs too, outside the churches, and we are looking forward to it. He is a most entertaining dead-pan writer, along with his prodigious savvy. (In Norfolk, even he was visibly amused by some of the bristling British names for places, and particularly their pronunciations: "Cley pronounced like sky, Costessey like Cossy, Stiffkey like Stewkey—as in Irish stew, Happisburgh like Haysbro'—as in haystack, Garboldisham like Garblesham, Tacolnston like Tackelston," etc.)

Norfolk, we learn, is a curiously secluded, flinty county, good for neolithic axes, but the main building material has been brick. It has

been a weaving county, but with other exports as well. For example, East Anglia was at one time a great producer of brass lecterns, and there is one of these at St. Mark's in Venice. The county has not many castles, but those have fine Norman names like Castle Rising at St. Lawrence; and Castle Acre at St. James.

Information like this builds up until the reader is placed in the locale almost as well as he would be by Proust. The delight of this book is in its detail; its brisk style (the Decorated style is mentioned once in full, then immediately becomes *Dec*; Perpendicular is *Perp*); its sense of obdurate English countryside—but most of all in its author's personality. The Ford Foundation, or perhaps Ballantine's Beer, should try to interest Dr. Pevsner in doing Texas for us.—W. MC Q.

THE BUILDINGS OF ENGLAND: SURREY. By Ian Nairn and Nikolaus Pevsner. Published by Penguin Books, Inc. c/o Houghton Mifflin Co., 2 Park St., Boston 7, Mass. 501 pp. 4 1/2" x 7 1/8". Illus. Paperbound, \$4.95; cloth, \$7.50.

How Mr. Pevsner, architectural historian, editor, and critic, has ever found the time to go over England every inch and report every inch of her significant buildings has long been a mystery, and now he seems to be teaching the art to Ian Nairn too. Nairn, native of the county of Surrey, shares the love of its inhabitants for gutsiness. These are pithy descriptions all thoroughly checked. If in the U.S. we had assurance that any visible proportion of our buildings would last so long, we could start trying such books, thus far unique in Britain.

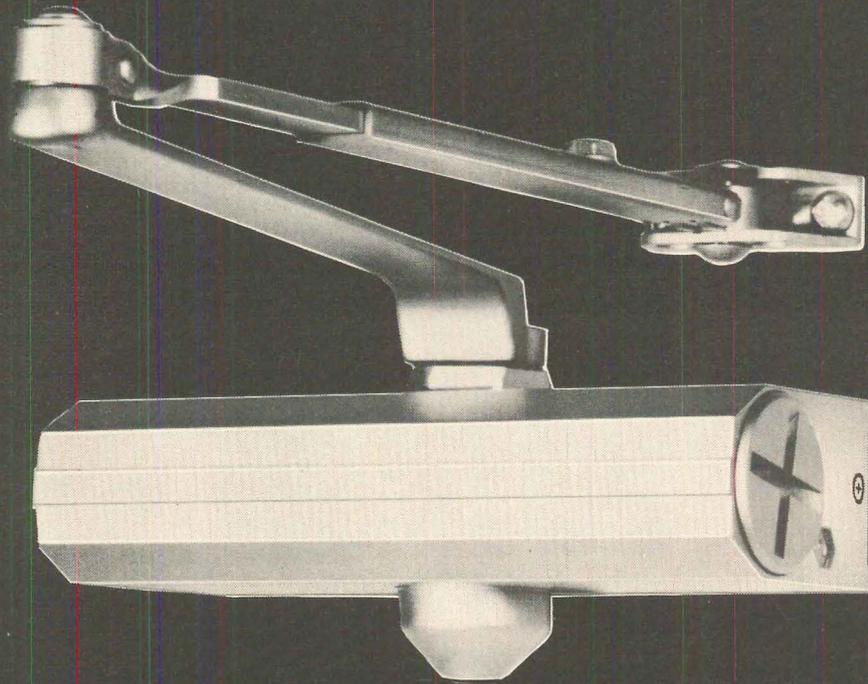
JOSE CLEMENTE OROZCO: AN AUTOBIOGRAPHY. Translated by Robert C. Stephenson. Published by the University of Texas Press, Austin 12, Texas. 171 pp. 6 1/4" x 8 1/4". Illus. \$6.

The memoirs of the late Mexican Artist José Clemente Orozco were first published in installments in 1942 in the Mexican periodical, *Excelsior*. They contained such vivid descriptions of Orozco's own artistic evolution, as well as that of the nationalistic school of Mexican painting, that the installments have been collected and published in this first and excellent English edition, one of the Texas Pan-American Series.

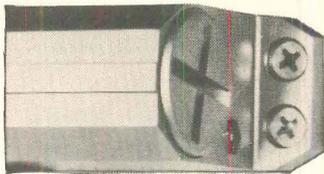
Orozco's wit and sense of the ironic make him a delightful guide through the turbulent years of the Mexican political and artistic revolutions. He was deeply committed to both, and yet was able to describe with rare detachment an era when "Mexican" and "bandit" were synonyms" in the U.S. and when it was as easy to be shot by warring artistic factions as by Villa or Zapata in Mexico. But if the irony in his writing is gentle, the ferocity and brutality of the 1910-1920 Mexican Revolution fairly leap from his paintings and murals (some 40 illustrations are included).

The autobiography begins in the 1890s,
continued on page 184

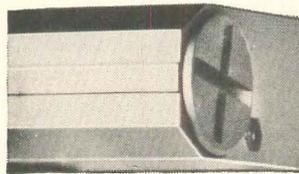
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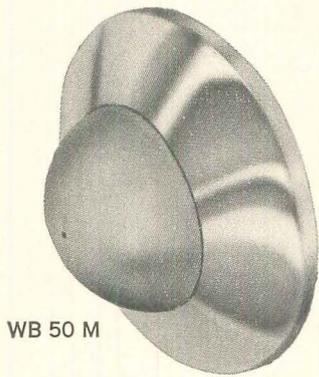
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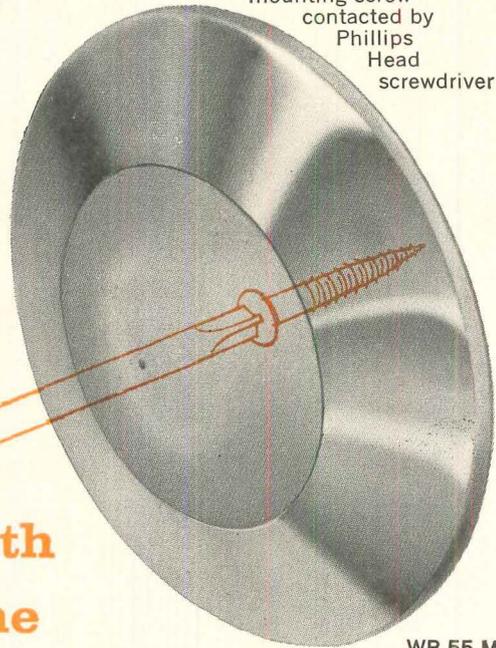
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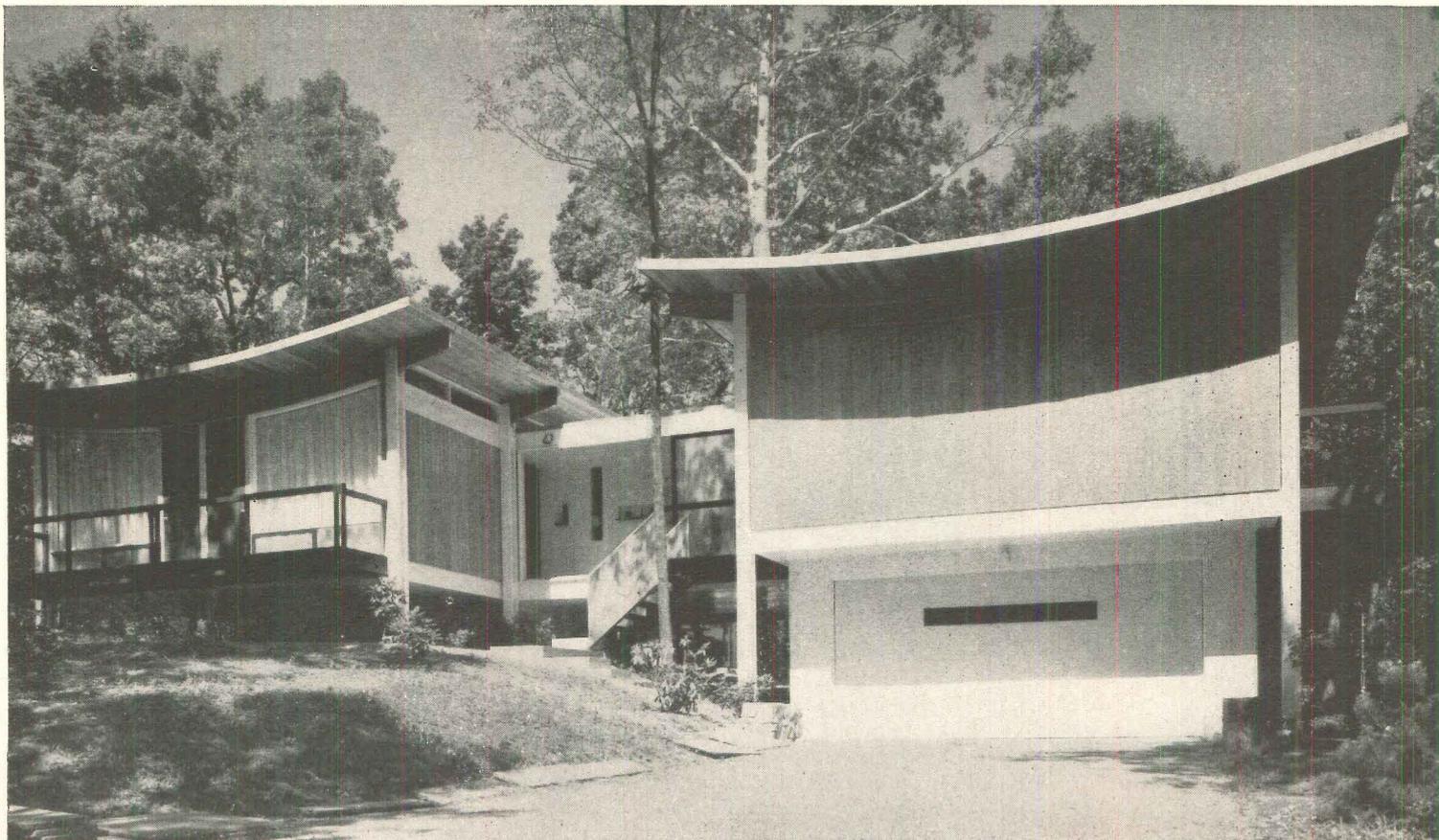
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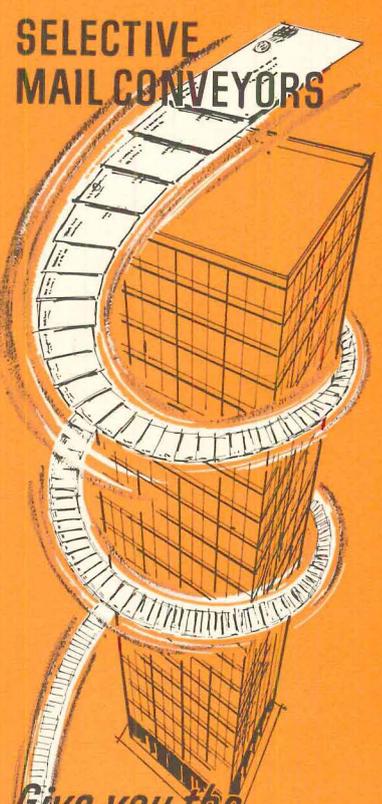
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and ends in 1936, after Orozco's return to Mexico from a highly successful tour of the U.S. and mural commissions at Pomona College, The New School for Social Research, and Dartmouth. In his lifetime, Mexican art progressed from copying Velázquez and other Europeans to the fiercely nationalistic, post-revolution muralists. Orozco (with Rivera, Siqueiros, and Guerrero) was a founder of the Syndicate of Painters and Sculptors and signed their manifesto: "To socialize art. To destroy bourgeois individualism. To produce only monumental works for the public domain. . . ." The Syndicate broke up the old eclecticism but was equally ill-fated.

In retrospect, Orozco wrote a wry obituary for the group: "The bourgeois bought proletarian art at fancy prices . . . and the proletarians would gladly have bought bourgeois art if they had had the money. For want of it, [they] found an agreeable substitute in calendar chromos: aristocratic maidens indolently reclining on bearskin rugs, or a most elegant-looking gentleman kissing a marquise by the light of the moon on a castle terrace."—A. P.

EXHIBITIONS—A SURVEY OF INTERNATIONAL DESIGNS. By Klaus Franck. Published by Frederick A. Praeger, Inc., 64 University Place, New York 3, N.Y. 252 pp. 9" x 11½". Illus. \$17.50.

One has learned at an exhibition to look for the personality of the nationality sponsoring it as well as the individual who produces it. For, in a way, exhibition design is the paper mark of national cultures. Certainly it is the monogram of national architectural abilities.

Some people—and countries—are so skilled setting up beautiful exhibitions that their work seems to occur as effortlessly as good conversation from long practice, among friends. The Japanese, for instance, seem to



GENOA GALLERY DISPLAY BY FRANCO ALBINI

have been erecting neat, economical exhibition stands for thousands of years—and living in them. The Italian swagger and sense of style in all things, from Bugattis to ladies' buns, aids the Italian designer inestimably when he goes to work. The almost fanatical German fineness of structure, and imposition of order, give their exhibition work its identifiable edge. Other qualities are less impressive: the British exhibitions seldom shed their fusty discomfort at being on exhibition; many—but fortunately, not all—American

exhibitions seem to work too damned hard.

It is all here to be seen in this handsome new book, a number of the very best recent exhibitions, and some lesser ones. The book itself is a German product, and a fine one, with English translation included.—W. MC Q.

HIGH GOTHIC: the classic cathedrals of Chartres, Reims, Amiens. By Hans Jantzen, translated from the German by James Palmes. Published by Pantheon Books, 22 East 51st St., New York 22, N.Y. 181 pp. 5½" x 8½". Illus. \$4.50.

Although compact, this clear, closely worked book has none of the air of a little thing tossed off for publication: it is exactly what those need who love architecture enough to want a lucid, graphic comparison of high masterpieces to see what makes them tick and makes them differ, but who do not necessarily have much technical preparation. The author's explanations are pointed chiefly to helping the student see what is actually there, and are helped by sketches as well as photographs. As to interpretation, the eminent author does not commit himself to all-out theories, although he seeks for an accounting, and he humbly admits that we today have difficulty imagining ourselves into the spirit the cathedrals were produced in. Altogether this is an admirable introduction to high Gothic, lucid and rounded, and based, as introductions should be, on the very highest, choicest examples.—D.H.

CARAVAN PARKS: Location, Layout, Landscape. By the British Ministry of Housing and Local Government. Distributed by British Information Services, 45 Rockefeller Plaza, New York 20, N.Y. 52 pp. 7¼" x 9¾". Illus. Paperbound. 60 cents.

"Caravan," translated into American, stands for "trailer," and the British Minister of Housing and Local Government must be plagued by the same mediocrity and monotony that pervades the organization of many U.S. trailer camps. We would do well to study the Minister's model plans, specifications, and solutions to the manifold and peculiar problems of transient and residential trailer parks. We might also heed his advice: "Caravan parks, like housing and other kinds of development, need to be properly planned if they are to fit into the landscape, respect amenities enjoyed by others, and afford pleasant conditions for those who live in them."

RENEWING AMERICA'S CITIES: By Thomas F. Johnson, James R. Morris, and Joseph G. Butts. Published by the Institute for Social Research, 1012 14th St., N.W., Washington, D.C. 130 pp. 9" x 6". \$5.

This slim volume, written by a lawyer, an economist, and a former FHA official, is an attack against federal urban renewal programs. It is waged on familiar grounds and, due largely to muddled thinking and

murky expression, is generally ineffective. It attacks the federal renewal program on practically every count conceivable, starting with the question whether or not renewal represents a wise allocation of economic resources. This is, indeed, a good question, albeit one which has been asked many times before. But the authors, in attempting to answer it, pursue an analogy of renewal to coffee production in the U.S. which simply cloaks their argument in confusion.

Out of the confusion, this emerges: "Does such a program represent an efficient use of resources? The fact that substantial subsidy is involved raises serious doubt."

Thus renewal is deemed an unwise allocation of resources not because there are better ways to use the funds or because the program might or might not be a botch, but simply because it involves a subsidy. This is about as penetrating as any of the authors' arguments get.

What is particularly puzzling is that the authors haven't really got anything in mind to supplant federal subsidies other than stepping up local programs of taxation and code enforcement, as well as upgrading municipal services generally. They cite, with some fairness, the fact that much of the current need for redevelopment stems directly from failure of city governments to tend their own house, but on the other hand, make no effort to support a position that cities really could carry the ball from here on if federal aid ends when the current \$4 billion authorization of grants is exhausted. Such support for this sort of argument is vital, particularly after the authors cite various studies pegging urban renewal monetary needs at from \$85 billion to \$125 billion. (Peculiarly, the authors do not mention in their sketchy run down of urban cost studies the provocative text by John Dyckman and Reginald Isaacs, *Capital Requirements for Urban Renewal*.)

Finally, the recommended "program" for renewal consists largely of factors which are already an integral part of the renewal process, such as code enforcement and better municipal services. And even after laying out this "program," the authors then blithely knock it down: "The lines of action set forth . . . are not advanced as final 'solutions' . . . will not guarantee the prosperous revival of an area which is in decline. . . ." In that case, obviously, it is not worthy of much consideration. For urban renewal truly to succeed, it needs, quite precisely, solutions which *will* guarantee "the prosperous revival," in both economic and social terms, of declining areas.—D.B.C.

ANONYMOUS (20TH CENTURY). By Leonardo Ricci. Published by George Braziller, Inc., 215 Park Avenue South, New York 3, N.Y. 254 pp. 5 1/4" x 8 1/4". \$5.

Leonardo Ricci, the Italian architect-teacher-painter, introduces his essays: "This book deals with a moment in man's history in which he is trying to pass from one type of civilization to another. I find myself stuck

in this particular historical moment. Whether I like it or not, I can neither run for cover in the artificial paradises of the past, nor project my hopes into the false promises of the future."

What Ricci intends to do instead is to exist (and design and paint) with grace, deferring to man's deeper impulses, adding to the earth's natural sights and sensations. He is able to describe these sights and sensations with drenching vigor, but his quality of grace is more elusive. His idea is that grace hardly is a personal thing; in the few paragraphs on architecture in the book, Ricci even goes so far as to disavow genius. He says he loves Wright, admires Mies (but shivers at the Seagram building), and both loves and admires Le Corbusier. But then he dismisses them: "In this new world there will be no room for you geniuses. Farewell masters; farewell, geniuses! Your works will be the example of the last personal effort made by man . . . the things that all of us will make together will be much more beautiful. . . . And it won't even matter who will have made them, just as it does not matter who made the starry sky, the mountain, the deserts, the sea. Just as it does not matter who made the ants, the butterflies, the moss, and the flowers."

Yet this book is not a call for social action; it is a book of protest which is neither despairing nor bitter, but exhilarating, because it is so inexplicably optimistic. Ricci is a man who rejects the world of what he calls *myth*—religion—and the world he calls *absurd*—the peculiarly practical civilization in which we all squirm. His world to come is so beneficent that the artist will be as anonymous as an Etruscan potter, in which perhaps everyone will be an artist—an unfettered human. He bravely calls this the logical world. It is, of course, full of myth and absurdity, and so is his book. But there are brilliant insights, glinting like mica in the annoying rock, and more than anything else, a joyful quality that is a little embarrassing to disparage.—W.M.C.G.

ASHRAE GUIDE AND DATA BOOK 1962: APPLICATIONS. Published by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, 345 East 47th St., New York 17, N.Y. 1255 pp. 8 1/2" x 11 3/4". Illus. \$12.50.

A second giant volume has been added to the ASHRAE Guide. The first volume, *Fundamentals and Equipment*, appeared last year. The expanded and newly revised two-volume version of the guide has become, more than ever, the complete bible of thermal control and air distribution in buildings. In addition to 12 chapters of general descriptions of heating and air-conditioning systems, there are detailed discussions of specific building-type applications such as schools and hospitals. Also, installations for a wide range of industrial processing and storage facilities are covered. The final chapter contains a compact analysis of owning and operating costs.—B.P.S.

continued on page 193

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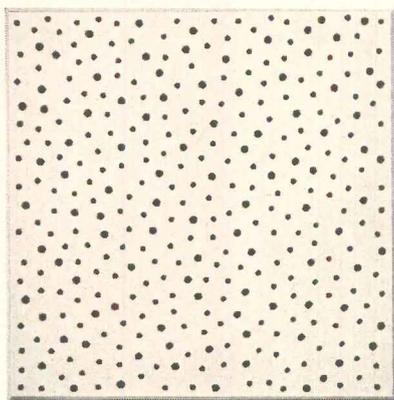
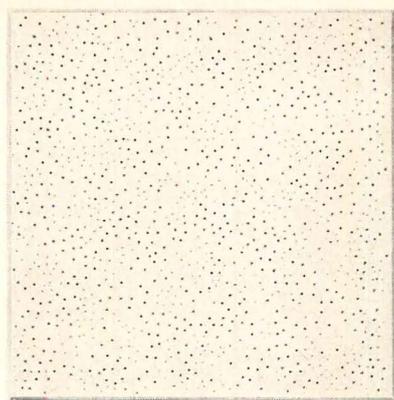


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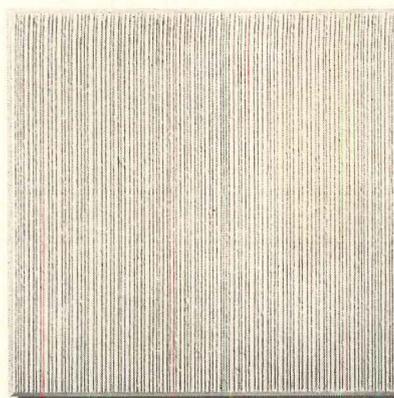
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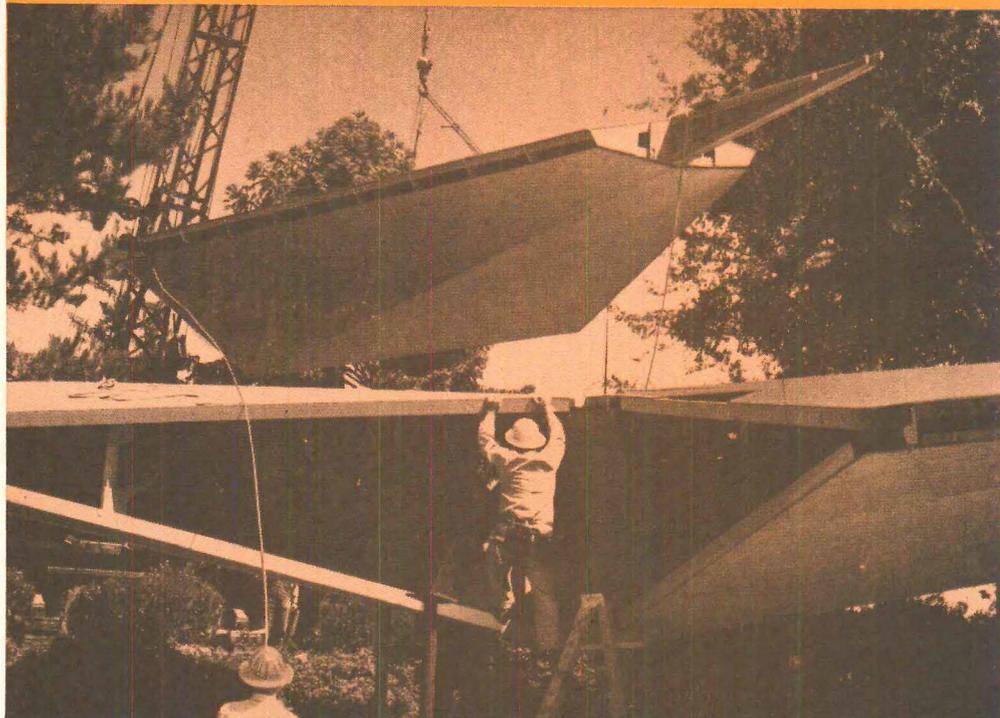
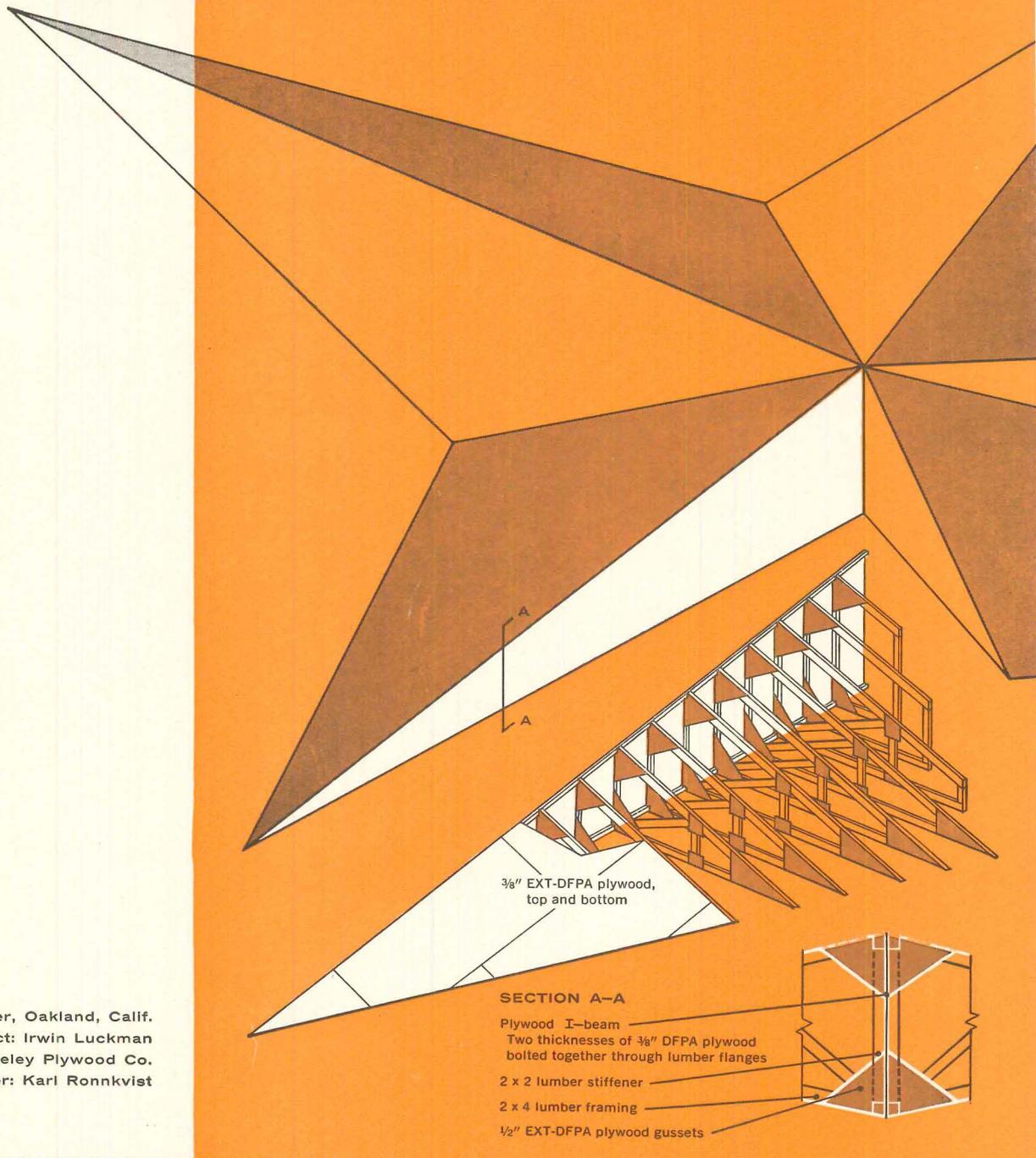


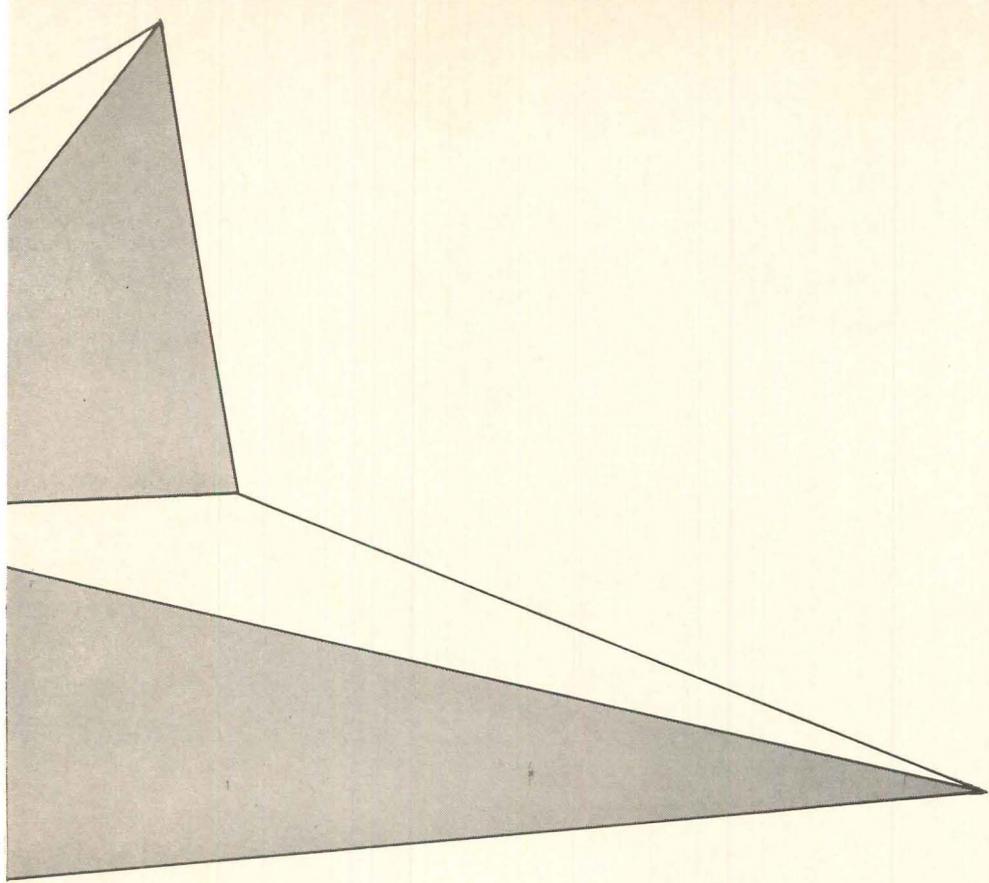
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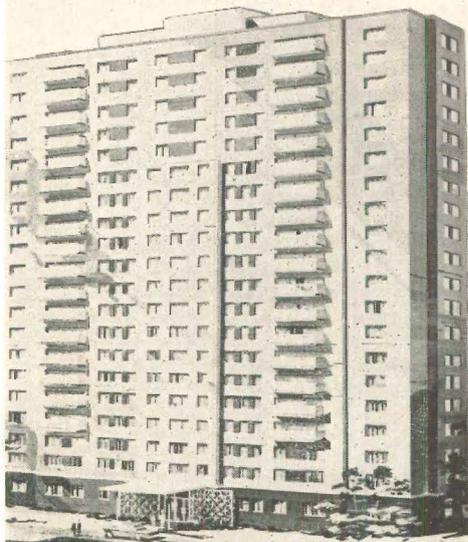
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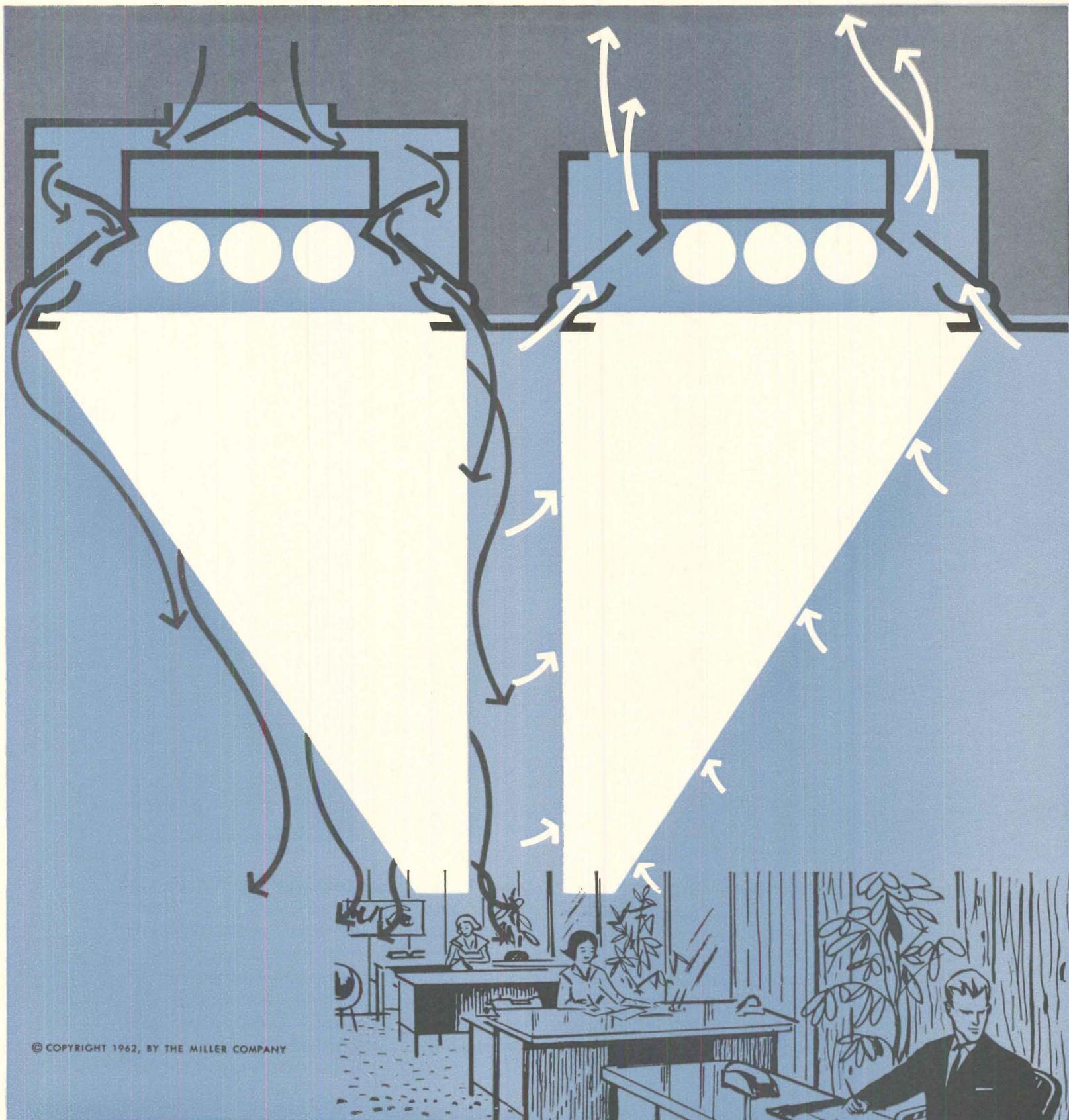
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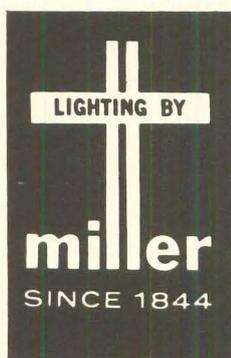
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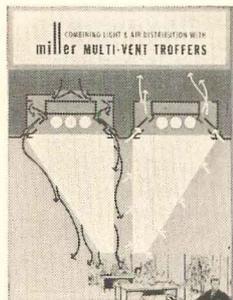
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REINHOLD COLOR ATLAS. By A. Kornerup and J. H. Wanscher. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y. 224 pp. 4¾" x 7". \$8.75.

This dictionary reduces the 8,000 color names that are registered in the U. S. to a selected group of 600 that are defined verbally, cross indexed, and translated by 1,266 color swatches. But until the paint, pigment, and textile industries agree to this atlas' standards, its use may be limited.

DESIGN GRAPHICS. By C. Leslie Martin. Published by The Macmillan Co., 60 Fifth Ave., New York, N. Y. 274 pp. 8½" x 11½". Illus. \$8.

This consideration of multiview, parallel line, and perspective drawing contains discussions of graphic techniques and instruments, effective use of color and shadows, and the problems of the left-handed draftsman. The explanatory text is supported by step-by-step diagrams, sample drawings, and renderings.

MADE IN AMERICA. By John A. Kouwenhoven. Published by Doubleday & Co., Inc., Garden City, N. Y. 259 pp. 4¼" x 7". Illus. Paperbound. \$1.45.

Kouwenhoven's analysis of the American vernacular in art, architecture, technology, and literature (which was reviewed by FORUM in 1948 as possibly being "as tall a landmark in the evolution of American consciousness as Emerson's challenge") is now available in paperback.

CITY AND COUNTRY IN AMERICA. Edited by David R. Weimer. Published by Appleton-Century-Crofts, 35 West 32nd St., New York 1, N. Y. 399 pp. 5½" x 8¼". Illus. Paperbound. \$2.75.

An excerpted, chronologically arranged collection of writing on the means and meaning of an ideal environment, including such contrasts as Thoreau's *Walden*, Kropotkin's *Fields, Factories and Workshops*, and Hudnut's "The Invisible City."

WROUGHT IRON: Encyclopedia of Ironwork. By Otto Höver. Published by Universe Books, Inc., 381 Park Ave. South, New York 16, N. Y. 356 pp., 464 plates, 15 drawings. 9" x 11½". \$15.

While modern metal sculpture deals with expression, and traditional wrought ironwork dealt largely with decoration, both mediums are similar in their free-

dom from dogma and their reliance on structure and form. A re-issue of a 1927 edition, this volume's text and sharp photography offer ample evidence of the artistic validity of many of the grilles, gates, and ornaments fashioned by European artisans from the thirteenth to the nineteenth century.

RECORD HOUSES OF 1962. By the editors of *Architectural Record*. Published by McGraw-Hill Book Co., 330 West 42nd St., New York 36, N. Y. 194 pp.; 190 plates, 8 in color. 8½" x 11½". Paperbound. \$2.95.

The 20 architect-designed houses in this annual photographic selection (which also contains detailed stories on kitchens, bathrooms, and climate control) span a cost range from \$15,500 to over \$250,000, were built for both merchant builders and private owners, and possess, in the words of the editors, an accent on "individual, comfortable, living design."

FUNDAMENTALS OF PRESTRESSED CONCRETE DESIGN. By Jack R. Janney and Richard C. Elstner. Published by the Prestressed Concrete Institute, 205 W. Wacker Dr., Chicago 6, Ill. 84 pp. 8½" x 11". Illus. \$3.

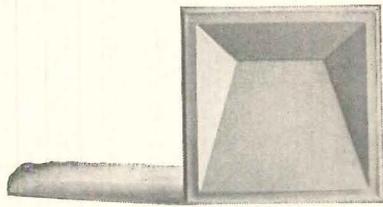
A moderately brief guide to the fundamentals of prestressed concrete, designed particularly for the practicing structural engineer. A good grasp of the fundamentals of structural analysis is assumed. There are four sections: basic properties of steel and concrete; preliminary design considerations; analysis of typical designs; and pertinent documents and codes.

HOW TO READ SHOP DRAWINGS. Edited and published by The Lincoln Electric Co., Cleveland 17, Ohio. 187 pp. 8¾" x 11¼". Illus. \$2.

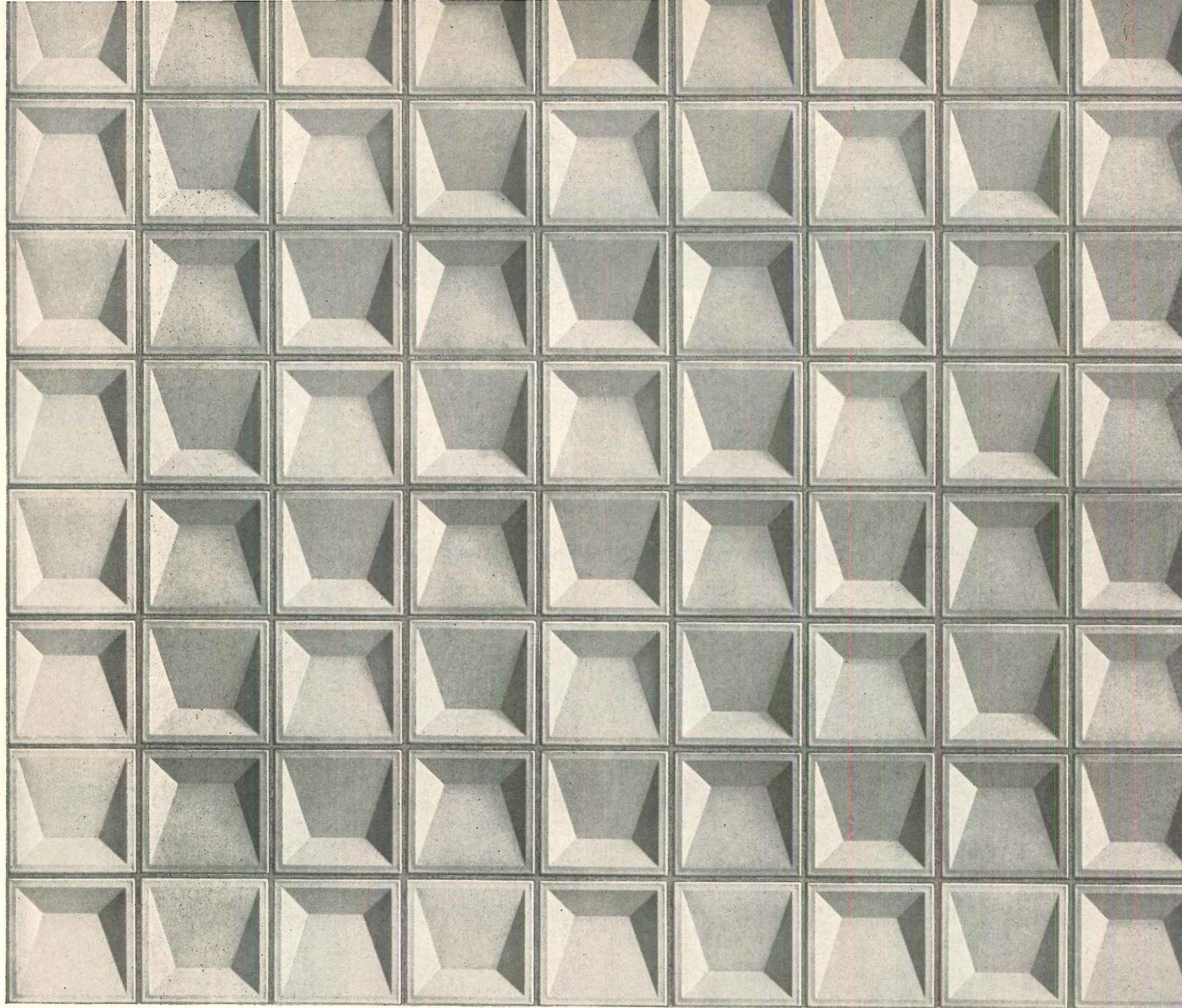
This book is written for engineers, designers, construction men, fabricators, and students who desire information for reading blueprint graphics and welding symbols.

MODERN KITCHENS. SWIMMING POOLS. HOW TO PLAN AND BUILD YOUR FIREPLACE. Published by Lane Book Co., Menlo Park, Calif. Approx. 112 pp. each. 8¼" x 10¾". Illus. Paperbound. \$1.95 each.

Revisions of three favorite *Sunset* magazine handbooks for the homeowner, with the latest information on new products, planning, construction, maintenance. **END**



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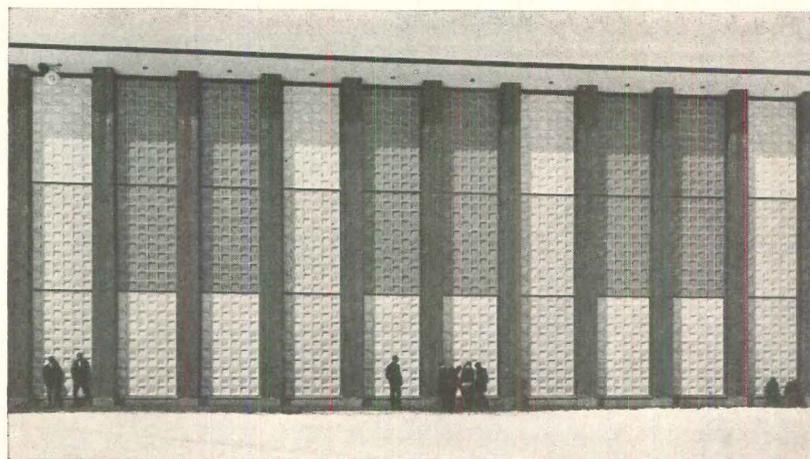
Multiply it to find design values for a wall... texture.

Architect Paul O. Trepanier of Granby, Quebec, Canada, sought the visual richness of texture for this wall at the Ecole Secondaire du Sacre Coeur in Granby. He found it in the shift of light and shade across patterns pressed deep into the faces of 12" square PC Sculptured Glass Modules. The pattern used here is WEDGE, one of four available.

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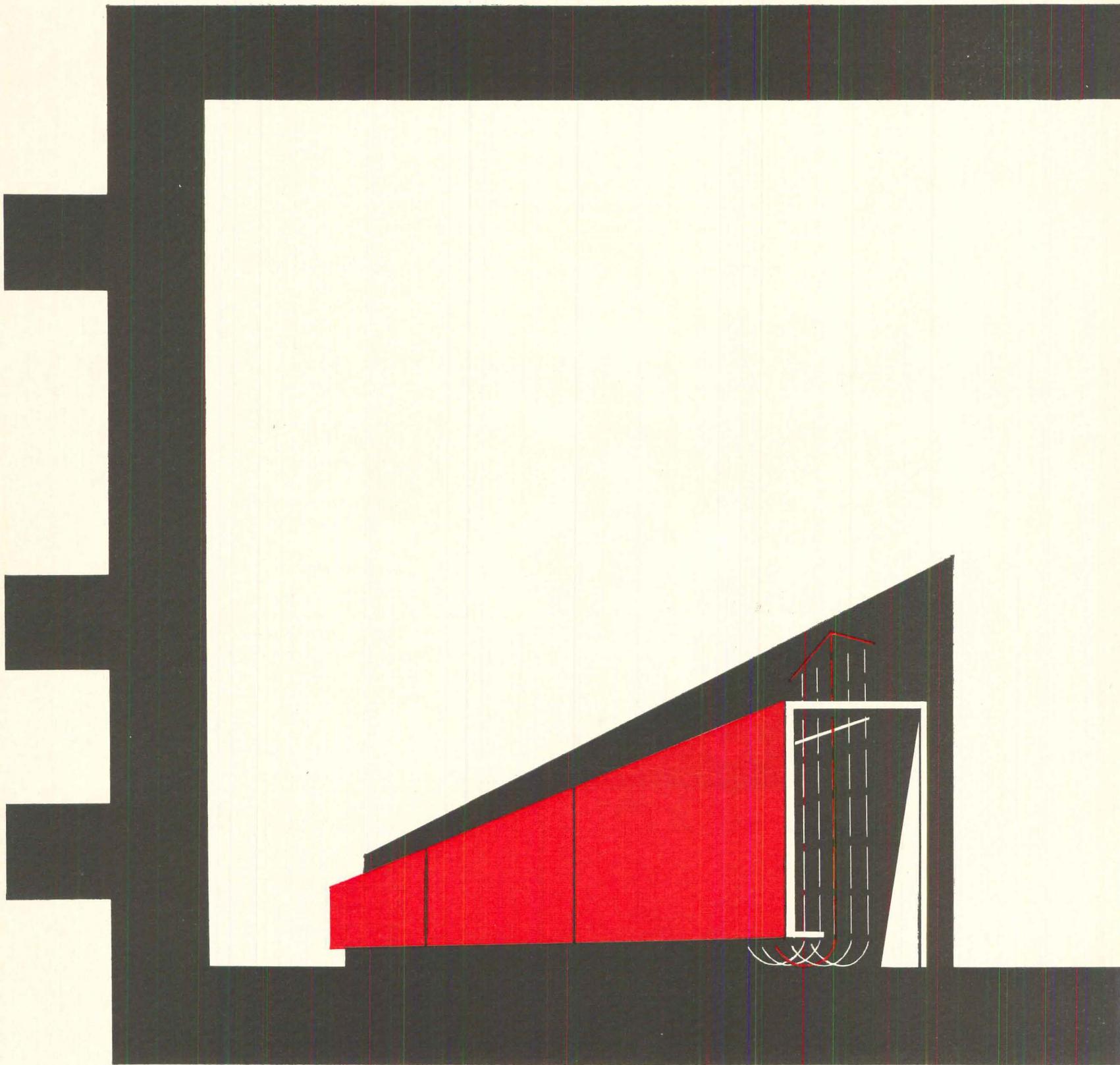
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gentlemen's agreement on the part of certain interests.

A highly encouraging omen is to be found in the Bancker school district, where 23 elementary schools are working together to try to raise the level of achievement. These children come from slum homes, but through a devoted effort over a period of three or four years, these schools—which had been considerably below the national average in language, reading, and arithmetic—have reached and in some cases passed the national average in the same subjects. In any

northern city the problem of urban renewal is so interrelated with the struggle of Negroes to achieve some equality and access to the good things of life that renewal cannot be treated as a separate problem.

4. Forward-looking renewal requires expressing the city's drama

As to the great undertaking of St. Louis which the country probably knows best, the Round Table has little to say, except that the Jefferson National Expansion Memorial, started way back in 1935, cannot be finished

any too soon to suit us. We look forward to it with pure commercial zeal, insofar as it cannot help but bring hundreds of thousands of tourists annually to the city. We look forward to it with something a good deal more exalted than commercial zeal as a city mark for a great city. Already fine housing has been erected directly behind it, and there is being created close by a new \$57 million stadium complex (first phase).

The arch, without question, is fine architecture, and the Round Table got into ardent discussion of what kinds of architecture might be worthy to adjoin it. Some architectural members of the Round Table have indicated that they might like to make supplementary observations. As to the arch itself, members of the architectural chapter were the ones who started the idea. Next, it can be reported that a leading architect has been commissioned on the new stadium. And, finally, a new administrative device has been under discussion, as a step in that endless strategy which urban renewal, as a battle, must depend on. This device is a "land bank." Land or easements could be purchased in advance which would prevent conflicting use in architecturally important areas.

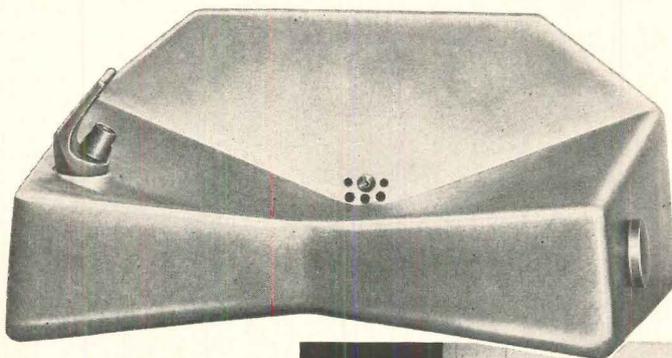
In conclusion

Nothing has been said here on a whole host of most important subjects. Thus, for example, renewal needs a new kind of zoning, a kind which merely establishes the *proportion* of different land uses within the project area, without dictating the distributive pattern. This is done with no reference to the general zoning ordinance. St. Louis now has this arrangement. Urban renewal also needs new minimal building standards too, so that the vast mass of the city can upgrade itself, simply in the course of meeting the law. St. Louis has such standards. A city needs not one but several associations of citizens approaching renewal from their several tangents, and St. Louis has those: to list them would fill pages. More than all that, a city needs continuous determination.

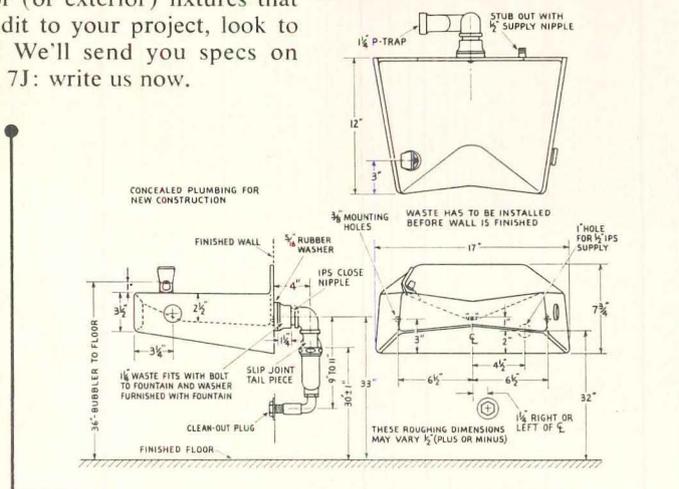
The situation at St. Louis could remind a historian of the last campaign of General Grant, when he started gaily to walk through Virginia's Wilderness with its foggy swamps, expecting to fight his battles behind it. Well, he got caught there in The Wilderness, and found that right there he had to take on a long, gruesome, grinding battle. Looking at certain project areas in St. Louis, as they stand today, somehow recalls that story. But Grant had his eyes ever on victory, and finally he got through and around his wilderness, and "got on with it." So, we expect, will St. Louis.

Footnote: Some individual commentary will follow in a later issue.

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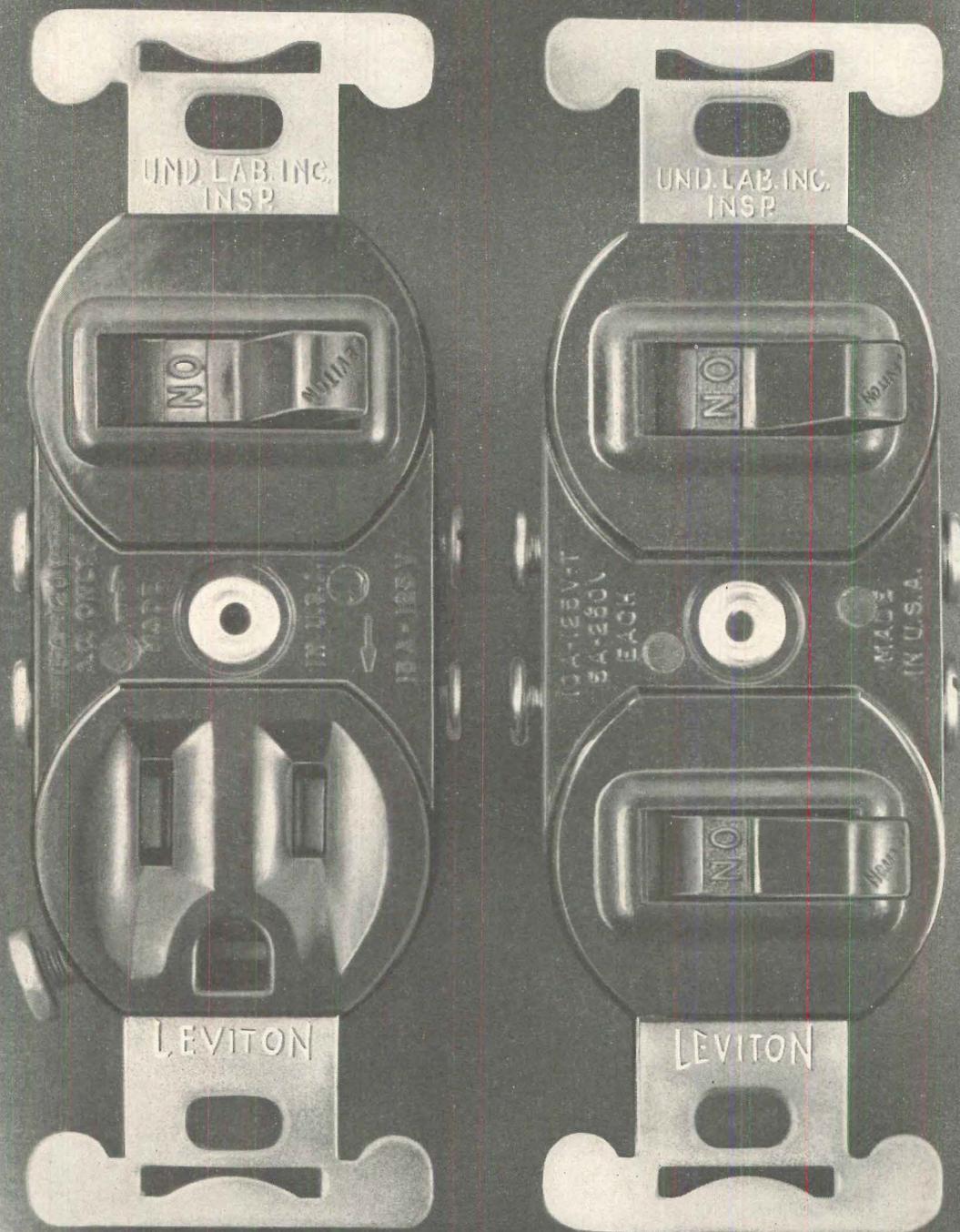


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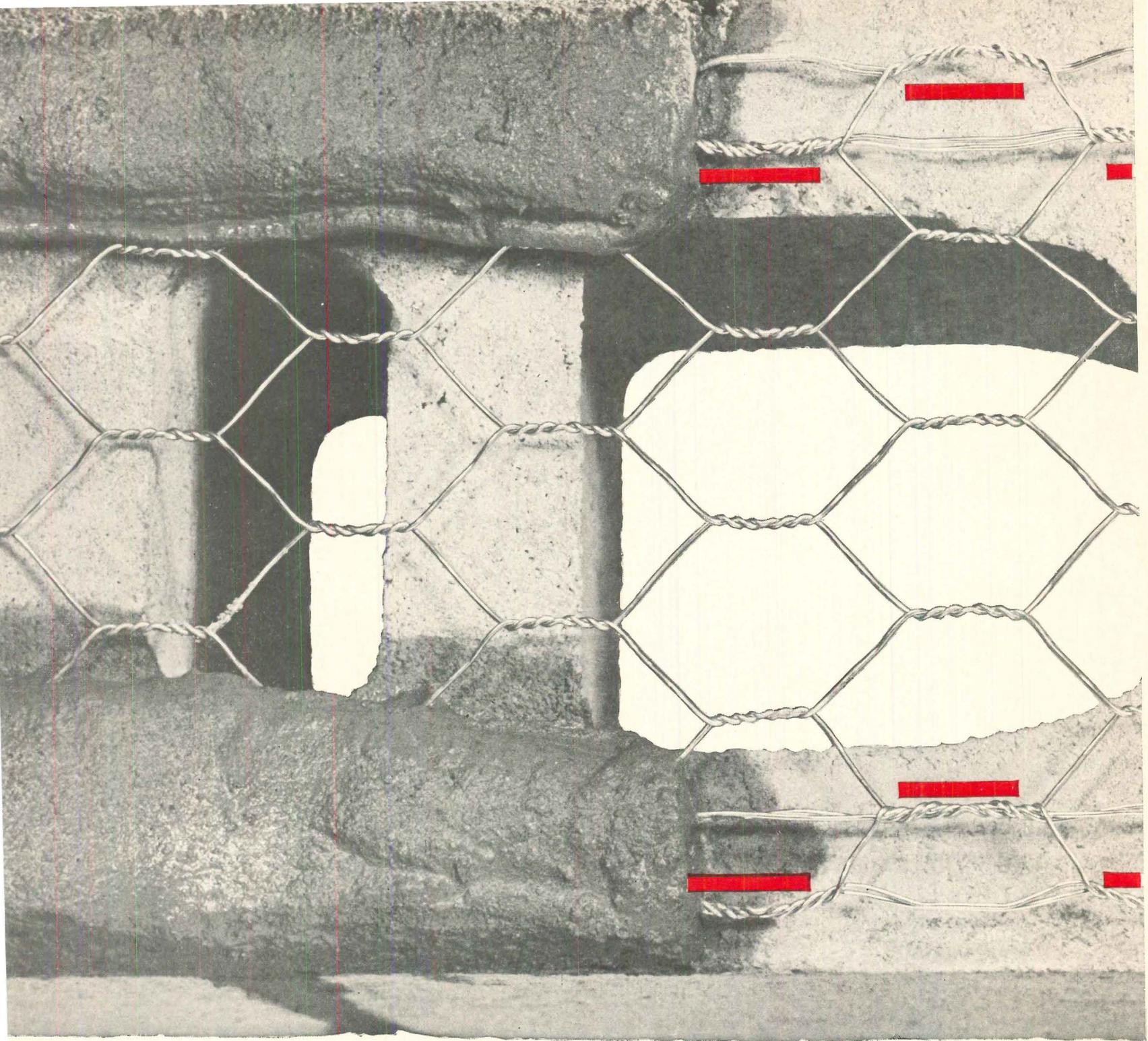
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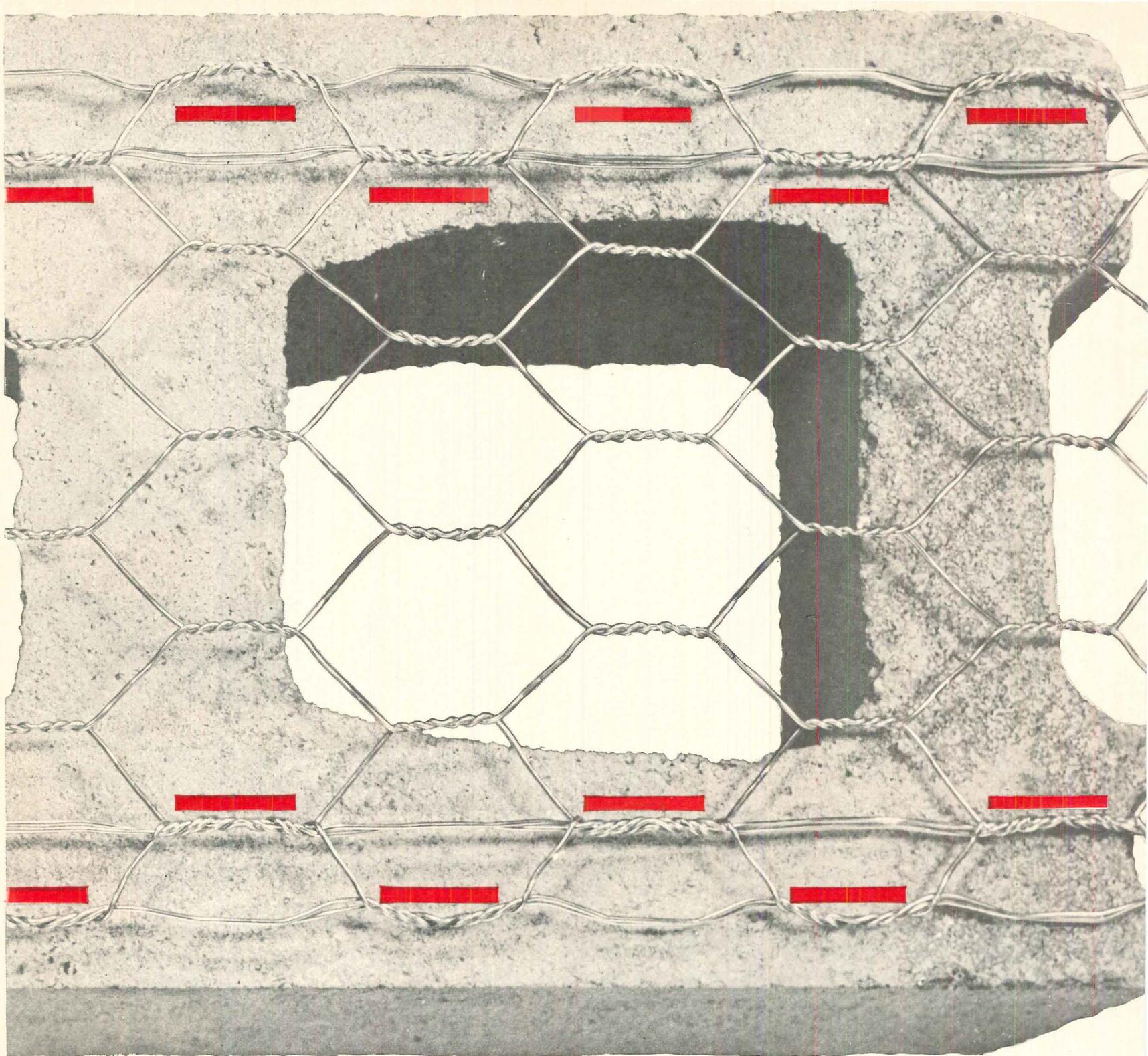
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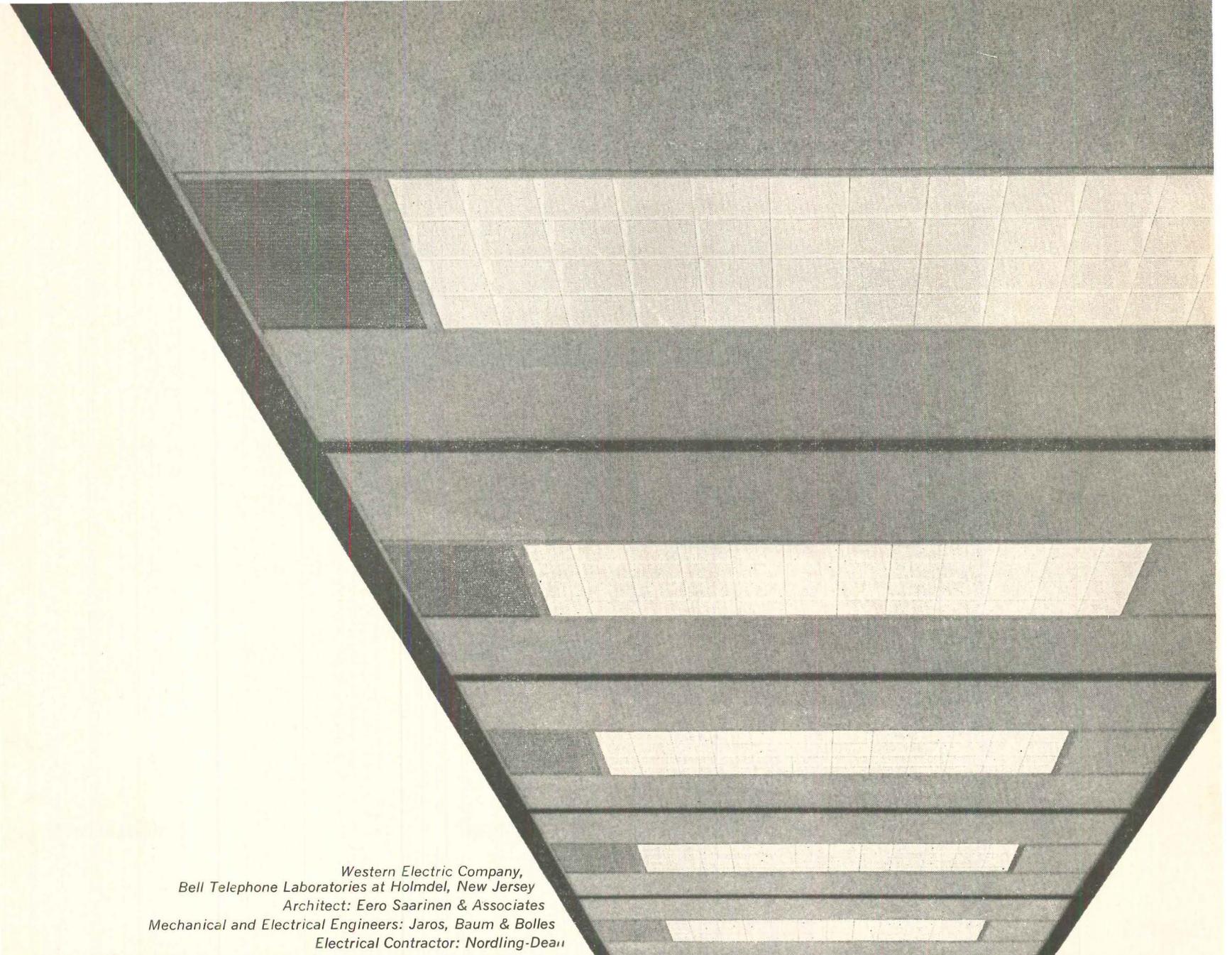


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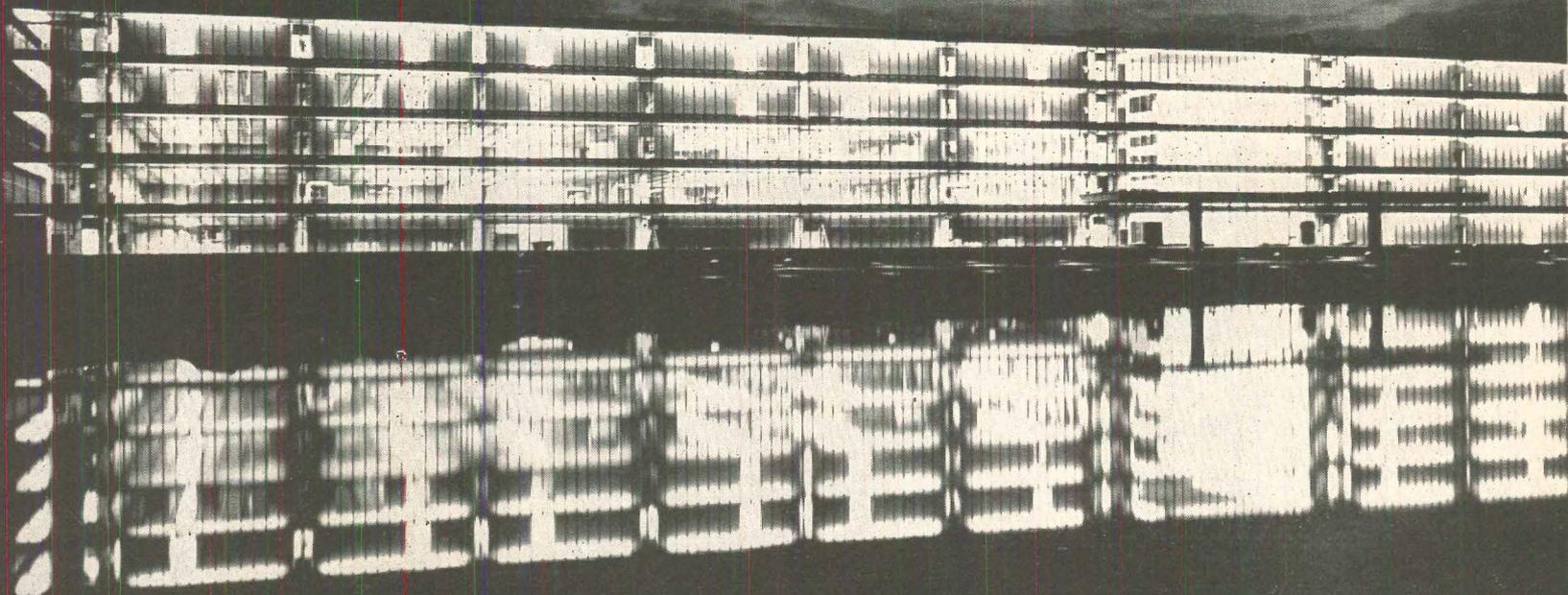


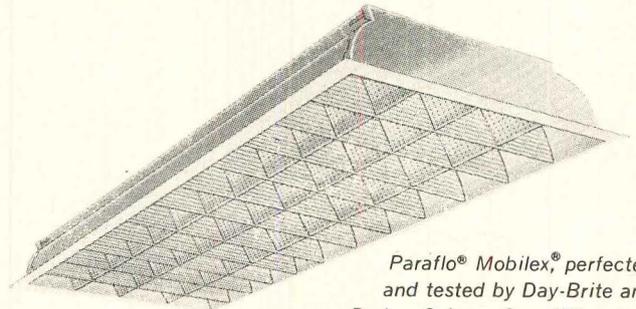
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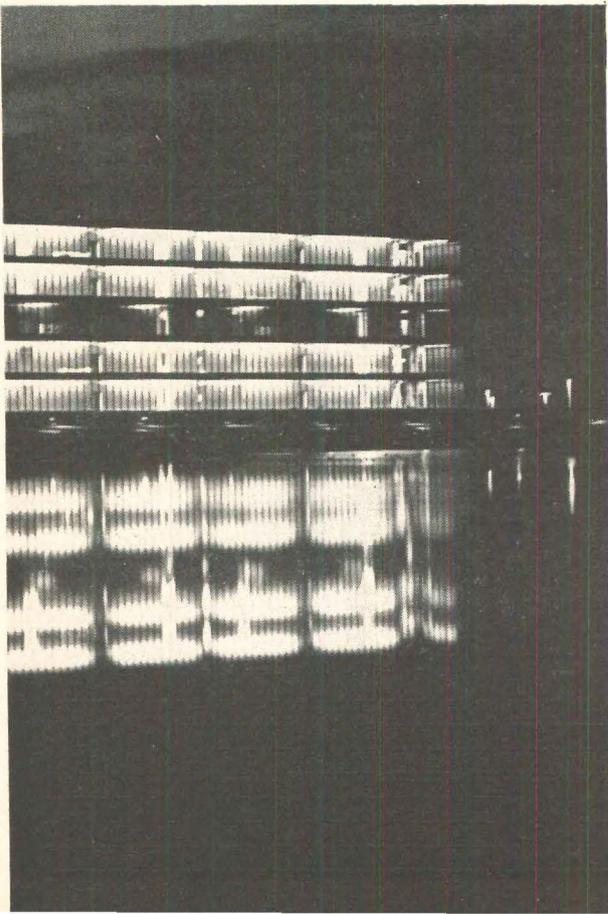
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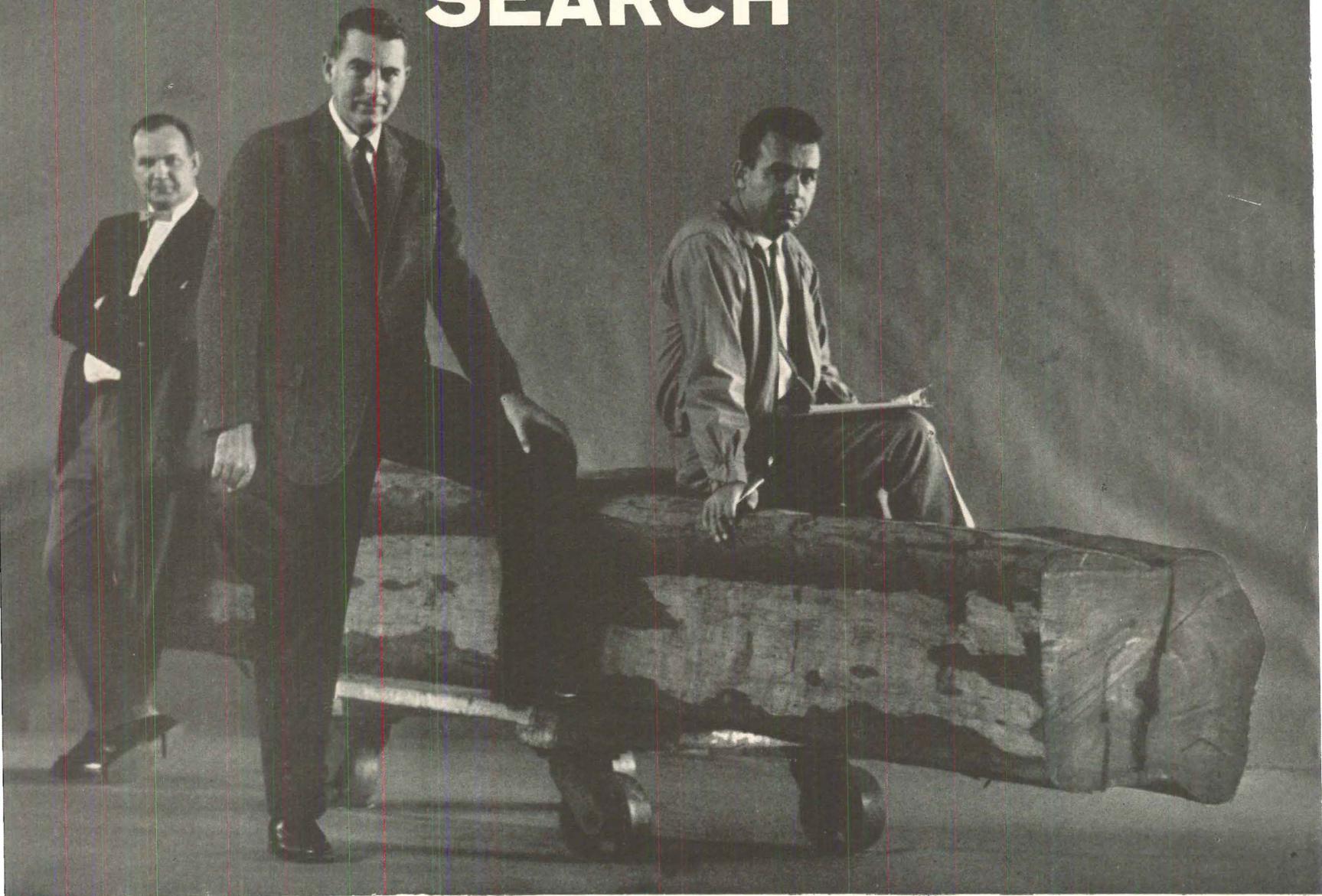
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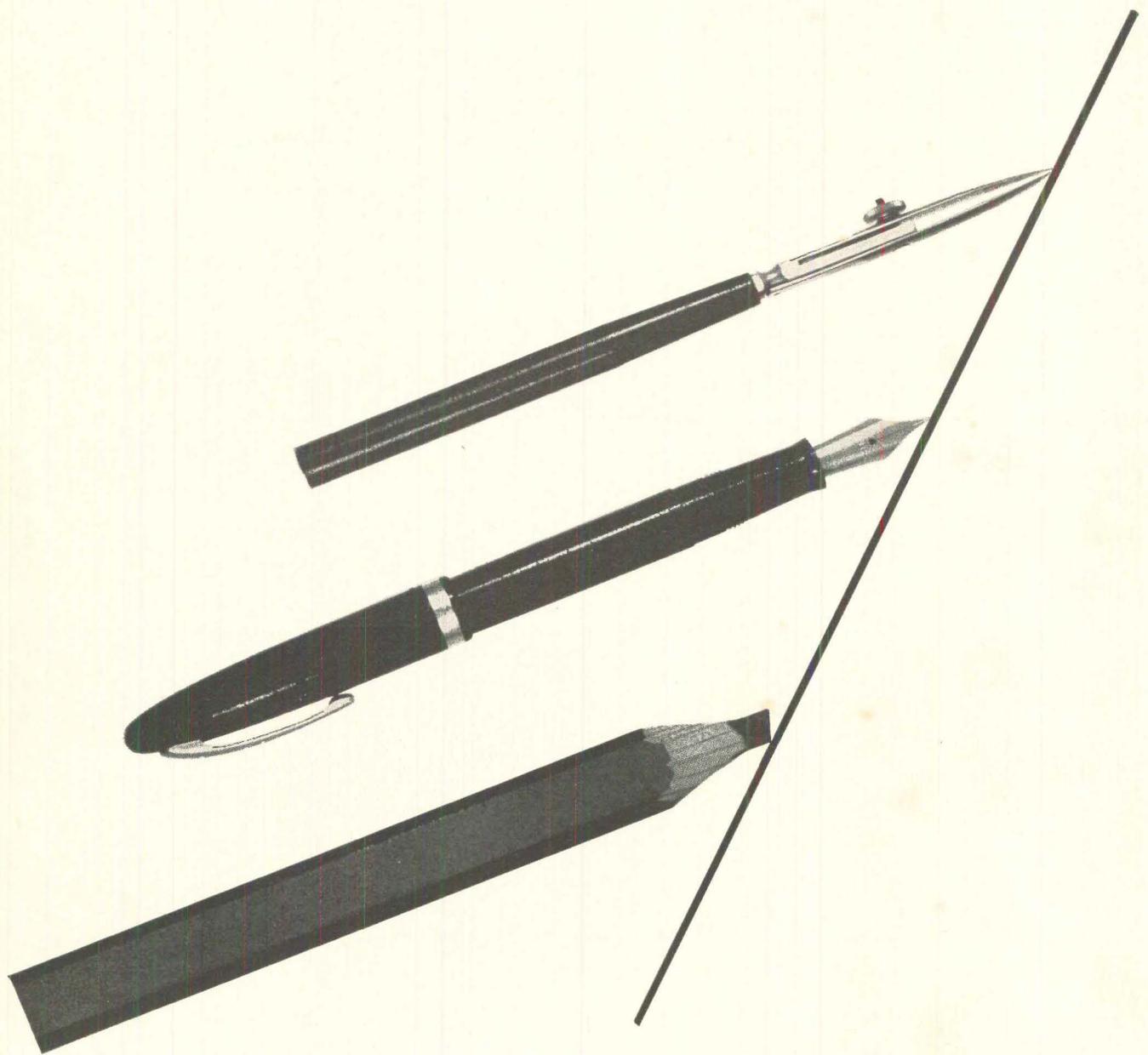


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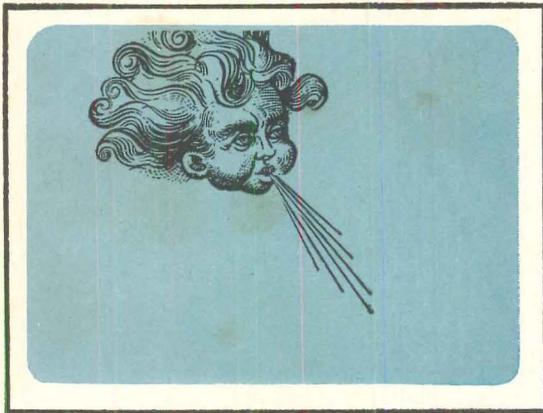
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"An example of creative building-product engineering." Alden Dow's phrase sums up the Armstrong Ventilating Ceiling system. Because it performs three jobs — air distribution, fire protection, and acoustical control—the Armstrong system avoids the clutter and expense of using several different products to achieve the same results. (In this system, the plenum acts as supply duct, the ceiling as diffuser.) Armstrong Ventilating Ceilings distribute air evenly, thoroughly and quietly throughout the new City Hall, without drafts or stagnant spots. Shown here is the Council Chamber, where the uncluttered ceiling surface with its distinctive Fissured pattern also helps establish the room's strong, straightforward character. All seven stories of the City Hall have Armstrong Ventilating Ceilings.

DATA: Armstrong Ventilating Ceilings have been thoroughly lab- and job-tested to assure proper performance; are available in five materials (both tile and lay-in units), including Fire Guard, with three different patterns; and are compatible with all conventional supply-air systems. This ceiling system saves from fifteen to twenty-five cents per square foot by cutting supply ductwork and eliminating conventional diffusers. Ventilating Fire Guard offers one- to four-hour-rated fire protection for structural members; saves up to thirty cents per square foot by eliminating intermediate fire protection, up to two months' construction time through dry installation; often earns lower insurance rates. Special plenum-engineering data is available, giving all

factors and formulae for the correct design and engineering of this ventilating system, ensuring that it delivers the required cfm of conditioned air in the manner and quantity designated by the ventilating engineer. For further details, contact your Armstrong Acoustical Contractor or Armstrong District Office. For general information about these Ventilating Ceilings, write Armstrong, 4210 Rooney Street, Lancaster, Pennsylvania.

Ann Arbor City Hall, Michigan. Architect: Alden B. Dow, Inc., Midland, Mich. Mechanical Engineer: Hyde & Bobbio, Inc., Detroit. General Contractor: Spence Brothers, Saginaw, Mich. Acoustical Contractor: Service Art Plastering Co., Detroit.

Armstrong
CEILINGS / acoustical
fire-resistive
ventilating