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Architectural Forum / the magazine of building / August 1959

MINNEAPOLIS COLLECE OF ART

ART OF ARCHITECTURE

Precision amid chaos 102

I. M. Pei sets a poised Franklin National Bank building on Long Island.

How to site a school 117

Balanced on rolling ground, the two elements of this junior high in Needham, Mass. are bridged and combined by The Architects Collaborative.

The motor-pool Hilton 122

Guests at San Francisco's Hilton, as projected by Architect William Tabler, will be able to drive up a ramp to park at bedside.

Saying nothing, going nowhere 134

Washington's controversial new Senate Office Building has worse faults than high cost: it fails to dramatize how government works—a criticism.

CITY BUILDING

Blockbuster in Dallas 94

Welton Becket's Southland Center brings height and open space to downtown Dallas. But a pedestrian tour of the city, described on page 99, shows that it takes more than a heap of giant-sized buildings to make a city.

Miami Beach: Dream Dump, U.S.A. 131

The Beach's unconsciously cruel parody of modern architecture-a gallery.

Business in a botanical garden 108

If every downtown had an attraction like Copenhagen's Tivoli Garden, more people and more dollars would come to rest and play in the city.

BUSINESS OF BUILDING

The 100 biggest architects 114

Since last year's volume rankings, time has wrought interesting changes.

Revolution in hospitals 127

Changes in medical concepts and practice are shaping a revolutionary instrument—the total center—and a ten-year boom in hospital building.

TECHNOLOGY

Wood moves out of the woods 138

Such is the vigor of long overdue research in wood and of the structures that have resulted, it is almost as if a new material had been invented.

- 5 News
- 13 People
- 49 Projects
- 55 Products
- 91 Editorials
- 146 Ideas
- 149 Abroad
- 158 Books
- 171 Excerpts
- 207 Forum
- Cover: Design by Ray Komai based on laminated timber detail (story, page 139).
 - 208 Editorial, subscription, and advertising data.
 - 204 Advertising index.

VOLUME III, NUMBER 2

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New York's Title I revelations threaten to rewrite the "Moses version" of slum clearance



MOSES "The truth is mighty . . ."

For ten years, New York's \$1 billion slum clearance program-the nation's biggest-has been the personal preserve of one man: 70-year-old Robert Moses, long the juggler of a hatful of New York construction activities. As chairman of the Mayor's Committee on Slum Clearance, Moses has run the program with his usual perverse truculence and iron-fisted dominance. But last month, the dictatorship was cracking apart, revealing the usual symptoms of an autocracy too long in power-e.g. a virtual monopoly on committee work by a small group of favorites, an apparent tendency to overlook shoddy practices of some private sponsors of Title I projects, and a preauction selection of sponsors which in effect by-passes New York State's legal requirement for public bids on Title I slum land.

The inadequacies of the city's Title I program began to get widespread notice nearly two months ago, when it was revealed that a bank, whose president, Thomas J. Shanahan, is also vice chairman of the Slum Clearance Committee, had made a \$3 million construction loan to a sponsor, and also applied for insurance on a larger permanent mortgage loan. Shanahan has the responsibility for checking the financial reputation of potential sponsors. Mayor Robert F. Wagner called Shanahan's action in allowing the bank to make the loan a "mistake in judgment," and then, anticipating a favorite Moses gambit, said he would "give it serious consideration" if Moses, who backed Shanahan unequivocally, wanted to resign. (Moses so far has not offered to quit.)

Moses' peculiar approach to slum clearance, and the influence of a small group of political figures in the Title I program, was emphasized by the next flurry of headlines, involving a relatively small project, Soundview, in the Bronx. Representative Paul A. Fino (R, N.Y.) and Representative John V. Lindsay (R, N. Y.) asked that Congress investigate Title I because of the handling of this project. Fino charged that a secretary in Lawyer Monroe Goldwater's office was the "dummy" owner of most of the land, which had designated a slum clearance area. He also charged that the real owners stood

to gain a "windfall profit" on land bought for \$500,000 and appraised at \$1.3 million. Moses denied that this was so. Goldwater, one-time campaign manager for Wagner, named the real owners-a group of businessmen, most of whom have been his clients. It was also reported that Goldwater had written to Moses, asking him to act quickly on the Soundview project, because if he did not, Goldwater knew a possible purchaser who wanted to put "high income" apartments on the property. In effect, Goldwater was giving Moses the choice of getting a Title I project under way or of seeing private builders develop the site on their own-without a subsidy.

The earlier history of Soundview is equally singular. In 1953, a group of investors proposed to build private housing on the site, and to give the city part of the area for an extension of a park, in return for a tax abatement. The Board of Estimate disapproved this scheme, and in 1956 the Slum Clearance Committee declared Soundview a Title I site. Moses said last month that work has already started on the park extension.

As a result of the blowup over Soundview, the federal Housing and Home Finance Agency suspended all federal payments for the project, and Regional Administrator Walter Fried flatly stated: "If it appears there has been speculation here, we will not approve the project."

Perhaps the weirdest, most inexplicable, and as yet unexplained dealings between the Slum Clearance Committee and a sponsor occurred in negotiations for the NYU-Bellevue project. James Scheuer, a well-known urban renewal developer in Washington, St. Louis, and other cities, made a proposal for the land. But the Slum Clearance Committee turned down Scheuer's proposal in favor of a sponsor with relatively little experience as a builder, and a comparatively skimpy financial background. And this was done despite Scheuer's offer to top the other sponsor's final bid for the land by over \$400,000. (The committee claimed Scheuer's bid was one day late.)

The most ironic feature of the NYU-Bellevue project is that the sponsor never did clear the site as required,

but collected \$2 million in slum rentals for three years, then sold out to William Zeckendorf's Webb & Knapp, Inc. for almost exactly what he paid originally. The only real loser in the deal was New York City-it not only got less money for the site originally, but it lost tax revenue it would have gained had the project been completed. This followed the same pattern as the Manhattantown project, where the original sponsor failed to clear the site in five years, collected \$6 million in slum rentals, paid handsome fees to friends and relatives of the investors in the project, including Title I Architect Melvin E. Kessler (page 13), and then also sold out to Webb & Knapp.

Although less indicative of fundamental weakness in Moses' slum clearance procedures than some other projects, the one that may cause Moses the most trouble is the Mid-Harlem project. It was revealed last month that one of the sponsors tentatively designated by the Slum Clearance Committee was Louis Pokrass, who has been identified as a former business associate of gambler Frank Costello. Shanahan, who checked Pokrass' background and resources, had once noted a "delicate situation" concerning Pokrass' background that caused a potential co-sponsor to pull out of the project. But Shanahan later said that all he knew was that Pokrass allegedly had a bootlegging background, which Pokrass had denied, but was not aware that Pokrass had been an associate of Costello's. Mayor Wagner, when apprised of the Pokrass situation, said he was "dissatisfied" with Shanahan's investigation, and ruled Pokrass out as sponsor of the project.

The month-long string of revelations about Title I has perhaps shaken Moses' position more than any of the past storms he has so far weathered. The Citizens Union has called for his resignation, and other civic groups have asked a thorough overhaul of Title I procedures, at least. (The House Subcommittee on Housing will start a fullfledged investigation of Title I operations in the whole nation, but, significantly, will hold its hearings in New York in the fall.)

Because of the attention focused on Title I in New York, some observers feel that the program may fall under a cloud in all large cities. But New York has been a unique situation from the start, and its very singularity has contributed most to its present trouble. No other big city program has been so dominated by one figure, and this is at the heart of the problem. As the Citizens' Housing and Planning Council said last month: "Citizens of New York have for many years been enjoying the real benefits conferred by their one-man substitute for citizen activity. They have watched the growth of a magnificent complex of highways, parks, bridges, and housing, while scarcely being called upon to help. The price for the service is now being felt; it amounts to an atrophy of that faculty for balanced judgment that is a product of the sharing of actual responsibility."

The unique Moses

Moses' procedures are unique. In other cities, sponsors are not first chosen, then, in effect, confirmed by "public" auction for slum land. In no other city are sponsors responsible for clearing the slum land they have bought, and thus no other city has had situations such as Manhattantown and NYU-Bellevue, where sponsors were allowed to drain off profits from slum rentals, then sell out when pressure developed to get on with the project. Moses, who has always been a law unto himself, has not taken much time or trouble to coordinate slum clearance with other city development programs, although, as City Construction Coordinator, this would seem logically to be his function. In fact, last month, Mayor Wagner appointed several city officials to draft a "master plan" for comprehensive slum redevelopment. Moses, who has done nothing toward the rehabilitation of slum housing, which is one of the city's pressing needs, was a significant absentee from this group.

One sponsor recalls that when he first went to Moses in Title I's early stages, expressing an interest in redevelopment, Moses laid out before him a map of the city showing slum sites, and said, in effect, "Pick one." This is in contrast to other cities where redevelopment usually proceeds on an orderly schedule based upon the city's most pressing needs.

The group of politicians and hangerson that has made Title I its own special preserve, either with Moses' apparent sanction or in consequence of his lack of everyday contact with the program, have caused severe damage to the future of Title I in New York, yet have acted within the framework of the rules. Last month, Moses said "no full tax-paying speculative sponsors will be found and to that extent Title I is a dead duck." Yet when such legitimate sponsors were available in the past, they were frozen out of projects by the prechoice system, which has too often resulted in sponsors whose zeal in slum clearance is questionable. And Moses' statement has been disputed by two other Slum Clearance Committee members, James Felt and J. Clarence Davis Jr., as well as by the mayor himself. A leading builder's group was also quick to announce its interest in Title I. What Moses really was saying, of course, was that if the game was not played his way, it obviously could not work. Despite his huffing, it now looks as though it may no longer be played entirely his way.

Mayor Wagner has announced plans to expand the Slum Clearance Committee, probably by adding City Administrator Charles F. Preusse, and he promised last month to "pull up the reins" on Moses. But, just because Title I may get a badly needed overhaul, it does not mean that the program will be any less productive. James Felt, who heads the Urban Renewal Board guiding the city's lone rehabilitation project, and who has often been at loggerheads with Moses over policies and procedures, predicted last month that "Title I has a great future in this city and its program will continue." But Robert Moses, in the midst of scattering invective at his critics with undiminished vigor, made perhaps the best prediction of all: "The truth is mighty and shall prevail."



SAN FRANCISCO'S CROWN ZELLERBACH headquarters is nearing completion in the city's financial district. The 20-story building, designed by Hertzka & Knowles and Skidmore, Owings & Merrill, has blue-green glass curtain wall, and will have more than an acre of landscaped ground around it. Elevators and service facilities are clumped in a concrete core, faced with mosaic tile.

News

AIA meets in New Orleans, debates integration of art and technology, muffles segregation of own members

About 2,000 architects moved into New Orleans six weeks ago for the annual convention of the American Institute of Architects. Like other conventioneers, they shot pictures of the French Quarter, batted around Bourbon Street, and generally had a fine time.

The segregation problem promised to be the only controversy at the convention, and at least two chapters had indicated they would make a vigorous fight to prevent any future AIA meetings in segregated cities, where not all members of the profession could participate freely and fully. But, by elaborate new rules and backstage maneuvering, a floor fight was avoided, and, indeed, most members were never even aware that the issue was in the vicinity. In the business meeting, the resolutions, unread, were referred for further action to the board of directors. Only two of the featured speakers at

New Orleans referred to the issue.

Walter Gropius, 76-year-old former Bauhaus director and refugee from Nazi tyranny, spoke one forthright sentence in his speech accepting the institute's gold medal: "I only wish I could live long enough to be able to attend a future AIA convention in New Orleans from which the shadow of segregation, which now so deeply disturbs our minds, has at last been removed." The other speaker was Minoru Yamasaki, who made some off-the-cuff comments following a striking slide exhibition of work: "Being of a racial minority . . . I understand the problem, I think, perhaps more than others may, and I think it is terribly important that all of us in this area where we are aspiring to build a really ideal environment should do it with ideal methods. I hope we can overcome this kind of situation in the future so that we can use all of our talent and proudly so." Yamasaki was roundly applauded.

Keynoter Edward Durell Stone made a plea for practical leadership. Pointing out that architects are underpaid and undervalued, he called for architects to show "more leadership in community and city planning." He also suggested a national licensing system, and abolition of state licenses. But his most provocative proposal was that the "great oil and automobile industries try to resolve some of the problems they have created." Specifically, Stone asked that the giants in these industries finance planning studies for both city and countryside, "since the destiny of the individual and the future usefulness of the motorcar are deeply involved."

Within the framework of the over-all theme of the conference — design there were two constant undercurrents: the role of tradition and experience in modern design, and the danger of architects becoming too enchanted with, and dependent upon, the glistening results of technology. Some criticism was directed at what seemed a lack of understanding and recognition of tradition. Paul Thiry maintained that "A means must be found to impress the design fraternity with the importance of the continuity of architecture." Gropius said: "Tradition . . . has meant capturing the real spirit of a certain region



GROPIUS WITH AIA PRES. RICHARDS

as it evolves through long interaction between the natural setting, the type of people who inhabit it, and the dominant spiritual and practical factors that determine their way of life. Approached in this way, any major shift in the production techniques and social order of such a region should find expression in its architecture so that the living issues can be read from its lines as well as those of the past."

The most provocative arguments over design came on a panel featuring Philip Johnson, William L. Pereira, Charles E. Pratt of Vancouver, B.C., and Yamasaki. Johnson maintained that modern architecture "as we know it" was fading. Pereira and Yamasaki disagreed, rather countered that it was undergoing a drastic change, with technological design methods threatening to overwhelm the intrinsic romanticism of the artist. Pereira warned: "We are so afraid of being labeled artists that we are in danger of becoming only artisans. . . . If we aren't careful, we'll soon be replaced by considerably more efficient devices. Obviously the day of automated architecture is not far off, especially if we continue to talk and act like articulate, well-tailored machines rather than men."

Yamasaki, who smilingly recalled that Johnson had twitted him about his recent "perpendicular Gothic" designs, spoke of several "preoccupations" he has in design. Among these are "delight—more play of sun and shadow, more interesting textures, taking advantage of the silhouette against the sky, . ." and "serenity," carried out "within the means of the technology we have."

Delegates to the convention reelected John Noble Richards to a second term as president, and re-elected Philip Will Jr. and Henry L. Wright to the first and second vice presidents, respectively. Raymond S. Kastendieck of Gary, Indiana won out over three other candiates and was re-elected treasurer, but Secretary Edward L. Wilson of Ft. Worth, Texas lost his post to J. Roy Carroll Jr. of Philadelphia.

Compromise housing bill vetoed by Eisenhower

Housing industry leaders were abashed last month when President Eisenhower vetoed the compromise housing billone that most of the industry felt was inadequate in the first place (FORUM, July '59). Carl T. Mitnick, president of the National Association of Home Builders, called the veto "a severe and unwarranted blow to the housing needs of the American people," and Representative Albert Rains (D, Ala.), who had a key role in the legislation, said angrily: "The President's action is an attempt to block any further efforts to rid our cities of blight, or to build homes for the elderly at rents which they can afford." In Los Angeles, where the annual U.S. Conference of Mayors' was meeting, Philadelphia's Mayor Richardson Dilworth said the President's veto represented a stubborn refusal by our government to face up to the fact that we are and will continue to be an urban people."

Eisenhower vetoed the compromise bill, which called for an estimated \$2.2





Architects for the six new Science Center Buildings, University of Georgia; Abreu and Robeson, Aeck & Associates, and Toombs Amisano & Wells, Atlanta, Ga. General Contractors: Daniels Construction Co., Greenville, S. C. and Birmingham, Ala. H. W. Ivey Construction Co., Atlanta, Ga. Typical interiors of the Physics Building are shown at the left.

LEGEND

- 1. Physics Building
- 2. Mathematics, Geography
- and Geology Building
- 3. Chemistry Building
- 4. Biological Sciences Building
- 5. Animal Sciences Building
- 6. Food Technology Building

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billion of spending, including the 40year authorizations for 190,000 new public housing units, almost completely on fiscal grounds. He termed the bill "excessive . . . extravagant . . . inflationary . . . defective," and also balked because "many provisions of the bill, instead of stimulating private investment, would drive private credit from areas where it is urgently needed." The President contends that \$900 million over two years is too much for urban renewal, and he is against the direct loan program for housing of the elderly and against public housing altogether. He reiterated his argument that states and cities should shoulder more of the cost of urban renewal.

What Eisenhower wants is the barebones program he enunciated last January: new authority for Federal Housing Administration mortgage insurance, renewal of the Capehart military housing program, and urban renewal grants on a \$250 million per year basis, with a rising share paid by the states and cities. He also wants the public housing program to expire.

Eisenhower is expected to stand fast on his demands, despite anomalies in his veto message. His stand against renewal funds, for instance, was taken despite existence of a backlog of over \$500 million in capital grant applications, and despite the fact that there was no new authorization at all last year. Thus, the program that the President vetoed would have averaged out to only \$300 million a year for three years. Democratic leaders in Congress realize that they probably cannot override the veto, and, although they have not discarded the chance of an override attempt completely, they are already considering new legislation. Republicans have rushed to introduce a bill conforming closely to the President's recommendations, but the Democratic-controlled housing subcommittees probably will pigeonhole it. The Republican measure asks \$600 million a year for two years for renewal grants (\$350 million this year, the rest in fiscal 1961), extend FHA authority and ignore public housing. The Mayors' Conference scored the Republican substitute bill as "inadequate" last month, and asked Congress to hold public hearings on the veto, with an eye to mustering more public support for a bigger and better bill. The Senate started such hearings late last month.

The Democratic leaders are now on the spot. They have cut back their original housing bill so much that it caused a split in the party, and still they were unable to get it passed. They realize that the veto could not be overridden in the House, and possibly not even in the Senate. So they have to come up with an entirely new measure that will suit the President, yet attempt to save face politically somehow. Meanwhile, the backlog of urban renewal applications piles up, the public housing program languishes in a bureaucratic torpor, and the infant housing-for-theelderly program seems doomed before it gets out of the crib. So far, the biggest losers in the political battle over housing have been cities.



Wright's legacy: culture in the Southwest

Frank Lloyd Wright loved the sunsplashed, golden-brown Southwest as well as he did his native green Wisconsin. For 25 years he made his winter headquarters in the desert near Scottsdale, Arizona, and had an abiding wish to do something great in that state. His most ambitious effort was the rejected project for an Arizona State Capitol near Phoenix (FORUM, Apr. '57). But Wright's wish may yet come true. Last month, his plans for a new cultural center for Arizona State University at Tempe were unveiled, and were met with almost unanimous THE ARIZONA STATE U. CULTURAL CEN-TER (above), designed by Frank Lloyd Wright, will have a 3,300 seat auditorium (top picture), and a theater-recital hall (lower picture) for student productions. Similar to the theater is Wright's design for the Dallas Theater Center, shown below, which is nearing completion. The latter will be used for graduate dramatics courses for Baylor U., as well as for community and repertory productions.





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initial acclaim. University President Grady Gammage said that the plan, if realized, would provide Arizona with one project representing the work of the "world's leading architect of our age." Lynn Laney, a member of the state board of regents, said that he hopes "the final effort of this worldfamous architect is given a fair appraisal by the citizens of Arizona."

The board of regents, which unofficially estimates the project will cost \$7.5 million, unanimously voted to allow Gammage to continue having additional plans and specifications drawn. (Gammage says that Wright finished the plans just before he was taken to a hospital in Phoenix, where he died last April.) But the board has not yet approved final cost figures, and the money must then be appropriated by the state legislature. While two board members questioned the design ("It looks like Disneyland," said one), there is no organized opposition to the plan. Gammage and a majority of the regents are wholeheartedly in favor of it, believe it will be started by 1961.

The Tempe plan calls for a complex consisting of an auditorium (top picture, above), an art gallery and new art department building, a music building, and a recital hall. (The latter building is almost a dead ringer for Wright's recent design for the nearly completed Dallas Theater Center-see page 9). The auditorium, which has much of the flavor of Wright's design for the Baghdad Opera House (FORUM, May '58) will seat 3,300, and will be of concrete, with terrace roof fountains, and domeroofed parking areas nearby. Wright has designed a football-shaped art gallery, with other art facilities stacked in three levels.

While Wright admirers in Arizona hopefully plan their cultural center, Wright admirers in Dallas this month watched final labors on a \$900,000 theater, which will be a base for repertory, as well as a teaching and research facility for the graduate school of Baylor University, a research laboratory, and center for various community facilities. Fittingly, Baylor's famed Drama Dept. head, Professor Paul Baker, noted for his stage and television work, will be director of the new Theater Center. Backers of the Dallas Theater still must raise about \$350,000, but are confident it will be done.

Wright's design for the theater eliminates the typical proscenium in favor of a revolving circular stage, with stationary wings extending toward the audience. Seats are arranged in three sections, in a traditional pattern, but backstage is built in three levels, providing two dressing-room levels and a reception room. The theater is scheduled to be open next month, with the first students enrolling about midmonth. The first repertory production is scheduled for December.

Strike threatens bright building outlook

The heavy cloud of an industry-wide steel strike hung over an otherwise bright building outlook last month. Although steel plants were shut down by mid-July, industry spokesmen estimated that there was enough steel in warehouses to supply users for two to three months, depending on their needs. The supply of structural shapes seems good in most areas, particularly in New York City, the biggest user of such steel, but in some cities there may be a shortage of steel reinforcing bars if the strike lasts more than six weeks.

Another strike briefly stopped construction volume in the nation's number one building center, the New York City area, where concrete truck drivers walked out, resulting in a layoff of 100,000 construction workers. Highway building and other heavy construction outside Manhattan came to a halt, as well as office construction in Manhattan. But the drivers settled the strike after a three-week break.

Were it not for the unsettling fact of the strikes, the building outlook would still be good. Contract awards by midyear were running about 17 per cent above 1958. Construction expenditures were about 15 per cent higher in the first six months than they were in the same period of last year, and were running at a seasonally adjusted annual rate of \$55 billion, 12 per cent higher than last year's actual total of \$49 billion. However, construction economists predict that this gap will narrow as the year wears on, particularly as home building slows down.

Physical volume of construction in the first five months was 12 per cent ahead of the same period of 1958, although building costs are still edging higher (FORUM, July '59). While lumber prices, which had been the key factor in the building cost increase early this year, tailed off somewhat, other building costs rose. And the whole construction industry is glumly anticipating higher prices for steel and aluminum as a result of the current negotiations in those industries.

Briefs

A huge glass dome is planned by Soviet builders for Moscow's Dynamo Stadium, according to reports last month. The 60,000-seat stadium would be among the largest covered arenas in the world when completed in 1961. Recently, Soviet Premier Khrushchev was impressed by the Buckminster Fuller-designed aluminum dome that dominates the U.S. exhibition in Moscow.

Monorail, the recurring favorite remedy for rapid transit woes, made news last month when two large aircraft companies, Lockheed and Northrop, announced they were going to produce monorails and try to sell them to cities. Lockheed is building the one-mile Seattle monorail for that city's Century 21 Exposition (at a cost of \$5 million). But the two companies may have just lost one potential customer—after a year's study, Detroit last month rejected plans for a \$255 million, 54-mile monorail system as "unrealistic," and added that such a system "cannot be financed now."



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New York's Title I controversy spotlights architect Kessler-a combination of know-how and know-who



TITLE I ARCHITECT KESSLER

In the growing outcry over New York City's Title I slum clearance program (page 5), the singular operations of rotund. 46-vear-old Architect Melvin E. Kessler have been of more than routine interest. Kessler's role in the Title I program is complex and controversial. As architect or associate architect on seven of the city's 14 slum clearance jobs, Kessler has more Title I work than any other architect in the city. As a member of the tight group that does most of the consultant work for the Mayor's Committee on Slum Clearance, he probably has more influence in the program than any other single architect. (Skidmore, Owings & Merrill are Robert Moses' "coordinating architects" for all Title I projects and they do much of the preliminary planning. But they have never designed any housing projects for developers-their only Title I designs are the Library-Museum building in the Lincoln Center project and the adjacent Red Cross building.) And Kessler, as the result of also being an investor in one of the city's first Title I projects-Manhattantown-has been barred from future participation in Title I by Mayor Robert F. Wagner. (Wagner barred all private parties concerned with Manhattantown, where in five years the sponsor did not clear the slums and divvied up \$1.1 million in slum rentals.)

Kessler's banishment from Title I may not stick, because, as Moses himself pointedly noted last month, a sponsor of a Title I project can hire any architect he likes. But Kessler's influence has certainly been crippled, and as a result future Title I work may be done by firms having more solid reputations for top-quality design though perhaps less of a talent for the science of bureaucratics. In other cities, particularly Philadelphia, top architects have been encouraged to enter in competition for redevelopment projects, with quality design the key criterion (FORUM, Dec. '58). This has never been attempted in New York, and, in fact, the city's program has attracted little attention in terms of its design qualities, with the obvious exception of the Lincoln Center for the Performing Arts.

Melvin Kessler's outstanding success in getting Title I jobs is a tribute to his ambition and his capacity for sorting through the cobwebs of red tape and peculiar economics of Title I itself, as well as his strong relationship with both public and private participants in the program.

Kessler says that all but one of his Title I clients, before they got slum clearance projects, were clients of S. J. Kessler & Sons. Some had worked with Kessler's father, Samuel J. Kessler, who has had a New York architectural practice for 51 years. Kessler says he convinced some of these clients to get into Title I, and so it was only natural that they choose him as their architect. Of course, it has been denied by all concerned that Moses, or someone on the Committee on Slum Clearance, recommends Kessler to sponsors. Still, the fact is that Kessler has been "associated" with well-known quality-conscious architects on Title I projects. This is reportedly because sponsors "inherit" Kessler, although they will not admit this for the record. However, it does appear that with Kessler, Title I in New York can be a simpler process.

Kessler is, in a word, an operator who gained an inside track in a tremendous public building program. Whether this is attributable solely to his knowledge of what it takes to make a Title I project profitable, or to his carefully cultivated relationship with bureaucrats, is still hard to say. Most likely, it is a combination of both, with little relationship to his reputation as an architect.

S. J. Kessler & Sons, in which Melvin Kessler is a partner, has been practicing in New York for many years and recently has spent as much as 77 per cent of its time on residential projects. Melvin Kessler was for 21/2 years an architect for the State Housing Division, and since rejoining his father's firm in 1946 has done two projects for the City Housing Authority. Samuel Kessler, a vigorous 72 year old, has designed a little bit of everything, and claims to have introduced reinforced concrete building techniques in theaters during World War I, when steel was scarce. The firm last year worked on \$48 million worth of building, which made them the 24th largest architectural firm in the U.S.

When the Title I program got under way in 1949, Melvin saw an opportunity and seized upon it. He made himself familiar with the procedures of the program, and then became involved in the Manhattantown project. With some friends, he invested about \$18,000 himself (a 12% per



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cent stock interest) and induced his father and brother each to invest a like amount. (Sam Kessler was reluctant to do so, because he once had a "bad experience" investing in a client's project many years ago.) As an investor, Kessler says he was not responsible for the delay on the project, and he collected about \$3,600 on his original investment when he sold out. He was also the architect for the project, and his design is still being used for the area, although William Zeckendorf's Webb & Knapp, Inc. is the sponsor now.

People

Moses has defended Kessler's role in Manhattantown: "As to architects taking stock or other interest as distinguished from straight percentage or fees, this is common practice today. It results in net savings to them. . . ." Kessler himself claims that he hardly got rich on the deal, and still won't get the rest of his original investment back for another three years, as a result of an arrangement that gave Manhattantown's original investors debentures instead of cash. His fee was about what it is for all Title I projects—1¼ per cent.

But there was some trouble about the fees on Manhattantown. When the Senate Committee on Banking and Currency investigated the Manhattantown situation during its windfall probe in 1954, it noted that the project's sponsor had pumped up both the architect's and builder's fees in its application for mortgage insurance from the Federal Housing Administration. The Committee's report said: "The practice of misrepresenting the estimated architect's and builder's fees . . . was also practiced here. On Dec. 18, 1953, Jack Ferman, representing Manhattantown, filed an application for FHA mortgage insurance . . . on the first building to be constructed in the project. This application estimates the architect's fees at 5 per cent and estimated builder's fees at 5 per cent. These estimates were included in the application with full knowledge that M. E. Kessler had a contract to do the architectural work for a fee of 11/4 per cent and that Ferman Builders had a contract to do the construction work for a fee of 11/4 per cent." As Ferman never finally developed the project, the application was never processed.

Although Kessler will not say specifically what his fees are in dollar amounts, 1¼ per cent of a \$19 million project, such as the Harlem project for which Kessler is the architect, would result in a fee of about \$235,000, which indicates the profitability of Title I, even if you are not an investor or sponsor.

Until the whole Title I story unfolds, Kessler's role may not be completely clear. He does not appear ruffled by the mayor's ban on his future participation, and seems confident that he will continue to play a

14



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prominent role in Title I. And if Kessler, who once commented that "architecture is not the most ethical profession in the world," stays on the Title I gravy train in some capacity despite the present furor, it will not surprise cynics who have had experience with him. In ten years of Title I in New York, he has shown remarkable staving power.

People cont'd

STEINER LEAVES URA

Richard L. Steiner, for the past two years commissioner of the federal Urban Renewal Administration, made long-standing rumors come true last month when he resigned to become director of Baltimore's Urban Renewal Housing Agency. Housing and Home Finance Administrator Norman Mason, who called Steiner's departure "a real loss," appointed David M. Walker to take over the top job in URA. Walker, 49, had been Regional Administrator of HHFA in Philadelphia, from 1951 to 1955



was Secretary of Labor and Industry in Pennsylvania. Walker has had considerable housing experience-from 1946 to 1951, he was executive director of Philadelphia's Redevelopment Authority.

PEOPLE IN BRIEF

Among the award winners at the recent convention of the American Institute of Architects (page 7) was Ken Hedrich, well-known architectural photographer. Hedrich won the Institute's Fine Arts Medal.

Realtor John W. Galbreath last month created a formal department of Urban Redevelopment within his own company, and appointed A. Charles Brooks to head it. Galbreath says that the department has been set up to meet the demands of many cities for assistance in renewal and relocation problems. Brooks, 34, has been assistant executive director for the Columbus, Ohio Development Committee. END



Executive office, H. J. Heinz Co., Pittsburgh Interiors designed by the Knoll Planning Unit

Skidmore, Owings and Merrill, architects Ezra Stoller, photograph

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We also have complete facilities for producing custom letters — reproducing your Company trademark or signature, if desired.

he Haire Sign Co., Columbus, O. nature, if desired. Contact your local Sign Company or write to us for colorful, illustrated brochure.





PHOTOGRAPHED IN MILLER'S RESTAURANT, MILE HIGH CENTER, DENVER

Vinyl-on-metal laminate gives new freedom in wall design

Colovin vinyl laminated to metal is the newest, most versatile of building materials. Its decorative qualities invite the imagination to soar; its practical features face the reality of budget limitations.

To the eye and to the touch the gold-studded wall above has the warm texture of bluegray linen. Actually it is Colovin vinyl permanently bonded to sheet metal.

Inexpensive to erect, this wall is light-weight, fireresistant, virtually damageproof. The colorful vinyl surface will never need refinishing, and according to the restaurant manager is "easier to clean than any material we've ever used."

Colovin laminates have been rigidly tested by such quality-conscious firms as Ford, General Electric, Philco, Samsonite. Colovin takes preference over any other metal finishes because it offers multi-color printing and embossing not possible with other materials.

Get the whole story in "Colovin Meets Metal." Laminate samples, colors and textures, test specifications, industrial applications, and list of laminators to whom we supply Colovin vinyl sheeting. Mail coupon for copy.



first and finest in vinyl laminates


ARCHITECTS: Small and Boaz Raleigh, N. C.

ARCHITECTS ASSOCIATED: Antonin Raymond & L. L. Rado

MECHANICAL ENGINEER: General Engineering Associates, Washington, D.C.

MECHANICAL CONTRACTOR: W. H. Sullivan Co. Inc., Greensboro, N. C.

B&G UNIVERSAL PUMPS "COULDN'T BE OUIETER"

-Says Plant Engineer of system designed for quiet operation



Battery of B&G Universal Pumps used for circulating heating and cooling water.



Home Security Life Insurance Company Building, Durham, North Carolina

Where quiet operation is fully as important as proper head and capacity—B&G Universal Pumps are the answer. In the outstanding new home office of Home Security Life Insurance Company, B&G Universals circulate hot water for heating and chilled water for air conditioning. Says the plant engineer: "We have complete satisfaction the pumps couldn't be any quieter."

B&G Universal Pumps are designed and built for just one purpose: To meet the exacting demands of circulated water heating and cooling systems *dependably*, *smoothly*, *silently*. To that end they are built with such features as specially built, more costly motors, tested for quietness...oversized shafts of hardened alloy steel...long *sleeve* bearings...noise dampening spring couplers...oil lubrication and leak-proof mechanical seals.

B&G Universal Pumps are of vertical Split-Case construction with removable bearing frames. This allows easy servicing without breaking pipe connections or motor leads.

B&G Universal and Booster Pumps are preferred because they're quiet, where silence counts.





Get rid of disturbing noise use any of these 3 acoustical ceilings by Johns-Manville

Let your public be visitors, customers, patients, clients or students, the fact remains the same: it pays well to get rid of disturbing noise. This has been the job of Johns-Manville Acoustical ceilings for decades. There are J-M Acoustical Panels of textures and kinds to meet every need. For full information, write to Johns-Manville, Box 158, New York 16, N. Y. In Canada: Port Credit, Ontario.



In the Union Carbide Building ...

11 Acres of Curtain Walls made weathertight with the help of "ADHERENTLY DIFFERENT SEALANT"

Again—sealants based on THIOKOL Liquid Polymer meet the highest standards of architectural design

Many joints in this towering new landmark are being sealed with the help of material based on polysulfide rubber. This special kind of sealant—the "adherently different sealant"—is specified for over 80% of all curtain wall structures.

Its unique bonding action—adhering to all types of structural materials in any combination . . . its elastomeric nature, giving with the stress of thermal change . . . its sympathetic quality, meeting the variations in expansion and contraction of the materials it joins without breaking away . . . its extreme length of life . . . these characteristics inherent only in THIOKOL polysulfide type sealant make it basic for curtain wall design. For complete data, write THIOKOL at address below. Building.... Union Carbide, 270 Park Ave., N. Y. C. Architects... Skidmore, Owings and Merrill General Contractors... George A. Fuller Co. Curtain Walls... General Bronze Corp. Polysulfide Sealant Applicator... Grenadier Corp.





Timeless, dignified, substantial, the Union Carbide building features a black stainless steel and glass "skin." Starter panels, mullions and window frames are sealed against weather with the help of THIOKOL polysulfide base sealant.



Registered trademark of the Thiokol Chemical Corporation for its liquid polymers, rocket propellants, plasticizers and other chemical products.





Curtain walls of precast concrete achieve dramatic interplay of light, color and texture

The unbroken whiteness of the end wall is in striking contrast to bright, blue-green spandrel panels of the sidewalls. And on the broad base wall below, light and shadow form bold patterns across the sculptured facing. 42 stories, and the tallest office building in the West, the Southland Life Tower is part of a \$35,000,000 project in downtown Dallas, Texas.

It's all done with concrete panels. For the end walls and base, exposed quartz aggregate and white portland cement give surface roughness and brilliance. The smooth-faced spandrels are ceramic tile cast in concrete. The total effect is one more example of the unlimited design possibilities in today's new forms of concrete.

Architects and Engineers: Welton Becket, FAIA, and Associates, Los Angeles and Dallas. Consulting Architect: Mark Lemmon, AIA, Dallas, Texas. Structural Engineers: Murray Erick Associates, Los Angeles.



PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete

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These companies contribute to Facing Tile research and development: ARKETEX CERAMIC CORPORATION, Brazil, Ind. • CHARLESTON CLAY PRODUCTS CO., Charleston 22, W. Va. • THE CLAYCRAFT CO., Columbus 16, Ohio • HANLEY COMPANY, INC., Pittsburgh, Pa. • MAPLETON CLAY PRODUCTS CO., Canton, Ohio • METROPOLITAN BRICK, INC., Canton 2, Ohio • MCNEES-KITTANNING CO., Kittanning, Pa. • NATCO CORPORATION, Pittsburgh 22, Pa • STARK CERAMICS, INC., Canton 1, Ohio • WEST VIRGINIA BRICK CO., Charleston 24, W. Va. Consider roofing materials for a moment, along with the roof itself which is still the neglected step-child of contemporary architecture. There is a new concept here, and a material—terne metal—which permits this enormously important visual area to become an integral part of the total design concept. From the standpoint of **FORM**, terne makes available an almost unlimited range of linear effects, of subtle modulations in the interplay of light and shadow. From the standpoint of **COLOR**, it allows a freedom of expression as broad as the artist's palette. From the standpoint of **FUNCTION**, it is virtually unmatched among roofing materials, as many century-old installations dramatically attest. Your inquiry is solicited. **FOLLANSBEE STEEL CORPORATION** Follansbee, West Virginia



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ALEXANDER MEMORIAL ARENA BUILDING, GEORGIA TECH ARCHITECT: AECK ASSOCIATES, ATLANTA, GA. ROOFING CONTRACTOR: R. F. KNOX COMPANY, INC.

DR. FASBENDER CLINIC, HASTINGS, MINN. ARCHITECT: FRANK LLOYD WRIGHT ROOFING CONTRACTOR: SWANSON ROOFING & SHEET METAL HISTORIC "OCTAGON" HOUSE, WASH., D.C. HEADQUARTERS A.I.A.

Projects

A roundup of recent and significant proposals



ST. LOUIS PLANETARIUM

The clean, simple shape of Hellmuth, Obata & Kassabaum's design for a planetarium (right) in St. Louis is deceptively more complex than it looks. Take the roof, for example. It is a thin-shell concrete hyperbolic paraboloid, supported by 12 piers, over an aluminum globe. Where the roof curves in sharply, near the top, there is an observation platform from which stargazers may view the sky undistracted by ground-level lights. They get up there by climbing a ramp which winds around the globe from the exhibition level. Inside the globe is an auditorium seating 450 people.





GIANT MULTICOLOR ROOF TO SPAN SEATTLE EXPOSITION

A soaring roof of many-colored aluminum panels will lend a suitable space-age flavor to the Century 21 Exposition to be held in Seattle two years from now. The giant coliseum, sheltering three acres of exhibits or, later, up to 18,000 spectators at sports events, was designed by Architect Paul Thiry of Seattle and Peter H. Hostmark & Associates, structural engineers. Supported by steel trusses that rise from concrete abutments centered on each side, the roof's peak will soar 110 ft. into the air. Almost six miles of steel cable will be laced on 8 ft. centers between the trusses and the prestressed concrete edge beams and then stretched taut in the form of hyperbolic paraboloids.

PUERTO RICO MEDICAL CENTER

On a 140-acre site on the outskirts of San Juan, the Commonwealth of Puerto Rico plans to build a \$41 million medical center (right) which will bring together four hospitals, medical and dental schools, research facilities, and services in one complex. The master plan, done by Isadore and Zachary Rosenfield, architects and hospital consultants of New York City, groups hospitals near the central service and medical science buildings (center, with pleated roof). In the foreground are rehabilitation, training, and pediatric centers and a nursing home.



CALIFORNIA RESEARCH CENTER

Lockheed Aircraft Corp. plans to build a huge research center (left), nestled in the San Gabriel foothills near Saugus, Calif. The master plan, done by William L. Pereira & Associates, calls for an array of offices and laboratories for pure research in physics, chemistry, and physiology, development of aircraft and missile systems, testing facilities, and service buildings. Even the canyons on the site will be put to work: they will be converted into chambers by stabilizing the walls with gunite, superimposing slabs on the floors, and roofing the caves.

CALTECH LIBRARY WRAPPED IN CONCRETE GRILLE

Charles Luckman Associates designed the five-story central library (right) for a site put aside by the California Institute of Technology in Pasadena 40 years ago. Much of the exterior will be screened by a precast concrete grille. Of the five stories, the upper four will be stacks containing engineering and scientific collections and small reading rooms; the ground floor will have a lounge, administrative center, and humanities library. The new building will be named for Dr. Robert A. Millikan, a Nobel Prize physicist.





OCEAN-FRONT COOPERATIVE APARTMENTS IN HAWAII

On a picture postcard site—a strip of Waikiki Beach with Diamond Head in the background—Surf Associates, Inc. will build an \$8 million, 15story cooperative apartment house, the first in Honolulu in which nonresidents of the islands may purchase apartments. To take advantage of this enviable site, Architects Weed, Wallace & Associates designed 155 two- and threebedroom apartments, all but one with an ocean view, and all with at least one lanai, or terrace, screened from ocean glare and trade winds. At the entrance, there will be a pool and small shopping area.

NEW YORK UNIVERSITY EXPANDS TO THE NORTH

Up in the Bronx, NYU is expanding its University Heights campus by adding three new buildings (right) and by admitting girls, a step directly responsible for the dormitory, near right. The dormitory design, now planned to shelter 400 men and 200 women, is flexible enough to allow the dividing line to be moved as the number of coeds increases. Footbridges from the dormitory connect it with a common dining hall and lounge, center. At right is the Gould Hall of Technology and a lecture hall. Architects: Marcel Breuer & Associates.



TALL TOWER IN LOS ANGELES

Two well-known architectural firms, Victor Gruen & Associates and Daniel, Mann, Johnson & Mendenhall, teamed up to design this rental office building (left) for downtown Los Angeles. A two-story base, set off by white marble and square granite columns, will be topped by a 20-story tower trimmed with Italian blue glass mosaic tile and extruded aluminum. Construction started last month, when Tishman Realty & Construction Co., Inc., owner-builder, had leased about 40 per cent of the tower space.



Projects



IN PHILADELPHIA, TWO MOTELS . Two motels announced for the environs of Philadelphia will be built on the same street, City Line Avenue, but there the similarity ends. The rectangular one (above), designed by Architect William Tabler of New York City, will be built by Hot Shoppes, Inc. at a cost of \$5 million. Like

. ONE RECTANGULAR

other motels in this restaurant's chain, it will be called the Marriott. Rooms will be ranged around three sides of a patio and pool area; restaurants and other public rooms will be in the one-story portion (foreground). About half of 350 guest rooms will face the pools and patio.



ONE ROUND

A motel-in-the-round (above), also destined for the Philadelphia area, was "conceived as a piece of sculpture, to be esthetically enjoyed from the exterior" by its architects, Thalheimer & Weitz. Whether or not tired motorists care to sleep in sculpture, presumably they will appreciate some of

the other amenities promised: a kidney-shaped swimming pool, a central garden, and panoramic views from each of the 210 rooms. Aptly named "La Ronde," the new motel will be nine stories high, chiefly of concrete and copper-tinted glass, and will cost \$3.5 million.



OKLAHOMA CITY HOTEL

High land costs forced Oklahoma City investors to scrap plans for a motel and substitute a hotel tower (left). In their vertical design, Architects Bailey, Bozalis, Dickinson & Roloff of Oklahoma City put baths and dressing rooms for each room inside the huge diamond-shaped concrete columns. Between the columns, bedrooms and sitting rooms face outward to individual terraces covered by a continuous aluminum grille. The hexagonal plan permits 12 units to a floor, 96 rooms in all above the lobby floor.



FOR DOWNTOWN TORONTO, AN URBAN CLUBHOUSE

Officials of the Primrose Club, Toronto, and their architects, John B. Parkin Associates and Kaplan & Sprachman, agreed that their new clubhouse should be sophisticated and elegant to fit its urban surroundings. The rather formal result (above),

of reinforced concrete, will give no hint from the exterior of the social and recreational facilities within. In addition to more usual club attractions, there will be a "therapy department" where members can exercise, steam, and sun.

SHERATON IN MINNEAPOLIS

Another Sheraton, this one in Minneapolis' Gateway Center, will be added to the growing number of hotels and motels built by the chain. Architects Thorshov & Cerny of Minneapolis designed the \$8 million, 21-story structure (right), to be called the Sheraton Center in deference to the shops, outdoor skating rink, offices, and landscaped malls clustered around its base. The square tower, beginning at the third floor, will contain 400 outside guest rooms. The hotel and its accouterments, including a multidecked garage for 600 cars, will occupy about a block of Gateway Center. END



Rigid steel conduit offers

found in any type of conduit:

physical damage to

For more than 50 years, architects, builders, engineers and electrical contractors have protected electrical systems by running wires through steel raceways.

So well known and so certain is this protection that the National Electrical Code includes the use of rigid steel pipe conduit for all applications and locations, both inside and out, and *specifically* requires it in particularly hazardous locations with explosive atmospheres.

The planning of an electrical system. There are several basic steps in the planning of an electrical system; the most important of these being: safety, capacity, voltage regulation, accessibility and flexibility.

The designer himself should have but one objective: to give the owner an electrical system that operates economically and performs efficiently.

The original raceway wiring system. The first consideration in any wiring plan? *Safety!* Engineers and architects know from experience that open circuits, short circuits and induced circuits are bound to develop in wiring systems in any one of the following ways: faulty wiring, lightning, sudden shock and overloading.

To combat these hazards, engineers and architects have always turned to the original raceway wiring system—rigid steel pipe conduit. Here are some of the reasons why: Rigid steel conduit contains the damage; prevents it from spreading to the plant, home, garage or office.

Rigid steel conduit provides a grounded metallic system; induced currents are drained off without danger.

Rigid steel conduit has strength and cannot be damaged by moving objects; objects that might break conductors, or the insulation of wires that are left unprotected or semi-protected.

Despite the expert knowledge and intelligent planning of the designer, rewiring is quite often necessary before a building becomes obsolete. In this case, the existence of rigid steel conduit simplifies the rewiring problem and contributes much to cost reduction.

The economy of rigid steel conduit. Rigid steel conduit offers a permanent system that will outlast most buildings and provide the capacity for expansion and replacement of conductors when new wiring is needed to meet increasing loads.

In addition, the cost of replacing old circuits with new and larger wires through the existing rigid steel conduit is but a fraction of the cost of new work.

There are, of course, many ways to estimate savings. For instance, financial set-backs resulting from interrupted service could well exceed the initial cost of a safe, dependable rigid steel conduit wiring system.

Then, too, with fire hazards reduced, losses due to

* From National Tube, America's leading steel pipe manufacturer supplying America's foremost conduit manufacturers.

the greatest single advantage

permanent protection against

circuit conductors

property damage and production are greatly minimized. In the over-all planning of a wiring system, these costs must be weighed. And, certainly they are. That is why architects and electrical engineers, in their own interests and in the interests of their clients, specify rigid steel conduit as a protective investment.

The adaptability of rigid steel conduit. "If I had to tear out this system in the next few months . . ."

The engineer, contractor or architect who guarantees his work experiences this thought every time he designs or installs an electrical system.

It is also one of the reasons why rigid steel conduit has always been a standard of the electrical industry. The quality of this product is time-tested, proven and familiar to everyone who designs and installs electrical distribution systems.

This is primary because circuits can be serviced so easily. A rigid steel conduit permits electrical circuits to be changed and repaired; to grow as the need grows with an absolute minimum of expense.

The removal of defective wires and rewiring with sound ones is merely a matter of pulling out and feeding in. And, the smooth interior or rigid steel conduit makes it even easier to *fish* for wires and cable. In brief: property does not have to be damaged and there is no time lost in rewiring. The ease of installing rigid steel conduit. Rigid steel conduit is easy to install, because it is compatible with all building materials, adaptable to all construction, fits anywhere and expands easily.

Rigid steel conduit is made to A.S.A. Specifications C.80.1 and 2, and is furnished with threaded couplings, elbows and nipples, as well as a full line of standard fittings, outlet boxes and accessories. And, it is available in sizes $\frac{1}{2}$ to 6 inches.

Rigid steel conduit is easy to bend, cut and thread.

It can be installed indoors and outdoors, in dry or wet locations, exposed or concealed, in any hazardous location and under all types of atmospheric conditions.

Rigid steel conduit has great impact resistance; it can be handled roughly in installation and shipment, because it is not easily damaged. Actually, the contractor needs few tools to put in a permanent, safe and economical rigid steel conduit wiring system.

Electricity is a powerful force. And, electrical wiring must be protected to eliminate danger to life and property. For more than half a century, rigid steel conduit has given that protection.

You may obtain additional copies of this report by writing to National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.—*America's leading steel pipe manufacturer supplying America's foremost conduit manufacturers.* USS is a registered trademark



Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors United States Steel Export Company, New York

Now...Choose from 3 basic Wayne gymnasium seating systems to meet your budget

Match your seating to your dollars and save. Choose from a complete line by the world's largest manufacturer of *spectator seating*.

With economy as the watchword in today's new school construction, it will pay you handsomely to look into the *only* line of gymnasium seating that offers a choice of three budget ranges . . . an outstanding, efficient seating system for each! Every Wayne model is engineered with the important attention to detail that assures longer life, smoother performance, lower maintenance costs . . . more seating efficiency for your money! Check these three Wayne values before you decide on *any* seating at *any* price! Write for catalog data today!



Products

Tiny self-cleaning lamp . . . insulated aluminum panels . . . stock hyperbolic paraboloids . . . two-color stainless steel



SELF-CLEANING LAMP burns brighter, lasts longer

An entirely new kind of lamp, which promises to have a far-reaching effect on industrial and commercial lighting, has been announced by General Electric. The *Quartzline* lamp, now produced in two sizes, is billed by GE as "one of the most important basic improvements in incandescent lamps since Thomas Edison invented his first practical model 80 years ago."

At first glance the most remarkable aspect of the new lamp is its size: a tiny tube does the work of a present-day lamp 200 times bigger (see photo). But its other merits are just as impressive if not quite so noticeable: the new lamp cleans itself inside and out, maintains 99 per cent of its original light output throughout life, offers 50 per cent more light in high-voltage lamps, and resists cracking or breaking when exposed suddenly to ice or cold water.

The working part of a Quartzline lamp is a coiled tungsten filament tucked into a quartz tube % in. in diameter. It differs from conventional incandescent lamps in using the "iodine cycle" to prevent blackening inside the tube. (The heat generated is intense enough to burn off dust on the outside, too.) In turn, the tungsten particles on the filament combine chemically with traces of iodine gas in the tube, circulate in the tube, separate from the gas, land back on the filament, and repeat the cycle. If the tungsten particles returned to the filament in a perfectly even coating, theoretically the lamp would never burn out.

GE engineers foresee wide use of the new lamps, which throw square or long, thin beams when used with reflectors, to light show windows, sports fields, building façades, and store counters.

GE is making the new lamps in two sizes: the smaller, 500-watt lamp is 4½ in. long, operates on 120-volt power, and produces 10,500 lumens; the larger, 1,500watt lamp is 10 in. long, operates at 277 volts, and produces 33,000 lumens. Both are available this month in sample quantities, and the Accessory Equipment Dept. will offer sample lamp holders at the same time.

Manufacturer: General Electric, Nela Park, Cleveland 12.

HYPERBOLIC PARABOLOIDS offered in stock sizes

The popularity index of hyperbolic paraboloids is very high indeed, judged by a Florida firm's announcement that it will site-fabricate them in stock sizes anywhere in the country. West Coast Shell's engineers determine the footing size applicable to the soil-bearing capacity of a



specific site, then pour the footings, columns, and shells from stock forms set up on the site. Shell sizes range from 8 ft. by 10 ft. up to a wingspread of 100 ft. by 100 ft. Total costs depend on soil-bearing capacity and other factors, but generally run to about \$2.50 per sq. ft. of roof area in place. Several architects in the Florida area have used these stock shells for refreshment stands, shopping centers, and pool enclosures.

Manufacturer: West Coast Shell Corp., 3100 N. Washington Blvd., Sarasota, Fla.

ALUMINUM SANDWICH PANEL bonded to foamed plastic core

Alcoa's new sandwich panel, *Alply*, boasts a diversity of uses. Though it is of major interest to the building industry for use as



Ramset holding power test conducted by The Austin Co., engineers and builders, Cleveland, Ohio

offers austempered fasteners with such superior holding power

Even under the most demanding workloads, Ramset's austempered Red-Tip fasteners assure more holding power and greater fastener strength. Austempering, Ramset's high-heat slow-quench treatment, puts extra strength, toughness and dependability into every Ramset Red-Tip fastener.

Ramset's wide variety of fastener sizes puts the *right* fastener on each job—you don't have to "make-do" with off-size pins or studs. Ramset assures positive, guaranteed fastenings into tough steel, concrete or masonry faster and easier, and at lower in-place cost. Consider Ramset's many advantages and the "100-for-100" guarantee—call your Ramset dealer (under "Tools" in Yellow Pages) for details.



In addition to powder-actuated fastening, the versatile Ramset System includes Shure-Set[®]hammer-in tools for light fastening, and Ringblaster[®] heavy-duty kiln gun.



WINCHESTER-WESTERN DIVISION + OLIN MATHIESON CHEMICAL CORPORATION 12157-H BEREA ROAD + CLEVELAND, OHIO

Products

curtain wall and structural panels (see photo below: a filling station in Cleveland built of Alply panels), plans are afoot to invade the refrigeration, transportation, and marine industries, too.

Basically, Alply is a sandwich panel of aluminum sheets bonded to a core of expanded plastic beads (foamed polystyrene). If desired, another material may be substituted for one aluminum facing; plywood, plasterboard, gypsum board, and



hardboard are possibilities for the second sheet. Where necessary for unusually high loads, higher density cores and rails, or shear webs of aluminum or wood are built in. In addition, Alcoa is currently working out a way to insert tubing for conduit, heating, or cooling into the core while the panels are in production.

Used as a curtain-wall panel to fill the openings of structural framework or as a primary load-carrying member, Alply has a high strength-weight ratio. A 3 in. panel, 4 ft. by 8 ft., faced with 0.025 in. aluminum, weighs only 39 pounds, yet supports a distributed load of 1,500 pounds over an 8 ft. clear span.

Alply panels are available in many lengths and widths up to 48 in.; core thicknesses run from 1 to 6 in. The cost of an architectural panel 4 ft. square, with a 2 in. core and one side of aluminum porcelain-enamel finished, would be about \$1 per sq. ft. but could go to \$2, depending on the finish and second sheet. Prices vary according to composition, quantity, size, and surface finish.

Manufacturer: Aluminum Company of America, 1501 Alcoa Bldg., Pittsburgh 19.

EMBOSSED STAINLESS STEEL brings two colors to curtain walls

Republic Steel's new research center near Cleveland displays the first curtain-wall application of embossed stainless in two colors. To create this effect, the embossed steel, called *Rigid-Tex*, is first coated with an enamel frit which is wiped clean at the high points of the pattern before firing, and then the exposed stainless is polished. The result is a patterned stainless sheet of textured color and silvery highlights.

From a roster of 30 standard colors and 50 patterns made by the Rigidized Metals Corp., Republic chose a geometric Raymond Loewy design colored a deep blue-

green for the exterior and the same pattern, in black, for the cafeteria walls.

Any embossed panel may be reversed to obtain an entirely different pattern. For example, the photograph shows three possibilities from just one pattern: top to bottom, the exterior panel used by Republic (the plus-sign motif is about an inch square), its reverse side without color, and the reverse side colored and polished.

Rigid-Tex curtain walls are said to eliminate the glare and waviness sometimes found bothersome in flat sheets, and small dents are imperceptible because the surface may already have as many as 4,032 reflective levels per square foot. Among other advantages cited are the patterned panel's self-cleaning ability (surfaces slope down and out to avoid dust collecting) and the additional strength imparted by the rigidizing process, which makes possible the use of a thinner steel than that required for a flat panel.

Manufacturer: Rigidized Metals Corp., 658 Ohio St., Buffalo 3.

TAMPERPROOF LIGHT designed for maximum security use

For special use in institutions such as prisons, psychopathic wards, and homes for delinquent youths, McPhilben Lighting offers a lighting unit designed for maximum security. It is a heavy-duty castaluminum fixture which fits snugly into a



continued on page 58



now the prints you need when you need them!

No longer need you wait a day, or even hours, for prints that you're in a hurry to get to customers.

Now, Bruning's unique Copyflex Model 300 brings the advantages of inside reproduction within the means of the smallest firm or department. Right in your own offices, you make sharp, black-on-white prints in seconds of a drawing or tracing up to 30 inches wide by any length. With intermediates, you make design changes without reworking originals; you make composite prints, color overlays, and sharp prints from weak originals. You add new dimensions in convenience, speed, and efficiency to your entire operation. All at the surprisingly low cost of the Model 300!

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Products

NEW! free data on ARCHITECTURAL STAINLESS STEEL





Here's a valuable addition to every architects' and designers' fact file — six pages of easyto-read information on the four stainless steel types generally used in architectural applications. Includes comprehensive data on composition, mechanical properties, available widths, thicknesses, lengths, finishes, textures, approximate costs per square foot, and a table of comparative gauges for stainless and aluminum. Get the full story on how to specify and use

architectural stainless steels more efficiently and economically. Mail the coupon today for your copy.

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NAME	TITLE
COMPANY	
STREET	
CITY	ZONE STATE

ceiling corner without providing any nooks for storing weapons. A perforated steel plate, flush riveted to the casing and nonremovable, shields the tempered glass on the face. One model opens from the front, but for an extra measure of protection, another model (see photo) opens only from the back so that the bulb-changer need not enter the cell. Both models are 8½ in. high, 11 in. wide, and cost \$47.50.

Manufacturer: McPhilben Lighting Co., 1329 Willoughby Ave., Brooklyn 37, N. Y.

CURTAIN WALL FOR MOTELS adds heating-cooling unit to wall

A new addition to the Lupton line of curtain walls is one designed specifically for motel use. By combining in one assembly certain basic components—curtainwall panels, fixed or sliding windows, a door, and an air conditioner-heat pump the manufacturer offers the entire front



wall of a motel unit in a package. The frame is aluminum, available in several sizes, and the panels, of porcelain enamel on steel, can be specified in any color. A heating-cooling unit, either heavy duty or regular, is supplied as part of the wall, and these units are interchangeable. Lupton crews erect the whole wall.

Manufacturer: Michael Flynn Manufacturing Co., Philadelphia 24.

PRECISION-SIZED TILE cuts installation time by one fifth

Precision-ground ceramic tile may reduce installation time by as much as 20 per cent, according to the U.S. Ceramic Tile Co. Besides redesigning its standard tile to measure exactly 4¼ in. by 4¼ in., the company has added a special grout lock



feature consisting of pockets on all four sides of each tile (see drawing). When grout is forced into these pockets, an interlocking bond is formed between the grout and the tile, eliminating grout-line pullout. *Levelset tile* is available in 25 bright-glaze and 15 matte-glaze colors at no increase in cost over the company's 4¼ in. field tile.

Manufacturer: U.S. Ceramic Tile Co., 217 4th St., N.E., Canton 2, Ohio.

MODULAR OFFICE FURNITURE combines matching storage units

Architect George Nelson, long known for his development of storage partitions, has designed for the Herman Miller Furniture Co. a system of office furniture with interchangeable storage units. Called the *Executive Office Group*, the system consists of



16 walnut components and a choice of either walnut or scratch-resistant plastic tops. The shells form single, double pedestal, or L-shaped desks, fitted with any of four types of drawers or files. Bookcases, large and small storage units, both fixed and movable, complete the line.

Manufacturer: Herman Miller Furniture Co., Zeeland, Mich. END

consideration of a Western Plant Site from a Traffic Manager's Viewpoint

Among the various factors to be carefully considered when selecting an industrial plant site, transportation is of vital importance.

That's where the Traffic Manager's experience and judgment is invaluable. He knows routes—he knows rates.

He also knows that when a plant is located on or near Union Pacific trackage, he can be assured of a reliable freight service backed by the most modern facilities and equipment.

Other factors such as production and communication utilities . . . labor and living conditions . . . also will be to your liking.

We suggest you contact your nearest U.P. representative, or get in touch with us direct, for confidential plant site information.





Industrial Development Dept. UNION PACIFIC Railroad OMAHA 2, NEBRASKA

How to say "integrity" with glass

THE TACOMA SAVINGS & LOAN ASSOCIATION has used glass effectively in its new office building to create an appealing corporate image in the minds of its customers and prospects. In keeping with its business, the design is dignified yet modern, and suggests responsibility and efficiency. It reflects a personality that is not secretive, but open and communicative. It invites inspection in an atmosphere of friendliness and good taste.

Pittsburgh's TWINDOW[®]—the windowpane with insulation built in—admits light and vision on three sides of the building. Above and below the TWINDOW and in the solid wall areas, Romany Blue SPANDRELITE[®] adds attractive color to the exterior. HERCULITE[®] Tempered Plate Glass Doors equipped with PTTCOMATIC[®] automatic door openers make an inviting and convenient entrance. Pittsburgh Polished Plate Glass is utilized for office partitions, and Pittsburgh High-Fidelity[®] Mirrors brighten the rest rooms.

Whether you seek the solution to a functional, decorative or interpretive problem in planning new buildings or revitalizing existing ones, consider the many advantages of Pittsburgh Glass. The architectural representative at your nearest Pittsburgh branch will be happy to discuss PPG glass products with you, without obligation.



PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS · FIBER GLASS

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED



Architect: Lea, Pearson & Richards, A.I.A. Tacoma, Washington. Contractor: Ketner Bros., Inc., Tacoma, Washington.

Glazed by W. P. Fuller & Co., Tacoma, Washington.

HERCULITE Tempered Plate Glass Doors are opened with the touch of a finger by PITTCOMATIC handle-operated automatic door openers. Hydraulic, motor-driven mechanism is completely concealed.





The unhindered view of the interior of this office dispels mystery, reassures strangers and invites friendly contact.

PITTSBURGH GLASS ... the basic architectural material



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LATEST IN COOLING Gas operated York machines feature the use of tap water as refrigerant and lithium bromide as absorbent, one of the most efficient, practical refrigeration cycles developed so far. Machines start and stop automatically.



THE UTMOST IN FLEXIBILITY The units are cross-connected so that each operates independently if necessary.







MAINTENANCE COSTS TO DATE— **ZERO!** The Allen Company uses two York machines—a 230-ton unit serving 45,000 sq. ft. of office and cafeteria space, a 170-ton unit for process water cooling. Three small pumps and motors are the only moving parts in the entire system.

"with YORK GAS air conditioning our boilers keep us cool all summer"

"With our boilers sized for a winter load, we were naturally oversized for the summer months. But York's gas-operated Lithium Bromide absorption water chillers permit us to make efficient use of part of this steam capacity to cool," says Mr. M. J. Mather, President of the Allen Manufacturing Company, makers of hex-socket screws.

The York Lithium Bromide system eliminates the need for huge compressors found in other types of cooling equipment... which brings down the original cost considerably. And with gas the boiler fuel, you make year-round use of an otherwise wasted source of power *at rock bottom costs*. In addition, York machines are noiseless, lightweight, compact—easy to install and readily adaptable to almost any plant layout.

Find out how your present heating system can pay off for you all year 'round with gas-operated York automatic water chilling units. Call your local gas company or write to the York Corporation, Subsidiary of Borg-Warner Corporation, York, Pennsylvania. *American Gas Association*.

There's no plate \like home

In selling, the same way. Take building product sales. The architect recommends you – or maybe it's the engineer – you're on first. The contractor keeps you in his bid – you make it easy. You're on second, or maybe third, if he's a strong hitter. Then who gets you home? The client. Either he drives you home, or you die on third. No sale.

Moral: You need all four: architect, engineer, contractor, client.

But let's look at the clean-up man-the client.

All buildings *start* with the client. Since he, in essence, is "buying" a building which his company or organization needs, he is directly involved in its financing, design, construction—or expansion and modernization.

As the building market continues to grow, so, too, will the number of building clients grow. And Architectural FORUM is the *only* magazine that has clients. In fact, FORUM is the *only* magazine whose growth keeps pace with the building industry itself.

With the biggest circulation in the field -60,000 - FORUM *alone* is edited for and read by the kind of building customers you must reach and influence. Just how important are they in building decisions? Here's one indication:

Of FORUM's 21,000 client subscribers,

89% are concerned with building matters within their companies, and 40% of these companies will spend \$500,000 or more on new building and major remodeling within the next two years.*

*Source: The new FORUM Census, "Portrait of the Building Client." Write for a copy. Architectural FORUM, 9 Rockefeller Plaza, New York 20, New York.

Only FORUM can load the bases because . . .

FORUM DELIVERS THE ENTIRE SPECIFYING AND BUYING POWER OF THE BUILDING MARKET



AIA 1959 FIRST HONOR AWARD

"This elegant store may well breathe fresh life into urban retailing generally," said a recent issue of a leading architectural publication. Opened in downtown Denver only a few months ago, the May-D&F project is already a thriving commercial success and a top tourist attraction. Good architecture and imaginative use of materials has contributed largely to this success.

Specially fabricated light gold anodized panels of Reynolds Aluminum were used to enclose the entire four-story main store section of this AIA award winning structure. The panels have a 3" honeycomb core and have a two hour fire rating. The entire effect of the structure and its grounds is exciting, enticing and pleasurable. Reynolds is proud to have had a part in its creation.

MAY-D&F DEPARTMENT STORE (A part of Zeckendorf Plaza) Denver, Colorado OWNER: Webb & Knapp, Inc., New York, N. Y. ARCHITECTS: I. M. Pei & Associates, New York, N. Y. GENERAL CONTRACTOR: Webb & Knapp Construction Corp., Denver, Colorado CURTAIN WALL FABRICATORS: Reynolds Metals Company

The Proudest of the Metals REYNOLDS ALUMINUM



Reynolds helps industry produce – practically and economically

> GERBER PRODUCTS CO. BUILDING Asheville, N. C. ARCHITECTS: Six Associates, Asheville, N. C. GENERAL CONTRACTOR: H. L. Coble Construction Co., Greensboro, N. C.

REYNOLDS COMMERCIAL ROOF DECK (more than 120,000 square feet of it) was used in this new processing plant to achieve fast and easy installation, low first cost, good insulation and minimum maintenance over the years. Once again, Reynolds Aluminum was the most practical material for an important construction job. For detailed information about the many uses of this versatile roofing product write: Reynolds Metals Company, Richmond 18, Virginia.

REYNOLDS ALUMINUM Watch Reynolds TV show "Walt Disney Presents" Friday Nights on the ABC-TV Network.

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report to architects:

International Minerals & Chemical Corporation's five superb new buildings represent a notable achievement for its architects, Perkins & Will. The unique aluminum wall system once again demonstrates the many ways in which this modern architectural metal can be used. Its versatility, here, is also evidenced in the 6-ft module motif repeated throughout the buildings and intervening spaces.

Functional and award winning, these modern structures suggest many worth-while ideas for the application of aluminum. For complete data and unmatched technical assistance, call your nearest Alcoa sales office or write: Aluminum Company of America, 1822-H Alcoa Building, Pittsburgh 19, Pennsylvania.

"Hurricane tests" prove

When you spend \$5,000,000 for a new headquarters, you want positive assurance that its good looks will last. International Minerals & Chemical Corporation got that proof on its fivebuilding corporate center at Skokie, Ill., with tests that put ordinary procedures to shame.

These tests demonstrated that the curtain walls, suspended on their all-aluminum grid, could defy wind loading of 100 mph and 6 in. of rainfall. Conditions like these are on a par with hurricanes and they'll probably never be faced again even in the rugged weather of the Chicago area.



BUILDING: Administrative and Research Center, International Minerals & Chemical Corp., Skokie, III. ARCHITECT: Perkins & Will, Chicago, III.

GENERAL CONTRACTOR: Turner Construction Co., Chicago, III. CURTAIN WALL CONTRACTOR: Michaels Art Bronze Co., Erlanger, Ky. PORCELAIN ENAMELERS: Hamlin-Stevens, Inc., Fairfield, Conn. Porcelain Steel Corp., Connersville, Ind. PORCELAIN ENAMEL SUPPLIER: E. I. Du Pont de Nemours & Co. (Inc.), Wilmington, Del.

permanence of aluminum construction

With aluminum's traditional durability came another advantage in the interests of a perfect marriage of materials. Hence, the precise color match of all exterior aluminum.

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Architect: Warren H. Ashley Contractor: Stewart M. Muller, Inc.

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Whether it's a simple one-story structure or a towering skyscraper, North American Architectural Metals give the architect full esthetic freedom of design...and give the owner a modern structure that is economical, easy to erect, and enduring. For complete information about North American's design and engineering service, please write to: Architectural Metals Division, North American Aviation, Inc., Columbus 16, Ohio.

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Subject: 118 Royal Street Office Bldg., Mobile, Ala. Architect: William I. Rosamond, Columbus, Miss. Glazier: Prichard Glass Co., Mobile, Ala.

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INSIDE AND OUT



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ARCHITECTURAL FORUM Published by TIME INC.

Editorial

Memo to the motormen

Conventions, more than most forms of human activity, have a way of producing inspiring messages about the Challenge of the Future and The Big Job Ahead. Not all of these noble words, of course, are remembered too clearly or acted on too widely after the bunting has been taken down and the weary delegates have wandered home.

Some of the talk at the recent American Institute of Architects meeting in New Orleans, however, had a hard and hopeful new ring about it, and if momentum is not lost, some preaching might actually be converted into practice.

The most urgent message that came out of New Orleans was that of pure, simple responsibility: a responsibility for the future of America. It emerged as a responsibility not only of America's comparatively tiny band of professional architects, but of its more powerful business and government leaders as well, to help shape an American environment worthy of our long-shouted technical and economic progress.

As Architect Edward Durell Stone reminded his colleagues, this nation is on the eve of a modern renaissance of cultural and spiritual values, and its architects are in a unique position to show their fellows how these values can be translated into surroundings that will both reflect and enhance a maturing American culture. But architects, as he pointed out, are not nearly numerous enough, and they have tragically either lost or abdicated their rightful leadership. They are usually called in—if indeed they are called in at all—only after the most important decisions have been made (see *Excerpts*, page 171).

At the same time, Stone added, others must recognize their obligations too. "Since the horseless carriage is largely responsible for our present troubles," he told AIA members, "and we are a country that eulogizes free enterprise, why hasn't it occurred to the great oil and automotive industries to help solve some of the problems they have helped create? Why can't they be shamed into initiating badly needed planning studies of our countryside, our towns, our cities? To such corporations the financing of such valuable studies would be peanuts."

In challenging the oil and auto companies, Stone might have included some of those who service them: for example, the rubber and paving people, who also stand to suffer along with the public from bad design on one hand, and to benefit so grandly from good city planning and fine highways on the other.

The auto-oriented industries are already far more deeply involved in planning and design than many of them realize. They may think that in merely obtaining and letting loose a huge highway program they have done themselves and the country a tremendous good turn. But what if



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Editorial continued

more and more of these new highways turn out to be unexpectedly inefficient, because of one-eyed planning? What if lack of forethought results in maddening snags and snarls and mounting obsolescence for the highway itself, not to mention the cities with which it meshes badly? And what if fourth-rate new gas stations, mean restaurants, and chaotic roadside billboards take still more of the pleasure out of driving, and send Americans off in search of more agreeable forms of transportation?

One of these days it may occur to some bright executive that his industry does have a substantial stake in these national responsibilities, and further, that he has expert and willing allies in the architects and planners who have talked and thought about these problems for so long. Together they might discover this really is a Big Job Ahead, and well worth working on.

Billboards on wheels

New York's Mayor Robert Wagner put his foot down the other day and told his various commissioners to stop making public pronouncements on matters of policy-especially if the policy was not that of Mayor Wagner. His Honor was, of course, quite justified in putting his foot down. But it seems most unfortunate that one of the gentlemen thus singled out and squashed was New York's able Police Commissioner Stephen P. Kennedy, who had just told the press that he was irrevocably opposed to having advertising signs placed on the outside of taxicabs.

Commissioner Kennedy spoke bluntly: such signs, he said, would be "distracting, ugly and unsightly." FORUM agrees and applauds a rare public servant willing to take a



stand on the side of beauty and against more hucksterism and ugliness in America's townscapes and landscapes. The Commissioner may have been off base but not nearly so far off base as those who threaten further to deface the streets and highways with a cavalcade of billboards on wheels!

The biggest architects

The list of the 100 biggest architects, which makes its second annual appearance in this issue (page 114), stirred up a great deal of comment, most of it favorable, when it was first published by FORUM last year. However, this year as last, a few big architectural firms flatly refused to be included in the directory. Some said politely that their figures were nobody else's business; others withheld cooperation for a more disturbing reason: i.e., that the directory serves no worth-while purpose and actually works to the detriment of good architecture by publicizing big, and often mediocre, firms at the expense of small, quality architects. One architect who declined on these grounds said he guessed he felt like the schoolboy who refused to raise his hand when the teacher asked who wanted to go to heaven. When she asked him why, he replied: "Not with them bastards, teacher."

The simile may be apt, for the same architect observed that "80 per cent of the firms named do very sorry work." But that is the point —if 80 per cent of construction going up, or even a percentage far, far less than that, is poorly planned, poorly designed, and poorly executed, and if the firms willing to function in this manner are among those who get the biggest share of the \$50 billion U.S. building pie, whose fault but the architect's is it?

Such a question is not one that FORUM'S 100 biggest list can answer since it merely reports the dollars that have fallen to the just and the unjust; but it is one that readers might well ponder. The list makes absolutely no attempt to provide any guide to quality or even to the relative importance of the firms shown. The list attempts merely to provide a volume gauge for the information, and the possible regret, of those who are interested in architecture as a business venture.

It would be well if more became interested in the business side of architecture. Every reader is entitled to interpret a listing like the present one in his own way, but, until such a list is published, it is impossible to say with assurance how many of the architectural firms doing fine work are among the volume leaders (in FORUM's view a surprising number), how many firms doing a big volume of work never show up in national publications in any other context because of an undistinguished product (too many), how many firms doing fine work have never done a big volume (there may be good reasons), and so on. All these questions can be investigated further with the present list in hand. They could not be investigated without such a list. Whether for that reason or simply because curiosity was intense, last year's lists of the 100 biggest architects, contractors, and clients had to be reprinted in a volume unprecedented among FORUM articles, to satisfy the demand. Apparently such a list is handy to have around.



Through connections over and under a midblock plaza, Southland Center's hotel and office towers have interlocking lobbies and convention facilities on the lower floors

Blockbuster in Dallas

Like most things in Dallas, Texas, the new Southland Center is big with record-breaking statistics. The 42-story, 550-ft. office tower claims to be the sixth tallest business building in the U.S. outside of New York and Chicago. The office tower and accompanying 28-story, 600-room Sheraton-Dallas Hotel together enclose 25.7 million cu. ft. of space and cost an estimated \$35 million. The center has a total of 29 elevators, 6,450 tons of cooling, 114,000 sq. ft. of glass, 16,000 tons of structural steel, 3,533 sprinkler heads, and 38.5 million individual pieces of mosaic tile.

For once, however, a building in downtown Dallas is noteworthy for something more than its size. Southland Center's most immediately striking feature is that it is one of the few tall buildings in downtown Dallas to omit a neon- or flood-lit beacon, gazebo, or dovecot on top, a seemingly inevitable excrescence ever since the Republic National Bank Building used a 150 ft. beacon to reach a height of 598 ft. in 1954. ("The top of Southland's flagpole is taller than the top of Republic's mast, if they want to play that game," says a Southland official.) These jabs at the sky are unnecessary at Southland Center, for both the owners, Southland Life Insurance Co., and the primary lessee, the Sheraton Corp. of America, have their names emblazoned big and high on the building's sides.

A 42-story bid for supremacy on the sky line (photo right), Southland Center also introduces the virtues of ground-floor open space to Dallas. The smaller hotel tower is linked by a bridge to convention facilities in the block structure under the larger office tower. On the roof (extreme left) are column caps for a projected third tower. At ground level, Southland Life and its architect, Welton Becket, sidestepped another Dallas practice, which is to build up every square inch of a lot. Instead, they introduced a three-quarteracre terrazzo-paved and planted plaza in the middle of the block to separate the office and hotel towers.

The plaza and the paired towers belie the fact that the center is physically and legally—a single structure. Under present Texas law, insurance companies are allowed equity ownership in only one piece of real estate which must be used for home-office purposes. The way hotel and office spaces are interlocked, it would be impossible to prove that the center is not one building.

The perennial problem of hotel planning is to obtain bulk space for convention facilities and services at or near the lobby level and still achieve a slim and efficient tower for guest rooms above. In Dallas the bulk hotel space is under the office tower. The two segments are connected over the plaza by a bridge containing two restaurants and under the plaza by a shopping arcade. On the second floor of the base structure under the office tower is the ballroom (with a capacity of 2,200 persons) and a group of special meeting rooms. The third floor contains equally bulky hotel service areas. Under the entire block is a three-level, 1,114-car garage. For fast-growing Southland Life,

48th in the rank of big insurance companies with more than \$1 billion of insurance in force, the multiuse structure offers more than prestige on the sky line. Among the first meetings scheduled in the new Sheraton was a meeting for Southland Life agents which, conveniently, was held at home. Moreover, with 74 per cent of the office space leased out, the company has the assurance of built-in expansion. Planned for later construction on top of the base structure is a 32-story wing to balance out the hotel tower on the other end of the block.

The two present towers turn blank walls in opposite directions. The hotel windows face north and south while the office windows face east and west. In each case, somewhat less than 40 per cent of the wall is window, the rest being filled with blue and green mosaic tile spandrel panels. The prefabricated tile panels fit into an aluminum-framed curtain-wall system. End walls and the base structure are precast concrete, in which the aggregates of quartz, granite, and vitreous bodies are exposed.

While Southland Center's obvious impact on Dallas is in the sky line, its most important contributions may well be its plaza and interlocked plan. Downtown Dallas desperately needs open space and the city needs a tightly interlocking plan to tie individual development into a consequential whole.

PHOTOS: (BELOW) SQUIRE HASKINS; (OPP.) ALEXANDRE GEORGES



ARCHITECTS AND ENGINEERS: Welton Becket & Assocs. CONSULTING ARCHITECT: Mark Lemmon STRUCTURAL ENGINEERS: Murray Erick Assocs. (Edwards & Hjorth consulting) CONSULTING MECHANICAL ENGINEERS: Zumwalt & Vinther GENERAL CONTRACTOR: J. W. Bateson Co., Inc.







Curtain-wall spandrels of mosaic tile were precast with a lightweight concrete aggregate backup. The terrace is on top of the base structure, opens off the employees' cafeteria floor.

Under the bridge connecting the office tower (background) with the hotel, Southland Life officials survey their new domain. Hotel taxi lane is in the foreground.

Ramps to underground parking are reached from an automobile concourse under the office tower. The three-level garage has a capacity of 1,114 cars.









Typical hotel room doubles as a sitting room. Sheraton interiors are by Vice President Mary M. Kennedy, who is an architect.

Presidential suite has a florid decor which contradicts the less obvious, but more fitting air of luxury of the building's design.

Second-floor lobby is reached by escalators from the plaza entrance. Convention facilities are to the left, elevators to rooms, right.

Ballroom, which can be divided into three rooms, seats 2,200 for meetings, 1,500 for dinners.

Mosaic mural by Gyorgy Kepes is one of the most successful parts of the lobby decoration.

PHOTOS WILLIAM HOWLANE









Night views of ¾-acre plaza (above) and street façade (left) highlight the faceted precast concrete wall panels which enclose the block structure under the office tower. The bridge which connects the hotel's convention facilities to the lobby crosses the plaza to join the hotel tower above the main entrance. Booming Dallas is building fast and planning slow. Still to be learned: it takes more than a heap of buildings to make a city

BY RICHARD A. MILLER



The courthouse stands in a backwash of booming downtown. Old settlers can still find a quiet place across the street to sit under an outdated but still functional canopy.



The image of a Dallas rich, powerful, and urbane can be glimpsed in the plaza of Southland Center, or in the show windows of Neiman-Marcus, or in the downtown sky line from Harry Hines Boulevard. But these are merely isolated vignettes in the overwhelming context of a booming, sprawling, shapeless city-one bent apparently on becoming a second Los Angeles surrounding a lesser Manhattan. Downtown, so golden when seen from the boulevard. is seen on closer approach through a framework of decayed houses, used-car lots, and telephone poles (1). Hot avenues, rapidly becoming treeless, give way to crowded one-way streets and an almost universal texture of parking lots and honky-tonk architecture at the city's center.

On cramped downtown sidewalks, the view upward is ethereal. For up there, pushing and jabbing at the sky, is an incredible collection of new buildings. During 1958, more than 735,000 sq. ft. of new office space was completed, with 3 million more announced or under construction—a record equal to the total constructed during the entire period 1950 through 1957.

This boom, which is probably exceeded only by Manhattan's, is occurring on a street and property framework substantially unchanged since 1875, when Dallas was a sleepy county seat (2) for a county containing 13,314 people. Today the county's population is over 860,000. Yet the fantastic growth shows no sign of slacking off. The Central Business District Association predicts that 10 million more square feet of office space will be added downtown in the next 16 years.

All this activity downtown might be expected to siphon activity into the core from the surrounding area. But in Dallas, this is not the case. Down over the old flood-plain of the Trinity River, now safely held in place by levees, building activity continues apace in the Trinity and Brook Hollow industrial districts. Brook Hollow, opened

only in 1953, is already built up with nearly two square miles of distributing and smaller manufacturing buildings set behind wide lawns along concretepaved industrial boulevards. Trinity, the pioneer district opened in 1946, has turned from the tightly built small units, which threatened to make it obsolete before it was complete, to larger projects, such as the new \$7 million Gifts Mart and \$18 million Trade Mart. Now, in vast remaining stretches of Developer Stemmons' land, Trinity is preparing a new stage of growth, this time following the higher standard set by Brook Hollow.

Another spur of new growth is taking place along the still-incomplete Stemmons Freeway, designed to take some of the pressure off the heavily traveled Harry Hines and Industrial Boulevards. Stemmons Freeway, like the earlier Central Expressway, is being built with frontage access lanes alongside, thus opening virgin lands to development. A surprising amount is being developed before the freeway generating it is complete.

Outlying development is by no means confined to these areas, however. Farther out, for example, the \$125 million Exchange Park (11) already has Braniff Airways headquarters and the new Exchange Bank & Trust Co. in place, and expects to become a major outlying office center. Another favored growth area is the still-fashionable residential section along Turtle Creek. This area, best suited for high-rent apartment buildings, is rapidly going commercial.

The web

The entire projected \$250 million Dallas freeway system is the armature for future development. Designed like a spiderweb, the freeway system will work outward radially from the four-mile inner loop. Three additional encirclements of the county will complete the system. Upon its completion in five to ten years, it is intended to have a major effect on traffic congestion downtown. "Surveys prove that 50 to 60 per cent of the traffic in the downtown area is bypass traffic that should be going around instead of coming through," says Planning Director H. Alden Deyo. Deyo, a civil engineer who was in charge of advance planning for the commission, recently succeeded Marvin R. Springer as director of the 50-man planning staff when Springer went into his own consulting business in Dallas. Springer was so highly thought of in Dallas that the city was among his first private clients; he will now supervise the planning staff's advance section in preparing a downtown plan.

Oddly enough, Dallas looks with equanimity on the prospect of federal investment in the local freeways (nearly 60 per cent of the network is on the interstate system), but has consistently refused to avail itself of federal urban renewal funds. Indeed, after a big hassle last year, it appears that a federal urban renewal program is a dead issue in Dallas—at least for some time to come.

In early 1958, the city began a serious move toward a federal redevelopment program for the West Dallas area, a slum of ten square miles with a population of nearly 60,000 people. Mayor R. L. Thornton led a drive for a referendum to determine whether the city would redevelop the area with federal help. But opposition arose, with political overtones, from two groupsthe builders and the realtors. Both groups split widely on the question, with the majority against. Though the Chamber of Commerce supported the referendum, a minority of the directors were opposed. Then, from Washington, the city's economy-minded congressman, Bruce Alger (R), blasted the federal program as "socialistic," arguing that the cost of urban renewal was fantastic and that the competitive inducement to states and communities to bid for federal-aid money "postpones realistic appraisal of the facts and heightens the potential danger of complete socialism."

When the issue threatened to become hot politically in this spring's municipal election campaign, Mayor Thornton side-stepped it by announcing a "Dallas Revitalization Plan." Effectively, this is the old do-it-yourself rehabilitation idea. A selected area in the predominately Negro and Latin American district was picked and 2,200 residents were recently notified that







Southland Center is seen above a groundcover of Negro slums (3), a classic city hall (4), and the low, mixed structures of an adjacent shopping street (5). The site for the often proposed plaza and underground garage is at left in photo (4), where the baroque screen of the new Gold Eing Garage now ill-conceals the stacked-up cars behind its tracery.

health and sanitary hazards exist on their properties. Home owners were offered special loans to bring their premises up to code standards.

Do-it-yourself rehabilitation has worked with some success in more limited areas like Dallas' Little Mexico, but the West Dallas problem is substantially different. Nearly three square miles of West Dallas are filled with irreparable slums. According to City Manager Elgin E. Crull, "they are just not worth rehabilitation."

The Dallas stand against the urban renewal issue is symptomatic of inherent suspicion of all governmental activity in civic affairs. Civic leadership, appearing at first glance to be widely dispersed, is really held in very close control by a relatively small group. Undoubtedly the most powerful among civic organizations is the 22year-old Dallas Citizens Council, with a legal strength of 250 members. "For a civic enterprise to succeed, you've got to get the support of the Citizens Council," says one prominent citizen.

Romans and Visigoths

Real political power is vested in the Citizens Charter Association. This group, responsible for the present citymanager form of government, "drafts" prominent citizens to do their turn in mayoral and council posts. Below this level, many organizations carry on particular aspects of civic activity, but in general, the members of one group are the same as the members of another. "You go out into the new residential districts and see scores of \$75,000 or \$100,000 houses, and you wonder who lives there, where they come from, and whether they couldn't make some contribution to the community," said the same prominent citizen. But for "new people" the road to civic responsibility is a long and arduous one. In the words of one observer: "Dallas' problem is that it has to constantly Romanize invasions of Visigoths before they can become a real part of the city."

Unfortunately, the people in a position to influence events in Dallas have yet to think seriously of downtown's problems in terms other than the mere accretion of more buildings and more The canyon of Commerce Street (6) typifies downtown Dallas, where one-way streets carry much of the traffic destined to follow the freeway's inner loop. Surrounding Southland Center, parking lots (7 and 8) wait for their skyscrapers, meanwhile offering temporary relief from crises still to come in downtown parking.







highways. The case of the Gold Ring Parking Garage oposite the city hall is one in point. As early as 1936, the late Architect F. C. Cowderoy-Dale proposed a one-block plaza for the site in front of the city hall with an underground garage for 1,750 cars. (A second block, now occupied by the Mercantile National Bank Building, would have been used for a municipal auditorium site.) But the underground garage idea ran aground on the stillheld notion that downtown land is too valuable to devote to open space. In 1957, downtown plans of young Architects James Reece Pratt and J. Harold Box included another version of the plaza and garage scheme. At this time, the new Dallas library, located cater-corner from the city hall. made the idea even more logical. But despite the momentary attention the Pratt-Box proposals received, the plaza did not become a reality. Instead, on a large part of the site the Gold Ring Parking Garage was built in 1958 (4). The parking area exists; the garage, sure enough, exists. But the 10 chance for a civic plaza on top of it is gone.

Currently, a downtown plan is being prepared by the city planning staff under the Mayor's Master Plan Commission, an organization which, in the Dallas manner, is separate from the planning commission itself, but with interlocking memberships. Other proposals are being aired, including a scheme by professional engineers to build a continuous transit system on Main Street to operate "something like a horizontal elevator." Whatever may be the fate of individual plans and proposals, Dallas civic leadership will perhaps ultimately advance a plan for all of downtown, eminently practical, heavily supported, and keyed to freeenterprise downtown development. The question is whether the plan will be bold as well as realistic. In Dallas, individual enterprise builds boldly-as witness Southland Center. If that boldness can be turned to civic bigness, however, Dallas may yet become a truly favored metropolis. If not, it will go the way of its predecessor cities and decay -regardless of the amount of construction paving the way.



PHOTOS: (ABOVE) HANK TENNY; (OTHERS) R. A. MILLER



Clutter of individually owned small buildings with vacant rooms upstairs (9) prefigure the shape of high-rise clutter of the future now seen arising beyond the flag-draped entrance to the Kepublic National Bank (10).

Exchange Park, an office center built out near Love Field airport, is a harbinger of the rapid dispersion of the city. Despite the boom downtown, Dallas is building even faster on the edges.



Precision amid chaos





Architect I. M. Pei puts a bank building of poise and dignity on Long Island's raucous roadscape

Roosevelt Field, the site of this new bank-office building, stretches like a calm, pleasant oasis (left) in central Long Island's endless, exhausting desert of chaotic development, commercial and residential (below). Once an airfield in open farmland, it is now a shopping center in a crisscross of new roads and uncontrolled strip development. Webb & Knapp's William Zeckendorf took over the field in 1950; it now houses a large department store, 12 separate industrial buildings, a supermarket, and 69 other stores plus 11,000 parking spaces. The latest addition is this dignified structure for an office of The Franklin National Bank by Architect I. M. Pei & Associates.

Pei designed a precise, inventive structure, rendered neatly in understated good taste. He covered his steel frame smoothly with golden anodized aluminum panels. Flush with these are the fine aluminum grids, also anodized golden, which he put over the windows to soften the sky glare and sun's heatanother expression of the greater conscientiousness with which architects of the big-glass school are treating interior comfort nowadays. Downstairs Pei shaded the glass walls of his banking room, too, by means of a deep porch. On one side of the main building he placed a clump of freestanding drive-in



banking booths, circular in shape to contrast with the scrupulous rectilinearity of the main structure.

Inside, the main floor of the building was turned mostly into banking space; upstairs are four floors of first-class office space housing business firms and professional men. With this citified, sophisticated kind of space, builder Zeckendorf gambled well: it retains the worldliness of a city environment yet is removed from city traffic, and, on a \$20 per sq. ft. cost, it brings the owner \$5.08 per sq. ft. net rentals.

On the esthetic side, Pei made some few choices that seemed a little odd for him: for example, devising a structure that looks as brawny as the base of a skyscraper though it stops abruptly after five stories and a penthouse. Another unexpected note from Pei is the over-all blandness of surface and color, chiefly owing to the golden hue with no elements of contrast, like a gold stone in a gold ring-a fine color but unrelieved. Having noted these oddities, judicious observers nevertheless found The Franklin National Bank building hard to surpass as a contrast to the usual careless opportunism of suburban business buildings in providing a business refuge from crowded cities.

After purchasing the building from Zeckendorf, the bank itself, without consulting the architect, planted a large four-sided sign atop the penthouse, and



this really did bespeak major lack of understanding. At the hands of one of the best architects in America, Zeckendorf had been offering the bank, as perhaps the most valuable commodity of all, a concept of building which made such crude barbarity needless.











Pools and fountains border the building on its two long sides. Nearest the highway, which is a boundary of Roosevelt Field, a screen of lean spray fountains jets up quietly, mistily (above). On the other side, the main approach side of the building, a pair of fat and friendly fountains (above, left) splash generously and sound very refreshing.

Drive-in banking islands are connected underground with the "mainland" of bank. The photograph (left) was taken from under the voluptuous curve of the roof of one of these drive-in booths, emphasizing its strong contrast in architectural feeling with the sharp-edged character of the main structure.





FRANKLIN NATIONAL BANK, Garden City, N. Y. ARCHITECT: I. M. Pei & Associates. ASSOCIATE ARCHITECTS: Powers & Kessler. LANDSCAPE ARCHITECT: Robert Zion-Harold Breen. STRUCTURAL ENGINEER: Severud-Elstad-Krueger Associates. MECHANICAL ENGINEER: Cosentini Associates. GENERAL CONTRACTOR: George A. Fuller Co.

Banking executives' desks are lined up entirely apart from the tellers' section on the first floor, although there are no real partitions between these areas. Nor are there partitions between the banking space and the elevator lobby, where tenants and visitors embark for upstairs offices; instead a chain is put up when banking hours end.

Tall glass walls surrounding the first floor are surprisingly innocent of glare during most of the year. The reasons (in addition to the sheltering porch shown in the exterior photograph, page 102) are the high balancing level of light maintained indoors from fixtures recessed in the ceiling, and the delicate hangings which cover all of the wall except for doorways.

234

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Office windows of the upper floors wear an exterior grid of anodized aluminum to shelter the occupants from sky glare. The visual effect of this grid is shown in the photograph (right) taken in a corner office. Head on, very little of the view is blocked; from one side, the masking effect is more nearly complete. This device is used on all exposures of the building, which means that all windows are uniform in effect, so occupants soon stop noticing them. The exterior grid also gives the air-conditioning equipment a helping hand by reflecting a great deal of direct sunlight before it enters the windows. This, plus the fact that window areas were held to about 50 per cent of the wall areas, made for an economical air-conditioning installation.







Business in a botanical garden

If every downtown had an attraction like Copenhagen's Tivoli, more people and more dollars would come to rest and to play in the city

BY GRADY CLAY*

Whoever coined the old canara that "you can't do business in a botanical garden" obviously had not visited Tivoli Garden. This delightful combination of amusement center, public park, playground, and eating place is situated on 40 acres smack in the middle of downtown Copenhagen—and it is doing a highly profitable business. More than 4 million people paid their way into Tivoli Garden during the 1958 season, and all of them had to come downtown to do it. Some 16,000 Copenhageners hold season tickets.

Everybody has fun at Tivoli. It is as gay as Coney Island but, almost miraculously, is enjoyed in full awareness by people who are proud of their good taste. This is one reason why Tivoli is considered a "must" by American architects, city planners, and designers, as well as by those other tourists who sail home to expound Tivoli's visual delights in their livingroom Kodachrome travelogues.

Europeans have known of Tivoli's success for generations—after all, it is 116 years old. Now, however, the word has spread, and it is high time the unique qualities of Tivoli be examined for trans-Atlantic transportability, for Tivoli is an outstanding example of what American businessmen and community planners can do to put magnetism into the heart of downtown. The secret of Tivoli's success is best explained, perhaps, by a close look at its newest addition, a superb children's playground completed last year (photos, page 113). This is a quarter-milliondollar venture into lighthearted design which makes many an American shopping center "tot lot" look like Dead End. Packed into a space only 180 ft. by 75 ft., this new playground is a masterpiece of double-functions. Here parents and sitters can bring children to play, finding snug corners for themselves, and at night it turns into a lovely display of fanciful lights.

The business of pleasure

While the cost of \$250,000 might stagger the budget committee of many a U.S. amusement park, this sum was nothing revolutionary for Tivoli. The management is accustomed to paying for quality-visual as well as entertainment quality. Six of Denmark's finest artists collaborated with Tivoli's architect, artistic consultant, and landscape gardener to produce the new playground on the site of a former restaurant-cabaret. "Using the top artists for these things cost us 250,000 kroner (about \$90,000) more, but the money's well spent: Tivoli should do things better than anyone else," says Tivoli's architect, Simon Henningsen.

Even such lavish additions as these, however, do not begin to explain the essence of Tivoli. Part of its great charm, and its undeniable grip on Danish sentiment, is due to its reputation as a proving ground for Denmark's democratic way of life. "Here manager and worker enjoy themselves side by side in a way that is especially Tivoli's," Henningsen says. "We are all the same in Tivoli—maybe this is why no one has been able to reproduce it elsewhere."

What seems to impress many visitors who get beyond the obvious delights of Tivoli is the obvious profit of the owning corporation, Kjobenhavns Sommer-Tivoli. For years it has been producing 10 per cent annual dividends for its stockholders. The corporation rents the entire site from the city, paying a ground rental of about \$193,000.

The city appears to consider this a good deal, for it has recently renewed the company's lease for another 40 years. Rent is fixed at 10 per cent of the gross annual income. One third of Tivoli's income comes from admission fees; one third from restaurants and snack kiosks; one third from amusements.

Tivoli has 23 restaurants and 57 other eating and amusement places, ranging from "smash-the-crockery"

Tivoli by day is a pleasantly colorful oasis in the heart of downtown Copenhagen, where visitors may relax amid flowers and fountains, walk amid buildings of tasteful and fanciful design, and eat amid most unusual surroundings. By night, Tivoli is a different but equally pleasant place (see next page).

^{*}Grady Clay, a reporter for the Louisville Courier-Journal and an informed critic of urban architecture and townscape, returned recently from a study of European cities and planning trends.



PHOTOS: (ABOVE) HEINI ECLI; (BELOW) DAVID K. SPECTOR







Tivoli by night is a fairyland of lights. Some 85,000 bulbs arranged in clusters, festoons, and cascades add a magical glow to the lighthearted activities of this downtown pleasure park. There are no "spectaculars," like the signs that light Times Square, yet Tivoli itself is indeed spectacular.





Tivoli from the air appears as disorganized as any amusement park—a collection of buildings of all shapes, all sizes, all ages—but Tivoli's apparent disorganization is actually carefully planned informality, and fun. The downtown site (map, right) is between Copenhagen's city hall and railroad station.



booths to kiddie rides and snack bars. The Tivoli visitor can hear some of the world's finest orchestras at the concert hall; he can spend all day drinking, ride the roller coaster, walk for two hours with hardly a retracing of his steps, or watch a variety of free entertainments.

Entertainments in Tivoli include 300 concerts per season, most of them free, given by Tivoli's symphony orchestra in the new concert hall; nightly shows at the Pantomime Theater (the oldest building on the grounds, built in 1874); nightly performances (also free) at an open-air pavilion with seats for several hundred; free twilight concerts by small musical groups in bandstands scattered about the gardens; plus a host of carnival-type games, from Ferris wheel to roulette (20 wheels run by the management).

Lighting for pleasure

Light filters in everywhere, thanks to the impermanence of so many Tivoli structures. This is most apparent in the restaurants, where visitors eat outdoors, under trees, and in the open, under umbrellas, awnings, canopies, under glass, plastic, and light-colored canvas. The typical Tivoli restaurant has a kitchen which occupies most of the original structure, and a series of glass-roofed or canvas-awning wings spreading in all directions. The effect is superbly lighted; in daylight, sunlight filters through the glass, is transmuted by the white or yellow canvas ceilings, glows richly as it sinks through plastic to the white and yellow tablecloths below.

Not content with whetting appetites by such light-filled displays, Tivoli keeps its customers warmed with a variety of radiant heaters tucked up under the awnings of most of its eating places. Does this lengthen the summer season into fall? No, says the management—but people sit longer, eat more, and profits go up. (But not prices: the Kjobenhavns Sommer-Tivoli retains the right to control all prices on the grounds. It has canceled two leases in the past ten years for tenants' refusal to keep prices reasonable.)

The bright lights are something special—incandescent bulbs, 85,000 of them, are hung everywhere. There are clusters of lights in trees, festoons of lights over the zigzag paths, cascades of lights down the sloping paths, pyramids of lights over some restaurants, and a bright hemstitching of tulipshaped lights around the banks of the entire lake. No neon; no floodlights; no fluorescent tubes. None of these fit the special visual spirit of the place. No blinkers, no spectaculars. Just the constant magical glow that suffuses the whole of Tivoli after dark.

Planning for pleasure

Tivoli Garden rests on what its management calls "the only land in Copenhagen that's too valuable to build on." It is a 40-acre block bounded on one side by Hans Christian Andersen Boulevard, one of the city's major traffic arteries, and on another by Vesterbrogade, a major shopping street. Across one street is the city hall; on the opposite side is the main railroad station. And across Vesterbrogade is a new complex of office buildings and department stores, including a 22-story building providing offices and hotel accommodations and a terminal for Scandinavian Airways. Just across the boulevard is the City Hall Square, hub of the city's trolley lines, a favorite promenade spot, the scene of most public assemblies, and possibly the mostphotographed plaza in Copenhagen.

Originally, Tivoli was outside of the city gates, but today it is surrounded by the city's expanding business district. Stores and offices are moving westward from the Old City. Property values have gone up. Even air rights

over nearby railroad tracks have been exploited for a three-story building a block long. Furthermore, the official city plan encourages future expansion of commerce beyond Tivoli to the west and south. (In the U.S. possibly the closest counterpart is Jacksonville's Hemming Park, which is gradually but definitely becoming surrounded by the city's major retail shopping district.) There's a two-way feedback at work here, according to Henning Soager, one of Tivoli's two managing directors. Despite the fears of some Danes that little Tivoli would get swallowed up by the surrounding skyscrapers. Soager says: "These big buildings merely underline the fact that we provide the best place of beauty in the center of Copenhagen."

It's a special kind of beauty which Tivoli specializes in—a gay and lighthearted effect which is unmistakable, but difficult to reproduce. Much of the credit must go to a brilliant promoter, George Carstensen, who—much to everybody's surprise—secured a fiveyear concession from the King in 1843. (He was the kind of gambler many of today's redevelopers would recognize: he got the concession because he would settle for five years; his competitors insisted on 20.)

Born in Algiers, where his father was secretary to the Danish consulate, Carstensen had lived in Tangier, Paris, and America before arriving to set Copenhagen aflutter with his elegant dress and extravagances in 1839. Immediately he got the King's concession, he hastily put together the first summer garden with a notable collection of permanent buildings. This he did in a remarkably short space of two and a half months, opening on August 15, 1843.

Much of Tivoli's architectural charm today can be traced to Carstensen's early works. While he was no architect (his collaborator, Harald Stilling, was an able one), he was a gifted promoter and had a sure instinct for form and for popularizing anything he thought beautiful and spirited. Then, as now, the Tivoli buildings had an airiness and lightness which was part Moorish, part Chinese, and part Turkish.

Structurally, Tivoli was and is far different from the solid and stolid buildings of old Copenhagen. It was made of wood, chiefly—a strong contrast with its surroundings. Everything was light, painted in gay colors, and had spacious openings between buildings. This open quality was written into the original contract with the King and, later, with the city when Copenhagen took over title to the property. Then and now, the contract specifies that no more than 25 per cent of the land may be covered by permanent structures.

This density clause has preserved Tivoli's character in remarkable ways. It has encouraged the architects to get double use out of its buildings: the children's playground has a snack shop underneath; the "switchback," or giant roller coaster, has had a host of new shops, snack bars, shooting galleries, et cetera, tucked under its soaring curving structure. And more exploitation of this kind of unused space lies ahead.

Furthermore, the density clause has driven Tivoli's architects and their consultants to devise an ingenious array of nonpermanent structuresawnings, pergolas, gazebos, and summer shelters. One of the most fetching is a series of outdoor dining enclosures by Landscape Architect George Boye, roofed with woven willow parasols, and semi-enclosed with woven cane fences. They can be demounted if necessary. But rain dripped through the overhead shelters, so bright yellow canvas was tucked inside. The result: gay, colorful shelters which make the women even prettier, and still conform to the 25-per-cent coverage rule.

Landscaping for pleasure

One of Tivoli's major sources of charm is its basic zigzag layout, which dates back to 1843. The zigzag follows the course of an early seventeenthcentury fortification; a nearby lake occupies part of the site of the former moat protecting the city.

This zigzag ensures a visual variety of treats for the visitor; views and vistas open up suddenly; a turn here and one sees all at once the evening performance of a troupe of Moroccan tumblers; a few steps farther, and there is an unexpected glimpse down a slope to the lake, glimmering in the dusk.

Much of Tivoli's special atmosphere comes from the well-tended trees, arranged to give the feeling of a succession of outdoor rooms, with intimate enclosures varying to wide vistas. Some of the outdoor restaurants are completely "open"—yet give the diners a great feeling of privacy by training ivy up the surrounding fences.

The special Tivoli atmosphere also comes from the colorful gardens directed by Garden Architect Eywin Langkilde. His newest eye-catchers are the "hanging gardens," huge flower baskets suspended from spread-eagled tripods some 15 ft. high. A favorite spot for flower-lovers is the concentration of blooming flowers designed by the late George Brandt around a series of low, wooden bowls, each with its own bubbling fountain.

Bright splashes of color are a favorite Danish trick with flowers, and Tivoli can boast one of Europe's largest concentrations in midcity. Last summer the gardeners planted 40,000 tulips, 30,000 spring flowers, and 45,000 summer flowers.

Oddly enough to American eyes, there is no swimming pool. But this would "not be Tivoli"—not in the tradition, says Soager. Ice skating is something else again. A large rink is soon to be added to give downtown Copenhagen what most of the residential districts have long enjoyed—permanent winter ice.

In winter, Tivoli closes down for repairs and rebuilding. Most of the movable equipment is moved indoors. But the concert hall, and two large restaurants which face on a nearby main street, remain open all winter.

Wintertime parking is the latest addition. In 1957, for the first time, cars were admitted for daytime parking on Tivoli's hard-packed sandy promenades. The original quota was 400 but may be increased. At first, it showed no profit. But Manager Soager expects that as Copenhagen's auto population increases (now down around one auto per 25 persons) the demand for Tivoli parking will jump. This will be strictly a wintertime expedient. When the weather warms up, Tivoli, as usual, belongs to all the world.

Tivoli's new playground for children features a shoot-the-chute inside a spiderweb of bright yellow ironwork. Other attractions: a multicolored concrete climbing tree 30 ft. high (photo, top left) and a "house of forbidden games" (not shown) where children may do what they are not allowed to do at home.

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Volume of the largest firms dropped 11 per cent last year, and the rankings changed

The 100 biggest architects

Even though construction spending climbed last year, the 100 biggest U.S. architects, listed by FORUM for the second year, had a rough time of it in 1958. New construction put in place from their architectural designs dropped to \$3.9 billion, a decline of \$500 million, or 11 per cent from 1957. Moreover, the very biggest firms had even harder going; volume of the top ten on the list totaled only \$1.1 billion in 1958, down 16 per cent from the year before.

This tumble, suggesting that large architectural firms are even more vulnerable than small ones to sharp economic swings, was caused almost entirely by declines in school and hospital building. Strangely, the slump in industrial construction, so marked during last year's recession, did not contribute to the 100's loss at all. But school and hospital building, both of which increased last year, were off more than \$400 million for the 100.

The biggest architects accounted for 9 per cent of all *building* construction in the U.S. last year; they also accounted for \$200 million of building overseas which is not reflected in this percentage but is included in the tabulation. (FORUM'S 1958 listings include only *building* construction—not highways and other strictly engineering projects which appeared in small amounts in the 1957 listings and which are included in government reports of *total* construction.)

As in 1957, the biggest architectural firm last year was Giffels & Rossetti of Detroit.* Its \$190 million of construction put in place in 1958 was down 24 per cent from 1957 but was still \$20 million ahead of second-ranking Daniel, Mann, Johnson & Mendenhall. In third place was Welton Becket (\$122 million of construction), followed by Emery Roth & Sons (\$113.5 million) and Leo A. Daly (\$99 million). In all, four new firms entered the top ten: Kahn & Jacobs; A. Epstein & Sons; Smith, Hinchman & Grylls; and Leo A. Daly. Those departing were Skidmore, Owings & Merrill; Albert Kahn; Perkins & Will; and Norman M. Giller.

Behind the top ten, there were 12 firms which individually accounted for \$50 million or more of construction; 53 others with \$20 million to \$50 million; and 25 with less than \$20 million. Throughout the entire list, firms specializing in quick, speculative building rubbed shoulders with those concentrating on quality, prestige work. Thus, as discussed more fully on page 92, the directory is in no sense a guide to architectural excellence or importance.

Among other things, this year's list shows that:

▶ Sixty-six firms that ranked among the top 100 in 1957 were also among the biggest firms in 1958. Of the repeaters, Carson & Lundin had the biggest jump in the rankings, rising from No. 79 in 1957 to No. 16 last year. The worst fall was that of Toltz, King, Duvall, Anderson, which slid from No. 39 to No. 81.

▶ Of the total \$3.9 billion of construction represented by the 100 firms, about one quarter was in commercial building (offices and stores), and onefifth was in industrial construction. Schools accounted for 16 per cent, dwellings for 13 per cent, medical facilities for 10 per cent, and all other buildings for about 14 per cent.

▶ Fifty-five of the 100 firms had half or more of their volume in a single building field (i.e., industrial, commercial, etc.).

> Based on number of employees,

the largest firm in 1958 was Sverdrup & Parcel with a staff of 700. (Skidmore, Owings & Merrill, whose 1,066 employees topped the list in 1957, did not supply data for 1958.) Others in the top ten on an employee basis were Giffels & Rossetti (640); Daniel, Mann, Johnson & Mendenhall (484); Voorhees, Walker, Smith, Smith & Haines (482); Welton Becket (419); J. E. Greiner (268); Leo A. Daly (258); Eggers & Higgins (250); Robert & Co. (240); and Smith, Hinchman & Grylls (220). In all, the 100 firms employed 11,918 people; of these 1,552 were architects, and 1,585 were engineers.

Along with data on construction put in place, 53 architects on the 100 biggest list also submitted confidential figures on their gross fees for 1958. Fees for the 53 firms totaled \$69.9 million, and ranged on an individual basis from 9 per cent of total construction put in place to less than 1 per cent. The average for all the firms was 4.4 per cent of construction put in place.

All but three firms also estimated their construction volume for 1959. Of these, 60 firms expect to do more work this year than last, 30 look for their volume to drop, and seven see no change. This forecast is a good bit more optimistic than the one last year, when barely half the firms hoped to do better. (Even this was too optimistic; some 40 firms in 1958 overestimated their 1958 work.) Yet, as things look now, brighter hopes are probably warranted: construction is booming once again and seems bent on a smashing new record in 1959.

Lists of building's biggest contractors and clients will appear in the September and October issues respectively. Combined reprints of the three lists may be had after October 1 for 25 cents each prepaid.

^{*}Eight hrms that probably ranked among the top 100 did not supply data. They are: Pereira & Luckman (now operating as separate firms); Norman M. Giller; Graham, Anderson, Probst & White; J. E. Stanton & William F. Stockwell; Holabird & Root; Howell Lewis Shay; Hayes, Seay, Mattern & Mattern; and Skidmore, Owings & Merrill, SOM, undoubtedly the biggest of these firms, is ranked in the directory on the basis of 1958 estimates it made a year ago.

			Construction put in place								
	ank		1958	1959 (est.)	Industrial	Commercial	Residential	Educational	Medical	Other	
'58	'57	Firm (home office)	(\$000)	(\$000)	Ē	ŏ	Re	Ĕ	Σ	ò	Employees
1	1	Giffels & Rossetti (Detroit)	190,292	225,000	62	8	—	6	4	20	640
2	3	Daniel, Mann, Johnson & Mendenhall (Los Angeles)	170,624	228,000	36	14	8	5	3	34	484
3	8	Welton Becket (Los Angeles)	122,350	130,000	9	40	11	9	23	8	419
4 5	6 11	Emery Roth & Sons (New York) Leo A. Daly (Omaha)	113,500 99,000	159,000 110,000	9	80 8	12	8 22	11	44	56 258
c	E					15	00			X TYPELL	90
67	5 14	Erwin Gerber & A. Pancani Jr. (Newark) A. Epstein & Sons (Chicago)	86,000 83,000	100,000 90,000	5 55	15 15	80 3	1	3	23	185
8	4	Eggers & Higgins (New York)	80,000	100,000	5	30	_	30	25	10	250
9	15	Kahn & Jacobs (New York)	80,000	110,000	20	60	10	8	2		102
10	17	Smith, Hinchman & Grylls (Detroit)	80,000	100,000	40	15	_	10	30	5	220
11	2	Skidmore, Owings & Merrill (New York)	74,200*	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
12	7	Albert Kahn (Detroit)	70,000	75,000	74	18	1	2	5		200
13	41	Robert & Co. (Atlanta)	66,000	40,000	53	10	-	9	_	28	240
14	18	Kelly & Gruzen (New York)	65,425	91,000	_	3	48	18		31	114
15	13	Harrison & Abramovitz (New York)	61,859	90,000	-	65	-	14	21	-	180
16	79	Carson & Lundin (New York)	60,000	65,000	_	95	-	5			60
17	16	Voorhees, Walker, Smith, Smith & Haines (New York)	59,100	75,000	-	56	7	3	13	21	482
18	54	George L. Dahl (Dallas)	58,378	68,000	20	20	10	20	20	10	90
19	33	Harley, Ellington & Day (Detroit)	54,000	60,000	25	15	-	28	5	27	144
20	27	Victor Gruen (Beverly Hills)	50,000	75,000	10	60	10	5	5	10	165
21	_	Lockwood Greene (New York)	50,000	40,000	90	_	_	4	6	<u></u>	198
22	29	Schmidt, Garden & Erikson (Chicago)	50,000	40,000	18	-	9	7	65	1	148
23	45	Naess & Murphy (Chicago)	48,500	50,000	19	39	-	7	8	27	186
24	20	S. J. Kessler & Sons (New York)	48,000	50,000	7	6	77	4	2	4	57
25	62	John Graham (Seattle)	46,337	45,000	3	87	1	4	5	-	170
26	78	Sylvan Bien & Robert Bien (New York)	45,000	60,000	-	70	30	-	-	—	21
27	34	Sargent, Webster, Crenshaw & Folley (Syracuse)	44,700	45,000	5	8	7	73	2	5	174
28	35	Frank Grad & Sons (Newark)	44,000	52,000	18	30	-	2	-	50	101
29	28	John C. Lindsay (Santa Monica)	43,600	30,000	18	16	48	10	4	4	42
30	25	H. A. Kuljian (Philadelphia)	42,600	50,000	76	2	3	8	5	6	156
31	-	Sverdrup & Parcel (St. Louis)	42,000	N.A.	70	10	-	5	-	15	700
32	21	J. E. Sirrine (Greenville, S. C.)	40,000	60,000	98	1	_	_	1	-	143
33	-	Chapman, Evans & Delehanty (New York)	39,737	51,500	19	16	32	22	6	5	102
34 35	9 61	Perkins & Will (Chicago) Kistner, Wright & Wright (Los Angeles)	38,896 37,570	41,000 35,000	3	17 2	_	78 60	Ξ	2 38	181 163
					-						
	_	Wyatt C. Hedrick (Fort Worth)	36,268	50,000	8	55	2	20	7	8	171
37	38	Frederic P. Wiedersum (Valley Stream, N.Y.)	35,786	36,000	_	-	2	96	1	1	129
38	12	George M. Ewing (Philadelphia)	35,500	40,000	53	3	9	26	9	-	145
39 40		J. N. Pease (Charlotte) William Lescaze (New York)	35,200 35,000	30,000 25,000	4	8 25	47 45	9 10	4	28 20	118 14
									-		
41 42	71 59	Urbahn, Brayton & Burrows (New York)	35,000 34,060	45,000 79,666	10 18	10	5	25 13	30 66	20 3	92 70
42	30	Ferrenz & Taylor (New York) Hudgins, Thompson, Ball (Oklahoma City)	34,060	40,000	22	9	1	31	4	33	131
43		Adrian Wilson (Los Angeles)	32,200	25,000	15	15	5	5	15	45	129
44		Palmer & Krisel (Los Angeles)	31,630	50,000		10	90	_			18
46	49	Vincent G. Kling (Philadelphia)	31,000	36,000	20	18		8	8	46	88
40		John Carl Warnecke (San Francisco)	30,000	30,000	13	30	23	33	1		85
48		Claud Beelman (Los Angeles)	28,000	21,000	12	88	_	_		10	67
49		Six Assocs. (Asheville, N.C.)	27,510	18,000	15	1	72	7	3	2	48
50		Gehron & Seltzer (New York)	27,500	28,000	_			30	10	60	36

* Figure supplied by SOM in August 1958; more recent data not available.

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			Con								
Rank			1958	1959 (est.)	Industrial	Commercial	Residential	Educational	Medical	Other	den T
'58	'57	Firm (home office)	(\$000)	(\$000)	Ē	ŏ	Re	Ĕ	Σ	õ	Employees
51	47	Pace Assocs. (Chicago)	27,500	27,500	3	41	18	1 - 1	-	38	103
52	—	Harry J. Devine (Sacramento)	27,000	N.A.	6	19	2	28	9	36	17
53	42	John S. Bolles (San Francisco)	26,500	32,000	68	23	-	-		9	40 96
54	60	Sherlock, Smith & Adams (Montgomery)	26,045	19,000	17	4	9	4	38 2	28 21	90 66
55	_	Lyles, Bissett, Carlisle & Wolff (Columbia, S.C.)	25,450	20,000	7	18	33	19	2	21	
56	56	Mills, Petticord & Mills (Washington)	25,000	35,000	10	40	20	20	-	10	124
57	37	Naramore, Bain, Brady & Johanson (Seattle)	25,000	25,000	5	30	10	20	20	15	59
58	82	Shaw, Metz (Chicago)	25,000	40,000	14	17	10	9	24	26	131 95
59	52	Fellheimer & Wagner (New York)	24,500	27,000	45	15	3 30	25 30	20	12	53
60	-	Curtis & Davis (New Orleans)	24,000	48,000	10	10	30	30	20		
61	43	Lublin, McGaughy (Norfolk)	23,690	40,000	2	25	30	8	5	30	210
62	-	William I. Rosamond (Columbus, Miss.)	23,647	20,000	-	11	78	4	7	_	31
63	—	Harbeson, Hough, Livingston & Larson (Philadelphia)	23,500	20,000	—	_	33	30	_	37	91 268
64	-	J. E. Greiner (Baltimore)	23,300	23,300		1 2	76 5	6 10	78	17 5	111
65	-	Kiff, Colean, Voss & Souder* (New York)	23,000	27,000		2	5	10	/0		
66	85	Shreve, Lamb & Harmon (New York)	23,000	30,000	18	19	-	29	-	34	59
67	53	Paul R. Williams (Los Angeles)	22,670	49,980		45	5	17	22	11	54
68	32	Albert C. Martin (Los Angeles)	22,500	34,000	33	35	6	9	16	1	166
69	58	Thalheimer & Weitz (Philadelphia)	22,320	28,000	12	52	-	14	22		53 35
70	-	Flatow, Moore, Bryan & Fairburn (Albuquerque)	22,000	22,000	-	10	50	3	10	27	
71		Fisher, Nes, Campbell (Baltimore)	21,875	16,339	-	42	1	31	10	16	30
72	_	Williams, Coile & Blanchard (Newport News)	21,500	15,000	10	30		55	-	5	52
73	87	The Ballinger Co. (Philadelphia)	21,279	25,000	15	40	-	25	20	_	98
74	70	Eberle M. Smith (Detroit)	21,184	23,000		-		86		14	91
75	-	Coston-Frankfurt-Short (Oklahoma City)	21,152	20,000	52	6	-	3	27	12	50
76	-	Fletcher-Thompson (Bridgeport, Conn.)	19,500	16,000	39	6	-	36	15	4	72
77	67	Raymond Harry Ervin (Denver)	19,400	15,000	4	92	-	4	-	-	14
78	-	Austin, Field & Fry (Los Angeles)	19,000	25,000	16	62	-	21	1	-	60
79	96	Childs & Smith (Chicago)	19,000	22,000	36	19	-	44 5K	10	1	104
80	-	Sherwood, Mills & Smith (Stamford)	19,000	24,700	20	10	5	55	10	-	47
81	39	Toltz, King, Duvall, Anderson (St. Paul)	18,517	27,206	5	-	-	27	28	40	88
82	-	Lennox, Matthews, Simmons & Ford (Indianapolis)	18,150	28,133	3	56	4	28	4	5	47
83	-	Pearson, Tittle & Narrows (Montgomery)	18,069	18,000		17	42	30	1	10	32
84	-	Law & Wilson (Honolulu)	18,000	22,000	48	25	5	20	- CE	2	54
85	-	Charles H. McCauley (Birmingham, Ala.)	18,000	14,000	4	6	15	10	65		66
86	57	Stone, Marraccini & Patterson (San Francisco)	18,000	18,000	-	10	-	5	85	—	60
87	77	Hunter, Campbell & Rea (Altoona, Pa.)	17,899	25,000	4	1		85	10	-	91
88	73	Lankton, Ziegele, Terry (Peoria)	17,578	18,000	14	10	6	25	25	20	42
89	-	Koehler & Isaak (Manchester, N.H.)	17,000	7,000	-	10	75	15	-	-	10
90	-	Lacy, Atherton & Davis (Wilkes-Barre)	16,642	17,500	19	31	1	9	40		63
91	_	Chatelain, Gauger & Nolan (Washington)	16,500	10,000	_	80		15	-	5	25
92	-	Thorshov & Cerny (Minneapolis)	16,335	19,500	22	28	9	26	11	4	112
93	-	Shepley, Bulfinch, Richardson & Abbott (Boston)	16,079	16,000	1	1		63	35	1	95
94	-	William B. Tabler (New York)	16,000	13,500	-	-	100	-	-	-	39
95	68	The McPherson Co. (Greenville, S.C.)	15,800	25,000	45	15	-	10	30	1	72
96	74	MacKie & Kamrath (Houston)	15,500	10,000	10	25	10	20	10	25	31
97	-	Caudill, Rowlett & Scott (Houston)	15,480	11,000	-	1	20	78	1	-	54
98	-	Maguolo & Quick (St. Louis)	15,301	15,301	—	-		36	55	9	69
99	93	Rogers & Butler (New York)	15,105	14,000	-	2	26	8	64		75
100	-	Potter, Tyler, Martin & Roth (Cincinnati)	15,032	10,000	3	1	5	29	59	3	51

* The office of York & Sawyer.

NOTES: This list does not include so-called package-building firms which combine design with construction. N.A. means data not available. "Other" includes churches, research laboratories, air terminals, and recreational facilities.


How to site a school



Balanced in two units on rolling Massachusetts ground, with a bridge between them, the elements of this school were combined in a pleasant and prize-winning arrangement



Bridge carries glass-walled hallway between wings; site of the school is a park in a well-established residential district.

Most schools, even good contemporary schools, remain rows of classrooms; few attain a really family grouping of these rooms on their sites. The inevitably similar components—classrooms, library, gymnasium, etc.—are usually put together in the same familiar patterns, although some, of course, are designed more deftly than others.

The best way to attain a distinctive character for a school may be to put the emphasis on that one component which is unique to every school: the lay of the land. This is what The Architects Collaborative has demonstrated in the latest of its many Yankee modern schools, the William F. Pollard Junior High School in Needham, Mass. The architects accepted the difficult site, fortunately a beautiful one, and used ingenuity in design to coax it into lasting amicability.

Small as this school is (800 pupils), it was also given a real feeling of campus as a result of its siting. The buildings were spread out along a raised arm of land overlooking playing fields on a plot which totals 15 acres. They are grouped in two complexes—an academic center and a group activities center—linked by a glass-walled bridge (page 117). The open space around and among the building units is organized carefully with paving and planting further to tie the school buildings to the land.

Indoors, the school is designed to

anticipate changes in use. Although the partitions are not really flexible. the structural frame is a standardized, stock system, with columns on 5 ft. centers carrying open-web bar joists and steel decking; because most of the structure is left exposed, not boxed in, it will not be impossible to rearrange the framing somewhat, if this becomes necessary. Other dividends from the exposed structure are low cost and a high-ceilinged feeling in rather lowceilinged classrooms. Total construction cost, including fees, is reported at \$1.4 million, or about \$18 per sq. ft. The building has won the 1959 Boston Arts Festival award for architecture, and several other prizes in the designconscious world of education.

AUL GYMINASIUM VIUSIC, AFETERIA BRIDGE LIBRARY P Г Г Т 5 T 1111111 ART ROOMS П SOFT 40 20

WILLIAM F. POLLARD JUNIOR HIGH SCHOOL, Needham, Mass. ARCHITECT: The Architects Collaborative, John C. Harkness, partner in charge. LAND-SCAPE ARCHITECT: Moriece & Gary. STRUCTURAL ENGINEER: Edward K. True. MECHANICAL AND ELECTRICAL ENGINEER: Thomas Worcester Inc. GEN-ERAL CONTRACTOR: Sciaba & Co. ACOUSTICAL CONSULTANT: Bolt, Beranek & Newman.

In plan, the school is divided into two parts. The classrooms (right in plan and photo) are grouped around two partially glass-walled areas, the library and a pair of art rooms. The larger spaces of the school (left in plan and photo) include an auditorium seating 450, a cafeteria, music rooms, and a gymnasium which is built into the slope to avoid looming bulk.





Exhibit boxes are built into the partitions throughout the school. The corridor view (left) is from near the bridge looking toward the entrance lobby, which is little more than a wide corridor.

> Arts rooms are enclosed by partitions similar to those used in the library. They supply open display space and allow pupils walking down hallways to get an enticing look at activities within the room.

the character of the classrooms. Above the sash in the window walls are set vertically corrugated panels of translucent plastic. Classrooms are of two sizes, 900 sq. ft. and 750 sq. ft.

Spare, sinewy construction sets

Library is a room with no exterior surfaces (except its roof) so its glass walls are safe against glare. To achieve maximum flexibility in layout of the heating system, warm air ducts are run under the floors. In the classroom wing there are two heating pits where steam is converted to warm air and then forced through ducts to the classrooms.







53 SECTION OF HOTEL



14TH - 17TH FLOORS



5""-10" FLOORS





Guests at San Francisco's biggest hostelry will be able to drive in the door, take a spin around the ballroom, and park upstairs at bedside, beneath a penthouse pool

The motor-pool Hilton

So far, downtown's answer to the luxuriating motel boom has consisted mainly of a numbed silence, plus some hasty hotel remodeling jobs and the hurried acquisition of parking lots across the street. Now, however, Hilton Hotels proposes a startling hotel-motel compromise that could set a new downtown pattern of its own.

The San Francisco Hilton, being pushed into final working drawings by Architect William Tabler, will be a 1,200-room, convention-sized downtown hotel-wrapped completely around a Los Angeles-sized parking garage suspended from the roof inside (plans and section, left). Guests at the newest Hilton, which is to be a convenient two blocks from the city's central Union Square, will be able to drive directly into the hotel, check in at a registration booth, and proceed up ramps that circle the main kitchen and 3,000-seat ballroom to the seven parking floors above. Here motorists will park and unload directly outside their bedrooms, which are separated from the garage only by a corridor and a fire door opposite every few bedroom doors

In addition to the 400 cars stored in the guest-floor garage, there will be space for 350 cars (parked by attendants) in three basement levels, and for 1,500 more in parking garages across the street, giving the hotel a near 2:1 parking-to-bedroom ratio unprecedented downtown. The basement parking will serve convention visitors and dinner guests, as well as guests staying in the four top bedroom floors. These floors will open in toward a rooftop garden and swimming pool.

To free the big interior spaces of structural baggage, Tabler moved to the top of his tower the big trusses (two stories high in this case) that are needed to carry the stack of heavily loaded parking floors over the columnless space of a big hotel ballroom and other large public rooms. This high position of the trusses allowed Tabler to suspend the parking floors beneath them. The "waste" space between trusses, almost useless for parking at a lower floor, came in handy not only for the depth of the swimming pool above, but also for mechanical equipment, fan rooms, housekeeping and maintenance departments. Tucked in between the trusses, these service areas are also economically at the center of the hotel's working load.

Outside, the new Hilton's exterior is being designed as a concrete framewall in a bold checkerboard pattern which will also act as diagonal earthquake bracing (see sketch). Across the elevated, landscaped plaza from the \$20 million hotel, a matching \$6 million office building with its own "Top of the Mark" kind of cocktail lounge is planned to round out the project as a business and convention center.

New hotel for Chicago's Loop

Executive House, the first major hotel to be built in Chicago in 28 years, is not only one of the tallest reinforced concrete buildings in the world, but also a handsomely balconied addition to the city's sky line. Newly opened on the north side of the Loop, it rises 40 stories above Wacker Drive and the Chicago River (1), anchored to bedrock 110 ft. below ground by 57 drilled caissons. Pairs of shear walls rise through the height of the building to brace its 60 ft. width, cutting down on column bulk (see plan). Around the building, insulated spandrel panels and balcony railings form a pattern of bright bands of stainless steel. Most of the 448 studio rooms and end suites (3) open out to generous $(6\frac{1}{2}$ by 19 ft.) balconies set into the façades, and each unit has its own separate, outside kitchenette-features which permitted the \$7 million hotel to be financed as an apartment house by lenders mindful of the last depression's effect on hotels. Some 80 per cent of the units are rented to transients (at \$16 to \$47.50 a day for two). For the price, guests also get a main-floor restaurant and bar, a basement garage for 200 cars, and, on the roof, a "solarium cocktail lounge" with a sweeping view of the city. Architects for the building were Milton M. Schwartz & Associates, Inc. Interiors, including the lobby (2), were designed by Lapidus, Kornblath, Harle & Liebman. Contractor: C. A. Tharnstrom & Co.





3





School center under the oaks

One of the friendlier and less pretentious public buildings to grace the Texas scene of late is this small administrative headquarters for the Alvin Independent School District outside Galveston. Part of its inviting quality stems from the architects' use of two wide-spreading oak trees on the site, which they have enclosed as part of a landscaped entrance court (3). The wall in front, and an extension of the building wall on one side, shield offices from the street and enclose a pleasant garden view. Walking under the deep-shaded, skylighted overhang of the entrance (see plan), visitors enter a central foyer under the eye of a receptionist-secretary, turn left to the school superintendent's offices, or right to the tax collector. Here inquiries and tax payments may be made at a long counter near a glass-walled office for the collector himself (2). At the back, overlooking its own private court, is a schoolboard meeting room, which, despite its intimate scale, is large enough to accommodate public hearings (1). At the center of this well-thought-out plan a compact service core further separates the main departments and channels circulation smoothly around. At the back of the core are washrooms, and a coffee bar that can be opened up toward the rear terrace. Cost of the building came to \$114,000 (\$17.70 per sq. ft., plus landscaping and furnishings). Architects: Caudill, Rowlett & Scott. Contractor: Le Blanc, Inc.





PHOTOS : ROLAND CHATHAM



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Pagoda in shell concrete

For all its jaunty, sculptural air, this little pavilion in the Eagle Rock district of Los Angeles is no festival exhibit, but the permanent studio-office of Advertising Consultant James Real, a gentleman who obviously likes a little imagination in his daily surroundings. (It is also the first building in a ten-acre "research park" projected by Real and others.) The roof, resembling an upturned coolie's hat, is the first hyperbolic paraboloid shell structure approved by the Los Angeles building department. Actually it is made up of four equal hyperbolic paraboloids, each poured on forms made from straight planks of lumber. Set well back under the shade of the 48 ft. square roof, walls of precast concrete panels enclose an octagonal plan (right). From a conference room at the rear, which with adjoining bath can double as overnight sleeping quarters, the owner overlooks his main office and an artist's drafting space separated by freestanding, shojilike screens of translucent plastic (1). Light enters through high windows and is evenly diffused by the underside of the roof shell. Outside, the corner overhangs act as an entrance canopy in front, a carport off the private office at the rear (2). The vigorous sculpture screen at the entrance, the cluster of spikes on the driveway, and the carved wood pieces inside are all the work of Sculptor Jan de Swart. Architect: Arthur Lavagnino. Structural engineer: William C. Taylor. Contractors: Pacific Bridge Co. (shell), and Riksen, Inc.



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2

PHOTOS: JULIUS SHULMAN



Major changes in medical practice, drugs, and patients are shaping a revolutionary building concept—the total health center—and a ten-year construction boom

Revolution in hospitals

BY EDWARD T. CHASE*

In the next decade about \$16 billion should go into the construction of new health facilities, principally hospitals. This is an increase of \$600 million a year over recent expenditure, already at an all-time high. Of enormoussignificance to planners, architects, and builders is the fact that this new construction will be radically different from most of today's medical plant.

Behind this coming boom in hospital building is the revolution now taking place in medical practice. A new system of health care is being created through the pressure of two explosive social forces. First, the need to accommodate the extraordinary progress in medical science. Second, the need to meet on a feasible economic basis the medical demands of a growing and changing population. Americans are seeking comprehensive care for everyone—and a kind unheard of even ten years ago.

The clue to the revolution lies in the adage that good medicine is the cheapest medicine. Translated into mortar, stone, aluminum, and glass, this means centralizing and integrating all health facilities so as to transcend purely curative care and to stress preventive and restorative care. Man is to be kept healthy; if sick, cured; and more than cured-he is to be carefully rehabilitated for a secure return into society, with minimum chance of relapse. This ideal has been verbalized before. Now irresistible economic pressures are forcing it to become a reality. Anything less than this can no longer be affordeddisability is just too expensive. Nor is the new center simply to be a juxtaposition around the medical core of a few elements such as doctors' offices, pharmacy, recreational facilities. The whole gamut of health services, including teaching, public health activities, and even medical research, is to be brought into a rational structure intimately related to the general hospital.

Dimensions of the boom

There was an earlier hospital boom in the twenties, a boom that was so unevenly distributed that at its peak over 15 million persons in 1,200 counties were still without hospital facilities. The corrective for this and for depression and wartime lag and obsolescence was the passage in August 1946 of the momentous Hill-Burton Act. This law, growing out of recommendations by the Surgeon General and a study by the American Hospital Association and Public Health Service in 1944, provided grants to states on a matching basis, ranging from one third to two thirds federal participation, for surveying health needs and building requisite facilities, primarily general hospitals. By early this year, about \$3.6 billion in both federal and local funds had been expended or approved, providing 184,900 hospital beds (two thirds general hospitals, the rest specialized) and 1,143 "health units" for outpatient care. Where the U.S. had 938,000 beds in 1948, it now has 1,286,000, a 37 per cent increase to about 7.5 beds per 1,000 population. Maldistribution of hospitals is much improved; only about 2.5 million people

^{*}E. T. Chase, a consultant to public service companies, is presently preparing a national conference on medical costs.

are now in areas lacking facilities.

Notwithstanding this upsurge in building, official government surveys show a national deficit of just under 900,000 hospital beds. What is more, half of the 6,800 hospitals in the U.S. need modernization, according to some authorities, at a cost of more than \$1 billion. Further, a minimum of \$4.5 billion should be spent on general hospital construction simply to provide beds for the new souls expected to swell the population to over 220 million by 1975*. But this \$4.5 billion is conservative; it reflects a thumb rule on costs of around \$20,000 per bed, whereas the figure may well be nearer \$30,000. Inflation, plus science's relentless proliferation of new medical equipment, makes hospital cost projections uncertain; and almost every major scientific innovation makes some standard hospital architectural idea obsolete.

The social background

More important than grasping the scale of hospital expansion ahead is comprehension of the conditions stimulating it and determining the character of the facilities needed to house this new era in medicine. A chief reason why the planning and design of health facilities are unsettled is that only in recent years have the *physical* accouterments of medicine moved into the forefront. The little black bag used to suffice. The new element has come from medical specialization, new medical technology, and health insurance for hospitalized patients.

In some areas, up to 85 per cent of all voluntary hospital income may come from third-party payers, Blue Cross, insurance, and public welfare income. In addition, there is the effect of heightened demand from a public made more sophisticated by better education. Thus, in the ranking of expenditures for medical services, hospitals used to rank only fourth, after doctors, drugs, and dentists, in that order. Since 1955 they have ranked first, taking 28 cents of the medical-care dollar at the latest count, as compared with 11 cents in 1929. The per-capita expenditure for hospital care in 1929 was only \$2.92. Today it is \$23.52.

The hospital bite can be this substantial because a more affluent, better informed society is rating medical care higher and higher in the American standard of living, devoting to it about 5 per cent of its disposable personal income. This trend toward upgrading the role of the hospital will continue, particularly as it becomes the nucleus of the community health center. Furthering this more than anything else is the fact that nowadays the *whole* community, both the well and the sick, are prepaying for hospitalization, which provides a sounder financial base.

The really crucial sociological datum for hospital planning for the future is the new mixture of age groups. Over the next 15 years there will be a 41 per cent increase of those 65 years old and older (a third of the overs are over 75), at the rate of around 1 million every three years. This group is hospitalized more than twice as many days per capita as the population as a whole. What is more, and is seldom noted, there will be a 35 per cent increase in dependent children (under 18). At the same time, however, there will be only a 20 per cent rise in the productive, hospital-bill-paying age group 25 to 64 years old, and this group, now forming families averaging 2.4 children, will soon average three children. About 15 per cent of births occurred outside of hospitals in 1947; today about 95 per cent of all births take place in hospitals-over 4 million annually, a heavy load.

To complete this age-group picture, it remains to consider what, with all the stress today on the elderly, can only be called the lost generation, the late middle-aged, 55 to 64 years of age, who are also proliferating rapidly as life expectancy lengthens and requiring more hospitalization than the younger adult group. All these changes in the age complexion of the national community have a vital bearing, first, on the kind of building to go into the

Annual hospital building dollar

1960-1969



Total: \$1.6 billion

Here is the Department of Health, Education and Welfare view of the next decade of hospital expansion. The present level of inpatient care is 7.5 beds per 1,000 population. This should be raised to 9.5 beds by 1970. Required: yearly construction of \$1,500 inpatient beds at an average expenditure of \$1.6 billion.

Annual cost of obtaining the ten-year goal:

-\$405 million: cost of 22,500 beds for population increase.

\$590 million: cost of 37,000 beds to up standard to 9.5 beds per 1,000 of population.

-\$495 million: cost of 22,000 beds to replace the obsolescent.

\$70 million: cost of 2,400 public health and rehabilitation centers, and outpatient departments in hospitals.

^oCommunity planning boards take note: the 225,000 new general hospital beds needed for this increment means \$100 of new construction must be found for each new entrant in the community, according to Superintendent R. E. Brown, of the University of Chicago Hospital.

health center, and then on the relative capacities and magnitudes of the different kinds of service units in the center.

Medicine's new role

It is against this socio-economic background that one can appreciate the expanding idea of medicine's role and its consequent transformation of the hospital, that strange and wonderful institution, that has evolved from the medieval "houses of pity." The newer concept is nothing less than the medical profession's assumption of the fullest responsibility for the total health needs of the individual and the community, in every dimension.

In the future the general hospital, hitherto confining most of its energies to the actutely ill, will become infinitely more general, while the specialized hospital will become a thing of the past, except for long-term care of the mentally ill. Under the pressure of the medical-care cost squeeze, the need to accommodate fast-changing medical technology, and a growing population of different complexion, the hospital will become the great center of an orderly range of services to best meet each kind of condition. No longer tolerable will be the development of facilities and services unrelated to one another, with resultant wasteful duplication. Also intolerable will be the frustration of integrated care for the patient, and the imposition of needless time- and energy-consuming hindrances on the doctor.

As Dr. John J. Bourke, executive director of the New York State Joint Hospital Survey and Planning Commission recapitulated recently, the hospital is tending to become "the purveyor of preventive, curative, and rehabilitation service to the long-term as well as the short-term patient, to the ambulatory as well as the inpatient. It will also fulfill its role as a teaching institution for medical, nursing, and related skills, and serve as a center for research."

The hospital will also become the base for home-care programs; for doctors' offices, whether in group or solo

practice; for public-health education; public-health departments, including epidemiologists; for voluntary health agencies; for nursing-home units; and certainly for psychiatric clinics. As Bourke says: "Psychiatric units in general hospitals, if referred to early, can save a patient from commitment to a mental institution, saving months or years of inpatient care." Only 450 general hospitals have such psychiatric units today. This is prompting active consideration of encouraging construction of community mental health diagnostic clinics under the Hill-Burton act. (It is household knowledge today that half of all U.S. hospital beds are occupied by the mentally ill. What is less well known is that the U.S. has actually lost ground in the numbers of hospital beds for the mentally ill, relative to the population.)

Regional and community coordination

To translate the ideal of a coordinated, all-purpose community health center into specifics is to tell the story of what is occurring now and what will occur tomorrow in the health-facility field. To begin with, a much more rigorous analytical survey of community needs is required to plan the different categories of facilities more judiciously, instead of placing the traditional reliance upon bed ratios. This change is being hastened by the arrival on the scene of the trained hospital consultant.

Since the most careful look ahead cannot forecast scientific changes and tll sociological trends, flexible master plans become imperative. Complexities of the modern hospital are such that unanticipated major alterations or additions are prohibitively expensive. Furthermore, it follows that, if hospital planning has gone beyond juggling with bed-ratio formulas and depends on community need studies, then planning considerations must be regional in scope. Today, regionalism is a leading topic of concern among hospital experts. The chief criticism of Hill-Burton experience is partial failure on this score. Despite the fact that each state's plan is theoretically based on a coordinated framework of base, district, and community hospitals, in actuality the ideal has not been achieved. State lines also have constituted artificial barriers inhibiting regional coordination.

What has been achieved by Hill-Burton is substantial, a real dent in our national hospital-bed deficit, a great advance in our knowledge of needs, and a corrective in maldistribution. But as the president of the Hospital Association of Pennsylvania, Walter J. Rome, remarked recently, the Hill-Burton idea of an interrelated structure of base, district and community hospitals "has never moved beyond the blueprint stage. It has served only to direct the flow of construction monies to the various locations in some semblance of order. It has produced a fairly well apportioned skeleton of a coordinated hospital system but has not encouraged coordination as a vital process."

Recent studies show that over half the average metropolitan hospital's patients come from beyond its neighborhood; that it is almost impossible to define the total population the hospital serves, no matter how that neighborhood is defined. Therefore, observes Rome, the only way to avoid wasteful duplication of services and low utilization of equipment is for planners to place the greatest stress on avoiding conflict with other local hospitals.

In the South particularly, too many rural hospitals have been built under Hill-Burton that cannot be rationally justified. They either violate this principle of coordination or provide the old traditional balance of facilities which are not properly related to present-day demands.

While such a fully rationalized scheme as the United Mine Workers chain is hardly feasible without similar common ownership and administration, using as it does a central service unit and a system of base and satellite hospital, nevertheless some degree of centralizing certain services in one hospital, other ancillary services in another, and pooling the use of such specialists as dieticians, registered librarians, etc., does seem possible. In actual practice,

continued on page 178



Aphrodite and Apollo Belvedere: A big hello from two swell kids!





"This was the final dumping ground ... the dream dump," Nathanael West wrote to describe the lot in back of a big Hollywood studio, where old, bedraggled movie sets were piled up for storage. He might have been speaking of Miami Beach in 1959, an 8-squaremile repository for today's dreams and yesterday's nightmares, a vast sales counter bristling with slightly worn mechanisms of escape.

The final dumping ground—and an unconsciously cruel parody of modern architecture in our day: a riot of hyperbolic paraboloids, of convoluted shells, of tall slabs and flat slabs, of Japanese tricks and Turkish tricks and Aztec tricks, of sculptural "accents" to everybody's taste (abstract, semiabstract, Greek, Egyptian, and Mammoth-Marzipan), of cantilevers soaring past other cantilevers, narrowly avoiding collision in the supercharged Florida air. This is the final dumping ground for throw-away architecture. . . .

Here, on a tropical reservation just this side of hysteria, architecture can work off its inhibitions to return, cleansed and sobered, to more northern climes, where Life is Real!



Abstract anopheles, pet of the tropics.



Memorial to an unkown foot-fetishist.







Winged Victory of Samothrace and Winged Cadillac of Detroit.

Late arrival from Florence working on her sun tan.











Visiting esthete.



Caryatid (female) during molting season.



Caryatids (male) in







The mysterious, multiform Middle East.



Man asserting himself in Miami's culture.



jockey shorts.













PAUL SCHUTZER-LIFE

1. The new Senate Office Building nearing completion.

Saying nothing, going nowhere

BY DOUGLAS HASKELL

The controversial new Senate Office Building has faults worse than high cost and low drinking fountains: it fails to dramatize to the people how their government works



2. Older Senate Office Building, expensive in its day.

Understandably the angry going-over that the new Senate Office Building in Washington (photo 1) received from the senators was related to practical shortcomings. It is far easier to work up a sense of frustrated outrage in the face of scandalous high cost coupled with discomfort, unperformance, and inconvenience, than it is to deal with that queazy feeling in the pit of the stomach when a building as a whole vaguely fails to come across, despite high pretensions, and gives no clear account of itself to either the mind or the emotions. The kind of thing the senators felt they could cope with, or at least denounce, was a \$2 million subway not yet leading anywhere and requiring \$4 million more to finish, "squawk" boxes that really squawked, unworking mail chutes (4), air conditioning that leaked privileged conversations out of Senate offices, cafeteria equipment that challenged the user not to break his head (5), and things like that (3). The equipped building, without subways, cost \$22 million, meaning that for the second time in its career the Senate had created one of the world's most expensive office buildings. (The older, 1906, Senate Office Building (2) was labeled the most expensive in its day.) The consequence of such a building economy is that Washington is forever spending loads of money but is forever short of space.

It would be unfair to ask the Senate to deal with architectural issues, for, unlike their forefathers, senators today only rarely come prepared with any architectural education whatsoever. Yet the problem that this building gives architecturally to senators and to every educated American is a serious one, for what it pictures is a state of architectural illness attended by extreme mental confusion, threatening to become chronic in Washington. Everyone who sees it must be aware of a certain tired, meager, rundown impression that the building gives compared to its predecessor, the first Senate Office Building. The new one is vaguely a classical building and vaguely a modern one, but really neither: whether it was built primarily for functional purposes or for monumental ones is left amiably uncertain. The rich appearance of the older Senate Office Building across the street is missing, and the rather joyful variety of forms over there has yielded to monotonous repetition of a vertical ribbon window treatment-much like any modern jail-with here and there a classical feature tacked on. There is one consoling feature: some crisp carving. This is quite obviously an architecture on the way down. Like the costly subway, it has no terminal, but unlike the subway it is not even pointed in a hopeful direction.

Paradoxically, a still greater monotony could have been a help, if the desire was to produce a clearly marked and understandable "office building." Thus, in a purely businesslike modern structure, such as the projected federal office building (6) to be erected west of the Interior Building, the drawings show that large office blocks are to be given identical windows, and the monotony of these will be so complete as to transfer all attention from the individual unit to the pattern as a whole-a clear



3. Executive sessions could be more private.



(ABOVE) : PAUL SCHUTZER





6. No-nonsense government office building for Washington.

one. The office blocks are to be lifted above a clearly marked base where the lobbies are to be found, and the larger, higher-ceilinged ground-floor rooms will no doubt be available for ceremonial or large-group purposes.

In the new Senate Office Building, on the other hand, where the classical "treatment" has been pasted on—presumably as a formality and to "match" adjacent buildings—nothing "reads." So far as official designations are concerned, the floors on which senatorial offices are found are no doubt named as a ground floor, a first floor, and so on, up to a sixth. As to exterior architectural treatment, however, the first two floors are a "basement" with basement windows and the top two floors are an "attic" with attic windows (7), and senators with offices on any of these four floors are living either in the basement or in the attic.

Upon entering, the visitor does find that in fact offices and hearing rooms are intermingled at just about every level. If then he discovers his particular state represented in the architectural "basement," he is left guessing whether that was a slur on the honor of the state, or punishment for a senator, or a sign that the Senate in its housekeeping just did not care what it did, or whether anyone ever told the senators that classical architecture, like any other serious architecture, is an art that calls signals. In a modern building with neither "basement" nor "attic" such questions could not arise.

Quite obviously the mixing of two completely incongruous systems, classical and modern, resulted in a building that does not give its signals clearly and that amounts to a picture building. The most thunderous architectural miscue relates to the building's one outstanding feature and ample architectural gesture: that special "portico" at the middle of the block on First Street (1), which by all the rules, customs, and reasoning of classical architecture ought to be the main entrance to the building. It is not. Ever since Rome the main entrance of any proper governmental or monumental building has been treated as a chief and central celebration. The reason is simple. The first thing anybody has to know after locating a building is where to go in, and the first duty of a government building is to see that entrants are ceremoniously received. In this instance, having spotted that one big projecting "portico," central to the main façade, capped with a pediment, supported on great box piers, and facing on a ceremonial terrace, the visitor heads straight over there-and finds himself shunted away by a blank marble panel. There is neither a stair from the sidewalk to the terrace nor a door into the building, and apparently the whole costly business has been erected for the sole joy of the bird-watchers and the window-washers (8). The real entrance is found around the corner (1), barely marked at all, and there the visitor heads in, foregoing any remarks about "empty Senate gestures" and "the real business being done through the side door," because manifestly the senators were innocent and counted on competent architects to guide them.



7. Meaningless building divisions and moldings brutally butted.

8. Meaningless "portico" has terrace but neither stair nor door.



What difference does it make whether an architecture calls its signals straight or not? Simply this: that when stones are eloquent they proclaim the glory of a government forever. But before eloquence can attend either a work of architecture or a speech, the ideas within must be first coherent and then imaginative.

To begin with, there is here no imaginative realization, inside or out, of what kind of a building, and how very important a building, the architects were dealing with. This was no mere "office building"-that is sure. Now, interestingly enough, the building plan which virtually imposed itself on the architects had implicit within itself a wonderful expression of the drama of government-at-work. All but one of the 15 hearing rooms for the Senate's committees (9) are two stories high and are flanked on either side by a senator's suite and by a staff suite, and these have a height of only a single story. Since the two-story hearing rooms, scattered through the building, occur on six of the floors, and each of these hearing rooms pushes up through the floor above, the result is a quite wonderful interlock of one- and two-story elements, almost a Chinese puzzle. Such a plan was an opportunity virtually handmade for the devices of a dramatic contemporary architecture. There is an alternation of rooms large and small, rooms extending upward or downward in relation to any particular corridor, rows of smaller workrooms flanking the larger, more elaborate hearing rooms. All this apparatus of a mighty Senate at work had in it potentially a visual drama (both in the interior of the building and reflected on the exterior) more exciting than any scientific laboratory or industrial plant.

Even traditional architecture in its lustier days found excitement in such dramas of space interplay, for example in churches (10). But such an art of architectural communication seems to be lost today to all architects who have not gone through the modern revolution. The art of space in a space age belongs, like leadership in rockets, only to those who have followed their imaginations and allowed their art to develop.

This technical opportunity to give Washington a fascinating building of interpenetrating shapes and spaces was only the beginning of what was missed. With it was also missed a symbolizing opportunity. Think what the very presence of such an array of rooms large and small would tell an archaeologist a thousand years hence about the nature and meaning of the U.S. Senate! As students of government well know, the very heart of the American legislative process lies in the committee system. These committees are where the senators meet constituents face to face in the heat of action. Here is the arena where advocates and opponents of bills fight out their sanguinary battles. Here is the laboratory where the legislators aided by hardworking staff prepare and pursue their relentless fact-finding investigations. If the throngs of Americans visiting the Capitol find the House and Senate chambers often virtually empty, that is because the real work is being done (continued on page 198)



9. Hearing rooms, two stories high, interlock with one-story offices; the drama of this arrangement was not brought out.



10. Complex space interplay was once a traditional art (Church of S. Vitale, Italy) but now seems to belong to "modern."





PHOTOS: (BELOW) PHOTO-ART COMMERCIAL STUDIOS; (OTHERS) RICHARDS





Long-span arches reach 165 ft. across the Hunt School cafeteria-auditorium, in Tacoma, designed by Architect Robert B. Price. This is one of several new school buildings to show wood's growing versatility At left: a typical wood-laminate factory, operated in Portland, Oregon, by Timber Structures, Inc.

It is almost as if a new material had been invented, such is the vigor in new wood structures and research

Wood moves out of the woods

BY DAVID ALLISON



The wood structures on these pages scarcely suggest that the lumber industry is in trouble—as it is—or that wood is still losing ground in its major market, building, to the metals and plastics. Actually, lumber production is about 15 per cent less than it was 50 years ago, one of the few reverse indexes in the economy. Paradoxically, however, if wood were not in decline, there would be none of the exciting activity displayed here, and this oldest (and 14th largest) of American industries might still be in the long sleep which overtook it in about 1906, that wonderful year when per capita wood consumption hit an all-time peak.

When the wood industry woke up following World War II, some say to the rattle of an aluminum storm sash, the building industry had changed so drastically that even the snappiest sales techniques and soundest engineering developments were insufficient to make a new beginning for wood. To the scoffing of many old-timers-some of whom have yet to spend their first dollar on research-a number of private producers banded together to sponsor industry research programs, and several big companies intensified their own research in developing new forms of wood, such as plywoods and laminates.

This research has begun to pay off. One result is seen in the novel structural types (sketches left) now arising across the U.S.: the box beam, capable of 100 ft. spans, yet weighing less and costing less than solid wood; the folded plate roof, in which wood's good reserve shear strength is put to use, thus eliminating the need for trusses; the warped roof, demonstrating wood's "plastic" characteristics; and the glue laminates, in their various shapes, capable of spanning 250 to 300 ft.

Research results have come in other important though far less obvious areas, such as solutions to moisture problems, dimensional stability, fireproofing, all related to the basic physics and chemistry of wood. From this basic work, long the responsibility of the Department of Agriculture's Forest Products Laboratory at Madison, Wisconsin, and now carried on by other groups as well, including the chemical industry, is emerging a new kind of building material: it is still wood, with wood's fine old properties, but is also a radically new material that can be impervious to water, virtually fireproof, hard as rock, or can be given almost any property the designer wants.

One part of the lumber industry's immediate task is to put all of these developments before the public, which is to say the clients and designers of future buildings, such as schools, churches, homes. Further, the industry must expand its research effort. Though it is spending more than ever before, and receiving an extraordinary return on its modest investment, the industry keeps its total expenditure inordinately low. In many industrial research surveys the lumber industry does not even show up in the tabulations, its total research expenditure is so small.

Some shining exceptions

Probably the wood industry's most notable exception to this neglect of research is the program of the Douglas Fir Plywood Assn., whose 121 members account for 75 to 80 per cent of all plywood manufactured in the U.S. More than 5 per cent of the association's expenditures this year will go to research, a healthy figure even in the most research-conscious industries. DFPA will spend about \$250,000 in 1959 on various research projects.

Some of the buildings pictured on these pages grew out of an earlier DFPA "Schools of the Future" program, in which a number of architects were asked to work out solutions to various problems. In some instances, the program inspired plywood designs which are now finding increased acceptance. A design by Architect John Lyon Reid, for example, involving the folded plate roof, has since inspired a number of wood buildings utilizing this principle. Other ideas are still too advanced to be readily adaptable to largescale production, but nonetheless show good promise for the future. An example is the domed roof (photos, lower right) developed by Architect Robert Billsbrough Price, which demonstrates the use of large, one-piece roof units. Price believes that the idea will be commercially practical when better fabricating facilities become more prevalent, thus making possible volume production and lower unit costs.

Currently, DFPA engineers believe they are on the verge of success with another important development: a maintenance-free material for exterior surfaces, using plastic coatings on plywood panels. Says Managing Director W. E. Difford: "We have gone far enough to know that we will definitely have the product within two years." If successful-the hope is for a panel which will be superior in performance and durability to sheet metal materials, such as porcelainized and baked enamel finishes-the lumber industry would be on its way to winning back part of the wall market it lost to the metal curtain wall.

Among the major producers of lumber products, companies such as Weyerhaeuser Timber, U.S. Plywood, and Timber Structures, intensive development programs are also under way. Weyerhaeuser, for example, is currently spending more than \$1 million a year on product development and research. Its engineers are working with a number of architects to develop a panelized modular unit for houses, and they have already test-marketed a new construetion panel made from kraft-board and lumber: the lumber is sandwiched between layers of high wet-strength kraft board for use as a sheathing and roofing material.

Timber Structures, Inc., pioneer U.S. firm in glue laminates and fabricator of the largest glue-lam structure ever built (the 300-ft.-span Montana State University field house), is so confident of its engineering work in this field that its designers state flatly that there is no longer a structural limit to the span such beams can reach.

In the universities, largely through the financial support of federal and state agricultural grants, various wood research programs range from elaborate studies of the strength properties of wood under different conditions of temperature and humidity (at Syracuse University) to the application of faster-drying adhesives for glue laminating (at the State College of Washington) and better fastening methods (at Virginia Polytechnic Institute). Outside the universities, the chemical industry, e.g. Koppers Co., Dow Chemical, and J. H. Baxter, has been highly successful in developing new wood preservatives. A number of chemical companies, as well as a few university laboratories, are investigating new compounds to improve wood's dimensional stability. Such chemicals have proved out in the laboratory, but are not yet economically feasible for commercial use.

Some sorry problems

These efforts *alone*, however, may not be enough to improve wood's position in the building market, for wood has fallen far behind: during the past decade, for example, per capita consumption of fabricated structural steel has increased by about 30 per cent (and aluminum by even more), while wood consumption in building, on a per capita basis, has actually declined.

Moreover, many building codes have been rewritten, restricting wood's applications in building, often without good reason. And many builders have even come to regard wood as an outmoded material. Says Robert B. Price: "The lumber industry has allowed the term 'wood school' to become derogatory. It has allowed competitive products to replace wood, through better





Untapped strength of wood is tapped in the folded plate roof (above), simplest form of shell structure, which capitalizes on plywood's high diaphragm strength. One-piece dome roof (below) also utilizes this strength. The 6,400 pound dome roof covers a section of a "satellite" school 64 ft. by 78 ft.









Venture in wood schools

Two new schools in Tacoma, Washington display three new developments in the structural use of wood: the Hoyt school's folded-plate roof (above, left), and its one-piece dome roof (below), and the Hunt school's arched panels (above). The architect for both schools was Robert B. Price. Folded-plate sections, covering a multipurpose room, span 48 ft. each, covering 48 ft. by 60 ft. The arches, with honeycomb paper sandwich core, span 16 ft. between gymnasium bays. The 32 ft. sq. dome was pretested at one-third scale; a uniformly distributed load reached 120 pounds per sq. ft., nearly three times design load.





Plastic skylight sits atop the dome roof, as in the interior photo (below). In future, clusters of domes could cover areas. Says Price: "The number of combinations is limited only by the possibilities of the square."



The box beam (above) has two advantages over a conventional wood beam: lighter weight and greater span; some box beams can span 100 ft.



Stressed-skin panels of fir plywood provide ceiling and roof in a single structural component, reducing labor cost at the job site. product design and smarter merchandising."

Furthermore, as though the stinging competition from new materials were not enough, the lumber industry is busy fighting itself. It is a common occurrence, for instance, for producers of one type of wood to propagandize against the shortcomings of another type. Architect Victor Lundy, an admirer of wood as a structural material, and one who has earned a reputation as a creative designer in wood, laments such bickering amid distress: "The lumber industry is too full of people who do not speak to one another. The Southern Pine Assn. puts forth the argument, based on its selected reports, that southern pine is far superior to Douglas fir for laminated members. Yet the same is claimed for Douglas fir by the West Coast Lumbermen's Assn." Lundy urges the establishment of an industry-wide information center from which architects could receive facts relating to all types of wood products.

Beyond this, the industry must also set up a tighter control on product quality. In the glue laminates field, such controls are being established through the American Institute of Timber Construction, created seven years ago by the leading manufacturers; its quality control program is just getting under way. The Douglas Fir Plywood Assn. also maintains a quality control and testing program, under which its subscribers are entitled to mark their products with a DFPA stamp signifying manufacture in accordance with specifications. These quality standards, however, are not met by the bulk of the nation's lumbermen; more than half of all lumber cut in the U.S. is not even marked as to grade. Thus, the industry must find a way to police itself more firmly.

Wood's warm resurgence

Although wood has lost its position of dominance in building, perhaps never wholly to regain it, its popularity as a structural material seems never to have been higher among more creative architects. And contrary to the country's general migratory trend, this swelling popularity seems to be moving eastward. Architects of The Architects' Collaborative, Boston, offer one explanation: "Many architects are getting tired of a machine esthetic. Wood has a warmth, texture, softness, in fact almost a crudity that other materials do not have."

At Brandeis University, in nearby Waltham, TAC architects are designing a social sciences building using a wood curtain wall for pure esthetic reasons. Says TAC: "We expect to gain certain esthetic results: the wood frame and panels contrasting with the metal sash will give the feeling of substantiality yet lightness." In other instances, TAC has used wood for strictly economic reasons. The 209-ft.-span dome for a high school field house in Wayland, Massachusetts is of gluelaminated construction because "it was the most economical way to do it." The architects found that this 42,000 sq. ft. structure's roof would have cost \$3.50 to \$4.00 per sq. ft. in steel or aluminum, against \$2.00 per sq. ft. in wood. The building's total cost (\$358,000) was about \$9.00 per sq. ft.

Professor Albert Dietz of Massachusetts Institute of Technology believes that wood's rising popularity among architects is due both to its economy and to the design freedom it permits. "You can get shapes and sizes you cannot get in other materials and you can engineer strengths into the structure when and where they are needed, by varying the sizes, grade, and shapes of the wood members." Pietro Belluschi, dean of MIT's School of Architecture and himself a product of the woody Northwest, agrees. "Wood allows versatility of shape," he says, and adds that "we have a natural emotional reaction to wood that we do not have to other materials."

Both Dietz and Belluschi, and many of their associates in the building professions, hold great hopes for wood products in architecture, if only the lumber industry will, in Belluschi's words, "invest enough money for some freewheeling research in the design of wood structures." He says that the industry should be looking at shapes such as hyperbolic paraboloids (see Architect John Storrs' forest products building, page 145) and studying sandwich construction "in the way MIT is doing for Monsanto in the plastics field." These efforts, says Belluschi,





PHOTOS (ABOVE) : CHARTHE

Great jai alai fronton, at Daytona Beach, Florida, is supported by 12 wood arches, each with a clear span of 247 ft. Shipping problems required that the arches be fabricated in four sections, then spliced with a special

joint at the quarter points of the arch. Each arch weighs over 15 tons, contains 17,000 board feet of southern pine. Architects on this 215 ft. by 250 ft. structure were Spicer & Gehlert of Daytona Beach.







Market basket supermarket, in Seattle, supports its roof with lenticular trusses, with glue-lam chords and sawn timber web members. Architects: Johnston & Campanella.

Wood's plastic nature is displayed in the Sarasota furniture showroom of Galloway's, by Architect Victor Lundy. Sixteen gluelam beams jut from the building core. The roof is made of Douglas fir with 3/4 in. facing.







New laminating process for wood was introduced recently by scientists at the Industrial Research Division of Washington State College's Institute of Technology. Developments such as this one will have profound effect on wood's position in the building market.



Great delta beam (above) was to have been the structural highlight of new recreationexposition center in Portland. But the 360 ft. beams, though opening a new line of research, proved too costly and were replaced by conventional structural steel. TECHNOLOGY

"should be pursued by men who do not care why the engineering is theoreticallv impossible but who have ideas. Then the ideas can be passed on to the engineers, who will find ways to circumvent the impossible."

The great opportunity

The most immediate technological challenge facing the wood industry is to develop faster, more economical ways of building with wood. By tradition, wood has been a "site-fabricated" material: its components are assembled, finished, sometimes even cut on the job site. In contrast, of course, the newer building materials, such as aluminum and steel, which usually carry a higher initial cost, are more often prefabricated in a factory, thus gaining a competitive advantage over wood, despite its lower initial cost.

Architect Victor Lundy maintains that there are "hundreds of ways by which on-site labor costs can be reduced" for wood. He suggests that total construction time can be cut by combining functions on the site: develop new "erector set" methods of assembly which can be mastered by the limited labor talent available. He told members of the West Coast Lumbermen's Assn. last spring: "The lumber industry must look for the manufactured kinds of items, versus the concept of the raw product. It must recognize the builder's desire to eliminate finishing on the site, because the manufacturer can perform just about any task for less at the mill than the builder can do it at the site. Furthermore, the lumber industry must find satisfactory answers to problems other than cutting and shaping of lumber. Wood finishing, for example, is one of the enemies of the use of wood. There are new and better finishes that are extending wood's use-the natural bleaches, for example, which are penetrants, not face coverings."

New ideas in wood construction—to demonstrate wood's "versatility of shape" and its adaptability to "erector set" assembly—are unlikely to spring spontaneously off some architect's drafting table. The new shapes present unconventional problems, and they demand considerable engineering development before designers will be able to use them freely. As Architect Robert Price says: "The average architect or engineer has neither the money, the resources, nor the time for this type of research and study. We must count on the lumber industry to supply us with some of the answers."

Among the first structures to display the fruit of such industry-designe cooperation, in addition to the school on the preceding pages, is the Fores. Products Pavilion in Portland, Oregon (opposite page), designed by Architect John Storrs and Engineer James G. Pierson for Oregon's Centennial Exposition and International Trade Fair. now in progress. Representatives of many segments of the lumber industry contributed both money (\$25,000) and some engineering data to the creation of this shelter of hyperbolic paraboloids, designed to show wood in a new structural concept. Indeed, this 24,000 sq. ft. roof, providing an uncluttered floor area for dozens of exhibitors, probably could not have been built without such encouragement from the industry it represents.

Developments such as this, along with others still to be put to use, such as the giant delta beam (photo, left), designed to span 360 ft., and the highspeed laminating process (photo, left), with its promise of lower-cost gluelaminated beams, represent the kinds of technological advance which can move the wood industry back into a prominent position with other building materials. The real trouble is that the industry is supporting too few projects of this type. If the industry were willing to invest \$30 million per year in research and development-only 1 per cent of total annual lumber salesbuilding would soon see a renaissance in wood.

Hyperbolic paraboloids form the roof for Oregon Centennial's Forest Products Pavilion. Seven paraboloids, each 50 ft. by 50 ft., make up the 24,000 sq. ft. roof. Each paraboloid is separated from the others by a 5 ft. wide plastic skylight.





PHOTO-ART COMMERCIAL STUDIOS







Bright Ideas

Man-made hills . . . trees for Main St . . . renewal boosters

? How to create scenic hills in a flat city and simultaneously save the city money.

Shape the earth that must be excavated for expressway projects into useful interesting mounds in city parks.

Over the next 20 years at least 60 million cubic yards of earth will have to be excavated for the construction of Detroit expressways and traffic underpasses. Currently contractors charge as high as \$1.65 a yard to haul excavated material away to dumping sites.

If Detroit's City Plan Commission Director Charles A. Blessing has his way, however, in the future all this excavated material will be used to create useful man-made hills and recreation features in the parks and playgrounds of generally flat Detroit. And the 20-year savings on hauling expenses, he estimates, could exceed \$25 million.

Blessing has already conferred with Sculptor Isamu Noguchi on ways to shape the tremendous volume of excavated material the city will have to dispose of: a pile of earth that would stand five stories high, 100 ft. wide, and 2 miles long. Blessing's most ambitious proposal ("we could make it an international attraction," he says) would be the creation of a 100 ft. high promontory on the eastern end of Belle Island municipal park, with a level picnic and game area on the top, and a Greek amphitheater on one side sloping down to the river front. In other parks and playgrounds he contemplates four large ski hills ranging in size from 35 to 50 acres, five earthen stadiums to hold from 10,000 to 15,000 spectators each, seven theater bowls seating from 100 to 500 persons, and 23 toboggan and sledding hills embracing from 5 to 10 acres each.

"In every slum clearance project we are opening up great areas to light and air and greenery," says Blessing, "but I think we must provide rolling terrain to break up the monotony of our plains."

In suburban Oak Park, near Detroit, an oval-shaped manmade hill about 25 ft. high, 240 ft. long, and 125 ft. wide was completed and planted in the spring of 1958. Is it a success?—"Just ask the kids," says a spokesman. "They use it with sleds in the winter and wagons in the summer. It's just about the most popular park attraction we have."

? How to plant trees along busy downtown streets without troublesome, expensive excavating through sidewalks.

Use large, portable tubs or tree pots that can be placed on top of the sidewalk.

Planting trees along downtown shopping and business streets has always been complicated and costly, especially when there are utilities under the sidewalks. A less-complicated alternative that has been gaining favor is "portable landscaping"—or the use of giant flower pots that hold small trees, flowers, and shrubbery and can be set out on top of the sidewalk.

New York's Fifth Avenue between 34th and 59th Streets blossomed this spring with large concrete planting tubs filled with vines and shrubbery. Along a section of Park Avenue that covers the New York Central railroad tracks, 32 flowering crabapple trees appeared overnight in other huge concrete pots set down on a pebbled area. New York



started its dress-up planting program in 1957, when the city appropriated \$300,000 for a "Salute to the Seasons" project under the joint direction of a citizens' committee and the city's Departments of Parks and Commerce and Public Events. In 1957 and 1958 shopping and tourist spots were decorated with seasonal planting in large wooden boxes, supplanted this year by the concrete receptacles. This year, Uris Brothers, office and apartment builders, contributed \$87,-000 and took charge of the Park Avenue tree placements, and other private donations included \$25,000 given by Equitable Life for the big pots on Fifth Avenue.

Chicago, too, embarked on a major downtown trees-andflowers program two years ago. Sparked by Mayor Daley, this began with joint expenditures by the city and the county for 32 hawthorn trees, in as many big redwood boxes, placed around the City-County Building block, and 60 big window boxes filled with flowers. City workers made the tree boxes for \$25 each. Last year the private State Street Council joined the program. At its own expense the council put 72 big concrete pots holding Chinese elm trees along the main shopping section of State Street, and this spring added another 50. At the base of each tree this year ivy and petunias were planted; they will be replaced in the fall by chrysanthemums, and in the winter by evergreen



NEW YORK

CHICAGO

boughs. These concrete pots cost \$75 to \$80 each, plus \$53 a year each for maintenance. (In disappointing contrast to these planters are the ungainly lamp posts that were installed last November—see photo).

? How to bolster civic pride and make both citizens and visitors to a city urban-renewal conscious.

Educate such public conversationalists as bar tenders and taxi drivers about the city's redevelopment program.

New Haven's Mayor Richard C. Lee (one-time press agent for Yale University) has been holding a series of meetings to brief taxi drivers, bartenders, and beauty parlor workers on details of the city's new \$125 million Church Street and Chapel Street redevelopment projects. Besides indoctrinating these public conversationalists who seem to have plenty of time to talk, Lee also has been giving urban renewal pep talks to small assemblies of physicians, dentists, and other professional groups.

The mayor first got the idea of converting New Haven taxi drivers into civic salesmen three years ago, when he enlisted their cooperation in publicizing the city's Oak Street redevelopment. Their assignment: to make sure that strangers in town, usually taxiing from the railroad station to the business and university sections of the city, were made aware of the fact that the many old unoccupied buildings they passed were not simply going to rot, but were slated for demolition. As clearance and redevelopment progressed, cabbies also give accurate details about the renewal work under way thus impressing visitors with the fact that New Haven is moving forward to definite goals and is not just a city of desolate or half-demolished blocks and inconveniently torn up streets.



Hardware, courtesy Schachter-Robin, Inc., Miami

A pleasanter way to end a long drive is hardly more imaginable than to arrive at the new Moulin Rouge Resort Motel at Miami Beach. Like so many buildings of originality and character, the Moulin Rouge is secured by Yale locksets. Here—as in famous commercial and residential buildings the world over—Yale locksets impart decorative distinction as they provide the highest degree of security. Your own problem of decorative locksets—is it difficult and unusual? Then contact the Yale Lock & Hardware Div., White Plains, N.Y.

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tween the Lugano airport and its hangars, Swiss Architect Otto Glaus was given the problem of building a hotelmotel complex that would appeal to travel-weary travelers and airlines personnel. Lacking a natural focal point, he decided to start with a pool (above) and to develop the complex around it. The façade of his hotel, a jumble of pierced and jutting forms within a strict concrete frame (left, above) provides enough shadow and motion itself to look like a complete oasis. The detailing of the hotel, such as the stair wells (left) and roof sculpture (far left, above), is equally eye-filling.



ITALIAN FRAGILISM

Architects arriving at Milan from overseas this year will be given an immediate surprise: the airport is no rugged concrete example of Italian "brutalism"; it is as light and tensile as anything at Idlewild. The bare steel structure and glass walls of the airport's new east wing (at left in photo above) enclose three groundfloor waiting rooms, a secondfloor restaurant for passengers, and a third-floor lounge. They are joined by a fragile stairway (below) that shows Architect Vittorio Gandolfi, for one, has not lost the ability to draw details with a fine Italian hand.





DUTCH ISOLATION



In building a parish church for the little Dutch community of Vaals near the German border, Architect J.H.A. Huysmans had to overcome the problem of the town's inaccessibility by train. All materials had to be local; all specifications manageable by the local work force. As a result, his concrete-framed St. Joseph's Church has structural simplicity and strength such as many a better-positioned church could envy. Both the roughbrick exterior (above) and the lofty interior (left) are dominated by the "wheel windows" at the ends of the three barrel vaults. At the back of the broad-aisled church (at right in photo below) is the baptistry.





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STAIRS	AND ELEVATORS
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~	OFFICE TOWERS

ROMAN TWINS

Three interesting features of this Roman office building are its mirror-image plan, its prominent concrete structure, and its carefully handled brick details. The identical halves are brought together in the middle by a vertical circulation tower (right). And topside unity is achieved by bending the columns backward to receive the set-back roof (left, above). Thus joined, the building houses the headquarters of the Italian Cooperatives' League, and, appropriately, was designed by the Architects' and Engineers' Cooperative. A ground-floor auditor-ium is set between the legs.









Abroad

BRAZILIAN MONUMENTALITY

Of the many bold shapes to be seen in Brazil, one of the most geometric is this triangular theater in Salvador, Bahia, by Architect Bona Fonyat. Salvador, the fourth largest city in Brazil, was determined to build a cultural facility that would be uplifting because of its exterior beauty and its interior efficiency. As seen in the sketch below, the plan is indeed functional; theater-goers ascend a ramp to a point halfway up the inclined auditorium. But the monumentality of the form in contrast to the structures around it (left) seems somewhat more oppressive than inspiring. END



JUNIOR BEAMS—lightweight, hot rolled steel structurals, have achieved widespread acceptance in the building field because of their economy and versatility.

Structure—Dormitory for State Teachers College, Lock Haven, Pa. Owner—General State Authority of Pennsylvania Architect and Engineer—Celli-Flynn, McKeesport, Pa. General Contractor—Stan Seiple, Inc., Sunbury, Pa.






Concrete floor gets the finishing touch. Plywood forms are removed from below by breaking off exposed section of K-clips.



All intermediate floor and root members in the structure are J&L Junior Beams.





Junior Beams are produced by J&L in 6", 7", 8", 10" and 12" sizes in A-7 and high tensile grades.

College dormitory erected for less than \$3,000 per bed

"We attribute a major share of cost reduction to the Junior Beam floor framing system"

... reports Celli-Flynn, Architects and Engineers

"This is the lowest cost-per-bed project of nine comparable dormitories built in recent years on the campuses of Pennsylvania State Teachers Colleges," says a partner in the firm. "This savings was accomplished despite increased material and construction costs and the low figure includes the extra expense of built-in furniture."

All intermediate floor and roof members in the structure are J&L Junior Beams, while the main structural frame is reinforced concrete. Here, significant labor savings were achieved because lightweight Junior Beams were raised and positioned rapidly, and were delivered to the job cut to length. Additional time was saved through the use of an unusual method of forming the concrete floor. This method, known as the K-System, utilizes special cast iron K-clips which are fitted to the top flange of the Junior Beam. The clips support 24" x 96" plywood forms between the beams.

Investigate Junior Beam—K-System construction. Junior Beams are easily adapted to a wide range of architectural design. For further information consult your local steel service center, your nearest J&L district sales office, or write directly to Jones & Laughlin Steel Corporation, 3 Gateway Center, Pittsburgh 30, Pennsylvania.

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A few of the many full-color illustrations in the 64 pages of fresh ideas and design data on the use of Anaconda Architectural Metals now available to architects, designers and fabricators. Upper right: Red Brass handrails and balusters. Column is wrapped with woven Bronze wire partially colored. Lower right: Interlocking Bronze extrusions form wall panels. Upper left: Nickel Silver and Architectural Bronze in a setting of black and white marble. Lower left: Welded-sculpture screen of Brass and Bronze.

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CANDLESTICK PARK, San Francisco, Calif. Architects-Engineers: John S. Bolles-E. Elmore Hutchison, Architect-Engineer, San Francisco. Plumbing Contractor: Harry Lee Plumbing & Heating, Burlingame, Calif.

New home of San Francisco Giants, Candlestick Park, includes Briggs Beautyware



Briggs Milton Lavatory has wall mounting with legs optional. Anti-splash rim, two cast-in soap depressions and double integral front overflows.



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Briggs Hilton Urinal, styled of durable vitreous china, is wall hung with syphon jet action and flushing rim.

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CORNING MEANS RESEARCH IN GLASS

Books





JAPANESE GARDENS FOR TODAY. By David H. Engel. Published by Charles E. Tuttle Co., Rutland, Vt. 270 pp. 9" x 11". Illus. \$15.

The major virtue of this book by New York Landscaper David Engel is that it encourages the reader in his hope that he might bring the peace and order of Japanese garden design into his own environment; that he might lay down a Japanese walk for his home or might prescribe a "dry garden" for one of his buildings. Without descending to the *how to* level, Engel gives directions for planting, selection of stone and methods of fencing from his impressive knowledge of the ways and means of Japanese landscaping.

Engel is less impressive when theorizing on the unique qualities of Japanese design, having fallen somewhat over the edge of fascination. He writes: "The bonds [of Japanese culture] are stronger and deeper than any we have known heretofore in the realm of garden art. They are ties of an ineffable spirituality, which can be felt at all levels of perception. And this forms what may be the real attraction of Japanese gardens at this critical juncture of Western cultural growth."

Less concerned with the spiritual message of the gardens, or of the environments which they determine, is Architect Richard Neutra, who has supplied an introduction for the book. His explanation of the applicability of Japanese landscaping seems more acceptable and, at the same time, no less profound. Writes Neutra: "Fashion does not penetrate [the Japanese garden]; an uncanny force of primary design, seeming to embody the stability of nature itself, fends off fatigue, neither tiring man nor boring him." HOTELBAUTEN—HOTELS, MOTELS, AND HOLIDAY HOUSES. By Alexander Koch. Published by Alexander Koch GMBH, Stuttgart; distributed by Wittenborn & Co., 1018 Madison Ave., New York 21, N.Y. 315 pp. 81/2" x 12". Illus. \$17. (With English text.)

This is a neat, glossy picture-and-plan book of 40 modern hostelries around the world, which range from the 1,001-room Dallas Statler-Hilton to a handful of disarming vacation bungalows (built by a Swedish contractor for his employees) on an island in the Skagerrak. Some examples may by now be familiar to U.S. readers: SOM's Istanbul Hilton, Stone's El Panama, Neutra's Malibu Beach and San Pedro motels, the AIA-honored Lake Wilderness Hotel outside Seattle, New Orleans' air-borne Motel de Ville. Lesserknown inns from Germany, Italy, Switzerland, and Scandinavia, however, supply ample fresh ideas in imaginative planning and in restraint. For mountaineers in particular there is Herbert Bayer's Aspen Meadows Health Center and Ralph Erskine's Lappland hideaway with a ski run off its roof.



LALIBELA: The Monolithic Churches of Ethiopia. By Irmgard Bidder. Published by Frederick A. Praeger, 15 West 47th St., New York, N. Y. 137 pp. 9" x 12". Illus. \$12.50.

The hero of this incredible story is the Coptic branch of the Christian church. Its medieval flowering took a bizarre form in Ethiopia: monolithic stone churches carved with exquisite care and fine design out of bare cliffs, and sometimes out of lava pits. This unique method of "building" has been largely overlooked by architectural historians, and it is indeed welcome to find it here so beautifully brought to light.

continued on page 158B

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Books

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CAROLINGIAN AND ROMANESQUE ARCHITEC-TURE, 800-1200. By Kenneth John Conant. Published by Penguin Books Inc., 330 Clipper Mill Rd., Baltimore, Md. 343 pp. $101/_2$ " x 7". Illus. \$12.50.

This scholarly, rambling work offers along the way much that should interest architects of modern churches. For it allows the reader to feel the essence of Romanesque power: a unique combination of church and state that grew out of the cultural aspirations of a successful soldier named Charlemagne. The artists of that day had the advantage of a power symbol, the Roman arch, that was as strong emotionally as it was structurally. That they used it with skill and even, occasionally, wit is made clear by Professor Conant's handsome volume.

PLANS FOR SIX PUBLIC LIBRARY BUILD-INGS. Prepared by the Public Library Association of the American Library Association, 50 East Huron St., Chicago 11, III. 64 pp. Paperbound. $8t/_2'' \times 11''$, \$2.25.

This informative collection of six library plans and accompanying data will be extremely helpful for interior designers and administrators of libraries in large and small communities. The collection begins with a study of plans for a library in Holland, Mich. (population 25,000), priced at \$500,000; it ends with plans for the Queens Borough Public Library (Queens' population is in the neighborhood of 2 million), priced at \$4.5 million.

The only regrettable feature of the booklet is that it presents no exterior renderings of the buildings in question, leaving the reader somewhat with the impression that the ALA believes a library to be good if its interior plan is efficient and its cost within reason. The physical effect of the



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Books

cont'd

building on the community around it should surely be put higher on the list of considerations.

URBAN PROBLEMS AND TECHNIQUES. A

Forum on Technical Problems in an Expanding Urban Society. Edited by Perry L. Norton. Published by Chandler-Davis Publishing Co., P.O. Box 36, West Trenton, N.J. 249 pp. 6" x $8\frac{1}{2}$ ". \$3.65, soft-bound; \$4.50.

This is the first of three volumes dealing with urban problems. The subject matter, ranging from recreation planning to an "attack" on smog, is written by some of the most prominent professionals in the planning field, who go beyond the task of setting down the problems of urban expansion: techniques are suggested for dealing with annexation, the preservation of greenbelts, the control of industrial growth. It is an important contribution to a field which is affecting the lives of more Americans each year, as the nation becomes more urban with each new generation.

The second volume in this series, *Planning in a Democratic Society*, by John R. P. Friedman, will be published later this month; the third volume, *The Techniques of Urban Economic Analysis*, by Ralph W. Pfouts, will be published in October.

LIGHTING IN ARCHITECTURE. By Dr. Walter Kohler and Wassili Luckhardt. Published by Reinhold Publishing Co., 430 Park Ave., New York, N.Y. 223 pp. 8½" x 11". Illus. \$15.

This is a handsome volume, amply illustrated, in both black and white and in color. The first of the book, a pictorial narrative, was compiled by Wassili Luckhardt, an architect. The second and third parts, by Dr. Walter Kohler, are more technical in nature; they deal with general considerations concerning light, color, and form, and their effects on man, and with lighting engineering practice. The book was first published in German, in 1956, but the subject matter is definitely international in scope. The new English edition should find an eager audience.

PLANNING FOR URBAN TRANSPORTATION. Proceedings of the Second Annual Spring Conference of the Organization of Cornell Planners. Published by the College of Architecture, Ithaca, N.Y. 85 pp. 8" x 101/2". \$2.

A discussion of the influence of transportation on urban form, this paperback introduces some new concepts in transportation planning and theory, notably the use of computors in the Chicago and Washington transportation studies, the supergrid system of highways to replace the older radial and ring system, and the evolving design of interchange and transfer points in the transportation network. FOR DE NG STAGE

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Architectural Forum / August 1959

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new approaches to structural design with fir plywood



Clean, light lines of this striking residence show how new plywood structural elements can be used to help wood construction meet the requirements of contemporary design.

Case Study House demonstrates imaginative handling of

ARTS & ARCHITECTURE Case House Study No. 20 OWNER: Saul Bass, Whittier, California ARCHITECTS: Buff, Straub and Hensman Los Angeles, California

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N ORTHWEST of Fargo is the town of Minot, North Dakota, about 50 miles from the Canadian border. It's not the easiest place to reach with structural steel shipments, but when they wanted steel for a state fair grandstand, they got it . . . pronto . . . from United States Steel.

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Central High School, Phoenix, Arizona. Architect: John Sing Tang, Phoenix.

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Aqueduct Raceway, Queens, N. Y. Architect: Stone & Webster, Boston, Mass.

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Excerpts

What other people are saying

THE WAY TO RENAISSANCE

At the AIA's annual convention in June, keynote speaker Edward Durell Stone outlined an action program for his fellow professionals, urging them to become something more than ambulance chasers.

It is tragic paradox that designing and planning are the most important and still the least expensive parts of any project, and yet are not considered indispensable. Leadership in community and city planning has been lost to others, and we architects are called in after the important decisions are made; our role is to work out the details. Compared to the medical profession, we are no longer the diagnosticians, but rather the ambulance chasers.

We can change this. For instance, a group of Kansas City architects pooled their interests and presented a plan to that city for its development. Philadelphia has an architect at the head of its City Planning Commission. New York has a firm of architects developing a new zoning law. Washington has architects serving on its Art Commission. Other cities have architects reframing the building codes. Fort Worth had an architect prepare a master plan for its downtown redevelopment. These are key roles befitting our heritage.

No progress will be made while we stand by awaiting the next commission. Our profession is beset with a limited outlook. Laws, regulations, examinations, and so forth, which discourage the young men from entering the profession, should be relaxed. A degree in architecture and two years of office work should suffice. All of the state issuances of licenses should be abandoned. It is ridiculous that an architect from one state cannot practice in another. A national license is the only answer. Art is a universal language even the Taj Mahal was done by an out-of-town architect from Turkey. "Built in Texas by Texans" should not apply to art.

Our highways are a nightmare of billboards, honky-tonks, and filling stations. We can influence legislation. Why not campaign for trees on every roadway? They can form a veil between the roadway and commercial establishments, placed a prescribed distance from the roadway.

As for our towns and cities, the automobile and pedestrian cannot be mixed. The automobile, the neon sign, the atomic *continued on page 172*



THE WAY TO CONFUSION

In a recent issue of This Week, an article breathlessly entitled "Cities of the future" told of the many recently wrought wonders that are changing the appearance of our cities. To check their argument, the editors commissioned a sketch (above) that attempts to bring together most of these technological, planning, and architectural advances. Whether or not the sketch serves its intended purpose, it does serve to illustrate the architectural confusion that would result if the most famous designs of the past five years were put under one roof — and, incidentally, suggests a game of building identification. FORUM spotted 11 old, trustworthy friends before tiring of the game (for its answers see page 174).

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UNION

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pile, are all lethal unless controlled. Grass should grow on Main Street, and it should be a pedestrian oasis with parking around the perimeter. This principle applies with equal force to large cities.

Since the horseless carriage is largely responsible for all of our troubles and we are a country that eulogizes free enterprise, why should the great oil and automotive industries of this country not try to resolve some of the problems they have created? Why cannot they be shamed into planning studies of our countryside, our villages, and our cities? To such great corporations the financing of such studies would be peanuts. They could be induced by us to finance such studies since the destiny of the individual and the future usefulness of the motor car are deeply involved.

Our government must also be made aware of its responsibility. To accomplish this, we need a cabinet official corresponding to the Secretary of Agriculture, with



WRITE FOR DATA ON HAWS CAFETERIA AND RESTAURANT WATER COOLERS

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outposts in every state and with architects and planners to guide communities, just as the state and county agents have educated the farmer.

If programs such as these were inaugurated, our profession would begin to fulfill its destiny. We would not be wasting our effort on creating precious prototypes for our own personal satisfaction, in the midst of chaos, but rather adding individual and brilliant buildings in a well-ordered plan of our country as a whole. And if we, as a group, can sense this opportunity and obligation, it might be said that the Renaissance, which historically starts in periods of stable government and prosperity, had its inception in our age with a handful of architects who banded together to create a beautiful physical heritage for our time and for generations to come.

RELOCATION ON THE FRINGE

To solve the urban renewal problem of relocation, local housing authorities should concentrate on the rehabilitation of fringearea slum buildings. This recommendation was made by Otto L. Nelson Jr., executive director for construction of New York's Lincoln Center, in a recent issue of the Chicago AIA Chapter's Inland Architect.

Relocation and the many human problems it precipitates are the most potent obstacles to city renewal we face. Relocation will never be easy, and the uprooting of families and business can never be done without heartache. But I insist that the process can be greatly improved. At the same time a substantial amount of rehabilitation can be achieved. While I would not entirely eliminate new public housing developments, I would urge that in the next decade the major effort of our public housing authorities be focused on the provision of relocation housing. Such housing would be obtained by acquisition through condemnation of housing in fringe areas, which would then be rehabilitated by the public housing authority and administered as temporary public housing with priority for families re-located from renewal areas. There are two good reasons for doing this.

First, unless more relocation housing is forthcoming, the renewal program in many of our cities will be jeopardized. Slum areas cannot be cleared unless there is available decent and sanitary housing for the families that must be relocated.

Secondly, rehabilitation of housing in fringe areas that can be saved by measures short of complete demolition is an appropriate conservation task for local government and one that in the past has been very badly handled by private enterprise.

Such an approach would not only provide needed relocation housing but would also insure that a proper program of re-



Wayne Memorial high school auditorium, Wayne, Mich. Eberle M. Smith Associates, Inc., architects.



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Excerpts

habilitation would be carried out through the acquisition by the local public housing authority of one or more whole blocks in which unretrievable structures would be demolished while others would be rehabilitated. Attention could then be given to eliminating certain neighborhood deficiencies, such as lack of open space, off-street parking, subminimal lots, nonconforming uses, etc. This would be in striking contrast to piecemeal face lifting of an individual property, which is seldom successful financially and which adds little or nothing to the residential security of the neighborhood.

Such a program would also be financially feasible. New public housing construction today involves a capital cost of from \$12,000 to \$17,000 per dwelling unit, on top of which you must add continuing subsidy costs as well as tax exemption. Rehabilitation at any price could scarcely be unfavorable by comparison. What is more, the finished rehabilitation units

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Left: Auto-Bank — typical station for connecting drive-in main banking facilities for transfer of funds. *Right*: Single door up delivery terminals with goose-neck. Combination inlet for handling orders, parts, etc.

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Left: Nurse inserts carrier. System handles test tubes, charts and other hospital items. Right: Pneumatic tube station in laboratory office of steel mill.



could be used for short-term public housing with a stipulated time schedule for moving the property out of public ownership and back into private hands and onto the tax rolls again. Proper rehabilitation can make highly satisfactory dwelling units in older housing that are a credit to the city and will be useful for years. They can then be returned to private enterprise to run, but I would again stress the point that, on the basis of much evidence, private enterprise without the power of condemnation and with the motive of extreme short-run capital gains is not equipped to carry out the rehabilitation.

A STAR IS SOUGHT

On the radio program "Yale Reports," Serge Chermayeff, professor of architecture at Harvard, made some disturbing remarks on the propensity to create architectural heroes.

Frank Lloyd Wright was the great architectural hero. He made a revolution almost singlehandedly, and he begat the later generation of revolutionaries that we also regard as masters-figures like Gropius and, philosophically speaking, Mies van der Rohe, and Corbusier. The whole of Wright's generation is drawing to a close, and its gradual demise raises a question of contemporary manners: are we now going to close the book on architectural heroes, or are we, as we appear to be, very deliberately going to cultivate heroes just to replace them? The star system is very powerful in the American grain, every achievement has to be identified with somebody with blue eyes and a certain kind of taste in ties. We apparently cannot accept abstract notions of achievement very easily.



"THE WAY TO CONFUSION" (SEE PHOTO, PAGE 171)

1) Philips Pavilion, Brussels World Trade Fair, Le Corbusier, architect.

2) American Pavilion, Brussels World Trade Fair; Edward Durell Stone.

 Los Manantiales Restaurant, Xochimilco, Mexico; Joaquin Alvarez & Fernando Alvarez Ordonez, and Felix Candela.

British Columbia Electric Building, Vancouver;
Sharp, Thompson, Berwick & Pratt.
St. Rochus Church, Dusseldorf; Paul Schneider-

S) St. Roenus Church, Dusseldori, Faul Schnedar-Esleben.

 United States Mission to the United Nations, New York: Kahn & Jacobs, and Kelly & Gruzen.
TWA Terminal, Idlewild: Saarinen & Associates.
Water tower-town hall, Gueriniere, France; Rene Sarger,

9) Arab University, Baghdad; The Architects Collaborative.

10) British Pavilion, Brussels World Fair; Howard Lobb and John Ratcliff.

11) Blue Cross Building, Boston; Paul Rudolph. END



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REVOLUTION IN HOSPITALS continued from page 129



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however, community collaboration has been almost nil. Why? Because quite understandably physicians are loyal to their particular hospital, wish to exercise their talents fully there without being restricted by limited facilities, and they resist any seeming threat to the continuity in their patients' care. Custom dies hard in the medical field.

Tomorrow's health center

The most publicized development in contemporary hospital care, which one popular magazine describes perhaps too breathlessly as "the first really radical change in hospital procedure in more than 100 years," is progressive patient care. Its essence is the precise tailoring of facilities and care to the specific degree of illness of patients. It is this principle of exact fitting of services to particular patient conditions that epitomizes the concept of the new kind of community health center. Its implications for changes in hospital design are numerous.

Dr. Edward T. Thompson, chief of the Office of Intramural Research Activity for the U.S. Public Health Service's Division of Hospital and Medical Facilities, traces the development of progressive patient care to the increase of major surgery shortly after World War II. This led to the establishment of postanesthesia recovery rooms where unconscious patients could be placed under intense and continual surveillance. What gradually evolved from the recovery-rooms concept, now widely adopted, was the notion of a systemmatic classification of patients in strict accordance to their medical needs, regardless of economic status, sex, or even diagnosis.

There are and can be numerous variations in the scheme, but, as formalized by the U.S. Public Health Service, five phases of patient care are visualized. Roughly 10 per cent of patients are in the intensive-care zone, needing optimum nursing and all crucial apparatus; 50 per cent are in intermediate care, requiring only moderate nursing, those who are occasionally ambulatory and able to handle some of their own care; 20 per cent are in the self-care phase, a concentration of the ambulatory patients requiring diagnosis or convalescent care in homelike accommodations, and patients who are being prepared for the transition to home, requiring

minimal nursing. The remaining 20 per cent are in long-term care, needing services not available at home, yet facilities that are homelike and are substantially less expensive than the typical nursing unit-an environment encouraging the patient's sense of security and highlighted by rehabilitation and physical-therapy equipment. The fifth phase is home care, an extension of hospital service into the home, with a stress on prevention of the need for further hospitalization. This latter, of course, can make a potent contribution to a reduction in over-all medical-care costs.

There has been some excessive ballyhoo in the popular press about "progressive patient care." The truth is it is still experimental, and there are real questions as to the over-all practicality of moving an appreciable percentage of patients so frequently in our era of shortened hospital stay (down to $7\frac{1}{2}$ days from the 28 days 30 years ago). Yet the experience at Manchester Memorial Hospital in Manchester, Conn., substantiated to some degree by trial in some 150 other hospitals, is that patient care is improved, complications are reduced, the patient stay is shortened, and there are consequent economies all around. Inventory costs per bed are lower when expensive equipment can be concentrated and put to more intensive use. There is clearly a more efficient utilization of nursing staff.

Also, self-service units can be supplied with home furnishings way below average hospital costs, and personal services for these units can also be much less expensive. The architect and hospital administrator must locate the special-care zones so as to permit maximum ease of movement of patients from one area to another (they are moved in their own beds, incidentally, to save linen changes). And they must see that special-care units in each area are self-sufficient in equipment, medication, supplies, and linens, and that the self-service areas are connected with yet separated from the main hospital plant, normally by a connecting archway.

Integration on a single site

Basic significances of progressive patient care are two: first, by means of it, practical action is being taken



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REVOLUTION IN HOSPITALS continued from page 178

to reduce the part-time waste of extremely costly physical plant, of expensively trained medical talent, and of all the expensive emergency apparatus that only a fraction of patients need for relatively brief critical periods. Second, progressive patient care marks a partial realization of the notion of medical responsibility for the whole man expounded earlier. This is the ideal of meeting both physical and emotional needs and of undertaking preventive and rehabilitative measures as well as curative ones to ensure the patient's full restoration to society with minimum risk of relapse.

In this connection Dr. Vane M. Hoge of the American Hospital Assn. points out that the community health center of tomorrow must be planned to cope with two very broad basic situations. One is handling patient conditions characterized by rapid onset, intensive treatment, and quick recovery-that is, the troubles of the young and middleaged. The other situation is to accommodate the conditions characterized by slower onset, longer duration, and requiring less intensive treatment - in short, the disabilities of the aged, chronically ill, and mental patients, which will rise in prominence.

In light of such considerations the Hill-Burton program itself has been modified (in 1954) to extend appropriations to a wider range of facilitiesnursing homes, diagnostic and treatment centers for the ambulatory, and chronic disease and rehabilitation units, all of which are in short supply. These become a new and welcome addition to the arsenal of the acute general hospital in its evolution as the nucleus of the community health center, for increasingly the evidence is persuading the planners that integration of services on one site has many advantages. This is seen in the important trend toward establishing doctors' offices within the hospital itself. This office situation facilitates the doctors' use of hospital equipment, expedites the handling of inpatient emergencies and visiting bed patients, and means prompter hospital admissions and reduction in travel time. As a result, the unavailability of large sites in metropolitan areas is becoming a big headache for the hospital planner. (AMA take note: limited areas forcing doctors to double-park may yet



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REVOLUTION IN HOSPITALS continued from page 182

turn out to be the main irritant in the doctor-patient relationship.)

Roy Hudenburg, the hospital expert who is director of clinic facilities for Detroit's Community Health Assn., points out that the move of doctors' offices to the general hospital frequently encourages the formation of group practice by these doctors and tends to attract more physicians. This leads of course to a great increase in outpatient traffic, the ambulatory patients who now begin to tax such hospital's resources as laboratories, radiological departments, and physical therapy units scaled originally for inpatient care. Expansion becomes necessary as the hospital evolves into a comprehensive community health center, and more and more outpatient demands for diagnostic and treatment services are made upon it by the area's physicians.

Various local studies demonstrate that 20 per cent of hospitalized patients could be just as well cared for in less expensive quarters. The use of health insurance for inpatient care can lead to overutilization especially if outpatient facilities are lacking. More than any other factor, the consequent high cost of medical care has stimulated the expansion and better articulation of outpatient and ancillary hospital services, and as a result the creation of the integrated community health center. Hospital planners are as excited today by this challenge of developing an efficient and economical center consistent with the realities of the new practice as they are by the marvelous new machines that science is producing for better medical treatment.

Another outgrowth of the cost crisis is new stress on home-care programs that bring hospital services directly to the patient in his home. This development is rudimentary now. Accordingly it is a matter of priority concern to many health experts as they see in it big economies and promises of more effective therapy.

The great size of the community health center in itself can be expected to augment certain costs, and there are certain anti-therapeutic aspects to overly large units. Yet the advantages are overriding. Not only does this hold for the patient, especially in the matter of continuity of care as so many patients have a proclivity for slipping from one disability to another, but for the National first place award winning H. I. C. Home in Eugene, Oregon, is pictured below. Par-TILE was spe-cified.

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REVOLUTION IN HOSPITALS continued from page 186

community at large, avoiding expensive duplicating of laundry, dietary, lab, X-ray, power, and other facilities. Dr. Bourke cites evidence that it is far more costly to build and then operate central service facilities for three 25bed hospitals than one 75-bed institution, and this holds true for much larger units. The biggest saving of all, however, lies in the preventive-care possibilities of the health center, above all in the area of mental health, now monopolizing half of all hospital beds.

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There are over 620,000 mentally ill presently committed, and an admissions rate of 505,000 annually, of which 185,000 are admitted to general hospitals. The aged are on the increase and mental illness afflicts them most heavily. But almost balancing this is the fact that ever since the introduction of the tranquilizer drugs, discharge rates have improved. Of great pertinence to the planner is the fact that the drugs have greatly encouraged the open-door hospitals. This is having a profound impact on design, from such obvious changes as the end of seclusion rooms, prison-type doors and portholes, bars and nonbreakable furnished ward-







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Erwin S. Wolfson Chairman of the Board Diesel Construction Co., Inc.



REVOLUTION IN HOSPITALS continued from page 190

rooms, to more subtle ramifications, such as patient-run wards and a new stress on recreation and occupational therapy.

As Albert Deutsch, a medical writer, has described it, the interesting fact is that the liberated patients have twice as much energy and "motivation" as in their former imprisoned state, when, paradoxically, instead of being dangerous, the vast majority were too passive, timid, and withdrawn. In the open hospital there is a consequent tremendous gain in the possibilities for intensive treatments and more time for the staff to devote to actual psychotherapy.

The open hospital by itself will not solve this huge problem of the aged and mentally ill. Arthur S. Flemming, secretary of the Department of Health, Education and Welfare, recently suggested in the strongest terms the need for transferring many thousands of elderly persons out of the 277 state and county mental hospitals, where they receive "disgracefully inadequate care," into nursing homes. There another problem arises, for most authorities agree that there is no more urgent challenge to the health facility planner than in the nursing-home field. Many are proprietary institutions of the poorest character, providing the barest kind of custodial care, almost no medical care, and practically no relationship with the community general hospital. Because the average age in nursing homes is 80, one can imagine the depressing conditions that can develop in isolated, neglected units.

The trend is to attach nursing homes to the general hospital in the new community center. Experience shows that the construction of new, independent nursing-home facilities meeting Hill-Burton standards cost from \$7,500 to \$11,000 a bed, while nursing-home units connected to well-designed general hospitals can be built for much less. Thus, the patient will have come full circle: starting life in the health center's maternity wards, ending it, if need be, in the center's nursing home.

All in all, the system now emerging is the product of inevitable and irreversible social forces. For all the turmoil and cost, the U. S. stands to gain a better system of health facilities likely to set the goals for the aspirations of the rest of the world. END BTU METER for chilled or hot-water AIR CONDITIONING

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CRITICISM continued from page 137

elsewhere in committee rooms. Yet the building where these arenas are concentrated, this veritable center of the government's performing arts, was treated by Architects Eggers & Higgins as a mere "office building" in an illiterate classical shell!

In a democracy, government must interpret itself to the people over and over again, and differently as times change. American government has done so. In Jefferson's day the classicism which he imported into a young New World was a romantic interpretation: ancient Greece and Rome were supposed to have been ever so much purer and nobler than the baroque monarchies of Europe as an example to follow.

There were several other very different kinds of classicism in American government building after that, among them imperialist classic, as in the Supreme Court, and penitentiary classic in the new wing of the State Department (11)—but independently of all of them came the "second revolution" which turned America into an industrial society. It lived by doing exacting work. The egalitarianism of American democracy is less of a marvel now than the capacity of free people in voluntary association to carry through complicated jobs. This triumph is just what a government building such as the new Senate Office Building was fitted to celebrate.

The chance is gone now. But what of the future? The reason why government architecture is going to pieces faster, the closer it lies to the Hill, is that the buildings there are in the hands of a tight little club of architects who all wear the old classical school tie and are epigoni. They operate under a fast-talking little Architect of the Capitol who knows how to pack expensive things into buildings, but is not a registered architect at all. As long as architecture on the Hill continues to be handled without the competition of new men and ideas it will continue to deteriorate, saying nothing, going nowhere.



11. State Department's new wing, too much like a shows how Jefferson's classical romance has faded



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Aetna Steel Products Corp	
Airtemp Div. 205 (Chrysler Corp.) Grant Advertising, Inc.	k
Allegheny Ludlum Steel Corp	
Allied Chemical Corporation (Barrett Division)	
Aluminum Company of America20, 70, 71 Fuller & Smith & Ross, Inc.	
American Brass Co	
American Gas Association	
American Meter Co. (Mechanical Components Dept.) 194 Duvall Williams, Advertising	
American Standard Industrial Division 180, 181 Brooke, Smith, French & Dorrance, Inc.	
American Steel & Wire Division United States Steel Corp	-
American Window Glass Div. American-Saint Gobain Corp	
Amplex Mfg. Co 34 Lee Keeler, Inc.	5
Art Metal Construction CoCover IV Comstock & Company	
Barrett Division	
McCann-Erickson, Inc. Bell & Gossett Company	7
Perrin-Paus Company Beneke Corporation	0
Waldie and Briggs, Inc. Bestwall Gypsum Company 1581	3
Nevule & Konala, Inc. Briggs Manufacturing Co 156	6
MacManus, John & Adams, Inc. Braning Co., Inc., Charles	7
Bulldog Electric Products Division I-T-E Circuit Breaker Company159, 16	1
MacManus, John & Adams, Inc. Butler Manufacturing Co	2
Byrne Doors. Inc	5
Carter-Waters Corporation 1 Potts-Woodbury, Inc.	4
Celotex Corp. The	2
Cole Steel Office Equipment, Inc 4 Daniel & Charles, Inc.	
Columbus Coated Pabrics Corp	6
Corning Glass Works	•
Darlington Brick Co., Div. of Central Commercial Co 18	3
The Fensholt Advertising Agency, Inc. Davidson Enamel Products, Inc	
Clark & Bobertz, Inc. Douglas Fir Plywood Assn	
The Condon Co. Dunham-Bush, Inc	
William Schaller Co., Inc. du Pont de Nemours & Co., E. I 3 N. W. Ayer & Son, Inc.	
Eastern Products Corporation	9
Electric Time Company, Inc	0
Facing Tile Institute 4 Wildrick & Miller, Inc.	
Fenestra Incorporated	9
Follansbee Steel Corp 4 The Albert P. Hill Co., Inc.	7
General Bronze Corp 20 Wildrick & Miller, Inc.	3
Goodrich Chemical Co., The B. F 15 The Griswold-Eshleman Co.	4

Haskelite Mfg. Corp 26 J. Walter Thompson Co.
Hanghton Elevator Co 202 Beeson-Reichert, Inc.
Haws Drinking Faucet Co 172 Pacific Advertising Staff
Hope's Windows, Inc
Hunter Douglas Div. of Bridgeport Brass Co
Independent Lock Co. (Lockwood) 27 Reach, McClinton & Humphrey, Inc.
Ingram-Richardson Mfg. Co
Irving Subway Grating Co., Inc
Johns-Manville Corporation
Johnson Service Co
Jones & Laughlin Steel Corp 152, 153 Ketchum, MacLeod & Grove, Inc.
Kentile, Inc. 41 Benton & Bowles, Inc.
Kewannee Manufacturing Co
Knoll Associates, Inc
Koppers Company, Inc. Industrial Sound Control Dept
Libbey-Owens-Ford Glass Co 2, 3
Fuller & Smith & Ross, Inc. Liskey Aluminum, Inc
Emery Advertising Corp. Louisville Cement Co. 28 Doe-Anderson Advertising Agency, Inc.
Mahon Company, The E. C 196, 197 Anderson Incorporated
Marble Institute of America, Inc 175, 176 Moore & Company, Inc.
Mc Louth Steel Corporation 76 Denman & Baker, Inc.
Meadows, Inc., W. B
Mechanical Components Department American Meter Co
Duvall Williams, Advertising Moynahan Bronze Co
Rolfe C. Spinning, Inc. Mueller Brass Co., The
National Concrete Masonry Association 173 Roche, Rickerd & Cleary, Inc.
National Tube Division (United States Steel Corp.)
North American Aviation, Inc. (The Columbus Div.) 78 Batten, Barton, Durstine & Osborn, Inc.
Olin Mathieson Chemical CorpCover III D'Arcy Advertising Company
Orangeburg Manufacturing Co., Div. of The Flintkote Co
Owens-Illinois Glass Co. (Kimble Glass Co., Subsid.)18, 19, 29 J. Walter Thompson Co.
Pacqua, Inc 187 Porter Advertising Agency
Penn Ventilator Co 69 The Aitkin-Kynett Co., Inc.
Pittsburgh Plate Glass Co 60, 61, 188, 189 Batten, Barton, Durstine & Osborn, Inc.
Pittsburgh Plate Glass Co 60, 61, 188, 189

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Republic Steel Corp
Besolite Corp. 182 Dan W. Frye Advertising
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Eixson Company, Oscar C 170 Edwin E. Geiger
Bobbins Flooring Co
Rowe Manufacturing Co
Ruberoid Company, The
Cunningham & Walsh Inc.
Schieber Sales Company
J. Walter Thompson Co.
Schundler & Company, Inc., F. E 32, 33 Kenneth B. Butler & Associates
Shlagro Steel Products Corp 194 Parsons, Friedmann & Central, Inc.
Sloan Valve Company 4 Reincke, Meyer & Finn, Inc.
Spencer Turbine Co 177 William Schaller Co., Inc.
Standard Conveyor Co
Stark Ceramics, Inc 43 Belden & Frenz, Inc.
Steelcase, Inc. 92 Wesley Aves & Associates, Inc.
Temprite Froducts Corp 178
Watkins-Rogers, Inc. Thiokol Chemical Corp
Brown & Butcher, Inc. Todd Shipyards Corp
Wendell P. Colton Company
Union Bag-Camp Paper Corp 171 Smith, Hagel & Knudsen, Inc.
Union Pacific B.R. 59 The Caples Company
United States Gypsum Co
U. S. Eubber Co. (Naugatuck Chemical Div.)
United States Steel Corp
United States Steel Corp. (American Steel & Wire Division)30, 31 Batten, Barton, Durstine & Osborn, Inc.
United States Steel Corp.
(National Tube Division)
Universal Atlas Cement Co. (United States Steel Corp.)
Uvalde Rock Asphalt Co 157 Glenn Advertising, Inc.
Virginia Metal Products, Inc
Wasco Products, Inc
Washington Steel Corp
Wayne Iron Works 54 Harris D. McKinney, Incorporated
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Worthington Corporation
Male & Towns Mfg Co. 147

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Forum

LENIN'S POLICIES

Forum:

It is amazing that FORUM editors either don't read or don't heed history.

Lenin said once: "We will force the U.S. to spend itself into destruction." Subsequent Russian governments have continued to follow the same Lenin policies.

Your effort in pushing the federal bill for urban renewal is one of the biggest steps in cooperation with the Russian government which you could promote.

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■ A prudent manufacturer undertakes costly renewal of his plant when it becomes obsolete—or he goes broke. U.S. cities are becoming obsolete and going broke—with serious social consequences to the people who live in metropolitan areas and serious economic consequences to the corporations that do business in these areas. This affects adversely most of the population and almost every American business enterprise.

FORUM believes that it is high time the U.S. invested big money in the improvement of its urban plant. Otherwise its citizens and its businessmen may have little to boast to the world about, and its defense program may have little to defend.—ED.

SAARINEN'S SPACE

Forum:

In your June issue you ask "How does the human eye see 'empty' space?" Perhaps you could also question "How does 'empty' space feel?"

With almost 30 years in space as an architectural engineer, it was just three years ago that I experienced, for the first time, the sensation of what one might refer to as the "solidity of space." This experience took place at Saarinen's chapel at the Massachusetts Institute of Technology (left). The sensation came to me as I sat in the chapel in one of the straight, highback pews and gazed up through the manhole in the roof over the pulpit. Perhaps it was the waving circular brick walls or the excessive static pressure of the air conditioning; but, nevertheless, I experienced the sensation. I felt that the space in the building was solid.

Space can be made solid by the proper treatment of the forms used. The Gothics tried to reach the "solid" effect, but I believe they played too much with form and created "fluidity of space" where the pointed arch and the formed columns activated and moved the empty space vertically.

I prefer the "solidity of space." The search for the sensation is a difficult one; but when the reaction is obtained it is very effective.

"Empty" space is the greatest medium that the architect has for sculpture.

ABRAHAM WOOLF, consulting engineer Abraham Woolf & Associates, Inc. Boston

YAMASAKI'S TALK

Forum:

Congratulations on capturing Yamasaki so skillfully in your July "conversation." His great warmth and enthusiasm, his quick changes of pace, and his complete dedication to the high cause of architecture is shown in every phrase. What he says of his own buildings is always completely candid, although sometimes it is what he sees, rather than what the world sees.

> HARRIS ARMSTRONG, architect Kirkwood, Mo.

Forum:

I liked your "conversation" with Yamasaki. This is the kind of shop talk that architects read with appreciation.

> MORRIS KETCHUM JR., architect Ketchum & Sharp New York City

Forum:

. . . both interesting and valuable. I would be interested in reading more of these "conversation" articles.

> ALEXANDER GIRARD, architect Santa Fe, N. M.

Forum:

The conversation with Yamasaki gives a valuable insight into one architect's personal philosophy. I admire the man's rich creative skill and his feeling for design. In this age of conformity it is particularly important to show the work of individuals who have developed a style of architecture of their own.

I hope you will publish conversations with others who stand out against the overwhelming uniformity in design that has robbed American architecture of a fresh interest. You may not find many, but the personal messages of the five or six that come to mind would at least reveal some healthy differences of opinion that must be brought out to stimulate ideas of some depth rather than more imitations of treatments of surface.

WALTER F. BOGNER, professor of architecture Graduate School of Design, Harvard University Cambridge, Mass.

continued on page 208



EZRA STOLLER

Forum

cont'd

BOYD'S SULLIVAN

Forum:

I was interested in your article "Has success spoiled modern architecture?" in the July FORUM. I dispute Author Robin Boyd's idea of Sullivan as interested in "realities" more than ornament. A look at Sullivan's ornament shows that he was very interested in it. His Wainwright, Prudential [below], and Bayard Buildings, and his late banks, show a very arbitrary, that is, ornamental, treatment of the basic steel and masonry. I also dispute the suggestion that "a perfectly functional thing may automatically be beautiful." Nothing ever fulfills its function; if it did, it would be devoid of moving parts (which wear out), dimensions (which take up space), weight, sound, and all characteristics which contribute either to initial cost or overhead. It is the relatively imperfect, articulated things that are complex enough to be intriguing and in close enough harmony with apparent natural laws to be beautiful. For only in that relationship is there meaningful drama.

WALTER C. KIDNEY Radnor, Pa.

Forum:

Underlaying the entire article is Boyd's point of view that the true noneclectic modern architecture is "the glass box—basic unit of functionalism."

But the box is heavy — however refined it is made to appear. And the rectilinear beam is actually a nonorganic, nonfunctional, even nonnatural means of suspension in purely architectural terms. Shell structure, on the other hand, looks like a historical and long overdue return to fundamental thinking; not, as Boyd suggests, a search for birds and fish and sails by confused esthetes.

Who today can believe that physical structure just means the one thing it did in the Bauhaus period—or any other one thing?

> W. BARKLIE HENRY Arlington, Va.

prom "the idea of louis sullivan," by John Szarkowski, \mathbb{C} 1956, university of minnesota





WRIGHT REPRINTS

Forum:

Your June issue is a beautiful tribute to Frank Lloyd Wright. I wish he were alive to receive these encomia. For me personally, my experience with him shall remain one of the truly great moments of my life. I found him remarkably easy to work with, responsive to my requests, and even eager to please me in the making of the Beth Sholom Synagogue (above). We had hoped to have him deliver the main talk at the dedication; we are deeply grieved that we cannot have him.

> MORTIMER J. COHEN, rabbi Beth Sholom Synagogue Philadelphia

■ Reprints of the 32-page Frank Lloyd Wright portfolio published in the June FORUM are available at 50 cents each, prepaid. — ED.

SPECULATORS' RETURN

Forum:

Your article "Is real estate an inflation hedge?" performed a timely if not overdue public service.

Until a few years age, the observer of the current economic scene could say with conviction that the speculative tendencies so notable during the late twenties were absent or altogether minor by comparison. This is no longer the case. The stock market has for some time shown evidence of speculative fever, and so has the market for acreage, subdivision lots, and other types of real estate. In fact, some of the "smart money" seems to have shifted from stocks to real estate. Practices in subdivision activity and sales and installment financing methods have more and more become reminiscent of those employed in the twenties. They are especially widespread in resort areas. A growing number of people are buying real estate not for immediate or near-future use but for

capital gains. Expectations feed on expectations to the point where the prices paid for assets often bear no reasonable relationship to possible returns on investment.

While credit is surely involved in the \$10-down, \$10-a-month selling schemes, very little is known about the use and sources of credit in financing the subdividers' activities.

The growth of the real-estate syndicate also bears watching. The syndicate can be a perfectly legitimate and desirable device for pooling relatively small sums of capital for equity investment in real estate. But it can also be misused by unscrupulous promoters.

LEO GREBLER, real estate research program Bureau of Business and Economic Research University of California, Los Angeles

Forum:

A comment on your June story "Is real estate an inflation hedge ?": A property if occupied on a long-term lease by a tenant of the highest credit rating may well have a stabilized real estate value, but inflationary tendencies will not be offset unless rent increases parallel the loss of the value of money. If, however, individuals in very high income-tax brackets can acquire welllocated land, they can afford to wait for the long pull with very little outlay. as tax deductibility of the carrying charges will in a large measure offset any additional investment. The nub of the problem, however, is what will be well-located land for the long pull? This is no situation for the real estate "dabbler."

HERMAN G. MASER, vice president Bankers Trust Co. New York City

END

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