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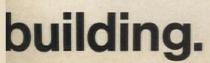
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Progressive Architecture ® February 1969

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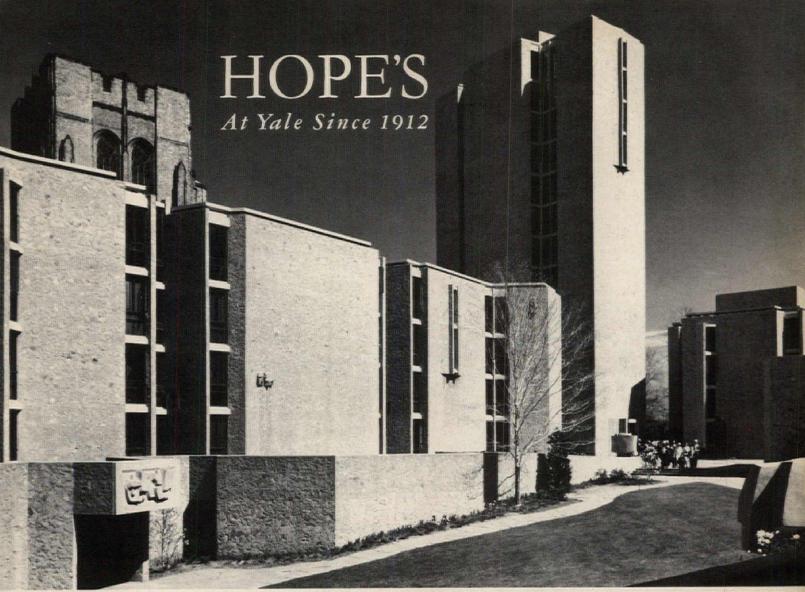


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1960 Ezra Stiles College and Samuel F. B. Morse College, Yale University, New Haven, Connecticut

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Architects: Office of John Russell Pope —
Otto R. Eggers & Daniel T. Higgins, Associates Architect: Paul Rudolph 1963 Kline Geology Laboratory Architect: Philip Johnson, Assoc.

Library & York Dormitories

Architect: James Gamble Rogers

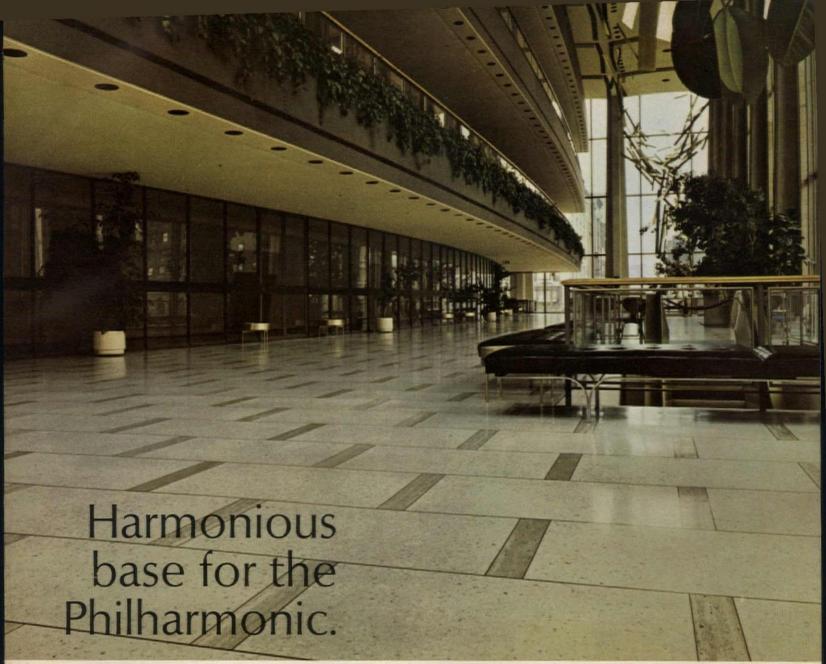
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1967

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VIEWS

been far more valuable if such questions had been discussed.

ROBERT HERMAN San Francisco, Calif.

[S.O.M.'s reply is: No comment.]

A Serious Reader

Dear Editor: I don't understand a magazine that keynotes its December issue with Michael Harrington's statement: "Without the least fear of being apocalyptic it can be moderately stated that unless the United States transforms the quantity and quality of its housing in the next 20 years the society will tear itself apart," and then fills the bulk of its text with articles such as: Seismic Sculpture; The Passing of the Sacred Space; Excited Gases; Defining Space with Light; Exterior Supergraphics; Bottle Caps Manure and Architecture; and Soul Cinema, to name the most glaring.

Either you have a coordination problem with your long, impressive list of editors, or you are rapidly becoming a superficial, glossy, image-oriented rag, paying only lip service to the issues we must all face.

> ROBERT CAREY WHITE Princeton University School of Architecture Princeton, N. J.

[It is always refreshing to hear from one of the more serious readers of P/A such as Mr. White, who evidently reads the table of contents of one issue per year, misses the point of many of the articles listed, and immediately writes to inform us of his displeasure. It is these same readers who are never heard from when an entire issue of P/A is devoted to housing.—Ed.]

Saving the Seattle Market

Dear Editor: It was quite a shock to read the article in the DECEMBER 1968 P/A regarding Seattle's Pike Place Market plans and proposals.

I wonder where your source of information could be regarding what is happening to Seattle's unique market. Our organization, the Friends of the Market, has been struggling for five years to save the market and our worst hour has come with the unveiling of the scheme for redevelopment that P/A lauds so generously. Incidentally, the market is presently economically sound.

The market as we know it cannot survive the present proposals, which retain only the shell of the center market core but eliminate all of the surrounding environment. Seventy-five small businesses and institutions related to the market and part of its ecology are to be eliminated; 600 low-rental residents will be displaced; and older buildings existing in the district are to be demolished. The market core

building and part of another adjacent market structure are to be completely restructured and done over except for exterior walls, at a cost of \$1,500,000 (\$20 per sq ft); consequently, the low-cost rental basis for the low-cost market is eliminated. The market is essentially a low-cost market, and that is its lifeblood as well as the basis for its unique human quality. The great thing about the market is the human experience it provides, with people of all colors, ages, nationalities, and economic backgrounds coming together uninhibitedly in an atmosphere that has grown over a period of 60 years.

I tried to catch this quality (or some of it) in my book, just published by the University of Washington Press, titled Market Sketchbook. None of the things I have shown in this 128-page book will remain the same. The "design team" is obviously very able and talented but has not been directed toward a program of keeping the market as the center and focus of the development. The friends of the Market are circulating a petition asking for an alternate plan from Urban Renewal that will really keep the market. We have advocated urban renewal as a means of enhancing the area, but are completely disappointed with the schemes that have thus far been put forth. The showdown will be a public hearing before the Seattle City Council, when we expect to present 50,000 signatures requesting another more sympathetic proposal that will really retain the market.

VICTOR STEINBRUECK Seattle, Wash

"Musictecture"

Dear Editor: Aside from my interest in the preservation and enhancement of the profession of "Musictecture," I must say your Editorial in the November 1968 P/A on "frozen music" falls short in comparing art forms.

Although I agree with your architectural motivations, I feel the "frozen music" definition is still substantially broader than you allow. "Frozen" might imply a cold rigid form, but I think "three-dimensional music" may be a more accurate interpretation. This may not be as poetic as "frozen," but it is free of misleading academic associations.

Three-dimensional music simply implies (as does frozen music) that if one were to sculpt into form the response-producing energy of music, we would have architecture. I do not see any implication toward one particular type of music, although you restricted your musical comparison to the classics. True, contemporary architecture is not frozen classical music, nor

Continued on page 16

"Seismic Sculpture" Scored

Dear Editor: The article titled "Seismic Sculpture" on Alcoa's San Francisco office building (December 1968 P/A) omitted coverage of several design judgments that I believe are central to an evaluation of the project. S.O.M.'s effort to create a truly regional architectural expression based on earthquake belt conditions is commendable, but the solution raises serious questions.

As an expression of "Seismic Sculpture," the building reveals a basic flaw. Once committed to the diagonal bracing pattern essential to the design statement, why was the most crucial bracing omitted at the plaza level, the point of near-maximum lateral shock during a tremor? Although the building will resist the shock through other means, the visually apparent system is incomplete. Has not the community been deceived?

Let's take a look at the effect of diagonal bracing on the occupants. Some 20 per cent of the window area is affected by the huge bracing members slashing across superb vistas. Within larger office areas, the result is often good, but do smaller spaces suffer from a dehumanizing quality that gives undue dominance to the structural system? The analogies to the bay bridges are interesting in that their vistas, when interrupted by structure, soon reappear at 45 mph, unlike the static view from a small private office.

Both the human and broader scale sought by the designer might have been combined. Or was this considered undesirable? Is the old curtain wall grid compatible with this new design kit?

Other questions deserve comment. Consider the San Francisco skyline, delicate and distinctively bright. ALCOA upsets the rhythm. Does this broad, dark rectangle looming over the finely grained hills, void of its neighbor's sunlit reflections, improve the cityscape?

And finally, where is the street level entrance to both plaza and main lobby? Ask any pedestrian. He probably won't be able to tell you.

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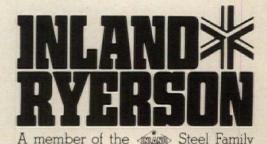
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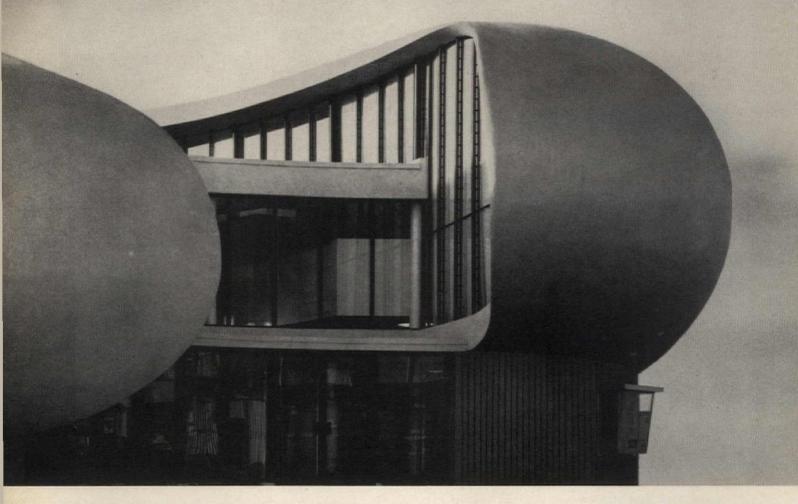
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Continued from page 6

is classical architecture as fluid, flexible, and sociable as contemporary music—yes, contemporary music, music that is grown out of "smiles and tears, love and hate, joy and anguish."

The answers, of course, are not to be found in music alone any more than in the computer alone, nor through the elimination of any of man's instruments of expression. Architecture must continue to embrace the fabric of human personalities being woven out of many threads. One of these is music.

C. PAGE HIGHFILL Instructor in Architecture Virginia Commonwealth Univ. Richmond, Va.

Counterrevolution

Dear Editor: It seems to me to be urgent to start some kind of counterrevolution against the latest architectural-shapes-inthe-form of slogans.

At a formal presentation recently in the offices of one of the more prominent local firms, I asked a young designer why he chose to use the color red to represent certain lease expiration dates on an overall site development plan. He replied, "Because red says no, and those areas in red signify that the owner shouldn't get involved in the property for some time."

Unfortunately, the very warm hue all over the master plan stood out so much in

front of the other colors that the client was negatively psyched to believe that all of the property was too difficult to attempt a project on.

This is perhaps an overly simplified parallel to the substitution in Venturi's and Rauch's work (November 1968 P/A) of an aesthetic response that is based on intellectualized representations of an idea, rather than a sensual judgment and/or response.

The P/A article quotes one of the two illustrated buildings as having "a façade like a billboard." Now there is nothing wrong with architecture attempting to make propaganda, which is the main mission of the billboard, except, of course, that a billboard's message is within the scope of two dimensions, and architecture is involved with three and four dimensions. Thus, one finds the ultimate of an architectural aesthetic based on literary values; architectural form actually becomes a literary — i.e., message — shape, or a billboard. Voilà, the Dadism of the 20's reborn.

The final comment in this article on Venturi and Rauch is: "For the work of Venturi and Rauch, regardless of its aesthetic imagery, is concerned for use as well as with the most inexpensive patternmaking, and the future may prove that their imagery also will be valuable to the cost-saving solutions of the major architectural problems of our age."

This appraisal does seem to live up to Venturi's belief of "both-and" rather than "either-or," for now one can have both "inexpensive pattern making" and "use," and, what's more, consider them as independent entities. Does the writer of this evaluation mean to imply that inexpensive pattern making is important to the economics of the major architectural problems of our age?

Somehow, Venturi's substitution of the Las Vegas strip and its "with-it-now" Dada architecture symbolism for the Rennaisance piazza and consciously composed disharmony, seems a rather "either-or" proposition: Why throw the architecture baby out with the environmental bath water?

THEODORE MATOFF Los Angeles, Calif.

More on October

Dear Editor: P/A is to be congratulated for once again taking the lead in reporting what is in the forefront of present architectural design in the October 1968 P/A, "Revolution in Interior Design." As a student, I found the part of the issue concerning work at other schools most interesting.

ROSS SPIEGEL
C.C.N.Y. School of Architecture
New York, N.Y.

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PANEWS REPORT

Progressive Architecture's Monthly Digest of Buildings, Projects, People and Products

February 1969



WURSTER TO BE GOLD MEDALIST

WASHINGTON, D.C. William Wilson Wurster, founder of the San Francisco firm Wurster, Bernardi & Emmons, has been designated to receive the AIA's 1969 Gold Medal at the Institute's annual convention in June.

Wurster graduated in 1919 from the architectural school of the University of California, and worked for a year in a San Francisco firm before embarking on the European Grand Tour. On his return, he spent a year and a half with the New York firm of Delano & Aldrich, and then went back to California to open his own office. Before it closed in 1943, his office had become heavily involved in the design of war housing.

That year, Wurster formed a partnership with Theodore Bernardi and Donn Emmons and, at the age of 47, went back to school. At Harvard, he studied regional planning under John Gaus and public administration in the Littauer Center of Public Administration. In 1944, he began dividing his time between M.I.T., where he was a student of city planning, and Yale, where he served as a critic in the architectural school. His decision to become a student after nearly 10 years of practice and the design of 5000 war houses was considered foolish at the time; colleagues wondered what planners could possibly have to teach architects. His own experience made Wurster a strong proponent of adult

education as a method of breaking down the barriers between the professions." He urged what he called "a glimpse into other areas."

From 1944-1950, Wurster was Dean of Architecture and Planning at M.I.T. During this time, President Truman appointed him to the National Park and Planning Commission, of which he later became chairman. From 1950-59, he served as Dean of the College of Architecture at the University of California; he has been Dean Emeritus since 1963.

As an educator and student, Wurster said in 1944, "The student should begin with the details of construction, estimates of cost, and the drawing board problems in architecture. . . . In the last year of school, there should be no drawing whatever; all the time should be devoted to seeing the relationship of architecture to other basic forms." Wurster was in advance of his profession in supporting the ideas of interdisciplinary planning and anonymous architecture.

His ideas about professional service, stated in 1944, have yet to be accepted among his colleagues. "Are we sure we want to stick by the fact that we ethically can't give our clients a complete building service?" he asked. "Why have we let the leadership be wrested away from us by the lawyers and public administrators?" With the entry of package builders and aerospace firms into the construction and design fields, these questions have become even more pressing, but still most architects avoid them.

A Fellow of the AIA, the American Academy of Arts and Letters, and the Royal Academy of Fine Arts of Denmark. Wurster is also an Academician of the National Academy of Design, Affiliate of the American Institute of Planners, member of the Akedemie der Künste of Germany, and a corresponding member of the Royal Institute of British Architects.

NEW ORLEANS' VIEUX CARRE:

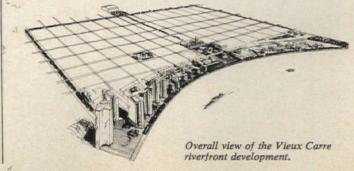
Tout Comprendre N'Est Pas Tout Pardonner

NEW ORLEANS, LA. In early January, the New Orleans City Council met to vote on the much disputed riverfront expressway, slated to knife across the threshold of the historic French Quarter. The vote was not on whether or not the expressway should be built - that seems to be an accepted fact, barring a negative decision from the State's Supreme Court - but whether the roadway should be elevated or at grade. The City Council decided 4 to 3 that it should be at grade.

Behind their decision is a mammoth 8-volume, 71/2 lb report evaluating the effects of both kinds of roadways on future development of the quarter. The report implies that a grade-level road will be better for property values. An elevated expressway, though it would displace fewer existing facilities, would depress property values in its vicinity, and the city business leaders, many of whom are represented on the Bureau of Governmental Research, which, with HUD, sponsored the study, are hardly in favor of

But the study goes further than merely voicing a small opinion on the expressway. Prepared by a team of consultants, led by the Washington, D. C., city planning firm of Marchou, O'Leary & Associates, the report is a detailed guide to preserving what New Orleans calls the tout ensemble, the complete environment of the French Quarter. Tout ensemble is a phrase that has worked itself into law in Lousiana, and there have been many legal efforts to save what it describes. Until now, however, no one knew, in more than a vague, abstract, personal way what it referred to. The Marcou O'Leary report spells out in great detail what comprises the environment - the nuances of grillwork, noise, roof lines, spaces, and color that make it a tout ensemble. And its ramifications extend far beyond the Vieux Carre. "This is more than a report," notes Louis D. Brown, executive director of the Bureau of Governmental Research. "We discovered we had developed a whole series of concepts on preserving historic areas as an

The study's suggestions for the French Quarter are in keeping with the authors' belief in gradual change in individual areas or structures without changing the ambience. They back a proposed pedestrian plaza between Jackson Square and the river, suggesting museums on either side of the plaza. In place of the brewery, rail tracks, and docks now lining the riverfront, they propose apartments, offices, shops, restaurants, parking garages, and open areas - in short, a microcosm of the entire French Quarter. Now that the expressway along the river will be at grade, these planning changes are still feasible. And if the State Supreme Court votes against having the expressway there at all, the New Orleans riverfront may be heading for an era of charm and affluence unlike any it has





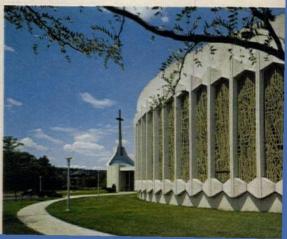
Mo-Sai, in a religious expression

Circular Mo-Sai window walls provide the complete wall unit including the structural system. A soft-textured Mo-Sai surface of exposed white quartz was used on both interior and exterior wall surfaces. Stained glass was set with epoxy directly in the 25-foot-high window walls with an unusually dramatic result.

Holy Rosary Church / Ansonia, Connecticut / Architect: Daniel P. Antinozzi Associates / General Contractor: P. Francini & Company, Inc.

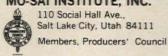






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SWEET'S PITS CATALOGUE AGAINST VIEWER

NEW YORK, N.Y. Using the New York office of Skidmore, Owings & Merrill, Sweet's Construction and Catalogue Services are testing two new information systems:

One is arranged in the familiar catalogues but indexed according to a new classification system and divided into a general library and auxiliary libraries serving specialized design functions, such as hospital, laboratory and food service facilities.

Together with the catalogue library, SOM is using an instant retrieval cardviewer-printer, which is being stocked with microfiche images of the entire catalogue. Any page in the catalogue is instantly available at the press of a button. Sweet's wants to find out which system is the most feasible, and as both are used over the next six months an answer may emerge.

CALENDAR

The First International Encounter on Building and Humanism will take place in Cannes, France, March 10-16. Designers, town planners, architects, engineers, industrialists, and members of all professions concerned with city planning problems are invited to participate in meetings and debates. For a full description of the program, write to: Grand Prix International d'Urbanisme et d'Architecture, 48 Bix, Avenue Kleber, Paris 16e, France . . . At the Cherry Hill Inn, Cherry Hill, N.J., the Adhesive and Sealant Council will sponsor a 1969 Spring Seminar March 12-13. Technical processing will be the main topic of discussion. For information, write to: Cecil W. Armstrong, President, Adhesive and Sealant Council, Inc., 1410 Higins Rd., Park Ridge, III. 60068 . . The U.S. Institute for Theatre Technology will hold its 1969 National Conference March 17-20 in Los Angeles at the Hollywood Roosevelt Hotel. Sessions will deal with problems of the modern theater, projection, scenery, plastic material, and thrust stage techniques. Program details may be obtained from: Tom Lehman, USITT Conference Registrar, c/o Beckman Auditorium, Caltech, 1201 E. California Blvd., Passadena, Calif. ... March 19-21 are the dates set for the Annual Spring Meeting of the Hardwood Plywood Manufacturers Association. The meeting will take place at the Desoto Hilton, Savannah, Ga. For details, write to HPMA, 2310 S. Walter Reed Dr., Arlington, Va. 22206 . . . The 55th Annual Convention of the Michigan Society of Architects is planned for March 19-21 at the Statler Hilton Hotel, Detroit, Mich. Theme will be "The Urban Challenge." . . . EU-ROPLASTICA, The Third International Fair of Plastic Materials, will take place at the Palais du Centenaire, Heysel, Brussels, Belgium, March 22-30. A U.S. Government exhibit will occupy an entire exhibit hall, and a number of U.S. firms will present exhibits. For information, write to: Palais du Centenaire, Heysel, Brussels, Belgium . . .

P/A DESIGN AWARDS LUNCHEON

NEW YORK, N.Y. The rotunda of Frank Lloyd Wright's Guggenheim Museum was the setting for P/A's 16th Annual Design Awards luncheon on January 13. Walls and ramps spiraling toward the vast skylit dome were being painted, leading one observer to note that "it is just the way Wright would have liked it - no art to spoil the effect." The effect was not lost on the 150 guests, who saw P/A Editor Jan C. Rowan present certificates to the architects of the 16 projects singled out for this year's awards. It was the first time in the 16 years of the program that all the winners were on hand to pick up their awards, and they, along with the New York City architects and dignitaries who gathered in the museum, all commented on the space. "It was a visual rather than an oral experience," said one guest later, commenting on both the museum and its acoustics, which were not meant for luncheons.

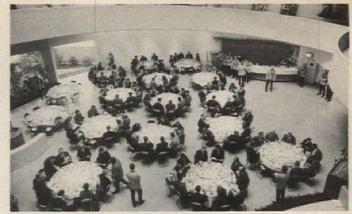
Also present were four of the five jurors: Lewis Davis (chairman), R. M. Gensert, Henry N. Cobb, and Cesar Pelli. Roger Montgomery was unable to leave his teaching duties at Berkeley. "We tried very hard to select a winner who showed what the future of architectural design might be rather than what its current state is," said Lew Davis in explaining the jury's selection of a speculative rental building by the young firm of Walker/Hodgetts as the first design award winner.

"It was a good jury," whispered one of the citation winners, seated near us. With that, the party broke up, the caterers took the tables away, and the painters went back to work.





Don M. Hisaka.



Luncheon in the Guggenheim.



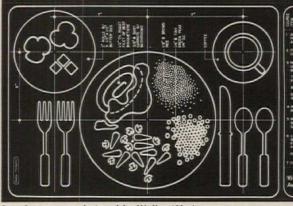
"It looks like a group of architects."



Lester R. Walker, Rowan, Craig



Hodgetts, Wm. LeMessurier, Cesar Pelli.



Luncheon menu, designed by Walker/Hodgetts.



Frank Schlesinger, Terence Brown, Louis Sauer.



Hobart D. Betts.



Walter F. Foltz, Rowan.



Lewis Davi



Charles Moore, Ronald Filson, Mrs. Hodgetts.

MODEL CITIES: FROM HASSLE INTO CONCRETE



BROOKLYN, N.Y. What may be the first Model Cities planning to see actual construction is underway in the East New York section of Brooklyn. Just before Christmas, Mayor Lindsay, wielding a sledge hammer tied with a red ribbon, broke down the front door of an apartment house slated for rehabilitation. Although the hammer was bedecked with ribbon, not red tape. Lindsay's act was highly symbolic, since the entire Model Cities portion of the program, including the actual design and working drawings, was hammered through the maze of city and Federal bureaucratic approval in an amazing 14 months. "Actually, we skipped two formal approval steps on the final plans," comments Elaine Weiss, the young, enthusiastic housing expert who did most of the hammering for the sponsor - the Baptist Home Mission Society, parent organization of the Baptist Church Extension Society of Brooklyn and Queens. The Baptists have taken on five model city sites in Brooklyn, the largest somewhat less than a city block, and the smallest about 20,000 sq ft. On them, they will provide 232 units of new housing and 24 rehabilitated units.

Even before Model Cities came into the picture, the Baptist organization was working in the area, and earlier plans, prepared by city planner Walter Thabit, called for total rehabilitation.

"But when we came to implement the plan," notes Roger D. Glasgow, the Negro architect who is doing it, "the community decided they wanted new units. When we showed them that new units would cost no more than rehabilitation in some of the old houses, they decided they wanted new housing."

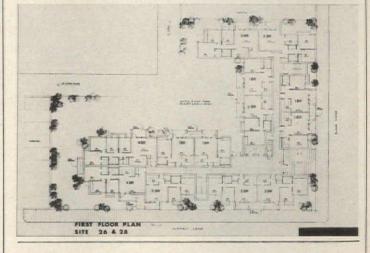
Another thing the neighborhood group wanted was lower density. The Model Cities program provided a good opportunity for getting rid of some of what the community leaders called the "undesirables" who had been coming into the neighborhood. So the number of units replaced will be slightly fewer than the number of units torn down. And the rents will be higher. The smallest one-bedroom, теhabilitated apartment will rent for \$103 per month. The largest new four-bedroom apartment will rent for \$173.

Initially, the area residents wanted the new structures to be in keeping with the threeand four-story heights of other buildings in the neighborhood. "I was forced to go to six or seven stories," Gasgow explains, "because of mortgage costs and the surcharge you can make for an elevator building." Besides, a high rise gains savings by placing more units on a smaller area, and the community was quick to see the advantages once costs were translated into rents.

Glasgow would like to see the area's density zoning changed. (Model Cities Areas are purposely chosen for low density and vacancy to minimize the hassle of relocation and planning.) His suggestion would have been to keep four of the five sites open and put very high density on the fifth. "You can't cut housing costs any further," points out Glasgow, who is being forced to build a 50-unit structure on a 20,000 sq ft plot. Although the advantages of such a suggestion are immediately apparent to the City Planning Commission, to which he has suggested it, action is slow.

"The trouble with the Model Cities program," says Elaine Weiss, "is that it needs the approval of many different groups: the community concerned, the city government, and the Federal Government." Roger Glasgow, whose remarkably pleasant, flexible personality was one of the major factors in getting the community approval for the project, is even more outspoken: "There is no future in Model Cities," he says. "It is completely political. An architect can't be paid until his working drawings are approved, and who can afford to carry the cost of all that work." Glasgow was fortunate, because his sponsor was able to provide seed money as he went along. But the program's minimal funding works against hiring the small ghetto architects and subcontractors whom it is supposed to benefit.

The East New York Vest Pocket Housing program, as it is known, has the initial endorsement of the FHA, which is financing the program under (221)(d)3. The final "commitment" cannot be given until the city turns over the land to the sponsor. But despite the lack of these two final steps, work is going on. Ground was broken for the first new units late last month.

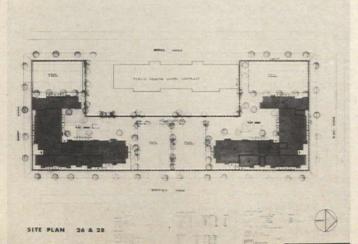


LIVING IN A FREE-FORM DIMENSION?

NEW HAVEN, CONN. The sixth dimension may be free-form. A group of Yale architectural students, led by Professor Felix Drury, explored the possibilities recently on the Yale golf course. There, they sprayed the interiors of three experimental foam plastic structures with quick shots of polyurethane foam, providing instant curvilinear, intimate environments. According to Ira Kaplan, president of the King Korn Stamp Company,



which paid for the project: "It could mean that people will now be able to live in free-form, rounded environments rather than a square or cube; that everyone can have

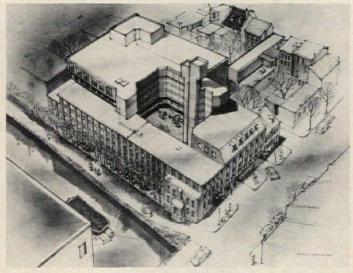


a different interior to his own taste, no matter where he lives, by having his rooms sprayed; that through the quick spray method building, façades can have all kinds of sculptured exteriors." Kaplan and Drury hope the project has helped the acceptance of foamed plastics. They see in them a hope of getting away from rectangular buildings, of having several inexpensive

dwellings for each family in different locations about the country, or even the possibility of carrying your house with you as you travel. However, they point out that the foam plastic sprays still have several kinks: there are still problems of toxicity, flammability, puncturability, and equipment cost. The sixth dimension is still not entirely habitable.



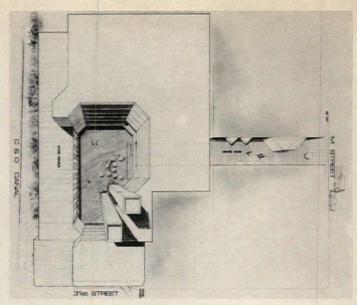
CANAL SQUARE: SOMETHING OLD, SOMETHING NEW



WASHINGTON, D.C. At 31st Street, where it crosses the Chesapeake and Ohio Canal in Washington's Georgetown section, is an old warehouse. Its stone foundation went into place in 1820, and the structure itself dates from before the Civil War. Its bricks were made by prisoners at Occoquan. With its high ceilings, arched windows, and thick wood pillars and beams, it is a handsome, dignified structure. But no one knew quite what to do with it now that

commerce has left the canal behind. There was talk of tearing it down so the land could be used as a parking lot.

Instead, the warehouse will become part of an office-building shopping complex. Architect Arthur Cotton Moore proposes adding two new structures to the site, one on 31st Street (a structure mirroring the design of the old warehouse), and, behind this, across an open interior courtyard, lined at ground and balcony levels with shops



and restaurants, will be a slightly taller contemporary structure, with twin 80' elevator towers that form a focal point for the complex. In all, there will be 100,000 sq ft of rentable space — 75,000 sq ft for offices, 25,000 sq ft commercial. Excavation work began late last fall, and the \$2,850,000 project is expected to be completed late

this year.

Writing in the Washington Post, Wolf von Eckardt praised the scheme as "the new, sophisticated kind of historic building preservation which, rather than making the building 'cute' with false historicisms, emphasizes the strength and character of the original construction and building materials."

ANOTHER CLOUDSCRAPER PLANNED FOR CHI-TOWN

CHICAGO, ILL. If final plans are approved early this month, Chicago will get a 90story office building, which, at 1215', will be taller than the 1147' John Hancock Center. And until the mammoth New York World Trade Center is completed, it will be the second tallest building in the country. Located on a 16acre urban renewal site bounded by Washington, Clinton, Monroe, and the Kennedy Expressway, the building will have three direct neighbors: a 70-story office building, a 24-story office and apartment structure, and a one-story community center. All will rise above a plaza covering the entire 16 acres. Construction cost is estimated at \$35 million for the Madison Canal Development



Company, which paid the city \$21,174,537, after their development scheme was approved by the Chicago Department of Urban Renewal. It must now be passed by the City Planning Commission and the City Council. C. F. Murphy & Associates are the architects.

INFORMATION FROM RCA

NEW YORK, N.Y. With its curved, felt-covered display cases, pastel shadings, and three-dimensional graphics, it looked a little like a message of the past beamed to people today from the future. The

RCA exhibit in Rockefeller Center, designed by Ford & Earl Design Associates of Detroit, is fun because of its visual excitement, its intimacy, and its combinations of sight and sound, light and color, but







it is betraved by the products it displays. These products -TV sets, tape recorders, phonographs, even radios - are very much things of today, and they look somewhat ill at ease being presented as harbingers of the future. The round felt-covered, eye-like

loudspeakers, and a rear-projection movie screen that projects a film about TV. Now that RCA has given

its showroom a contemporary look, it might try to do something with its products.

COLUMBIA OMNIBUILDING ACCOMMODATES COMMUNITY



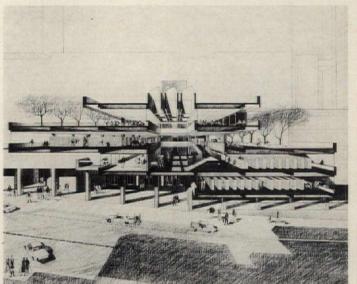
NEW YORK, N.Y. Columbia Teachers' College, whose physical planning is administered separately from that of the rest of Columbia University, has a new development plan, designed by Hugh Stubbins & Associates to accommodate all the college's foreseeable future needs. In order to fit all the required facilities into a crowded urban site while displacing as few homes as possible, the designers have given their plan the form of an omnibuilding, whose bridge, concourse, and towers extend outward and upward among and into existing campus structures.

The first stage of construction will be a high-rise residential tower for Teachers' College students, located at the western end of the block between Broadway and Amsterdam Avenues and 121st and 122nd Streets. When construction of this West Tower is complete, tenants of housing that exists on the remainder of the site will be moved into the new tower while construction begins on a similar apartment building at the eastern end of the site. Once both towers and a low-rise residential block along 122nd Street are up, former tenants of demolished structures will not be forced to relocate, but will be encouraged to remain and occupy many of the 1000 new apartments.

At the fifth, fifteenth, and forty-fifth tower floors, recreational facilities will be available for all residents. Housing rests on a platform structure that will contain, among other conveniences, a multiplicity of retail shops. Also within the platform structure will be 365,000 sq ft of space for classrooms and lecture halls. Beneath it, space is allocated for 1000 cars; elevators and escalators will carry pedestrians among the four vertical levels and from end to end of the lengthy platform.

Final stage of the project will be completion of commercial space within the platform and construction of a 500,000-volume library in the form of a bridge across 121st Street, which will be closed to traffic.

Major materials will be concrete and steel. Because detailed financial arrangements have not yet been made, ground-breaking will be scheduled at a later time.



Platform section.



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WISCONSIN STATE GOVERNMENT LOOKS AHEAD

MADISON, WISC. Like most states, Wisconsin is concerned with the problem of housing the burgeoning state government. In a plan that would provide for continuous expansion through the turn of the century, Charles Luckman Associates of New York have suggested 48 acres of commercial space, hotel facilities, restaurants, and apartment buildings. In all, there would be an impressive 6,900,000 sq ft of new state office space, and underground parking for 9011 cars.

Madison's building laws are strict in protecting the Capitol. No structure in the surrounding town may rise higher than the base of the columns in the Capitol's central dome. Accordingly, Luckman has suggested that the only high-rise structures in the state office area be hotels and apartment buildings. All would take advantage of Madison's vistas across Lake Monona and would, ideally, emphasize the Capitol. Parks, landscaped plazas, sundecks and courtyards are also planned throughout the site.

The joint city-state planning committee endorsed the Luckman plan last month. Now the state legislature must approve it.



INTIMATE PRECAST HOUSING

CLEARWATER, FLA. Heather-wood, a 100-unit apartment project for persons over 62 with incomes no higher than \$5000, bears watching for two reasons: its use of precast element construction, and the way it clusters units around courtyards, forcing residents to meet one another as they enter and leave. "We want to help older people to be social again," comments

architect C. Randolph Wedding. "Too often, they have become somewhat antisocial by withdrawing from life and living alone." Wedding's design shows two dwelling units stacked one above the other. Each of these elements is arranged in clusters of four, surrounding a patio and garden. These clusters will in turn form larger clusters of four, "We hope to create a

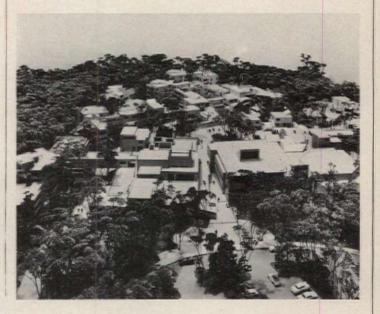


small, pleasant village with walks uniting the clusters of units. As the people move, vistas are opened up to them, offering a gradual transition from the single unit into an ever larger environment," Wedding explains.

Each basic unit (64 efficiencies, 32 one-bedroom, 4 two-bedroom) will be put together from two 30' x 10' wall sections, which can be either cast on the site or at a factory. Each will weigh 25,000 lbs. Floor planks will

be cast 32" wide in any length. Precast stairs will be 4' wide. No individual element will be so large that it cannot be trucked to the site.

The project was sponsored by the Pinellas County Housing Authority under the Federal Housing Assistance Agency program, and construction is expected to cost \$909,000. If the program can come in at about \$9000 per unit, rents can be held to between \$30 and \$50 per month, including utilities.



CLOSELY-KNIT CLUSTER CAMPUS

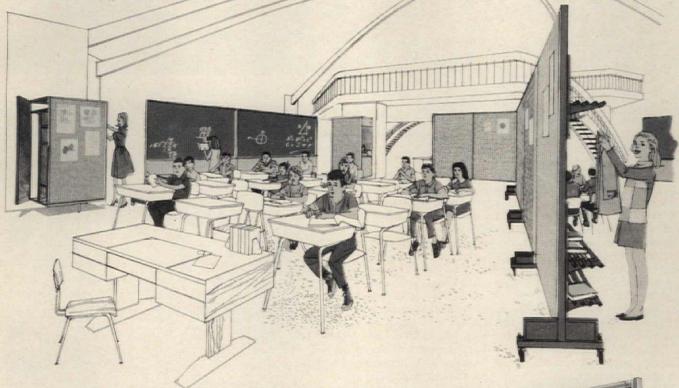
old Westbury, N.Y. Once the Long Island estate of an heir to the Singer Sewing Machine fortune, a 570-acre wooded tract on the fashionable North Shore is now the site of a new 5000-student college that is part of the State University of New York.

Hoping for innovative ideas to be used in both academic and physical planning, The State University Construction Fund, which financed the project, recruited students from other colleges to consult with faculty and architects of Old Westbury Col-

lege. And the students' comments, as might be expected, did indeed lead to some unusual planning features.

The entire plan centers around a core of academic and recreation buildings to be used by the entire campus community. This group consists of an administration building, main library, student union, learning resources center containing computers and audio-visual equipment, and a fine arts center with a theater, recital hall, and art gallery. Clustered around this academic core are five sepa-





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rate, cohesive clusters of academic and dormitory buildings that constitute individual "colleges," patterned after England's Oxford and Cambridge Universities. Each college will have its own curriculum, and will heavily emphasize individual instruction, but all will stress the study of contemporary urban affairs.

The first college, just now getting under way, will consist of five academic structures and nine dormitories, planned to resemble a small hillside village. Most structures will be two stories high, and none will rise above existing trees. One will contain a 400-seat lecture hall; another, a library; a third, science laboratories and art studios, and two more, classrooms. Grouped around an open garden, the five buildings are connected at second floor level by a broad promenade. Eleven penthouses of one and two stories rise above the promenade and house faculty offices and conference rooms.

Dormitories form a ring around the academic buildings and are connected by enclosed bridges above the second floor. Bridges also link residence halls to academic structures.

Architects Christ-Janer, Johansen, Kouzmanoff have also turned existing Georgian structures into academic facilities for the present pilot group of 75 students on campus. The entire \$50-million complex will be completed in the early 1970's.

COUNTRY LIVING COMES TO A CITY COLLEGE

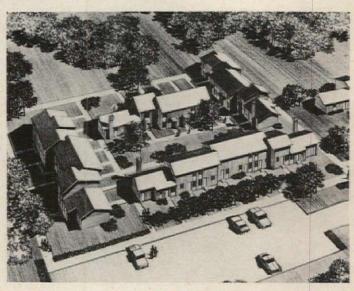
YPSILANTI, MICH. Eastern Michigan University is essentially a city school. Yet to find room for athletic facilities and 400 badly needed student apartments, it is splitting its personality. Located a mile from the main campus in Ypsilanti is an incipient West Campus, which will eventually hold athletic facilities, student housing, and all administrative offices and maintenance facilities. Already in place are a new varsity baseball diamond and Briggs Field, a 200-seat, covered baseball stadium, a running track, and 45 units of housing. Under way are an intramural sports complex, a 12,500-seat football stadium,

which can be expanded to 60,000 seats, and 100 more housing units.

Designed by Eberle M. Smith Associates, Inc., as is the rest of the West Campus, the housing clusters around pedestrian courts. Road and parking are on the outside perimeter. Walkways lead to a central commons space. And the units are arranged to take advantage of the site's many large oaks, hickories, and wild cherry trees. A residential feeling pervades because the units have wood siding and shingle roofs, with occasional brick accent. Total cost of the project when completed in the early 1970's is an estimated \$5,300,000.



Photos: Lens-Art Photos



Pier One-and-a-Half?

SAN FRANSCISCO, CALIF. The new offices of MLTW/Moore Turnbull on Pier 11/2 off San Francisco's Embarcadero are not ready for photography. But Bill Turnbull wrote P/A these particulars: "Our new offices share space with the tugboat fleet. Our conference room is a rowboat. And enclosed is the Christmas picture of the staff." (Founding father Charles Moore is shown in photo.)



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If you are still specifying five knuckle hinges for hospital jobs, the obvious question is WHY? McKINNEY MODERNE is far more attractive in appearance. Its straight, slim lines make it the best looking hinge on the market today. It gives all the security you need and solves so many other problems too. Ever try to hang a heavy hospital door with a tight pin hinge or try to get one off for final fitting? With McKINNEY

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Full Mortise • Full Surface • Half Mortise • Half Surface • Swing Clear Hinges (all types available in extra heavy only) • Hospital-Tip Hinges (all types) MODERNE it's easy because the separable leaves facilitate hanging or removal of the door. In actual tests, MCKINNEY MODERNE extra heavy hinges showed less vertical wear than three competitive makes of 4-bearing hinges.

Someday, somebody may develop a better hospital hinge than McKINNEY MODERNE. So far, nobody is even close!



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PERSONALITIES

Eugene J. Pidgeon has been re-elected president and also a member of the executive committee of the American Institute of Steel Construction ... New president of the Connecticut Society of Architects is Carrell S. McNulty, Jr., a partner in the architectural firm of Sherwood, Mills & Smith, Stamford . . . Woodrow R. Eshenaur, president of the Reading, Pa., Glen-Gery Corp., is now president of the Structural Clay Products Institute . . . Newly elected president of the Hawaii Chapter, AIA, is Herbert K. C. Luke, of Luke, Miyamoto & Associates, Inc.

WASHINGTON/ FINANCIAL NEWS

By E. E. HALMOS, JR.

New Men in Town - With the Nixon Cabinet complete (subject to final Senate approval), Washington's speculation centered on the next level of appointees-the "Sub Cabinet" of Under Secretaries (second in command) and Assistant Secretaries. Of equal rank and importance are the heads of the various agencies subject to Presidential appointment at this time: General Services Administration, Veterans Administration and the like; and certain agencies within the departments, such as the Federal Highway Administration, Federal Aviation Administration, Water Pollution Control agency, and others.

Following a very careful policy, little word was available on these appointees, as inauguration day approached. But the appointments here deserve close attention: Like good top sergeants these second-echelon officials can often make the difference in a successful administration.

Most of the top-level group itself survived an initial round of fire (in a series of press "conferences") well enough. The "conferences," carefully chaperoned by the Nixon information chief, Herbert Klein, were unusual in themselves, and were obviously arranged, first, to get maximum attention for the new administration, and, second, to give

the appointees some taste of the often savage questioning of the liberally-oriented Washington press corps.

Two of the appointees -Kennedy of Treasury and Hickel of Interior - got themselves thoroughly tangled in their own syntax, which is not an unusual problem in Washington. Of the two, Kennedy fared better, with a quick reading of the transcript showing a press misinterpretation of his statements. Hickel, whose two years as Governor of Alaska apparently hadn't given him enough background in dealing with the press, got into a real hassle with statements which appeared to indicate that he didn't think much of the idea of conservation. That brought a number of the Senate liberals screaming at his heels, demanding explanations, and foreshadowing some embarrassing questioning when confirmation comes up.

Of the group, Governor John Volpe of Massachusetts (Transportation), with long practice in public office, Gov. George Romney (HUD), and Maurice Stans (Commerce) probably came off best, though Contractor Winton Blount, whose appointment to Post Office was probably most surprising, also did well.

Over-all, the Cabinet appointees seemed to have made a favorable impression: a somewhat gray, solid, rather conservative group who would work as a team, would produce no spectacular individualists, would try mightily to increase efficiency, hold down spending.

Romney at HUD - They would have plenty to do. Probably the biggest task will fall to Romney, who takes over a department that is not only new, but widely reputed to be the worst organized in the Government, HUD, nevertheless, will have enormous impact on architects and the construction industry over the next few years, not only with the huge housing program enacted by Congress last session, but also if the current Congress, the Ninety-First, accepts any of the recommendations submitted in the closing days of the Johnson Administration by two Presidential "task forces."

One such report, compiled by the Douglas committee on urban problems, calls for construction of 2 million or more housing units each year, of which 500,000 would be for low- and moderate-income families; the other, by a Task Force on Suburban Problems, suggests establishment of a \$25-billion "Urbank" (with Federal, state, and local funds) to lend money to municipalities at lower than market rates.

Urban Expressway Hassle Continues - At Transportation, Volpe inherits the volatile battle over the design and routing of urban expressways, and a hot controversy over hearings procedures. With the surprising exception of the AIA, construction groups and state officials unanimously opposed "two step" hearing proposals during four days of perfunctory hearings in mid-December; vociferous highwayhating groups, some outgoing Cabinet officers, and some members of Congress gave support varying from lukewarm to fanatical. (The AIA argued in favor of the hearings idea, on the grounds that early public involvement would bar controversy later

At Labor, Secretary-designate George P. Shultz inherits one major item of interest to the construction industry: how to enforce equal employment opportunity programs.

Most other Secretaries inherit plenty of problems of their own, some of which have construction implications, but most are ongoing matters.

Beyond the Cabinet — Other developments of special interest to architects:

- Professionals were looking carefully at an organizational session held in Bal Harbour, Fla., in mid-December, aimed at putting together some dozen small groups of "engineers and scientists" for collective bargaining purposes. Idea is to form a Council of Engineers and Scientists Organization.
- Washington's National Capital Planning Commission was likely to get some new members, with the new Administration. For example, the present chairman, Phillip Hammer, serves in that post at the President's pleasure, though his term will continue; Architect Paul Thiry, of Seattle, will reach the end of his term on April 30.

- The AIA's Board also voted to ask the engineering societies to join the AIA in a proposal for job training for the disadvantaged, with appropriate compensation to be provided by the Federal Government, and with such a proposal to be a factor in awarding of work.
- The Consulting Engineers Council sent off a hot letter to new Commerce Secretary Maurice Stans, protesting the award by the FAA of a \$799,-651 contract for "engineering and surveying services" to the Coast and Geodetic Survey. Said CEC: "There is a strong feeling that FAA never intended to retain outside engineers and surveyors, since they insisted upon asking for competitive bids . . . and assigned an indemnification requirement in which outside respondents would have accepted liability for everything from printers' errors to shortage of charts."

FINANCIAL

- Housing apparently finished up 1968 running at the predicted rate: some 1,500,000 units started during the year. Census Bureau reported that October seasonally-adjusted rate was 1,548,000, down about 3% from September.
- The factor of tightening credit, as winter approached, apparently was affecting housing sales. In October, said Census, the number of new one-family homes sold was at a seasonally adjusted annual rate of 523,000 units, about 7% below the previous year.
- Construction costs appeared to be headed for a spectacular jump as the year ended. The FWPCA's Sewage Treatment and Sewer construction cost index leaped upward 2.27 percentage points at the end of November, over October, to reach a new high of 126.80 (with 1957-59 as 100).
- However, the highway cost index dropped slightly in the third quarter of 1968, to 119.8, which represents a 1% drop over the second quarter.
- Taxpayers were getting a little more wary of bond issues as 1968 drew to a close, according to the Investment Bankers Association. In the third quarter of the year, the rate of approvals dropped to a low of 58%.

PRODUCTS

AIR/TEMPERATURE

Long-lived cooling towers. The manufacturer of these ceramic cooling towers estimates their service life at more than 50 years: conventional towers have, he claims, an anticipated service span of from 5 to 15 years. The towers feature an internal fill of Perma-Grid Tile, said to be vitreous, dense, chemically inert, and acid-proof. Its promise of long life makes the cooling tower especially practical in large, long-range commercial and industrial applications. Exterior tower walls may be fabricated of face brick, facing tile, stone, aluminum, or stainless steel; this range of materials is thought to give maximum freedom in architectural design. Units are available in a wide range of capacities, or may be custom designed. Ceramic Cooling Tower Co., P.O. Box 425, Fort Worth, Tex. 76101.

Circle 101, Readers' Service Card

Streamlined ventilators. Product restyling has produced this floor-mounted classroom unit ventilator with accessories. Redesign chief Kim Yamasaki stresses the elimination of exposed fasteners, and the way the color of the units blends with their surroundings (in addition to the strong accent colors of the laminate surfaced tops). Radiation covers and storage and sink cabinets have been redesigned coordinately. The HN Uni-Vent pictured here has a onepiece front panel that is said be easily removed for



maintenance access; the absence of intake air grills on the front panel facilitates cleaning. Standard height: 30". The unit is available with steam, hot water, or electric resistance heating.

and chilled water or refrigeration cooling. Herman Nelson School Products Dept., American Air Filter Co., Inc., 215 Central Ave., Louisville, Ky. 40208.

Circle 102. Readers' Service Card

Reduced area air-conditioning. Adaptomatic vertical central air-conditioners can be used indoors in cases where outdoor space for condensercompressor units is limited. Three units are available with respective capacities of 71/2. 10, and 15 tons; none are more than 34" deep, to facilitate installation in existing buildings. Factory charged and wired, on-site installation is said to require only duct, power, and condensate drain connections. Variable pulleys allow speed adjustment of the evaporator and condenser blowers. Units feature front access control panels. Fedders Corp., Edison, N.J. 08817.

Circle 103, Readers' Service Card

DOORS/WINDOWS

Shatterproof. Specifically designed for use in display windows, Amerada Secur-Lite burglary-resistant glazing material is claimed to be the first in the history of the glass industry to receive U.L. approval. A clear, laminated protective glass with a hightensile plastic interlayer, Secur-Lite was subjected to both the U.L. Multiple Impact and High Energy Impact tests; the test samples were not penetrated and did not rupture. Available in a range of regular frame sizes, Secur-Lite may be either clear or tinted. Amerada Glass Co., Elk Grove Village, Ill. 60007.

Circle 104, Readers' Service Card

ELECTRICAL EQUIPMENT

Conveying the message. Developed for use in buildings too large or fragile for the installation of a pneumatic tube system, the Telelift conveying system operates like a model railroad. Telelift cars have interior dimensions of 4" x 12" x 15", and carry a maximum load of 11 lbs; a larger car measures 6" x 12" x 18", and can carry up to 20 lbs. The cars are self-



propelled electrically on a track system; they may travel vertically or horizontally on built-in controls that permit the cars to travel the shortest route to their destination from any point in the system. Modular track components facilitate expansion of the system, which moves cars at a speed of 2' to 2'-6" per second. Its quiet operation is said to recommend the Telelift system for use in hospitals, nursing homes, and offices. Mosler Airmatic Systems, 415 Paterson Hamburg Tpke., Wayne, N.J. 07470. Circle 105, Readers' Service Card

FINISHES PROTECTORS

Below-grade waterproofing. A polyvinyl chloride sheet material molded on one side with rows of closely spaced nobs, Nob-Lock is said to be tough 40-mil sheet, excellent for waterproofing belowgrade areas. The nobs secure mechanically to concrete poured around them; the sheet thus becomes an actual part of the structure. The material is also said to be flexible, and resistant to moisture and corrosive conditions. Elongation allowance permits the sheet to cover effectively any cracks that may develop in the concrete. Amercoat Corp., 201 N. Berry St., Brea, Cal. 92621.

Circle 106, Readers' Service Card

Sun safe. A copolymer protective film is now available from Mystik Tape. Manufacturer claims that Mystik 6461 is the first such film to be ultraviolet-resistant as well as weather-resistant. Said to have its most practical appli-

cations in the construction field as a substrate protector, its high rate of elongation (400%-500%) also enables its use in die cutting and forming operations. Sub Tropical Testing Service, Inc., of Miami test results showed that Mystik 6461 displayed no erosion, residue or strain after 40 weeks exposure. This hardiness is said to indicate 6461 "outlasts black paper products by a minimum of 32 weeks." Availability: Standard put up: 100 vds on a 3" core; maximum width: 48"; color: black. Mystik Tape, Borden Inc., 1700 Winnetka Ave., Northfield, Ill.

Circle 107, Readers' Service Card

FURNISHINGS



Recuperative aid. This hospital chair was especially designed by Jergen Staermose of Denmark to provide extra back support for convalescent hospital patients. With a frame of chrome plated steel, the upholstery may be either of fabric or vinyl. Arms may be reversed or interchanged to save wear. Available by special request. Fritz Hansen Inc., 979 Third Ave., New York, N.Y. 10022.

Circle 108, Readers' Service Card

Minoan geometrics. Though larger in scale than the primitive embroidery that inspired its design, this "Minotaur" fabric still retains the mazelike quality of the earlier design. "Minotaur" is available in five basic colorways: black on white cotton/linen twill; orange on natural 100% Belgian linen; acid green on oatmeal Belgian linen; gold on

Outside, it's pretty.



Cole. The single-control faucet with a classic kind of beauty that adds a touch of elegant charm to any kitchen or bath. And the practical kind of beauty that makes your selling job easier.

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But Cole's got lots more than just a pretty face. Inside, you'll find a pretty tough valve mechanism. Tougher, in fact, than anything else you can put your hands on. That's because Cole's exclusive one-moving-part mechanism is designed never to leak. Or wear out. Pretty convincing story, isn't it? Cole. The single-control faucet that's beautifully designed to last a lifetime.



A Subsidiary of BRADLEY WASHFOUNTAIN CO. 9101 Fountain Boulevard Menomonee Falls, Wisconsin 53051

On Readers' Service Card, Circle No. 398



natural Belgian linen; and brown on heavy textured Belgian linen. Anita Henry, Inc., Suite 6C, 141 E. 55th St., New York, N.Y. 10022.

Circle 109, Readers' Service Card

INSULATION



Spray foam insulation. Isofoam, a two-component urethane foam, is said to be suitable for installation in walls, ceilings, and floors of buildings, as well as for the outside of tanks and process equipment. A low "K" factor is claimed to allow a thin application of the foam, yet the foam requires no vapor barriers, adhesives, or fasteners. In addition, Isofoam is said not to support combustion. When sprayed with the correct apparatus, 1200 sq ft of 1/4" insulation may be applied per operator in 30 min. Isocyanate Products, Inc., 900 Wilmington Rd., New Castle, Del. 19720.

Circle 110, Readers' Service Card

LIGHTING

Nonstructural beams. Alzak regressed lens downlights are this manufacturer's latest introduction for environmental lighting. These lights offer widespread, dimmer, softbeam patterns that are said to be architecturally compatible. In wattages from 100 to 300, the units are available



with narrow surface trim or flush trim, and have a twistlock door for fast relamping. Units are also available in a choice of regressed trim finishes; other color variations are enhanced by the use of Colourvered lens risers. Silvray-Litecraft Corp., Passaic, N I

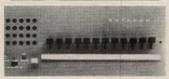
Circle 111, Readers' Service Card

OFFICE EQUIPMENT

Drafting aids. "Instant Landscapes," both stamp and transfer, comprise plan trees, elevation trees, shrubs, and a wide variety of figure types, each available in six sizes: ¼", ½", ¾", 1", 2", and 3". Entire line includes 600 different illustrations; also available is a full line of tracing guides for use in elevations and perspectives. Instant Landscape, 1115 Embarcadero, Sacramento, Calif. 95814.

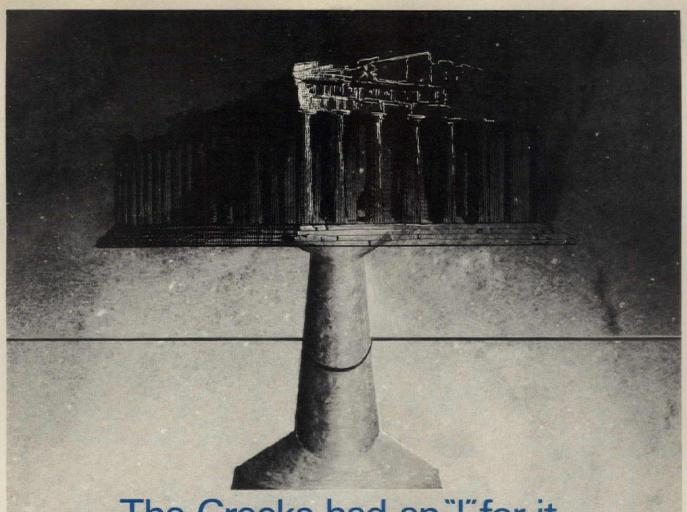
Circle 112, Readers' Service Card

SPECIAL EQUIPMENT



No lack of communication. This compact intercommunications system is said to mount flush into a standard 2 x 4 wall; it may also be integrated with units designed for desk use. Calls to 12 and 14 stations may be initiated by master stations, of both the local amplifier and central amplifier type. Calls are announced by light and chime; a lockout circuit is said to insure privacy. UL listed. Fisher-Berkeley-EKTA-COM, 5800 Christie Ave., Emeryville, Calif. 94608. Circle 113, Readers' Service Card

Alarm monitor. An eight-zone continuous surveillance monitor, Mosler Model DSM-8 controls up to eight doors or groups of doors from a single,



The Greeks had an "I" for it

In the fifth century B. C., Callicrates of Athens built the Parthenon without mortar to join the massive marble elements. Where gravity alone was not enough, he joined blocks by pouring bronze into I-shaped grooves cut across the joints. They have held for 2,500 years.

Callicrates was one of the greatest ancient architects. He chose to build with marble because it was beautiful, lasting and available. He probably never considered its extremely low maintenance cost or its resistance to airborne dirt and pollutants. Though the contemporary builder must consider cost of maintenance and may choose from construction techniques more sophisticated than the bronze "I", one fact remains—marble is still beautiful, lasting and available.

Shouldn't your building be a thing of lasting beauty? Shouldn't it be marble?



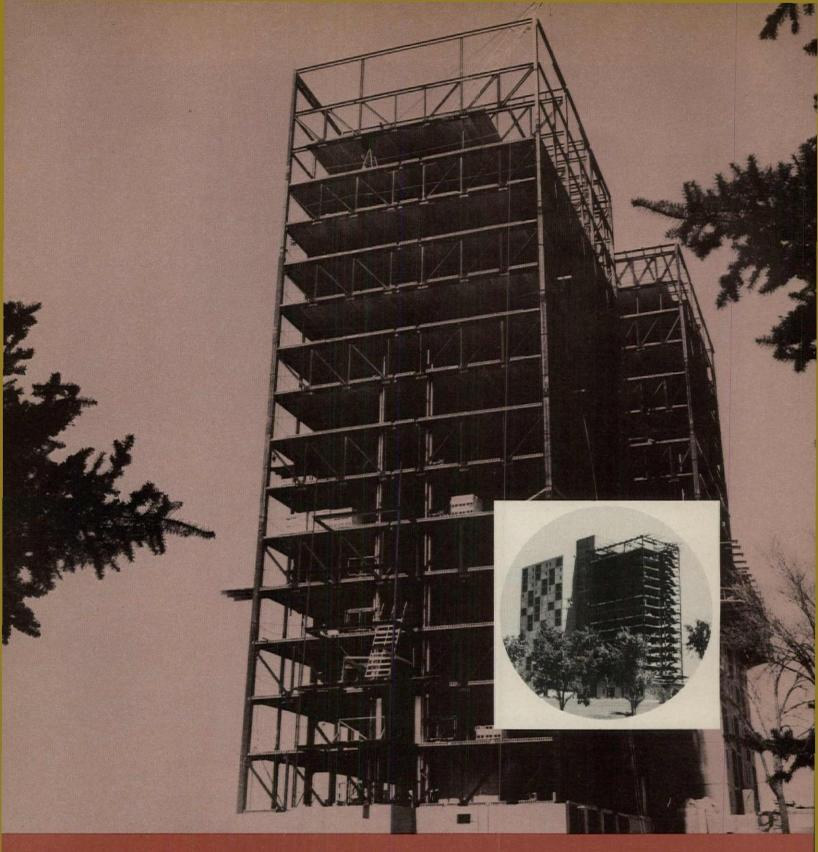
With no intention to lowrate Callicrates, we'd like to mention that Georgia Marble Company has developed a system for attaching thin marble veneer that gives marble a versatility that Callicrates never dreamed of.



11 PRYOR STREET, S.W., ATLANTA, GEORGIA 30303

COAST-TO-COAST CONSULTING SERVICE—Our engineers stand ready to assist you any time anywhere on any project involving marble or limestone. A phone call will put one of our men across the desk from you in a matter of hours. No obligations, of course.





Spancrete...working part of structural system

Spancrete precast concrete planks become an integral part of the structural system on this apartment for the elderly. A steel framework with a unique system of staggered trusses required a thin, rigid flooring system that would transfer wind loads on a horizontal plane from one truss to the other. Sixinch-thick Spancrete planks with

only eight inches between floor and ceiling proved to be the answer. The Spancrete planks span a 23-foot area, allowing for flexible apartment plans. Low soundtransmission qualities, fast erection, and lower fire insurance are other advantages of Spancrete apartment construction.

St. Paul Housing & Redevelopment Authority Project — 17-story, 187-unit apartment St. Paul, Minnesota Architects: Bergstedt, Wahlberg and Wold, Inc. Structural Designer: Bakke & Kopp, Inc. Structural Engineer: Schuett-Meier Company General Contractor: Knutson Construction Co., Inc.

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Sales & Plants South Bethlehem, New York 12161 Phone 518 767-2269

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UNITED KINGDOM

Truscon Limited 35/41 Lower Marsh London, S. E. 1, England

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central point. Used in conjunction with magnetic door switches and local alarm bells, the unit monitors the opening of fire or loading doors, and produces a buzzing alarm as well as a visual indication of an unauthorized opening. The monitor may adapt to an existing alarm system, and features a stand-by power supply for emergency use. Mosler Electronic Systems Div., 9 South St., Danbury, Conn. 06810.

Circle 114, Readers' Service Card

Complexity clearing house. The Plant Watchman is a building automation system, designed to be built into new high schools. It is said to centralize operating work and to supervise the performance of machinery located throughout the building. More precisely, the Plant Watchman, or System 2, requires only one man to push-button activate remote centers that supervise the entire mechanical and electrical operations of a building. The Watchman may also be programmed to start and stop selected operations automatically. The instant information read from the machine further enables a quick diagnosis of faulty equipment and "preventive" maintenance. The Watchman console is said to be able to monitor up to 400 separate functions. Honeywell, 2727 So. Fourth Ave., Minneapolis, Minn. 55408.

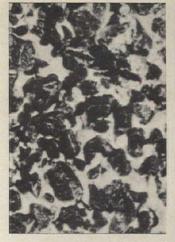
Circle 115, Readers' Service Card

SURFACING



The face of insulation. Burlap Board aptly combines construction with decoration — standard ¹⁵/₂₂" Homasote insulating board is surface-laminated and long edge wrapped with burlap. Said to be a durable, yet easily handled base material, Burlap Board affords two finished interior surfaces with one operation. Homasote Co., Trenton, N.J. 08603.

Circle 116, Readers' Service Card



Surpassing cement in flexural impact, tensile, and bond strength, as well as having 20 times cement's abrasion resistance, the manufacturer also claims that Finestone Aggregate Surfacing has unlimited versitility for use on any substrate material. Man-made or quarried aggregate is impelled into a Finestone bedcoat (of any color), then hand tamped. A matte or glossy finish is optional: additional sealant and glaze coats are said to seal the surfacing against weather, discoloration, and chemicals, yet do not create a vapor barrier, or support combustion. Finestone Corp., 11355 E. Mc-Nichols, Detroit. Mich. 48234

Circle 117, Readers' Service Card



Underfoot conductor. Conductile floor tile is said to dissipate electrostatic charges completely. And, because the conductive material is spread uniformly throughout the tile, conductivity does not diminish as the tile wears away. When used with a special conductive epoxy, copper stripping need not be used beneath it. Condulite comes in squares 12" x 12" by 1/8", and is available in six colors with random chip. Burke Rubber Co., 2250 S. Kent, San Jose, Calif. Circle 118, Readers' Service Card

AFRS' DA

ACOUSTICS

Sound frames. Installation facts about wood stud systems and wood framed partitions place emphasis on the superiority of wood for sound-rated, nonloadbearing partitions. A fire-retardant treatment is also described. Data includes guide specs for wood selection and framing requirements, STC ratings, and systems details. Booklet. 8 pages. Western Wood Products, 700 Yeon Bldg., Portland, Ore. 97204.

Circle 200, Readers' Service Card

AIR/TEMPERATURE



Chilling facts. Designed for commercial air conditioning and industrial water cooling, the VA-Line cooling towers are of the blow-through variety. Factory assembled of hotdip galvanized steel, the towers range in capacity up to 2300 tons. The VA-Line has a vane-axial fan system that is an integral part of the pan section, rather than a separate one. Sectional construction allows future addition of other cells for increased capacity. Application, selection, engineering, and installation data are included. Bulletin 216. 20 pages. Baltimore Aircoil Co., Inc., P.O. Box 7322, Baltimore, Md. 21227.

Circle 201, Readers' Service Card

Heating revolution. Revolving discharge heaters are said to have a slow, constant 360° rotation, thus providing uniform heat in all directions. Warm air flows around and under objects that would block heat circulation from a regular fixed-pattern heater. Capacities range from 60,000 to 1,313,100 BTU/hr., for use with steam or hot water. (Other literature is available where use is desired with high temperature hot water, gas, or electricity.) Data includes selection and application suggestions, details, mounting and coverage dimension charts; also engineering data, and specs. Booklet. 20 pages. Wing Co., Div. Aero-Flow Dynamics, Inc., Linden, N.J.

Circle 202, Readers' Service Card

CONSTRUCTION

Metal building guide. Revised "Recommended Design Practices Manual" is for engineers, architects, and those concerned with pre-engineered buildings. This technical guide contains definitions of loads, load charts, design information, and data on the use of plastic and aluminum panels in metal buildings. 23 pages. Metal Building Manufacturers Assoc., 2130 Keith Building, Cleveland, Ohio 44115. Circle 203, Readers' Service Card

Constant exposure. Walkway covers, wall and roof panels, even marquees are constructed of aluminum with anodized aluminum posts for support; they are thus said to be maintenance free. The roof panels also feature an interlocking design with hidden fasteners. All are available in



a host of decorator colors. Booklet includes application illustrations, structural characteristics and load charts, details, dimensions. Brochure. 8 pages. Howmet Corp., Building Specialties Div., 227 Town East Blvd., Mesquite, Tex.

Circle 204, Readers' Service Card



Specifying steel joists. Standard specs and load tables make up the bulk of the technical data of the 1969 Specifications Guide for high strength open web steel joists. Available are specs of joists that carry uniform loads on spans up to 96 ft. In addition to load tables covering open web and longspan steel joists, the manual includes an outline of Recommended Code of Standard Practice for Open Web and Long-span Steel Joists. 32 pages. Steel Joist Institute, 1346 Connecticut Ave. N.W., Washington, D.C.

Circle 205, Readers' Service Card

DOORS/WINDOWS

Rolling metal security. Doors, shutters, grilles, and escalator covers are included in this line of metal products for protection from weather and vandalism. Typical fabrication is of steel, aluminum, stainless steel, and bronze. Product illustrations are combined with details, guide sections, and specs for all components. Optional features include motor operated doors and grilles. Catalog. 20 pages. Cornell Iron Works, Inc., Crestwood Industrial Park, Wilkes-Barre, Pa. 18707.

Circle 206, Readers' Service Card

Viewing windows. A host of window types, both singleand double-glazed, as well as panel and curtain wall varieties are said to be especially suited for hospital use. Their thermal and acoustical insulating properties are claimed to reduce heat loss through the glass by 50%, eliminate condensation, and to reduce outside noise by 50%. Windows are available with a built-in venetian blind, further said to reduce solar heat gain up to 80%. Each window

type is illustrated, with installation details, and test results for sound and heat insulation. Catalog. 16 pages. Amelco Window Corp., Box 333, Hasbrouck Heights, N.J. 07604. Circle 207, Readers' Service Card

Preventing solar penetration. A coating of aluminum bonded to DuPont Mylar produces a reflective film that may be used for tinting glass. This "Tinting Film," which can be bonded in sheet form to the inside of ordinary glass panels, is said to reduce solar heat penetration by 75%, and to completely eliminate glare. In addition, glass thus treated is reported to be shatter-resistant. Comparative performance data is given in a solar transmission and reflection

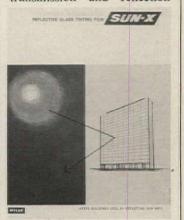


chart. Sample specs are also included. Sun-X International, Inc., 4125 Richmond Ave., Houston, Tex. 77027.

Circle 208, Readers' Service Card

Appropriate apertures. Door line range from formal double doors and side lights to cross buck entrance doors and jalousie door rims. Wardrobe doors, and decorative screens that can double as room dividers are also available. All doors are dowel constructed of standard vertical





The Lodge of the Four Seasons, Lake Ozark, Missouri

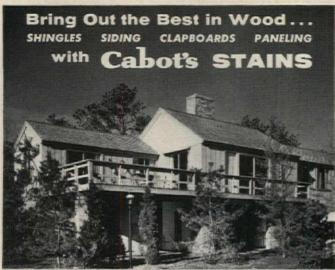
A "far out" resort concept calls for LP-gas

Whether it's "far out" in terms of design or actual location, LP-gas is the ideal, all-around, modern fuel.

That's because LP-gas goes anywhere—does everything. From heating rooms, water and swimming pools to cooking food, drying clothes...even running generators for electrical power. Call it butane, propane, bottle gas or whatever, LP-gas is the "self-sufficient" fuel. It goes beyond the reach of the natural gas pipeline. And gas makes the big difference. Safe. Clean. Economical.

So, look into LP-gas today. The fuel designed for the "far out" concept. Of America's great sources of energy, only LP-gas serves you in so many ways.





Wills & Associates, Boston, Mass. Architect: Royal Barry Developer: Hanslin Associates, Melrose, Mass.; Cabot's Stains inside and out

Cabot's Stains, in 35 unique colors, preserve the wood, enhance the beauty of the grain. Stains grow old gracefully . . . never crack, peel, or blister . . . cost only half as much as paint.

The above is a model home in the Cape Cod community of New Seabury. In planning this home, the architect was striving for beauty, quality, and economy. In the selection of exterior and interior finishes, stains were used instead of paints. Thus the architect realized his conception of beauty, kept costs at a reasonable level, and reduced future maintenance while preserving and protecting the wood for a long, trouble-free life. Today the trend is toward stains.

For the home ... inside and outside



Cabot's STAIN WAX

Stains, waxes and seals in one operation. Brings out the best in wood, enhancing the grain and providing a soft satin finish in any one of ten colors plus black, white, or natural.



Cabot's HOUSE & TRIM PAINTS

Outside paints of lasting, beautiful gloss in 24 authentic American colors, among them Haddam Barn Red and Hickory Yellow



SAMUEL CABOT INC.

228 South Terminal Trust Bldg., Boston, Mass. 02210

Please send color cards and information on Cabot's Stains and Cabot's Paints.

On Readers' Service Card, Circle No. 330

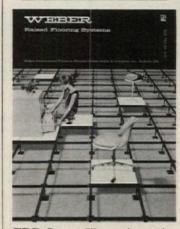
grain Douglas fir and Western Hemlock; they may be ordered with or without glazing. Each door style is illustrated, with over-all layout dimensions as well as dimensions for component rails and stiles. Booklet. 22 pages. St. Regis Forest Products, 1019 Pacific Ave., Tacoma, Wash. 98401. Circle 209, Readers' Service Card

FINISHES PROTECTORS



Compound combinations. The coating category expands to include manufacturer's line of 200 products such as epoxies, urethanes, and other fabricating compounds. Indexed to application areas, the catalog is designed as a product selection guide. A technical data section gives the physical properties, chemical resistance, and electrical characteristics of each compound. Catalog. 20 pages. Devcon Corp., Danvers, Mass. 01923. Circle 210, Readers' Service Card

FLOORING



EDP floors. Illustrations, details, and installation drawings present free-standing, drop-in grid, and rigid grid raised flooring systems for data processing rooms. Each of the three systems features a threaded post pedestal that is its basic supporting member.

Floor panels of steel (24" sq.) or ply-metal, trimmed in vinyl, are available in a host of surfacing materials. Systems also include padding and hand rail accessories, with WebAir conditioners as optional environmental components. Specs. Bulletin 203. 12 pages. Weber Architectural Products Div., Walter Kidde & Co., Inc., 1340 Monroe Ave. NW, Grand Rapids, Mich. 49502.

Circle 211. Readers' Service Card

Gluing plywood floors. Complete installation data cites advantages of glued plywood floors. A field-glued Sturd-ifloor is said to combine the functions of both structural subflooring and smooth surface underlayment in a single-layer plywood floor. Installation is claimed to be fast. In addition, the glued floor is said to reduce noise leak. Chart gives joist, load, and span recommendations. Mastic type adhesives are discussed as suitable glues. Bulletin. 4 pages. American Plywood Assoc., Tacoma, Wash. 98401

Circle 212. Readers' Service Card

FURNISHINGS



Office concept. Concept 75 consists of a complete line of executive desks, secretarial desks, modular groupings, and companion chairs, sofas, and occasional tables. All pieces in the line are either fabricated of solid walnut or finished with a walnut veneer. Illustrations are followed by dimensions, options, and feature listings. Booklet. 16 pages. Myrtle Desk Co., High Point, N.C. 27261.

Circle 213, Readers' Service Card

Desk trimmings. Accessory items, ranging from ashtrays and desk organizers to an umbrella stand and chairside table are itemized, together with dimensional data and a price list. All items feature a micro-mirror chrome finish, or can be finished in statuary bronze. Additions to the accessory list are a folding game table, a cigarette table, and a 36" round table with swivel chairs. Brochure. 4 pages. Lighting Associates Inc., 351 E. 61st St., New York, N.Y. 10022

Circle 214, Readers' Service Card

LIGHTING

Throwing light on the subject. Manufacturer's catalog contains a complete line of solid state electronic components and system modules for lighting control uses ranging from audio-visual rooms to auditoriums and television studios. With these control and power modules, it is said to be possible to construct "any lighting control system of any size"; engineering assistance is also available from the manufacturer. Manual explains the theory of electronic lighting control. Technical data includes schematics, control scales, graphs, assembly dimensions. 54 pages. Skirpan Electronics, Inc., 41-43 24th St., Long Island City, N.Y. 11101.

Circle 215, Readers' Service Card

OFFICE EQUIPMENT



The Diagrammer, a push-button-operated drafting machine, is claimed to produce all forms of drawings up to four times faster than conventional drafting methods. A new optional unit, called the Tape Input Module (TIM), is said to increase this speed up to 30 times. A programmed punched tape, TIM contains initial drawings in a digitized form that produces Diagrammer output with a repetitive accuracy and speed said to be impossible in manual drafting methods. Data includes symbol capacity, symbol requirements, line draw capability and adjustments, lettering capacity, etc., film sizes and dimensions. Folder. 8 pages. Automated Drafting Systems, Mergenthaler Linotype Co., 300 E. 42nd St., New York, N.Y. 10017.

Circle 216, Readers' Service Card

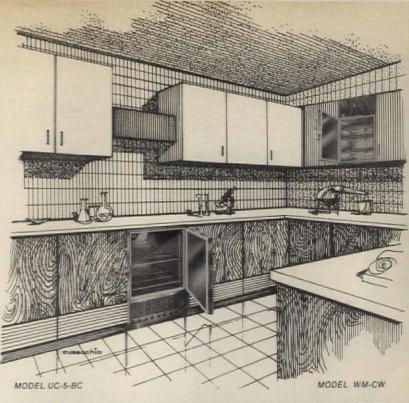
Series II Tracemasters all in a row. This series of tracing table units combines the manufacturer's Coordinate Group automatic desk with a coollight solid state light box. Four models of automatic tracing units result, each with foot pedal operated, counter balanced height and angle control. One model, specifically designed for row installation, features an automatic tracing table on one side, and a reference desk with files on the other side for the next man in the row. A double-use unit such as this is said to permit a 40% space saving. All desk units in the series coordinate to allow modular expansion. Custom and standard grids are available. Specs give over-all dimensions plus size of illuminated working area, tracing board, and reference desk. Brochure. 4 pages. Stacor Corp., 285 Emmet St., Newark, N.J. 07114.

Circle 217, Readers' Service Card

SANITATION PLUMBING



Gravity sewer pipe. Flextran. a factory-formed flexible conduit, is composed of polyester resin and siliceous sand, reinforced with "continuous roving glass fibers." Said to be



INTEGRATED DESIGN IN EYE-LEVEL AND UNDER-COUNTER REFRIGERATORS

Designed to fit flush with adjacent cabinet work in stainless steel or custom finished to your specifications, these space saving refrigerators provide a clean, uninterrupted line of design. The thin-wall construction incorporates polyurethane insulation and an air-tight neoprene thermo-break door seal. The undercounter models have outside dimensions of 24" x 24" x 341/2" and a capacity of 5.4 cubic feet. The single door wall mounted models come in four sizes 18" W. x 13" D. x 30" H. with 1.5 cubic foot capacity up to the 4.3 model with dimensions of 24" W. x 18" D. x 36" H. Also available are double door models with capacity of up to 9.6 cubic feet.



MODEL UC-5-CW

Since 1849

■ Gleaming stainless steel interiors.

- Explosion-safe and total explosion-proof construction, optional.
- Removable front grille through which all fittings and controls can be easily serviced without moving refrigerator.
- Dished interior bottom to protect floors from spilled products.
- Automatic and semi-automatic defrost system with built-in condensate evaporator and accumulator. Eliminates need for floor drain.

MODEL UC-5-CW

Cold wall type cooling system with automatic push button defrost. No freezing compartment. Explosion-safe and explosion-proof construction available on this model only.

MODEL UC-5-BC

(illustrated above)

Blower type cooling system with automatic off cycle defrosting. No freezing compartment.

MODEL UC-5

Two-tray ice cuber cooling system and semi-automatic defrost.

MODEL WM-CW

(illustrated above)

Cold wall type cooling system with push button defrost.

NOTE: Jewett also makes a line of freezers with the same dimensions and features listed above.



On Readers' Service Card, Circle No. 399

Manufacturers' Data 53

highly resilient, it is also claimed to be chemical-resistant and dimensionally stable. Data includes sizes, weights, and standard lengths available. Charts, graphs, and drawings give design, installation and performance characteristics. Booklet is intended primarily for the engineer. 8 pages. Johns-Manville, Pipe Div., Box JJMC-11, 22 E. 40th St., New York, N.Y. 10016.

Circle 218, Readers' Service Card

SPECIAL EQUIPMENT



Roving storage units. Tee-M sanitary storage containers are constructed of galvanized steel, with a base supported by steel runners. The standard slatted rolling closure is optionally available with a motor. Various sized models accommodate trash cans, air cylinders, garden or industrial equipment; custom designed units are also available. Air vents and drainage provisions are standard. Brochure contains specs and descriptions for both standard and special units. 8 pages. J.G. Wilson Corp., P.O. Box 599, Norfolk, Va. 23501.

Circle 219, Readers' Service Card

SURFACING

Plane and fancy floors. Detailed specs and properties are available for four of the manufacturer's thin-set epoxy flooring materials: "Tuff-Lite" Epoxy Terrazzo Floor Matrix, "Tuff-Lite" for hospitals, "Tweed-Tex" Epoxy Ceramic Granule floors, and an Epoxy Floor Topping for high wear industrial areas. Test results for chemical resistance are recorded, as well as suggested applications. Bulletin. 4 pages. H. B. Fuller Co., 2400 Kasota Ave., St. Paul, Minn. 55108.

Circle 220, Readers' Service Card





Floors from cans is the title of a technical bulletin describing the manufacturer's line of 13 urethane resins for use in one package seamless flooring. The 'one package' flooring resins are moisture or catalyst cured, while the 'two package' systems are polyol cured. The advantages and application procedures for both types of flooring are fully described. Data contains an analysis of each of the resins, the results of physical, chemical, and stain-resistance tests, and suggested surface preparation procedures. 24 pages. Spencer Kellogg Div., Textron Inc., 120 Delaware Ave., Buffalo, New York 14240.

Circle 221, Readers' Service Card

Decorative laminates. An architectural spec guide for the use of Micarta high-pressure laminates describes grade varieties, thicknesses, constructions, colors, finishes, as well as structural assembly. Detailed specs are given for all applications. Brochure also includes code approvals (Class A), NEMA standards and typical test values of Micarta. 8 pages. Westinghouse, Decorative Micarta Div., Hampton, S.C. 29924. Circle 222, Readers' Service Card

PROGRESSIVE ARCHITECTURE NEWS REPORT

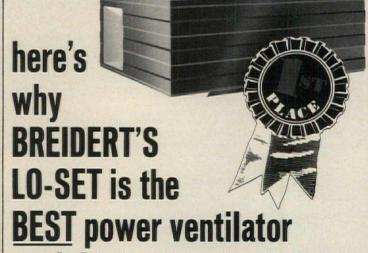
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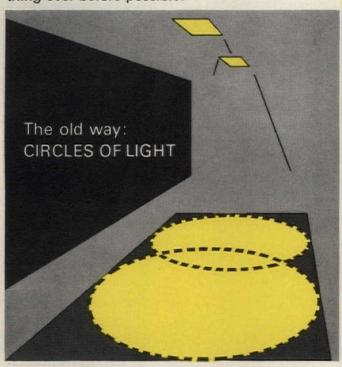
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At least 99% of your interior areas are SQUARE. But you've always had to light these SQUARES with CIRCULAR light patterns.

Now-Guth has invented a new type of prismatic lens that creates SQUARES OF LIGHT from recess or surface fixtures. Result: Lighting uniformity and utilization far superior to anything ever before possible!



You get higher footcandles in the overlap areas . . . lower footcandles in the corners (shaded). Non-uniform lighting results!



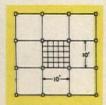
Squares of light fit together like floor tiles! No overlap areas. No dark "corners." Almost perfect footcandle uniformity.

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Circular Prism Lens vs. Guth Square Prism Lens

The Test:

Units on 10' spacing. Illumination from all 16 points was totalled at center of each 2' square over center bay area.



Circular Lens

Results: Maximum of 44 FC is 33% more than the minimum 33 FC.

74	4 4	1 3	9 4	1 44
4	1 3	8 3.	5 3	8 41
3	9 3	5 3	3 3	5 39
4	1 3	8 3	5 3	8 41
4	4 4	1 3	9 41	44

Square Lens

Results: Maximum of 47 FC is only 9% more than the minimum 43 FC!

-			_		_
-	44	43	44	43	44
	43	44	47	44	43
	44	47	47	47	44
1	43	44	47	44	43
111	44	43	44	43	44

Square distribution is 275% better!

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(Patent Applied For)

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Extras like an NSSEA acoustical rating (no accordion door has one). And automatic floor seals (they won't scrape floors or carpets). And woodgrain finishes or choice of school-right colors.

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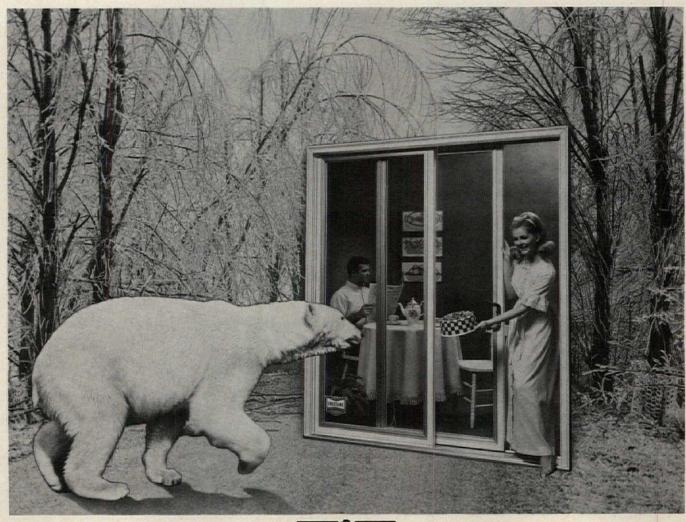
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Builders know that the only thing that can get through a Crestline sliding door in the wintertime is people

It's a clear case of keeping weather out where it belongs...no creep, no seep, no frost, no sweat. It's the way we've engineered our sliding wood doors with special 1" thick insulating glass, double weather-stripping, deluxe thermal barrier sill, warm wood under-sill, and aluminum-T reinforced wood stiles and rails, designed to stand straight, shoot square, slide smooth, and not warp on you no matter what.

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Now about you. If you specify or install windows and doors, write us in Wausau for the whole Crestline story on how you can come in out of the cold. It's a blast.





The wood windows that cut out the callbacks

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it's got the drop on the industry

➤ RECESSED PIN — loses itself inside the barrel
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BALL-BEARINGS — neatly swaged into secret compartments . . . no barrel bulge.

DELRIN SLEEVES — reduce friction top to bottom . . . pin never touches the barrel.

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counter-sinking of pintip, plug, and ball-bearing raceways permit use of large-diameter pin, though barrel keeps its slimline dimension.

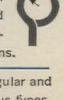
NON RISING PIN

recess forms anchor when pin is inserted into the bottom Delrin sleeve.



FULL THICKNESS BARREL -

precision fittings and interior design permit full leaf thickness to be formed right around the barrel to build in strength unsurpassed in hinges of slimline dimensions.

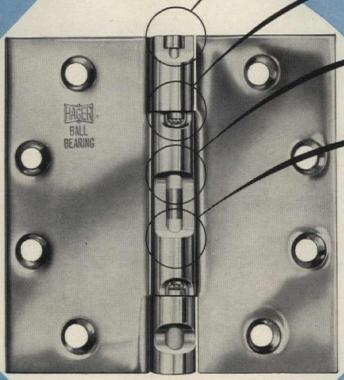


Available in wide range of sizes in regular and extra heavy weight for doors of various types. Swing-clear types included. Available at prices of ordinary premium hinges. Write Hager or contact your Hager representative for complete specifications.



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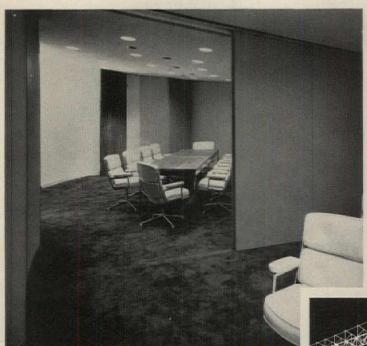
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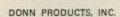


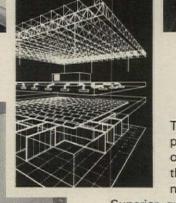
THE MACOMBER V-LOK® MODULAR COMPONENT SYSTEM:

Advanced partitions



AETNA STEEL PRODUCTS CORPORATION





THE E E HAUSERMAN COMPANY

The Macomber V-LOK Modular Component System offers you true economy in a superior building—a building that will stay both superior and economical for years to come.

Superior quality comes from the use of topquality components. Economy comes from substantial savings in time during planning and construction, quicker occupancy, easier maintenance, and lasting adaptability to the changing needs of the occupants.

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The lasting economy of a VLMC building stems from the ease with which it can be expanded or remodeled to create entirely new space configurations whenever the need arises.

add to VLMC quality, flexibility, economy

Finally, the VLMC building offers the opportunity for profitable resale after it has served its initial owner. It will be readily adaptable to the needs of a new owner.

PARTITION SYSTEMS

Interior partitions are engineered to fit the basic 5-foot module of the VLMC system. Whether they are demountable, moving or folding, they are all relocatable within the building. For this reason, they are built to meet — but not penetrate — the ceiling grid. Walls are joined to the steel grid by means of specially-designed heads that allow full deflection under live and dead loads.

The three partition systems described below illustrate the variety of products available to the designer.

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Both Hauserman Operable Wall and Double Wall enlarge the advantages of the VLMC system in school construction. Hauserman Operable Wall provides instant flexibility in dividing space; while Hauserman Double Wall permits virtual "overnight" rearrangement of interior walls within the VLMC grid.

Both systems incorporate Hauserman's superior quality, easy maintenance and long-range economy. Either provides a magnetic floor-to-ceiling teaching aid, with a variety of available accessories.

Hauserman Operable Wall is engineered to be moved easily, even by a small child. Panels are steel, with either baked enamel or chalkboard finish in a choice of colors. Sound attenuation is comparable to a fixed wall up to seven times its weight and twice its thickness.

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DONN PRODUCTS, INC.

Donn Products panels are supplied in four finishes: prime finish, baked enamel, factory-coated vinyls

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Panels are three inches thick, fully insulated with fiber glass. Any panel unit may be readily removed without disturbing the adjacent panels. Panels are supplied with a factory baked enamel finish for lasting beauty and minimum maintenance.

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For more information on the Macomber V-LOK Modular Component System, contact your local Macomber Representative, or write to *Macomber Incorporated*, Canton, Ohio 44701.



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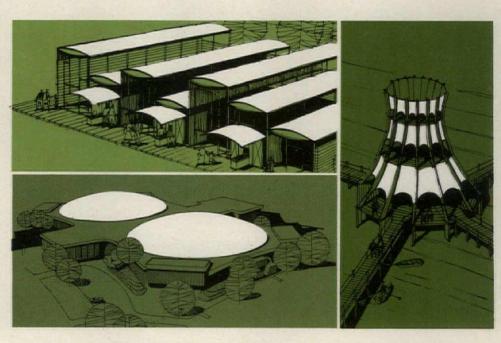
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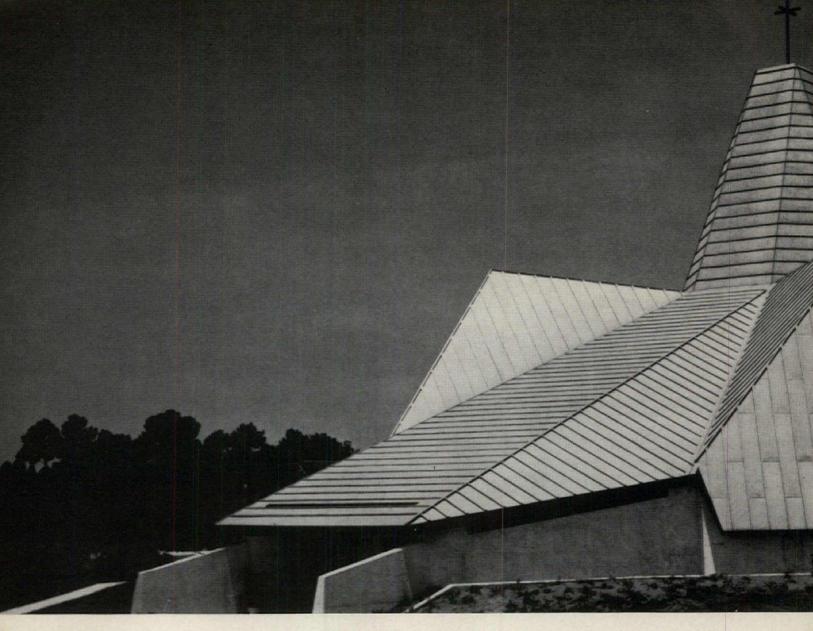
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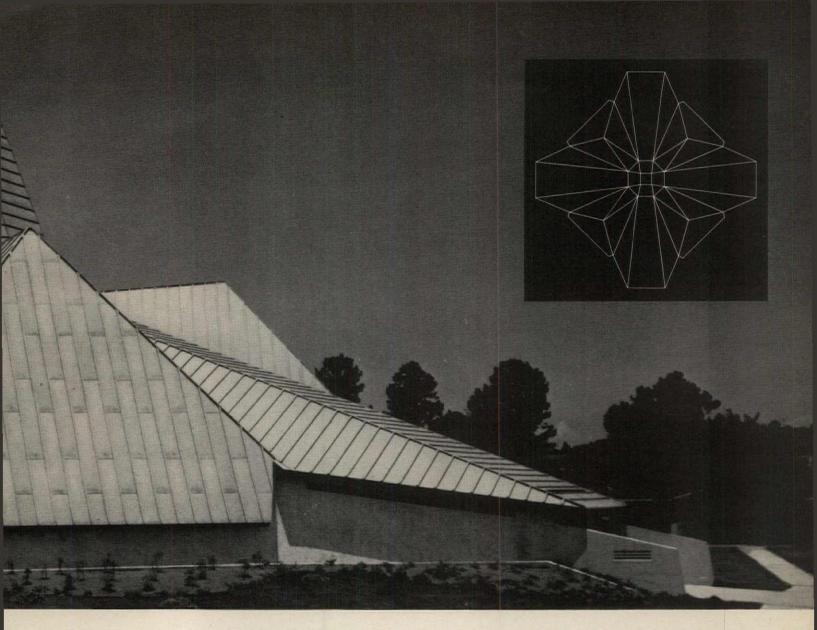
In commenting on the selection of lead-coated copper for this church roof, Mr. Thompson B. Burk said, "The earliest concept of the St. Pius X Church roof was of lead-coated copper because many of the material qualities were of prime importance to our design.

"We were interested in a quality, long life, maintenancefree material that would also be a neutral element in any color coordination.

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- 2. Its natural patina of age, or the popular bronze tones accomplished by oiling.
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bold, brawny



Design: Stuart John Gilbert / Wayne W. Good





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Increases fire ratings of two-hour rated block to four—count them—four hours.

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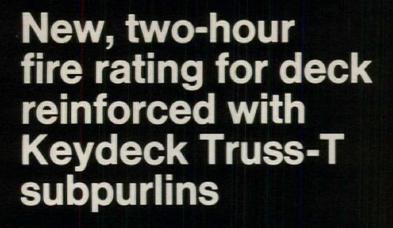
Protectopane U-V features a clear vinyl interlayer which acts as a repellent to ultra-violet light—lets through only 1% of the ultra-violet rays in the critical region of 380 millimicrons and below; whereas ½" clear plate glass transmits about 52% of these harmful rays! Protectopane U-V provides color fast protection for draperies, paint, furniture, clothing and other articles behind the glass.

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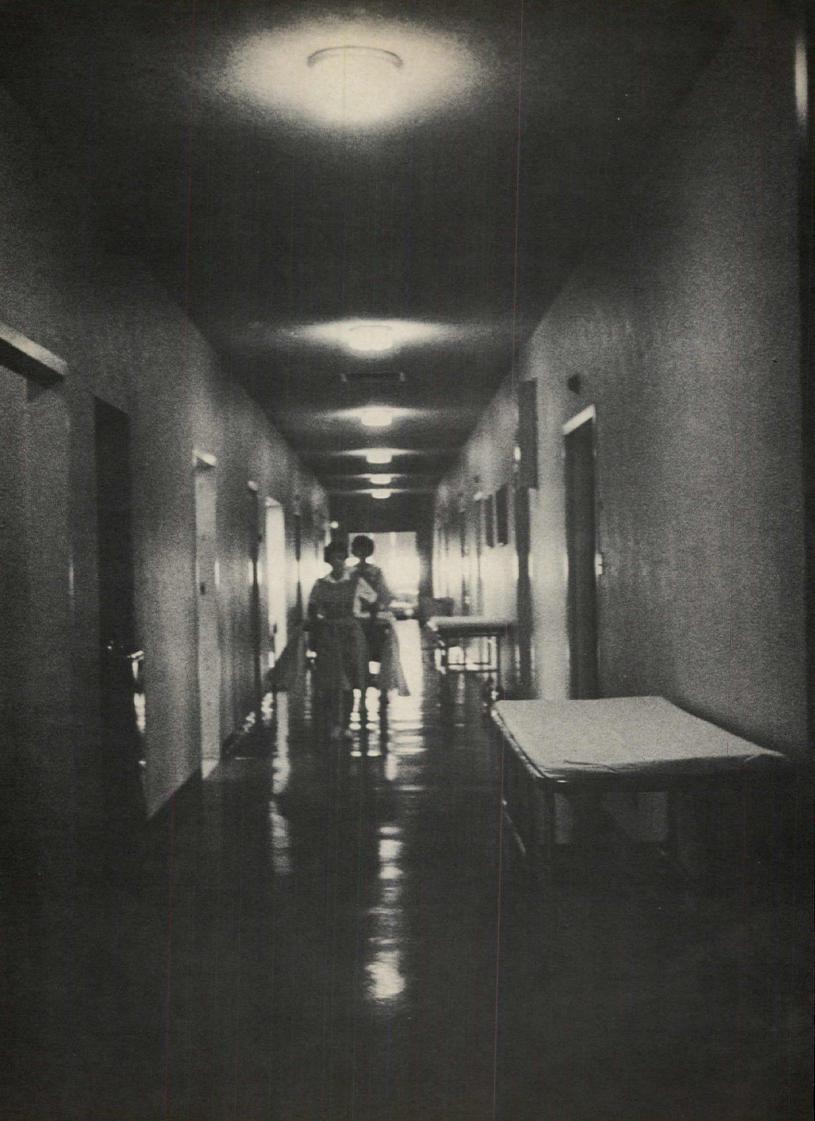


Antique White

February 1969 PROGRESSIVE ARCHITECTURE

"Sickness is inextricably linked with society and society will have to look to itself for the solution."

R.S. DUFF, A.B. HOLLINGSHEAD



High standard of low living is one way of defining the American way of life. This expression, coined, I believe, by Arthur Schlesinger, Jr., can be applied to many aspects of our lives. Soot smothering the martinis at a fancy penthouse terrace party, luxurious automobiles crawling in a traffic jam, TV sets (one in every room) all turned on to I Love Lucy for lack of better programs, commuters crowded on slow trains trying to reach their lush suburban refuge, are some of the many paradoxes of our civilization. Although we never had it so good, we also never had it so bad either. With increasing shoddiness, inconvenience, danger, cost, and tedium of so many goods and services that we must all use, there is a growing dissatisfaction and we are at the beginning of a widespread revolt.

Consumers, or users, are demanding a change in many areas. From schools and colleges to supermarkets and used-car lots, the demand for greater consumer control is steadily growing. The same is now true in the provision of medical services.

To be healthy, according to one definition, is to be sound in body, mind, and soul. Health care, then, is not merely a visit to a doctor or hospital whenever an ailment occurs, but a comprehensive system of prevention as well as cure. That the "health consumer" is not satisfied with the present system seems obvious. There are many reasons for the dissatisfaction.

One reason was given by Gerard Piel in a recent issue of Modern Hospital. He wrote: "The market process cannot effectively organize the technology of medicine for service to the individual and the community. The creation of the necessary new institutions and arrangements must begin with the complete reconstruction of the relations between the public and the private sectors in medicine, that is, between vested public authority and private, voluntary initiative. . . . The Social Security Amendments of 1965 — the Medicare and Medicaid legislation — enacted into law the worst features of the prevailing arrangements. That legislation dumped hundreds of millions of dollars into the fee-for-service, solo practice market economy. . . . Public funds, therefore, now go to perpetuate the caste system in medical care."

Another aspect of the health care problem was mentioned on January 6 in The New York Times in an article titled Better Medicine Could Be Offset By Poorer Care: "Many observers, watching medical research manpower shortages develop and prices of medical care rise sharply, year after year, believe the entire structure of American medical practice must be revised. The revisions would be away from the solitary medical practice that has been traditional in the past; toward community health centers, hospital-based practice and pre-paid care arrangements of various sorts. . . . Another, possibly darker shadow, is that of man's growing impact on his environment — physical crowding, air and water pollution; contamination from unsafe food and too many drugs and chemicals. These could breed disaster despite any miracles medical science may be generating to cope with specific diseases."

Even some doctors are beginning to revolt against a system that works against proper health care. Murray Kempton reported on January 14 in the New York Post that one of the hospitals, as soon as it went on Medicaid, started charging all out-patients \$7 for each visit, whatever the economic condition and eligibility for Medicaid of the patient was, and in September raised the fees to \$16 per visit. Visits, of course, dropped off. "What has happened is particularly damaging to preventive and follow-up care," a spokesman for the doctors said. "Patients come only for catastrophies and refuse to return for on-going care or check-ups. This is bad medicine." And the good doctors started passing out leaflets advising their patients not to pay the hospital bills. The doctors said that in the future they "intend to work with patient or consumer groups for greater community participation in medical policy and decision making."

Kempton ended his report with these words: "Who can say where our next rebellion will break out? Last week, the priests in Newark against their archbishop; this week the doctors against high fees. We have no institution that does not struggle with an interior quarrel. Something has begun in America; Mr. Nixon's years will be more exciting than his own promises or the common judgment has so far suggested for them; somewhere quiet and sober Americans have lost the habit of acquiescence; whatever we may become, we shall not soon be tiresome again."

pun C Rowan

In this issue, of health ca converting health can be a recent

In this issue, P/A explores the current revolution in the delivery of health care, and the social and medical attitudes that are converting hospital design into health care architecture.

A recent Louis Harris poll revealed that 51 per cent of the American population consider good health more important than a good job. Although life expectancy is steadily increasing and people no longer die of smallpox or diphtheria, the ability of the present system to maintain health as well as to deal with sickness and disease has been seriously called into question.

During the past five or ten years, however, the medical profession has begun to implement concepts of increasing sophistication aimed at changing the practice of medicine from curative to preventive. Stimulated at times from within, but perhaps more often prodded by government incentive programs, some hospitals and medical schools are slowly establishing a more equitable balance between the esoterica of epidemiology and the delivery of health care. But it promises to be some time before the real focus of medicine shifts from the symptoms of disease to the symptoms of health. The general hospital is not likely to go out of business in the near future.

As a matter of fact, the organizing nucleus of the hospital will probably become an ever-stronger focal point for the practice of medicine. The technological change and social flux that are now transforming its shape and function have led one expert in the field to comment that "hospital design today is the practice of witchcraft." There is no aspect of the hospital that is not under reexamination in an effort to outrun the obsolescence that threatens this building type more than any other. Although P/A has concentrated on the social mechanics of delivering health care and on changing technologies, hospitals cannot be considered solely as complex healing machines. Louis Kahn warns hospital "experts" that if the hospital is thought of as merely "an assembly of complicated things" it can overwhelm designers who "get tired and just do a flower arrangement called a hospital." He believes that the hospital should be "a hopeful place . . . the height of hospitality and invitation . . . an environment that inspires the doctor . . . a place where [the patient] naturally comes in order to retain his sense of wanting to live."

the government's role

Health care programs will have to be planned by Government and private agencies cooperating for the benefit of all. Factors affecting such programs include insurance, Federal funds, social conscience, and the AMA.

Health care in the U.S. is a placebo masking the symptoms of a malignant disease. A cure for the disease would have to reach beyond the treatment of illness and enter the realm of preventive medicine. It would have to restructure present attitudes toward education, pollution, employment, housing, and the distribution of wealth, because these contribute to the social disorders requiring direct health care.

Such a cure, if one really exists, will take a long time to formulate. Meanwhile, the nation takes the prescribed mixture as before. This includes a chaotic system of private, charity, and public medical services that too often dispense medical care in direct proportion to a patient's ability to pay. However, times are a-changing, and the health care "industry" is working toward comprehensive planning and group medicine that will remove some of the chaos from present conditions.

Since it is almost impossible to change the social causes of ill health, the health planners can only improve the treatment of the effects. This is achieved by improving the efficiency of a widely fragmented industry, redistributing facilities so that everyone gets good health care, and insuring a means of payment for all this care.

The Federal Government, after years of indifference, has finally realized that health care is one of the rights of the people that cannot be entrusted to the sanctity of free enterprise. Twenty-five years ago, Franz Goldman wrote in Public Medical Care, "Adequate medical care is a fundamental human right. It is as much a necessity of life as food, shelter, clothing

or education. It is no less indispensable to the well-being of society than the welfare of the individual."

Since we accept the proposition that the country must collectively pay for a military service to protect the well-being of this society against real or imagined enemy powers, there seems no reason why we should not protect this same society against the myriad forms of sickness.

This protection could be provided by a national health plan similar to some European systems, or, since the size of the U.S. may encumber a centralized program, it could be broken down into regional or state plans. Another approach would be to form a coalition of Federal resources and present health care administration, to get the best of both worlds. Whatever method is used, the Federal expenditure on health services is going to soar, and taxpayers can only hope that Washington will reassign its spending priorities to meet the needs and will of the people.

On a national scale, health care accounts for about 6 per cent of the Gross National Product (Sweden spends 4.5 per cent, Britain 3.5 per cent). In 1967, the total health bill was \$54 billion, of which the Government paid about \$11 billion. The total for 1968 has not yet been computed, but the Covernment contributed about \$19 billion during fiscal 1968. No one who has paid doctors' and hospital bills will be surprised to find that rates are rising rapidly: Doctors' fees are up 7 per cent a year, and hospital charges 16 per cent a year. Nor does the immediate future hold much hope of betterment: It is predicted that by 1975 the total health bill will reach \$100 billion, which will be 8 per cent of the GNP.

Spending more money, however, is no sure way of buying good health care. The best available care in the U.S. is as good as anywhere in the world, but it is not equally available to all citizens.

Partnership for Health

Federal health planning took a distinct turn for the better in 1966 when Congress legislated Public Law 89-749, popularly known as the Partnership for Health. The bill, with amendments, provides \$406 million for five categories of comprehensive health planning and health services. The size of the funds is puny, but the bill at least gives individual states the opportunity to determine how they will spend the money.

For planning health services, the states will share on a population basis \$34.5 million between fiscal 1967 and 1970. To qualify for its funds, a state must establish a planning council with a majority of its members representing consumers of health services.

Similar planning grants are also available to public and private nonprofit organizations, which share a little less than the states — \$32.5 million over four years — and have to check in with their home state to avoid duplication of work. The private sector receives another \$16.5 million for planning training programs to reduce the manpower shortage in the health care field.

By far the largest slice of the Partnership for Health pie — \$260 million between fiscal 1968 and 1970 — goes to state health authorities to establish and maintain health services of all kinds. It differs from previous grants in the freedom allowed states in determining how to spend the money. The only restriction is that 15 per cent must be allocated to the state's mental health authority.

The fifth category in the Partnership for Health program awards \$62.5 million for public or nonprofit agencies to develop better methods of providing health care, and to give health care to special regional groups. Again, the Federal Government does not specify how the money should be spent, but has to be informed of the plans so that the work of the various agencies will not overlap.

This insistence on taking care not to duplicate work may seem obvious and naive, but government bureaucracies at all levels are notorious for duplication of work due to a failure of communication between departments and agencies. Often, government employees get carried away with building their own empires, and deliberately forge ahead with a project with-

out telling other agencies or even the regional office of their own department.

So it could easily happen that the Washington office of, say, the Office of Economic Opportunity (OEO) could be planning a clinic in a city without the knowledge of the local OEO office. Therefore, that local office could not integrate the planning with the city's health department, which may be developing a similar project for a site only a few blocks away.

Washington Wakes Up

National health care planning is in the hands of the Department of Health, Education, and Welfare. Until last month, it was led by Secretary Wilbur J. Cohen, who was considered to be the chief strategist of the New Frontier and the Great Society. During his last year in office under President Johnson, he reorganized the health activities of the department into



three groups, known collectively as Public Health Services.

The major change was the creation of a Consumer Protection and Environmental Health Service, which includes the Federal Drug Administration. A second group, Health Services and Mental Health Administration, takes responsibility for the regional planning that, hopefully, will improve the application of health care. To coordinate medical research, HEW combined the administration of several centers into the National Institutes of Health.

These plans were made under a Democratic administration, with the expectation of a continuance of that rule. When interviewed for *The New York Times* last June, Cohen was critical of Republican leadership. When asked why the country was not aware of the approaching emergency that led to city riots, he answered "You had eight years in the Eisenhower Administration of peaceful tranquility . . . because everybody was told that everything was nice. . . . It was only when John Kennedy started saying we could lift our aspirations, we should move, that this momentum got started."

Shortly before last November's Presidential election, Richard Nixon favored less Government participation in health services, although he did not want to reduce medical research by cutting the National Institutes of Health budget. His major disagreement with former medical policies is likely to be a resistance to extending Medicare and Medicaid. How the new Administration handles national health services may contribute to the country's preparedness for any possible future emergencies that lead to civil riots.

No Central Control

The avowed intent of HEW is to provide the U.S. with a comprehensive program of health care, which it defines in three steps: normal development, repair, and containment. Under normal development, HEW hopes to preclude the occurrence of diseases that prevent individuals developing normally. This program will cover the whole lifespan, from childbirth to improving life for the elderly. Repair, as the name implies, is a program for curing illness and returning the individual to a normal state of health. The third step, containment, is intended to take care of people who cannot be completely cured of chronic diseases, mental illnesses, or the vicissitudes of old age.

To achieve these objectives will take years. Planning on paper is much easier than actually shaping such a diversified industry as health care, but at least it is a step in the right direction. It may not be a popular step, since a national health program generally does not find favor with conservative people.

However, the planners do not intend to have Government take over health care completely. HEW is careful to point out that the Federal Government should not be a majority stockholder in the Partnership for Health; other authorities agree. Odin W. Anderson, Research Director of the Center for Health Administration, University of Chicago, maintains that the present conglomerate of unwieldy health service systems is able to bargain, challenge, and respond to the best interests of all groups, the Government included.

Anderson recommends increased financing for these services, but cautions against centralized financing and direction that inhibit the delivery of medical services in other countries. "The Government," states Anderson in *Environment and Policy*, "should remain essentially a buyer of services and a stimulus to increasing their supply. It should not be an owner of services."

Insurance Raises Costs

Health care can be obtained in several ways: by paying cash, through prepaid group practice, or through insurance that pays for services rendered. It is also given free to low-income people through Medicare, and to certain groups such as the Indians and the military.

About 158 million Americans (82 per cent of the population) were protected by some form of health insurance as of the end of 1966. Commercial insurance com-



4

panies carry about 60 per cent of this insurance, and Blue Cross-Blue Shield, which is a nonprofit organization, carries the rest. The latter received \$4.9 billion in subscriptions that year, and paid benefits of \$4.6 billion; commercial insurers received \$7.8 billion and paid benefits for \$5.6 billion.

With a 28 per cent retention rate, insurance companies cannot help but maintaintain a high-premium charge that keeps low-income groups out of insurance coverage. Even for those who can afford it, insurance creates an upward spiral of medical costs, because doctors and patients choose hospital treatment that is covered by insurance, instead of using outpatient services that often would provide satisfactory services.

Hospital costs concern the whole medical industry, since the rapid rise in charges threaten to put voluntary hospitals out of business. In recent years, the nonmedical staff has gained wage increases that affect charges, but, in comparison with other industries, these workers have been underpaid. Thus, the upward spiral will continue.

Critics charge hospitals with poor management, which affects the economics of medical service, and hospital administrators are now seeking to upgrade the business management. Because the trustees of voluntary hospitals often contribute little more than their good name to the hospital, there is a strong movement underway to permit communities to participate in the running of their hospitals.

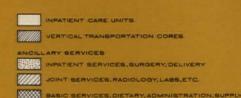
Doctors claim that only medical personnel are qualified to run hospitals, but some community spokesmen are arguing that, since the institutions have been run so badly, it is time to give another group a chance. This theory has already been applied to school boards; health care is merely an extension of a new form of citizen participation that is spreading across the country.

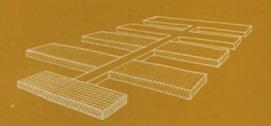
Voluntary hospitals suffer from high operating costs because their sponsors invariably have to build cheaply. Facilities are tailored to meet the funds raised for the building, and the plant and equipment are not the cheapest to operate or maintain. On the other hand, municipal hospitals usually have sufficient construction funds to include the latest technological developments that permit hospitals to be operated economically. This is a fortunate situation, since their operating budgets would not permit them to be run as extravagently as voluntary hospitals.

A third type of hospital that is privately owned (usually by groups of doctors)

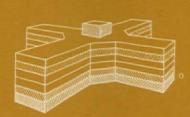


In studying the patterns of growth and obsolescence in hospitals, the office of Kaplan & McLaughlin drew up the following catalog of typical shapes that trace historical development and indicate present trends.

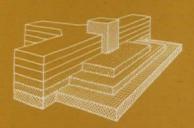




Pavilion Plan: One-story pods or fingers connected by horizontal circulation. This is the father of virtually all subsequent plans, say Kaplan & McLaughlin. Still appropriate for smaller hospitals on expandable sites and in mild climates.



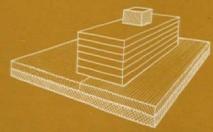
Vertical Stack: Outgrowth of elevators and urban sites. It most commonly takes the form of the "X," "Y," or "T" plan. Extending wings from central elevator core brings light and air to patients. But since ancillary services such as surgery and labs often occur on a top floor, expansion of those rapidly changing functions is "almost impossible to deal with."



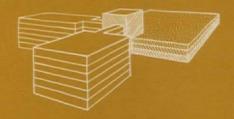
Wedding Cake: Influenced by the arrival of air conditioning and an expanding surgery. Modified vertical stack puts services in a large, square base shaped most efficiently for air conditioning. Long, narrow nursing floors retained. Difficult to add to elevator core or nursing floors.



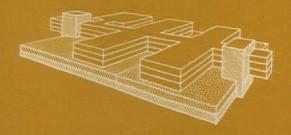
Condensed Pavilion: Placing technology in a compact block, as opposed to earlier pavilion hospital, is also a result of air conditioning. Both vertical and horizontal expansion can be programmed into plan.



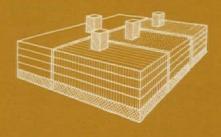
Tower and Base Block: Simplification of wedding cake, according to Herbert Mc-Laughlin, probably resulted from architects' love of neatness and a desire to articulate building masses. Expansion of base is relatively simple, but relationships between services and beds are sacrificed. Expansion of nursing towers is extremely difficult.



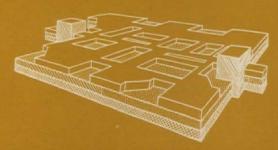
Articulated Stacking: Horizontal separation of services and nursing floors in a pinwheel around elevator core is recent solution to growth problems. Nursing towers can be added one at a time, or torn down and rebuilt at the end of their useful lifetime. Service block can expand incrementally. Travel from elevator to beds or services is greater than most other schemes.



Stacked Pavilion and Superblock: Small nursing units related along horizontal corridor is attempt to restore human scale. Has many disadvantages of tower and base block but is more open-ended. Travel distances are long and few mechanical materials-handling systems effectively move supplies horizontally.



Stacked Layers: Independent floors include both nursing and ancillary services. Reduces elevator traffic; provides more human scale; can be expanded around periphery. Penalties are in the management of technological support, and increased capital costs.



Checkerboard Towers and Superblock: Designed for intimate scale of nursing units oriented around rooftop courts and to promote staff interaction. May be understandable in first phases but growth increases chances of confusion. Difficult distribution of supples, expansion of base block and towers must proceed simultaneously.

operate for profit. This is achieved by dispensing with outpatient services, reducing the number of supporting staff members, minimizing facilities such as operating rooms but using them around the clock, and efficient administration and bill collecting.

Medical Trade Union

Despite a growing national conscience about social ills, the American Medical Association still holds medieval beliefs of what is right for the people. Two years ago, the AMA president said that "medical care is not a right, but a privilege." And if the unprivileged are not sure how charitable the AMA feels toward providing them with medical care, they can be assured by the same president's word that "defending capitalism should be the principal business of the AMA."

However, the stated purpose of AMA differs from the sentiments of the man who was its president in 1967: to promote the science and art of medicine and the betterment of public health. During its 120-year history, the association may have attempted to live up to its goal, but it has also brought much criticism on itself for obstructing the progress of better public health.

Some of these obstructions are cataloged in *The Troubled Calling*, by Selig Greenberg: "Over the years, the AMA has opposed voluntary health insurance, the social security law, compulsory smallpox



vaccination, public immunization against diptheria, Federal aid to reduce infant and maternal death, public venereal disease clinics, school health services, Government-financed medical care for dependents of men in the Armed Forces, workmen's compensation for industrial injuries, and the Red Cross blood banks. When the Social Security Act was under consideration in the early 30's, the AMA denounced it as 'a compulsory socialistic tax.' It damned group-practice plans as 'medical soviets.' It assailed extension of social security benefits to the permanently and totally disabled at the age of 50 as 'a serious threat to American medicine.' It called elimination of the means test in the state-Federal crippled children's program a 'socialistic regulation.' It decried Federal grants to the states for maternal and child welfare programs as 'unsound policy, wasteful and extravagant, unproductive of results and tending to promote communism.' When the idea for voluntary health insurance programs was first advanced some 30 years ago, the AMA dismissed it as 'contrary to sound public policy.' It once termed Blue Cross a 'half-baked scheme' that would result in 'mechanization of medical practice.' It has fought Federal aid to medical schools as 'a backdoor route to socialized medicine.'"

The AMA does more than issue reactionary platitudes. It operates a strong lobby in Washington, which is financed by drug companies that buy advertising space in state and national AMA journals, and it perpetuates its power by regulating the number of students entering medical schools, thus limiting the competition among doctors. Its role is summed up by Professor Milton Friedman of the University of California as being "perhaps the strongest trade union in the U.S."—pc

community care

Health care is becoming more widely available, particularly in communities that are beginning to participate in running their own programs.

The health care system seems costly, inconvenient, and unnecessarily complex to the average recipient of care. But to the poor, the system is more often than not beyond their reach, and they enter hospital emergency rooms only as a last resort. This is literally true, since about one-third of all admissions to free emergency rooms consist of old people who have no other place to go. In hospitals, this is known as the "dumping syndrome."

Under the chaotic conditions of most emergency rooms, where doctors and other personnel are hurried and harassed, it is no wonder that the patient, who is alternately herded, questioned, and ignored, feels intimidated, frustrated, and without dignity.

The stop-gap, rather symptomatic treatment received in emergency rooms and outpatient clinics is bewildering, and since it is typical of the nation's entire health care system affecting the majority of poor people, it is totally inadequate. In a country reputed to have the best available medical care in the world, why is poverty the third leading cause of death? The answer lies in the word "available"—the quagmire of available health services and facilities is virtually inacessible to the impoverished, who are also the least equipped to deal with the overwhelming complexity of the system.

Too often, the poor are victimized by a system that may require a person to sit for hours in the bleak waiting room of a large clinic or hospital. He is made more uncomfortable by his status as a charity patient, and may be shuffled from one department to another for tests he does not understand, and after losing a day's pay for work absence he can be sent home with only an appointment for another time or another place.

Nor is it uncommon for a woman who enters a clinic and registers as a maternity case to be told that she must wait 30 days for an eligibility interview. After this interview, if she proves eligible, she is usually required to wait another two weeks for a physical examination—one that, more often than not, is a perfunctory one. When the woman later enters the hospital to give birth, she is often delivered by a doctor she has never seen.

Under these conditions, it is not surprising that 60 per cent of children from poor families have never seen a doctor, and 90 per cent have never seen a dentist; adults in poor families have four times more disabling heart disease, six times more mental and ten times more visual impairments than do adults in families that are not poor. The poor are likelier to be sick, and, conversely, the sick are likely to be poor.

In addition, the poor lose twice as much payroll time due to illness than do other workers, and they are more likely to be in jobs that provide neither sick leave nor health insurance, much less a wage sufficient to purchase basic health care. The poor also are more likely to die younger: the chance of a child dying before the age of 35 is four times greater for the poor.

Comprehensive Family Care

The disparity between the white and nonwhite segments of the population with regard to health and life expectancy statistics is even greater than the disparity between the poor and the middle class. Negroes account for 10.5 per cent of the



population, but account for more than 40 per cent of the annual toll among mothers in childbirth. In contrast to the placebo proffered to the American public that "ours is the best medical care in the world," is the fact that we have only the fourteenth lowest infant mortality rate in the world.

In 1940, for example, the infant mortality rate for nonwhites was 70 per cent greater than for whites; in 1962, it was 90 cent greater. In Mississippi, the Negro maternal mortality rate is six times the white rate; an estimated 74 per cent of these deaths are due to causes that may be classified as preventable. In some Northern Negro census tracts, there are



100 deaths recorded for every 1000 live births. Mississippi and Massachussetts have, respectively, 39 and 22.3 deaths among babies under one year of age for every 1000 live births. A Negro male's life expectancy is 6.4 years less than that of a white male; for a Negro female, it is 7.7 years less than that of a white female.

There are two main problems facing the poor, as well as many people who are not poor, in dealing with the present system of health care delivery: One is the inadequacy of available health facilities; the other is a general ignorance of what services are available and how they may be used.

In recognition of these problems, Federal and local governments, social agencies, health-care professionals, and communities have called for comprehensive, integrated, centralized medical and social care for consumers on a family basis. Effective health care cannot deal with a patient on a single level; the patient is not separate from his environment. Housing, education, and employment are closely related to health status. Especially for the poor, adequate medical care must take into account the political and economic milieu in which the health care is provided.

As a partial answer to the complex problems generated by the inequality of medical care distribution in this country, the Office of Economic Opportunity (OEO), as well as the Department of Health, Education, and Welfare (HEW) have made available grants for the planning and construction of Neighborhood Health Centers. An OEO innovation, Neighborhood Health Centers are being established in order to make accessible to the entire community the same high quality of care that medicine has previously provided only to those who could afford it.

Based on the premise that a specific level of high quality care can best be provided to a predetermined group or community, most Neighborhood Health Centers have a geographic service boundary, and offer continuing and comprehensive care to the families thus encompassed. Equipped for general practice and emergency care, the centers have no hospital beds, but are affiliated with a local hospital for regular inpatient care.

In operation since 1966, the OEO program offers grants to community action agencies, hospitals, medical schools, health departments, medical societies and other public or nonprofit agencies interested in setting up and operating neighborhood centers for the purpose of developing comprehensive health services for the poor. At

present, there are more than 50 OEO program grants in various stages of completion and operation. Under a similar grant system, HEW has recently funded another 16 Community Health Centers.

Stress Planning

The OEO does not initiate or operate the programs. The original grant is for a four-year period, with the OEO funds decreasing in amount each year in the expectation that Medicare and Medicaid funds will eventually take over and meet operating costs. But with threatened cutbacks in these two sources of money, as well as the OEO budget itself, the future of the Neighborhood Health Center, despite its desirability and apparent effectiveness, is rather shaky.

Paradoxically, the major disparity in establishing Neighborhood Health Centers is also the major advantage of one that is established. Sometimes referred to as "stress planning," the OEO program grants do not originate from a centralized OEO plan, but must be applied for by the community, or a representative agency willing to assume responsibility for the program. Therefore, need is not the only prerequisite for an OEO grant: A community must have health professionals who are not only concerned with care of the community, but know how to set up and operate a Neighborhood Health Center. A program established by concerned individuals and agencies is more likely to have local support and to fill the community's needs than a program directed from a national agency. For this reason, community participation, usually in the form of a board of directors, is mandatory for Neighborhood Health Center programs.

The range of both facilities and services available at Neighborhood Health Centers is as varied as the communities they serve. There are both urban- and rural-based programs, some sophisticated, others make-shift, but all aim at delivering comprehensive family care on a continuing basis.

First Community Grant

The first OEO grant for a Neighborbood Health Center was given in July 1966 to Montefiore Hospital and Medical Center in New York City. The Bronx community served by the health center has a population of 45,000, which is predominately Negro and Puerto Rican. Statistics for the area are depressing: three times more TB and five times more VD than in any other section of New York City; evidence of between 2000 and 5000 drug users; and 13 per cent of the children treated at one time or another for lead poisoning, a common ailment among children who are hungry



and eat lead-based paint and plaster to satisfy their stomachs. As in many slums, rat bites are common among infants and young children.

Paralleling the disease rate in the area is the equally high incidence of crime. When the directors of the program surveyed the neighborhood to find out what type of medical facility was most desirable to the community, they also found that at least one person in each building had been mugged. Policemen on duty in the area protected stores, not people. Dogs, kept by many as an added safety measure, accounted for as many bite injuries to people as did the rats.

In recognition of its prototype nature, the Montefiore Neighborhood Health Center of the South Bronx is also titled the Neighborhood Medical Care Demonstration (NMCD) project, and in this capacity serves as a model to other projects.

The administrative team that surveyed the community also began an extensive advertising campaign to generate interest and support for the NMCD. Volunteers from the community were enlisted to hold block meetings in their homes, and to find out if people thought health was important



to them, what kind of care they were receiving, and how they thought it could be improved.

With an annual grant of \$3.5 million, restoration work was begun on a two-story, five-and-dime store in the Bathgate section of the Bronx. It was thought that the renovated building would present a storefront approach to health care, and would be more acceptable to the community. Behind an enormous window at the front of the building, the designers located a children's playroom — an act of faith on the part of NMCD directors to the chronic window smashers in the community.

When the Bathgate Center opened in June 1967, the first patients were 500 whites, 500 blacks, and 500 Puerto Ricans selected as an experimental group. The facility at Bathgate soon proved to be too small to care for the increasing number of registrants, and plans were made to convert a large warehouse at a cost of \$1 million, with another \$500,000 for equipment. The original center at Bathgate will continue to operate as a satellite of the larger facility, and is being renovated for use as a prenatal and innoculation center.

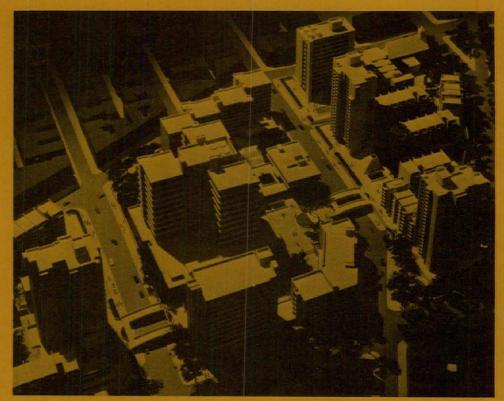
Same Standards Wanted

The storefront approach disintegrated under community insistence that its medical facility be like that found anywhere

superscale and comprehensive care

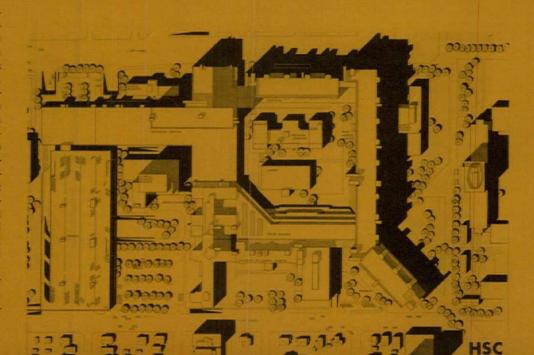
Eliminating the Hospital Wall. Recent megacenter planning has usually evolved around medical schools that are attempting better to coordinate patient care with their teaching and research programs. The Knickerbocker Health Park (right), master planned by the Office of Max O. Urbahn, is a variation on the theme. It incorporates a substantial amount of apartment housing and commercial facilities along with community services. Formed around the nucleus of the old Knickerbocker Hospital in West Harlem, New York City, the scheme has grown through community involvement into a complex of three major parts connected by pedestrian walkways and open plazas. The center block of health facilities is bracketed by two housing clusters that will provide high- and low-rise apartment buildings for the community as well as dormitories for students. A shopping center is also planned to accommodate displaced local merchants and new businesses.

Most planners expect the urban megacenter to be the focal point of medical practice and the backbone of comprehensive health care in the future.





The Systems Scene. The current reevaluation of health care goals and architecture has led to what is perhaps one of the most demanding programming tasks in the profession. Its complexity makes it a natural candidate for systems analysis, and several aerospace firms have channelled their analytical expertise into the field. In California, TRW Inc.'s Systems Group played a major role in programming a new Health Sciences Centre (right) for the University of Alberta in Edmonton, Canada. The special medicalhospital unit that worked on the project represents a continuing in-house capability of TRW and includes architects, an economist, sociologist, psychologist, and physician in addition to consultants called in as needed. The computer-aided group designed a fully integrated communications-logistics-data handling system for everything that moves, from information to supplies. The project director is Canadian architect Ronald Clarke.



else. Some amount of austerity was desired, and it became increasingly obvious that people, regardless of their color or income, prefer doctors to wear white coats. Great attention was paid to the dignity and convenience of each patient in the physical planning and interior décor of the center: There is a conspicuous absence of hospital green or antiseptic white, these having been replaced by walls and furniture of orange, yellow, green, and blue. Jack Schneider, administrator of the program, refers to the construction of the building as "symbolically open" - there are no brick walls between the facility and the community.

The five-story building contains 24 examining rooms, 12 consultation rooms, 6 specialty rooms, 9 dental rooms, a laboratory, 3 X-ray rooms, and a pharmacy. One examination room in the emergency wing and one dental room can accommodate minor surgery.

In addition to the regular care of the general practitioner and dentist, specialty services are offered in the following fields: obstetrics, gynecology, speech, hearing, psychiatry, cardiology, dermatology, urology, and physiotherapy. This care is delivered by a staff of 27 physicians, 16



workers, 3 dentists, and approximately 130 supporting health, administrative, and clerical personnel. Inpatient care is received at either Montefiore or Morissania hospital. Efficient use of both the facilities and the staff can accommodate an average of 500 medical patients and 300 dental patients daily. This means service to 12,000 families, or about 45,000 people a year, although current registration is 13,000.

The physicians at Montefiore Neighborhood Health Center work in a system of prepaid group practice with trained paramedical personnel in health teams.

The health team concept is an attempt to abolish charity medicine that treats the poor as its objects rather than as its recipients. Each health team is headed by a public health nurse who works with a doctor, an intern, a pediatrician, and a family health worker.

By using a team to coordinate health services, each member performs his most useful function; therefore, the supplementary paramedical staff does preliminary and back-up work while the doctor sees only patients sick enough to require his care.

The team serves as a family doctor: once registered, a patient has only to call for an appointment to visit the office of his health team. There is no waiting in line,



or shuffling from department to department; all of the family's health care needs are attended to in one place, and by a group of people with whom the patient is familiar. To further stimulate community use of the center, door-to-door transportation is available for patients, and a toy-filled playroom lures and harbors young children whose mothers are receiving treatment.

The public health nurse in charge of each team oversees the care of 250 families. She and other family health workers (people from the community who have received health training) spend about half of their time in the center, and the other half working in the community. These health services include the early detection of disease, and the education of the community in practices that promote and maintain good health; they also follow up treatment prescribed by the physicians.

This approach to comprehensive health care reflects the NMCD's acute awareness of the difference between pure diagnosis and the ability to make the patient understand and carry out the treatment of a disease as well as to prevent further incidence of it.

Community Health Advocacy

To extend the community service, NMCD created a new type of health worker to represent the Community Health Advocacy department. These health advocates are trained in medicine for four months, and in law for another six months. Any field related to health is within their domain, such as a problem a patient might have with housing, rent, or education insofar as it affects his health. Although the Community Health Advocates do not get directly involved in litigation, they do refer people to other community agencies such as the local OEO law office, CORE, LABOR, NAPRA or Head Start, where direct social and legal assistance may be given.

The advocate also provides a legal perspective in the area of health - for example, he investigates what alternatives are open to an asthmatic who is living in a fifth-floor walk-up apartment. He may work with local groups attempting to organize a rent strike, or who want to form a day-care school.

A health advocate tries to promote a broader, more radical social change change in education, jobs, housing, in the ability of the community to organize and take action, perhaps in an effort to fight slumlords by prosecuting health-code

But health action alone is not enough. It is the social, economic, and political environment of the poor that is incompatible with good health. There is no point in treating the rat bites while ignoring the

Patient Advocacy

A Department of Research and Evaluation maintains extensive data on all NMCD programs and activities, including statistics on patients, types of services performed and volume of service.

A member of this team and a staff anthropologist who attempts to find cultural reasons for conditions and problems meet weekly with the health team to discuss specific cases and to evaluate their own performance with regard to the patient and the community. In these meetings, the staff anthropologist acts as the patient advocate: He is, in a sense, the conscience for the entire operation.

Nearly all the people working at the center, from typists to lab and pharmacy assistants, reside in the community served by NMCD, and the program administrators hope to keep it that way. Everyone who works at the health center receives an eight-week Core training program, and, for the more technical training of lab and X-ray assistants, it is followed by an intensive 12-week specialized training at Harlem Hospital.

A trainee may also obtain his highschool equivalency diploma during the Core program. The goal of the training program is to give the ancillary health worker confidence in himself, and to enable him better to communicate with the health professionals on the staff.

A college program is also available to employees. The center gives them 20 per cent release time to attend school, and also pays for books and tuition. The family health worker trainees spend half of their time at Montefiore, and the other half of their time at nursing school. In fact, the educational program available through the center has become so important to all of the employees that it is frequently referred to as the "tail that's wagging the dog." So far, the program has trained 200 people, and there are now 30 enrolled in the college program. The object of the program is to train as many people as possible. Montefiore does not tie its trainees to an umbilical cord; after completing their training, all employees are urged to seek other, better-paying positions elsewhere if they wish.

The success of the Montefiore Neighborhood Health Center is ongoing. It is measured in the fact that when the center opened, women made their first visit to the maternity clinic during their seventh month of pregnancy; however, as interest

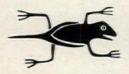


in the center grows, women come in for treatment and consultation as early as their third month. It is measured in the active, often agitated participation of the popularly elected 21-member community advisory board. It is also measured in the smiles of trainees clutching books, in the comfortable banter between patients, technicians, practitioners, clerical help, and program administrators; and in growing community pride.

Group Practice

The staff of St. Luke's Neighborhood Health Center in New York City, like the staff at Montefiore, works in teams. The director of the program has dubbed this method of delivery "hospital-sponsored group practice." There are five health teams, each includes two MD's (one intern, one pediatrician), a Public Health Nurse, two neighborhood aides, and a secretary. Each team serves about 3000 people.

The community health workers at St. Luke's canvas for patients, keep in touch



with them, and generally act as patient advocates. Unlike those at Montefiore, they are assigned an area, and are responsible for it. Eventually, the center hopes to have these community workers operating out of other neighborhood agencies, rather than the center itself. With a community health worker using a desk at the local United Welfare League, for example, the contacts of both may be better used, and legwork minimized.

St. Luke's does not have a formal training program for its employees. It does, however, employ 85 people from the community, three-fourths of whom are not high-school graduates, and were unemployed until they began work at the center; two-thirds of these are Spanish speaking. These people receive in-service, on-the-job training, in already existing job capacities.

In view of the threatened cutbacks in Medicaid and Medicare eligibility and reimbursements, as well as the potential OEO fund halt, the administrators of St. Luke's are now investigating a possible arrangement with labor unions for use of the group practice unit and the center's facilities. This would not only enhance the monetary situation of the Neighborhood Health Center, but it would also seek to make the center, as a health care unit, available to the middle classes as well as the poor. For even with the improved medical care for the poor that is available at Neighborhood Health Centers, they often isolate those unable to pay from those who can.

Rural Health Centers

The functioning of an urban Neighborhood Health Center may differ widely from one that is rural. In Salinas, California, there is a conglomerate health center servicing nearly two-thirds of Monterey County, including 5000 indigents and many people who can pay for their medical care, but have nowhere else to go. Operating on what is referred to as a "Calvin Coolidge-type of Republican system," the apparatus called the health center actually recruits people to feed into a private group practice. There is a small (49-bed) hospital right next to the center, but the nearest hospital with specialty facilities is 50 miles away. Also nearby is a clinic built by the medical group.

The director of the project is also the head of the medical group. The group consists of seven full-time doctors, all of whom are general practitioners. Although there is no team practice directed toward continuing family care, there are two social workers, one ex-farm worker assistant, one IBM programmer, and two Public Health Nurses on the staff of the health center.

The original grant to the Salinas center was received with the help of the local AMA. It included all types of medical care, plus drugs and hospitalization.

One year later, however, the grant was substantially reduced, including a large drug cutback. Many people are affected by the cutback because they are underemployed, that is, gainfully employed for at least one-half the year, but unable to pay for adequate medical care, and ineligible for Medicaid.

In an effort to keep the largest number of services available to the greatest number of people, the administrative staff of the center has worked closely with the community elected Neighborhood Health Council. A prepayment plan, subsidized according to income, has been devised to stretch state and Federal funds. The patient, if he can, pays 15 per cent of his medical bill; his employer, another 15 per cent. Another innovation makes drug purchasing easier. The first dollar toward the drugs is paid by the patient; if he has no money, he is then issued a card that will take the place of the one dollar payment.

The "maximum feasible participation" clause of the OEO grant to the Neighborhood Health Center of Alviso, California, is a reality rather than a token acknowledgement. The facility for the center was originally a four-unit motel, but has been completely renovated by volunteers from the community. The center incorporates a



dental wing, a medical wing, and a community center day-care area; it is equipped with laboratory, X-ray, and treatment facilities.

The area served by the Alviso Neighborhood Center has between 3500 and 4000 potential users of its services. The vast majority of this population is Mexican, or Mexican-American. Most of these potential consumers are low income, although it is the intention of the program's administrators that medical services will be provided within the area regardless of income so as not to create another segrated service for the poor.

Specialty services and in-patient care for the Alviso Neighborhood Health Center are provided by the clinical faculty of Stanford University Medical Center at Palo Alto. Community orientation and a knowledge of Spanish are required of all staff members.

Professional Cooperation

Long-range regional planning may be the cure for our present disjointed health care system, but while it is attempting to solve problems from the top down, Neighborhood Health Centers are attacking the immediate problems of distributing health care on the community/family level to those who need it most. Although 50 OEO programs are expected to be in operation at the end of 1968, an estimated 850 are needed to adequately serve the nation's poor. If "stress" planning is what is needed to make inroads in correcting this inequality of care, then Neighborhood Health Centers are a step in the right direction, whether or not they be an ultimate

Programs such as those initiated by the OEO and HEW are destined for only small successes without the support and active cooperation of health-care professionals. Many professional groups, such as the Chicago-based Student Health Organization, the Medical Committee For Human Rights, and the National Medical Association, have emerged from ivory tower professionalism and are taking the initiative in the decentralization of health care delivery. These groups are directed toward radical attitude change within the profession, and consequent alterations of the health care system.

The National Medical Association (NMA), originally founded by a few Negro physicians who had been refused membership in the AMA, has grown in less than 50 years to a membership of 5000. The Association advocates a single system of medical care for all, regardless of ability to pay. This single system need not be a socialized one, states M. Alfred Haynes, M.D., Project Director for the National Medical Association Foundation, but may be achieved through a partnership among Government agencies, organized medicine, individual communities, and industry.

The Foundation, located in Washington, D.C., was incorporated by the NMA as



a vehicle of monetary support from physicians. Its primary concern is the integration of the curative and preventive aspects of care. The Foundation received a planning grant of \$60,000 from the Office of Comprehensive Health Planning for the construction of a nursing home in the District.

In cooperation with the project, the FHA has insured the mortgage provided by the Equitable Life Assurance Society. The NMAF, in addition, has contributed the 10-per-cent equity from the donations of its members.

The first floor of the 250-bed nursing

home will accommodate a group practice unit. This unit is under contract from the District Health Department to provide comprehensive care to the surrounding community. The nursing home health center is expected to create many jobs for people in the area, so a paramedical training program for the project is also planned. All physicians at the center will be salaried, and all patients will receive the same quality of care regardless of how their bills will be paid.

Although most of the present Government and private health care projects are experimental, and largely directed to poor people whose need is greatest, the planners also keep the larger segments of the population in mind. For, in attempting to meet the health needs of the poor, they are inevitably involved in finding the best methods of providing the best health care available to the entire population.—EAC

lowing figures: in 1959, we stood eleventh in the world in infant mortality; by 1965, we had slipped to eighteenth. Again, in 1959, we were thirteenth on the list for life expectancy for males, and seventh for females; by 1965, we had slipped to twenty-second and tenth places, respectively. Study upon study has exposed an appalling lack of care for the underprivileged and poor care for the middle class.

It has been claimed that medicine has made more progress during the past 50 years than it has during the past 5000. Yet the practice of a middle-aged doctor, for example, which was begun before the use of antibiotics and extends through today's organ transplants, could be pursued as if none of these advances had occurred. There are few laws enforced either by his medical society or civic authorities to make him upgrade his skills and practice modern medicine.

Medical research has had a tremendous impact upon the profession. Equally important, however, has been the profound effect on medicine of research in other fields. Developments in electronics, physics, and computer technology have revolutionized the practice of medicine. These advances receive widespread publicity, stimulating the desire among all of our people for comprehensive health care.

In many instances, these medical advances are not deliverable. The gap between technology and practice, and the realization of the potentials of medicine are due, according to Cherkasky, to inequalities in the society, indifference upon the part of the medical profession, antiquated means of treating patients, and backward concepts of medical responsibility and practice.

It seems certain that the medical profession's interpretation of its moral responsibility in bridging the gap between what this society actually does and could do in delivering medical services to its people will exert a more profound effect upon the design of medical facilities than advances in medical science itself.

the physician's rnie

The medical profession is in turmoil, beset by a host of social, economic, and scientific forces that threaten the present role of the doctor and the traditional design of medical facilities.

Medical philosophy is being more drastically affected by influences outside the confines of medical practice than by the recent spectacular advances of medical science itself. The fact that the United States, the most affluent and most technically advanced nation in the world, often delivers woefully inadequate medical services to its citizens is having a profound effect on medical thinking.

"We have," notes Dr. Martin Cherkasky, Director of Montefiore Hospital in New York City, "some of the best medicine in the world, and some of the worst. There are areas in our major cities where medical care is as bad as it is in deepest Africa."

For example, one recent study indicated that, in examining 200 children, 50 per cent of them had not been vaccinated against polio or smallpox. In checking physical examinations in one state, 45 per cent of the doctors studied failed to ask patients to undress, 83 per cent did not bother to examine the rectal area, and 65 per cent neglected heart examinations.

Another study indicated that unnecessary surgery was a tragic manifestation of poor quality medical care. In the United Steel Workers' program, the amount of surgery was reduced by more than 50 per cent by group practice, as compared to individual physician care. This decrease in surgery is common to union medical programs where doctors work in groups, audit each other's work, and acrue no direct economic benefit from wielding the scalpel.

A statistical confirmation of declining medical capabilities is shown in the fol-

Should Doctors Be in Business for Themselves?

"The sooner doctors stop thinking of themselves as private practitioners, the better it will be for health-care service. The leaders of organized medicine have spent all of their energies to protect the economic right of physicians; now, it is time they devoted at least half of their energies to protecting their patients." This statement was made by the outspoken director of a leading hospital, who claims that discontent with the delivery of medical services is rising.

Labor groups, which are deeply involved in health care through health and welfare plans, industry, insurance carriers, and the Federal Government are all adopting an increasingly critical attitude toward medical practice as their sophistication increases. The doctor's word is

no longer law. It is closely examined and rebutted.

This fact, as well as the increasing number of books and articles critical of the entire process of dispensing medical services, have increased the worries of doctors that outside agencies will make changes in the delivery of medical care.

At the root of present medical difficulties, according to some doctors, is the practice of accepting fees for service. This, they say, is an undignified way of practicing medicine, forcing the doctor to cut corners under pressure of the dollar. Quality of care also suffers when doctors



work too quickly and patients are released too rapidly. The practice of fee for service encourages unnecessary procedures and leads to inordinate fee raises. In short, it is a system calculated to seduce the doctors into placing cash before care.

This is a viewpoint not shared by all doctors, who counter by arguing that any form of payment other than fee for service is "illegal, unethical, immoral, and even unprofitable."

Although "fee for service" is a hotly contested issue, it is not the primary philosophical idea affecting the quality of medical care. Individual fees are tied to the concept of solo practice. Opposed to this is the idea of group practice, with the doctor as a member of a salaried team of medical specialists.

Group Practice

Champions of hospital-oriented group practice say its virtues include the drawing together of specialists so that the patient can get comprehensive treatment in one place, continual consultation and education of the specialists themselves, and the provision of an audit of each doctor's work by a jury of the doctor's peers.

Solo virtuosity is not enough, they say. The hospital makes tremendously complex and expensive equipment available, as well as providing the practicing doctor with an efficient paramedical service, both of which are essential to the practice of modern medicine.

Group doctors also have more time available to upgrade their skills and contribute to over-all medical planning. Doctors in groups can also cover for each other, assuring the patient of medical care at all times.

Perhaps one of the most important considerations is that hospital-oriented group practice helps the medical profession set up vitally needed mechanisms for quality control. The reason for today's widely varied medical quality is said to be the predominance of solo practice. It is difficult, if not impossible, to check the quality of the work of doctors working in the privacy of their offices. There are no adequate laws to prevent doctors from engaging in procedures for which they are not qualified.

For group practice to acrue all of the advantages for the patient that its advocates claim it is capable of, it must be hospital-based. The doctor must be part of a functioning hospital nucleus, rather than having the hospital as a service for the soloist, to use at his convenience. The hospital, argue the proponents of group practice, is the only organization capable of attacking the present ills of medical practice.

The Hospital

The modern hospital stands in relation to the individual doctor's office as the supermarket to the corner grocery. It can deliver the widest selection of specialized services to the most people at the lowest cost. Proponents of the hospital as a generating center for the delivery of medical services to the community point out that the modern doctor cannot practice modern medicine in an urban society without it.

The family doctor racing the stork in his horse and buggy was perhaps a noble symbol of a dispersed agrarian society. In today's crowded cities, the single doctor's rugged individualism can be a socially dangerous anachronism.

The future of hospital development is dependent upon the direction taken by medical philosophy. It may extend its services through the community, as the center of satellite medical services, and assume responsibility for the health of the surrounding urban population.

Pleas for the hospital as the center of the medical services has been voiced many times by Dr. Cherkasky. He argues that, as medicine continues to become more complex and sophisticated, only the hospital will be able to absorb the new techniques, new knowledge, and new devices. The physician, despite his personal qualifications, must have ready access to these new resources within the hospital if he is to provide responsible medical care.

The problem is not necessarily that of the hospital alone. If all the best medical techniques are organized around it, then the problem becomes one of how every patient can be reached by the comprehensive medical services that the hospital makes possible.



The role of the hospital then becomes one of determining how its resources and capacities can be made available to huge numbers of people who have heretofore been denied access to quality care. The emphasis of the hospital, notes Cherkasky, must be reversed if it is to accomplish this task. Until now, the glory of the hospital has been its inpatient services for the middle class, with ambulatory care for the poor, dispensed in fragmented fashion in dreary surroundings, without continuity or compassion.

The hospital must now expand its goals and responsibilities so that all of the community's health needs come within its reach. To do this, it will have to find ways of cooperating with other institutions and agencies as well as generating new services based on social needs.

One means of dispersing the delivery of medical services of the hospital is to extend its services beyond its physical facilities. The hospital staff can deliver excellent medical care to selected patients at home. Twenty years ago, Montefiore Hospital in New York City began to work out such a program of home care. A team of doctor, nurse, and social worker attends patients at home, thus reducing long waiting lists for hospital admission and long patient stays of people hospitalized with chronic illnesses.



Home care is less expensive. With the increase in our elderly population, increase in chronic illnesses, skyrocketing hospital costs, plus the positive therapeutic value to the patient of being in his own home, home care becomes a medical device worth serious consideration.

Group practice has also had a marked effect on hospital use. The single doctor is forced to hospitalize his patients earlier for observation, to consult specialists, and to obtain the use of sophisticated equipment. Group practice cuts across these wasteful uses of hospital space and time. It provides a wide range of highquality services on an ambulatory basis, reducing the flow of inpatients. According to recent statistics, patients of medical groups serviced by group practice use approximately 20 per cent fewer hospital days than a similar population cared for by solo practice. The saving that group practice produces is enormous.

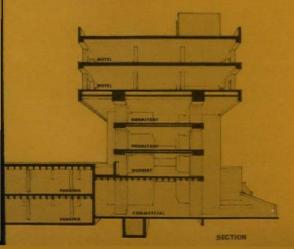
It is estimated that about 15 per cent of persons occupying hospital space do not belong there. Nursing homes are a partial answer to this wasteful use of hospital space. At present, the nursing home field is dominated by proprietary institutions, which, in many doctors' opinion, is

the generation gap

Since the population has become increasingly polarized around the young and the old, more attention is being devoted to the study of gerontology and the pediatric sciences.



The Para-Hospital. Hotel care for ambulant patients seems particularly appropriate for children. Not only does the scheme offer obvious economic advantages, but continuing parent care can fill a therapeutic role difficult for the nursing professions to duplicate. The Architect's Collaborative designed such a hotel-residential complex for the Children's Hospital Medical Center in Boston. A long, low block holds 82 rooms for patients (or the public) and dormitory accommodations for interns and residents. An adjacent 22-story tower contains 154 apartments for staff. The next increment of the master plan is a research facility for the study of infant health and mental retardation.





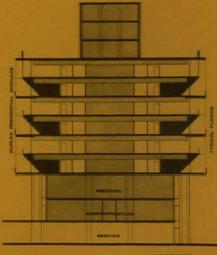
Mental and Physical Health. A new children's hospital in Philadelphia, designed by Harbeson, Hough, Livingston and Larson, will cover the entire range of children's health problems - emotional, social, and physical. The hospital will have 270 inpatient beds plus outpatient clinics; the child guidance clinic will provide 20 beds and care for 180 young outpatients who will be treated and diagnosed as part of a family unit. The building is a layered ring oriented around the major architectural space of a central court capped by a glass-filled space frame. The landscaped court will serve as a play and waiting space as well as a return-air plenum for much of the building.



Photo: Lawrence S. Williams, Inc.



Living Medicine for the Aged. Residential extended care and acute medical care will be provided at the Jewish Institute for Geriatric Care, designed by Katz, Waisman, Weber, Strauss. The Long Island facility offers care for 320 persons who are still partially able to care for themselves. Residential floors are organized around small sitting areas opening onto interior corridor "streets." Special care for 80 senile patients, who have often been committed to mental institutions in the past, will be provided on the top floor. A 100-bed medical floor includes radiology, medical and dental clinics, and clinical laboratories. Further medical and psychiatric back-up will come from other hospitals on the same campus. In addition to therapy and recreational activities, sheltered workshops will provide light assembly jobs; patients who do not wish to be idle can work in three-hour shifts.



SECTION

not a suitable sponsorship. This burden should be shouldered by the hospital. In the near future, the hospital will include home care and nursing home services as it now includes operating rooms and laboratories.

The Patient's Advocate

Neighborhood health centers in the ghettos are perhaps the most important satellite function that can be undertaken by a hospital if it is to reach the underprivileged. For such an institution to function effectively, it must learn to practice a new brand of medicine. It must reach people whose hospital experiences have convinced them that the hospital is a hostile extension of the Establishment. About 50 of these centers have been funded by the Office of Economic Opportunity across the nation. They are spawning a new breed of medicine that may influence the direction of medical practice



and alter medical philosophy, making it capable of meeting the most desperate need of our society.

Dr. Harold B. Wise, director of the Bathgate Center in the Bronx, New York City, has directed it toward the philosophy of mutual involvement advocated by the O.E.O. The Center looks beyond the medical problems of its patients to their total environment. Anything that the physician can do to improve this environment is considered fair therapy.

The team approach to health care is used. The doctor is part of a specially trained team that knows how the Establishment, courts, government agencies, city departments, and correction officials function, and he uses his knowledge as the patient's advocate.

Doctors at the Center must make an essential adjustment, points out Wise: They must give up their traditional prerogatives of deference due rank and years of medical education. They must create trust with other cultural groups, such as Latin Americans and Afro-Americans. They cannot impose their middle-class morality or their value system on the patients.

The Center's operations are audited by an advisory board composed of 21 community residents, guaranteeing that the poor have a voice in the Center's operation and policy-making activities; the advisory board also acts as a grievance committee.

Checks on quality of medical care at the Center are made regularly by doctors working as consultants for the O.E.O. and by the Center doctors themselves, who rotate duty on the medical audit committee.

The medical duties at the Center are delegated to a degree not customary in most group practice situations without compromising quality of care. Would the average doctor be willing to work as just another member of the team, functioning within concepts of community medicine? Will the average doctor take suggestions from paramedical workers? Will he work for what is, in the medical profession, a modest \$15,000 to \$20,000 a year? Perhaps he will or perhaps he will not. It has been suggested that perhaps shortterm group therapy might be helpful in preparing doctors to discard their preconceptions and become more like Bathgate's dedicated physicians.

A Better Trained More-of-the-Same?

The trained family doctor is the primary distributing agent in the new area of medicine, notes Dr. Carroll L. Witten, head of the American Academy of General Practice. As such, he is the best answer to today's chaos in the health field, and is the most capable of streamlined delivery of health services, both private and public, curative and preventive on a community basis.

Witten sees the family doctor of the future as a board-certified expert who advises people on how to keep well. He will know them intimately, know their families, their jobs, and their environments. The doctor will refer them to hospitals when needed, supervise their care, advise on outpatient and clinic services, on Medicare and Medicaid, and generally be their guide on all health matters.

The difference in the role Witten projects for the doctor and the function of the generalist of today is that the future doctor will be specially trained for his new functions by a three-year residency after medical school.

He will not intrude on the role of the organ specialist; there is room for many more of these as knowledge continues to accumulate. However, the need for the generalist-expert is clear. "Become friends with a family doctor," Witten counsels all householders.

Most patients wish to become friends with their doctors. Even indigent patients in an emergency room try to find doctors who have treated them before, however impersonally. But the doctor, friend or not, has little to do with the quality of medical service the doctor delivers.

A patient has an uninformed free choice of physician. He does not know whether his doctor is good or bad. He can tell if the doctor is warm or friendly, but he cannot judge medical competence. What is the good of free choice if the patient cannot make the proper one?

Cherkasky points out that the wealthiest people buy the best medical care. They do not insist on free choice of a physician. They go to some place such as the Mayo Clinic, and they do not know the doctors who will take care of them.



Medical Education

Critics of our medical schools say that teaching has become antrophied. They claim that research-conscious professors have made teaching a veritable sideline. Schools have been attacked for producing fewer physicians than needed and in the wrong proportion of specialties. And it has been claimed that medical colleges are prone to grant ineffective young men their degrees rather than admit poor judgment in admitting them in the first place. The schools are accused of training the student in institutional medicine, whereas the typical patient is ambulatory and apparently well.

Critics further charge that researchoriented professors who dominate the schools are not the best qualified to teach clinical medicine, and that working physicians are discriminated against in institutions that dignify abstract science rather than medical practice.

"Few medical schools are organized today to teach students to provide the comprehensive care needed by the patients with whom they will have to deal," says Dr. George Rosen of the Columbia University School of Public Health. "The time is ripe for a new look at the education and training of health personnel, to see whether the aims and goals of the schools that turn them out are consonant with the needs of the society."

A serious error in medical education, notes anthropologist Ashley Montague of Princeton, is that, at the outset, we expose students to corpses in the anatomy morgue when they should instead be exposed to health and life.

Students are also concerned about their education. They see significance in the fact that abstract medical science is given priority over the living patient. "We begin by dissecting a dead person, and by the time we get to the living patient, it is too late," said one student. A number of students are more vitally concerned with the living, functioning organism of the human than the dead scientific cadaver.

The Students

The gap between what medicine can do and what it actually does is so great that many students feel that they must assume a moral as well as a social responsibility for the practice of medicine. The civil rights movement sparked a new generation of students deeply involved in America's major problem — that of the non-participants of the affluent society. A significant proportion of students now entering medical school have excellent

backgrounds in the social and behavioral sciences. There are also many who have done tours of duty in the Peace Corps.

These medical students are becoming part of a new social force. They are showing concern over the social fabric into which medical care is woven. Their emphasis differs from that of the older generation of doctors. They are intrigued by the glories of science, but they are also deeply interested in the physician's social commitment.

Medical students, like architectural students, claim that their education is inadequately preparing them to take over a world not of their making and not very much to their liking. They do not wish to be burdened with what they term the moral barrenness of the American health establishment.

Medical students who have seen at first hand how ill health has perpetuated poverty cycles have also observed that the price of good health as it is now dispensed is too high for either the individual or the underprivileged community to

The students are frustrated by curriculums that fail to take into account such problems as unemployment, inadequate housing, and marginal incomes as constituting legitimate health problems. Their accusation of health care dispensed by clinics is that it ignores the needs of its recipients and is secondary to the needs of the medical profession and the teaching center. Students are plainly frustrated by the failure of their formal education to sensitize them to the social problems of their patients.

The objective of these socially conscious students is to reemphasize the priorities of medical health philosophy. They wish to see community-related health problems acquire the same prestige, interest, and commitment as presently enjoyed by basic research and clinical medicine. The students themselves have developed a multidisciplined approach in some of their projects. Student groups include nursing, dental, physical therapy, social work and social science students.

If philosophical direction of the new crop of doctors is toward healing, all of their prescriptions cannot be filled in the drugstore. Individual prestige and the doctor's traditional privileged prerogatives are secondary. The A.M.A.'s traditional fear of socialized medicine can now be replaced by its terror of socially conscious doctors.

Medical Reeducation

Organized medicine has been reluctant to break with the tradition of leaving the doctor alone, for better or for worse, once he is licensed. However, one branch of organized medicine, the Oregon Medical Association, has decided to break with this long-honored practice. This year, its members will have to keep up with medical advances or face expulsion from the association.

The OMA is the first state medical association to adopt such a requirement. Its members will be required to take postgraduate courses offered by medical schools or hospitals. As an alternative, members may be rated on the care they give to patients in the hospital or submit proof of the number of hours spent at hospital staff conferences or at scientific meetings.

Dr. Melvin Breese, chairman of the OMA's council on medical education, admits that one reason the requirement was adopted is to circumvent action that would monitor the competence of physicians by agencies outside that of organized medicine. Relicensing requirements are under discussion by the Federation of State Medical Boards and have been proposed but never passed in several state legislatures.

Malpractice and the Law

Doctors claim that laws are stacked against the medical profession. In rebuttal, lawyers who try malpractice suits claim that the medical profession is largely unpoliced and unregulated, and is, most often, close-mouthed and secretive. The malpractice suit, they claim, is the only recourse open to a mistreated patient.

Malpractice is generally defined as faulty or bad practice on the part of the doctor that leads to injury and is clearly below the standard of medicine in the area in which the doctor is practicing. To prove that a doctor has acted unskillfully requires opposing medical testimony. In most cases, doctors have been understandably reluctant to testify against the professional competence of their colleagues.

Two legal developments have made it easier to sue doctors for malpractice. These alarm the medical profession, because they circumvent the need for contradicting medical testimony. Because of



the difficulty of getting one doctor to testify against another, courts have begun accepting the results of gross medical error as proof of malpractice. The second doctrine, known as informed consent, means that a doctor must make reasonably clear to a patient all the risks involved in a particular course of treatment and obtain his consent before proceeding. More and more, the courts are ruling that a patient is the master of his own body.

Aside from these two areas of malpractice, the medical profession is being assaulted in other relatively new areas of liability. Abandonment of a patient, failure to produce a promised cure, hospital liability extending to all employees, and even mental anguish have been tested in court.

Attempts have been made to formalize malpractice liability. In several states, boards of doctors and lawyers have been used to evaluate cases before they go to court. Doctors have also sought laws through their powerful lobbies to limit such suits, many of which, they claim, are spurious.



Despite the resentment displayed by doctors, they tend to admit, mostly among themselves, that there is a good deal the medical profession could do for itself in preventing indifferent, sloppy, and inadequate medical care.

Medical Morals and Science

The advances of scientific medicine are intensifying the doctor's moral and philosophical problems. In the past, the doctor was tacitly conceded the power of life or death over his patients, whether he, in fact, possessed that power or not. Today, not only do doctors accept life and death decisions as their moral right, but medical science has redefined what constitutes death.

In September 1968, Dr. Denton A. Cooley, the well-known heart transplant surgeon, called for a new definition of death and for broad rules to help doctors determine who, among those needing transplants, should receive priority. A meeting of 60 leading transplant experts convened last year in Washington, D.C., to discuss transplant problems and to write a new code of medical ethics that would guide doctors in picking transplant patients and performing the operations.

Cooley reminded the group that there are medical, ethical, and legal implications to their work. He stated that death should be legally defined, scrapping the traditional definition of heart cessation, which, Dr. Cooley said, "has prohibited transplant" in some nations. The meeting was attended by most of the nation's leading transplant surgeons as well as lawyers and Government representatives.

The medical profession is increasingly faced with the need to make certain moral and legal decisions. In July 1968, Dr. Christian Barnard said that he would not hesitate to remove a still-beating heart for a transplant operation if the donor had suffered indisputable "brain death." At that time, it was a shocking statement, but the increasing number of transplants forced the criterion of brain death to be generally accepted.

Organ transplants are now common. Science has thus brought the doctor to the position of arbiter over life and



death. The moral and legal implication of the doctor assuming, first, that the patient is ill enough to risk death, and second, of deciding that the donor is dead even though his heart is still beating, are such as to put the doctor in a position close to omnipotence.

The doctor's power to heal or destroy has traditionally been guided by the Hippocratic oath. One of the moral problems that alarms the medical profession today is the urge of some doctors to go their oath one step better by inducing injury to healthy persons in controlled medical experiments. Dr. Beecher of the Massachusetts General Hospital is shocked by such practices on the part of some of his colleagues, many of whom, he says, assume "a god-like prerogative of choosing martyrs for science." He adds that such incidents are "by no means rare." He finds evidence of unethical experimentation in "university hospitals, voluntary hospitals, private hospitals, the Air Force, Veterans Administration, public health service and industry."

Martin L. Gross, in his book The Doctors, describes the reaction of a physician attacked for using normal children as "controls" in a possibly hazardous experiment. The doctor justified his work by arguing that he did not involve the children in risk unless it could help "other children." Gross concluded that the history of the German doctors at Nurenberg, and that of some contemporary American physicians involved in an unethical orgy of experimentation, has proven that relying on the conscience and professional ethics of supposedly specially conditioned individuals is not an effective deterrent to moral catastrophe.

For the physicians who have assumed the dual role of doctor and experimental scientist, the most popular subjects used as "laboratory animals" are children, the mentally retarded, the indigent, and prisoners, notes Gross.

The practice of using healthy persons for controlled experiments has been condemned by the World Medical Association, which stated in 1949 that, "Under no circumstances is a doctor permitted to do anything that would weaken the physical and mental resistance of a human being except from strictly therapeutic or prophylactic indications imposed in the interest of the patient." The Federal Government has also recognized the ethical dangers involved by prohibiting the use of prisoners of war for human experimentation. Yet Beecher quotes a "distinguished scientist" as saying that "the in-

dividual is not infinitely valuable," and that the scientist has the right to choose martyrs "because more lives can be saved." This detached attitude toward patients (known as "materials" in experimental reports) is ingrained in the personality of some modern doctors, according to Gross. It is also implicit in the supposed scientific orientation of their work, where the doctors' subject matter is "biology" rather than "humanity."

Experimenting with human laboratory animals seems to be a phenomenon of our scientific time. In the past, the medical experimenter was an heroic person who considered study suitable for others only if he were first willing to make himself risk the dangers. The inspiring account of the young army doctors who died in allowing themselves to be bitten by yellow-fever-carrying mosquitoes in their fight to conquer that disease, or the equally heroic research of Dr. Joseph Boldberger of the U.S. Public Health Service, who lived among poor Negroes and whites in the South, and had himself, his wife, and 15 experimenters innoculated with filth and excrement from pellagra victims to prove that the disease was not communicable, are instances of true humanitarian and heroic research. There is no greater assurance of the doctor's confidence in the safety of the experiment than first involving his own flesh and blood.

The use of humans as controls in experiments brings into focus the question of the advisability of allowing the medical profession to police itself.

The reform of medical practice and education during the first decade of this century was not sparked by a doctor, but by Abraham Flexner, a layman whose report on "Medical Education in the United States and Canada" documented the morass into which medicine and licensed doctors had descended. Apparently, the A.M.A. was no more capable then than seems to be the case now of reforming itself and medical practice.

The Electronic Pill

The computer and its accompanying methodology are beginning to influence medical practice and will in turn invariably begin to shape the mold of medical philosophy.

The computer made its entrance into the hospital through the back door, in much the same fashion that it crept into the architectural office. The ubiquitious machine began as an accounting, bookkeeping, billing aid and quickly proved itself indispensable. With the unioniza-



tion of hospital employees and the accompanying higher wages and increasing Government involvement in Medicare and Medicaid, the position of the computer became impregnable. The hospital could not afford to operate without it.

The success story of the computer in medicine, as told by Bertram Goldberg, Data Processing Administrator at Montefiore Hospital in New York City, began unobtrusively in 1962 and 1963, when most of the institutions anticipated developments and installed computers. For the first two or three years, the hospitals were involved in learning the use of the equipment. After this breaking-in period, it was found that excess time was available and the programmers began to involve themselves in some of the esoteric aspects of paramedical applications.

Their involvement was first in such activities as laboratory information systems, which was merely the reporting of the laboratory work being done in the hospital. This was more of a challenge than an



accomplishment, points out Goldberg, because the data was historical rather than current.

The next step undertaken was monitoring devices in the laboratory as tests were performed. Data in the laboratory was monitored by computer and the results calculated and compared with values that are stored within the computer memory. This information then becomes part of the patient base record, with the information simultaneously displayed by a television hook-up at the nursing station to provide instantaneous communication. Not only does this allow constant auditing of the specimen from patient to laboratory and return, but it also performs part of the evaluation function of the medical personnel.

A very definite advantage of the computer, one that could have significant implications for the delivery of medical services, is that the computer permits the doctor to give a much larger battery of tests. One such device can perform 12 tests on a single specimen for less than the cost of a single test as conventionally made.

One question asked by doctors and programmers alike is, can the computer do things in medicine that could not be done without it? Can it affect qualitative change as well as quantitative changes? This question will shortly be put to the test. The composition of medical staffs is changing. A new generation of doctors is emerging. Senior doctors, remarked one computer expert, are very insecure

people. They are deathly afraid that the computer is going to do a little toe-stepping on their sacred prerogatives. Younger doctors, on the other hand, have been exposed to computers in their training and are not as prone to view them with suspicion.

One use of the computer being considered by the Lockheed Aircraft Corporation's system division is to assist a Texas Hospital in disaster planning. Under a research grant made by the U.S. Department of Health, Education, and Welfare, Lockheed is studying methodology that would enable the computer to make correct "managerial" decisions—ones people would find difficult to make under the stress of a mass disaster.

There is a certain irony in enlisting the computer to make medical decisions in the event of national disaster when the computer might well have had a hand in triggering that disaster, in its role as part of intercontinental defense system.

Bitter Pill

According to Ira C. Clark, assistant administrator at Montefiore Hospital in York City, a physician graduating medical school in 1920 could have kept abreast of medical developments for the following 20 years by reading medical journals and making a reasonable effort to keep himself informed. However, the physician who graduated in 1940 would have his knowledge outdated in 10 years, unless he made a very sustained effort to keep himself informed.

A large number of these medical advances has been in pharmacology. The pharmaceutical industry takes pride in declaring that 80 per cent of the prescriptions written today could not have been written 10 years ago. Whether this claim is more important for the sale of drugs or the practice of medicine is questioned by a number of doctors who are alarmed at the unwitting, often dangerous prescription of drugs by members of their profession.

Of the current 12,000 drugs in use, physicians say that only 700 are listed in the U.S. Pharmacopeia, a blue ribbon glossary, which, they believe, is quite sufficient for the modern practice of medicine. Dr. Charles May reduces the list even further. He maintains that new drugs—those that offer material assistance in treatment and a knowledge of which a physician must have to stay informed—probably amount to less than

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six compounds a year. He adds that the physician would not need so much "education" in drug use if there were not so much duplication.

The education that May says the physician gets too much of, comes from an estimated annual \$750 million spent by the drug industry in the advertising and promoting of drugs.

The pressing need of the drug company to quickly facilitate the "education" of the physician is not motivated by al-



truism. The speed with which the initial investment in the development of a drug is recovered is often as important as the amount of earnings on the drug over the long run. "The richest earnings occur when a new variety of drug is marketed, before competing drugs can be discovered," comments Dr. William H. Bean, Professor of Internal Medicine at the University of Iowa College of Medicine. This bonanza may last only a few months. Unless there are large earnings, the quick kill with the quick pill, the investment does not pay off.

The needs of the pharmaceutical house are diametrically opposed to that of the doctor and the patient. Time, for the medical profession, means an opportunity to evaluate the effects and side-effects of medication, to compare notes and observe a patient's reaction.

Pharmacology is not taught adequately in medical schools, in the opinion of Dr. Walter Modell: "One area of medical knowledge given the least expansion in the third and fourth years of medical college is pharmacology and applied pharmacology. . . . It is anticipated that it will be 'picked up' by the student in internship. But by that time, the blandishment of the detail men [drug salesmen] become attractive to the busy intern. Much more time has to be given to applied pharmacology in later years in medical college in order to keep the doctor abreast of rapidly increasing new and potent drugs. Here at Cornell, we have some courses, but not enough. . . . In some medical schools, they have none."

Dr. Solomon Garb, writing in the Journal of Medical Education, stated that, "Even a cursory examination of the current prescription practices throughout the nation shows clearly that most physicians are not applying sound pharmacological principles to medical practice. A major reason for the failure of many physicians to utilize their pharmacologic training is the influence of repetitive, persistent advertising."

The doctor is in the position of any other consumer, a victim of advertising truths and half-truths, implied promises, and carefully manipulated statistics. The influences being exerted upon medical philosophy are those of caveat emptor, overwhelming the benefits of medical research. The drug advertisers are killing the doctor with "education" kindness—or, at least, if not the doctor, perhaps the patient.

Summing Up

The lines of force threatening to move the presently inert body of medical philosophy are being exerted from outside the medical profession. If medical practice moves from its present predominantly solo, fee-for-service position, which is a carry-over from a free enterprise, laissezfaire philosophy, to a salaried, team, group-practice modus operandi, it will do so under the demands of high-density urban living, the pressures of powerful, organized lay groups, and the potentially explosive ghettos.

If the doctor gives up some of his present prerogatives of salary and claims to omnipotence in order to minister to those entrapped in the cycles of poverty, it will be because he responds to social and economic need rather than pressure brought to bear on him by organized medicine.

If medical education is restructured in such a way that it will consider social and economic ills as part of therapy, it will be because of the pressures exerted upon education by the students who have been influenced by their experiences outside their medical training—in the civil rights movement, Vista, and the Peace Corps.

If medical philosophy accepts the principle that the patient has an inviolate right over his own body, it will be because it has been enforced by the law in the courts, not crusaded for by the A.M.A.



If the medical profession takes itself outside the commercial mainstream of contemporary practice, it will be because of these outside forces finding an echo and reinforcing the presently outnumbered forces for change within the profession.

The modern doctor and the medical establishment stand today in the path of powerful forces. Whether these outside forces can overcome the official medical establishment's inertia will determine the type of facility that the design professions will create to house medical functions. Control of medical planning is beyond the province of either medical or design philosophies. — FW

As a focal point of health care and medical education, Temple University's proposed Health Sciences Center combines architectural and medical planning with Government programs and community priorities.

Thanks to the bush wars in those underdeveloped countries know as American ghettos, cities have grudgingly been awakened, not only to racial injustices, but to the entire urban chaos. And the revolution, however questionable its tactics may sometimes be, has effectively accelerated action.

Among the affected institutions long overdue for entry into the present urbanized century are those responsible for the delivery of health care. The fragmentation of health services is perpetuated by competing hospital empires, a highly specialized medical profession, and the nature of the legislative process. It is enough to bewilder the middle classes and defeat the poor. However, there is now emerging on the scene a new breed of institution that promises better things for the health of cities. Built on older, less sophisticated prototypes, as most things are, it might be called a medical megacenter with a social conscience.

Temple University's proposed Health Sciences Center in Philadelphia plans to become such an institution. Formed around the substantial nucleus of an existing medical campus, it will expand and integrate its education, research, and patient-care programs. And through a major reorganization of the health delivery system, Temple hopes to restore, as an institution, some of the country-doctor capabilities to the practice of urban medicine.

A reevaluation of the urban teaching hospital led to an important commitment to the patient and the community. Temple has pledged one standard of high-quality care throughout its hospital. It will assume responsibility for total care ("based solely on medical need") of 65,000 residents in North Philadelphia, the city's largest black and Puerto Rican ghetto. It is consolidating competing departmental fiefdoms into a unified, multidisciplinary teaching structure. It has brought an areawide system and logic into the delivery of knowledge and the administration of care through affiliation with other hospitals.

Although none of these ideas will be unfamiliar to health-care professionals, some of them have perhaps been carried further than ever before. And the architectural-university planning team has brought together into one constellation many advanced concepts. Hopefully, those concepts will still be intact on completion of the project six to eight years from now.

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The Urban University

The philosophy that paved the way for community involvement is one that was set forth for the entire university in 1960. At that time, Temple's president Millard Gladfelter (now chancellor) began deliberately and enthusiastically to push the university in the direction of social service.

Whether social service is a valid function of the university is a question being hotly debated by activists and scholars. Although scholars deplore involvement as a threat to academic objectivity, activists view service-oriented programs as stimulating additions to traditional curricula. They contend that such programs are not simply coin for entry into the kingdom of heaven, but act as laboratories that test and contribute knowledge — real world research bringing early warning signals of educational gaps that occur in times of rapid change.

An "urban university," as defined by Temple, is not simply an institution that happens to be engulfed by the city, but a particular kind of university with a particular history. The urban university is seen as an analog of the land grant college (but without Federal support) that sprang up under various auspices toward the end of the 19th Century.

Temple was founded, as were most of its sister urban universities, in the large Eastern cities, in response to demands of the working and immigrant classes. It was heavily teaching- and people-oriented; it was the common man's university. But, as upward mobility set in after World War II, Temple also began to aspire to nobler things, to be one of "them" — Harvard, et al.

The return to original goals was strongly influenced by the social thinking that crystallized around the Kennedy administration. President Gladfelter began to see Temple's role in quite different terms, terms more consonant with its beginnings and with the times. He embraced the idea of action-oriented education and a policy of assistance to the school's black neighbors.

Although several programs were instituted, notably at the Health Sciences Center and in the College of Education, the commitment remained more rhetorical than real for the next five years. The university's accelerating expansion program continued to antagonize an increasingly militant and organized community. "It was a sin of ignorance," a university official commented. It took time to recognize the now classic pattern of peripheral decay caused by monolithic encroachment on surrounding neighborhoods.

By 1966, the community had enough clout to force a showdown over a proposed 30-story dormitory and get a moratorium called on new construction. The upheaval jolted Temple into bolder action policies — from a re-evaluation of the moat-and-castle campus, to mixed occupancy housing, to proposals for departmental "neighborhood agendas" throughout the school — and activists are optimistic about the future.

The Urban Medical School

Concurrent with Temple's reformation, the medical school was proceeding with its plans for the Health Science Center. From modest beginnings in 1960, when the school budgeted \$2.4 million for an addition to one of its buildings, the project has grown to its present comprehensive

\$160 million proportions. This complicated machine will provide facilities for double the present student body and 75 per cent more patient beds on a site that will be almost three times its present size.

The planning, which began with a handful of faculty brain-stormers, has grown into a complex mechanism of master planners, community planners, consultants, architects, faculty committees, neighborhood groups, community, corporations and city agencies; the first step toward such a major coordinated effort was administrative. Gladfelter created the post of vicepresident for the Health Sciences Center (HSC) in the university hierarchy. Under the umbrella of the office, autonomous parts of the existing medical complex, which had been acting in a loose confederation, were brought together under one set of unifying goals. They were the hospital, School of Medicine, School of Dentistry, and School of Pharmacy.

To fill the post, the university got Dr. L. E. Burney, who served as Surgeon General under President Eisenhower. He was chosen as a man whose career was oriented around public health rather than academic or research pursuits - a far more common phenomenon in the field of medical education. Together with the dean of the medical school, Dr. Robert Bucher, and the executive director of the university hospital, Dr. Arthur Nelson, Burney started informal discussions about the goals and organization of the new center.

The feasibility of such an ambitious venture was greatly enhanced by various sources of government money. Medicare and Medicaid will pay many patient bills and therefore operating expenses. And a recently formed state authority will pick up at least half the construction tab, with another big chunk coming from Federal

Two small neighborhood clinics, outside the main complex, are being financed by the Office of Economic Opportunity and the Department of Health, Education and Welfare. OEO incentive monies (both construction and operating) have been available to communities and sponsoring hospitals for more than two years. But many hospitals, unlike Temple, have been reluctant to assume such a responsibility.

Affiliation. The hospital was also working out a plan to affiliate with some half dozen other hospitals in North Philadelphia. Such a scheme would benefit the community by helping to eliminate duplication of skills and technology. It was also felt that the future of medical education depended on being part of a regional consortium serving a large cross-section of the population.

In 1963, Dr. Bucher obtained a grant for a two-year study to explore how the cooperating group of community hospitals might best join education and service. A professional health care and community planner, David Willis, who was later to join the HSC staff, took charge of the project. "To my knowledge, it was the first time in the country that medical schools had showed leadership, so I came running down to help," comments Willis. The study finally led to the formation of a corporation in 1967 known as the North Philadelphia Regional Health Affiliates. One of the members, the Skin and Cancer Hospital, has already moved to the campus. Two others, St. Christopher's Hospital for Children and Wills Eye Hospital, will occupy a building adjoining the main teaching hospital when new facilities are completed.

As the affiliation project progressed, David Willis began to spend more and more time working with the HSC planning team. And his work on the regional study helped Temple to clarify its own goals and policies on community service. "The mutual benefits of teaching and service had to be sought out," says Willis. "The potential was there, but the exact relationships were not immediately evident."

In-House Groundwork. Drs. Burney. Bucher, and Nelson, together with David Willis, came to be known as the Four Horsemen, Under their leadership, the medical center's attitudes toward patient, student, and the community were reshaped. During a year of intensive work with a committee comprising heads of all departments, a significant decision was made to establish administrative independence for the three functions of the center - teaching, research, patient care.

Most teaching hospitals are subdivisions of the medical school, totally responsible to the dean of the medical school, and geared to student needs. But Temple felt that their education cum service philosophy demanded equal attention to both patient and student. "Our university hospital belongs not to the School or Medicine," an HSC statement of purpose declares. "It belongs to the totality of the university as a principal health laboratory for involvement in the community problem-solving process."

During the final year of planning within the university, work was continued by a group of task forces recruited from the hospital staff - nurses, lab technicians, and so on. As individuals "lower down the administrative line where the action is," they were sought out for their knowledge of the nitty gritty.

Enter Planning

At this point, it became obvious that the talents of a professional planner of the architectural variety was needed. After due consultation and deliberation, the comparatively young firm of Wallace, Mc-Harg, Roberts & Todd was chosen. It was chosen for a rather unusual reason, but one that has substantial support among health and planning professionals - namely, a lack of specific expertise. Although members of the firm had an excellent background in city planning (Lower Manhattan Plan, Baltimore Inner Harbor Redevelopment), they knew virtually nothing about planning health facilities. Although this sent a cold chill of apprehension through Temple's Board of Trustees, the governing body listened and was persuaded (against all rules for conservative bodies in a conservative profession) that innovative concepts required fresh planning approaches.

Most hospitals are considered anywhere from 5 to 15 years behind the times when dedication day rolls around. And despite or because of - the complexity and rapid change that make this true, the experts all too often get locked into standard solutions. An expert was needed, however, and James Souder, then with Bolt, Beranek & Newman, was hired. But Souder, an architect with long experience in hospital work, is an exception. WMRT's partner in charge of the project, Thomas Todd, says, "He's not a handbook kind of guy. He's very open to new ideas."

Todd and Souder spent the next two years hammering out the master plan and hospital program, and submitted it to the university in April 1967. It was a two year marathon of formal meetings, informal meetings, phone calls, disagreements, cajolery, compromise, and unexpected rewards. Todd emerged from the experience with mixed feelings of accomplishment and frustration that will be familiar to those engaged in similar work. Developing the medical megacenter involved not only the usual master planning problems and running the normal gauntlet of city agencies, but hospital politics as well. Many hours of negotiation were spent with the two hospitals that will be moving onto the new campus, and in trying to accommodate conflicting demands of those departments that would be most uprooted by a new organization.

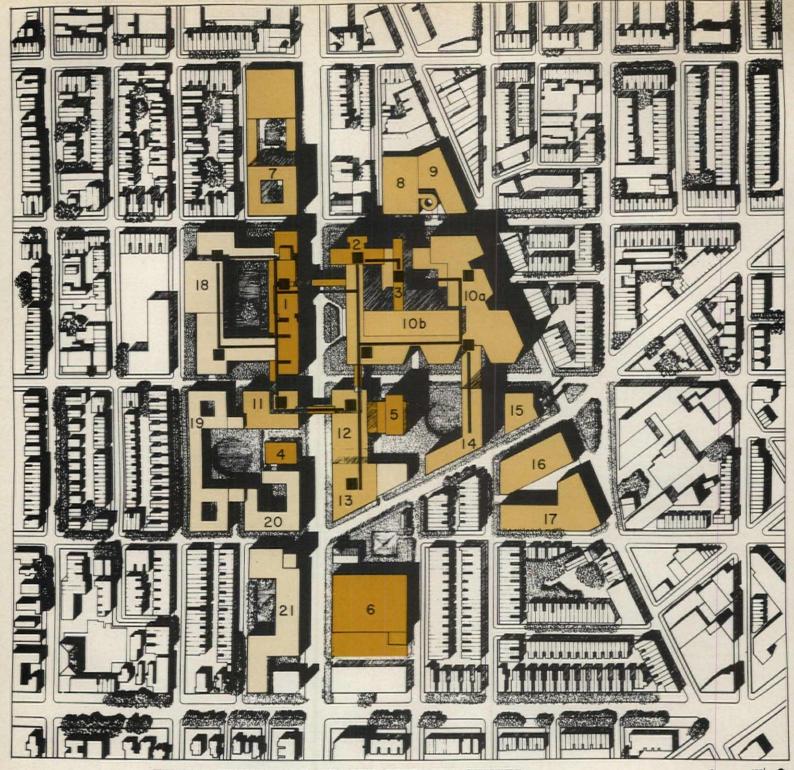
The impressive amounts of work that had already been done by HSC staff were fully appreciated, however. "The importance of good clients who know what they want cannot be overestimated," Todd affirms. "Those four [Burney, Bucher, Nelson and Willis] are mighty unusual people. They have a real sense of what the mission of a health center should be."

The Master Plan

Programming the 28-acre megacenter required the same kinds of skills and approaches used in drawing up a downtown city plan - juggling traffic patterns, setting up priorities for proximity to the central element, the hospital, and all the mechanics of fitting pieces together on a restricted urban site.

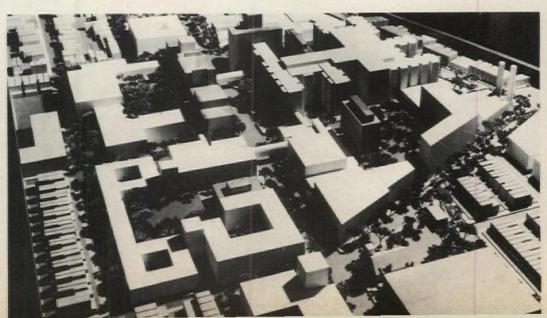
WMRT's report on the Long Range Development Plan covers everything from a statement of goals to computer printouts showing Souder's patient flow simulations. But the 200-page presentation is obviously only the top of the iceberg.

Formal Gateway. The medical campus is two miles from the center of town and straddles Broad Street, one of Philadelphia's two axial thoroughfares that meet at city hall. It is surrounded by a lower middle class residential area of two- and three-story dwellings and is approached along a commercial strip on Broad. The



TEMPLE UNIVERSITY HEALTH SCIENCES CENTER

The master plan is still in a state of evolution although major work was completed two years ago. The formal wall along Broad is to be maintained, but HSC is presently exploring the possibility of opening up the quadrangles behind the two major blocks west of Broad. Such a plan would make available green spots to the neighborhood. The 850 beds of the main hospital will be supplemented by 200 beds in the psychiatry and mental-health building. And the remaining 350 beds of the total 1400-bed capacity will be in the Broad Street section of the hospital building to be occupied by St. Christopher's Hospital for Children and Wills Eye Hospital. Approximately 1500 parking spaces will be distributed throughout the campus under the various buildings and in the city's 400-car garage.





EXISTING

- I. BASIC SCIENCES, RESEARCH SCHOOL OF MEDICINE
- 2. EXISTING HOSPITAL FUTURE: OFFICES & LABS
- 3. OUTPATIENT CLINICS FUTURE: ADMINISTRATIVE OFFICES
- 4. SKIN & CANCER HOSPITAL
- 5. DORMITORY
- 6. SCHOOLS OF PHARMACY & DENTISTRY FUTURE: CLASSROOMS

1968 - 70

- 7. HOTEL-CONFERENCE CENTER
- 8. PARKING GARAGE
- 9. DISTRICT HEALTH CENTER
- IO d. NEW TEACHING HOSPITAL,
 WILLS EYE HOSPITAL,
 IO b. ST CHRISTOPHER'S
 HOSPITAL FOR CHILDREN
 - II. CONTINUING EDUCATION STUDENT ACTIVITIES
 - 12. LIBRARY
 - 13. PHARMACY & ALLIED HEALTH
 - 14. MENTAL HEALTH, PSYCHIATRY
 - 15. STEAM PLANT
 - 16. SERVICES
 - 17. PROPOSED UTILITIES SUBSTATION

1971-75

- 18. MEDICAL EDUCATION BASIC RESEARCH
- 19. DORMITORY
- 20. COLLEGE OF ALLIED HEALTH PROFESSIONS
- 21. SCHOOL OF DENTISTRY BASIC RESEARCH
- SECOND LEVEL CORRIDOR
- ELEVATORS

tight-packed and obviously public nature of the megacenter, threaded together at the core by overhead pedestrian bridges, has been exploited to create a formal portal to the city.

The City Planning Commission was dubious about interrupting a sacrosanct vista toward Philadelphia's awesome French Second Empire City Hall. But the idea was finally accepted on its merits as an urban gateway — and also because the overhead bridges occur at a dig where the view is less than perfect in any event.

The two bridges that cross Broad will keep students and faculty out of heavy traffic. They form two sides of a second level circulation loop connecting four corners of the campus' center: library, student union, lab and teaching buildings, and the pediatric/opthalmologic part of the hospital. Spurs of the second level system will join other parts of the campus.

New Capabilities. Some of the new facilities will represent outstanding additions to Temple's curriculum. An organized continuing education program will serve doctors who want to catch up on advances that have occurred since their graduation. It will be housed in the same building with a new student union.

Two other new programs, which have already been established in preparation for the new campus, are one for community mental health, and another for the allied health professions (occupational and physical therapy, medical technology, and medical record keeping in addition to the existing school of nursing). Community mental health was originally to share a building with extended care, but the space has now been allocated to psychiatry. Although this is a much needed expansion of the 50-bed psychiatric floor in the main hospital, it is also an unfortunate cutback on a program that serves mostly older persons. As the over-60 population increases, problems of the aging need more attention, not less.

Hotel-Conference Center. Several nonuniversity structures were planned into the fabric of HSC, including a Department of Public Health district center. Perhaps the most interesting of these is a hotel-conference center that will be built on air rights over city parking. It will be built by a private developer and sponsored by a nonprofit corporation concerned primarily with housing, jobs, and education for North Philadelphians.

The multi-use facility will provide housing for ambulant patients who can get nursing care and hospital treatment without paying hospital prices. There will also be accommodations for the general public, continuing education students and visiting staff.

One section of the building is planned for 50 doctors' offices, arranged to permit group practice. And it is expected that some space will be rented by a vocational training program aimed at community residents. It will be run by a local minister well known for his successes in black capitalism.

The Patient's Kingdom

As the school explored better ways to teach, and as Souder sought, through systems analysis, better ways to make use of modern management techniques, they found themselves arriving at very similar conclusions—conclusions that surprisingly coincided with the center's self-assumed mandate for ideal patient care and community service.

Anyone who has ever been shunted around the draft labyrinths of a large hospital cannot escape the conclusion that his interests must somehow be wildly incompatible with those of the staff. It is interesting to note, however, the number of studies, at Temple and elsewhere, that have revealed mutual benefits between improved conditions for patients and improved hospital management.

"We wanted to provide a microcosmic model of an ideal delivery system," says Dr. Nelson. The question has been raised as to whether an ideal system can prepare students for real life. The answer lies in Temple's affiliation program. More traditional experience will be provided by rotating students through the affiliated hospitals.

As for the patient, planners have provided the architectural and administrative design capable of greatly improving his lot. If not precisely a king, he is at least a baronet.

Stacking "Hospitals." The organizing premise that Souder and HSC agreed on was the semiautonomous patient floor, complete with all technological and administrative support. Seven of these "hospitals" are stacked vertically: columns of patient rooms, surgery suites, labs, and so on.

During the past few decades, hospitals have generally been designed for the convenience of machines and their attending technicians. Centralization of labs, radiology and operating rooms in a horizontal base topped by nursing towers seemed the obviously economical way to allocate space. But the wasted time spent by nurses and doctors traveling between surgery and bedside, and the discomfort for patients following the same route, was never cost accounted. Conferences between doctors and anesthesiologists or radiologists were inconvenient, and it was difficult to convey the logic of diagnosis and treatment to students.

The program floors, as they are called, serve all staff and patient needs from a central administrative-medical core. Patients wait in their beds for surgery or X-rays, instead of being wheeled to another floor to wait. Doctors spend more time with patients and less time in getting there. And students reap the benefits of multidisciplinary teaching teams.

Conventional hospital divisions are medicine, surgery, pediatrics, and obstetrics. Temple has retained two floors for medicine and one for surgery in a semitraditional arrangement. But the four new floors that form the heart of the experiment are a radical departure from stan-

dard hospital practice. They are organized around specific systems of the body: musculo-skeletal; neuro-sensory; cardio-pulmonary; and growth and development. The last program will subsume pediatrics and obstetrics and provide complete care for the expectant mother and newborn child.

Aside from surgery and radiology, services oriented around staff and inpatients have been highly decentralized on each floor:

- Administrative sub-units will handle all the patient's paperwork from admission to discharge. The patient need not wander about the first-floor corridors searching out the proper office and waiting in line; he will settle his bill right in his room.
- Lab work requiring the patient's presence will be done on the floor, while such things as blood samples are sent by an automated cart system to central labs on the second floor.
- Frozen convenience foods, purchased from outside suppliers, will be prepared more or less to order in microwave ovens at four pantries on each floor. Patients will have at least a fighting chance of getting hot meals, and at hours more agreeable to their appetites. It will also mean a substantial reduction of the food service staff from 250 to 75.
- Offices and research labs of the fulltime salaried staff of physicians are to be on the appropriate program floors close to outpatient clinics. Although they will be in adjacent facilities, floors are connected by a seven-story pedestrian bridge. Teaching spaces include two 10-person and one dividable 40-person conference rooms.
- A staff cafeteria on each floor will serve as additional meeting space. Floor cafeterias are another attempt to humanize the scale of the megacenter and to economize on staff travel time.

The economy of the program floor has been called into question by professionals who disagree on whether it is overbuilding. And although Souder's computer studies demonstrate the viability of an independent 113-bed floor, it would seem to be a decision weighted in favor of patient comfort and improved education.

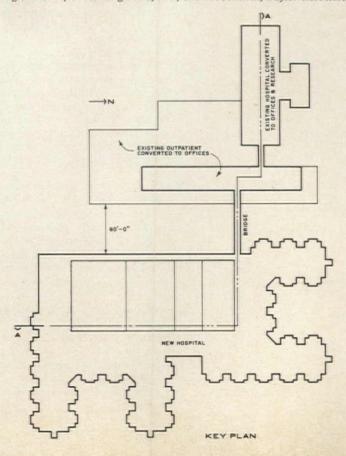
Patient Room Clusters. With few exceptions, the 850 beds at Temple will be in private rooms with private baths. They are grouped in eight-room clusters that nurses can check quickly from a single area in the corridor.

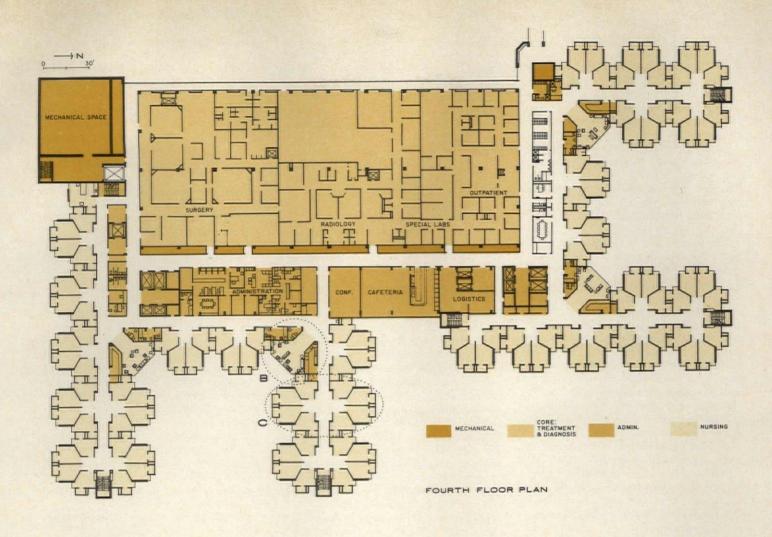
Clustering around the short-corridor finger plan is expected to make nursing assignments more flexible than in the long double-loaded corridors of the past. Nurses can be assigned on a day-to-day basis, caring for 8, 16, or 24 patients, depending on the seriousness of their illnesses.

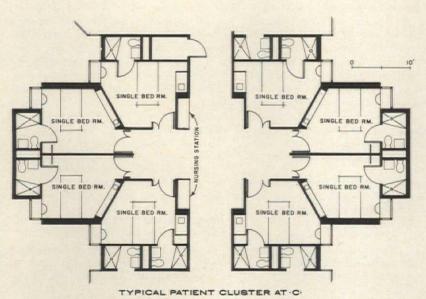
In case the hospital decides that a certain number of multiple-bed rooms are desirable for patients who prefer companionship, partitions can be removed to form two- or four-bed rooms. Intensive-care

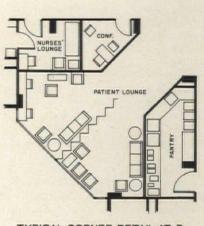


Patient wings of hospital are reinforced concrete frame with precast concrete panel curtain wall; service core (surgery and similar functions) is framed in steel for more flexibility. The core can be extended to the west in future expansion. St. Christopher's and Wills hospitals (not shown) will be plugged into the main teaching hospital when plans are completed. The teaching hospital design team is headed by Stonorov & Haws working with Henry D. Dagit & Sons, Urban Engineers, Inc., and McCormick, Taylor Associates.









TYPICAL CORNER DETAIL AT B

	EXISTING FACILITIES		NEW FACILITIES				
		GENERAL USE ELEVATORS					
9- MEDICINE	OFFICES & RESEARCH	BRIDGE CONNECTION	OUTPATIENT	SPECIAL LABS	NUCLEAR MEDICINE	EXPANSION	TINPATIENT
- MEDICINE	OFFICES & RESEARCH	BRIDGE CONNECTION	OUTPATIENT	SPECIAL	RADIOLOGY	EXPANSION	INPATIENT
- CARDIO-PULMONARY	OFFICES & RESEARCH	Maria Maria	OUTPATIENT	SPECIAL	RADIOLOGY	SURGERY-GOR T	INPATIENT
S- HEURO- SENSORY	OFFICES & RESEARCH	I EST ESTATION	OUTPATIENT	SPECIAL	MADIOLOGY E	SURGERY-40.R.	INPATIENT
- SURGERY	OFFICES & RESEARCH		OUTPATIENT	SPECIAL LASS	RADIOLOGY	SURGERY-40,R.	INPATIENT
4- MUSCULO-SKELETAL	OFFICES & RESEARCH		OUTPATIENT	BPECIAL	RADIOLOGY	SURGERY-40.R.	INPATIENT
- GROWTH & DEVELOPMENT	OFFICES & RESEARCH		OUTPATIENT	SPECIAL LABS	NURSERIES	DELIVERY	INPATIENT
- PSYCHIATRY & LABS	OFFICES & RESEARCH & RECORDS ADMINISTRATION EMPLOYEE PACILITIES		CLINICAL SERVICES LABORATORIES			INPATIENT	
			COMMUNITY CARE FACILITIES (OUTPATIENT)		RADIOLOGY EMERGENCY DEPARTMENT	DEPARTMENT	
MASEMENT			LOGISTICS CENTER: MATERIALS SUPPLY, HANDLING & DISTRIBUTION				J
UDBASENENT			PARKING FOR PATIENTS				

units can also be formed in this manner.

Here again, there is understandable controversy over costs for all single-bed rooms. But a rather large body of evidence supports the idea. The most often noted advantage is maintenance of a high bed census, since single rooms eliminate conflicts of disease, sex, age, race, and temperament.

Nursing Stations. Decentralization is carried to the nth degree in nursing stations. There will be no floor nursing station, but a work and storage space at each eight-bed cluster. It will be separated into two small units, one for supplies and one for communications.

The supply unit is based on the Nurserver concept originated by hospital consultant Gordon Friesen. It will provide linen and medical supplies, such as intravenous solutions, bandages, and hypodermics, but no medication.

A few steps away will be the communications and work center. Patient records, nurse call, and telephones will be included. A pneumatic tube will link stations with floor administration centers. Special monitoring equipment, such as TV screens and printouts for vital symptoms, will be installed as needed for coronary and intensive-care units.

Although the budget does not include computerization, the capability for plugging into a computer system in future will be included at each station—space for a chathode ray tube and teletypewriter that can retrieve patient records, prescriptions, diagnoses, and so on, from a central computer memory bank.

The hospital is now setting up a demonstration project under a grant from the National Institutes of Health to test the application of computers in intensive-care situations.

Outpatient Clinic System: An essential part of Temple's capabilities, particularly for its commitment to community service, is the system of outpatient clinics in the hospital. At present, the school's outpatient services are divided among some 35 clinics that have grown by accretion to fill various needs.

The new system will be pulled together into four group-practice "modules" on the ground floor of the hospital. They will offer comprehensive primary care to 30,-000 North Philadelphians and are expected to handle 80 to 90 per cent of their health care needs. Many of the clinics' prospective clients are hourly wage-earners or mothers with large families who cannot get to the hospital during the day. In the past, this has meant the abuse of emergency facilities, an increasingly serious problem for hospitals across the country. Temple has therefore decided to keep its clinic doors open from 14 to 16 hours a day. And patients will be seen by appointment only, hopefully eliminating the indignities of waiting in line.

More serious problems will be referred to specialty clinics on each of the program floors. The specialized clinics rise in a vertical stack, as do other parts of the hospital, and are located in the core, readily accessible to doctor's offices and technological support. The specialized clinics will also back up the OEW-HEW health centers in the neighborhoods. These centers are set up to provide the same type of primary care as the ground-floor clinics in the hospital, and will add some 35,000 persons to Temple's community case load.

Logistics. Central supplies are located in the basement. Small subcenters on each floor will be frequently restocked with linen, food, and medical supplies. Supplies are carried in small automated carts that follow electronic guide wires in the floor. They are sent from various points in the basement warehousing maze to a central dispatcher, who in turn sends them upstairs in special elevators. Carts are automatically discharged from the elevator at the appropriate floor subcenter and are unloaded or taken through corridors by an attendant. The system is expected to cut the staff by about 30.

Modern Management. Medical services will be brought closer to the patient by centralizing staff leadership on each program floor. A team comprising doctors, nurses, radiologists, anethesiologists, pharmacists, social workers, dietitions, administrators, and others will still get technical direction from their respective departments, but will work as a unit under the program director. Specialized tasks can be performed without individuals losing sight of the total patient program.

Staffing has been geared to the proper use of skills. The waste of highly skilled time is now widely recognized but rarely remedied. At Temple, nurses will nurse, office personnel will do the paper work, and specialists will treat only those who require their expert knowledge. Paramedical personnel on the nursing teams will perform most nonnursing tasks associated with patient care. A special logistics force will see to the efficient delivery of supplies. And the highly decentralized nature of the program floors will give architectural support to the staffing and administrative reorganization.

Computer-Aided Programming. James Souder applied the computer techniques that he has been developing for hospitals over the past 10 years. "I went through lots of years of architectural practice [in hospitals]," he remembers, "without anything to trust beyond the judgment of physicians and administrators. And I got

fed up with such an inexact way to advise people." He believes, however, that the value of the computer is in its selective use. And his work at Temple has been a combination of computer-aided studies and the application of experienced judgment

A basic pool of computer-analyzed information was used to determine economic technological support for the independent program floors, to establish new work patterns, and to determine new admissions scheduling.

Computer simulations were based on the "events" that happen to a typical patient (derived from a selected sampling of records from prior patients) with each of some 90 diagnoses. This standard catalog of diseases constitutes the bulk of general acute hospital caseloads.

The statistical patients were followed from admission to discharge through radiology, surgery, and laboratory. Included were such items as length of time spent in surgery, number of radiological procedures required, lab work ordered, and length of stay. Using these simulations as a decision-making base, Souder wrote a series of "protocols" for each care program, spelling out staff needs and procedures.

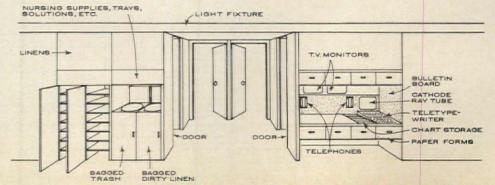
Hospital rountines and medical practice vary widely at hospitals in different parts of the country. Length of stay is particularly variable. Computers are therefore very handy for the restructuring of statistics in each new situation.

Design Status. A team of four architectural offices, headed by Stonorov & Haws, is responsible for the hospital design, which is now in preliminary working drawings. Programming and design have been a cooperative effort. "In some cases, it is almost impossible to say who did what," says the HSC staff architect Ravmond Griffin. But Stonorov & Haws have made significant contributions in working out the patient cluster. The firm also did the remodeling design for a storefront clinic, and are the architects for a nearby model school district. The school-community services-health facility complex in the model district will eventually be the permanent home of the storefront center.

Neighborhood Health: Clinics, Housing, Schools

"We [have broadened] our interests from biology to biography — from the facts of life to the quality of living." With this

The decentralized nurses' station, comprising supply and communications units, will serve each eight-bed cluster.



statement of purpose the Health Sciences Center committed itself to involvement in the environmental aspects of preventive medicine.

The first approach to the community was basic; it concerned site planning. The campus is expanding its estate from 10 to 28 acres, and many families will inevitably be displaced. Assembling an urban site is never an easy task, and with the transgressions of the main campus fresh in everyone's memory, HSC is anxious that the perimeter of its site will be boundary lines, not battlelines.

Since the medical campus is a mileand-a-half from the main campus, it was little affected by the 1966 confrontation. As a matter of fact, HSC established tentative contacts with the neighborhood in 1964, preparatory to master planning.

About that time David Willis was joined by Harold Haskins, a black community organizer noted for his successes with teen-age gangs in the area. Together, they contacted not only churches and other local institutions, but sought out small shop owners and unaffiliated citizens of all kinds. Haskins worked informally on street corners and in neighborhood bars searching out an elusive leadership.

The resulting advisory board was asked in as a consultative body to make recommendations on relocation, and, to some extent, the physical appearance of the center. However, once the community had the ear of its institutional neighbor, it began to speak out on a number of grievances. Some of the complaints would sound perfectly familiar to anyone who has ever visited a clinic or been confined to a hospital bed; others were peculiar to the ghetto.

The board pushed for evening clinic hours and persuaded Temple to act as advocate with governmental agencies in simplifying the admissions rigmarole required for patients on various welfare programs.

There were certain top priority health problems that needed attention. One of these was lead poisoning, caused when young children somehow ingest the cheap lead-based exterior paint used on building interiors by slumlords. HSC and St. Christopher's have formed an ad hoc pressure group working with the Department of Public Health to identify offending buildings and link them to victims. It promises to be a long fight, since city law requires that the hazard be proven case by case.

But the community sees health care as only one input for environmental reconstruction that will improve their lives and the lives of their children. They accurately recognize the fact that more than immunization programs are needed to keep people healthy.

As head of the hospital, Dr. Nelson has been active in planning programs with the community. His most intensive involvement has been in planning neighborhood health centers; he was also part of a planning committee for the model school



Basic Sciences and Research Building (left), the first part of the new campus to be completed, is viewed across Broad Street during a lull in traffic. Neighborhood health center (below) is now in operation in converted storefront.



and is on the advisory board of a community corporation.

"We don't have a handle on all the problems," Nelson admits. "We're only now beginning to shake out a sense of community responsibility and participation. It is our dream to make it a comprehensive community effort that will bring together all the scattered pieces of support."

Neighborhood Clinics. Small clinics scattered through the community are considered an essential — perhaps the essential — aspect of ghetto health care. They are built in a friendlier, more approachable scale, and are partly staffed and managed by neighborhood residents.

The hospital began its outreach activities three years ago with the establishment of two mental health centers located in the community. Staffing is paid for by the National Institute of Mental Health (a branch of HEW); administration and rent money comes from Temple's Department of Psychiatry. They offer services such as overnight accommodations for those who need a short respite from family pressures, a crisis center for serious emergencies, and an educational program hooked into the city schools, police department, clergy, and other public agencies.

These were the first generation of community-involved clinics. Planning for the second generation - Poverty Program (OEO) health centers - began two years ago in the highly charged atmosphere of militancy. Nelson worked with an array of anti-poverty agencies, councils, and unaffiliated groups in planning the centers. A robust and forthright man, he recalls his first venture into black territory with something less than perfect sanguinity. "It's a traumatic experience to get the thrust of that hostility," he says. "But I was immunized early in the game." It was the discussion of jobs and job training for the neighborhood health clinics that finally captured the interest of indigenous planning groups, Nelson remembers.

One clinic is now operating in renovated storefront quarters, and the second has just been opened in trailers on a vacant lot four blocks from the hospital. Construction of permanent facilities for the trailer clinic waits on OEO approval and a complicated real estate transaction.

Governing boards of both mental health and OEO clinics have institutional (mainly Temple) and indigenous members, plus representatives of poverty agencies. "Some of these people are intellectual giants," says Nelson. "Deprivation has created wisdom and insight such as is given to few people." The goal of community members is to add management skills to gut wisdom, and assume full control within five years.

Housing. The relocation plan that was worked out with the community and land acquisition agencies calls for replacement rather than compensation. Homes will be purchased, as agreed to by all parties, and remodeled, if necessary, to accommodate displaced families.

Large dormitory enclaves are unacceptable to the community as well as to the modern independent student. Therefore, HSC will provide new dormitory living only for female minors, and is working with private developers to supply moderately priced, rental housing open to both students and community.

In a campaign to save the periphery of the campus from rooming-house deterioration, Temple cooperated with residents on a self-zoning study that has been accepted by the city as the official plan for the area.

Response to the Future

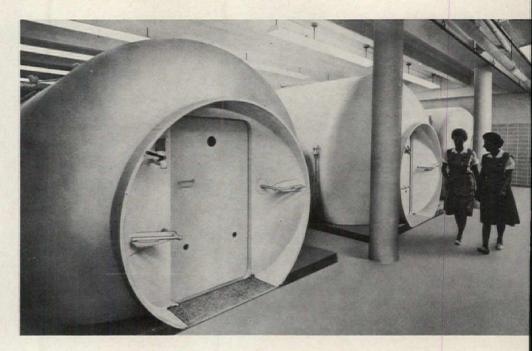
Institutional change depends on hard work, hard cash, and a sympathetic climate. The changing health care institutions are a result of forces from within and without. Temple's planning and the government money that made it possible are so intertwined that it is difficult to separate the two. The Health Sciences Center is a response to both public and professional pressures for better doctors, superior patient care, and social justice in the practice of medicine. It is a remarkably comprehensive response and a bellwether of the future.—AR

the healing machine new hardware

With private industry's recent discovery of the health care market has come a flood of electronic and automated equipment for use in hospitals. What are these complex machines, and how can they be expected to cut costs and improve health care?

Automation . . . systems analysis . . . computers. These magic words, borrowed from the space industry and already infiltrating government, education, and engineering design, at last are echoing down hospital halls. Now that health care, with its 6 per cent slice of the gross national product, has reached the status of an "industry" and been "discovered" by Big Business, now that hospital costs are rising at an annual rate of 16 per cent with service unimproved, hospital administrators and consultants are showing great enthusiasm for these wonder drugs of modern management. And industry is offering plenty of encouragement. The large aerospace corporations (Litton, Lockheed, TRW), big electronics firms (GE, RCA, Philco-Ford), and smaller, more specialized companies are producing systems and equipment designed to reduce costs and improve service in every medical field from diagnosis to eye surgery.

If the excitement over automation is, in the broadest view, clearly justifiable, it is frequently misguided. Typically, when automation enters a new field of endeavor, its new devotees are first attracted by detached specifics - cost figures, pieces of equipment and their individual capabilities - and then by grandiose generalities: apparent panaceas for all problems. The intervening organizational analysis necessary to make specific equipment operate effectively is what is usually omitted at the outset. Recently, the most informed hospital administrators, Government health officials, and even equipment manufacturers have come to agree that a material reduction in health care costs is only possible



through a basic revision of the whole system of delivering (and paying for) health services in the U.S. (see, "The Government's Role"). Computers and automation generally will take their place in an efficient and economical system once systems analysis has been applied to the national problem of health services, not merely to the operation of any single hospital.

Ideal Versus Actuality

Under an ideal system, computers, in combination with various kinds of highly specialized electronic equipment, would:

- Store medical records and other information accessible by telephone to doctors and hospitals across the country. Such a system is already being implemented in Sweden, and a Comsat-type of on-line computer bank for medical records is under study by the Federal Government; it may be in operation within three years. Another study being conducted by the National Health Service will determine the feasibility of establishing a national clearing house for information on hospital automation.
- Link large general hospitals (and their services) to specialized treatment centers and to all satellite facilities (group medical practices, convalescent homes, medical

laboratories) within a given region. There would be no duplication of facilities within a region, but expensive equipment and personnel as well as information would be available to all participating institutions. Fairview Hospital in Minneapolis demonstrates the crude beginnings of such a system with a computer link to a satellite built to handle overflow from Fairview. Groups of hospitals in Chicago, Colorado, and Texas have begun sharing computers.

■ Within the individual hospital, such equipment would aid in diagnosis, provide instant lab reports, store medical records, monitor patients' conditions, schedule admissions and tests, handle billing, and perform time-consuming mathematical calculations necessary for monitoring the performance of complex medical instrumentation.

That, of course, is the ideal — an ideal that people like Dr. Louis Block, president of Block, McGibony & Associates, Inc., and Gordon Friesen of Friesen International, both hospital consultants, foresee in the not-to-distant future. Meanwhile, there is not as yet one single fully automated hospital in the country, much less an operating combine of medical facilities linked by automation. Therefore, automa-

118 New Hardware FEBRUARY 1969 P/A

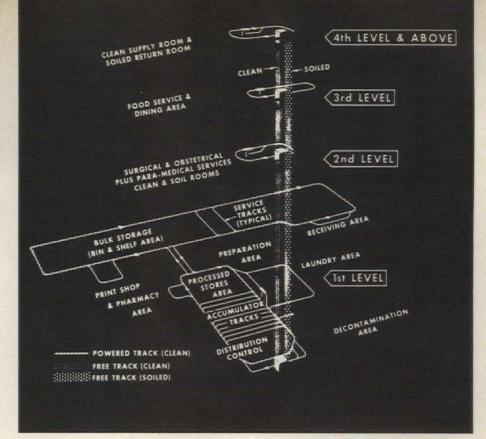


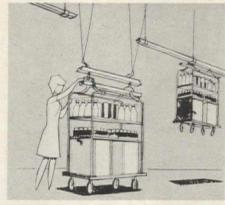
Manikin used for medical training duplicates human symptoms and physiological reactions. Aerojet General, in cooperation with the University of Southern California's School of Medicine, developed the manikin in accordance with simulation theory used previously for nuclear space power systems, guided missile, and satellite systems. Hybrid computer, composed of analog and digital models, allows instructor to monitor students' actions and "patient's" reactions.

◀ The world's largest hyperbaric pressure chambers, at Lutheran General Hospital, Park Ridge, Ill., have 1000-lb doors, strong enough to resist more than four tons of pressure from within. Highly pressurized air containing large amounts of oxygen is used for treatment of gas gangrene and carbon-monoxide poisoning. Chambers shown here are interconnected and can accommodate up to 30 staff members and patients for surgery and research.



Central control station for nurse-patient communication can also monitor all aspects of patients' conditions. Executone's system will monitor arterial pressure, electroencephalogram, pulse, respiration, body temperature, electrocardiagram.





At the new medical center for Cologne University in West Germany, automatic cart system delivers food to patients at mealtime. Consultant Gordon Friesen specified the most fully automatic equipment for food preparation: a battery of "Transferautomats" that mechanically convey food through a heat zone at a speed that produces a predetermined degree of cooking. Cooked food is dumped mechanically into hoppers that are carried along an assembly belt where food is portioned into individual, nondisposable plastic dishes. Food proceeds to a packaging machine and then through a blast-freeze tunnel that terminates in a storage freezer. At this point, a complex computer robot system takes charge of the packaged food, directing packages into a collating device that stacks them into labeled boxes. Boxes move along another conveyor, from which they are removed by an automatic robot and transferred to the appropriate gravity-flow shelf. A similar machine works at the unloading end, retrieving boxes needed to make up a particular meal. The entire operation is under control of the computer. Willi Brunnerkaut of Heidelberg designed the system; equipment was developed by two German firms.

Automatic Cart Transportation System provides both vertical and horizontal transferral of clean and used supplies on separate tracks. The system, developed for hospital use by hospital consultant Gordon Friesen with the Scandinavian Engineering Corporation and the Columbus McKinnon Corporation, will soon be operating in several Midwestern hospitals. A similar system can be seen in use at Sears Roebuck's main warehouse in Chicago.

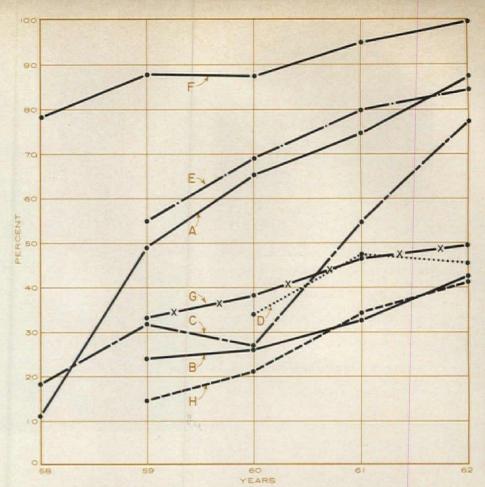


The Mayo Clinic in Rochester, Minn., is experimenting with a computer terminal developed by Lockheed Missiles & Space Co. The company has a contract with the clinic to study complete automation of medical records. This Video Matrix Terminal Data Center manufactured by Honeywell Corporation checks, correlates, and controls up to 2000 critical temperatures, humidities, fans, pumps, and other mechanical systems within the hospital. Color-coded schematics are flashed on screen; alarms and off-normal readings are indicated on digital display board. Data Center is modular, enabling hospital to expand controls as it adds new mechanical equipment, new buildings.

tion has not succeeded in proving itself as a means of reducing costs, although its advantages for increasing speed and efficiency of all kinds of hospital operations have been proved conclusively. Why has hospital automation had so difficult a time gaining a strong foothold in any clearly organized, rational manner? For any single institution, the installation of complex equipment is a very expensive business. Morris Katz, administrator of Montefiore Hospital, a large teaching hospital in New York City, points out that, "Although tremendous personnel costs indicate that it might be cheaper, in the long run, to make large capital expenditures for big pieces of equipment, it's far easier and more convenient to put on more personnel than to find a large sum all at once for equipment. You have to make the assumption that health care is being rendered in a very inefficient way," he continues, "and although the technology exists that could help change things, it can't be applied because the medical and political structures won't permit it." Dr. Martin Cherkasky, Montefiore's director, backs up this assessment of the situation: "We've long passed the time when we gained the ability to put into practice all these schemes involving the new technology, but politics and financial arrangements have delayed the process. Eventually, however, the existence of technology will force through the necessary changes." (For a further discussion of computers and their effects on the medical profession, see "The Physician's Role.")

An Expensive Proposition

When a hospital does install complex equipment, be it for direct medical use (cardiac monitoring equipment in intensive-care units, for example), for information handling (data processors for billing), or for operating a building's mechanical system (automatic scanning of temperature, ventilation, and lighting systems), it often discovers not only an improvement in efficiency, but a direct and continuing increase in costs that are traceable to the new efficient equipment. It may find that the equipment brings with it not a reduction, but an increase in highly paid, hard-to-keep personnel to maintain and operate the machinery. Or it will install a data-processing system for billing, and then find that this operation does not use enough of the computer's time to keep costs within reason. New uses for the computer are sought and found, but other functions demand other kinds of computers. And so another computer is purchased to handle these other functions, and the hospital finds itself with two machines, neither of which can be used to full capacity. According to Jess Kaufman, vice-president and product manager for the Hospital Division of Executone, Inc., no hospital can afford its own computer. The reasonable solution would be for several hospitals to share rented time on an on-line computer system. But instead, it is more usual to find neighboring hospitals



Percentage of Non-Federal Hospitals Purchasing Selected Disposable Products Annually, 1958–1962

Surgical gloves, hypodermic needles and syringes, transfusion kits, food trays, and linen are some of the hospital supplies being manufactured as disposables. Although disposable products have the advantages of being cleaner, cheaper, and easier to use than re-usable items, they cause monumental problems of waste disposal. Montefiore Hospital has become the largest polluter of air in the Bronx; its volume of waste has increased in 16 years from 55 to 150 cu yds per day. The increase is almost entirely traceable to the use of disposable products.

- A Hypodermic needles
- B Hypodermic syringes without needle
- C Hypodermic syringes with needle
 D Hypodermic syringe with prefilled
- D Hypodermic syringe with prefilled medication cartridge and needle
- E Sterile surgical blades
- F Plastic tubes
- G Surgical gloves
- H Plastic examining gloves

duplicating expenditures for separate computers of their own.

Duplication is a major cause of poor service and rising costs for all kinds of equipment. Classic examples of such waste are to be found in the Bronx, N.Y., where Albert Einstein Hospital is currently installing new cardiac care units at astronomical costs, in spite of the fact that Montefiore, hardly a mile away, has the capacity to handle every cardiac patient in the Bronx. As another example: A Montefiore administrator has been attempting for years to interest other Bronx hospitals in a cooperative laundry facility

that would greatly reduce costs, but without success. And a jointly supported laboratory system, connected by computer and television to every nursing station in each member hospital, would mean standardized lab work of the highest quality produced by the best personnel and equipment obtainable. But instead of cooperating on such a venture, hospitals in the Bronx and in most other cities continue to run their own labs, some top-notch, some, hampered by lack of funds, entirely inadequate. In general, the present piecemeal method of coping with hospital technology tends to emphasize the hospital's role as a highly complicated institution, full of extraordinarily specialized equipment and run by a well-educated staff using the most sophisticated techniquesall in all, a most expensive proposition.

Performing Wonders

If quick cost reductions through new technology seem a doubtful prospect, impres-



Doctor using Executone's Registat system puts his presence or absence on record by pressing buttons for his personal code.



The SMA 12/60, one form of AutoAnalyzer manufactured by Technicon Corporation, automatically performs 12 chemical analyses simultaneously on a single blood sample. Automation in the laboratory means smaller chance of error in tests or lab reports. Hospitals using the AutoAnalyzer report that, since tests are performed that would not be ordered if work were to be performed by hand, the machine frequently detects incipient diseases that have no obvious symptoms.

sive results do occur when new equipment is applied to the task of improving service, saving professional time, and helping doctors perform work that was previously impossible.

Medical applications of recently developed technology include, for example, the "multiphasic screening" process, a complete physical examination accomplished with the aid of computers. The process, developed for the Kaiser-Permanente hospitals on the West Coast and operative at Brooklyn, N.Y.'s, Brookdale Hospital as well, involves computers that read, process, and interpret medical records, speed lab work, interpret electrocardiograms, and produce a complete report of all acquired data for family or company doctor. Photography is applied for high-speed X-rays of chest, abdomen, and other body parts; it is also used to take deep color photos of the retina, and to take three-dimensional and heat-sensitive photos of the breast in checks for cancer. Electronic instruments test hearing, reflex of the Achilles tendon, and measure pulse and respiration. The system's value lies in its ability to catch unsuspected disease at an early stage and in its capacity for gathering data that lead to the establishment of norms based on age, sex, and ethnic background. Computerized diagnostic systems that will compile medical histories, order and schedule tests, and interpret symptoms are under study at Montefiore and in use in at least one psychiatric clinic.

Information handling of all kinds nurse call systems, doctors' paging methods, telephone communications, medical record keeping, and so on - has once again been reduced to a logical science. Although various types of automated



Mayo Clinic will use Lockheed's Video Matrix computer terminal, which consists of video screen, keyboard, printer, and electronic light pen. Magnetically coded card inserted in console identifies doctor as an authorized user; with light pen, doctor indicates type of treatment desired for any of his patients.

communications systems are operating all over the country (some of the most comprehensive are at Massachusetts General, Tulane University School of Medicine, Children's Hospital, Akron, Ohio, and Mercy Hospital, Chicago, Ill.), Lockheed's study of automated systems for the Mayo Clinic is probably the most imposing in scope. The report, which, for lack of funds, will remain unimplemented, concludes that patient registration, scheduling of medical orders, and reporting of lab test results are presently feasible, but that direct terminal entry of medical history and physical examination data would be feasible only with great difficulty from the doctors' viewpoint.

How do doctors feel about the machines that are coming to surround them? Some react the way construction workers do toward prefabrication: They want to know how far the computer will cut into their practice. Others mistrust the impersonality of diagnosis by computer. But once they have worked with them, most doctors consider computers effective tools. As technology and medicine move closer together, however, both manufacturers and doctors are finding it necessary to learn



Mobile closed circuit TV unit is produced by Motorola for use in surgery.

more about each others' jobs. A cardiac surgeon at Montefiore spends most of his time outside the operating room worrying about greater reliability and longer life for batteries, and has built his own conglomeration of electronic gadgets for monitoring and calculating tests for cardiac patients. Jess Kaufman, product manager of the Executone, Inc., Hospital Division, has become a Fellow of the American Hospital Association, a special affiliate of the AMA, a member of the White House Committee on Health, and member of the International Federation for Medical Electronics and Biological Engineering.

What will automation mean to hospital designers? Much the same thing it has meant to Jess Kaufman and Montefiore's Dr. Furman. Since much of the equipment that will affect medical and administrative procedure in the next 10 years has not yet been produced, there can be no manual of instructions for housing it and its users. A systems approach to design, one that places prime emphasis on flexibility and expandability, may be the most fruitful, and, of course, designers of mechanical and structural systems will have to contend with greater floor loads and duct capacity, but these are obvious admonitions. Most important will be the designer's ability to learn from hospital administrators, doctors, and equipment manufacturers. With equipment changing so radically, architects will be constrained to keep close tabs on new machines and systems, and, most especially, on the hospital's changing plans and needs for that equipment. - JP

A new structural-mechanical remedy called interstitial space is being liberally prescribed by hospital planners to achieve flexibility.

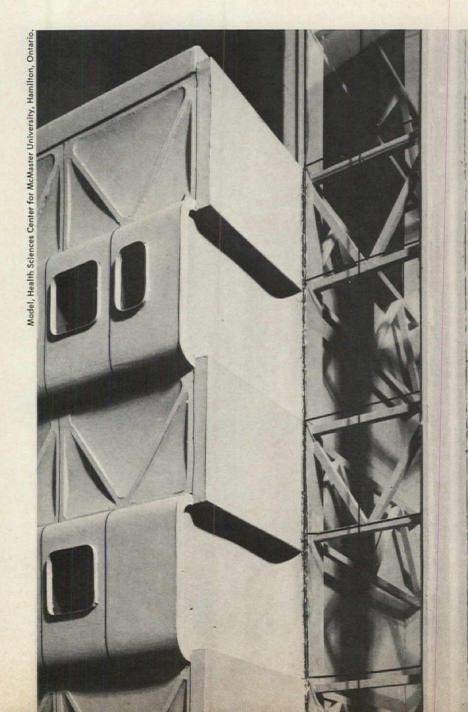
The medical profession has fought for centuries to keep patients alive and to extend the lifespan of man. Now, it is running a race against death to keep hospitals themselves alive. For "death," read "obsolete"; for "alive," read "flexible and changing."

It is imperative for architects and planners to develop a preventive prescription soon. Too many of our hospitals are already on the critical list by the time they are completed. The reason for this situation, as discussed throughout this issue, is that the changes in all areas of health services - scientific, technical, operational, and social - have been occurring too rapidly for anyone to predict what the future needs in hospital facilities will be. In the last 10 years, for example, the hospital laundry has become an expendable facility. Gone or going also is the hospital kitchen, since both of these services are now thought by many to be better contracted for out-of-house, much as the airlines operate in these respects. In addition, many are the scars of changing the form of the nurses' stations, and many are the complications of trying to include intensive-care units, which were unheard of several years ago. "Who knows what the influences of space medicine will be in 10 years?" asks Lloyd Siegel, Acting Deputy Administrator of Health Space Planning, Architecture, Construction and Equipment (Health SPACE), Health Services Administration, City of New York. This unpredictability only adds to the complexity of designing hospitals.

"It seems to be axiomatic that the more complicated a building is," notes hospital consultant Robert Chapman of Chapman & Garber, "the less responsive it is to the needs of the people who work in it. No matter how creative and careful a programming job you do, the odds on your being wrong are large, and in the health field, the odds are enormous."

The reason for this, as Chapman continues, is that the health field is unlike most other activities, such as manufacturing for example, in which an architect can assume that his client knows the answers about what the functions of his operations are, what his procedures are. Doctors do not know all the answers, because their work is constantly changing

the healing machine we keep hospitals from typing?



for technological, economic, and social reasons. As a result, the hospital remains the most complex of the common building assignments. It surpasses even the complexity of designing a theater, which is also designed to house an intuitive and magical craft — although many medicine men will not be pleased by the comparison.

How can hospital designers plan to accommodate this unpredictable future of uncertain change? The new answer is to design flexible spaces. Flexibility has proven a savior for general-use rental spaces in commercial office buildings during the past 20 years, though hospital planners seldom bring up that similarity either. Today, that same flexibility is a design goal for health-care facilities.

Flexibility in hospitals, however, is infinitely more critical than it is in the ordinary office building, which sometimes has had only mythical flexibility. A more intricate kind of design for unpredictable changes is required in hospitals, since the frequency and degree of change are both greater.

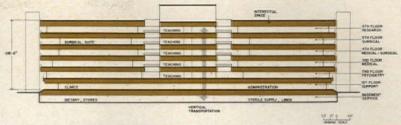
Eberhard Zeidler, of Craig, Zeidler & Strong, the architects of the Health Sciences Center for McMaster University, in Hamilton, Ontario, feels that the solution of this problem has brought him to formulate the idea of "a fifth dimension in architecture—the change of space-function due to the lapse of time."

How Does Interstitial Space Work?

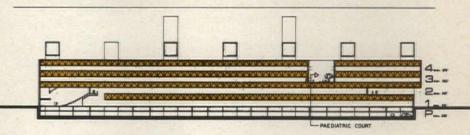
The new prescription for such future flexibility in hospitals, which Zeidler, Chapman, Siegel, and others are dosing out liberally, is "interstitial space." Not a satisfactory self-explanatory term, interstitial space refers to intermediate levels in a building that provides space for mechanical, electrical, and plumbing services alternating between the floors for primary ("human") functions. There are many possible variations and refinements on this idea, but all use the basic vertical separation of primary spaces from service spaces.

Other names used by hospital designers for interstitial space are "interspaces," "interfloor services," and "servo-systems." P/A suggests "intrafloors," "interstrata," or even "interspitial" for these sandwich layers. However, since interstitial space is a medical term indicating the spaces between layers of the skin, it is the one that will probably prevail.

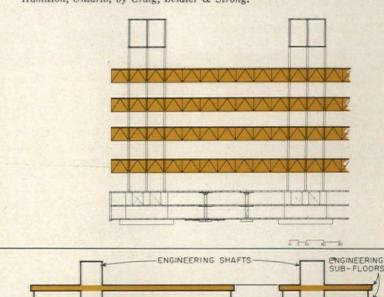
By separating mechanical services and, ultimately, the structure from primary-use spaces, several immediate benefits can accrue. Robert Chapman outlines the following potential benefits: Interstitial space can minimize the obstructions of structural columns, mechanical shafts, and waste lines. By minimizing such fixed vertical elements, the freedom in initial planning



Schematic section through Veterans' Administration Hospital in San Diego, California, by Charles Luckman Associates.



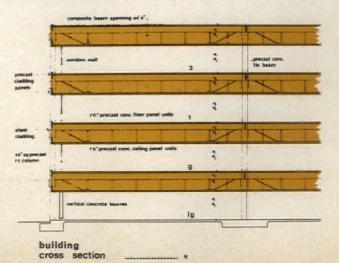
TYPICAL SECTION WITH THEATRE
Typical sections of Health Sciences Center for McMaster University,
Hamilton, Ontario, by Craig, Zeidler & Strong.



TYPICAL SECTION (EXAGGERATED VERTICAL SCALE)

Typical sections through Greenwich District Hospital, Greenwich, England, by the Ministry of Health's Hospital Design Unit.

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is correspondingly increased. In subsequent adaptations to new functions, therefore, it would be unnecessary to vacate the floors above and below when changes to the mechanical system were required. or even to vacate the rooms right or left.

Interstitial space can provide accessibility to mechanical and electrical services at all points. Consequently, maintenance can be provided without entry to primary spaces, and changes to mechanical systems can be readily made, whether or not these involve changes in plan to the spaces served. Interstitial space can provide larger areas, which are advantageous to the interaction of different teams of people by allowing more people to work on a single level in daily view of each other. This improves exchange of knowledge as, inversely, the separation of teams onto many levels impedes such exchange.

Put the requirements of these conditions together - minimization of fixed vertical obstructions, accessibility to services, and large floor areas - and the way is pointed toward a truss or space-frame structural system that can accommodate air-handling and electrical services within its long spans and consequently provide over-all access to these services, no matter what plan of partitioning is laid out for the primary-use spaces. Chapman, Zeidler, and Siegel therefore feel that, if a building can adapt itself to changes during construction, it can probably adapt itself to changes throughout its life. This is the concept of interstitial space.

Other Advantages of Interstitial Space

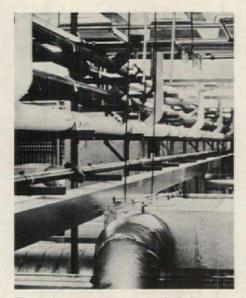
Although critics of the concept are few, questions about the limitations of interstitial space have naturally been raised. Primary among these is whether it is so expensive to duplicate floors that all other costs are outweighed. Hospital planners are beginning to foresee actual savings in cost with the use of the concept.

"A new awareness of the costs of a building, for its total lifespan," notes Eberhard Zeidler, "makes us able to separate the two parts of a building - the permanent parts and the changing parts.'

And the mechanical system, which is one of the permanent parts, as Charles Luckman Associates have pointed out with respect to hospitals, "is a significant component when viewed in light of its share of the total construction budget - 60 per cent."

Attention has clearly been given to the costs of these components, and although not all cost factors have been proved by experience beyond planning and projection, the saving in operational costs has been sufficiently observed in laboratories to be vouched for in hospital design. Those cost-saving advantages of interstitial space that hospital designers outline are the following:

■ Savings in operational costs through simplified maintenance and ease of repairs to mechanical systems. Access to the en-



View of interstitial space at Salk Institute.

tire system, which is exposed in its own clear-space of 6-ft to 8-ft high, enormously simplifies repairs, and, as a result, cuts the cost of those activities.

- Savings in operational costs through increased, built-in flexibility. The ability to change partitioning and mechanical services with greater ease brings about a reduction in costs for future reconstruc-
- Savings in initial construction due to months gained on mounting inflation. Since the structural-mechanical grid is separated from the primary-use spaces to provide flexibility, it can be bid and constructed before those use-spaces are finally programmed and fixed. Consequently, construction can begin earlier than usualthat is, before many parts of the program have been completed. In addition, the sooner construction begins, the less affected its cost will be by rising prices.
- Savings in initial construction costs due to use of the interstitial space compound system itself. Architects and consultants also claim that, in a cost comparison design for one planned health facility, the use of an interstitial space scheme saved \$2 million over a conventional scheme using the same area.

Several other advantages are said to accrue from the use of the concept:

■ Increased number of contractors who can bid. Since there are comparatively few contractors who can bid on, for example, a \$62-million hospital, the division of the contract into separate, smaller contracts makes available a greater number of firms to take on the construction work. For, if the structural-mechanical grid, which may come in at \$15 million, can be bid as a separate item, an architect can obviously find more contractors who are bonded to take on this lesser commitment than to take on the entire project. Clearly, this facilitates the construction procedure.

■ Time gained in the design process. The separation of structural and mechanical components of the building from primaryuse spaces delays the decision-making time for final layout of floors until much later in the design process than was formerly customary.

Finally, interstitial space is expected to decrease the users' resistance to change; it can make them ready to recognize change and adapt buildings to it, making clients themselves more flexible.

A basic recognition about costs is that construction is substantially less expensive than operation. Some of the New York State health facilities, for example, cost \$5 million every year to staff, as against \$17 million to build.

"Even if interstitial space were to cost substantially more to construct," Robert Chapman observes, "it would be silly to save on construction dollars without considering the consequences to operating costs, which the concept surely reduces.'

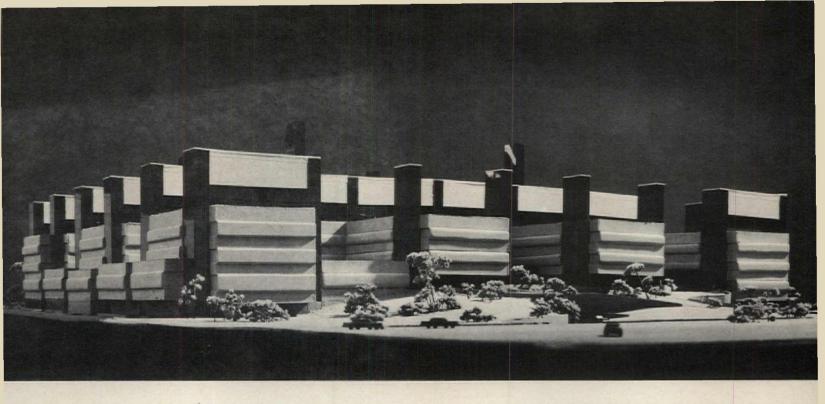
"We must therefore plan a building that is most efficient to operate," argues Lloyd Siegel, "and even if this means a higher capital cost initially, it is offset very soon. We figure that approximately 40 per cent of the capital costs are equalled every year in the operation and maintenance of a hospital complex, and this does not include the high-priced remodeling of inflexible spaces. So first capital costs are not paramount.

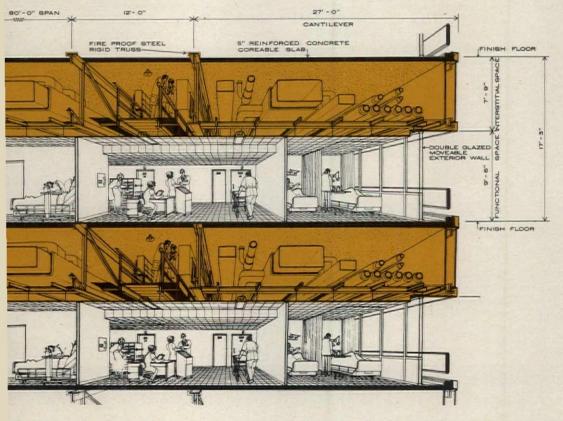
Siegel is even more impressed by the "streamlining" that the interstitial space concept can bring to the design process. "From the point of initial programming through beneficial occupancy," Siegel has said, "it takes the City of New York 15 years, on the average, to put up a hospital. In the private sector, four to five years is a proper period to allow. We feel that interstitial space could allow the City of New York to construct a building from start of drawings (now I'm not saying start of programming) to completion of construction in four-and-a-half years for a \$75-million project."

History of the Concept

With all these benefits claimed in its behalf, the interstitial space concept has understandably won a number of devoted advocates. As a concept, it has been under discussion for some five to ten years, but only recently has it been put into actual use in hospitals.

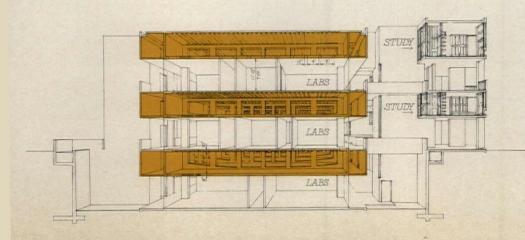
Used first in laboratories - initially by the Texas Instrument Company and in Louis Kahn's Salk Institute Laboratories - interstitial space was adopted for hospital use in the Greenwich Hospital,





Craig, Zeidler & Strong's \$70 million Health Sciences Center for McMaster University in Hamilton, Ontario (model photo) will provide 84' x 85'-6" bays with 73'-6" clear spans between vertical service shafts that are 10'-6" x 21'. This open loft space for hospital functions is made possible by a structural space frame between floors; the 8'-6" depth of this structure provides walkthrough space to service the mechanical facilities that run through it.

Charles Luckman Associates' \$28 million Veterans Administration Hospital on the campus of the University of California at San Diego will have interstitial spaces 6'-6" high (section left). The trusses that frame them span 80 ft and cantilever 28 ft beyond vertical structural shafts. The large open floors that are thereby provided for hospital use will have access to the mechanical and electrical equipment there and will have movable exterior wall panels as well as movable interior partitions. The movable exterior panels will satisfy the clients requirement for an expandable as well as a flexible facility.



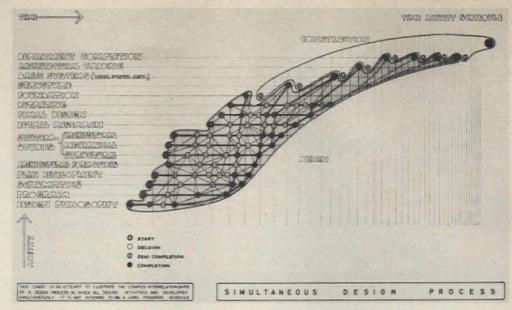
Louis I. Kahn's laboratories for the Salk Institute of Biological Studies in San Diego, California, made early use of interstitial space (section at left), which was from the beginning provided with a complete scope of the mechanical facilities and equipment that might be needed for future research (photo facing page).

London, now nearing completion, and is planned for the Health Sciences Centre at McMaster University in Hamilton, Ontario, by architects Craig, Zeidler & Strong. The planned Veterans Administration Hospital in San Diego, by Charles Luckman Associates, also uses the concept, as does Max Urbahn's projected Lincoln Hospital in the Bronx and the New York City Department of Hospital's feasibility study for Harlem Hospital Center, which was prepared by Chapman & Garber. England's Ministry of Health also is a proponent of the idea, in its "Best Buy for Hospitals" proposal.

Requirements of Interstitial Space

The first requirement is adequate access from below to the interstitial floors and their equipment. Second, sufficient height for the equipment and for maintenance personnel to service it are required. Since the volume of standard air-handling equipment is fairly constant, the necessary height has generally been determined by the size of a man standing upright (although schemes for maintenance men wheeling around on dollies in a horizontal position have been considered). Between 6-ft and 8-ft clear space is currently thought desirable for the interstitial level. (At London's Greenwich Hospital, the 6-ft height has already proved too tight for easy access; on the other hand, the expense for an apparently luxurious 7'-6" space at the Salk Institute had more often than not served to discourage acceptance of the concept.) Third, the construction of the floor for the mechanical equipment is a critical design decision; two rigid skins, however, can be advantageous both to costs and to structure, particularly in gaining longer spans.

Finally, the most difficult single decision about the concept is how extensively in a hospital complex it should be used. Hospital planners point out that the use of the concept is more critical in a teaching hospital than in a community hospital, since teaching hospitals are more complex and will undoubtedly require greater flexibili-



The telescoped design process possible when interstitial space is used shows in diagrams by Craig, Zeidler & Strong (above) and by Lloyd Siegel (below). Siegel also compares, in color, the consecutive phasing of conventional construction.

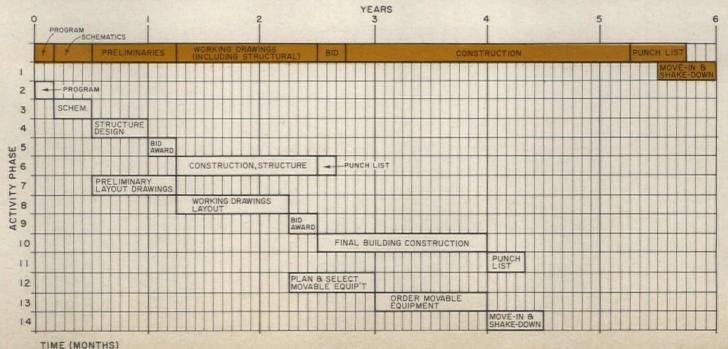
ty in the future. But even for those facilities, there is a question of whether the intermediate floor need be provided between patients' floors, as well as alternating between the research labs, radiology departments, and surgical suites where it is most evidently beneficial. The first reaction of many planners is that interstitial space is not necessary for patients' floors or for office space. Many have said that interstitial spaces should be installed only in the base or podium of a complex, and not in the patients' floors in the towers of the usual scheme. However, the critical uncertainty is whether or not those spaces will be required for other uses in the future. Lloyd Siegel points out that there may be times when it may be desirable to put research labs where a patients' floor may have been, and the cost of installing new mechanical equipment for them at a later time might be prohibitive. As Robert Chapman points out, "With the decentralization of inpatient care, it is the top floors

that are going to change most in the future. These are the areas that might someday house complicated functions that do not exist today."

Many planners are therefore coming around to the view that it is best to build the entire complex with interstitial spaces, since, for this reasonable cost, one can "cover one's bets" with open-ended interior planning.

Variations in the Concept

Proponents of interstitial space, having arrived at the concept in different ways, have also developed notable variations. First, the separation of mechanical system from the primary-use spaces has made it possible to combine the mechanical system with the structure; various combinations of joists, beams, and trusses as well as space frames have been adopted. Placement of vertical supporting members on the periphery of the floor space (with the mechanical services running within those



members) is one scheme for longer spans; another sets the vertical members within the floor area in such a way as to permit the division of floors into various modular sections, some of which are cantilevered beyond the vertical members.

A modular approach to the interstitial space itself, in the case of the McMaster University project, is envisioned as permitting vertical as well as horizontal flexibility.

Some planners, such as Raymond B. Lake of the Palo Alto Medical Research Foundation, are considering cutting back on the horizontal extent of interstitial space, so that the periphery of each intrafloor can be used for other purposes; other laboratories, offices, or storage rooms, for example, might be located there. The Salk Institute places some toilet facilities on the interstitial floors. Any number of other refinements may be developed to make the concept more useful and economical than it is already thought to be.

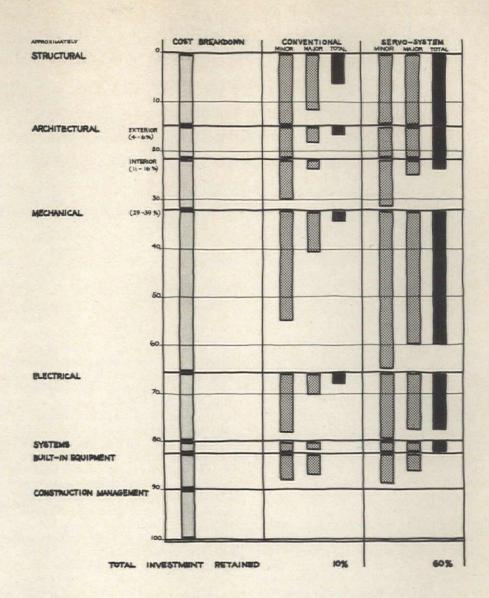
Conclusion

Perhaps there is an entirely different approach to flexibility that should be investtigated? Does the interstitial space concept put us more at the mercy of our mechanical engineers? We might flip the coin and look at the problem in a totally different way, as the British did with respect to health generally after World War II, for example. They determined not to build any more hospitals at all until they had built enough new housing in which people could grow up healthy. That might keep inpatient flow down so much that hospital occupancy would drop consider-

Robert Chapman did some similar bluesky thinking and suggested, though only as an example of the kind of thinking about the problem that might be done. that if we put all the money that is now spent on mechanical systems into air pollution control, we might be able to do without much elaborate interior air-handling equipment and simply open our windows again. This clearly does not apply to the clean air we need in hospitals, but the method of extrapolation might be the same to solve some flexibility problems in hospitals.

The point is well taken, for we should be thinking about what should be rather than how we can improve what is. In the health field, we are ahead of other countries in biological and technological matters because of the vast sums of money the Government has spent in medical schools and to sponsor basic research. But at the same time, we are behind other countries in the delivery of health services. As one hospital planner points out, "How many people are there in Harlem with holes in their teeth? Now, what have heart transplants to do with that?" Again, this kind of inquiry may force us to recognize whether we are thinking properly about what should be done in the field of health.

The question of what should be will lead



A graph by Craig, Zeidler & Strong provides a comparison of the costs between conventional structures and those using the structural-mechanical combination of interstitial space; it also reveals how much less of the original investment is retained when alterations are made to conventional structures as opposed to interstitial space buildings.

us back, inevitably, to the matter of flexibility. For the changes that might come about with optimal conditions will unquestionably influence the planning and design of health-care facilities. The impact of Blue Cross and Blue Shield on the use of two- and four-patient rooms versus onepatient rooms, for example, is now considerable. If they were to change their opinion - after all, Lloyd Siegel points out that today we would not consider going to a hotel with a shared bathroom yet we advocate putting two to four sick people in the same sleeping room - that change would markedly affect the layout of patients rooms. It would also improve the occupancy rate of hospitals. A flexible facility would make acceptance of this change markedly easier.

Similarly, if the neighborhood familycare center concept were to be more widely adopted, patients rooms would be of two kinds - those for very intensive care and those minimal care spaces resembling

hotel rooms; the usual intermediate care rooms would disappear. Again, a change would be necessary in many hospitals.

"It is hard to predict what changes will come about in the future of medical care." Lloyd Siegel concludes. "But we must do all we can to cut expenses. It now costs more to renovate a building than to tear it down and build a new one. Yet to tear down a solid-looking building that people have worked for and donated to over the years is sometimes harder. With interstitial space, this situation would be avoided.

It would appear, then, that the concept is not merely a new handle to get planners out of making firm early decisions. Instead, as one planner put it, "it will mean that the wrong decisions will not hamper people with physical facilities they cannot use."

And for architects, the concept provides unobstructed, clear-span spaces that are the direct route to that current architectural panacea - plug-in-hospitals. - crs

plug-ins the healing machine and pre-tabs

Along with other areas of the building industry, hospitals are looking hopefully toward pre-built components for quick construction, flexibility, and economy.

There are a few promising advances toward the creation of a more efficient, adaptable medical building, a true healing machine, both from the side of building technology and from the side of building logistics. Of the three systems here discussed, one, intended for loft-type spaces, promises a solution to the problem of flexibility in the hospital plan. The other two are systems for erecting clinics and medical office buildings quickly and, in one instance, remarkably inexpensively.

At the Research and Graduate Center of Texas A & M's School of Architecture, work has been underway for several years now, under U.S. Public Health Service sponsorship, on the problem of creating hospital rooms out of standard modular units, quickly and efficiently. The system is intended for use in loft-type spaces. Called the Adaptable Building System, it uses four components: a raised floor, assembled from panels, a modular partition panel-system, a perforated suspended-ceiling panel, and a one-piece molded glassfiber "hygiene component." The basic module for all components is 16 in. The floor panels are 32 in. square, and have a sandwich construction of plywood over a hardwood frame, with a resin-treated paper core. Supported at their corners by leveling jacks, they allow as much as 14 in. clearance for waste lines, water lines, vacuum lines, electricity, and communication lines, which can be run and tapped as required. The wall panels are 2 in.

thick, and have the same sandwich construction as the floor panels; they are laid up in courses, each 16 in. deep, and joined with splines. Lengths are in increments of 4 in. Leveling screws insure a tight fit into the channels that hold the completed partitions at top and bottom. Panels can be notched and folded to form corners. Light in weight, they can be easily moved and stacked. A door of the same sandwich construction is pivoted to the channels that hold the partitions. The ceiling masks various air ducts and lights. The "hygiene components" contain a w.c. and a sink some have a shower as well - and are set into an alcove built with the usual panel system. Plumbing is preassembled. The w.c. is of ceramic, while all other features are of glass fiber. Shelves and service panels can be fitted readily into the walls.

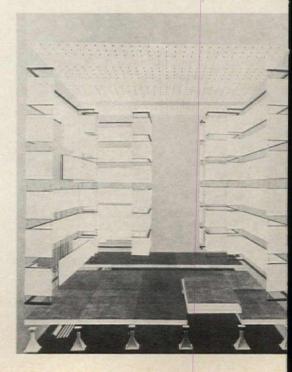
At the time of writing, the first demonstration installation is being made, at the Presbyterian Hospital in Dallas. This is a new hopsital, with a certain amount of expansion space that has been left vacant. Since the hospital had plans to install a 25-bed neurological unit, the decision was made to put this in the expansion space, using ABS components. Instead of the standard ABS raised floor, the structural slab itself will be used, with mechanical services brought in through the slab, and with hygiene units fixed in place. Even with these compromises, the installation is expected to provide a good in-use test for the system.

Trucked-In Clinics

Architects Cashion-Horie of Pomona, Calif., have designed and built three one-story clinics, assembled from prefinished, truckable units built by Designed Facilities Corporation of El Monte, Calif. DFC is not a specialist in clinic construction; its units are built for branch banks, small offices, and classrooms as well. They have a great resemblance to some of the units described in the June 1968 P/A (p. 108,



Texas A&M's Adaptable Building System.



"New Techniques: Real and Unrealized"), especially the bank components designed by Ziegelman & Ziegelman (p. 120).

The Cashion-Horie clinics are for West Oakland and for the Watts area of Los Angeles, in California, and for Mound Bayou, Mississippi. The Watts and Mound Bayou clinics were funded by the Office of Economic Opportunity, the West Oakland one by the Public Health Service and the Economic Development Administration of the Department of Commerce. The advantages have not been so much in economy as in speed of construction, which, from the beginning of site preparation to completion, takes somewhat less than half the time ordinarily spent. The units are shipped from the factory with all fixed equipment in place, ready to connect to utility lines laid at the site. In the case of the West Oakland clinic a one-story building with 30,000 sq ft of floor space - on-site assembly of the units, about 50 in number, required two days.

The units have a steel frame, with wood stud partitions, plywood exterior walls and floors, and metal roof decking.

Economy Through Logistics

Marshall Erdman & Associates, architects and builders of Madison, Wis., have brought the planning and construction of clinics and medical office buildings to a high pitch of refinement. Erdman claims an economy of 20 to 30 per cent over the average building of the same quality. The company specializes: It does only low-rise medical buildings and schools. It has built more than 1000 medical buildings in the 21 years of its existence, and employs 300 people in its Madison, Dallas, and Princeton offices.

The key to the Erdman system is the use of uniform elements in large quantities to save both time and money. Thus, every one of his medical buildings is de-

signed to a 4-ft module. Moreover, every space of a certain type, in every building he does, has a uniform size that has been shown by experience to be adequate for its function. Planning a given building is a simple matter of assembling the spaces required, like building blocks, in such a way that the proper communication patterns appear. Manufactured items are also uniform from building to building, and from space to space within the building, so that Erdman can place large orders with manufacturers for hardware, plumbing, electrical fixtures, prefabricated panels, and so on. The manufacturers are assured of a large, steady demand for their products, and can offer high-quality items at a very advantageous unit price. Erdman stores them in his own warehouse until they are needed. He also has his own fabricating plant, which turns out door and window frames, cabinetwork, roof trusses, joists, and other building components.

When a building is to be erected, the components and fittings arrive at the site, where a construction superintendent from one of Erdman's offices is waiting by the completed foundation to put them together with the help of local labor. The buildings are usually of brick veneer construction, and the studs and roof are set up before the masons come to lay up the brickwork.

To simplify problems of purchasing, storage, specifications, and installation, uniformity of materials and parts is sometimes carried to the point of seeming extravagance: closets get acoustical ceilings, storage rooms get high-quality hardware, set in the same type of doors used in the public areas. Ways of cutting costs and speeding up construction are continually explored. One Erdman device, for instance, is that of shipping out doors with attached hinges and knobs, placed symmetrically with regard to the horizontal center line so that any door can be made to open in any direction. Although staff architects do most of the planning, Edgar Tafel, an ex-Taliesinite practicing in New York, is retained as an architectural consultant.

In hospital design, the problem is to replan and rearrange interior layouts to suit the current demands of a highly changeable and exacting art. The clinic or medical office building, though sometimes requiring enlargement, is much more stable in plan; what counts here is to get the building up quickly and, if possible, cheaply. The Texas scheme appears to have great promise for solving the hospital problem. The Cashion-Horie and Erdman methods of building clinics, each with its own advantages, leave one wondering if a truly perfect method, combining features of both, is still waiting to be worked out.



Cashion-Horie clinic during assembly.

Erdman clinic at Grove Hill, Connecticut.



P/A puts the first last by concluding this issue with an examination of mental health - the nation's most critical health problem. With the introduction of tranquilizing drugs 15 years ago, architecture for mental health began its accelerating evolution toward today's open institution: without bars, fences, or locked doors.

Mental illness is commonly regarded as the country's Number 1 health problem. It is estimated that almost half of all hospital beds are occupied by the mentally ill, and that one out of every ten Americans will need professional help at some time during his life. Although these statistics indicate the seriousness of the psychiatric problem, they do not include the 6 million mentally retarded. Nor do they take into account the many behavioral aberrations that straddle the line between mental and social disorder: narcotics addiction, alcoholism, crime.

For the past century, the problems of caring for the institutionalized mentally ill have been so staggering, and the hope of cure so slim, that public pressure for improved conditions has been minimal. There has been far more concern for protection from the escaped "lunatic" than for his treatment. And this public fear is clearly expressed in the architecture of state mental hospitals.

Eight out of every ten hospitalized mentally ill persons is in a state institution. For these people, Freudian philosophy and the psychoanalyst's couch have meant little. "More than half of the patients in most state hospitals receive no active treatment of any kind to improve their mental condition." So stated the Joint Commission on Mental Illness and Health in 1961 after a five-year study for Congress.

The state hospitals started out with the best intentions of humane treatment. During the latter half of the last century, they began to take over responsibility for all indigent mentally ill, since towns and counties routinely put these people into almshouses or jails. Unfortunately, the burden proved more than the states could handle.

In addition to the patients formerly "cared for" by counties and municipalities, the large influx of immigrants swelled hospital populations far beyond manageable limits. They became great holding pens, isolated in the countryside. Understaffed and ineffective, they were nothing more than prisons. A population of 2000 to 3000 is still considered small, and in the larger states, up to 12,000 people are herded into institutions that are architecturally forbidding and therapeutically useless.

A few years ago, the superintendent of one such institution remarked that the problem was not the illness but the hospital. Its protective regimen and large wards have long been recognized as a prolonging and exacerbating influence that can only add to the crippling effects of mental illness.

Until 15 years ago, the cycle seemed unbreakable. But in 1955, there occurred the single most significant development to date in the treatment of mental and emotional disorders. It was the introduction into general use of tranquilizing drugs. Although the medical profession is still cautious, this now standard item of pharmacology is credited with substantially reducing patient populations - in some states, by as much as 25 per cent.

Tranquilizers are keeping everyone from top executives to housewives out of institutions. The drop in resident case loads is doubly impressive, since a rising population and a fast-paced urban life send more people than ever into institutions. (In New York, admissions are up 48 per cent from 1954.) But patients are being returned to the community at a rate that would have been unthinkable a generation ago.

The effect on architecture has been startling. The massive monolith has given way to cottage campus plans that suggest therapy rather than custody. Bars, locked doors, and chain-link fences have gone the way of the straitjacket. Likewise, the pastoral purgatory is on the way out. As public fear dwindles, communities are beginning to accept the school-like structures in their midst. Siting a treatment center in a city has at least two distinct advantages: Directors can attract bigger and better staffs, and patients can maintain contact with the outside. Some institutions are even planning to invite local community residents to share their recreational facilities.

Community volunteer programs, such as foster grandparents for retarded children, fit in with a trend toward more social and behavioral approaches to treatment. Recent studies have demonstrated a startling response of hospitalized patients to the nonskilled person. A study conducted several years ago at the Los Angeles County Hospital was not the first to reveal that patients improved at a rate inversely proportional to the professional background of their staff mentors. Incorporating nonskilled personnel into the therapeutic process is also an obvious benefit to overworked psychiatric staffs.

Architects have helped along this informal contact by mixing up staff, patients and visitors in such places as cafeterias and lobbies; or by routing circulation past kitchens and housekeeping departments.

There is probably no other building type in which design is more critical or its influence more demonstrable than in architecture for mental health. At one mental institution, when it became necessary to move a group of patients and staff from a pleasant, open building to one that was more closed and forbidding,



the use of restraint tripled within a month

There is also no other building type on which so little organized design information is available. The drug revolution is still young, and its architecture even younger. The very freedom that doctors and designers now have in their search for the ideal environment is somewhat overwhelming. But in New York, a fiveyear-old construction program is making major strides toward developing innovative solutions in the field.

In proportion to its population, New York State has more people in mental hospitals than any other state in the nation. And, with the exception of Pennsylvania, it sends fewer of them back into the community. Before the introduction of tranquilizing drugs, state hospitals were hopelessly overcrowded; now, they are merely understaffed.

Despite these damning statistics, New York spends one-quarter of its operating budget on running mental facilities. At least part of that money is inefficiently spent on the maintenance and administration of outdated buildings, described by one observer as being "Civil War-type of construction."

When two mental hygiene facilities were completed in the early 1960's, they were the first to be built in 30 years. Today, a major building program is in progress under the aegis of a new quasipublic corporation patterned on the State's older university construction program. Originally titled the Mental Hygiene Facilities Improvement Fund, it was created by the legislature in 1963 at Governor Rockefeller's request to coordinate construction, design, and financing, which is supplied through the sale of bonds.

The Fund's original client was the Department of Mental Hygiene, for which it has designed, built, or modernized a number of mental hospitals, schools for the mentally retarded, and research facilities. Its scope was later broadened to include treatment centers and after-care clinics for the Narcotic Addiction Control Commission. And last summer, it was made responsible for the construction of hospitals and clinics. It now, therefore, covers the entire range of mental and physical health.

Bonds are sold by the State's Housing Finance Agency. The corporation designs, constructs, and equips. Allowable bond sales are about \$1.5 billion - \$850 million for mental and narcotics facilities and \$700 million for hospital construction.

Adequate funding makes it possible to build more efficient and sophisticated plants that will pay off in reduced operating costs. Initial investments are also less because projects go into construction much faster. Since the corporation operates outside normal government channels, the costly delays that plague so many public projects have been substantially curtailed. "Delay is a more expensive element in a building than any walls of marble, irregularity of building shape, or excessive glazing," the corporation's executive director Milton Musicus recently observed. "We figure that [in New York] the cost of delaying a \$15 million hospital one year is about \$1.2 million. This would add about \$72,000 a year in debt service for the next 30 years."

The corporation's independent status is equally important to the quality of architecture. Architects work with the Department of Mental Hygiene (DMH), but are free from lengthy planning and approval procedures that previously involved the Department of Public Works and the Office of the State Architect. The DMH has scrapped obsolete state programs and written new ones with the assistance of well-known consultants. And although the client has the last word, architects are invited to question and kibitz.

Both established architects and young, relatively unknown firms have been sought out to help plan innovative solutions for the new therapies. The approach to selecting architects was explained by the original director of development, Daniel Sullivan, who organized the architectural unit of the program: "The idea was to pick swinging architects - responsible swinging architects."

Working on each project with the designer is an in-house corporation architect (or development administrator), programmers, and other representatives of the client who meet every two weeks at corporation offices in Manhattan to iron out design problems and discuss progress. On major projects, a construction manager, selected from recognized construction firms, is also assigned. He advises during design stages, hopefully keeping projects within the budget, and directs the work of prime contractors, aided by computer-planned CPM scheduling.

The Department of Mental Hygiene is now setting up a highly integrated statewide shared services plan that will bring modern management techniques to its 36 hospitals and schools. Heretofore, facilities have supported their own food services, which often included such operations as bakeries and canning plants. Late this year, the new system will be operating out of two major depots supplying virtually all food, clothing, and housekeeping materials. Sparked by the corporation's decentralized building program, it will deliver palletized supplies in standard containers to small storage centers grouped around the loading dock at each institution. Space-consuming support functions will be substantially reduced, and savings are expected to amount to \$1.5 million annually.

The following half dozen projects represent an unusual combination of design ideas for both therapy and economy. In a future issue, P/A will publish several projects that are now in the completion stage. - AR

Stimulation is the key concept in new treatment programs for the mentally retarded - the use of color, irregular shapes, diagonals; in short, high-key complication for selected areas. Now that the massive ward is disappearing and sleeping is largely separated from therapy, a series of spaces can be designed to provide a variety of environments - from quiet retreat to loud play area. The idea is still controversial and in the experimental stages, but there is growing evidence to support it. Sensory stimuli are believed to accelerate the learning process of the retarded in much the same manner as they do in normal children.

Katz, Waisman, Weber, Straus/Joseph Blumenkranz have designed the Kings County State School to be sited in Brooklyn. The use of broken space, long corridors, and busy open areas may seem confusing when the limitations of the occupants are taken into consideration. But the school was not designed as a bland lullaby environment to set behavior patterns; the object of the exercise is to train children and, if possible, return them to the community. The many who will never be able to leave the institution, and the staff, will also benefit.

The long, glazed pedestrian streets that lead to the educational-recreational town center from suburban residential clusters may seem too demanding. But the architects view them as teaching devices. Patients are thought capable of eventually grasping the concept of travel and destination, and deriving from the new knowledge a sense of accomplishment.



Photo: Robert Galbraith



All roads lead to the center of the main building, a large open area that is the climax of visual stimulation and spatial complexity. It opens up from low-ceilinged corridors into a high, truncated pyramid. Low, built-in furniture divides the space into several areas that mix into the open staff cafeteria and provide informal contact with patients.

Free-standing screens with cut-out shapes or letters are planned, to point the way to various activities. And graphic artist Barbara Stauffacher is working out some of her colorful Supergraphics for the central space, the corridors, and other community spaces. Living areas, however, are to remain quiet. Some of the graphics will be designed to give directions (letters, symbols, color-coding, and so on), and others will be simple depictions of objects in nature.

Five four-unit clusters provide the needed contrast between what might correspond to home and work for normal persons. Of the four units in each cluster, two are single story and two are twostory.

Each floor accommodates 24 beds, principally in 2- and 4-bed rooms grouped around a small enclosed court. Each building has a dining-activity room, a nursing station, and three small lounge areas tucked into the corners of a glazed inner corridor around the court.

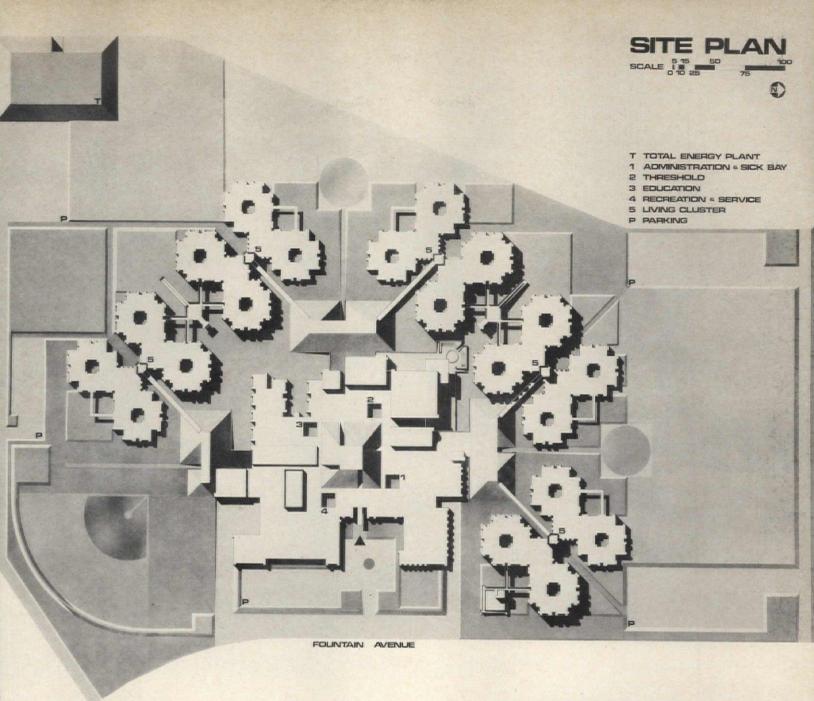
Each two units share a pantry, an outdoor play area, and administrative offices.

Each cluster shares a lobby that visitors can enter directly, without being processed through the main building. Each two clusters share a larger sheltered playground. Landscape architect Paul Friedberg is in the process of developing special action toys, and outdoor kiosks in which to store them.

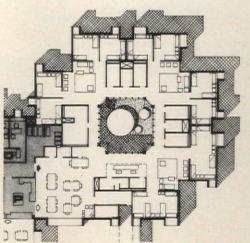
The five streets from the residential clusters join to form three main corridors that lead into the main building, or "Habilitation Center" as it is called. The corridors run through the building and emerge in the central space, where they pierce the sloping section of the pyramid and extend a short distance into the open area. Glazing rises from the corridor roof to meet the higher central roof; this jutting section helps to identify each of the corridor streets.

The three streets, together with a main entry corridor, divide the central school into four quadrants: (1) administration, sick bay and infant care unit; (2) "threshold" (swimming pool, gym, library, physical and occupational therapy); (3) educational (craft shops, classrooms, counsellors); (4) services and recreation.

Some of the distinctive design characteristics derived from the fact that the



school lies directly below a flight path to Kennedy Airport - a disadvantage that led to some interesting defenses against jet noise. The grounds are generously bermed around buildings, play areas, entryways, and so on. Double-glazed, gasket-sealed windows are recessed and set in jutting frames that are designed to deflect the sound. Ceilings are double sheet rock and specially insulated; lighting fixtures are surface mounted, and air handling is kept in the walls wherever possible. A 3000-lb concrete, split-core block was used for its sound-deadening mass and for texture. Acoustical consultants were Bolt, Beranek, & Newman.



Living Unit

narcotics halfway house

When New York's narcotics addiction legislation became law three years ago, it created an urgent need for a variety of new facilities, from intensive treatment centers to neighborhood clinics. Under the new law, addicts can be committed through the courts in one of several ways: voluntarily by their own petition; by petition of family, friends, or others; or after arrest. Although there has been understandable controversy over the legality of involuntary commitment, it is an attempt (rare in this country) to deal with this social health problem outside the established penal system. With treatment, there is at least hope of cure.

Russo & Sonder's after-care treatment center at the heart of Harlem is in an ideal position for the Narcotic Addiction Control Commission's Community Based Service program. As a halfway house between large intensive treatment centers and the community, it will provide care in various stages for the patient, or rehabilitant, who can progress from a closely supervised residential treatment program to outpatient counselling on a periodic basis.

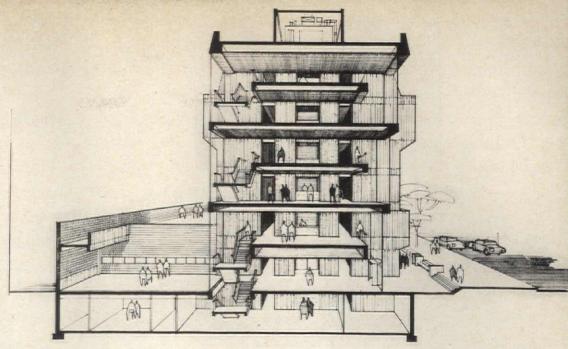
The site faces Mt. Morris Park, a sizable green spot in the area, and is surrounded by typical New York brownstones. The architects have maintained the standard 20-ft-wide brownstone bay and low-rise character of the neighborhood. Along the front façade, the entry level is depressed to form a sunken plaza and invite "stoop" sitting.

The building is divided horizontally into three sections. The basement and first two floors provide daily counselling, educational programs, and recreation for nonresidents. The top two floors accommodate dining, sleeping, and recreational facilities for 50 residents who are not yet considered ready to return to the community or who live at the center until suitable living arrangements can be made in the neighborhood. Residents and nonresidents will share the middle section of the building where sheltered workshops.

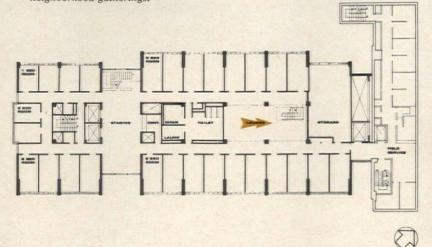
will hopefully provide money-making employment. Contracts will be solicited from local businesses for such things as garment work and the assembly of small appliances.

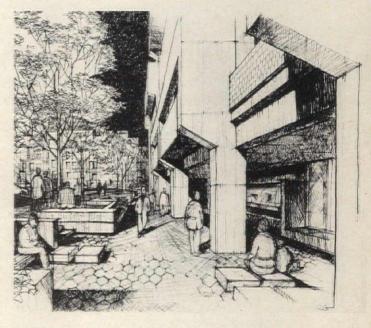
A renovated building at the end of the block, already converted to office space by the architects, will provide counselling for 600 persons who no longer need daily support.

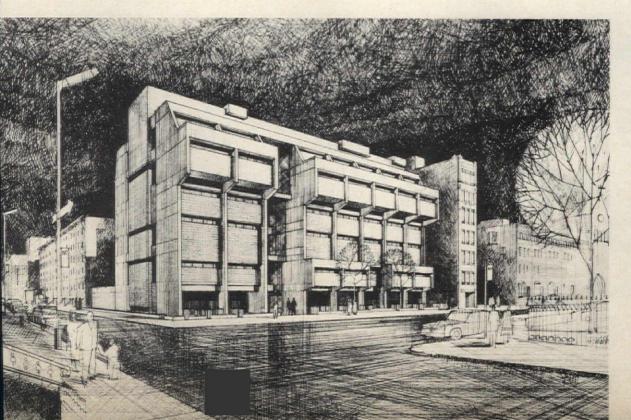
Security is handled by connecting the three sections internally with stairs. Stairs, however, do not bridge between sections; circulation between sections is by elevators, which will be controlled by staff. Further supervision was planned into the architecture by placing treatment facilities between the office building (connected at each floor to the new structure) and a group of staff offices at the far end of the new center. The fifth-story cantilever was popped out to provide sufficient bedroom space and maintain the line of the connecting corridor to the old building.



Two-story-high lounge (facing page, plan below) lends spaciousness and an air of the outdoors to bedroom and living floors at the top of the building. Sunken plaza (right center) along the sidewalk invites neighborhood gatherings.



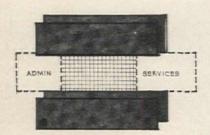








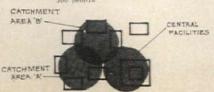
B The Team Group



C The T.U. Group 100 people



D The Catchment Unit Group



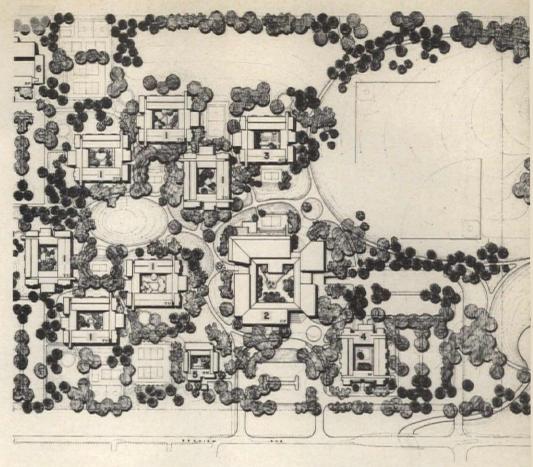
hospital for the mentally ill

The Staten Island State Hospital, to be built this year to designs by John Carl Warnecke, will accommodate 800 psychiatric inpatients, as well as outpatients and day patients who attend on a regular daily basis. Facilities for physiotherapy, occupational therapy, teaching, recreation, and group events are to be provided. Many of the social and recreational facilities are to be made available to persons from the surrounding neighborhood.

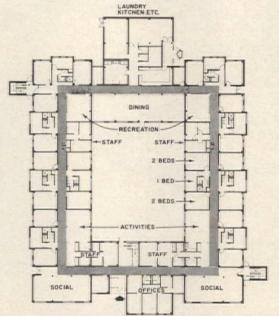
The over-all plan is designed to accommodate the needs of the inpatient, the person most in need of help. Ordinarily withdrawn but on the way to recovery when he enters the hospital, the inpatient is given a choice of places, varying in size and population, to which he can restrict his movements while he prepares himself for the next step toward the everyday world. (This chambered-nautilus approach, allowing the patient to be in as large or as small, as populated or depopulated a place as he finds comfortable, has also been adapted to the plan of a dormitory complex; see September 1968 P/A: "Experiment in Dormitory Design"). Bedded down in a one-bed or

two-bed room, he shares a bathroom and a stretch of corridor with four other people. Five such groups form a "team group" of 25, with its own recreation and social areas. Four team groups are housed in an individual building, or "treatment unit" for 100, which has its own administrative offices, dining facilities, laundry, and so on. Three such units, housing 300 in-patients, are placed informally around a "common," and together with this common form a "catchment area." The two commons abut on a "village green," adjacent to the Central Facilities Building, which is a common meeting place for all the patients, equipped with therapy rooms, classrooms, a gym, a coffee shop, an auditorium for 500 persons, and related facilities. The Central Facilities Building also serves as administrative headquarters and as a reception place for visitors, and performs some of the functions of a community center for the neighborhood. There is a separate building for adolescent inpatients. In addition, there is an infirmary for medical emergencies, and for housing the incapacitated.

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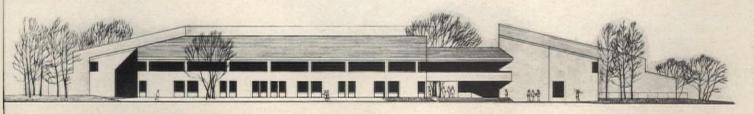


Since the site is a rather bleak one on the east shore of Staten Island, landscaping will be extensive, and a green belt will tie the hospital together with nearby Richmond College, an educational institution. The hospital site is to be treated as a campus of domestically scaled buildings, grouped so that quadrangle and courtyard spaces are defined, and outlook from the center limited, but not so much so as to create a sense of confinement. Exterior materials will be white cement stucco and terra-cotta colored asbestos cement roofs. In addition, there will be a system of exterior color coding to aid patients in orienting themselves.



TREATMENT UNIT FIRST FLOOR

- 1 Treatment unit
- 2 Central facilities building
- 3 Adolescent in-patients
- 4 Infirmary
- 5 Student housing
- 6 Boiler plant



VIEW FROM BEAVIEW AVENUE

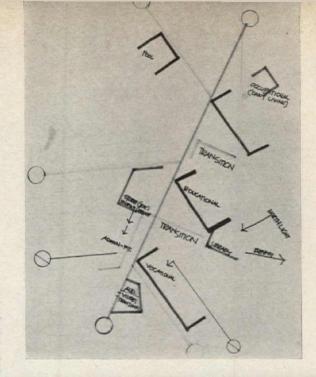


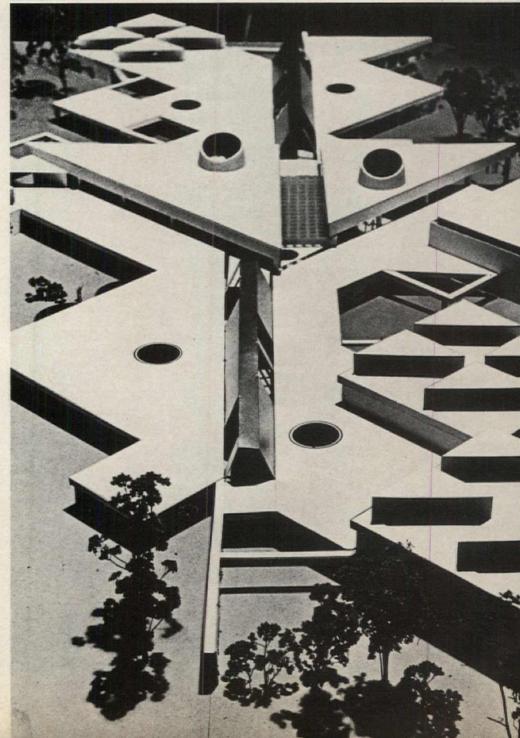
three rehabilitation centers

The three rehabilitation centers shown here are to be additions to existing New York State hospitals. Their purpose is to mediate between the hospital world and the outside world, either for inpatients or for persons who continue to live away from the hospital. The inpatients, however, are the primary users; at the centers, they will learn, or relearn, the skills and attitudes required in everyday situations - at work, in company, or around the house. Certain design requirements are constants; the building, obviously, must not look forbidding. Again, since it must cater to confused persons, its plan must be easily understood, and as far as possible coordinated with the existing hospital site plan. The center should not only house the doctors' offices, recreational rooms, classrooms, therapy rooms, and the other separate and distinct facilities, but create, in its general composition, a place in which the patients will be encouraged to cope with social situations.



A rehabilitation center is to be built at Hudson River State Hospital later this year to designs by Cadman & Droste. An effort was made to align the various centers of activity within the building in order to utilize the best qualities of a site varying in character from one end to the other. Thus, the "evaluation and development" area, given over to teaching, is located in a quiet area of the rehab center, protected by an embankment that gives the patients a protected outdoor space for use in good weather. The more extroverted activities of the "social-resocialization" and "recreational therapy" areas face more open ground, which is laid out for various games, and are placed closer





to the main hospital buildings, on either side of the main entrance to the center. To unite all the activities, the architects have created a skylighted "interior street," which allows the patient to observe the variety of things that go on in the building. It is felt that this interests the patient, and strengthens his will to recover. At certain places, the street widens into broader areas, which serve as social gathering places outside the main social rooms.

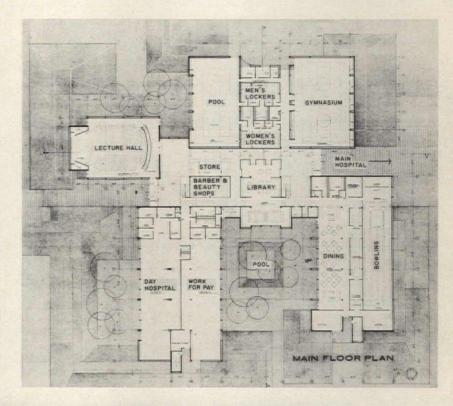
The construction is to be of concrete block exterior walls and pumice block partitions, with exposed waffle-slab ceilings and concrete floors covered with quarry tiles or carpeting.

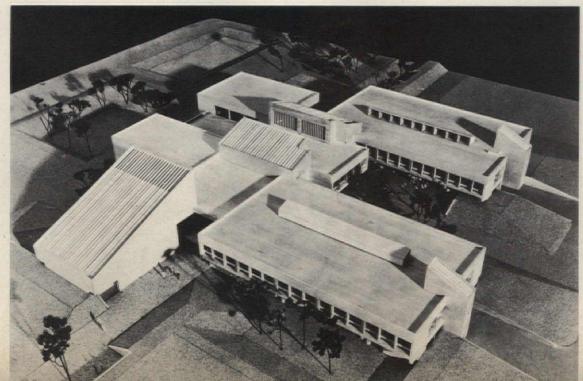
The design as shown here has been modified somewhat, but remains essentially the same.

the bronx

A rehabilitation center at Bronx State Hospital is to be built this year to designs by Gruzen & Partners. It will accommodate inpatients, outpatients, and day patients, and provide facilities for psychotherapy, occupational therapy, recreation, and "work for pay." One interesting feature is the "day hospital," a center for patients, who spend their days at the hospital and go home at night.

The plan is laid out in a way that allows for easy circulation and easy self-orientation, an important consideration in planning for the mentally disturbed. The major path of circulation through the building is thus a continuation of the north-south axis established by pre-existing hospital buildings. Since the site is rather undistinguished, most of the pub-







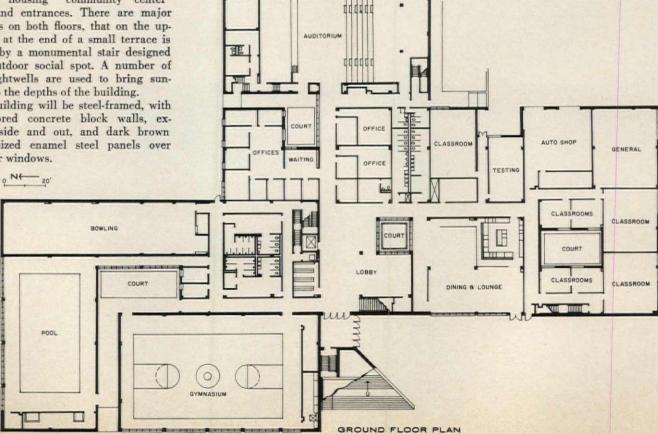
lic spaces with eye-level windows face a landscaped courtyard.

The building is steel-framed; all framing is fireproofed. Walls are nonloadbearing concrete block, exposed inside and out. The ground floor is paved with brick, the upper floor with resilient tile over a concrete slab.

central islip

The Rehabilitation Center at the Central Islip State Hospital, designed by Armand Bartos & Associates, is now under construction. Intended as an expression, in its massing, of the threefold division of the center's activities into occupational and vocational therapy, recreational therapy, and administration, the building has a three-limbed plan, with the area of junction housing "community center" spaces and entrances. There are major entrances on both floors, that on the upper floor at the end of a small terrace is reached by a monumental stair designed as an outdoor social spot. A number of small lightwells are used to bring sunlight into the depths of the building.

The building will be steel-framed, with sand-colored concrete block walls, exposed inside and out, and dark brown porcelainized enamel steel panels over the upper windows.



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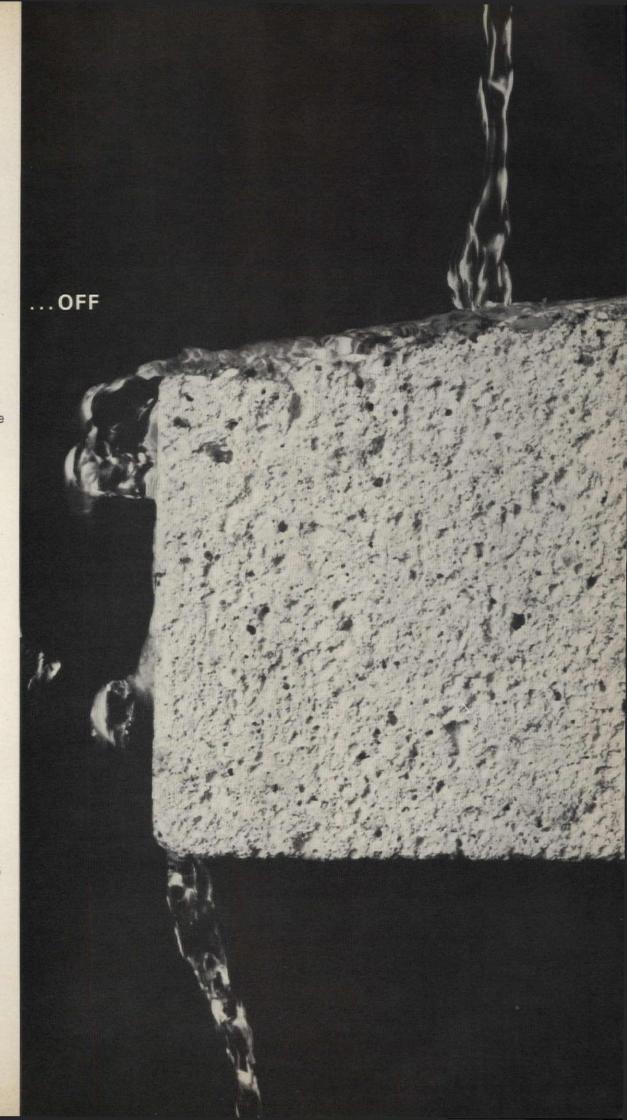
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SPECIFICATIONS CLINIC

SPECIFYING WHITE CONCRETE

BY HAROLD J. ROSEN

By following correct specifying procedures, a designer can obtain good architectural white concrete. Rosen is Chief Specifications Writer for Skidmore, Owings & Merrill, New York City.

White concrete can be used by a designer to achieve striking architectural effects. However, the designer should include his exact requirements in the specifications to insure he obtains the right results when designing the white concrete.

White cement is used in concrete for three major purposes: First, it is used when a pure, nonfading white color is desirable. Second, if a true color other than white is required, the addition of coloring pigments to white cement provides a remarkable depth and brightness of color. Third, white concrete is used when a high degree of reflectivity is needed, such as for factory floors and traffic median barriers.

There is little difference between white and gray cement — essentially, it is one of color. White cement has the same strength, uniformity, durability, and workability as gray cement; and it is no more difficult to mix or handle than gray cement, although white concrete does require some additional precautions.

To obtain concrete with a true white color, the following precautions must be observed. All the white cement for the job should be specified from the same mill to insure the same degree of whiteness throughout the project. The color of the concrete depends on the color of the cement used to batch the concrete, and to some degree on the color of the fine aggregate. The coarse aggregate selected for use in white concrete can have a considerable influence on the final color of the concrete. The coarse aggregate should be reasonably uniform in color and a light-colored aggregate is preferable to one that is dark. Some architects have achieved rather interesting effects by using dark or multicolored coarse aggregates.

The sand used in white concrete is important, too. For true white concrete, the sand should be clean and white. Most natural sands lack the required whiteness, so normal sand will give an effect less than pure white. On some projects, this may be entirely acceptable to the designer.

Batching and mixing white concrete is comparable to that of gray concrete, and most ready mix producers can do it. The essential requirement is that the equipment be clean to avoid contamination. Not more than 5 gal of water per bag of cement should be used. If necessary, the proportions of fine and coarse aggregate can be adjusted to achieve the required degree of workability, but the 5-gal water limit should

not be exceeded.

Plastic-coated forms should be used for cast-in-place white concrete. These forms do not require the use of a release agent, and thus one of the principal causes of surface staining or discoloration can be avoided. Some plastics may cause "pinking" in both gray and white concrete, so it is best to make a trial casting. Form linings can be used, but those with a highly glazed mirror surface should be avoided, since they may cause crazing in the concrete surface. Nonabsorbent linings should be used when uniformity of color is important. Absorbent linings permit bleeding of water from the concrete, which results in a darker surface on the face of the concrete. If steel forms are used, they must be carefully maintained to prevent dye discoloration from iron oxides.

All formwork must be watertight to avoid sand streaks in the surface of the concrete. In addition, the same form material should be used for the entire project, since materials of different porosity will cause discoloration and changes in texture. Form joints should be sealed to prevent mortar leakage. The most satisfactory method of sealing form joints is to use one of the special pressure-sensitive tapes made for that purpose. Masking tapes should not be used, since they will create slight depressions and may create color variation because of the difference in absorbency between tape and lining.

Bond breakers and form oils can discolor concrete. It is best to use forms that do not require a release agent, such as plastic coated or fiberglass forms. There are some nonstaining form oils, but they should be tried on samples for evaluation.

White concrete should be placed with a slump of no more than 4 in. Vibrators must not be allowed to contact the form-

work, otherwise local pockets of fine material may form near the face of the concrete surface.

When white concrete is used on floors, troweling should be performed with either a stainless-steel trowel or a plastic trowel to prevent "burning" the concrete surface. ("Burning" is a blackening of the concrete surface resulting from attempts to hard trowel the concrete after it has become too stiff to trowel properly.) When metal trowels are used, they should be kept wet to avoid this discoloration problem.

Curing products should be limited to those that will not stain concrete. Polyethylene film and nonstaining water-proof papers are satisfactory. Curing compounds should be avoided if a uniform appearance is desired. If plastic sheets are used, they should be kept from contacting the concrete because a mottled effect may result.

Pigment requirements for coloring white concrete range from 2 lb per bag of cement for light shades to 6 to 9 lb per bag of cement for true color tones.

White concrete has many attributes and can be used successfully if these simple specifications and construction hints are followed. COOPER-BREGSTEIN REALTY CO.

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WAIVER OF ARBITRATION RIGHTS

BY BERNARD TOMSON AND NORMAN COPLAN

P/A's legal team discusses a case in which a party may waive its right to legally challenge the validity of an arbitration contract.

In last month's column we discussed a decision of the Supreme Court of New Hampshire involving a waiver of the arbitration provision contained in a contract between owner and architect. This waiver resulted from a participation by one of the parties in a legal action involving the subject matter that it subsequently sought to submit to arbitration. Another aspect of this problem relates to the question whether a party to a construction contract may waive his right to go into court to challenge the legality or validity of a contract containing an arbitration clause. In a recent case (Mid-Atlantic Construction Corp. v. Guido, 291 N.Y.S. 2d 501), the Court found such a waiver on the ground that the party seeking to resist arbitration had failed to comply with statutory requirements and had participated in selecting the arbitrators.

In this case, the plaintiffs had entered into a construction contract with a general con-

tractor for the construction of a shopping center. The agreement was prepared on the AIA's "Standard Form of Agreement Between Contractor and Owner for Construction of Buildings." During the progress of the work, the owner complained about delay, and after a continuing dispute, the general contractor eventually stopped work and the owner served a notice of termination. The general contractor commenced legal action against the owner, contending that he had been induced by fraud to enter into the contract and further sought payment for extra work and for the unpaid balance of the contract price. The owner served a notice of intention to arbitrate pursuant to Article 40 of the contract, which provided that "all disputes, claims, or questions subject to arbitration under this contract shall be submitted to arbitration in accordance with the provisions, then obtaining, of the standard form of arbitration procedure of the American Institute of Architects." Article 40 further provided that "it is mutually agreed that the decision of the arbitrators shall be a condition precedent to any right of legal action which either party may have against the other."

During the pendency of these actions, various mechanics' liens were filed by subcontractors and these lienors were impleaded in the legal action. The defendant-owner moved to stay the trial of the action pending a determination of the arbitration proceeding which he had instituted, but the parties were ordered to proceed to trial, and proof was presented on the fraud allegations contained in the complaint.

The allegations of fraud were based upon a contention that the contractor had not been advised as to subsurface conditions and that the owner had not disclosed his private soil test borings to the contractor. However, the trial court dismissed the allegations of fraud, which dismissal was affirmed on appeal, on the basis that the bidder had been fully apprised that the information to be obtained in connection with the site and its environment and the conditions affecting his work were to be secured by personal investigation. The Appellate Court stated:

"There is no testimony of an actual misrepresentation. The abnormal water conditions were self-evident (among other items, a brook running through the site and land adjacent to the site sloping down toward it) and were discussed prior to the execution of the contract. Owner had no duty to disclose its private soil test borings."

The trial court, having found that there was no fraud in the inducement of the construction contract and that it was, therefore, valid in all respects, nevertheless denied the motion of the defendant-owner that all other causes of action contained in the complaint be submitted to arbitration pursuant to Article 40 of the General Conditions. On the appeal, this denial was reversed, the Appellate Court stating:

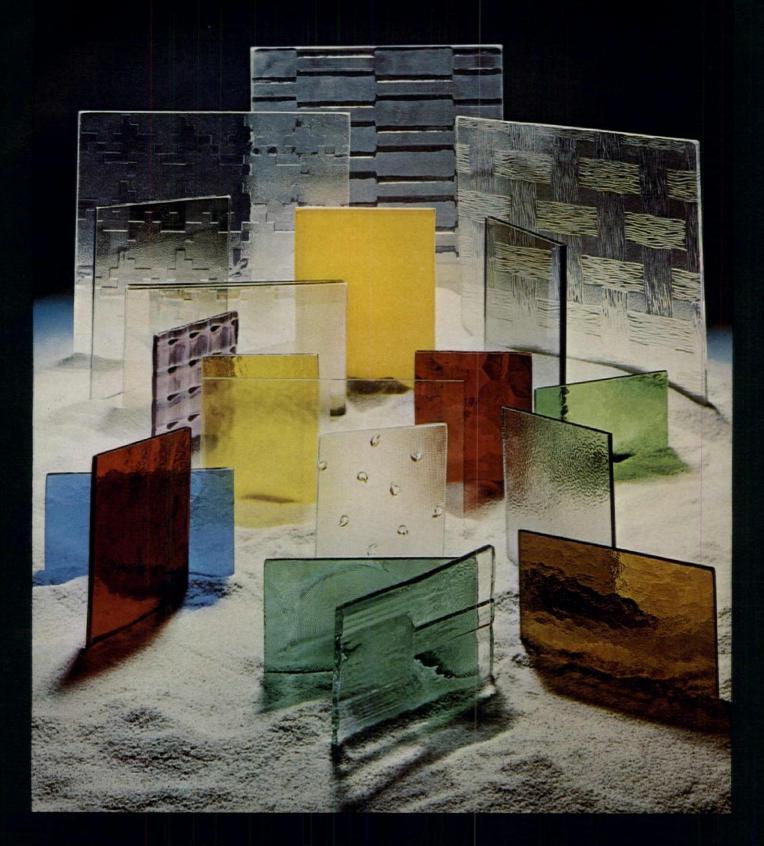
"The owner had an absolute right to arbitrate under the contract with the general contractor. . . . 'Arbitration is by consent and those who agree to arbitrate should be made to keep their solemn written promises. Such is New York State's public policy. . . The court should follow a liberal policy of promoting arbitration both to accord with the original intention of the parties and to ease the current congestion of court calendars.'"

The Appellate Court further pointed out that the general contractor had waived any valid objection he might have to arbitration. In referring to the applicable statute, the Court stated:

"CPLR §7503 (c) provides in part that where notice of intention to arbitrate has been served 'that unless the party served applies to

stay the arbitration within ten days after such service he shall thereafter be precluded from objecting that a valid agreement was not made or has not been complied with. . .' There is nothing in this record to indicate that such action was taken by the general contractor after the notice to arbitrate was served upon it. It acquiesced in the proceeding by filing an answer to the claim and by agreeing upon arbitrators. The right to a stay of arbitration will be considered waived where a party participates in the designation of arbitrators.

In respect to the claim of the subcontractors as reflected in the liens which they had filed, the Court pointed out that Article 37 of the General Conditions binds the subcontractor to the terms of the prime contract and the general conditions of the contract, and defines the subcontractors' rights in arbitration. The Court pointed out that these provisions bind the owner, general contractor and all subcontractors who agree to be bound by the prime contract to resolve any disputes in arbitration. In respect to those subcontractors who had not agreed to be bound by the prime contract, the Court stayed the legal action pending the determination of the arbitration. The Court pointed out that a determination of the arbitration would undoubtedly bring about a solution of all disputes and that even though some subcontractors may not have been bound to the prime contract, the Court could stay the trial pending the determination of the arbitration as a matter of discretion.



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AN ARCHITECT SPEAKS

BY LEONARD K. EATON

Letters of an Architect. Edited by Oskar Beyer, with an introduction by Nikolaus Pevsner. Abelard-Schuman Ltd., Publishers, 6 W. 57 St., New York, N.Y., 1968. \$7.50. The reviewer is Professor of Architecture at the University of Michigan.

Collections of letters to and from the great modern architects are distressingly rare. It is, of course, an old adage that architects do not write, but every man, after all, reveals himself to some extent in his correspondence with his family and friends. The appearance of this book of letters by Erich Mendelsohn, drawn from a German volume of 1961 (Briefe eines Architekten, Prestel Verlag, Munich, 1961) should therefore be an occasion for rejoicing. It is sad to report that this is not the case.

First, a fair part of the book is not letters at all; a good bit is newspaper articles and speeches. Although some of these, such as the contributions to the Berliner Tageblatt and the 1932 address to the Congress of the International Institution for Culture Collaboration in Zurich, are very interesting, by no stretch of the imagination are they letters, and it is plainly a mistake to

label them as such.

Second, the notes are both inadequate and inaccurate. If Bestelmeyer (no first name given), the president of the Bund Deutscher Architekten, is to be characterized as "very reactionary," we ought to be told something about him. If a German historian named Hildebrandt was "a champion of modern art." he, too, deserves a few sentences. If Mendelsohn had dealings with a British town planning official named Kendall in mandated Palestine, we would also like to know his first name. Eliel Saarinen's dates are not 1910-1961, but 1873-1950. There is an obvious confusion with Fero

Instances of this sort abound. It would be cruel to cite more. A possible explanation for these deficiencies may be the death of Oskar Beyer, the editor of the German edition, in the interval between its appearance and the publication of this English version. Bever was a well-known German art historian and architectural journalist. "He was," says the blurb on the dust jacket, "a close friend of Eric Mendelsohn, and one of his earliest and most understanding admirers." If this is so, it is hard to believe that Beyer would have permitted such poor editing in English. In this situation, it was clearly the responsibility of the publisher to secure a capable editor for the American text.

Finally, this volume is undoubtedly one of the most aggravatingly slipshod jobs of bookmaking ever perpetrated. In my review copy, pages 98–104 were printed twice, as were pages 121–126; pages 105–120, on the other hand, were missing. Thinking that a further check was indicated, I consulted a library copy, and it turned out to be in perfectly good order. The missing pages, incidentally, are important. They contain Mendel-

sohn's speech at the opening of an exhibition of the work of Frank Lloyd Wright in 1929, his tribute to Hans Poelzig, and articles in the Berliner Tageblatt on a journey to Greece in 1931. Obviously, there was a failure in the processes of gathering and binding. The entire enterprise bears the marks of unseemly haste and poor supervision. The purchaser will be well advised to examine his copy carefully.

Despite these shortcomings, the book is far from being a total loss. Part of Mendelsohn's importance, as Wolf von Eckhardt has remarked, is that he was the first extremely successful modern architect. Hence, he had many dealings with the rich and the great, and he knew most of those who counted in the architectural world of his time. He described his encounters with these important personages brilliantly, especially in his letters to his wife, written in a colorful but difficult German, which, as Professor Pevsner notes, has been well translated by Geoffrey Strachan.

The story of his 1924 visit with Frank Lloyd Wright is charmingly told, and Mendelsohn likewise gives us a fine description of the now destroyed Larkin Building in Buffalo. On his return to Germany, he published an account of his American travels, which was apparently a considerable success. His friendship with Wright survived a good deal of personal friction; in 1947, he wrote to the Berlin architectural critic Julius Posener, "My affection for him and my respect for his work remains unaltered. We are quite open, quite simple and direct with one another and are bound to one another by an inner affinity, both as men and as artists."

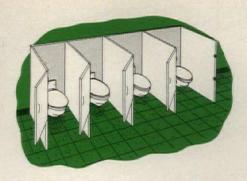
Another important series of letters deals with Mendelsohn's activities in Palestine. Here he came in contact with Chaim Weizmann, Sir Arthur Wauchope (the British High Commissioner) and various other notables. Although he accomplished a good deal of significant building in Palestine, the correspondence reveals that he was profoundly depressed about the architectural development he found there. In 1934, he wrote, "I have inspected all the buildings on Mount Scopus. A Godgiven piece of country between the Dead Sea and the Mediterranean has been violated by devils' hands. A wretched botched fruit of incompetence and self-complacency." Mendelsohn was, in fact, always a shrewd observer of men and events. In that memorable February of 1933, he wrote, "Gropius is back from Leningrad, horrified and shaken by what he has experienced. The great idea has been ground down by bureaucracy, the great surge of energy has been directed along a false trail." A few weeks later Hitler came to power, and Mendelsohn left Germany for good.

The introduction by Professor Pevsner is a fascinating kind of Apologia pro Vita Sua for his career as an architectural historian. He even goes so far as to outline a new historiography for modern architecture, quite different from what he himself espouses. He remarks that if Mendelsohn had lived another 10 years (he died in 1953), he might have been one of the central figures in the world's architecture "not for the Columbushaus, but for his early sketches and the Einstein Tower - that is, provided he had returned to that style." The balance of the essay is, however, an extremely convincing demonstration that such a return was unlikely, if not impossible. Pevsner must obviously be counted among those who still believe in functionalism and rationalism.

Continued on page 154

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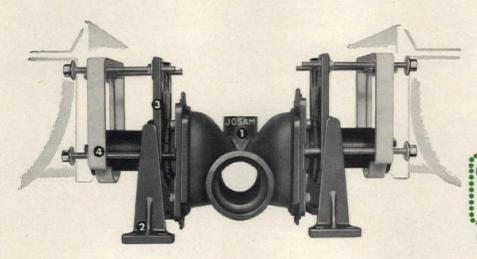
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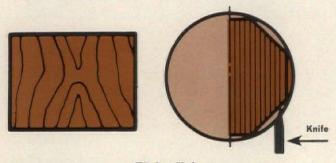
The art and science of cutting and matching veneers.

By John Lentz

Simply defined, veneers are thin sheets of fine woods glued to core stock, such as Novoply® or lumber cores. This definition, however, leaves a lot unsaid. For cutting and matching veneers for architectural paneling and doors—as done by the skilled woodworkers of U.S. Plywood—involves many careful and complicated procedures.

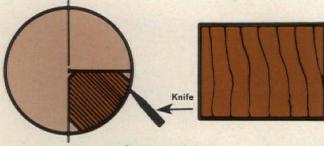
Veneer cutting

Our veneers are cut from sections of choice logs—called flitches—by one of several methods, depending on the wood species as well as the veneer figure or growth pattern produced by a particular log. Most architectural veneers, however, are either plain, quarter or rotary sliced, as shown here.



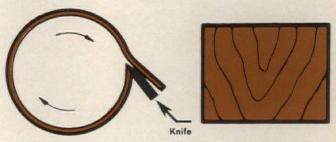
Plain slicing

In plain or flat slicing, the half log or flitch is mounted with the heart side flat against the guide plate of the slicer. Slicing done parallel to a line through the center of the log produces a cathedral figure.



Quarter slicing

In quarter slicing, the quarter log or flitch is mounted on the guide plate so that the log's growth rings strike the knife at approximately right angles. Result: a series of stripes which are straight in some woods and varied in others.



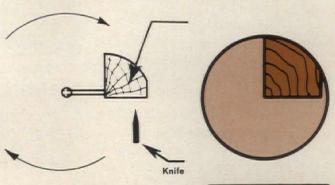
Rotary slicing

In rotary slicing, the log is mounted centrally in the lathe and turned against a razor sharp blade, like unwinding a roll of paper. Since this cut follows the log's annular growth rings, a bold variegated grain marking results.

As the plain and quarter sliced veneers fall from the knife, they are attached in the *exact* sequence in which they were cut. (Rotary cuts, of course, cannot be sequence matched.) All logs or flitches are identified by number. After laminating, each panel is identified by both its sequence and flitch number.

Other cutting methods

In addition to these methods of slicing, U.S. Plywood produces veneers by other types of cutting to yield a wide range of veneer configurations. Rift cutting, for example, produces a distinctive pattern.



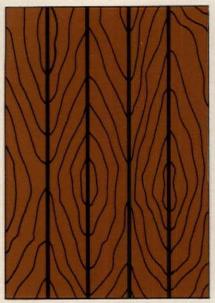
Rift cutting

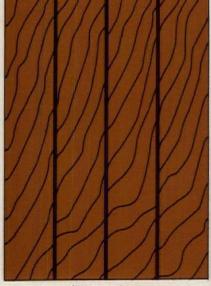
This method of cutting produces Comb Grain Oak veneers. The medullary rays of oak radiate from the center of the log

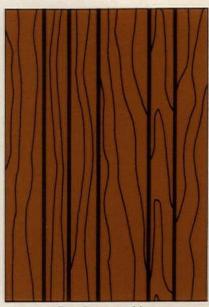


like the spokes of a wheel. By cutting perpendicularly to these rays, a comb effect results.

Veneer matching by U.S. Plywood







Book matching

Slip matching

Random matching

Three matching patterns are most often used: Book, Slip and Random matching.

Book matching

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Slip matching

In Slip matching, veneer sheets are joined side by side, without turning. Consequently, the flitch pattern is repeated from sheet to sheet, resulting in a more even color after finishing.

Random matching

In so-called "Random mismatching," veneer sheets are carefully and deliberately mismatched for the most effective appearance. Veneers from several different logs are often used for one set of panels.

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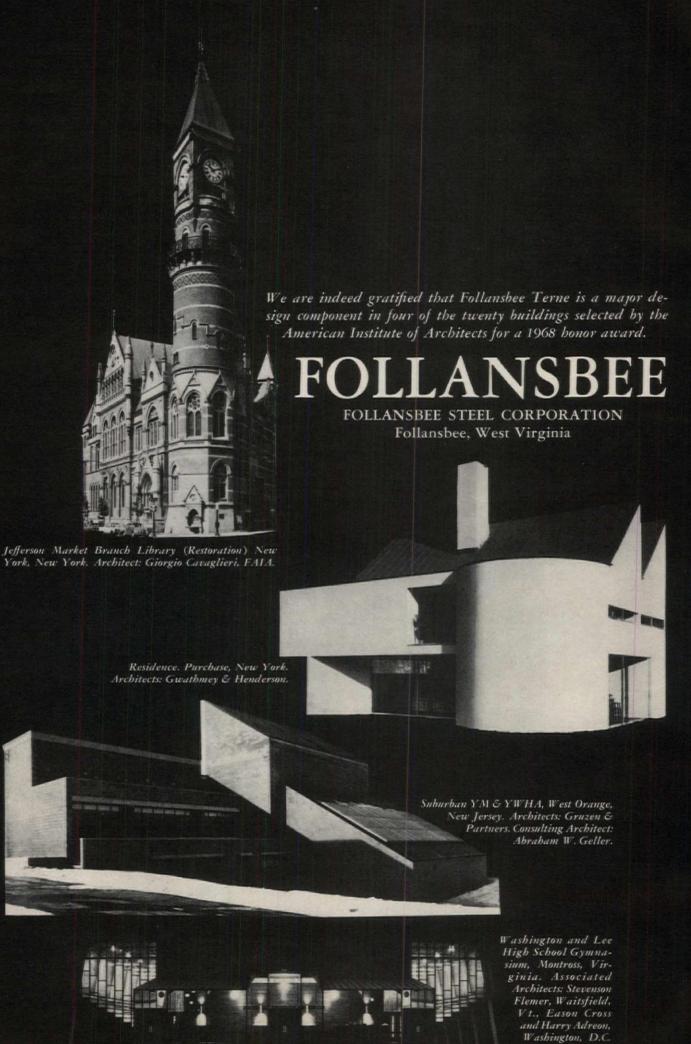
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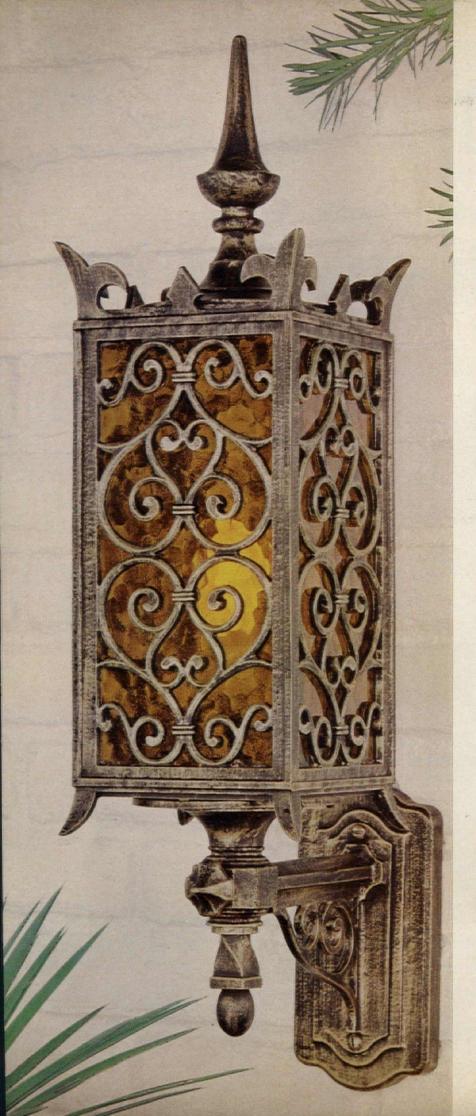
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Continued from page 146

In short, we have here a book that has much to offer the student of modern architecture but that is unfortunately marred by sloppy editing and bad printing. It is to be hoped that the publisher will bring out an edition in which these faults are corrected.

Urban Essays

BY ELIZABETH COIT

ON THE ART OF DESIGNING CITIES: SE-LECTED ESSAYS OF ELBERT PEETS. Edited by Paul D. Spreiregen. M.I.T. Press, 50 Ames St., Cambridge, Mass., 1968. 234 pp., illus., \$15. The reviewer is an architect practicing in New York City.

"Evening in the Mall, Washington. I walk through the grass, on axis. . . . How stands Civic Art after so many years of long striving?"

Paul D. Spreiregen has garnered 27 of Elbert Peets' essays on civic art, from the 1920's on, and has added appropriate photographs to the author's many plans and drawings.

The essays reveal Peets' facility (genius is perhaps a better word) for analyzing the relation of horizontal space to buildings. Flowing avenues that pause at plazas and the counterpoint of surrounding façades and sculptured accents were his chief delight.

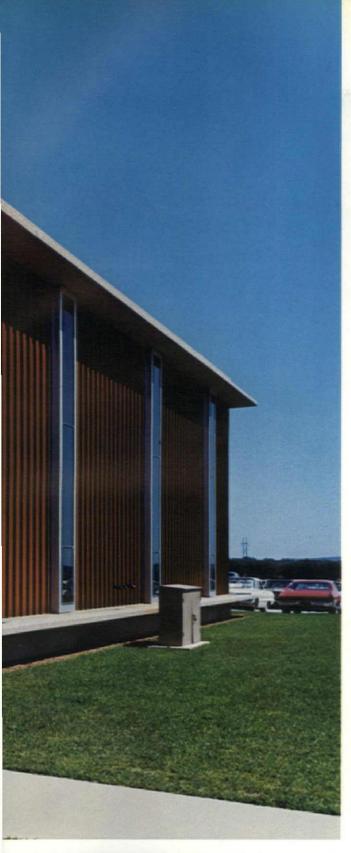
His clear prose leads the reader gently into the heart of the matter. His enthusiasms and his scorns range from poetryin-prose to pouncing irony.

L'Enfant's plan for Washington is described, including the mistakes made in its execution and those L'Enfant himself made. There are also accounts of the work of other planning giants, good and bad: Olmstead, Haussmann, Mussolini, Sitte, Sir Christopher Wren.

There are essays on "The Landscape Priesthood," on residential site planning. and a short prose poem on "The Hall of Six Hundred Columns," Cleveland's underground reservoir, visited before its flooding.

The reader will enjoy Peet's wit, and the endearing way he takes one into his confidence. For example: "The older and the Renaissance designers - to risk an epigram - sought a balance between solids and voids; the Baroque artists set space and stone in a dance together; and as for modern engineers, they ask the building to stand aside while the streets rush madly by." Or, "The Chicago Century of Progress (World's Fair, 1933) was mixed in a \$100 million bowl but was baked, alas,

Continued on page 160



Weathering Steel wraps Building in natural, protective coating

This one-story manufacturing and office building built for IBM in Austin, Texas, combines the use of Weathering Steel (Bethlehem Mayari R) with precast concrete having exposed aggregate. This type of construction offers a truly distinctive alternative to conventional masonry for industrial buildings. The Weathering Steel is insulated on the interior, and there is virtually no maintenance on the outside. Weathering Steel ages into a rich, deep-brown oxide coating, closely grained, acting as a barrier to oxygen and moisture. The light red-brown color shown in these photographs is typical for Mayari R after approximately six months of weathering.

The building was hardly completed before additions were being made. The first phase of 200,000 sq ft is now being augmented with a 100,000 sq ft addition, and a new wing of 150,000 sq ft is under construction. The entire building will feature a Weathering Steel exterior. Because the building is steel-framed, there is flexibility in making these additions; simply remove the exterior and add on. And the contractor reports that the speed of steel erection lets him stay well ahead of schedule.

Our new booklet discusses Weathering Steel in detail, both as to its design potentials and its properties. Write for your copy . . . Bethlehem Steel Corporation, Bethlehem, PA 18016 . . . or get in touch with the nearest Bethlehem sales office.

Steel-framed structures are easily expanded, as shown by this addition





of a new wing to the original building.



Continued from page 154

in a \$30 million oven. The bakers did their best, but the loaf fell."

Spreiregen has provided an index, an appendix listing other articles by Peets, and a biographical resumé that includes Peets' collaboration with Werner Hegemann in the monumental work, *Civic Art: The American Vitruvius*, published by the Architectural Book Publishing Co. in 1922.

One regrets the author's death, a few months before his essays appeared: One is grateful to the editor's unfailing enthusiasm, which has resulted in this handsome presentation of the work of a practitioner and critic in the art of designing cities.

Toward Cluster Awareness BY EDWARD K. CARPENTER

The Last Landscape. By William H. Whyte. Doubleday & Co. Inc., 277 Park Ave., New York, N.Y. 1968. 376 pp., \$6.95. The reviewer is an Associate Editor of P/A.

Poet Robert Frost lived in a less complicated age. When he observed that good fences make good neighbors, he had in mind fences that separated only two neighbors, one on one side, one on the other. I live on a few rural acres two miles outside a small New England village. The low stone wall that runs along the front of my property separates it from

the road, and, in a sense, everyone who drives by on that road is my neighbor. One Saturday this fall, I walked along the outside of the wall, picking up as I went not fallen stone but six beer cans, three beer bottles, two empty cigarette packs and two political posters that someone had tacked to a tree at the edge of the yard. In a way, my plight is what William Whyte is talking about when he speaks of the "last landscape."

Whyte's message, however, is an optimistic one. He feels that increasing density of population and frequency of movement is going to bring about a shift in attitude, an awareness, that will make people preserve open landscape - or, at least, use it more wisely. To support this optimism, he tells what has been done so far. His book is not so much a plea to make a better future, but a carefully reasoned, determined attempt to make people continue to act now to create a better environment, one on which the future can build. He makes a good deal of sense, and if his stories of new towns, cluster developments, and scenic roadways, and ecological studies is one that architects have heard often, in the details he knows and presents there is something new for everyone. At the very least, The Last Landscape is a book every architect should give at Christmas to someone less aware of these problems, then at the New Year make them resolve to read it.

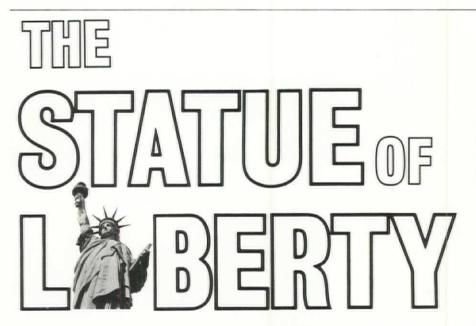
Whyte's knowledge of land use is prodigious. He has helped write easement laws in Pennsylvania and California, and has followed closely the spread of the city into the country. He re-chronicles the familiar tales of Reston and Columbia and the less familiar, but perhaps more important, work of landscape architects and ecologists such as Ian McHard and Philip Lewis, who are letting natural forces determine the best land uses. Do not put your villages on watershed land, they caution; instead, put them on land above solid rock that will protect the watersheds.

Whyte's experience has led to a faith in clustering. He speaks of the "subdivisions that look very much like toy villages with the scale out of whack." And he reasons this way: "These were the little boxes that so outraged people of sensibility and means. Photos of their rooftops and TV aerials, squeezed together, become stock horror shots. But critics drew the wrong conclusions. What was wrong, they thought, was that the houses were too close together, when what was really wrong was that they were not close enough."

His rationale leads from detailed discussions of economics to ecology, to

Continued on page 166

FEBRUARY 1969 P/A



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in the new Merchandise Mart in Charlotte, N. C. where our Penwall moveable partitions provide versatility as well as beauty through a variety of paneling materials.

Obviously Keene thrives on being part of what architectural designers and engineers want to do. For more information on Lighting and a Catalog of Keene Building Products, write Dept. P-2, Keene Lighting Div., (formerly Sechrist Mfg. Co.), 4990 Acoma St., Denver, Colo. 80216.



We've is begun o grow.

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Continued from page 160

planning and architecture, and, ultimately, to aesthetics. Aesthetics, he feels, is the commanding basis for argument for both clustering and for its opposite but equal virtue - salvation of the open landscape. "In putting the case for higher density," he writes, "there is one argument I have not made: that by putting more people on developed land, more land will be left undeveloped, i.e., that we can have more people and more open space. It is a tempting proposition, and in theory it could be be true. In practice the prospect seems quite unlikely. Let me be consistent: If we are to seek a much more intensive and efficient use of land for development, we should apply an equally rigorous standard for open space." And the time to do it is now. Whyte would rather act now than merely plan for the year 2000. He notes: "A chain saw biting into a tree has a very final sound."

Although Whyte's optimistic belief in clustering as the salvation of the last landscape may be overstated, it is not misguided. His examples of what has been done are both instructive and heartening. His book is an effort to make an intelligent public aware of what has been done, and, through this example, what can be done to save the landscape. It is a message, which, if understood, could make an architect's job much easier.

Manifesto on Aesthetics BY BRYAN SCRIVEN

L'Esprit Nouveau. Issues number 1 to 28. Da Capo Press, 227 W. 17th Street, New York, N.Y., 1968. Set of eight volumes, illus., \$250. The reviewer is an instructor at the Pratt Institute School of Architecture in New York City.

L'Esprit Nouveau was published in Paris from 1920 to 1925. These volumes contain facsimile copies of the original magazine, three issues per volume. There are no translations.

L'Esprit Nouveau ran articles on literature, architecture, sculpture, music, science, painting, urbanism, philosophy, sociology, economics, political science, theater, sports and current events. Among the contributors were Guillaume Apollinaire, Aragon, André Breton, Blaise Cendras, De Chirico, Jean Cocteau, Benedetto Croce, Ezra Pound, Tony Garnier, Max Jacob, Adolf Loos, Charles-Edouard Jeanneret, Piet Mondrian, Amedee Ozenfant, Auguste Perret, and Stravinsky.

On the title page of the first issue was

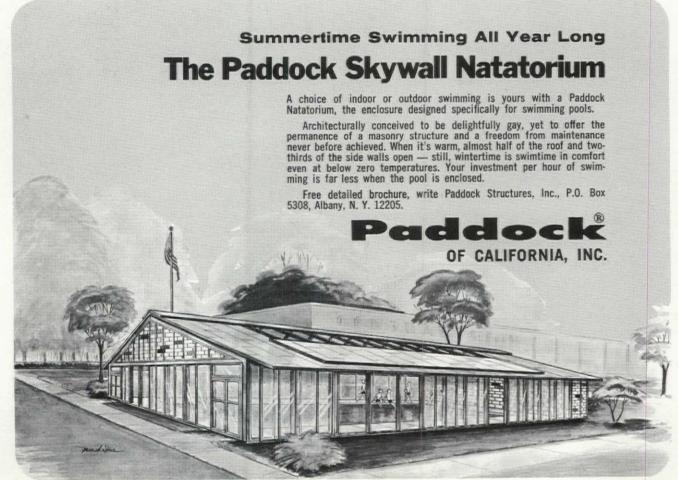
written: "L'Esprit Nouveau — The first magazine in the world dedicated to the aesthetics of our time in all its forms." There has never been a magazine like it before or since.

The journal set about optimistically to teach and guide, to explain clearly the spirit of the age, to make the new art and architecture available to all, through explanation. In the editors' view, aesthetics belonged to every sphere of life; hence there were articles on politics, economics, and sociology. The best commentaries and criticism were tough and often dogmatic and writers were not afraid of being thought naive.

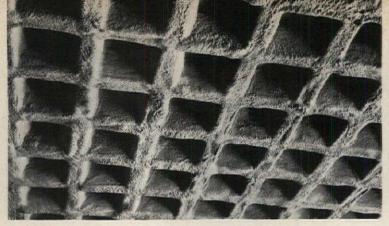
There were articles by Charles-Edouard Jeanneret and Amedee Ozenfant on aesthetics. Articles by Charles-Edouard Jeanneret on architecture but signed Le Corbusier were later put together in *Towards a New Architecture*, first published in 1923. Then, as now, it was not possible to be both painter and architect and be taken seriously.

The articles are in general clear and reasonable. In contrast, the magazine must have been run in a chaotic way. The cover, a salad of 10 different type faces, proclaims proudly: "Appearing on the 15th of each month," yet only 28 issues

Continued on page 170



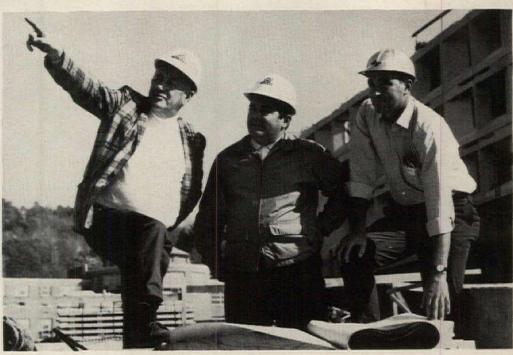




SMART REASONS WIN COLLEGE CONTRACT FOR URETHANE FOAM

(I. to r.) Alfred A. Lawrence, sales mgr., Atlas Insulation Co., foam applicator; Paul A. St. Martin, job supt., D. O'Connell's Sons, Inc., gen. contractor; Carroll F. Asbel, Jr., asst. supt., wore smiles throughout quick-paced urethane foam insulating job at the new campus center.

Mr. Lawrence points to the cast waffle maze ceiling, one of many reasons sprayed urethane foam was only practical choice. Any other method would have required at least twice as much material to meet specs, increased man-hours, material handling problems and risk.



The new Murray D. Lincoln campus center of the University of Massachusetts will be a \$16-million, 11-floor (2 below ground) pre-cast and cast-inplace concrete building. It will house conference centers, 100 guest rooms, restaurants, a bookstore, an underground garage and specially designed student facilities.

areas, will consist entirely of rigid urethane foam, sprayed to a 1" thickness over 140,000 sq ft of tricky interior surfaces. Application is by Atlas Insulation Co., Inc., So. Acton, Mass., doing the entire job with only a 2-man crew-one man on the spray gun, one on the equipment.

Mr. Alfred A. Lawrence, sales man-

A most crucial requirement is the thermal insulation which, in major

Architects: Marcel Breuer & Herbert Beckhard

Foam system: General Latex & Chemical Corp. ager for Atlas, says: "There are a number of ways we saved the customer real money by using sprayed urethane foam insulation on this job. For example:

Time: "The complex ceiling panels in the plaza area are of waffle design. Insulating them with fixed or fibrous materials would have been extremely tedious, cumbersome, costly and ineffective. With any other form of insulation, we would need at least an 8-man crew to match our 2-man pace and stay ahead of the other trades."

Money: "Our quote on this job was under 30¢/sq ft. That's a lot of insulation for the money. Other insulants would have doubled this cost because of the need to cut around angles, apply adhesives, moisture barrier, fasteners, etc. Sprayed urethane foam is completely seamless, seals every crack and void. It is self-bonding and will adhere to almost any surface.

There will never be a moisture or heat leak anywhere, any time."

Safety: "Urethane foam sets fast, permitting other trades to move along without delay. Much welding and torch work follows our phase, but there is no risk with fire-retardant rigid urethane foam."

Space: "You can't beat the compact nature of urethane materials and equipment. We brought in 26 55-gal drums at a time, and doubt if they took up more than 100 sq ft of the working area. Any other materials would have required huge areas for stacking, plus much additional equipment, such as staging and rigging.'

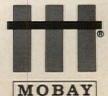
The 1" urethane foam meets the insulation specs: Initial k factor of 0.11 and a perm rating of 2'.

Mobay does not manufacture complete chemical systems for urethane foam installation. Write for a list of urethane systems suppliers.

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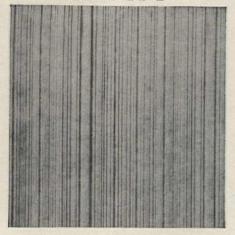




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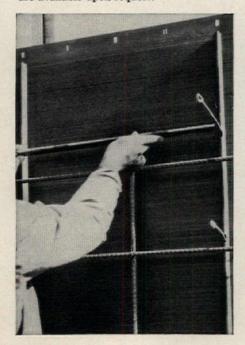


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MORE SAVINGS WITH SYMONS

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Continued from page 166

appeared during the five years of its publication. The numbering of the pages is inconsistent. There was a competition for subscribers: "Should the Louvre Museum be burnt down." The prize for the best reply was publication, but nothing was ever published; perhaps no one replied. The magazine republished Adolf Loos's classic Ornament and Crime, written in 1913. It promised to print Modern Architecture by the same author but never did.

The magazine is reproduced in its entirety. The typography, layout, and advertisements for the model 'T' Ford or Suchard Chocolate put these articles back in context and provide the flavor of the 20's more effectively than any written translations or commentaries. This is the real purpose of the collection.

Two on Interior Design BY PETER ANDES

DRAWINGS OF ARCHITECTURAL INTERIORS. Edited by John Pile. 168 pp., illus., \$23.-50. A GUIDE TO BUSINESS PRINCIPLES AND PRACTICES FOR INTERIOR DESIGNERS. By Harry Siegel. 202 pp., \$13.95. Whitney Library of Design, 18 E. 50 Street, New York, N.Y. The reviewer is an interior designer with Knoll International in New York City.

There is a difference between architecture and interior design that Drawings of Architectural Interiors illustrates but does not define. Consequently, this is a book to be studied closely by architects and designers alike, since the recognition of this difference might eliminate much of the bad faith that has so often existed between the two professions. Two examples of the difference are Paul Rudolph's rendering for the Art and Architecture Building at Yale University, and Florence Knoll Bassett's drawings for Dr. Frank Stanton's office suite in the C.B.S. Building. The first clearly demonstrates Rudolph's ability to conceive of a building as a total statement of space and volume defined by structure, whereas Mrs. Bassett's drawings display her ability to create, within a relatively anonymous volume, interiors that are architecturally articulate and handsomely appropriate. That these two achievements are mutually exclusive is clear in all the illustrations. Of course, there is no reason for the architect to be interested in the latter except as a prototype or mock-up of his own development (as in Mies' silk exhibit of the 30's, not illustrated). Nor, it would seem clear, is the interior designer able to produce total architectural statements beyond the level of small and highly personalized structures such as houses (or, perhaps in parody, like Gerald Luss's indoor-"outdoor" spaces for Time-Life, not illustrated). Indeed, the respective roles of the two professions seem so clear that one wonders how bad faith could have developed between them, except, of course, for the historical precedent of the incompatibility of artists.

The range of drawings is extensive, though they are preponderantly expressive of the architect's point of view. Without quibbling about good design (one qualification for inclusion) and quality of reproduction (another relative opinion), one can question this weighting of the deck.

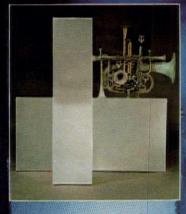
The most articulate of the drawings included clearly demonstrate the artist's ability to define his intentions. The drawings by Corbusier, Mies, Wright, and Gropius have the magical ability to define an aesthetic and a nonexistent object simultaneously. This magic is also evident in the work of some interior designers such as Mrs. Bassett and Mr. Luss which raises the question of who did the drawings. Johansen's, Guirgola's, and Kahn's drawings are eloquent, whereas the professional renderer's work, like Jacoby's, is generally labored and confusing. Jacoby's rendering of Johnson's New York State Theater, for instance, is impressive for its linear virtuosity but gives no hint of the gilt and plush elegance of the space. Indeed, it comes off as arid and mechanical. However, just as Jacoby makes Pei's Brown University Earth Sciences and Mathematics Building look like an assemblage of oatmeal slabs, Henderson's drawing of the Everson Museum of Art clearly defines the architect's interest in creating interior space out of the volumetric interplay of concrete forms, so we may conclude that some renderer's are, at times, more successful than others. The further observation that the artist's own drawings tend to be art works in themselves is self-evident.

John Pile, the editor, has provided an extraordinarily good introduction and it is to be hoped that all professionals will respond to his request for material for a future edition.

A Guide to Business Principles and Practices for Interior Designers is a necessity for all who would be or are interior designers and for all who would employ their services. It is, to my knowledge, the first textbook for the practice of this complex profession. The author is highly articulate and clearly defines the responsibilities and business procedures necessary to the efficient and successful relationship between designer and client, as

Continued on page 176

Harmonic lighting, second movement



1967. It was Customlens, a frameless diffuser engineered on the same principles as the modern concert hall. As baffles do with sound, its many recessed prisms interplay light to produce mellow, harmonic illumination.

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Continued from page 170

well as pointing out pitfalls not evident to the neophyte or, sadly, to many of the initiates.

The first section deals with small-scale (or residential) work, and the second, with large-scale (or "contract") design. Both are illustrated by actual examples. Both should be required reading for students and professionals. Even offices with highly developed formal procedures should examine the examples closely.

The only limitation of the book is that it seems to assume that the designer's work will be unquestioned or that, if it is questioned, further work will require additional billing. However, change is the only constant factor in the designer's work: change in the opinions, corporate structure, or intent of the client, change resulting from intensified coordination with the architect or other technical parties, and, by no means least important, change in the designer's ideas. The agreement between the designer and the client is, of course, for professional services, but, more importantly, it is the tacit agreement to provide comprehensive interior design regardless of preconceived conditions. In every project, unforeseen conditions occur that are correct and necessary. It is not enough to say that that is not covered in the agreement, nor is it correct to provide services without remuneration. What this complicates is fee limits, a vital determinant in securing contracts. For instance, if the architect must modify dimensions for unforeseen technical reasons (unavailability of some material), or if the client must change the program of a space (inadequate for income-producing work because of change in labor), or if the designer wishes to change an accepted scheme (second wave of genius), should the designer revise his work? It is obvious that the pride and success a designer may enjoy are the result of the total success of a project. There are no brass plaques to exonerate him and default others. Within large project fee structures, such changes are expected and can be accommodated, but the majority of work is within strict limitations and accommodation of the constant of change can be ruinous.

The question is ethical. The designer's dedication is tacit but it is his most important asset. He cannot say, after all, that the project is a failure because the client used it inappropriately. He must do everything possible to provide services that transform the client's previous comprehension of the project. Perhaps this is the subject for a future book. It is certainly not within the limits of Siegel's. It is, however, after business principles and

practices have been established, the most critical problem facing the designer.

BOOK NOTES

Architecture in Virginia: An Official Guide to Four Centuries of Building in the Old Dominion. By William B. O'Neal. Walker & Co., Inc., 720 Fifth Ave., New York, N.Y., 1968. 192 pp., illus., \$4.95.

With a few "modern" exceptions, this compact volume is a guidebook, not a history, to historic buildings of architectural interest in Virginia. Prepared for the Virginia Museum by William O'Neal, Chairman of the Division of Architectural History at the University of Virginia, it is divided into six sections (each devoted to a different region of the state). The photographs are well-reproduced and the text describing each building is placed next to each photo. Street addresses, visiting hours, and maps of the six regions are provided.

Design of Steel Structures. Second Edition. Boris Bresler, T.Y. Lin and John B. Scalzi. John Wiley & Sons, Inc., 605 Third Ave., New York, N.Y., 1968. 830 pp., illus., \$16.50.

NOTICES

New Branch Offices

DESIGNS FOR BUSINESS, INC., Interior Designers, with main offices in New York City, announces the establishment of a branch office at 75 E. Wacker Dr., Chicago, Ill.

New Addresses

Walter Bresseleers, Architect and Industrial Designer, 180 J. Van Rijswijcklaan, Antwerp, Belgium.

BRUSH, HUTCHISON & GWINN, Architects and Engineers, Third National Bank Bldg., 12th floor, Nashville, Tenn. 37219.

CANDEUB, FLEISSIC & ASSOCIATES, Planning and Community Development Consultants, 11 Hill St., Newark, N.J. 07102. The firm announces the appointment of DEWAYNE H. ANDERSON as deputy regional director for the southeast.

GRUZEN & PARTNERS, Architects, 1700 Broadway, New York, N.Y. 10019 and 24 Commerce St., Newark, N.J. 07102. The firm announces the establishment of Planners, Inc., with Edward Echeverria and Matz, Childs & Associates, Engineers, at 1424 16th St., N.W., Washington, D.C. 20036. In addition, Gruzen & Partners announces the promotion of David Eng and Samuel Posner to associates in the firm, and welcomes Wallace B. Berger to the firm as a new associate. Charles M. McAuliffe, Architect, 2733 Nottingham Way, Trenton, N.J. 08619. Paul Rudolph, Architect, 54 W. 57 St., New York, N.Y. 10019.

New Firms

CARROLL & FRANKFURT, Consulting Engineers, 215 E. 37 St., New York, N.Y.

Continued on page 178

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JERZY L. PUJDAK & ASSOCIATES, Architects, 170 E. California Blvd., Pasadena, Calif. 91101.

DANIEL G. WINKLOSKY, Architects, Washington, D.C., announce that NIKOLAJS NOVIKOVS has become an associate and Corlis Raush Erb, Jr., a partner in the firm.

Golemon & Rolfe, Architects, Houston, Tex., have advanced four firm members to the position of partner: J. William Frye, Jr., coordinator of medical facilities projects; Melvin L. Hildebrandt, director of project development; Stayton Nunn, Jr., coordinator of education projects; and Ralph A. Zander, project manager and coordinator of commercial airport projects. The firm has also named J.D.F. Boggs, Jr., and Thurmon E. Jacks senior associates, and appointed four new associates: Michael C. Farley, L. David Godbey, R. Lynn Hanson, and Keith J. Simmons.

GRIFFIN, MYNATT & KAATZ, Inc., Architects, Knoxville, Tenn., announce the admission of James R. Johnson as a principal of the firm.

RICHARD J. HANDLER, FRANK S. GROSSO, Architects and Engineers, Rochester, has been made a full partner in the firm. Joseph Loring & Associates, Consulting Engineers, New York, N.Y., announce the appointment of Harrison D. Goodman as an associate.

PARSONS, BRINCKERHOFF, QUADE & DOUG-LAS, Consulting Engineers, New York, N.Y., have named RICHARD A. SHELLMER chief traffic engineer and an associate in the firm

SAMBORN, STEKETEE, OTIS & EVANS, Architects and Engineers, Toledo, Ohio, have added four partners to the firm: J.R. FERNANDEZ, FRANCIS L. MCAULIFFE, JR., GORDON E. LEWIS, and BYRON L. WEST. WAKELY KUSHNER ASSOCIATES, INC., Architects, St. Clair Shores, Michigan, announce that JOHN P. JENSEN, H. WARREN GROTH, and WILLIAM J. MANES have been appointed to the positions of associates in the firm. JOAN S. LINEMAN has been named business administrator.

Elections, Appointments

BURKE, KOBER, NICHOLAIS & ARCHULETA, Architects and Engineers, Los Angeles, Calif., have made Jon Adams Jerde director of design.

DONALD KENNETH BUSCH, Architect, New York, N.Y., announces the appointment of Lawrence Zimmerman as project director in charge of space planning and design.

tects, Engineers, Planners, Los Angeles, Calif., have elected Andrew R. Ewing a vice-president of the firm.

RITCHIE ASSOCIATES, INC., Architects and Engineers Chestnut Hill, Mass., announce that WILLIAM J. MELLO, JR., and ALBERT J. PLATT, have been elected vice-presidents of the firm.

Name Changes

HOLFORTY WIDRIG O'NEILL KING & ASSOCIATES, INC., Consulting Engineers, Troy, Mich., upon the admission to partnership of BRUCE A. KING, JR.; formerly, HOLFORTY WIDRIG O'NEILL & ASSOCIATES, INC.

WILLIAM KESSLER & ASSOCIATES, INC., Architects, Grosse Point, Mich., upon the resignation of Philip J. Meathe; formerly, Meathe, Kessler & Associates. George T. Rockrise & Associates, Architects and Planners, San Francisco, Calif., upon the resignation of William J. Watson; formerly, Rockrise & Watson, Architects. Robert C. Mountjoy, J. Matthew Myers, Robert A. Odermatt, and James J. Amis will become principals of the firm.

TARAPATA-MACMAHON-PAULSEN ASSOCIATES, INC., Architects, Birmingham, Mich., upon the merger of the firms of GLEN PAULSEN & ASSOCIATES, INC., and TARAPATA-MACMAHON ASSOCIATES.

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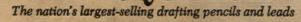
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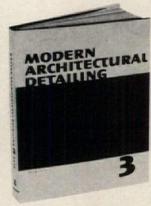
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Section two, Unity of Detail, deals exhaustively with seven building projects that are notable for their excellent design: A church and a hotel in Germany,

Office blocks in Holland and Switzerland; An English University; A Swiss School; and the Italian Institute for Export Trade.

Section three, Details of Interiors and Fittings, considers wall decoration and provides examples of various types of wood paneling, concrete reliefs, and internal surfaces which have been treated with plastic, fiber, and quartz. The pages illustrating the Teichert "Printer" process are especially interesting. The remainder of this section covers exhibition details of the Swiss country exhibition of 1964.

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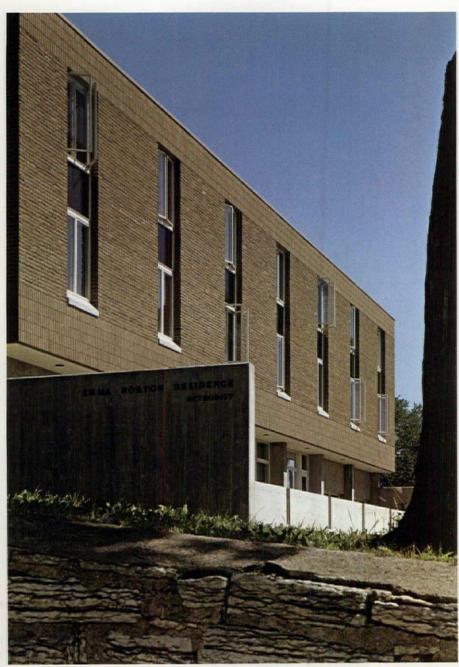
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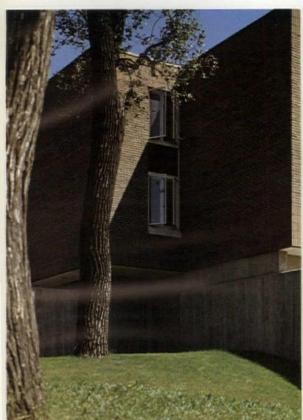
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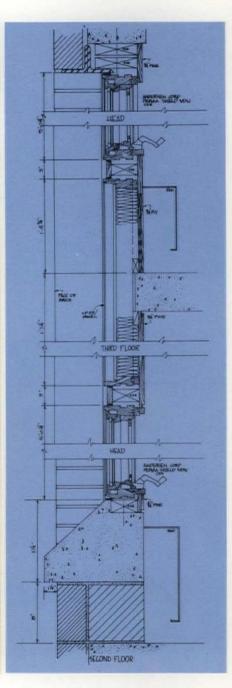
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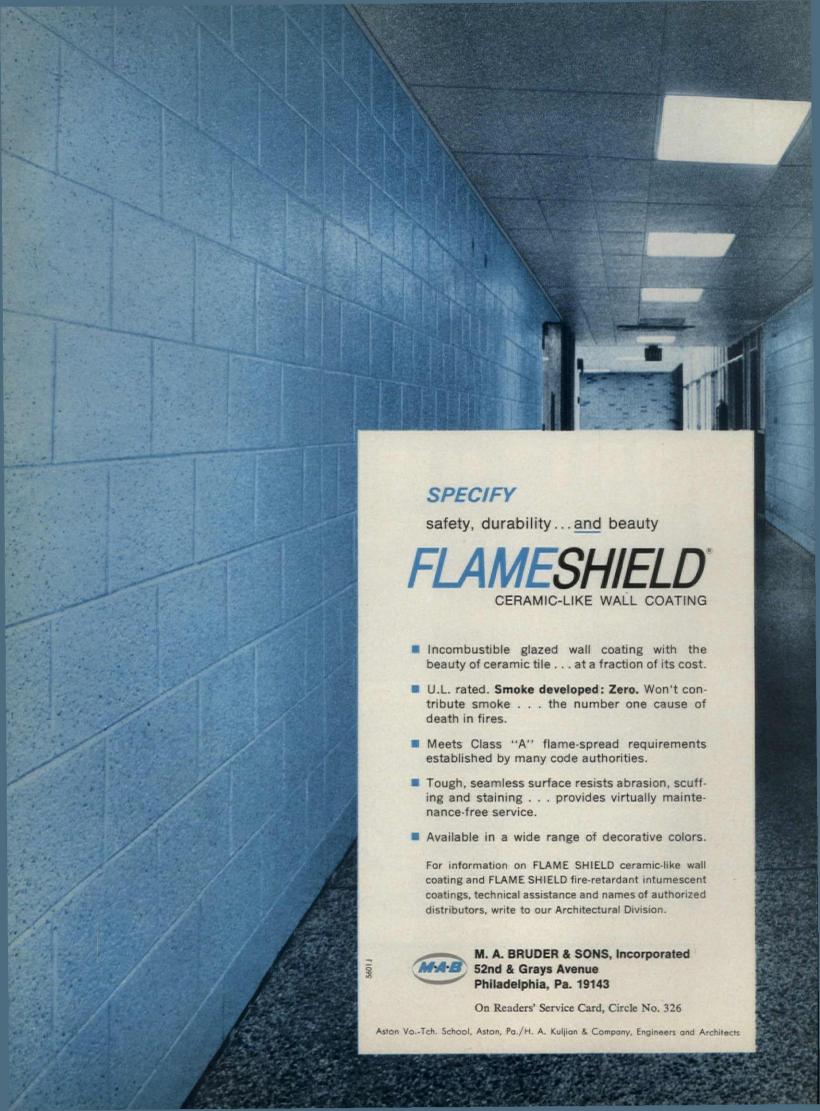
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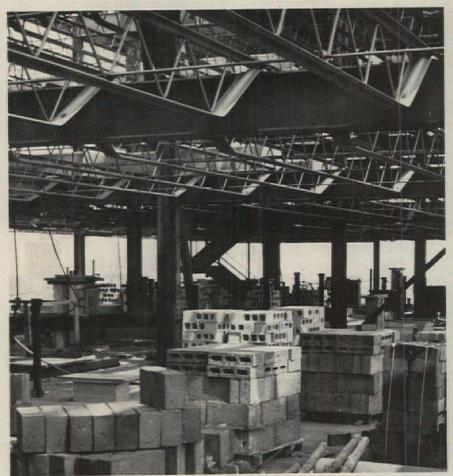
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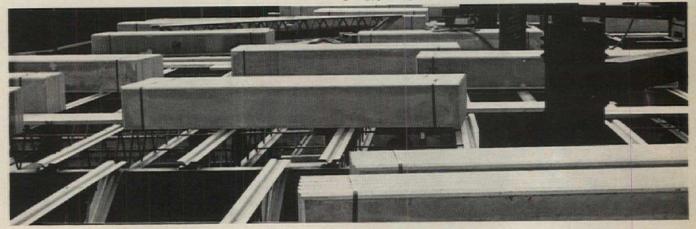


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Continued from page 192

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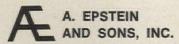
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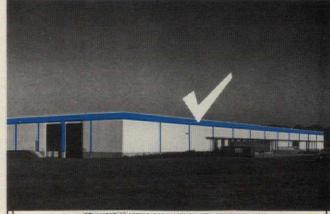
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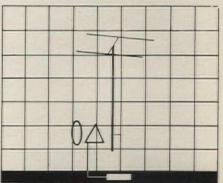
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