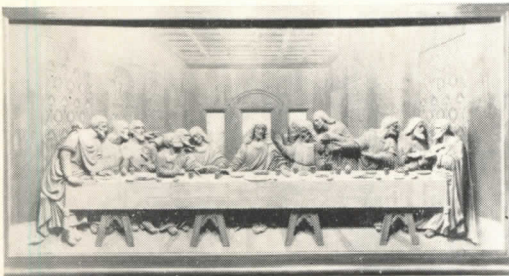
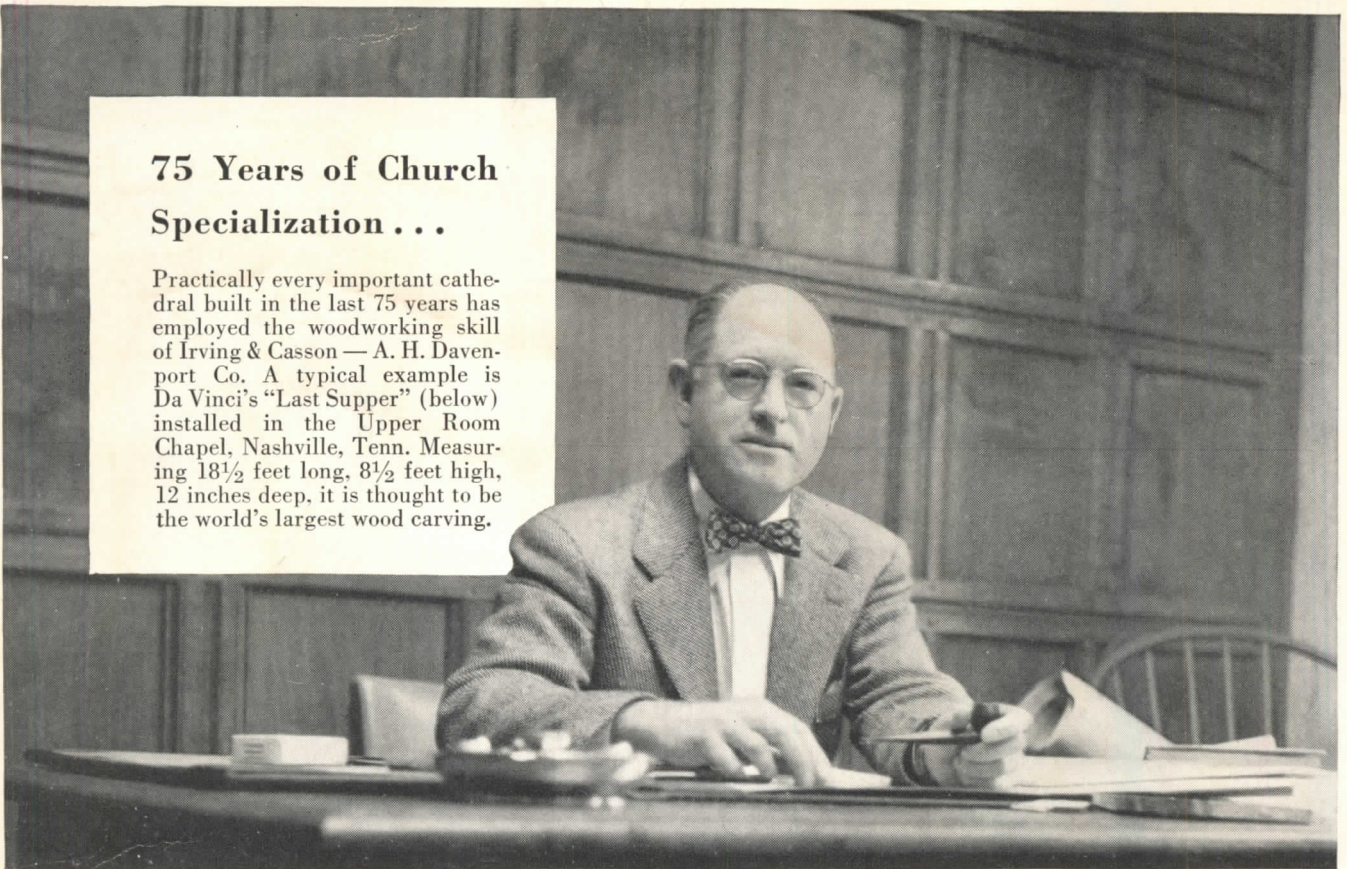




BUILDING TYPES STUDY
RELIGIOUS
BUILDINGS

75 Years of Church Specialization . . .

Practically every important cathedral built in the last 75 years has employed the woodworking skill of Irving & Casson — A. H. Davenport Co. A typical example is Da Vinci's "Last Supper" (below) installed in the Upper Room Chapel, Nashville, Tenn. Measuring 18½ feet long, 8½ feet high, 12 inches deep, it is thought to be the world's largest wood carving.



Nine carvers, working in the Cambridge plant, spent almost a year in the completion of this reproduction of Da Vinci's work.



UNITED NATIONS BUILDING—Delegates' desks and chairs in General Assembly room at the United Nations are further examples of the craftsmanship of this century-old woodworking firm.

"Without it our buildings would not be standing today"

"At our factories in Cambridge, Mass., a flash fire occurred last December in the paint department", relates Mr. C. A. Thurston, Treasurer, Irving & Casson — A. H. Davenport Co., furniture manufacturers and custom builders of woodworking specialties. "Had it not been for our Grinnell Sprinklers going into action immediately, I am honestly afraid to think of the consequences."

"Most of our buildings are well over 125 years old. To replace them would cost perhaps a million and a quarter dollars. That is why we installed Grinnell Sprinklers as far back as 1900.

"Over the years we have had our share of fires. But on every occasion, our Grinnell Sprinkler System has been on the job and damage has been held to a few dollars. I am sure that without it our buildings would not be standing today."

Grinnell Sprinklers stop fire at its source, wherever and whenever it strikes, night or day, with automatic certainty. 77 years experience proves this. Moreover, a Grinnell Sprinkler System will often pay for itself in a few years through reductions in fire insurance premiums. Grinnell Fire Protection is an investment that pays real dividends . . . any way you look at it. Grinnell Company, Inc., 269 West Exchange Street, Providence, Rhode Island.



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ARCHITECTURAL RECORD

December 1955 Vol. 118 No. 6

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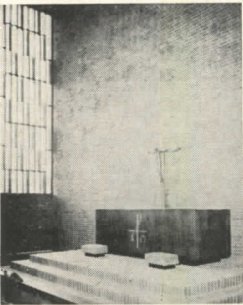
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COVER: Central Lutheran Church, Eugene, Ore; Pietro Belluschi and Skidmore, Owings & Merrill, Architects; Northwest Photographic Illustrators photo

Regionalism in Architecture

Architecture, historically always regional in character, now faces some questions as technology clashes with deep-rooted desires and habits of people throughout the world. What is a proper approach to regionalism today?

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THE RECORD REPORTS

P E R S P E C T I V E S

THE LONG, LONG TRAIL: The U. S. Supreme Court has refused to review — in effect upholding — a Wisconsin State Supreme Court decision that held the village of Fox Point, Wis., was within its rights in refusing a construction permit for a Colonial house in a neighborhood of “ranch houses.” The permit was refused under a local statute which forbids construction of a house whose “exterior architecture appeal and functional plan” are so “at variance” with nearby structures as to “cause a substantial depreciation in property values in the neighborhood.”

PROJECT VANGUARD: It ought to be noted that the first contract for a space satellite has been awarded by the Defense Department, a preliminary contract of \$2,035,033 with the Glenn L. Martin Company of Baltimore. This is the satellite the U. S. government announced this summer it planned to launch as part of its contribution to research of the upper atmosphere in connection with the International Geophysical Year, July 1957 to December 1958. It will be “about the size of a basketball,” U. S. scientists say, in a figure of speech which ought to satisfy *everybody* that cosmic architecture is getting off to a nice, healthy, unesoteric symbolic start.

THE PEACEFUL ATOM, by now as familiar to convention agendas as the national anthem, was acknowledged at the 54th anniversary convention of the National Electrical Contractors Association in a talk by Lieut. Gen. Leslie R. Groves, wartime head of the Manhattan District atomic bomb project. General Groves, now a vice president of Sperry Rand Corporation, acknowledged that so far “no one really knows whether atomic generating stations will be large, central costly plants or whether there will be numerous smaller plants aimed at serving very restricted territories.” But when atomic power does become competitive, “some-

time after the middle of the next decade,” General Groves warned, “it will be too late then for individuals and organizations to learn the fundamental principles involved in the construction of these plants” because “we will all be surprised at the suddenness with which it becomes an important factor in our economic life.” General Groves believes Great Britain may be the first country to make widespread use of atomic power; in the U. S., he said, atomic power when it comes will be used for expansion rather than for replacement of conventional fuels. . . . The first comprehensive state safety code for protection of workers in the atomic energy field from on-the-job hazards has been adopted by the New York State Board of Standards and Appeals and becomes effective on the fifteenth of this month. The New York code conforms with the A.E.C.’s new safety regulations.

TV TEACHING: The first closed-circuit television link between a college and all public schools in a community is being installed in Pocatello, Idaho. It will enable one teacher in the Idaho State College television studio to instruct more than 300 students in 11 public schools at the same time. This pioneering venture in educational television is made possible by a \$5000 grant to the college contributed jointly by the Jerrold Electronics Corporation of Philadelphia and the Bannock Cable TV, Inc., of Pocatello; the two companies are also installing the educational closed circuit system at no cost to the community. Among the programs planned: presentation of specialized subjects, like art and music, phonetics and speech correction, which are generally taught by teachers traveling from school to school; showing of films and slides on 24-in. TV sets in special classrooms set aside for TV teaching (a single central film library thus becomes practicable); special courses and teaching demonstrations for teacher-in-service training.

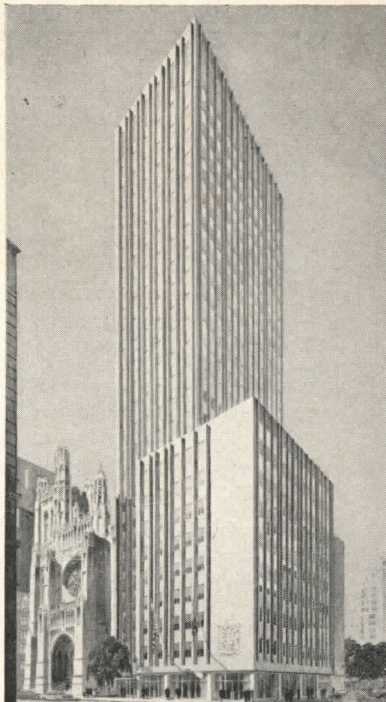
ARCHITECTS ANONYMOUS: *Time’s* recent five-page feature, “The New Churches,” was replete with handsome four-color photographs of contemporary churches, all scrupulously credited as to photographer, *none* credited as to architect. Why? . . . *The New York Times* devoted half a page to a story about the State Department’s foreign buildings program, captioned a large photograph of the U. S. Embassy at Copenhagen “an outstanding example of modern architecture” but never named an architect. Why? . . . The National Association of Home Builders issued innumerable news releases in connection with the opening of their headquarters, the new National Housing Center in Washington (of which they appear to be quite inordinately proud), but not one of the releases which reached this desk included the names of the architects. Why? . . . In a spirit of dogged inquiry, the RECORD is addressing these questions to the organizations concerned. Meanwhile, acknowledgements herewith to Mario Ciampi, Arthur Rigolo, Bruce Goff, Murphy and Mackey, Percival Goodman, Arthur T. Brown, A. Quincy Jones and Frederick Emmons, Alden Dow, Mackie and Kamrath, Chaix and Johnson (*Time’s* church architects); Ralph Rapson and John van der Meulen (the Embassy architects); and Aubinoe, Edwards and Berry (National Housing Center architects).

BACK FROM THE SUBURBS: The Associated Reciprocal Exchanges, preferred-risk fire insurance group, has announced plans to return to Manhattan just five years after shifting its operations to the Westchester County community of Port Chester. Reasons: nearness to business connections, convenience of visiting subscribers, employe preference. A company spokesman reported that of their employes only the married women with families preferred the suburban location.



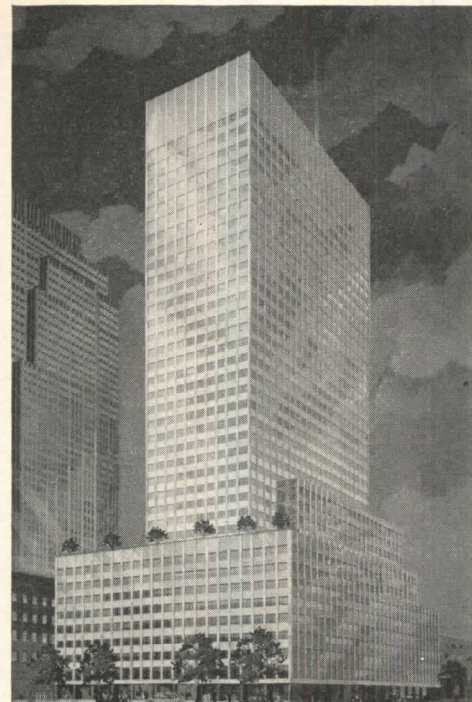
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1. 400 Park Avenue, New York, 21-story office building: 200,000 sq ft of rentable floor space; estimated cost, \$3 million. Architects: Emery Roth & Sons. Owner-builders: Fisher Brothers.



2

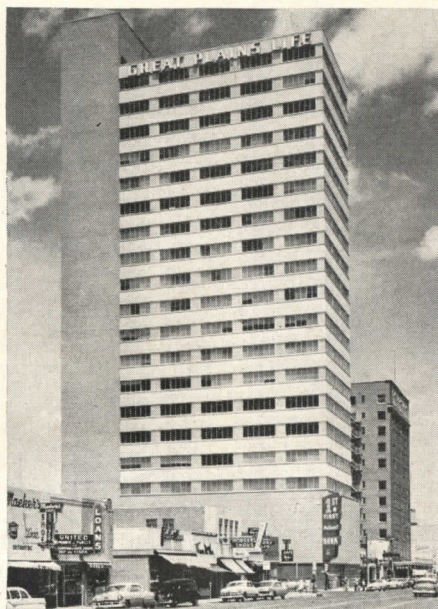
2. Canada House, at Fifth Avenue and 54th Street, will have New York offices for Canadian consulate, travel agencies, representative Canadian industries. Net rentable area, 175,000 sq ft; estimated cost, \$6 million, to be financed by 30 Canadian business leaders. Architects: Eggers and Higgins



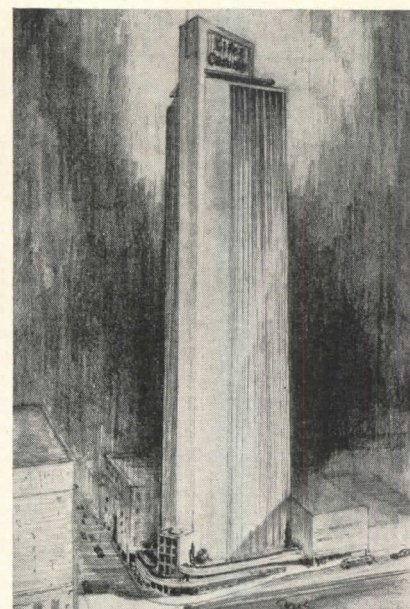
3

3. 666 Fifth Avenue, 34-story office building: 1,000,000 sq ft of rentable floor space; estimated cost, \$40 million. Architects: Carson & Lundin. Owner-builders: Tishman Realty

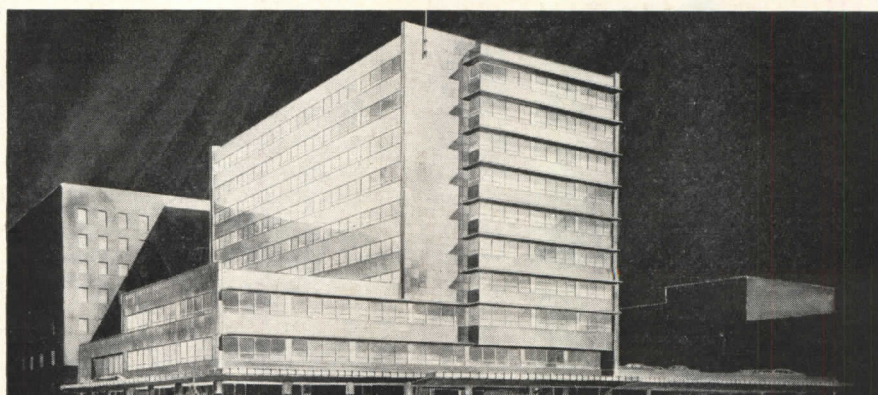
7. Great Plains Life Insurance Company's 20-story Home Office Building, Lubbock, Tex., was completed last year at a cost of \$2.5 million for a total floor area of 156,000 sq ft. Architects and engineers: David S. Castle Company. 8. Under construction in Nashville, Tenn., the 30-story office building for Life and Casualty Insurance Co. of Nashville provides 273,556 sq ft at an estimated cost of \$6 million. Architect: Edwin A. Keeble. 9. Union Center Building, under way in Wichita, Kan., provides 89,938 sq ft of rentable office space on the upper nine floors and a 226x141-ft ground floor containing shops and a walk-up bank as well as building lobby; the Union National Bank of Wichita will occupy the entire lower level. Estimated cost: \$2.5 million. Architects: Overend & Boucher



7



8



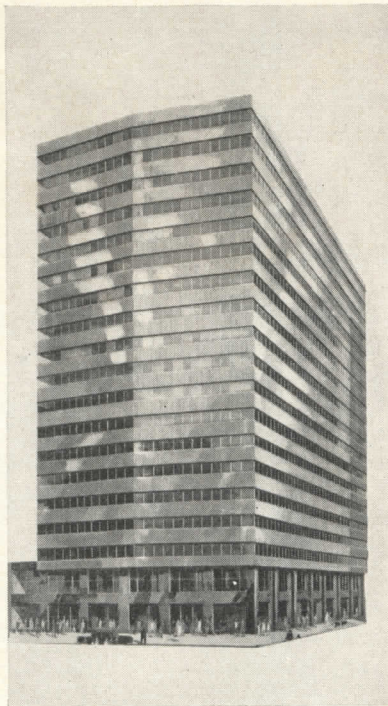
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DESIGNED FOR THE NEW ERA OF U. S. BUSINESS EXPANSION



4

& Construction Co. 4. 19-story 711 Third Avenue: 430,000 sq ft of rentable floor space; estimated cost, \$11 million. Architect: William Lescaze. Builder-developer: William Kaufman. 5. 20-story new Pullman Building proposed for present site,



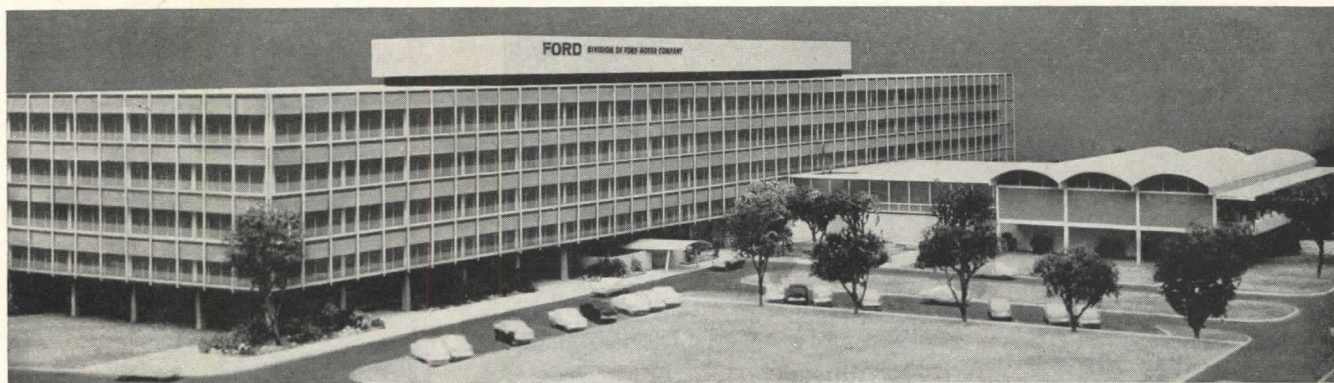
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200 South Michigan Avenue, Chicago: 300,000 sq ft of rentable floor space (Pullman would lease about 35,000 sq ft from the sponsors, a group of New York realtors); estimated cost: \$12.5 million. Architect: William Lescaze. 6. 17-story



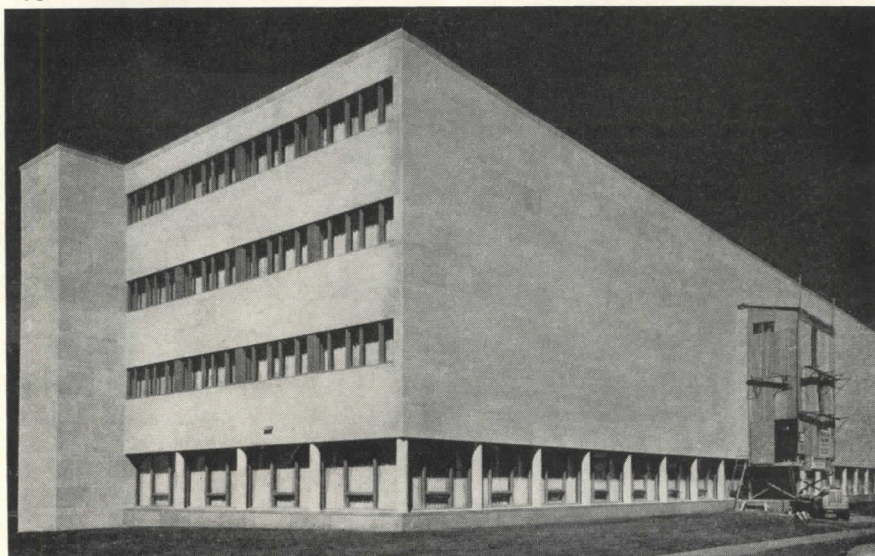
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American Hospital Association Headquarters and Center for Hospital Affairs under way in Chicago: net usable floor space, 178,000 sq ft; estimated cost, \$4,850,000. Architects: Schmidl, Garden and Erickson



10

10. New office building for Ford Division of the Ford Motor Company to be constructed on a 67-acre site in Dearborn, Mich., will have net usable area of 337,000 sq ft of a gross 453,000 sq ft. Estimated cost: \$10 million. Architects: Welton Becket and Associates, Architects, and Albert Kahn, Associated Architects and Engineers Inc. 11. Woodmen Accident & Life Company Building, just opened in Lincoln, Neb. (across the street from Goodhue's Nebraska State Capitol), has a usable floor area of 58,500 sq ft, cost \$750,000. Associated Architects: Davis and Wilson and Martin Aitken



11

(Continued on page 12)

THE RECORD REPORTS

BUILDINGS IN THE NEWS

(Continued from page 11)

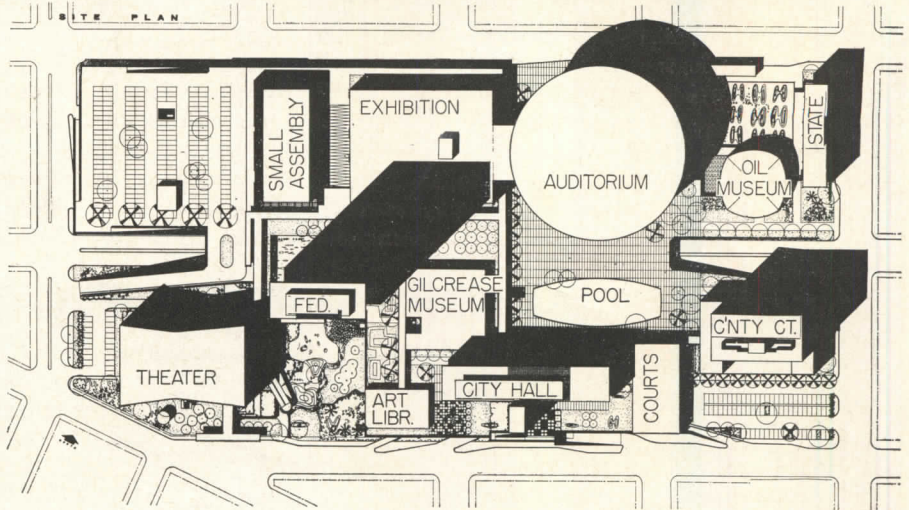
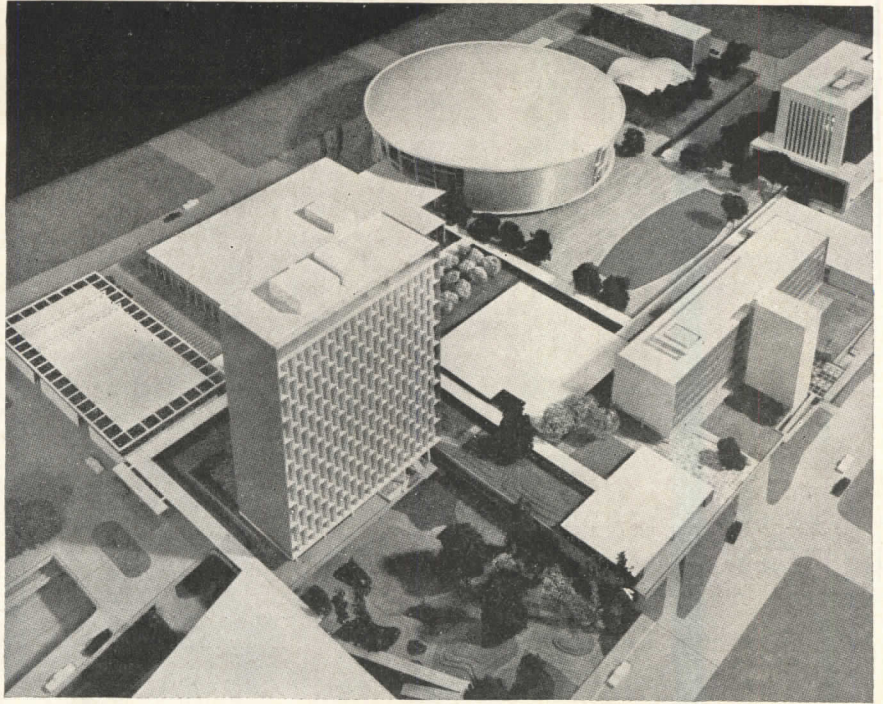
ARCHITECTS UNITE TO AID TULSA'S NEW CIVIC CENTER

Although the city's voters refused it funds in a November 15 bond election, Tulsa has a basic scheme for a future civic center developed in a careful study by a group of local architects.

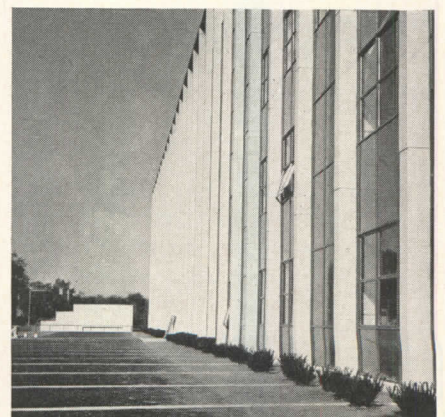
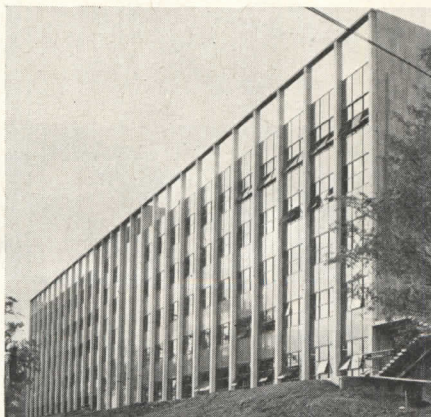
Seven private architects, organized as the Architectural League of Tulsa, have presented the city with a comprehensive report, the product of their joint endeavor after the Mayor's Civic Center Site Committee accepted their offer of nonprofit services. The report, in the form of a brochure, comprises a thorough analysis of background factors affecting site and environs, facilities to be included, traffic and parking, programming of the buildings, site plan and numerous sketches and model photographs showing the design concept which evolved from the study. The report is handsomely and copiously illustrated.

The present concept (model photo and site plan of plaza or main level shown at right) was strongly influenced by the basic traffic and parking scheme, which separates pedestrian and vehicular traffic and parking by providing two levels for vehicles below the eight-block plaza level.

Members of the Architectural League of Tulsa are: Donald McCormick, chairman; Frederick Vance Kersher; Joseph Koberling; Murray M. McCune; David G. Murray; Leon B. Senter Sr.; and R. E. West.



YALE UNIVERSITY dedicated its new Josiah Willard Gibbs Laboratories (center) last month. Built at a cost of \$2,350,000 to house research projects of Yale's physics, biophysics, zoology and plant science departments, the building represents the merger for economy reasons of earlier plans for separate buildings for physics and biology (for the early scheme for the physics building

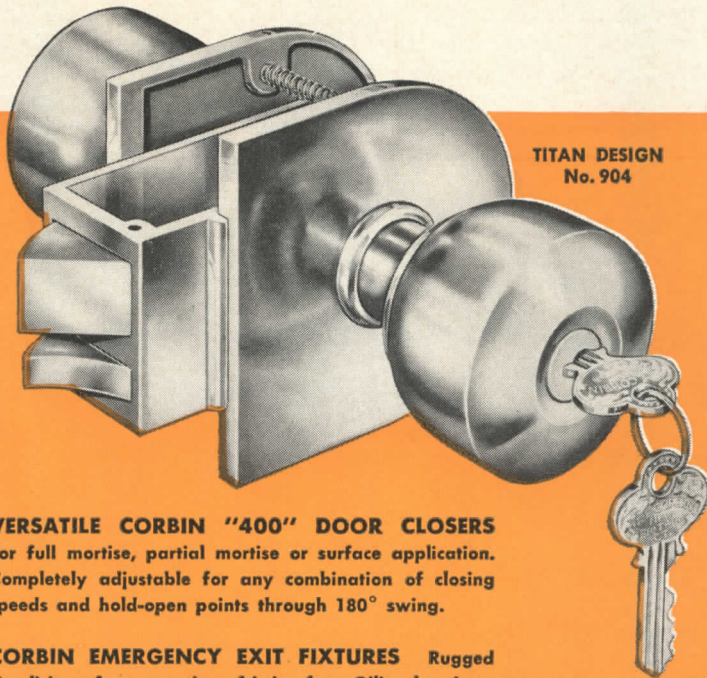
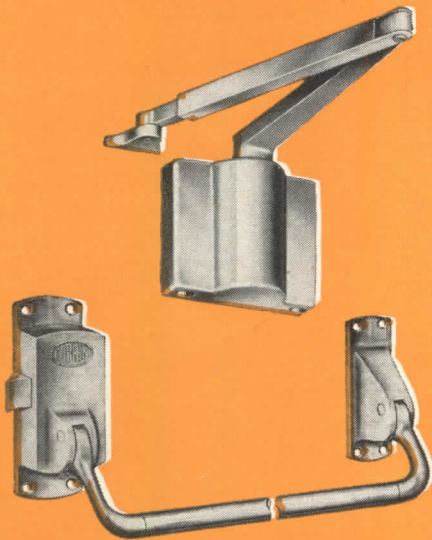


by Eero Saarinen, see AR, September 1953). Photo far right shows an adjacent Accelerator Laboratory. Architect: Douglas Orr, in association with Paul Schweikher, chairman of Yale's Department of Architecture. At left above: preliminary scheme by the same architects for proposed Electrical Engineering Laboratory to cost an estimated \$1.5 million, for which funds are now being sought (More news on page 15)

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Houston, Texas

SOUTHERN NEVADA MEMORIAL HOSPITAL
Las Vegas, Nevada
Architects:
ZICK & SHARP, Las Vegas, Nevada
Contractor:
LEMBKE CLOUGH & KIND, Las Vegas, Nev.
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WASHINGTON SCHOOL OF THE DEAF,
Dormitory and Auditorium Building
Vancouver, Wash.
Architects: STEWARD & RICHARDSON,
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WESTERN DOOR & PLYWOOD CORP.
Portland, Oregon

BRUCE HIGH SCHOOL, Cumberland, Md.
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S. RUSS MINTER, Cumberland, Md.
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Cumberland, Md.
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PUBLIC LIBRARY, Phoenix, Arizona
Architects:
LESCHER AND MAHONEY, Phoenix, Ariz.
General Contractors:
T.G.K. CONSTRUCTION CO., Phoenix, Ariz.
Corbin Locks and other hardware by:
VICTOR H. NELSON BUILDERS' HARDWARE
COMPANY, Phoenix, Ariz.

ELEMENTARY SCHOOL, South Orange, N. J.
Architects: EMIL A. SCHMIDLIN, Orange, N. J.
General Contractors:
P. LONGARZO CONSTRUCTION COMPANY,
Lyndhurst, N. J.
Corbin Locks and other hardware by:
CONTRACTORS SPECIALTY COMPANY,
Newark, N. J.

SENIOR HIGH SCHOOL, Danville, Virginia
Architects:
THOMPSON & RAGLAND, Danville, Va.
General Contractors:
JOHN W. DANIEL & COMPANY, Danville, Va.
Corbin Locks and other hardware by:
MONTAGUE-BETTS COMPANY,
Lynchburg, Va.



THE RECORD REPORTS NEWS FROM CANADA

(Continued from page 32)

format calls for a 10-minute talk on architecture by the show's producer, a 10-minute sketch illustrating important points, and a 10-minute discussion by an architect and the producer.

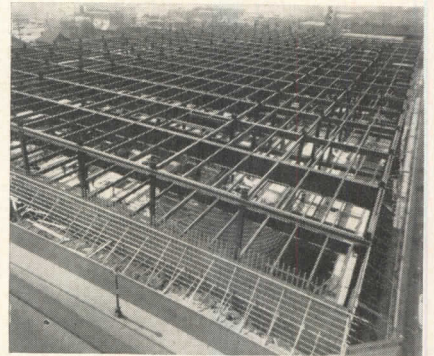
The programs are scheduled for December 7 and 14, both Wednesdays, at 10:00 P.M.



VANCOUVER POST OFFICE TO HAVE ROOFTOP HELIPORT

The new post office planned for Vancouver will, it is claimed, be the largest welded steel frame building in the world (see cut below) and the only building in Canada with a heliport on the roof. The building, which is scheduled to be opened in 1957, will have an area of 116,000 sq ft and will cost \$9,600,000. The Vancouver post office, which handles about 750,000 pieces of mail a day, services an area of 150 sq miles.

The architects are McCarter, Nairne & Partners, Vancouver, in association with E. A. Gardner, chief architect, Federal Department of Public Works.



ONTARIO ENGINEERS MEET, CHOOSE NEW EXECUTIVES

The Ontario Chapter of the Association of Consulting Engineers of Canada, holding its annual meeting October 17 in Toronto, elected J. F. MacLaren chairman of its executive committee for 1956. Other members of the committee are C. D. Carruthers, J. H. Ross and S. W. Archibald.

The meeting focused on the schedule of fees for consulting engineers recently approved by the Ontario Association of Professional Engineers. There are two schedules — the first for the use of consultants working directly with owners, and the second for services rendered to architects. The standard agreement form

(Continued on page 40)

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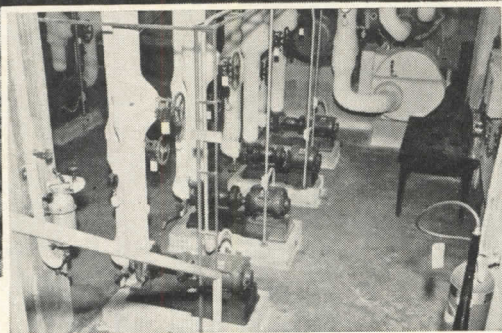
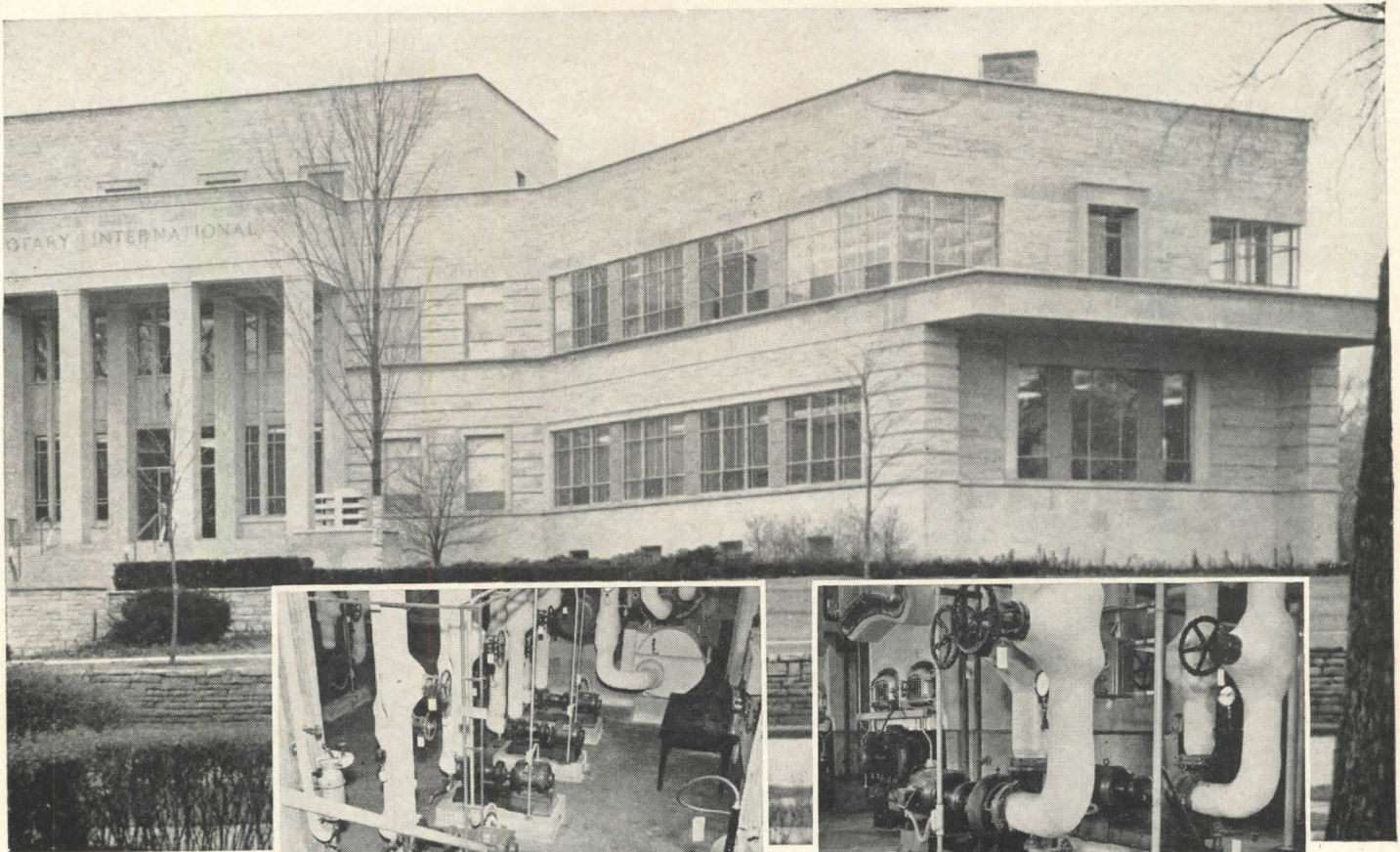
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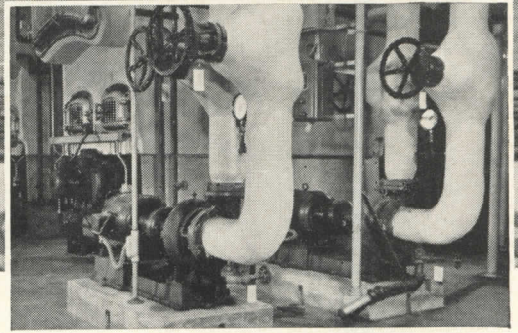
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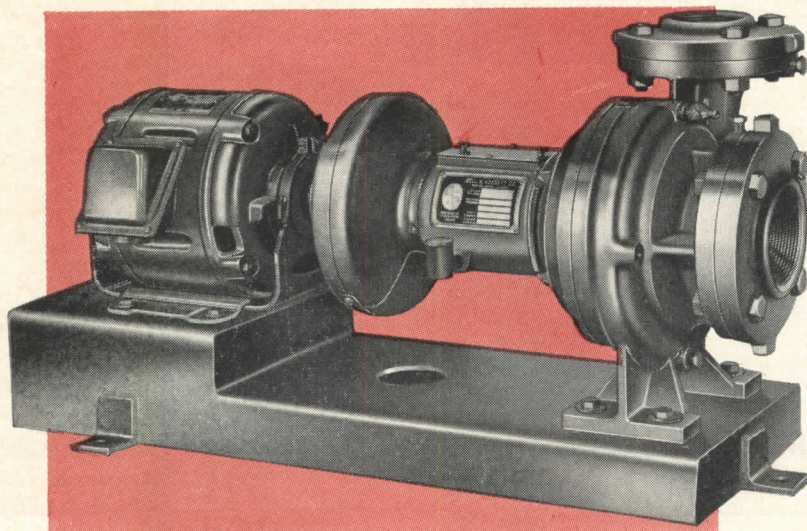
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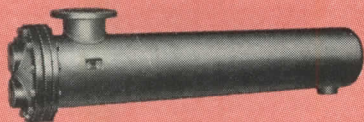


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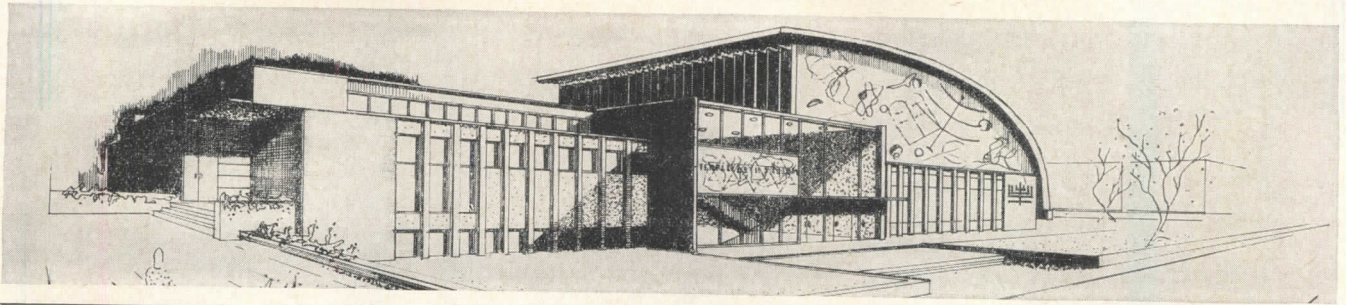
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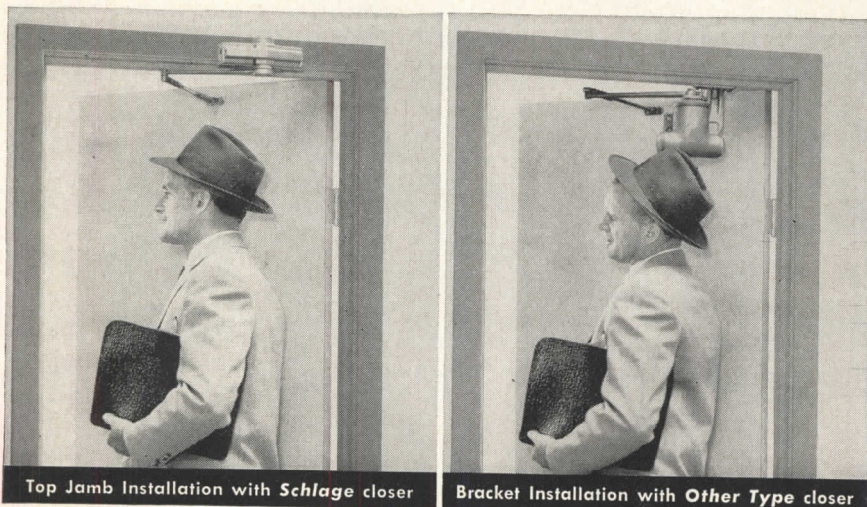
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Split level plan for the Temple
Beth Shalom of Montreal contains

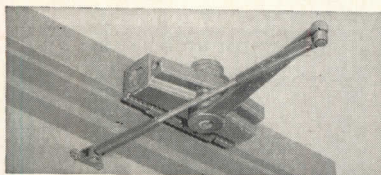
hall seating 800 and classrooms;
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prepared by the Association of Consulting Engineers has been incorporated in these documents.

An announcement was made that the annual dinner of the Association has been scheduled for May 24, 1956, in Montreal, in conjunction with the convention of the Engineering Institute of Canada. Hon. Lionel Chevrier, president of the St. Lawrence Seaway Authority, will be the speaker.

PARKIN ARTICLE CALLS FOR 'HUMAN AND BEAUTIFUL' CITY

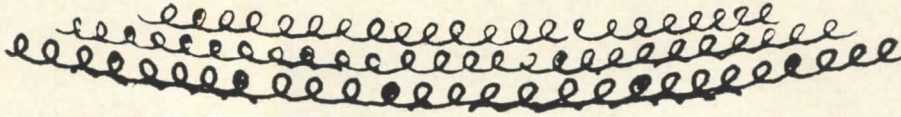
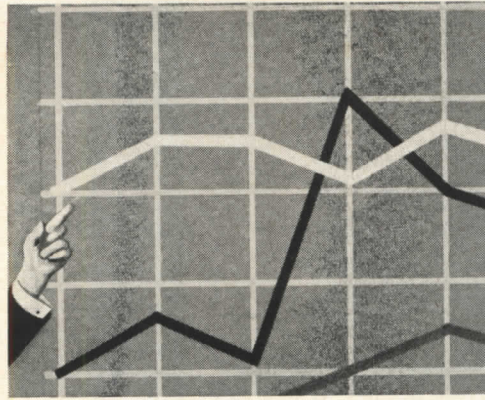
An article in the publication *Saturday Night* by John C. Parkin of the Toronto architectural firm of John B. Parkin Associates decries the architectural "anarchy" of Canada's current construction boom and calls on architects to lead the way to "an architecture which is mature, enlightened and above all, an expression in physical terms of the highest aspirations as well as of the dignity of man himself."

Except for "mopping-up" operations, Mr. Parkin believes, the battle between modern and traditional architecture has been won; but he adds, "Qualitatively . . . the battle for good, modern architecture is only beginning."

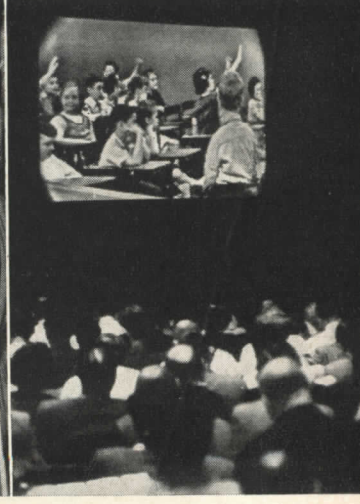
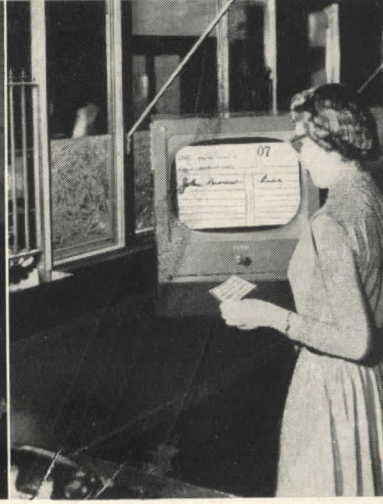
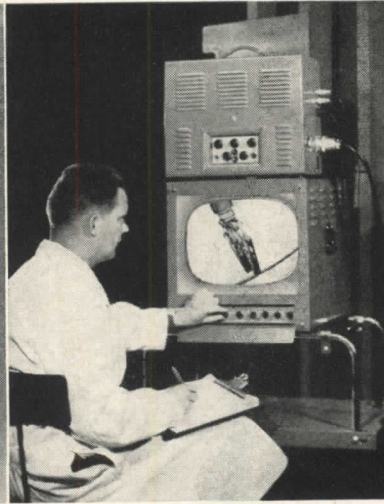
The present anarchic state of architecture Mr. Parkin attributes partly to the loss of the discipline imposed by the classic rules of architecture. And he asks: "Why cannot our generation make our cities more human and more beautiful?" Designing beautiful buildings in isolation, he warns, is futile when they are surrounded by badly designed and constructed cities. And the human scale in the civic landscape must not be sacrificed to the automobile: "Human values are still the most important ones in the planning of our towns and cities."

"There comes a time in every architect's life," says Mr. Parkin, "when the designing of isolated buildings must surely fill him with a sense of his own

(Continued on page 44)



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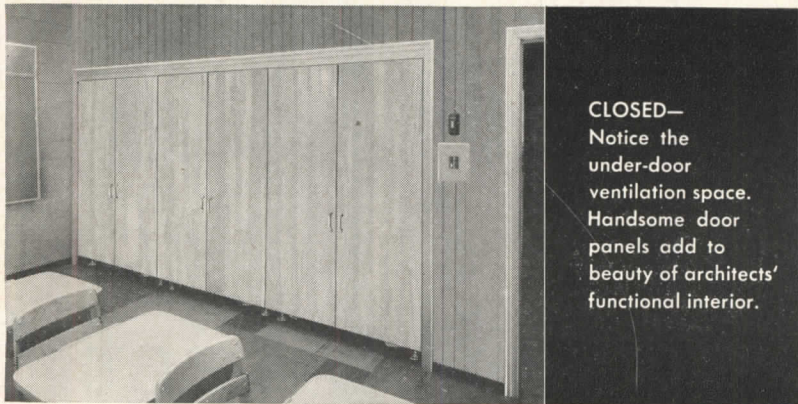
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THE RECORD REPORTS NEWS FROM CANADA

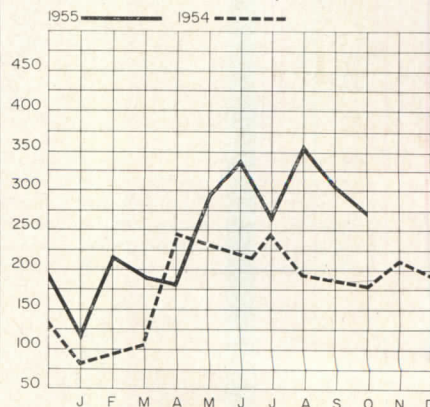
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inadequacy to cope with the onrushing mass of mediocrity which moves in from every corner. It is, therefore, not enough simply to speak of new advances in building techniques. We must also consider how we can intelligently and esthetically relate building to building; or how we can create spaces between which are human in scale, attractive and distinctly urban."

NEWS NOTES

An additional **Central Mortgage & Housing Corporation** fellowship of \$1200 has been awarded to architect Arthur S. Henderson of Montreal for postgraduate study in community planning; eight other fellowships have already been awarded (AR, November 1955, p. 32). . . . **The Ontario Association of Architects Council**, holding its October meeting in Sudbury, entertained members of the newly formed Lakehead and Northern Ontario chapters; Lynden Y. McIntosh is chairman of the Lakehead Chapter. . . . **The O.A.A. convention**, it has been announced, is scheduled to be held at the Royal York Hotel, Toronto, February 17-18, 1956, and will have as its theme "Architecture and the Allied Arts." . . . **The Province of Quebec Association of Architects** held its annual reception for new members on November 7 in Montreal; certificates were presented to 29 new members. . . . In preparation for a **new P.Q.A.A. headquarters building**, that organization is currently negotiating with the city of Westmount to secure zoning changes on a possible site.

Contracts Awarded: Comparative Figures*
(in \$ million)



* Compiled by the editor and staff of *The Building Reporter*, from information collected by MacLean Building Reports

(More news on page 48)

THE MEANING OF REGIONALISM IN ARCHITECTURE

By **Pietro Belluschi**

*Dean, School of Architecture and Planning
Massachusetts Institute of Technology*

“ . . . it is no longer easy to achieve beauty by the same way in which old societies did . . . now we have a larger and more difficult order to achieve, and our spirit will shine through only if we are true to ourselves and never forget that it is man that we must serve ”



IN AMERICA we often think and speak of “regionalism” as a naive and rather soft-headed variation of our architectural mainstream. Modern architects believe that the regionalists indulge in their practice at their own risk since it runs counter to the contemporary production-line philosophy of architecture. I have often wondered myself about “regionalism,” what its real meaning might be and whether it could still be practiced in the matter-of-fact world of the machine.

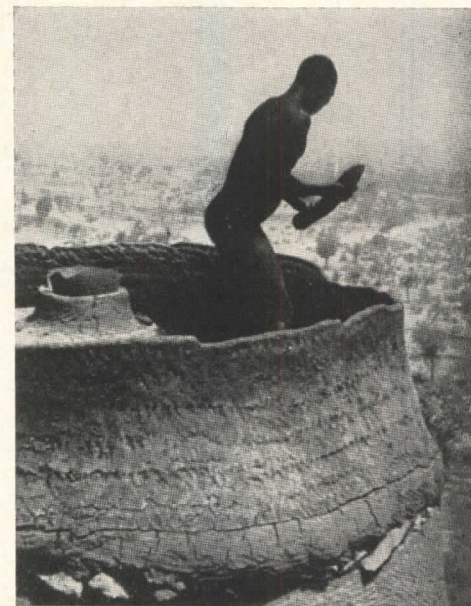
I have thought of it with particularly deep feelings during my frequent trips in foreign lands where examples of regional architecture are more obvious against the very drab and standardized background of the straight, no-nonsense type of architecture which is being built with appalling sameness from Bagdad to Rovaniemi. No one who has traveled abroad can fail to speculate on the causes which had given such unity and beauty and a sense of fitness to almost all the old cities, and on the reasons why modern man seemed to have lost this ability to impart character and meaning to his environment.

But first, what do we mean by “regional architecture?” I find it difficult to give a short answer to this question, because as one thinks beyond the obvious relationship of buildings to a certain region, the meaning of the term seems to spread and touch on all that man is and believes in, as a creature of his own environment. Architecture, as a reflection of man’s longing for order and for adjustment to his natural surroundings, has always been (or at least until not long ago) regional in its essence and character. In the past it has been mostly a communal art, not produced by a few intellectuals or specialists, but by the spontaneous and continuing activity of a whole people with a common heritage, acting under a community of experience.

The awareness of man’s physical world evolved through uncounted millenia of close contact with nature. At first, as his legs set the range and speed of his mobility, the meadows, the streams and the trees gained emotional meaning on a scale which was his own to comprehend; as mobility increased, nature lost some of its intimate reality. Locomotion by machine brought in a restless age; man can now cover the earth at great speeds, but his comprehension has lost in depth what it has gained in breadth. He can now see enormous landscapes, whole ranges of mountains and rivers by day, and beautiful patterns of city lights by night; but none of these sights can give him the direct response which his heart so fondly desires when he is at rest.

One may well speculate on the relationship between the unfolding of this era of human civilization, and the shortcomings which many people feel in our architectural forms and certainly in our squalid environment. The old forms which constitute what we call regionalism express the more serene times of the past. It is certain that in our tumultuous times it cannot be revived. It would be impossible for us to retreat or escape from a world in evolution, but somehow we must believe that a society of men may gain in wisdom by seeking again the things man can understand and love, and conversely by learning to love all that lives near him. These were my Utopian thoughts as I was revisiting recently the exquisite little villages of the Aegean and Tyrrhenian Sea Islands, of Brittany and the Tyrol, and remembered how my generation was once somewhat ashamed to admit the delight in their simple spontaneous architecture lest it be tagged as romantic.

This point of evaluating the architectural characteristics of a region became more than an academic question when the State Department through its Foreign Buildings Operations asked Henry Shepley and me to go to India, Pakistan, and Iraq to discover the elements of a style which would be appro-



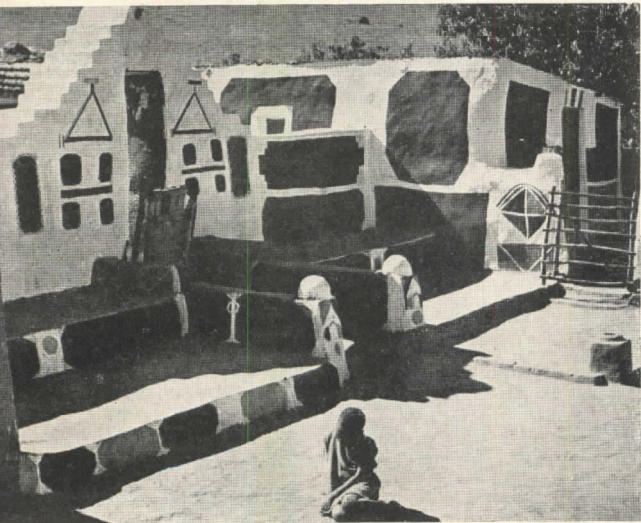
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“ . . . architecture, as a reflection of man’s longing for order and for adjustment to his natural surroundings, has always been . . . regional in its essence and character. In the past it has been mostly a communal art . . . ”

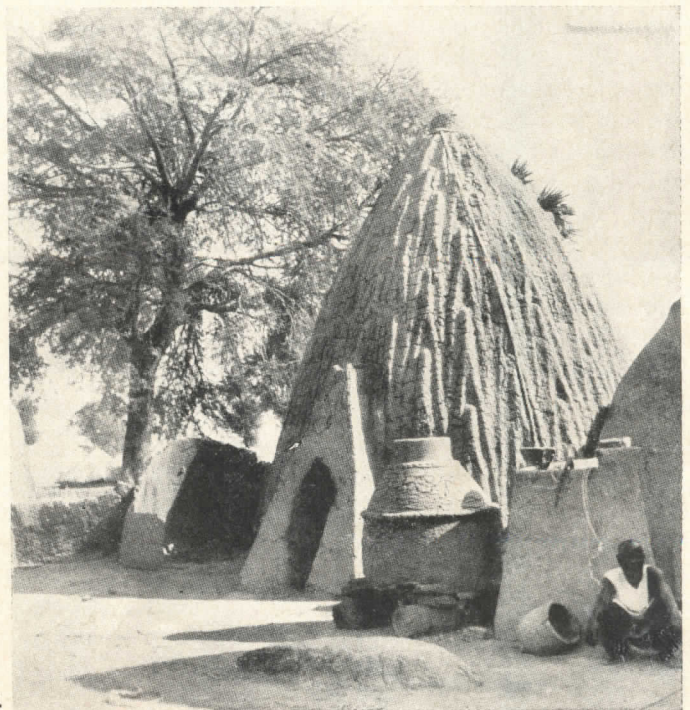


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Photographs 1, 2 and 4 from L'Habitat au Cameroun, published by the French Office de la Recherche Scientifique Outre-Mer. Photograph 3 from "M' Pogga," by Betty Spence and Barrie Biermann, Architectural Review, July, 1954



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priate for the embassies soon to be built in those regions. It so happened that the design which Ed Stone had conceived for the New Delhi Embassy had been looked upon with disfavor by the Department because it did not look sufficiently "Indian." This was a very interesting point because it touched the very essence of our architectural dilemma. Could an "Indian" architecture be defined; and if it could, should America build its Embassy in such a "style"; and if it did so for India, should it also do it for all other countries where new buildings were to be erected; and how would one go about measuring the regional content of architecture?

These were challenging questions, and it was not only appropriate to think about them in regard to the foreign buildings program but it seemed to me to touch upon a very sensitive segment of the architectural thinking of our generation—not that such a thinking can be easily described. In fact, if one should have the patience and fortitude to read all that has been written by critics, kibitzers, social moralists, and by the professional geniuses with a gift for arrogance, one would be thoroughly confused. We have functionalism versus estheticism, eclecticism versus purism, technology versus humanism, and organic architecture versus package architecture.

If one can resist the temptation of giving simple answers to a very complicated business, or of placing things into neat pigeonholes, he will find it wiser to accept the complications of modern life and will try to analyze the motives which impel civilized man's actions in order to discover what architecture means to him now. It is not easy to abstract ourselves from our time, but few will disagree with the general statement previously made that man's present environment is a far cry from that of older societies when men seemed to know how to build in serene response to the land and its people. Was there a conscious and willful sense of the beautiful in the builders of these old villages and towns, or was it rather the rhythm of their happy lives which was simply and inevitably expressed in their construction?

Our world now has undergone enormous changes; the traditions slowly developed through the centuries, the old allegiances and restraints have largely disappeared; the community living which was the pattern of old societies no longer exists, at least in the same form. Today it seems almost impossible for us to act with the unity and dedication of older times. There are too many forces in our social fabric, too many demands, too many disrupting influences. We have suddenly become conscious that this is one world, and the problems of other lands and other people have become our problems; but for all that we have succeeded rather in losing touch with our own people, our own small, close-at-hand world whence our deepest emotions spring. We know so much but feel so little. Our emotions are second hand; they come through books, movies, radios, television, in world-wide uniformity. We have gotten more and more away from nature and from the discipline which nature requires. A rain or snow storm or a strike leave us stranded and helpless. We no longer stop to listen or to hear or to see, but travel at 50 or 200 miles per hour through an impersonal landscape in unhappy restlessness. Our knowing so much and seeing so many unfelt images has drowned our sense of the appropriate. Our elegant magazines will sell pretty pictures to entice people in Maine or Florida or Oregon or Pakistan. Under those conditions it is difficult to achieve convincing and heartfelt unity.

Some people think that the architect should be less concerned with being original and more intent on satisfying more basic human values. Yet besides being an artist capable of choosing between the superficial and the real and of feeling himself part of his society, he must also be a good technician; and I believe that architectural forms which are not born of the peculiar demands of

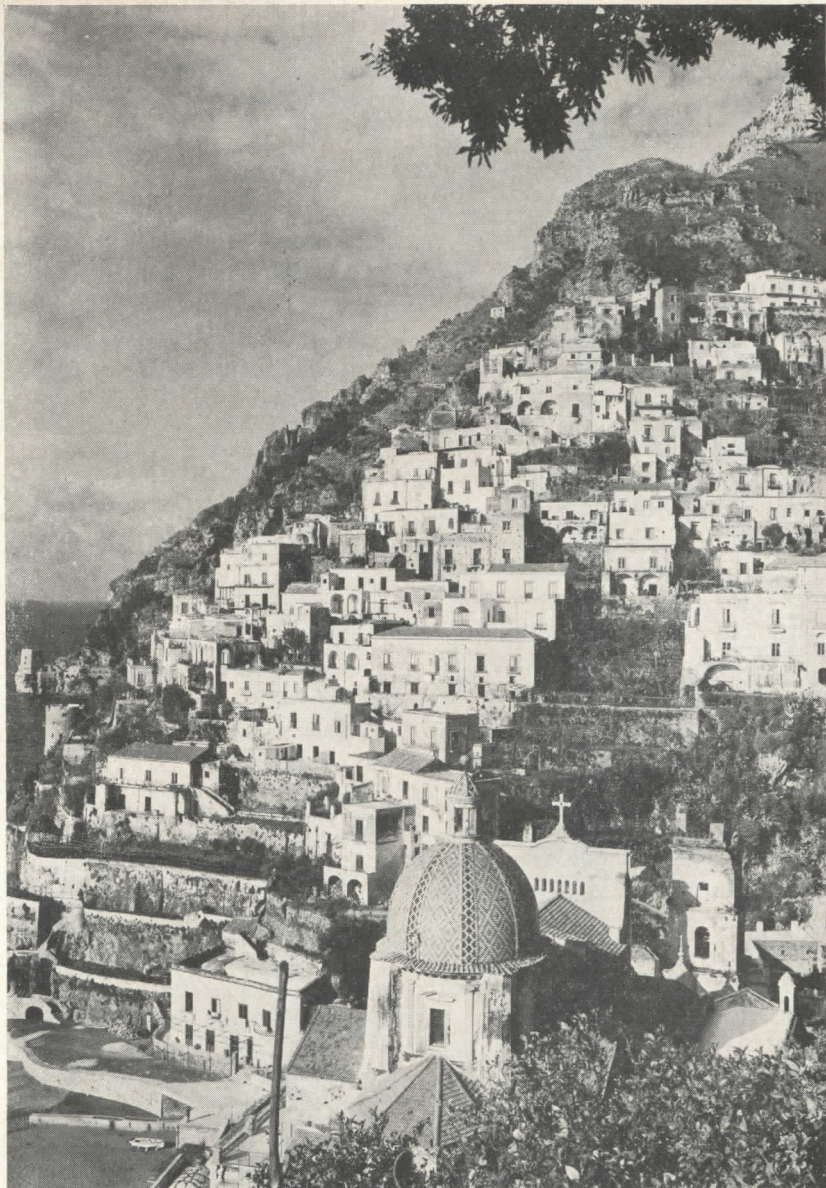
" . . . the awareness of man's physical world evolved through uncounted millenia of close contact with nature . . . man can now cover the earth at great speeds, but his comprehension has lost in depth what it has gained in breadth . . ."



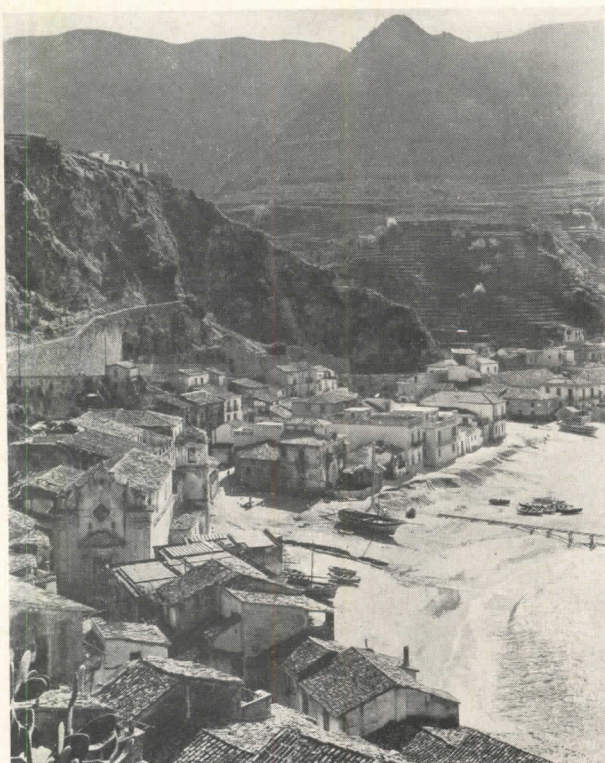
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5 Photograph of Positanese fisherman by Paul Pietzsch, *Black Star*. 6. Urbino, Italy. 7. Positano, Italy. 8. Scilla, Italy. Last three photographs by Samuel Chamberlain

the job to be performed, but which come out of preconceived esthetic theories alone, will be in constant danger of becoming artificial, tricky, and fashionable, and their transitory quality will be even more evident after they have gone out of fashion. This means that not only the emotions but also mind and logic must be satisfied before lasting values may emerge. That is also why there is never real Beauty in the lie, in the fake, or in the blind copying — and why forms will shine when they reflect a sense of reality, and reality cannot easily be contrived.

Thus it would be impossible to ignore all the techniques which science has placed at our disposal; not only would it be impossible but it would be silly, so that again the architect must use his judgment and common sense if confronted with problems which only advanced techniques can solve. It would be foolish for him, for instance, to tackle the design of a skyscraper as he would the design of a house. He can only ask himself if other means can be found rather than skyscrapers to house offices, but this is not for him to decide; similarly in modern factories the human requirements are becoming as important as structural and functional requirements, but the architect will not necessarily design a romantic environment to satisfy them, nor would it make sense to carve out the Rocky Mountains as a New Egyptian Valley of the Kings to house the Air Academy so as to give it the flavor of the region. On this particular project one may question the appropriateness of using vast amounts of glass, but the juxtaposition of crisp, clean, business-like structures on a mountain landscape can be justified by sound esthetics — but more so by the strictly disciplined around-the-clock life which 2500 cadets must live while being educated and trained in the waging of aerial warfare. It seems impossible for us to draw laws and conclusions which cannot be challenged on some point. We crave change even if we fear it. The creative artist feels that emotions can be communicated with more eloquence if he can forge his own expressive symbols, if he can use his own language; but even language or the words which the poet uses in moving and significant ways did not grow in a vacuum nor were they invented at a stroke. They had roots and grew slowly into meanings, which in turn became both stimuli and limitations to the user but which were never detached from some human connotation, some habit of thought, which was the point of departure of the poet's language.

Similarly, an architect's creative powers need not act in a vacuum; they are nourished by the world he lives in, by the people he knows and with whom he must deal, by the things he sees and the things he has learned, and also by old symbols and forms. Thus the greater his understanding the greater scope will his creative powers have, and within such sphere his contributions will have lasting significance. Believing this, we should not attempt to formulate a rigid intellectual program for architecture. In a way we must accept the enormous variety of situations which our age has created and try to find solace in the thought that nature has evolved the weed and the orchid, the whale and the mouse, the eagle and the humming bird, from a wonderfully complex but orderly set of things.

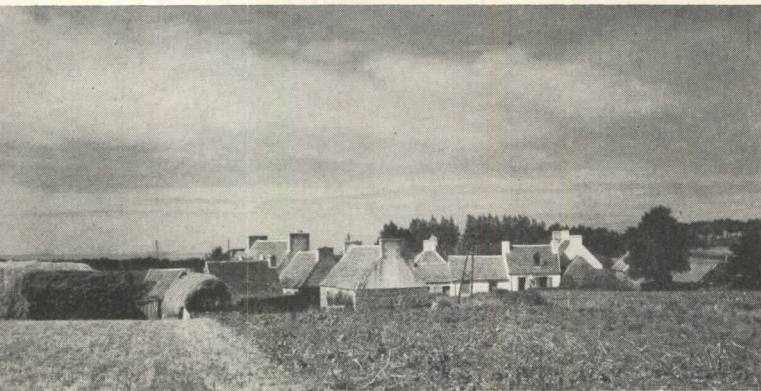
We may find reasons to hope for an improved set of social values for mankind, but our creative struggle will never come to an end because the human mind, which reflects and recreates, feeds what it touches and in turn is nourished by what it sees, will always make architecture a dynamic, expressive force which should be allowed to grow to flourish, even to decay when need be. As an Art it will strive for roots and continuity but will not deny to the man of genius the right to innovate if that is his moment and if his voice rings true.

So it is well for us to admit that it is no longer easy to achieve beauty by the same way in which old societies did, because there is no longer a scale of



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“... was there a conscious and willful sense of the beautiful in the builders of these old villages and towns, or was it rather a rhythm of their happy lives which was simply and inevitably expressed in their construction?”



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9. Photograph by Nora Dumas, Black Star.
10, 11, 12, 13. Photographs of villages in the
Brittany section of France, by Samuel Cham-
berlain — 10. Primel-Tregastel; 11. Surzur;
12. Locronon; 13. Finistere



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unity which will allow for it. Now we have a larger and more difficult order to achieve, and our spirit will shine through only if we are true to ourselves and never forget that it is man that we must serve.

There are cases when regionalism can still be obtained by thoughtful self-imposed discipline, by a submission to certain traditional ways, by a humility of approach, and in rejecting show and change and experiment unless for a good cause. But Regionalism at its best cannot be measured or imposed, is not a school of thought but simply a recognition within its own sphere of what architecture is to human beings, a deep regard for their emotional demands, and this need not be forfeited even in the most practical demands of a project. For instance, Jose Luis Sert by his plans for the Embassy in Iraq has shown us how a great modern artist can use his gifts toward a sensitive version of a regional architecture which is both creative and appropriate.

It was also with a deep thrill that we perceived how sensitively had Stone understood the real essence of India, how subtly had he incorporated in his design for the Embassy the things which really belong to the region — details and features developed through the centuries, through the demands of a hot climate, the habits and love of a people. He did not copy but brought his sympathy and his understanding to bear upon his creative powers. Finely perforated grills, roof overhangs, water pools, serene proportions, exquisite materials upon which the shades and shadows could play, were to be seen in many humble places and in great monuments in the hundreds of miles Mr. Shepley and I traveled by car. Indeed we could report back that the Stone design was really suitable for India, even if it did not conform to the style called "Indian" which was imposed by that gifted architect, Lutyens, who early in this century attempted to graft Moslem externals onto a thoroughly monumental Western style loaded with all the large scale symbols of power which a Colonial empire could bring to bear on a subject people. The "Indian" style may have been politically appropriate when it was introduced and had scale and beauty of a kind, but it had little to do with Indian climate or tradition. It took an artist like Stone to express with a sure hand a renewed sense of the region. I felt great elation to think of the possible influence which such design may have on the local architects. I met with many of them and with the students of the school in Delhi. I saw their works and heard their words and felt that they were anxious to find native expressions, but Western influences were too strong and too disrupting, and few had the wisdom or the maturity to break through with work which would reflect their new status as an independent nation, a synthesis of their old culture, and of all that they had so far learned of new ways and techniques.

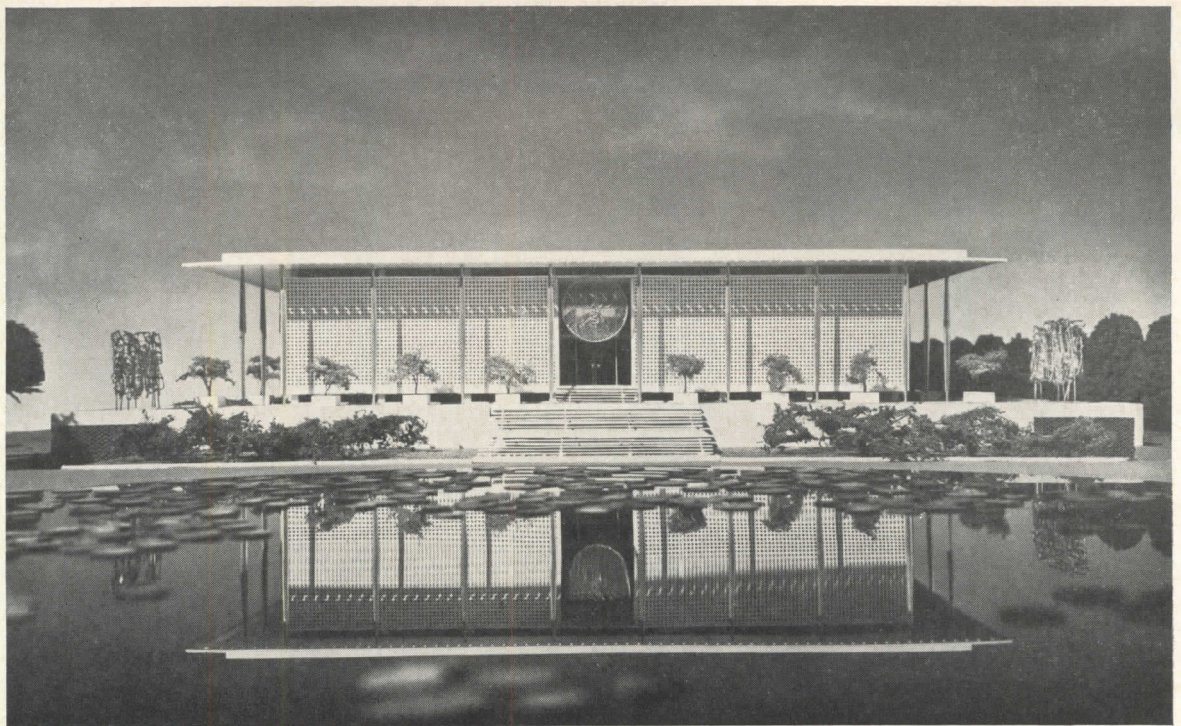
Unfortunately, throughout the Eastern countries we visited, architecture is a superficial imitation of the more obvious western forms. Local conditions of labor, climate, and site are largely disregarded, and the solutions are sad indeed. In Bagdad, a city with romantic connotations to the average American, we saw the most atrocious building of the juke-box style being erected in the main street. It was done in cheap materials, with unbelievably bad and unworkmanlike details — a most disheartening proof of what can happen when old traditions are discarded for standards which are neither understood nor loved. And this is happening not only in Bagdad or in Agra or in Karachi but in Italy, in France, and even in Finland, wherever reconstruction of bombed out areas has taken place.

The plea which we can make then is not that we go back to what once was, not that we become romantic, but that we face creatively as free spirits and in deep honesty the complexities of our modern world, yet never forgetting that man is the measure of all values.



14

“ . . . the plea . . . is not that we go back to what once was . . . but that we face creatively as free spirits and in deep honesty the complexities of our modern world, yet never forgetting that man is the measure of all values ”



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“ . . . he did not copy but brought his sympathy and understanding to bear upon his creative powers . . . ” Design for American Embassy at New Delhi, India, Edward D. Stone, architect

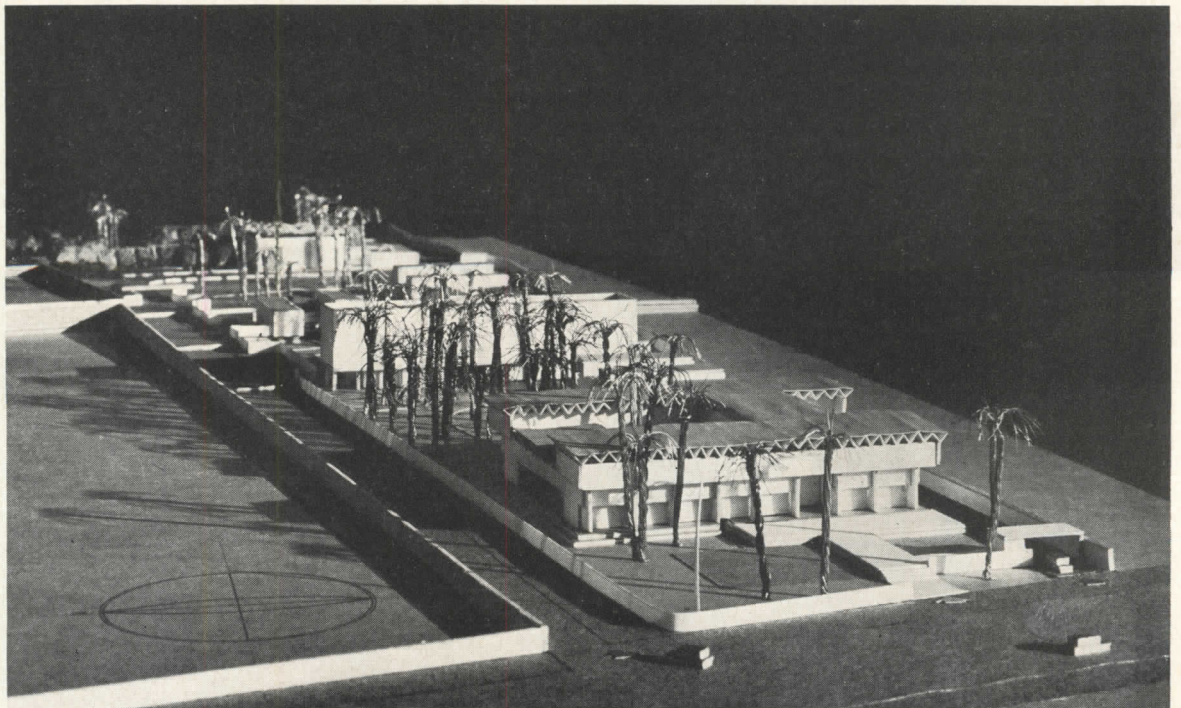
Photograph credits: 14. Ewing Galloway; 16. model by Theodore Conrad, photograph by Louis Checkman; 17. Photograph by Fred J. Maroon

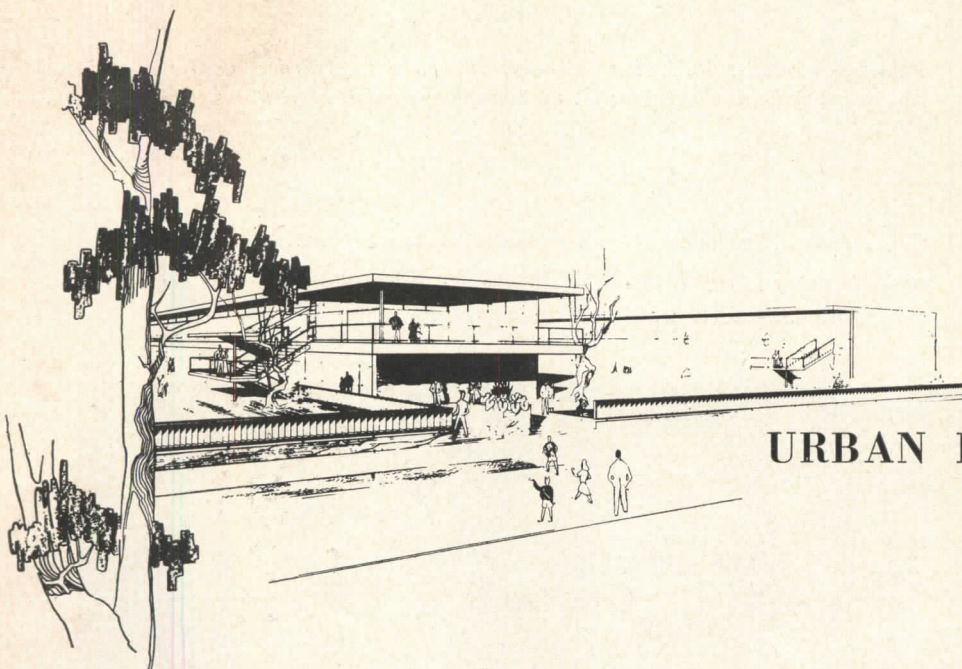


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“ . . . a sensitive version of regional architecture which is both creative and appropriate . . . ” Design for American Embassy for Iraq, Jose Luis Sert, architect

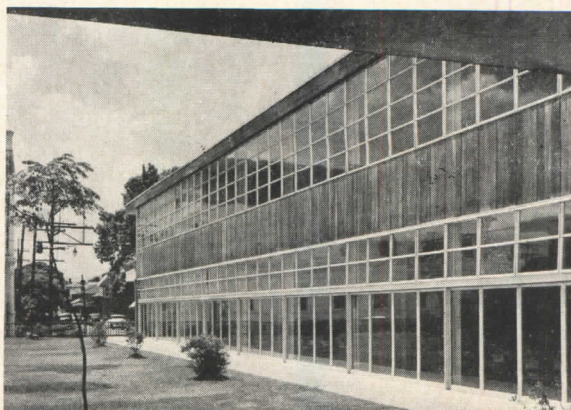
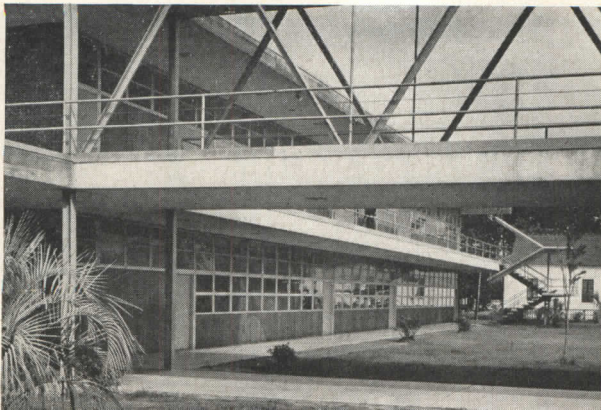
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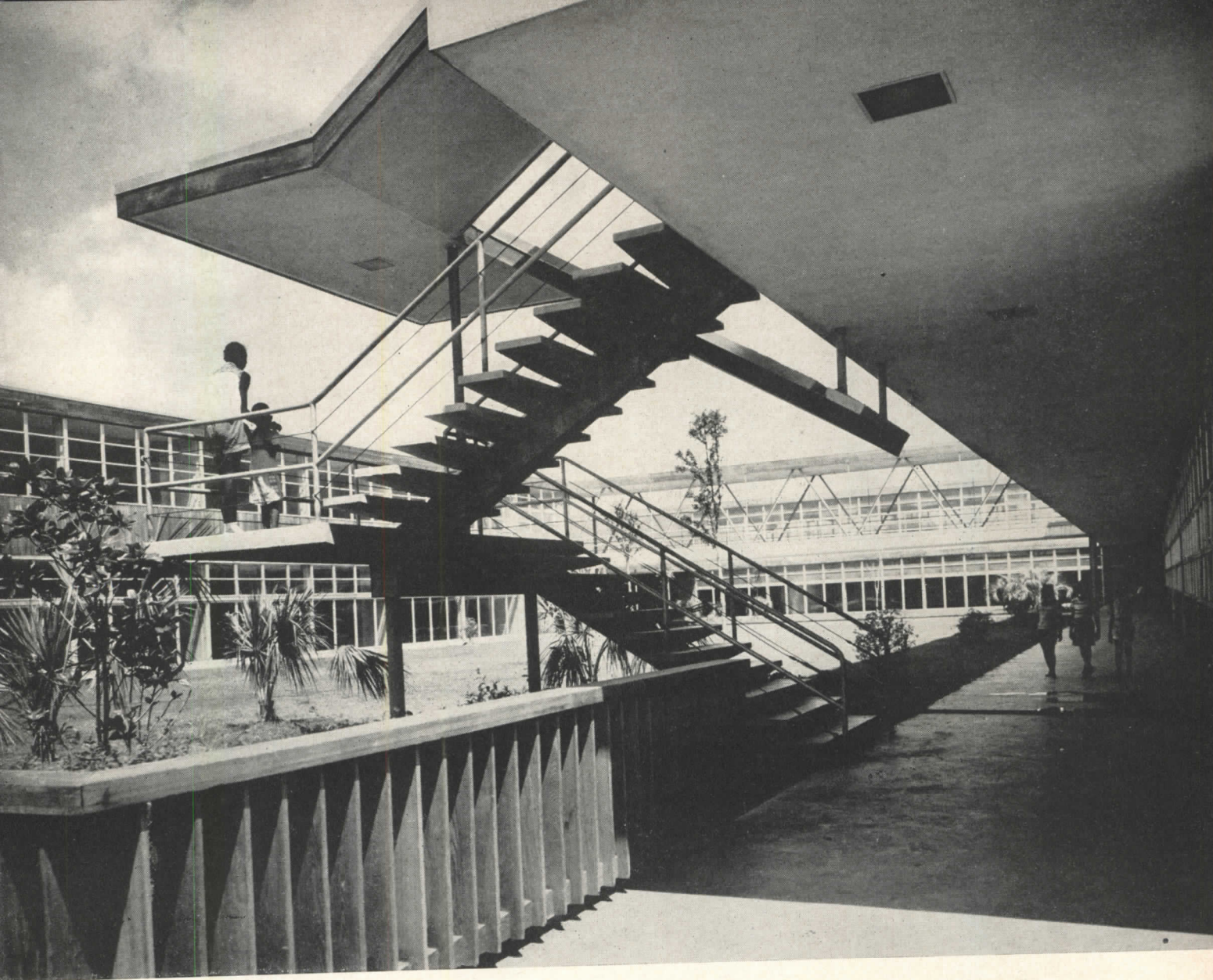




URBAN ELEMENTARY SCHOOL

Ulric Meigel





APPROPRIATELY DESIGNED FOR THE DEEP SOUTH

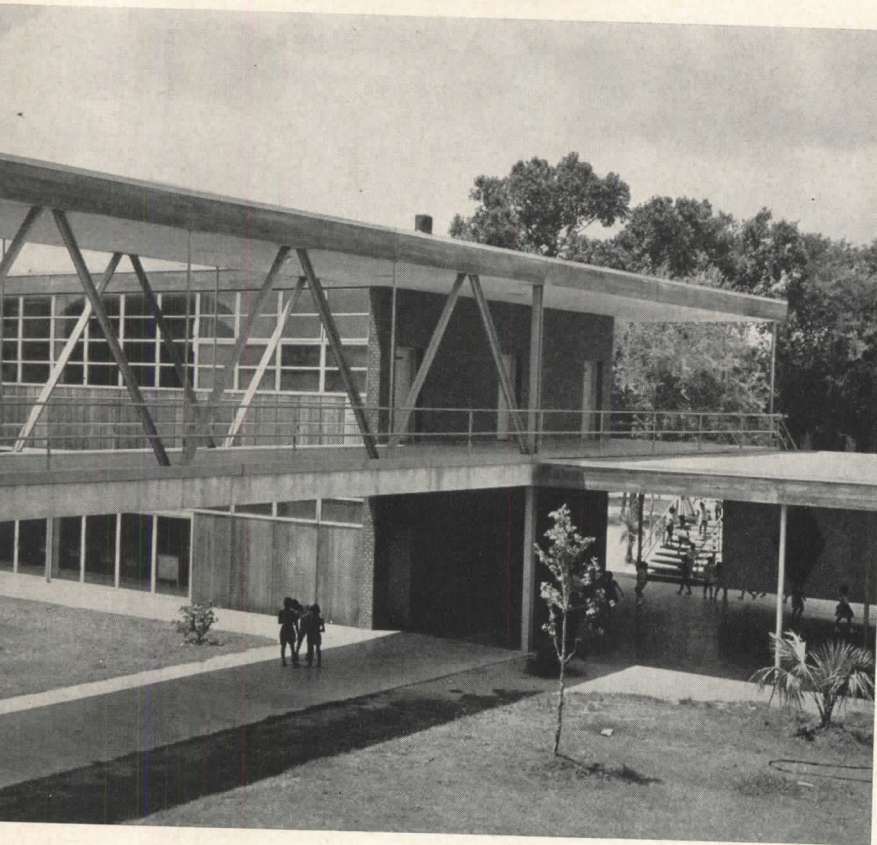
McDonogh School No. 36, New Orleans, La.

Sol Rosenthal, Architect; Charles R. Colbert, Associate Architect

MCDONOGH SCHOOL No. 36 is one of many named for a New Orleans pioneer educator who established a number of Negro schools in New Orleans. His statue stands in a landscaped downtown square. The school sites he selected are still used, still the property of the Board of Education; and though they and their buildings are now inadequate to say the least, urban land is expensive and the job of improvement is slow.

This example was one of the first two Negro schools under the Board's current building program. Additional land was acquired, a public street was closed — the first time this had been done in the city for school purposes — and in 1949 design was started. Korea, the steel shortage, Board policy changes and construction difficulty prevented its completion until 1953. When the new school was finished, the old frame struc-

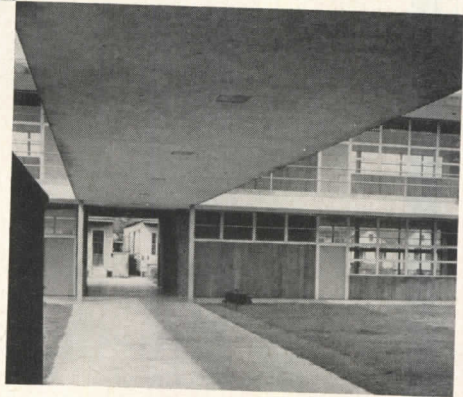
NEW ORLEANS SCHOOL



Photos: Ulric Meisel except as noted

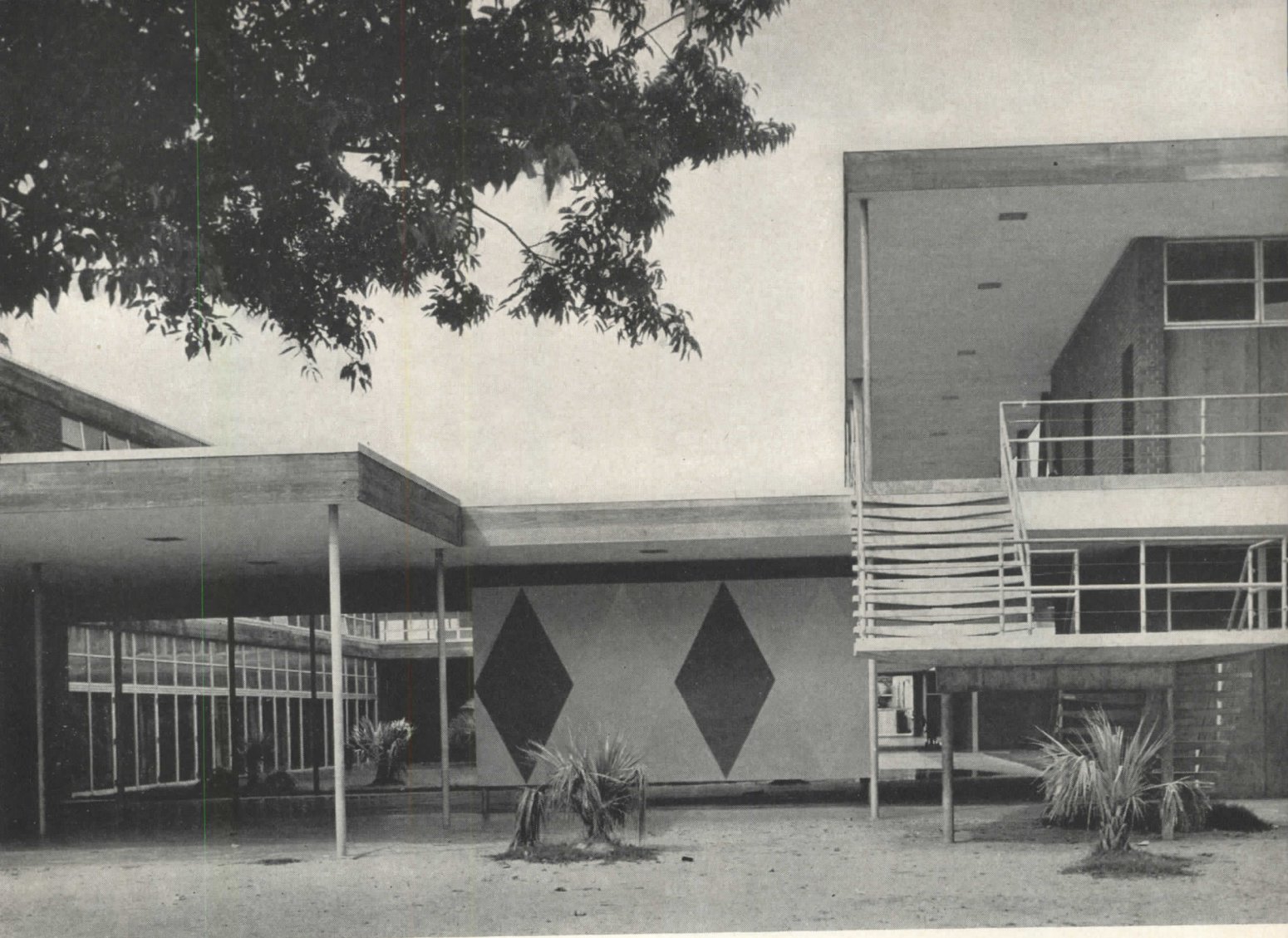
ture was refurbished so it could continue in use. Originally the plan was to construct a 1600 pupil K-6 school. The program was altered after the architects studied it, and on their recommendation, to require two schools, one for 770 pupils (22 classrooms) and McDonogh 36, for 875 pupils (25 classrooms). The site conditions, familiar to all who build on delta land where basements are impossible, required the simplest possible resolution of foundation problems; everything rests on piles driven into bottomless mud. The high land cost led to a two-story scheme if the desired single-loaded corridors and open ground for recreation were to be attained. High ceilings and through natural ventilation answer the demands of climate. The brilliant primary colors, the gay, boldly patterned screen walls, the courts between classroom wings and the balcony corridors are all appropriate to the locale, in some sort modern counterparts of the brilliance, the courtyards and the wrought iron

Trussed elevated corridors, above, reduced foundation problems. Colorful, patterned screens (facing page) give some privacy to courts, liven the whole



C. F. Weber



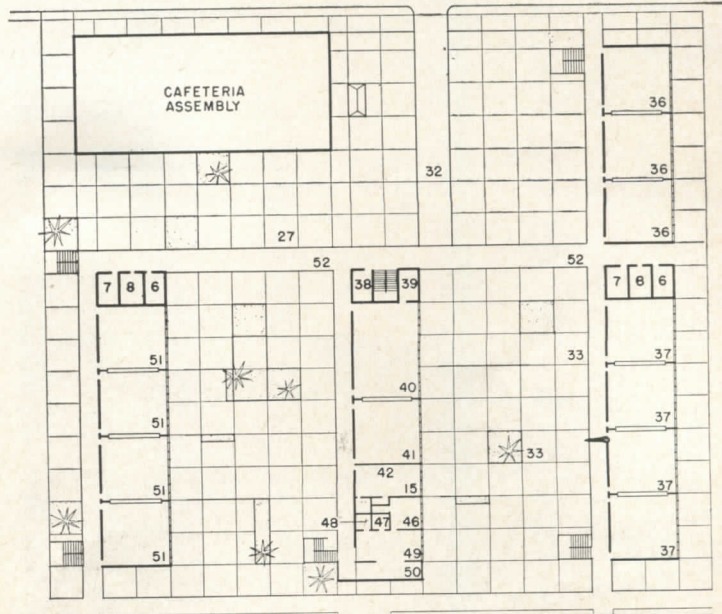
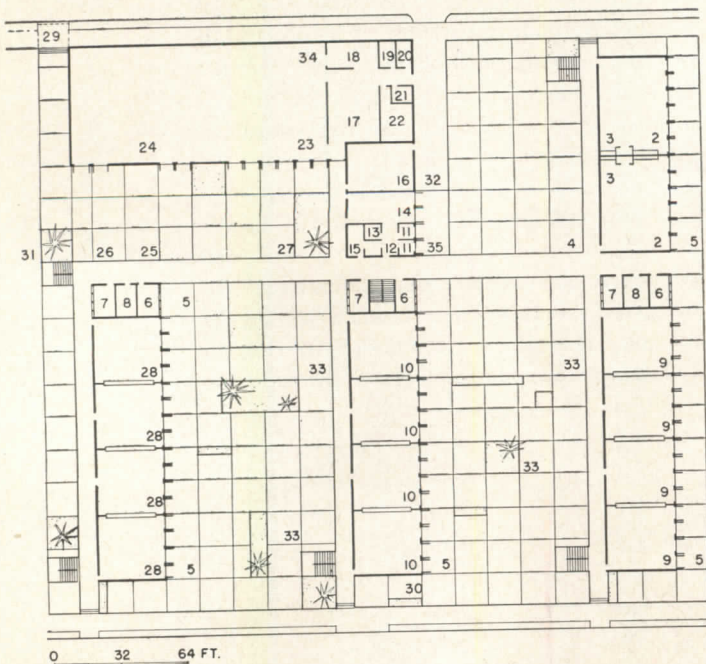


- 2. Kindergarten
- 3. Kindergarten work area
- 4. Kindergarten play court
- 5. Outdoor classrooms
- 6. Boys' toilet
- 7. Girls' toilet
- 8. Custodial and general storage
- 9. First grade classrooms
- 10. Second grade classrooms
- 11. Medical bedrooms
- 12. Small examination room
- 13. Doctor's office
- 14. Examination room
- 15. Teacher's lounge

- 16. Power room
- 17. Kitchen
- 18. Scullery
- 19. Service toilet
- 20. Dressing room
- 21. Garage
- 22. Storage room
- 23. Cafeteria
- 24. Play area — assembly
- 25. Play area
- 26. Mural
- 27. Dining court
- 28. Third grade classrooms

- 29. Canopy to street
- 30. Entrance court
- 31. Playground
- 32. Service drive
- 33. Outdoor Classrooms for upstairs
- 34. Chair and table storage
- 35. Infirmary court
- 36. Sixth grade classrooms
- 37. Fifth grade classrooms
- 38. Storage and book room
- 39. Visual aids and chair storage
- 40. Multi-purpose room
- 41. Library

- 42. Teachers' work room
- 43. Female teachers' toilet
- 44. Male teachers' toilet
- 45. Principals' toilet
- 46. Principals' office
- 47. Clerical storage
- 48. Records vault
- 49. Public reception room
- 50. View gallery
- 51. Fourth grade classrooms
- 52. Trussed corridor
- 53. Covered stairway
- 54. Skylight over kitchen





Ulric Meisel

NEW ORLEANS SCHOOL

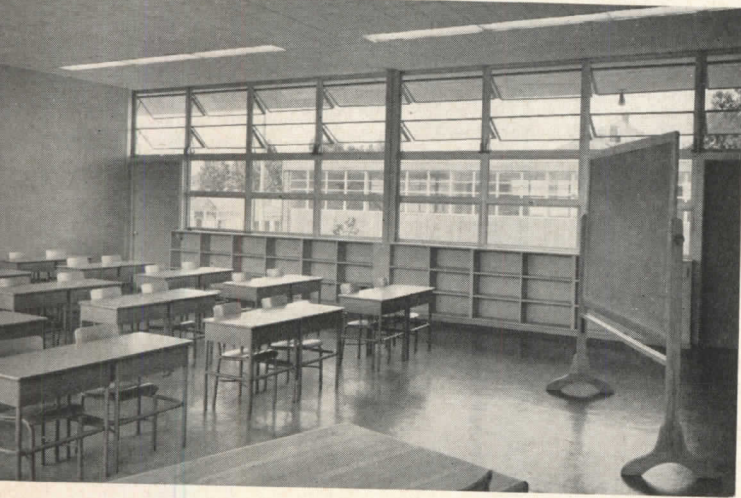
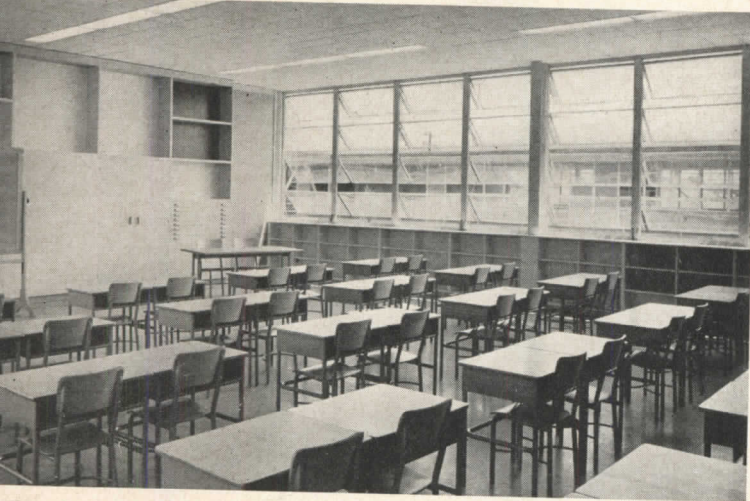
balconies that are considered the idiom of New Orleans architectural expression.

The trussed walkways connecting the second stories were designed independently of any American examples, although the architects admit having seen the Von Nelle factory in Rotterdam designed by von der Vlugt (1929). By the time the school was finished, of course, similar devices had been used and publicized in this country. Their reason for being at McDonogh 36 is fundamental: they simplified foundation problems.

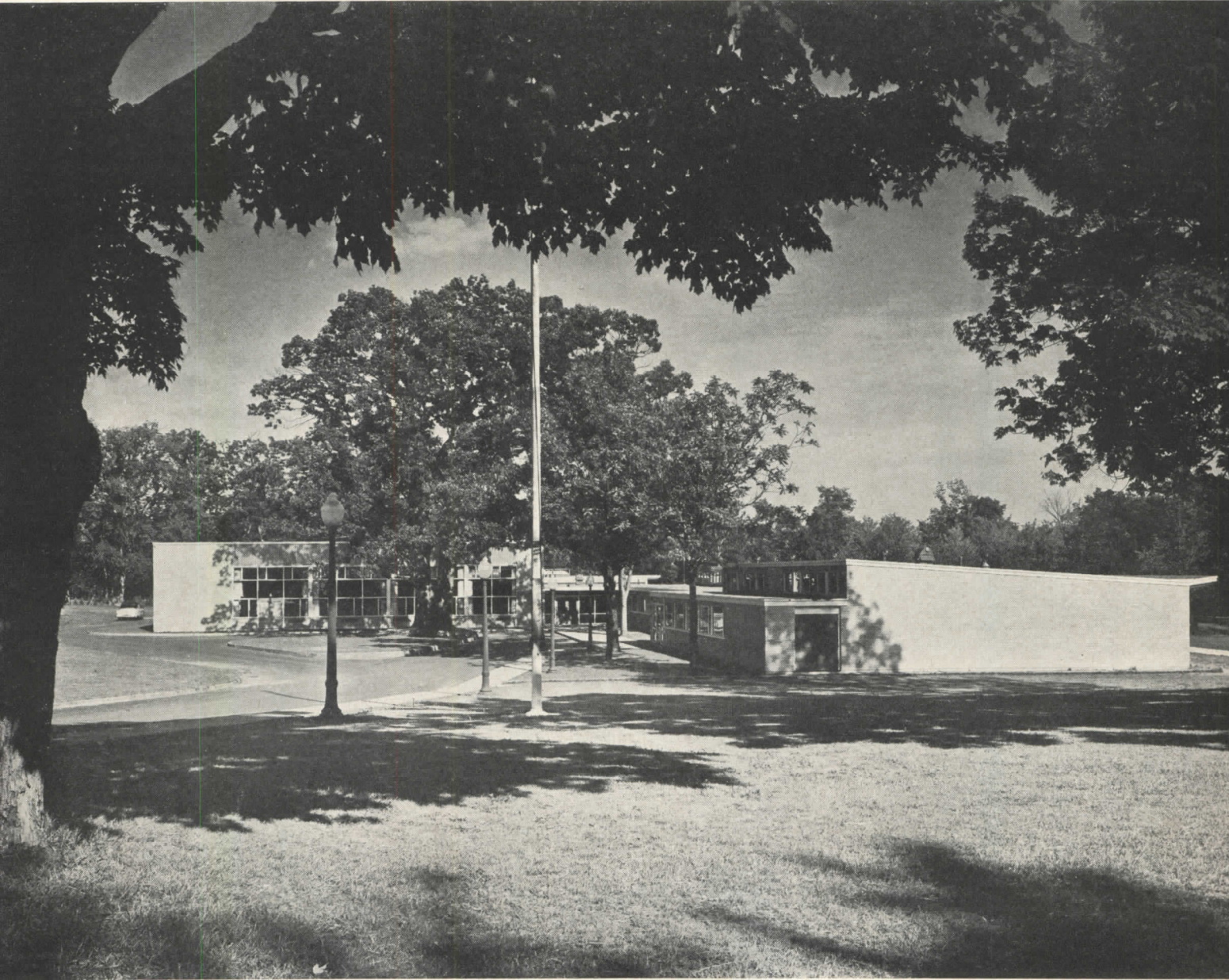
Equally direct is the reasoning behind the design of the completely exposed stairways (except for one central access to the cafeteria). Children in the surrounding crowded slums walk to school. Why not walk ten feet farther, up? Yes, it rains hard in New Orleans, but a few feet more makes little difference in wetness or dryness.

The administrative unit overlooks the slums that produce the school's children. It is a two-way view: the occupants of underprivileged homes look through the glass walls and see education being administered in a pleasant, stimulating environment. Consciously or not, the hope of improvement through education becomes a real thing, attainable without difficulty. Proof is not positive, but as in the few other new Negro schools in the city, retardation and drop-outs — always serious problems in New Orleans' Negro schools — have decreased. The new schools have seemed to counteract this tendency. In part, their greater holding power may come as an after effect of World War II, another manifestation of a national trend; in part it may be due to improved teaching environment. The contrast between home and school is so apparent, so obvious to parents, teachers and children that school just seems like the best place to be.

Again, there is a reverse action too. One cannot help noticing that many of the houses around the school have been repaired and painted, some for the first time in decades. Without preaching, without pretense, just by its existence as a piece of good design, McDonogh 36 has acquired an impressive social importance.



TRADITIONAL FORM AND CONTEMPORARY EXECUTION



Joseph W. Molitor

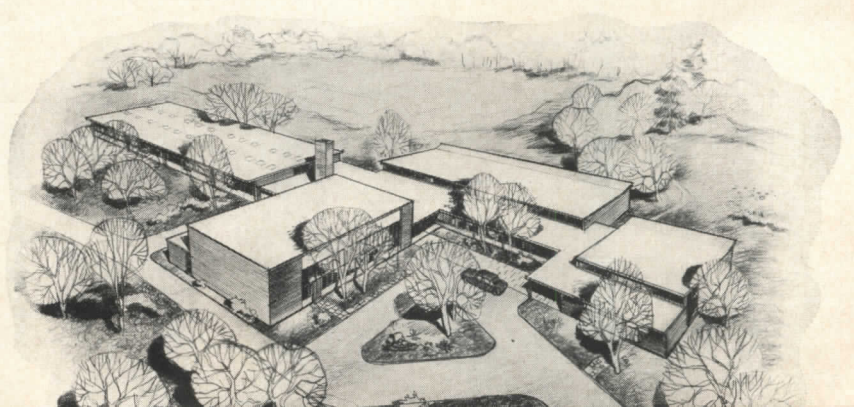
Flagg Street Elementary School, Worcester, Mass.

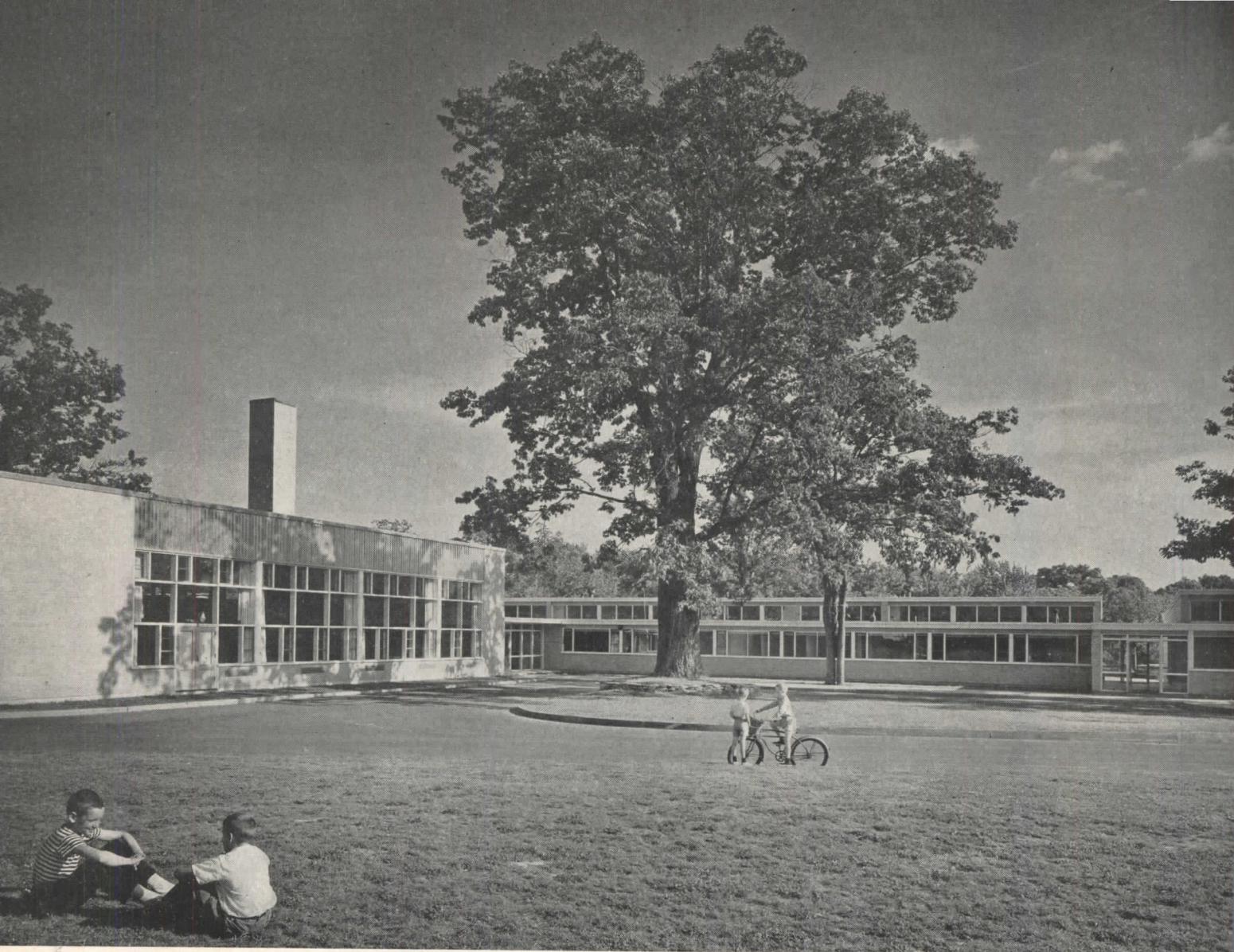
The Architects Collaborative and

Albert J. Roy, Associated Architects

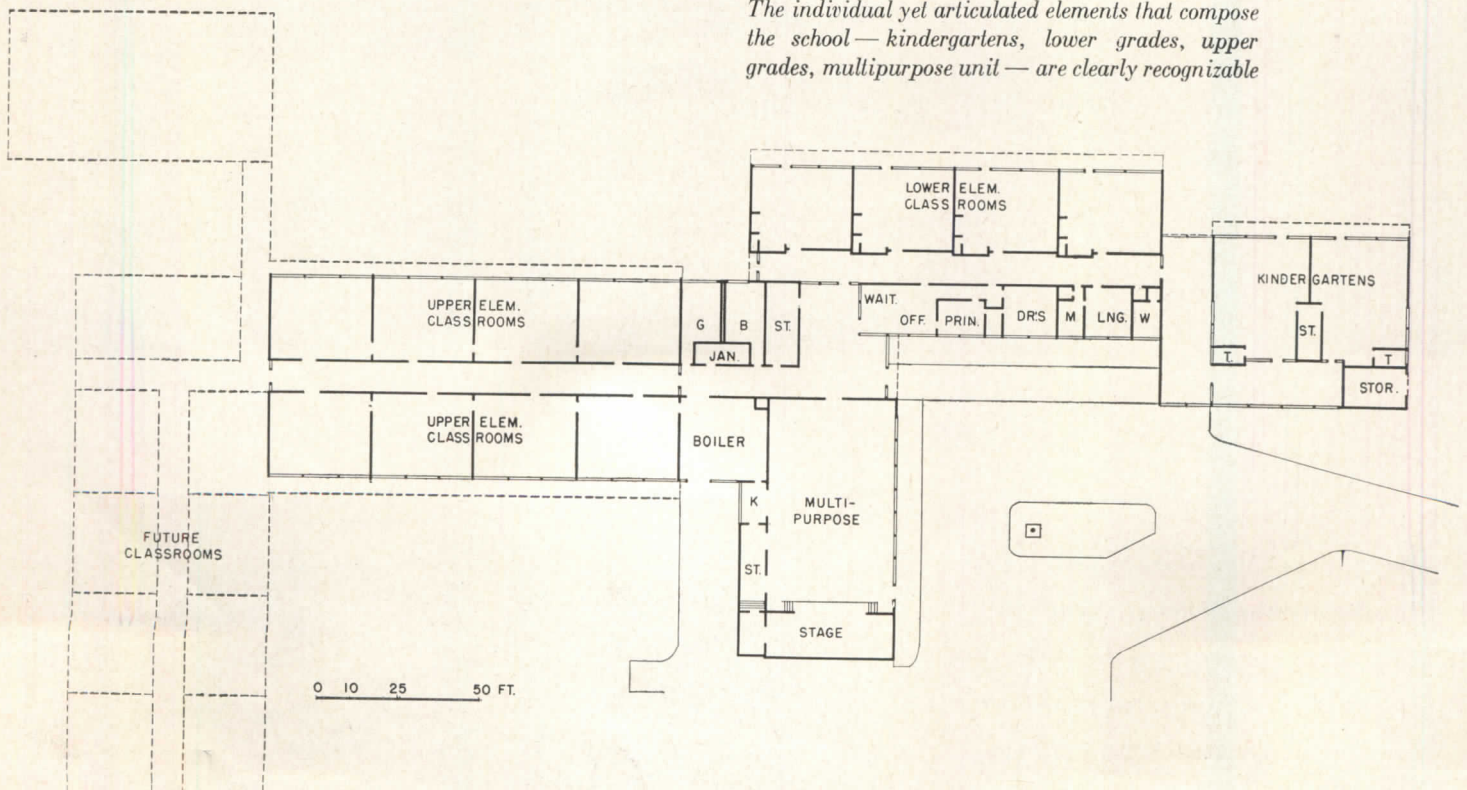
Thomas Power, Superintendent of Schools

*Leo T. Doherty, Asst. Supt. in Charge
of School Buildings*

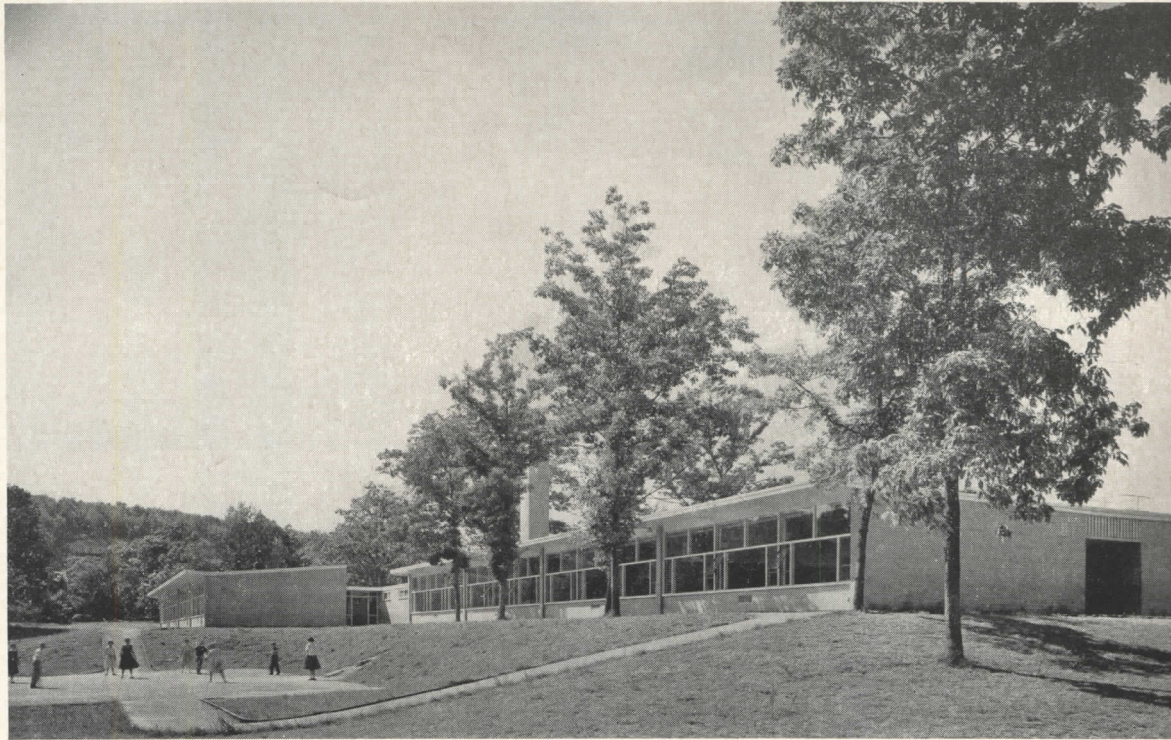




The individual yet articulated elements that compose the school—kindergartens, lower grades, upper grades, multipurpose unit—are clearly recognizable



MASSACHUSETTS
SCHOOL



THERE WERE THREE problems to be tackled simultaneously in designing the Flagg Street School: to provide a suitable environment for the elementary school child, who is making an adjustment probably as difficult as any he will face in his lifetime; to do this well esthetically and educationally, imaginatively and in harmony with its locale; and for economy to produce a relatively compact school and yet one which has somewhat the character of a community of buildings.

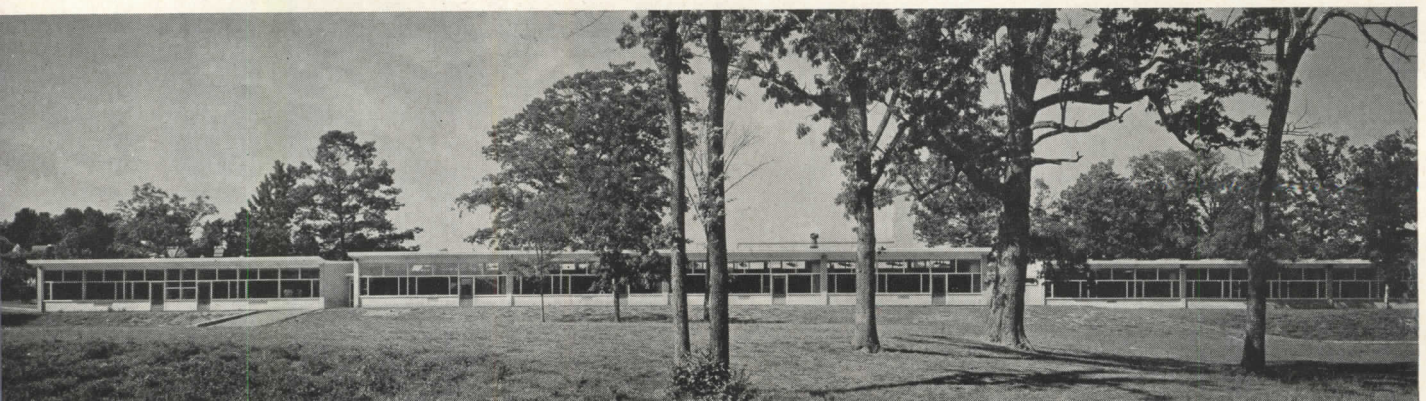
In general terms the architects have restated these fundamentals somewhat as follows: children in elementary schools are at an age of great transition. As pre-school children they have been given considerable individual treatment. Their group has been principally family, and they have enjoyed certain priorities. When they go to school they are suddenly projected into a large group of their own age with no more priorities than any of their fellow youngsters. For many children this is unpleasant medicine; if

the individual child finds he is no longer an individual, just at the age when he has begun to learn that he really is one — that among four or five hundred his own age he hardly counts — the medicine may be too difficult to take all at once. Yet sooner or later children have to realize that the small group in which they can feel at home is part of a larger one, and that of a larger again, and so on. This may be the most important school lesson.

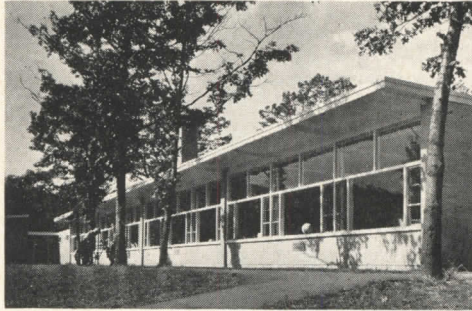
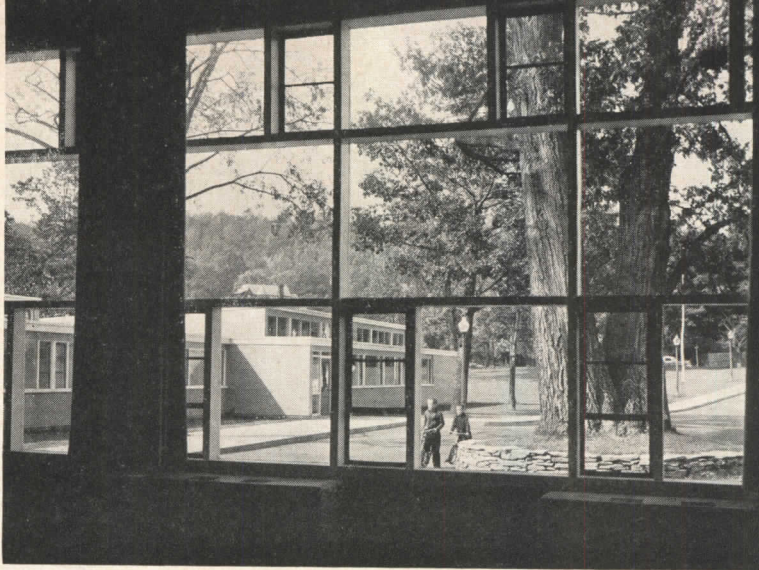
The Flagg Street School's architects looked on their job, then, as one of designing a building to help make this transition and teach this lesson. Hence the classrooms in small groups for different age levels, yet all interrelated and interdependent in design. Whether this was to be achieved by a series of buildings with outside circulation, or in one building with individual, articulated elements became in part a regional consideration.

The separate elements — kindergartens, lower grade rooms, upper grade rooms and multi-

Joseph W. Molitor

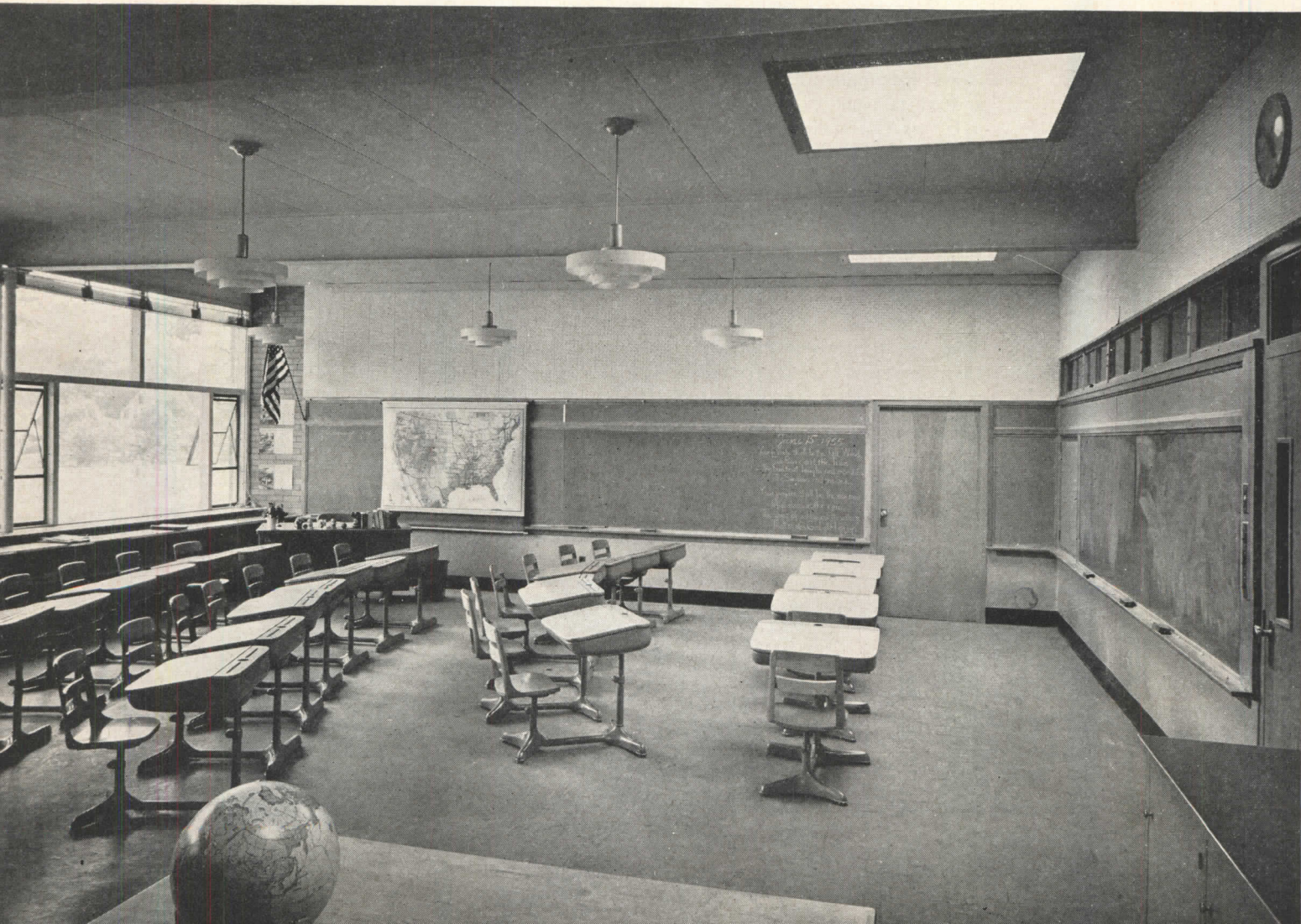


MASSACHUSETTS SCHOOL



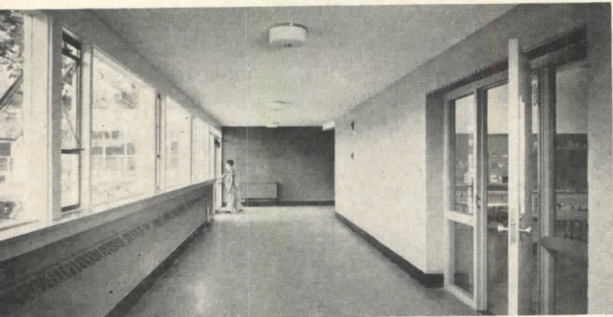
Above and left, John Lawlor

Classrooms are different for different age groups. Below, upper elementary grades are in flat-roofed section, have plastic skylights, central corridor with borrowed light. Facing page, lower grades have pitched roofs, clerestories, single-loaded corridor



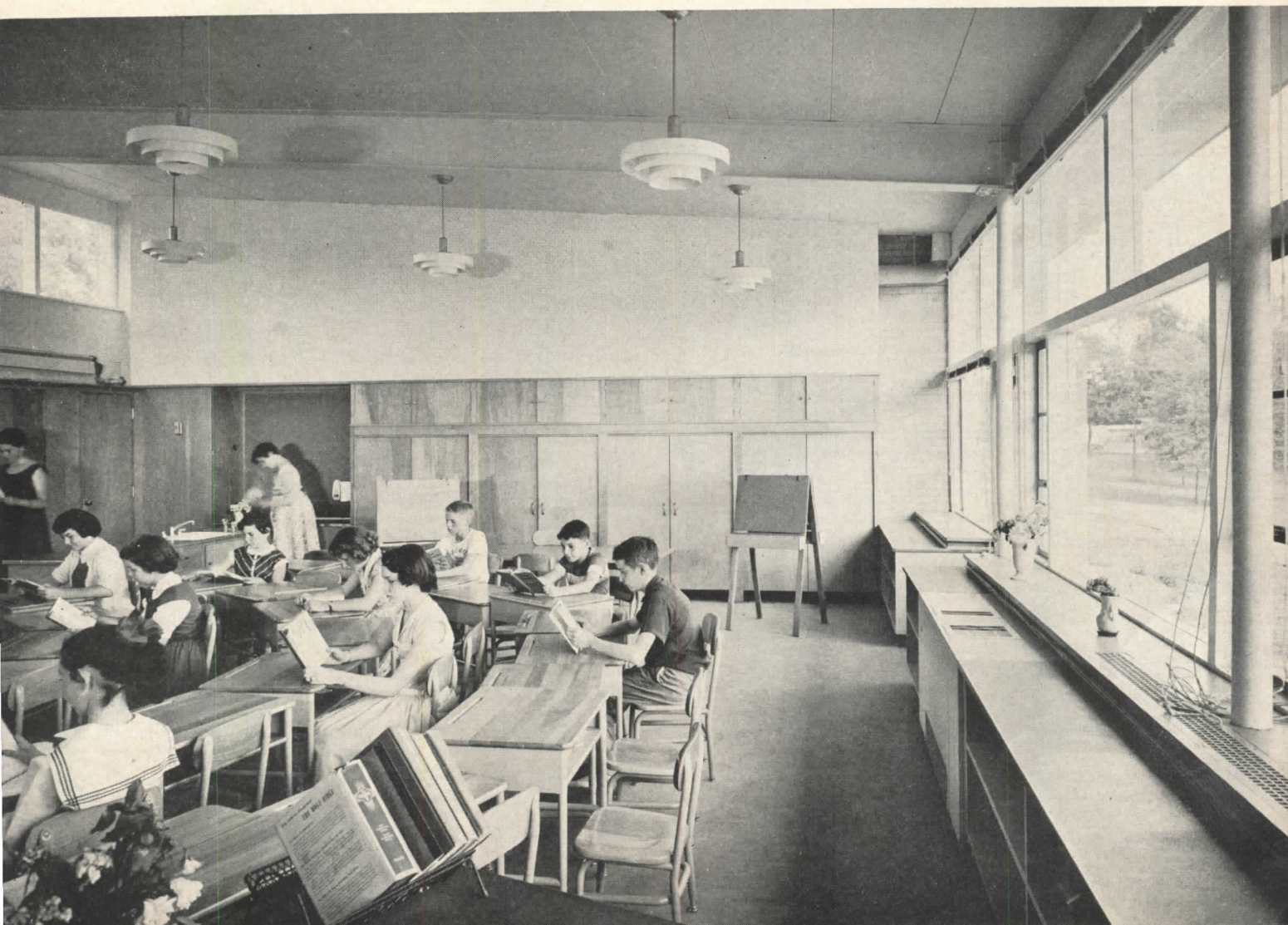
Fenestration changes slightly in different parts of the school. Facing page, far left, upper elementary unit; center, multipurpose wing; below, kindergarten foyer

Photos: Malitor except as noted



purpose unit — are linked by corridor and service areas having lower roof levels, much as the New England farmhouse group is tied together. This, of course, was done to avoid causing children to go outdoors during the rigorous New England winter. In such a sound fashion, for reasons inherent in the situation, a traditional form was natural to adopt. The school makes no overt effort to look like a Massachusetts farm, the materials and the shapes and the fenestration are wholly of our time, but the concept exists and the kinship is evident.

There are refinements: the design of the room types has stressed differences in architectural handling to further their individual expression. Kindergartens and lower grades are on single-loaded corridors and have a low-pitched roof and clerestory light. Upper grades are in a flat-roofed section, on both sides of a corridor, and have plastic skylights for secondary natural illumination. The room groups have been offset in plan and are differently oriented so they will have different outlooks. This, the architects felt, would be more stimulating to the child as he progresses from year to year than a straight line or "finger" plan, in which each view is practically identical with the next.



SPACE—TIME PALLADIAN

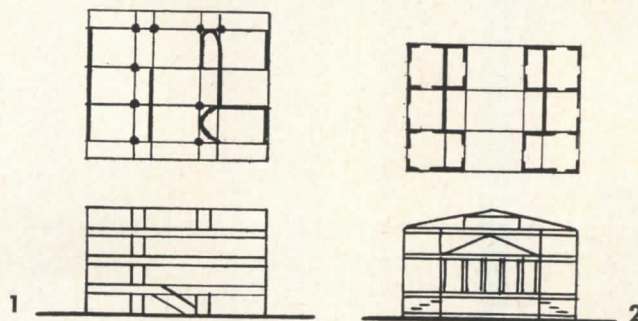
By John MacL. Johansen; illustrated by the author

THE SIMILARITIES between designs of certain contemporary houses and those of Palladio, if brought to notice at this point in modern architectural development, should be of particular amusement and serious interest to architects. We are aware of a new interest in architecture of the past. Students who in my time would have found nothing to learn from the great monuments are availing themselves of traveling fellowships or by some means visiting Europe for study. Established practitioners return with a naive air of having personally "discovered" Rome, Venice, Vicenza; the palazzo; the public square. Architects, hurt to discover that these monuments have had lovers for centuries, proudly proclaim to love them best. A reconciliation between the revolutionary youths and their beaux-art elders is apparent. The revolution seems to be turning full circle.

This article isolates a small part of the new interest in the past: the Palladian Villa. Villa Capra (Rotonda), Fig. 7, more than any historical house, had captured the imagination of several generations of architects in Europe and here. In England there were Wren and Inigo Jones; in Ireland Richard Castle; while Thomas Jefferson chose Palladio in contributing a dignified architectural expression for a newly established nation. Granted, these were fairly literal copyings of pediment, column and arch. Beyond these, there is abstract quality, system, idea, basic organization of space and mass, principles and values which we find to be of

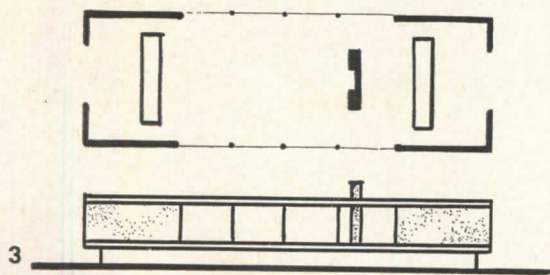
task at hand with the 'certain truth' of mechanics which is final and unchangeable."¹ In addition, there are the qualities of proportion, elegance, richness, accent, movement, grandeur, picturesqueness, playfulness, gaiety. There is a combination of monumentality and spirit; strength and play, or as Geoffrey Scott has said, "The laughter of strength."²

What are the important values today? There are some architects who feel as I do that the modern, architect-designed house has left a great deal behind. My feeling is that residential building (unless it never had any serious architectural possibilities) must have these qualities. Those who feel this way are professedly not

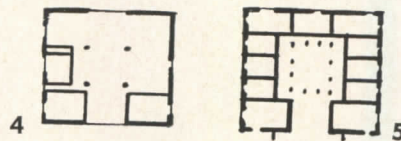


functionalists, controllers of climate, scientific truth seekers, esthetic exhibitionists or believers in "do-it-yourself." These technical services the architect must perform — but they should be taken for granted, not boasted of. Architecture begins after these matters are solved, for architecture is not alone such techniques, but the effect of their handling upon the human spirit.

The older generation of modern architects respected and studied historical works. Le Corbusier and Mies van der Rohe — with all their forward growth — have roots in history, and their cumulative experience has



timeless importance — which can be restated, reapplied. Qualities of Italian Renaissance design in general and Palladian in particular might be stated as follows. First, there is the strong central geometric form, usually a rectangular block with a regulating rectangular system of bays expressed in elevation which results in a "centralized plan." For the plan itself, "He reconciled the



made them what they are. Possibly they are greater artists than teachers, for the younger generation has lost contact with the past and in the historical sense might be called a lost generation. To show Le Corbusier's concern for Palladian order, we need only read the careful analysis made by Colin Rowe³ in which he compares the Villa at Garches, Fig. 1, with the Villa Malcontenta, Fig. 2. These two villas are regulated in plan

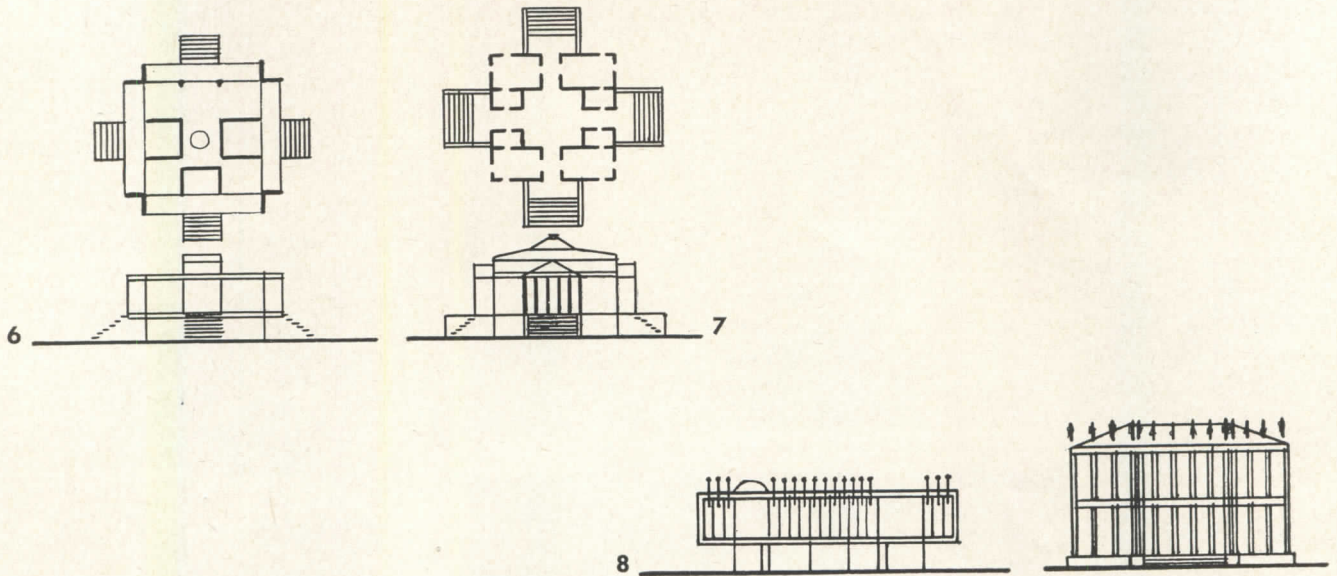
¹ Wittkower, Rudolph: "Architectural Principles in the Age of Humanism," A. Tiranti, London, 1949.

² Scott, Geoffrey: "The Architecture of Humanism," Scribner, New York, 1914.

³ Rowe, Colin: "The Mathematics of the Ideal Villa," ARCHITECTURAL REVIEW, London, March 1947.

and façade by almost identical proportioning of bays. The point support of Garches obviously allows the free and fluid space of the modern esthetic which was not possible with Palladio's bearing walls. Mies van der Rohe's Resor House, *Fig. 3*, with its free central space and the strong walls enclosing its corners, is very much in the Palladian spirit.

detail, playfulness, gaiety; and rightly denied the use of urns, statuary or temple fronts, we are finding devices which satisfy the functional and sculptural needs in one. Paul Rudolph in his Florida house, *Fig. 8*, has by counter-weights, given his building the same delightful accent at the roof line Palladio's Palazzo Chiericati possesses by virtue of its silhouetted figures, *Fig. 9*.

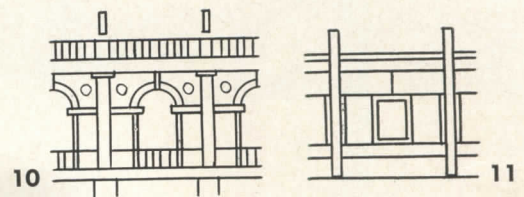


Of the younger generation, Philip Johnson — who considers his prototypes more Roman than Palladian — has in Villa Hodgson, New Canaan, *Fig. 4*, come close to a Roman house redesigned by Palladio — Villa Tiene, *Fig. 5* — in which Johnson found new functional use for the ancient form.

A question now arises. Are we seeking functional justification for borrowing from Palladio, or are we seeking nobler expressions for our own functional designs? It is my feeling that, to a greater extent, we are searching for these spiritual qualities because at this time they satisfy a human need much neglected. We are amused, interested, and reassured to find Palladio again. His qualities and principles can be as well carried

In the same spirit, I have designed a series of inexpensive central-plan houses which I call "Budget, or Poor Man's Palladio." Villa Goode, *Fig. 6*, perhaps appears a too slavish copy of Villa Capra, *Fig. 7*, to be justified under the modern architects' creed; however, this plan was developed to satisfy the strict demands of function and budget. Here a compact arrangement of rooms surrounds a hall or rotunda, and the equal bays facilitate framing. The lower story in rustic masonry corresponds to the traditional "base"; there are sheltered porches with steps on four sides in place of traditional porticoes; light-providing-monitor replaces dome; upper floor corresponds to "piano nobile"; post-casings and fascias correspond to pilaster and cornice.

Ornament too is creeping back. Today, however, we consider it unethical to use ornament which has no functional meaning — yet there is need for accent,



out in space frame, intercolumnation, or plastic as in bearing wall; *Figs. 10 & 11*. In a sense, we go forward and backward. We need not fear this backward look nor be embarrassed by similarity with earlier types, but rather feel proud; for art which is fundamental in its appeal has precedent and parallel regardless of time.

1. Villa at Garches, by LeCorbusier
2. Villa Malcontenta, Vicenza, by Palladio
3. Resor House, by Mies van der Rohe
4. Villa Hodgson, New Canaan, Conn., by Philip Johnson
5. Palazzo Tiene, Vicenza, by Palladio

6. Villa Goode, Connecticut, by Johansen
7. Villa Capra (The Rotonda), Vicenza, by Palladio
8. Villa Florida, by Paul Rudolph
9. Palazzo Chiericati, Vicenza, by Palladio
10. Large and small orders — The Basilica, Vicenza, Palladio
11. Large and small orders — Connecticut House, Johansen

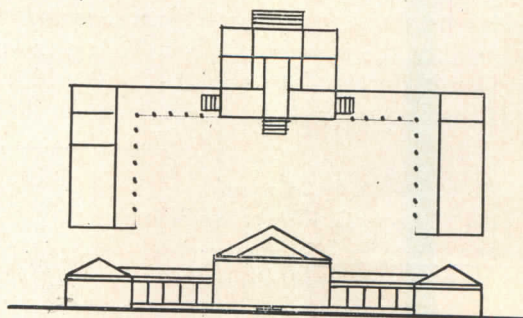


Ezra Stoller

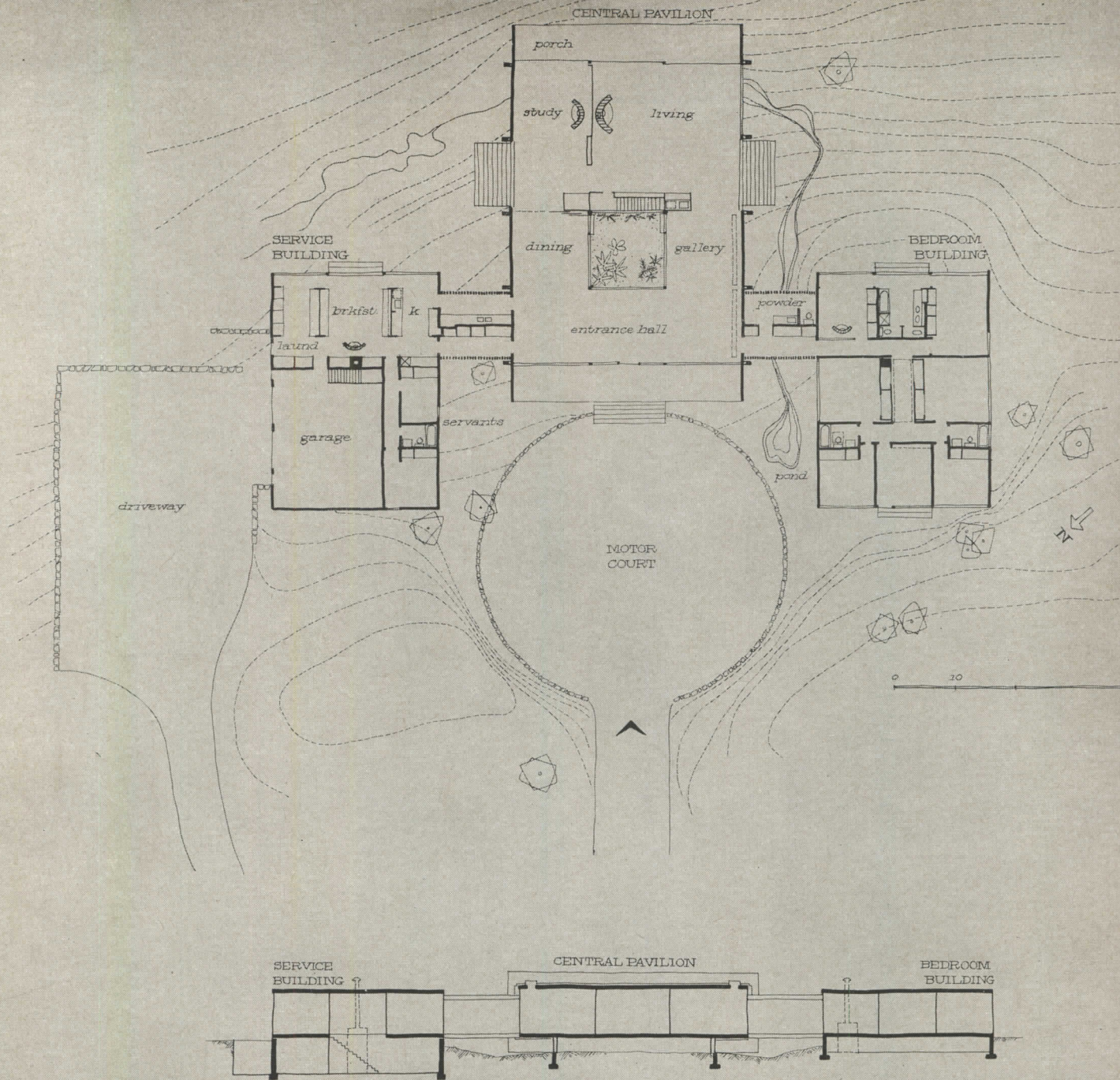
PALLADIO + A ROCKY CONNECTICUT HILLSIDE

A House in Fairfield County, Conn.

*John MacL. Johansen, Architect
James Fanning, Landscaping
John C. Smith, General Contractor*



Villa Zenò — Casallo, by Palladio



+ THE NEW STRUCTURAL TECHNOLOGY

THIS DESIGN for a large country house creatively fuses three influences: Palladio, the setting, and 20th century technology. The general arrangement — a large central pavilion entered imposingly on axis and flanked symmetrically by two smaller units which are joined to it by narrow links — compares interestingly to Palladio's plan for Villa Zeno, left. And in smaller particulars the Italian's ideas come through; the central skylighted grotto, the bay framing and fenestration (see figs. 10 & 11, p. 151), the white fascias and posts against the soft pink stucco, for example.

The secluded four-acre site slopes to the southeast; contains fine old trees and natural rock outcroppings. This environment suggested three buildings resting on natural stone bases built upon the outcroppings — the concept of three islands connected by glass-enclosed bridges. Such is the executed scheme, and interestingly enough, the links are true bridges; note how the natural terrain flows freely beneath them in visual verification of the idea. The site was generally left untouched, the principal landscaping consisting of the clearing for a natural pond at the foot of the slope.



A HOUSE IN CONNECTICUT



© Ezra Stoller





The bedroom and service wings are wood framed in fairly conventional fashion, but the structure of the central pavilion is quite unusual. It consists of five laminated wood bents in hollow rectangular shape, set 16 ft apart, from which the roof plane hangs and upon which the floor structure rests. Visually framing this element lends it added importance. The 9 in. thick bents rise 16 ft and span 50; rest upon a native stone foundation, cantilevering 8 ft over it on either side. The top and bottom chords are 30 in. deep. Note that the vertical enclosure plane for the central unit is laterally separated from the bents — a design refinement that expresses the structural freedom of this plane.

The central pavilion is large (48 by 80 ft), high ceilinged (10 ft 6 in.), and contains the principal areas for living, dining and entertaining. This unit's importance is emphasized by the variance in ceiling heights between elements: 8 ft 6 in. for the two flanking buildings, and 7 ft for the bridges. Access to the site is provided by steps from the kitchen, library, living area, children's playroom, and master suite.

The bridges — one of which is shown above in photo-elevation — are glazed floor to ceiling between 2 by 8's set 6 in. apart. Such a treatment offers relief from the large glass areas of the buildings themselves; creates a feeling of sequence between units.

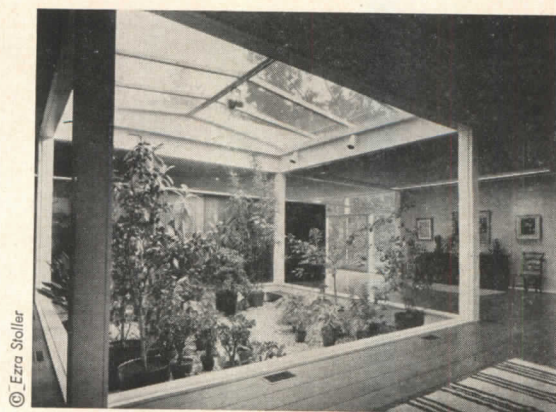


A HOUSE IN CONNECTICUT

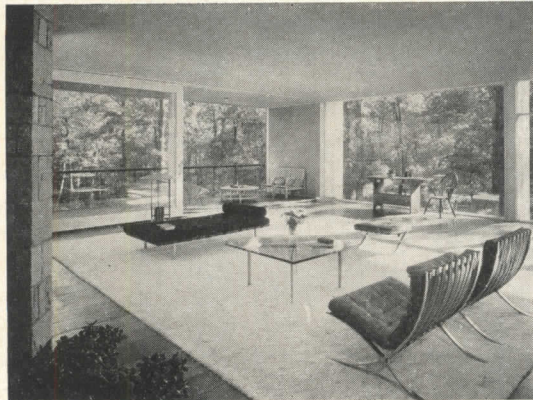
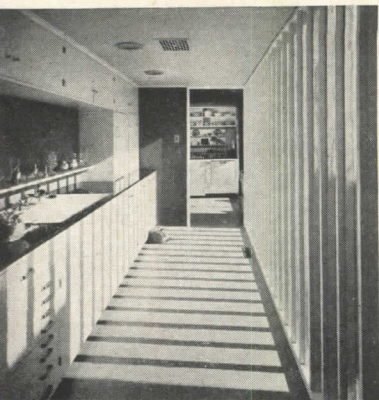
The interiors, successful within themselves, are noteworthy also for the manner in which they — from nearly any point — provide one with a strong sense of identity with the site and with the other units of the scheme.

The large living space, shown above and at third right, is floored in random teakwood boards and contains a quite unusual fireplace. Its concave masonry is native stone; the hood is steel, painted dull black; the character achieved is almost medieval in feeling.

Second right: a view of the bridge connecting kitchen and dining areas — split planwise into pantry and passage — shows, in the pantry, the interesting pattern of light and shadow created by the vertical glazing.



© Ezra Stoller



BOLD GEOMETRY AND GLASS FOR AUTO SALES

Thomson Brothers Cadillac Agency, Cincinnati, Ohio

*Architects & Engineers: A. M. Kinney Associates
John R. Morris, Project Manager
Charles Burchard, Director of
Architecture*

Landscape Architect: Eleanor A. Christie

Interior Designer: Harbine Chatfield

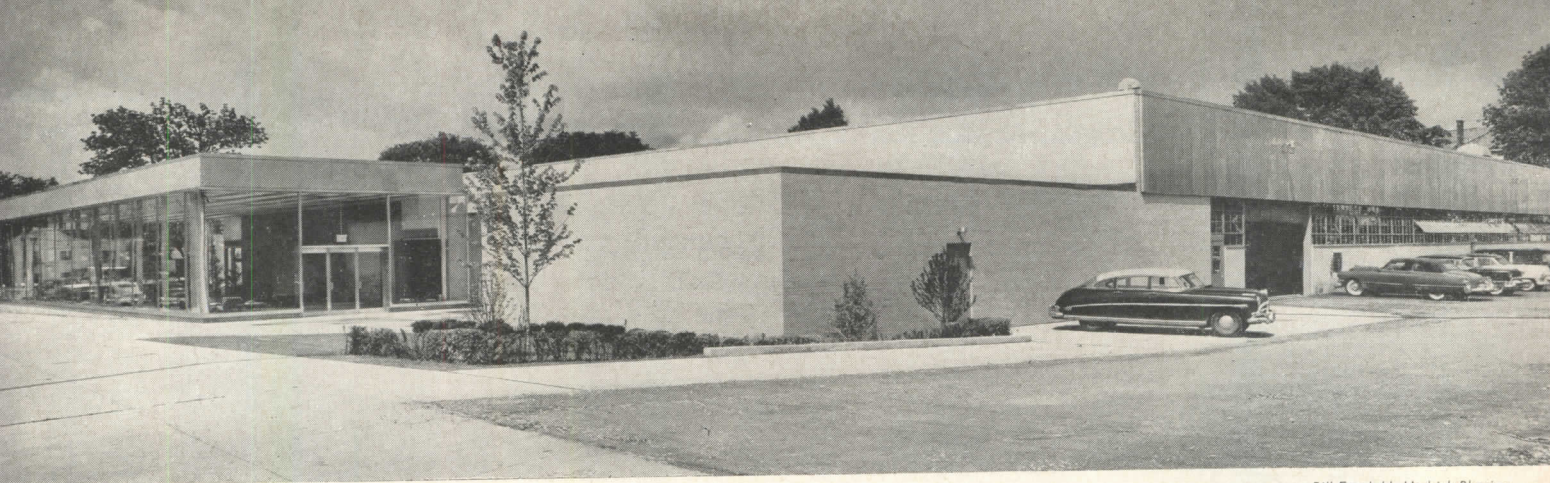
Contractor: Charles V. Maescher & Co.



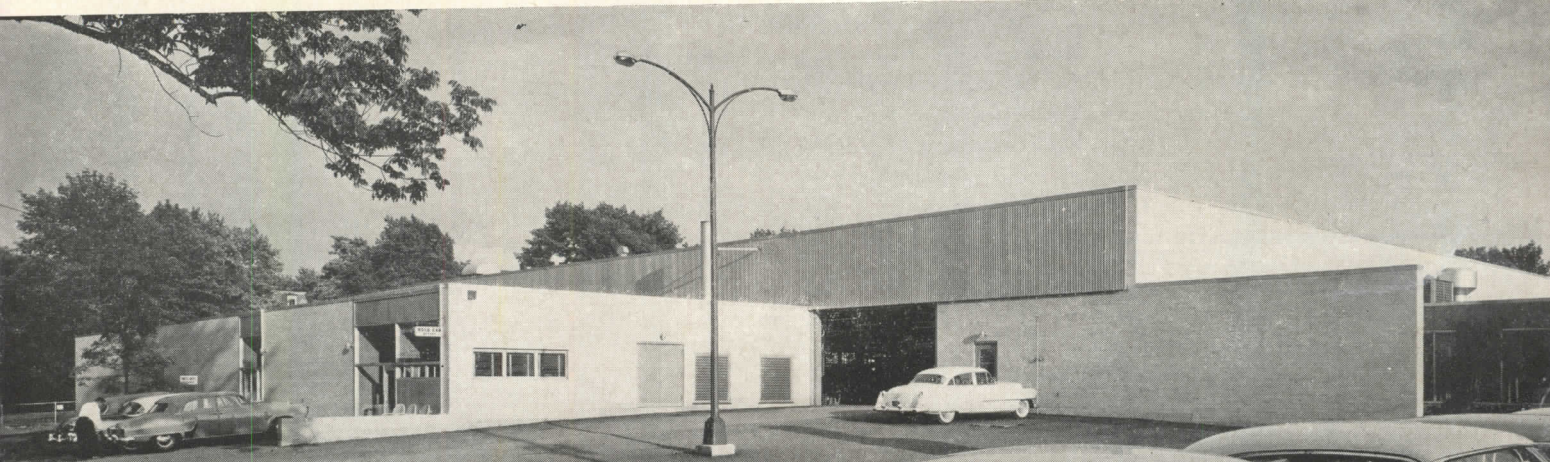
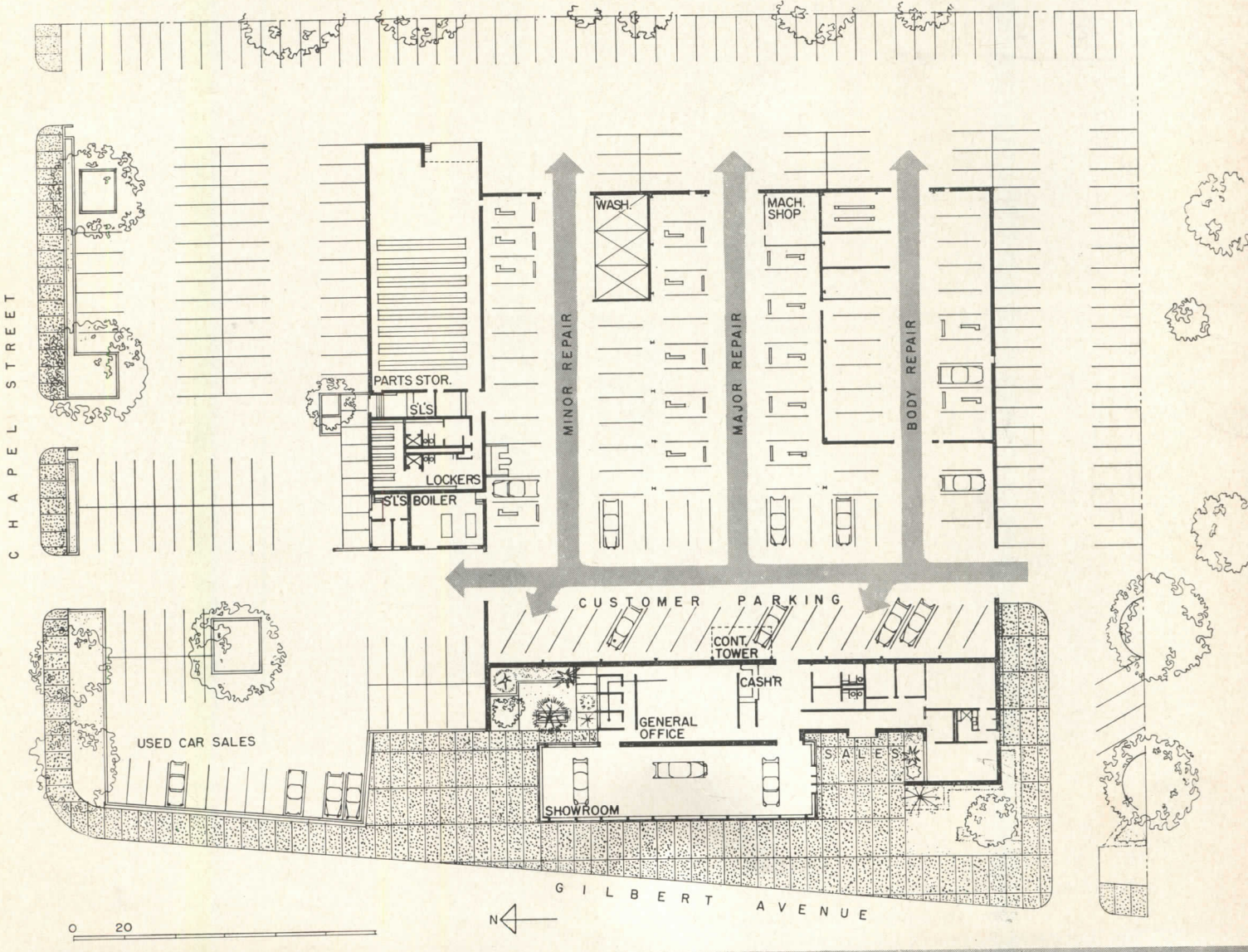
THERE IS cliché danger in the ill-considered use of the glass box. There is also — in the right situation — the opportunity to make of it a glowing, crystal showplace for business that evokes comment; ups sales. Here, at night, against the small, broken-up patches of light characteristic of Cincinnati's environment, the bold geometry of this stainless steel cage and its strip lighting come alive to make a striking display visible for some distance along Gilbert Avenue. For daytime effect, the

glass cube, topped by light blue porcelain panels, is played interestingly against long horizontal ribbons of sand colored brick and corrugated aluminum enclosing service and used car areas to the rear. Planted courts placed at "hinge points" in the plan contrast nicely to the severity of the building; enable one to view the cars on display against a natural background.

Three main elements comprise the plan: the showroom, sales and office group fronting on the principal

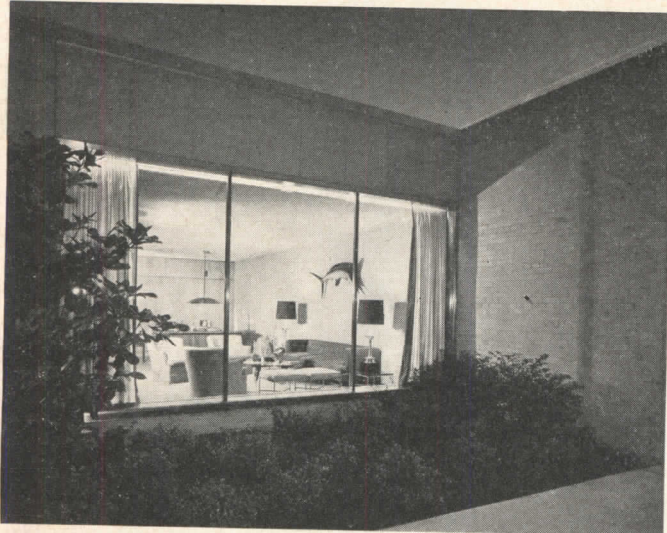


Bill Engdahl, Hedrich-Blessing



AUTOMOBILE SHOWROOM

President's office



Office reception area



Bill Engdahl, Hedrich-Blessing

Sales conference room



Offices for closing sales

street; the service area immediately behind, reached by a private driveway; and the used car and parts department, approached from a minor street through a parking area. This area embraces an outside display space for used cars which faces on the principal street.

The service area is framed within 20 by 70 ft bays, providing a clear space with but two rows of columns. The latter define the three-way function of the department and help channel its traffic — controlled by a tower in much the same fashion as airport traffic. This area is designed for possible future expansion eastward, as is the flanking parts department which serves it.

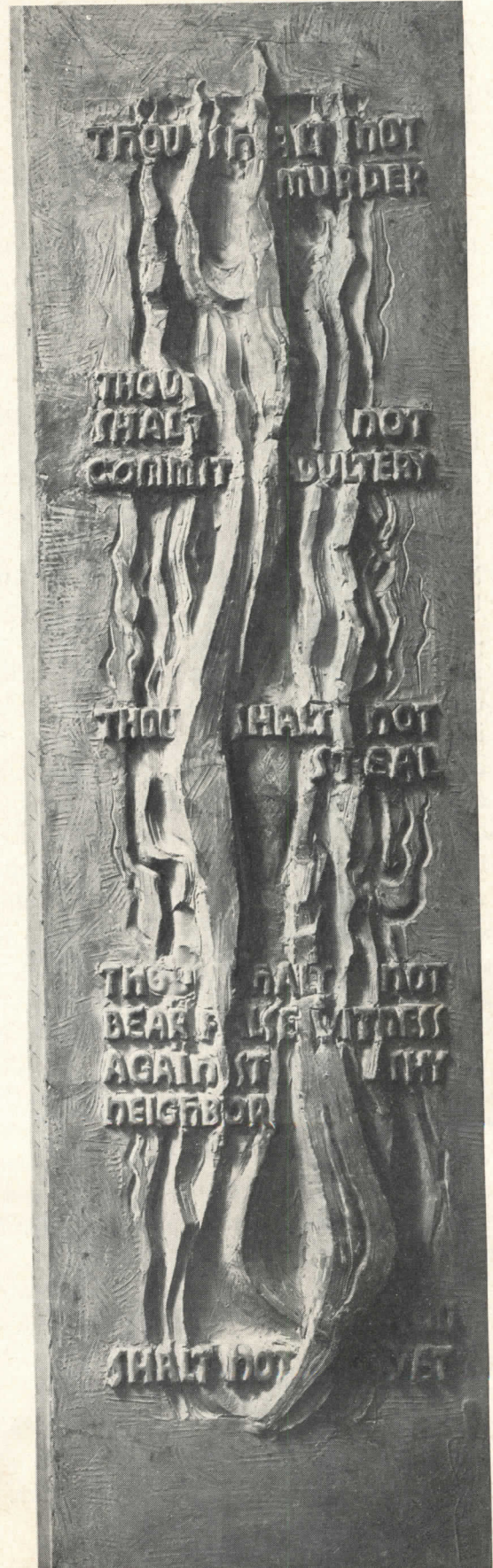
Office and sales area interiors were the subject of a

great deal of study, as the photographs above indicate. The results are especially noteworthy for a building devoted to automobile sales and service.

The basic structure is a steel skeleton with metal roof deck. The exterior is faced with brick, corrugated aluminum or porcelain enamel panels over concrete block; service area sash are steel, industrial type; the overhead garage doors are motor controlled. The service area is finished in glazed structural tile; the office area wall finishes are generally painted plaster or face brick, with portions wood panelled. Floors in the front portion are ceramic tile, quarry tile or asphalt tile; ceilings are acoustic tile or painted plaster.

RELIGIOUS BUILDINGS

Concrete panels cast "in situ" by Bernard Frazier. They are forty feet high and were done for Temple Israel, Tulsa, Oklahoma. Percival Goodman, architect



Worship and the Arts

By *Otto Spaeth*

Mr. Spaeth is a founder and past president of the Liturgical Arts Society; a member of the American Federation of Arts; and a private collector

THE SIX RELIGIOUS BUILDINGS shown in this issue of ARCHITECTURAL RECORD are compelling examples of what may be expected from a fruitful encounter between eternity and the moment. It was that encounter that raised the great churches of our European past and it is heartening to see it taking place again.

A continuity of essentials thus exists in ecclesiastical architecture of the first rank, and if surfaces change — sometimes apparently beyond recognition — it takes but a moment's thought on two of these essentials, "eternity" and "the moment," to see why this must be.

The moment changes, of course, or it would not be the moment. But the changes evident in the moment that inspired the best of these churches and temples are more profound than the availability of new materials for building, and new architectural concepts for handling those materials. The moment includes the whole present society in which the church is situated, the position of the church in that society, the intellectual texture of the congregation, the many and intricate relationships between the congregation and the society.

To illustrate: a thirteenth century cathedral dominates the thirteenth century cathedral-town partly because the thirteenth century Church did indeed dominate the society of that day. Dr. Blanchard aside, does anyone seriously pretend that any Church dominates contemporary American society?

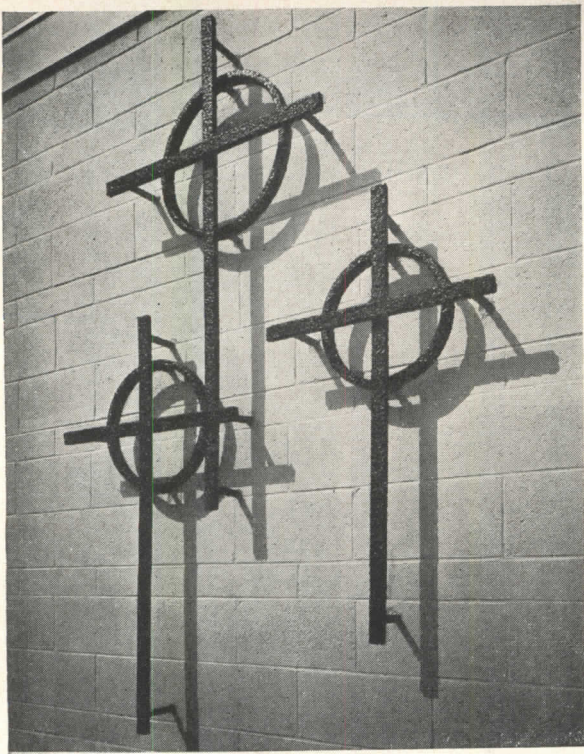
"Eternity" changes, too. This blatant contradiction in terms is explained by the simple fact that in our vital encounter — certainly insofar as it takes place in ecclesiastical architecture — we are not really dealing with

eternity, but, of necessity, with our own understanding of eternity. This is not theological relativism, but a simple recognition of the humility and truth in St. Paul's "through a glass darkly." From time to time the vision clears; from time to time the glass darkens. But at any time, we are stuck with the glass. Only through it can we glimpse the eternity which is to shape our lives and our churches.

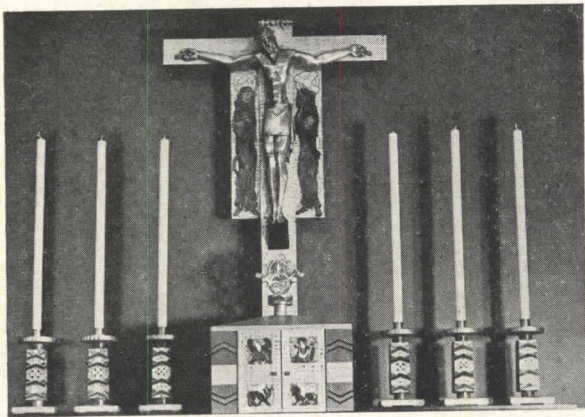
To illustrate again: five hundred years ago one of the three or four most popular subjects of religious art — you see it everywhere in the period: in stone tympani over church doors, in tapestries, in murals, in manuscript illuminations — was the *danse macabre*, the summoning of all men to judgment and, for the most part, the art implies, to condemnation. With no change in the formal theology involved, it is a fact that today that subject has vanished from church art. The glass has changed, cleared or darkened, as you wish, but changed certainly; and with it has changed our "eternity" insofar as it affects church decoration.

Well designed religious buildings take account of such changes. Rooted in eternity, they flower in the moment. We may take pride in them not only as Christians or Jews, but as Christians and Jews of this moment, in this place. Good churches are made for God. They are also made for us; and we are not only rational animals, or humanity, or even the Children of God: we are particular individuals with a certain street address in space, and, as St. Thomas defined "Time," in "the flowing of the Even Now."

It would be pleasant to imagine that the buildings shown here are typical of ecclesiastical building today. It would be deliberately darkening our own glass — even rose color darkens crystal — not to notice two churches unmentioned in these pages but far and away the two most widely known American churches now building: the Cathedral of St. John the Divine, in New York, and the National Catholic Shrine of the Immaculate Conception, in Washington. Whether the Jews have better taste in ecclesiastical architecture or simply the wisdom to be silent about their



Joseph W. Molitor



Oliver Baker



Above: a Head of Christ done in Mahogany by direct carving. Made for Bishop J. Fulton Sheen by Louis Ferrens

Left, top: ornamental crosses in Natick Trinity Church, Natick, Massachusetts. The Architects Collaborative suggested three simplified Celtic crosses to represent the Trinity. Made by a local ironsmith they are hammered wrought iron, galvanized and painted black

Left, center: the altar of the Novitiate of the Jesuits in Plattsburg, New York. Executed by Louis Ferrens, the candles are of wood and polychrome. A silver figure of Christ is mounted on the cross

Left, bottom: a "Menorah" by Seymour Lipton in nickel silver four feet high. Done for Temple Israel, Tulsa, Oklahoma. Percival Goodman, architect

mistakes, I do not know; at any rate, there appear to be no extravagant follies on a similar scale.

These two, the one Protestant, the other Catholic, are anachronistic before they are finished. The Catholic shrine, indeed, is only now moving off the drawing board. Plans drawn up 25–35 years ago are now being put into effect. This outmoded conception will be “completed” with a maze of Byzantine towers and Romanesque domes absolutely meaningless to the 20th century. It is true that modifications are being made, but why take half measures? Why not start over? Why not make it a living expression, a building which will command respect?

St. John's, in New York, is in a slightly different dilemma, though the essential albatross is the same bird: a sentimental and expensive dedication to the dear, dead days of long ago. Despairing of ever raising enough money to finish the cathedral in the fifteenth century style to which they'd hoped to become accustomed, the authorities are casting about for ways to solve the insoluble. St. Bernard's line in a letter to Abbot William St. Thierry on the subject of over-ornamentation in churches is relevant: “For God's sake, if men are not ashamed of these follies, why at least do they not shrink from the expense?”

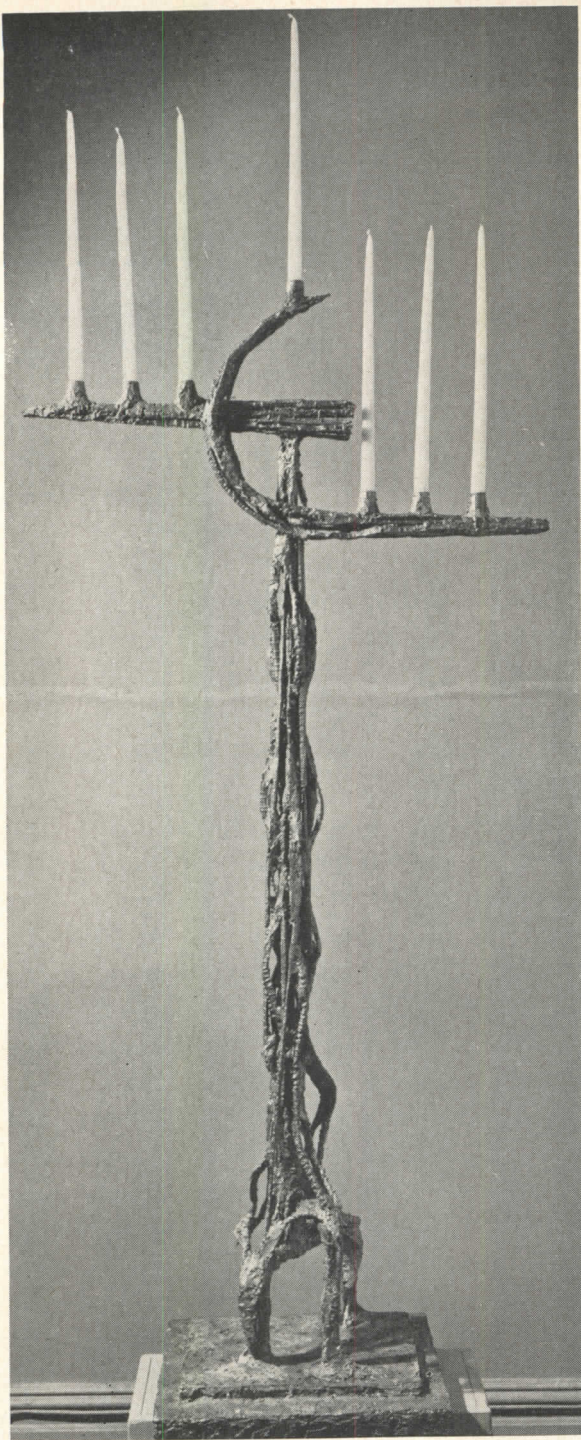
It seems to me that the first requirement of a church or temple today is that it be of today, contemporary, a structure embracing the total life of the parishioner. That parishioner drives a streamlined car to work in an office or factory where everything has been designed for maximum efficiency and comfort. He travels in streamlined trains and jet-propelled planes. Yet every Sunday he is asked to hurl himself back centuries to say his prayers in the pious gloom of a Gothic or Romanesque past. The clear implication is that God does not exist today; He is made out to be a senile old gentleman dwelling among the antiques of his residence, one whom we visit each week out of sentiment and then forget since he obviously has no relation to the normal part of our lives.

God says, “I Am Who Am.” This unique use of the present tense abolishes tense itself and sharply rebukes the attempt to imprison

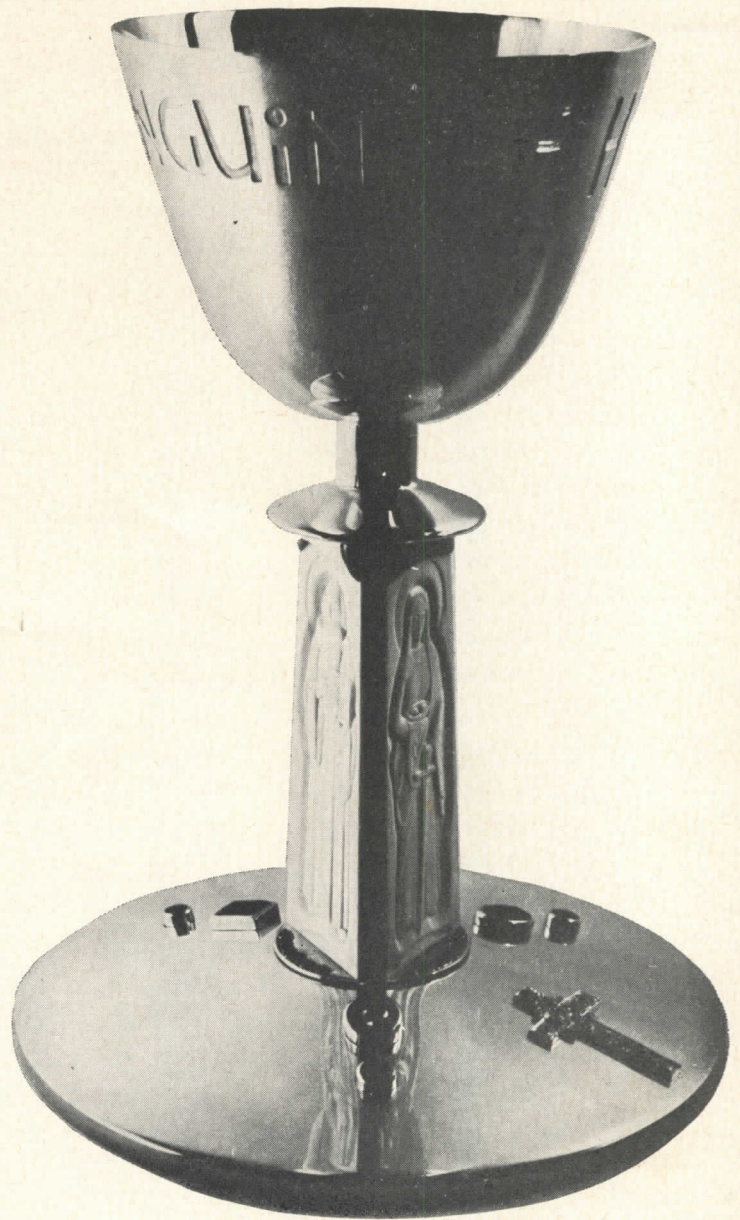
God in a granite cell, however lovely the prison windows.

If our work today is to herald a new age in church building, the first step has to be an open minded and modest clergy. In simple frankness, the architectural resurrectionism that blights our church plant today is the direct result of profound clerical ignorance of art and architecture, coupled with boundless clerical self-confidence. Lest the restatement of this plain fact seem presumption in a layman, let me quote a bishop, The Most Reverend Francis C. Kelley, Bishop of the Tulsa, Oklahoma diocese, writing in the *Liturgical Arts Quarterly* for October, 1940: “The fact that a bishop has to examine and approve of architectural plans in his diocese does not make an architect out of him. Gaze on the consequences that have followed the negatives and positives of bishops who were architects only by self-confidence. No wonder we have a liturgical arts movement — we had long needed it. How many are the buildings too costly to replace but too utterly bad to tolerate in silence? Every one of them is a monument to someone's . . . ignorance. The greatest men are those who learn their own limitations. Stubborn men never learn theirs.”

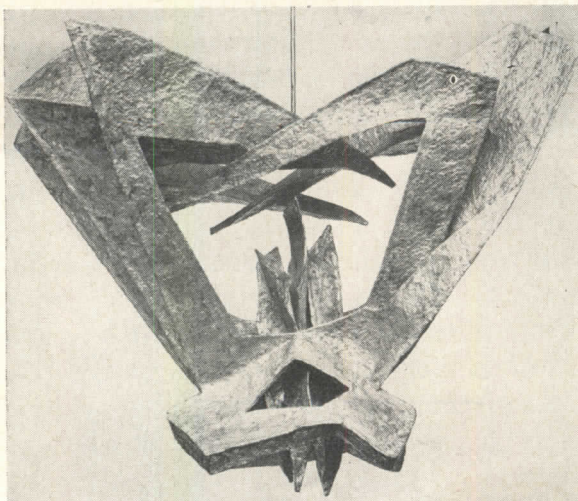
The ecclesiastic of any rank cheerfully admits that the laying on of hands has done nothing at all for his knowledge of air conditioning or central heating. He can be brought to see the same of his knowledge of architecture. Help can only come from where the knowledge lies, from the architect or from the well-informed, be he priest or layman. Many Protestant churches have boards of trained laymen who assist the pastor in secular matters; these men, naturally, form the nucleus of any building committee. It is my experience that this lay participation seldom exists in Roman Catholic churches; and yet such groups could be of inestimable aid to the pastor — certainly the businessmen among them could point to the costliness of reiterating past granite glories. The architect should be prepared with periodicals and slides to show the best contemporary ecclesiastical church architecture throughout the world; he should stimulate the thought that architecturally as



Oliver Baker for Grace Borgenicht Gallery



Above: memorial chalice to the late Mother Lucy, Mount St. Scholastica, Atchison, Kansas. The chalice, which is made of silver, was done by Wilhelm Wagner



Oliver Baker

Left, top: candelabrum by Calvin Albert of lead and lead alloy, 73 inches in height. Done for the Milton Steinberg House of the Park Avenue Synagogue whose architects were Kelly and Gruzen

Left, bottom: a unique lighting fixture by Seymour Lipton for Temple Israel, Tulsa, Oklahoma. Called "Eternal Light," it is made of nickel silver and is four feet high

well as spiritually the church must be the encounter of eternity and the moment.

Religious leaders should realize that the term "modern" is not synonymous with extremism but that just as the Gothic style was a new form clothing an old function, so modern architecture is today.



"It's some new-fangled thing called gothic."

The architect is in a position to say one word in this struggle. The word is "no" said with absolute finality. For, if an uninformed clergy is the source from whom the blessings of ersatz Gothic flow, in every case there has been an acquiescent architect to provide a canal where he should have placed a dam. With great travail, architecture has lifted itself from the brutish trades to professional status. Does that status mean anything at all? What do we think of a doctor who substitutes for his honest diagnosis the sweet words he knows his patient is longing to hear? Is the architect of wedding-cake churches really any different? The architect is indeed an interpreter, the instrument through which his client's dreams are made incarnate. But if those dreams are nightmares, professional honesty requires that they be shown up as such. When the architect has the courage to say "no," more and more ministers of religion will find the courage to say "yes" to his working where he wants naturally to work, in the spirit of the present moment.

A simple device for the long view is the introduction of courses in art and architecture into the curricula of seminaries and theological institutions. If competent instruction was provided — if, for example, instructors were obtained from nearby architectural schools — this delayed action policy could change the

face of American church architecture in 50 years.

One special caveat needs mention; beware of the "official" diocesan architect. Almost all who qualify and succeed in this monopolistic spot do so by producing churches of uniform mediocrity.

And one related problem should be touched: church decoration. You cannot destroy the architectural beauty of a good church by embellishing it with cheap artifacts; but you can destroy its effect, for example, by the judicious placement of simpering garish plaster concepts of its great leaders and saints.

Here again, professional help is required and is available. The most competent art advisors, critics, museum directors and their staffs have their offices within blocks of some of the most abominably furnished churches in the world. Eventually, every large congregation, like any good museum, should have an "acquisitions committee" to protect the church from the generosity of donors. The system at Chartres is instructive. Think of the decades through which the St. Sulpice district in Paris has been producing its horrors of devotional art, yet none has ever found its way into the cathedral at Chartres. Why? Because a succession of wise ecclesiastics have placed the real authority in the competent and free hands of the Manury family, now in its third generation of architects in residence at Chartres.

The architect has a continuous obligation to the church he has built. He must, at least, make the attempt to guard the purity of his building. The lay-professional board of a church, of which we spoke earlier, can be helpful here. The new pastor's understandable desire for change where no change is needed can devastate a beautifully conceived interior.

In any region of the country are competent artists ready and willing to help the fusion of eternity and the moment in the work of ecclesiastical art. Their names are available from the heads of our architectural schools and from museum directors. Their employment will do much to enhance churches and to echo once more the plain statement of God that His church is for all men, of all times, in all places.



Oliver Baker for Grace Borgenicht Gallery



Above: two low relief panels approximately twenty inches wide and four feet high by Calvin Albert. Constructed of lead and lead alloy they were done for the ark doors of the Milton Steinberg House of the Park Avenue Synagogue

Left: a crucifixion of Christ by Hillis Arnold for the house of Mr. and Mrs. McMenemy in New Jersey. The figure is made of glazed terra cotta and is on a walnut cross four feet tall

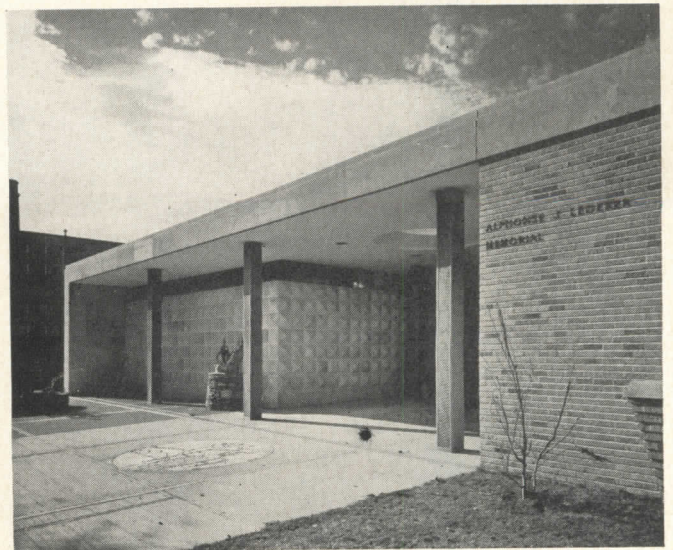
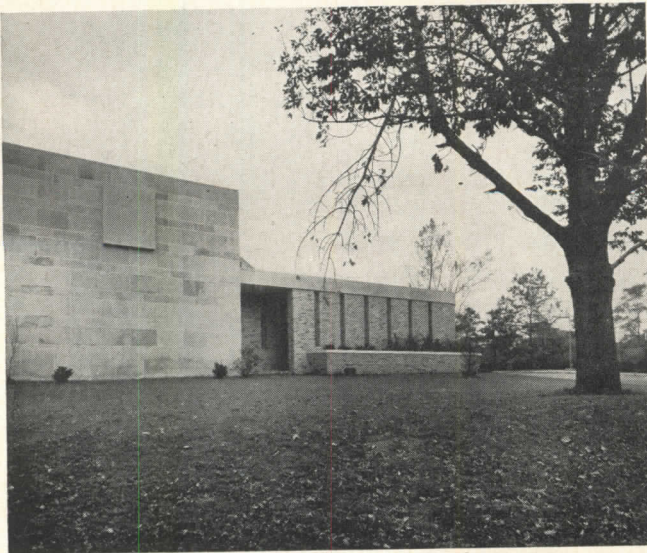
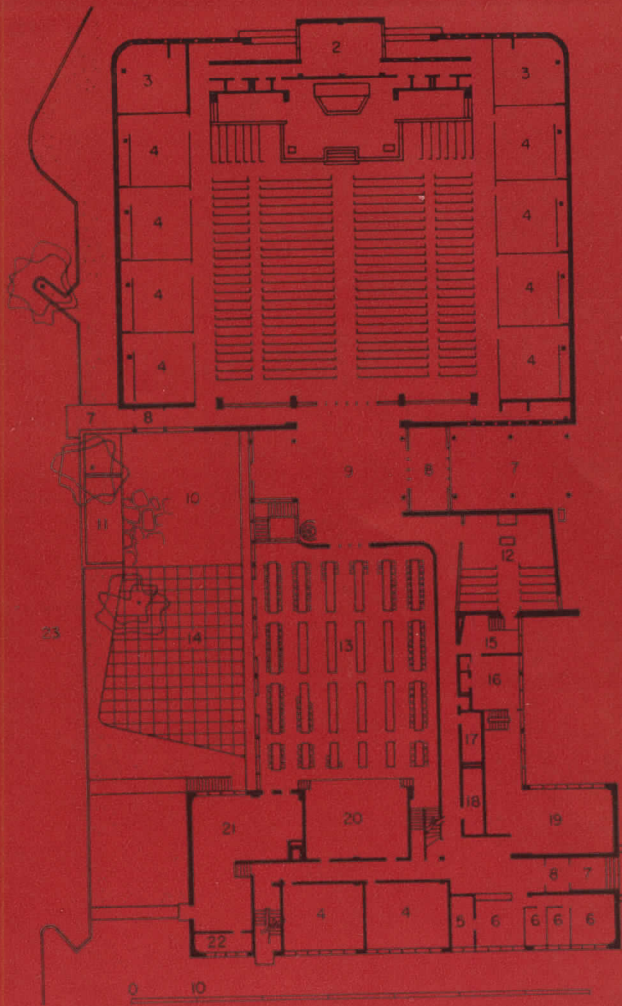


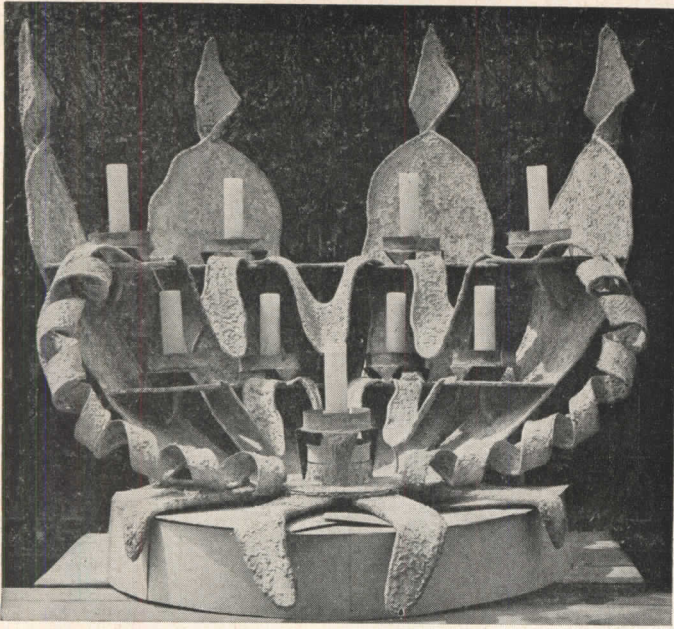
TEMPLE BETH EL, PROVIDENCE, R. I.

Percival Goodman, Architect
Severud-Elstad-Krueger, Structural Engineers
Levy & O'Keefe, Engineers
James Douglas Graham, Landscape Architect
E. Turgeon Construction Co., Contractor

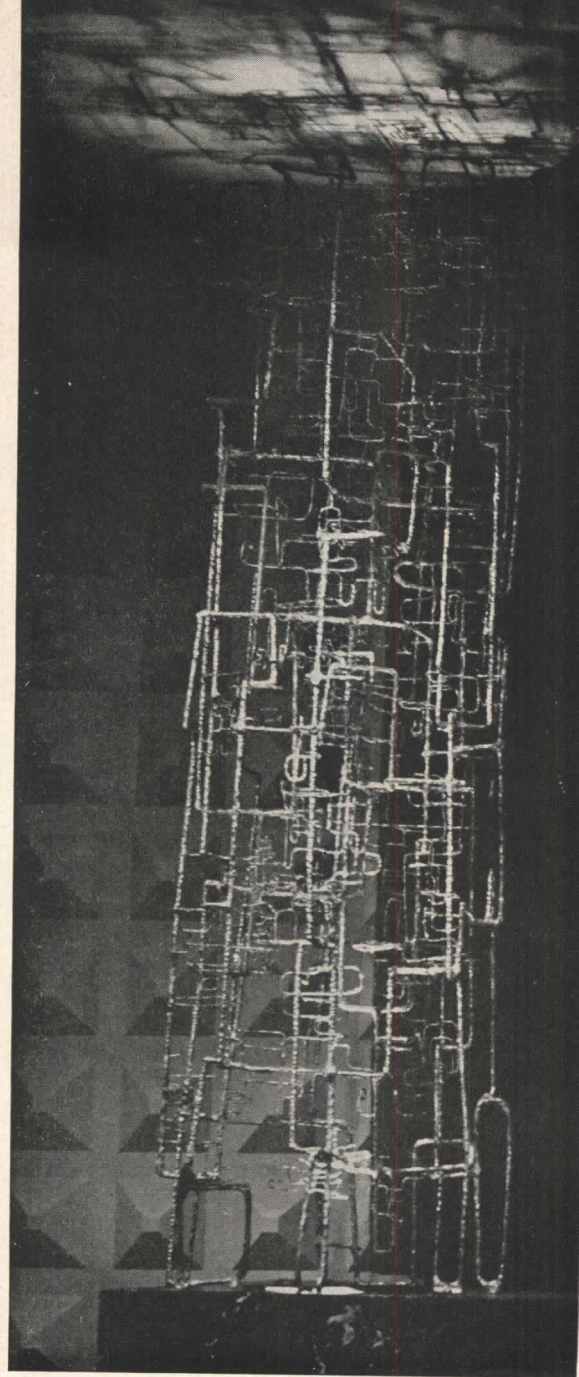
ONE OF AMERICA'S OLDEST Reform Jewish congregations celebrated its one hundredth anniversary with the building of this synagogue. Normal seating of a little over 1000 can be expanded to over 1600 for the High Holy days. Complete religious education facilities are included in this building which also contains a nationally famous library of Hebrew and Jewish literature. The social hall is equipped for dramatic presentations and will accommodate over 300 for dinner and over 600 for lectures or plays.

- 1 TEMPLE
- 2 RETIRING ROOM
- 3 CHAIR STORAGE
- 4 CLASSROOM
- 5 SUPPLY AND MIMEDOGRAPH ROOM
- 6 OFFICE
- 7 COVERED ENTRANCE
- 8 VESTIBULE
- 9 LOBBY
- 10 TEMPLE GARDEN
- 11 POOL
- 12 CHAPEL
- 13 SOCIAL HALL
- 14 SOCIAL GARDEN
- 15 ANTE ROOM
- 16 RABBI'S OFFICE
- 17 WOMEN
- 18 MEN
- 19 LIBRARY
- 20 STAGE
- 21 KITCHEN
- 22 DRESSING ROOM
- 23 DRIVEWAY





Above: exterior candelabra by Herbert Ferber; opposite Pillar of Cloud and Pillar of Fire by Ibram Lassaw



Koelz Gallery

Worship and the Arts in the Jewish Tradition

By Percival Goodman, F.A.I.A.

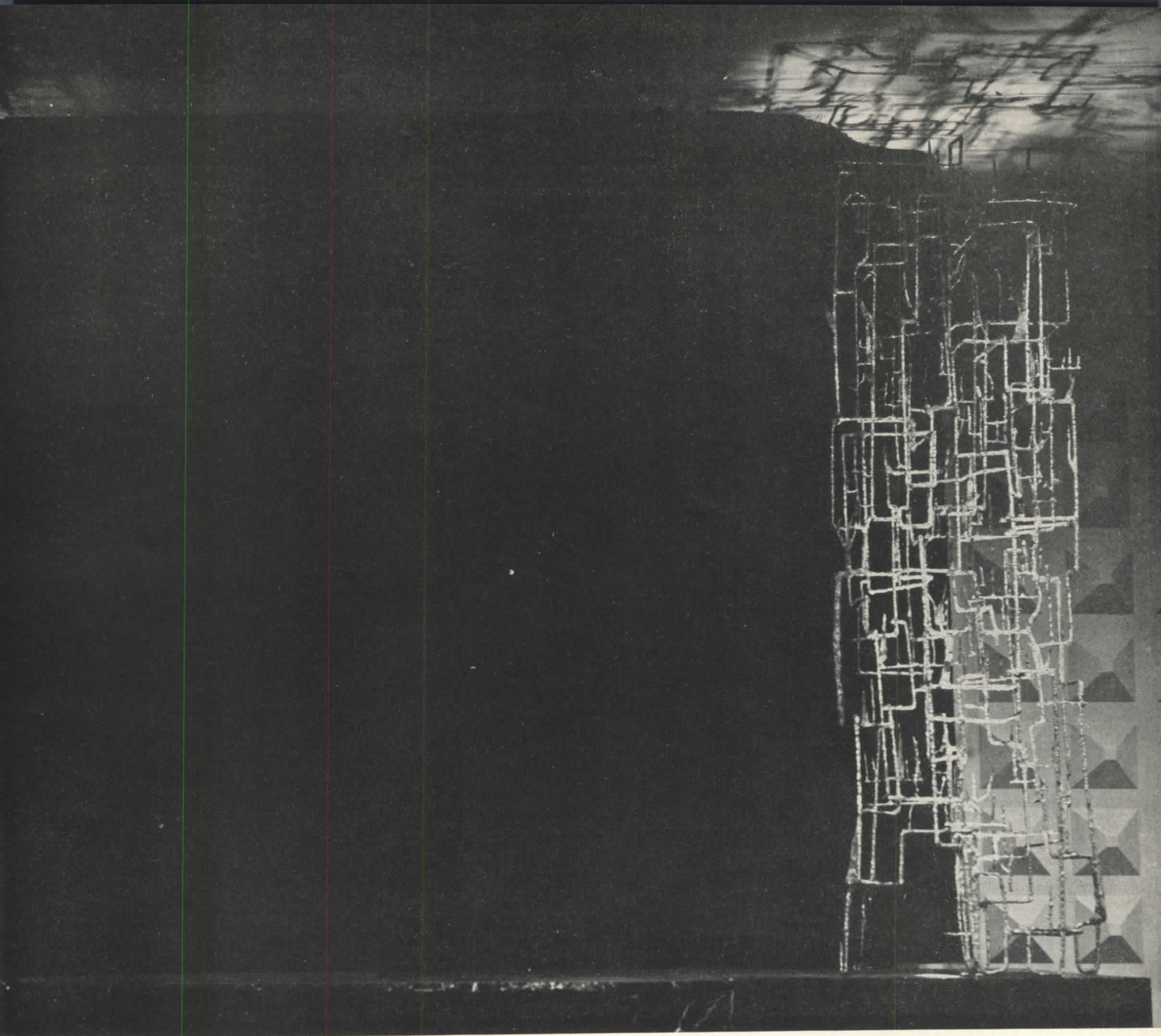
A FOLK RELIGION based on ethical monotheism. The folk element — a special covenant obtains between God and Israel. The ethics are those of the Decalogue. Symbolic is the *Shema* said on every important occasion, "Hear O Israel: the Lord our God, the Lord is one."

The three divisions of today's Judaism issue from the same source and are fed by the same springs. The differences are not schismatic.

The service of all three consists of prayers, readings from the sacred texts, songs, responsive readings, sermons. There are no mysteries and so the prayer hall should be bright and light.

A choir, concealed or visible, with organ accompaniment, is always part of the Reform service; not a requirement, though often used, among the Conservatives. Instrumental music is never used by the Orthodox.

The liturgical furniture stemming from the tradition (Exodus 25) consists of the *Ark* (focal point generally at the east and containing the scrolls); a covering in the form of a curtain, the *Paroches* (often highly decorated);



a candelabrum located at the right of the Ark; a lamp placed over the Ark "to burn eternally."

The Torah is read from a cloth-covered table. Among the Orthodox and sometimes in the Conservative service, the reader faces toward the Ark; in Reform practice, toward the congregation. There is a pulpit for the rabbi and one for the cantor, or there may be one pulpit used by both.

This furniture is mounted on the *Bema*, (a raised platform). Traditionally this is in the center of the hall, a location preferred by the Orthodox. Both Conservative and Reform place the bema at the Ark end of the hall.

In modern practice a center aisle is provided, primarily for wedding processions, but where the Bema is central there is a space around it.

There is no tradition in architecture or the plastic arts. The architecture is always that of the host country, as is the adornment. However, the Second Commandment proscribes the "making of graven images," so the ornament is either floral or geometric. Equally important, the teaching role of much Christian representational art was unnecessary, for Jews by law had to be literate enough to read the sacred books. In general the proscription still holds, though many Reform Congregations permit representational work.

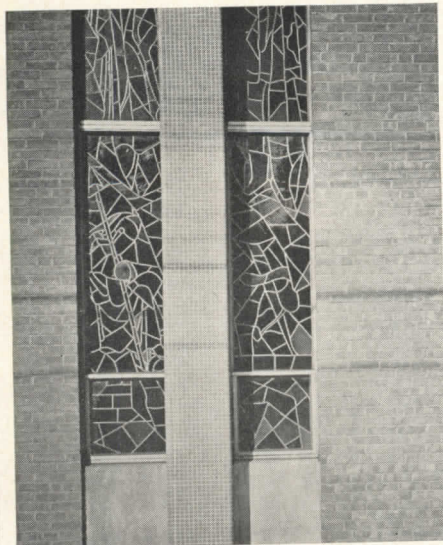
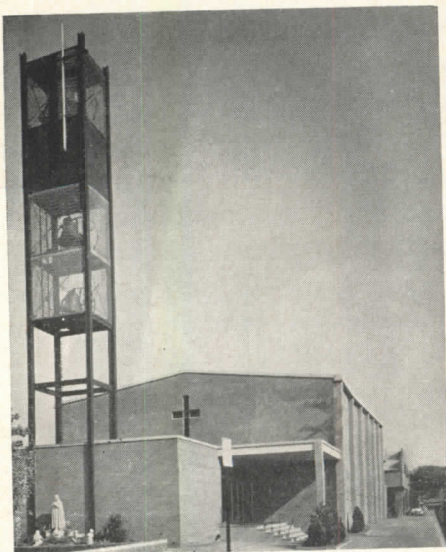
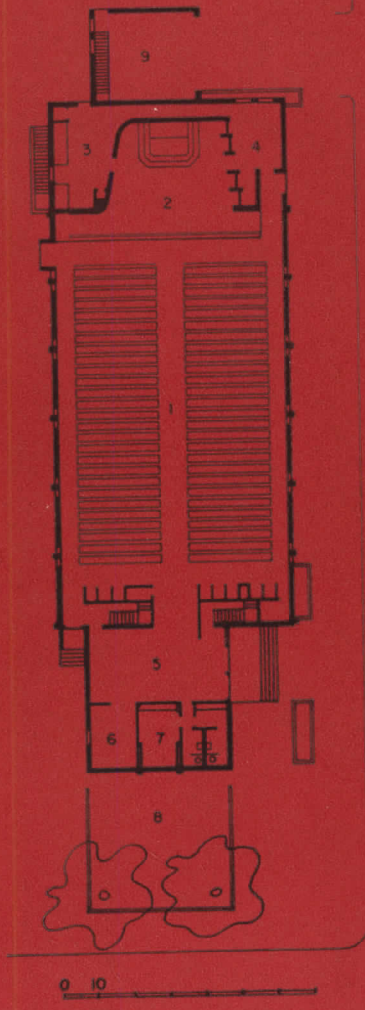


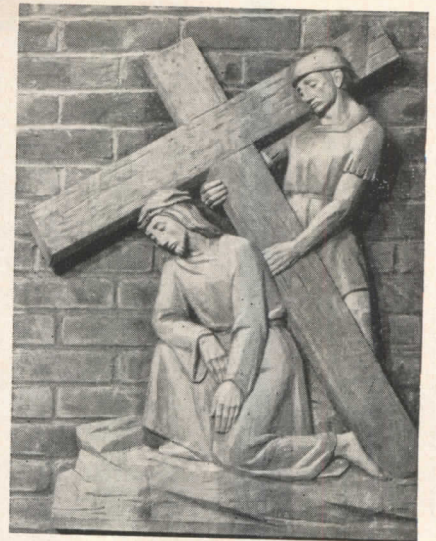
ST. PETER'S CHURCH, PITTSBURGH, PA.

*Celli-Flynn, Architects and Engineers
Elwood Tower, Mechanical Engineer
Winterich, Stained Glass, Stations
Rambusch, Mosaic*

THE PARISH OF ST. PETER serves 800 families in the South Side of Pittsburgh and its church, seating 750, lies virtually in the shadow of one of the city's large steel mills. The structure is framed in steel and the exterior walls are of insulated cavity brick. Roof is gypsum plank, rigid insulation and built-up finish. Floors are flagstone and ceiling is acoustical plaster. The bell tower is entirely of structural steel with a $\frac{1}{4}$ -in. plate covering the five bell motors. Screen is expanded walkway grating. Cost, excluding only fees and site, was \$330,000.

- 1 NAVE
- 2 SANCTUARY
- 3 PRIEST'S SACRISTY
- 4 BOY'S SACRISTY
- 5 NARTHEX
- 6 BAPTISTERY
- 7 USHERS
- 8 SHRINE
- 9 GARAGE





Sanctuary mosaic by Rambusch; glass and stations of the cross by Winterich

Worship and the Arts in the Catholic Tradition

By *Maurice Lavanoux*
Secretary, Liturgical Arts Society, Inc.

THE EVOLUTION of all the arts at the service of religion has now reached a point where we can assess the difficulties which make of architecture in the Catholic Church a matter for concern. The past twenty-five years have witnessed a "cleaning-up" process during which we have gradually been rid of much archeological baggage — a baggage which never had much validity in those days and surely none today.

However, this process has now resulted in a simplicity which bids fair to become another architectural cliché — a cliché of simplicity for its own sake and in which sterility and starkness are the keynote. In the haste to be rid of



Joseph W. Malitor

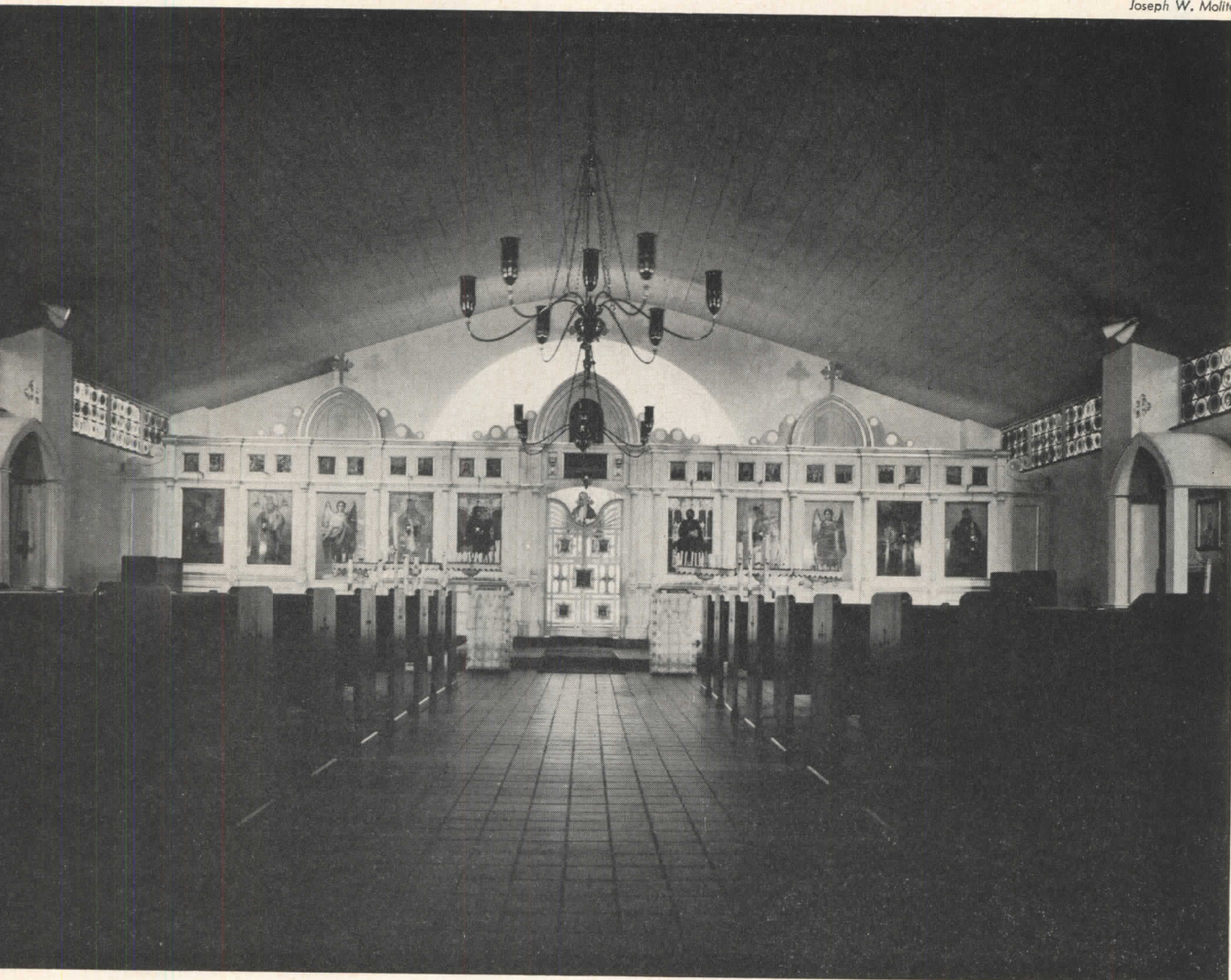
meaningless ornament many architects, perhaps too well trained in the school of severe functionalism, have excluded all warmth from their buildings for the Church. They have aped the current clinical *look*.

But in a Catholic church, because of the liturgical requirements and the normal human needs of the average congregation, such coldness is precisely what can be reasonably condemned today. Simplicity is one thing, starkness and sterility is quite another. Fortunately the remedy is within our grasp. It is simply to bring the artist back to our churches; the artist as a responsible person, in which competence is allied to a willingness to work within

the discipline of the work at hand. Such discipline, paradoxical as it may seem, really allows the artist full liberty in the exercise of his God-given gift.

The ingredients for a fruitful evolution of all the arts at the service of the Church are simple: liturgical propriety and requirements; architectural simplicity without sterility (in other words, distinguished architecture); all the arts brought into play to infuse the whole with that warmth which makes a church truly the House of God.

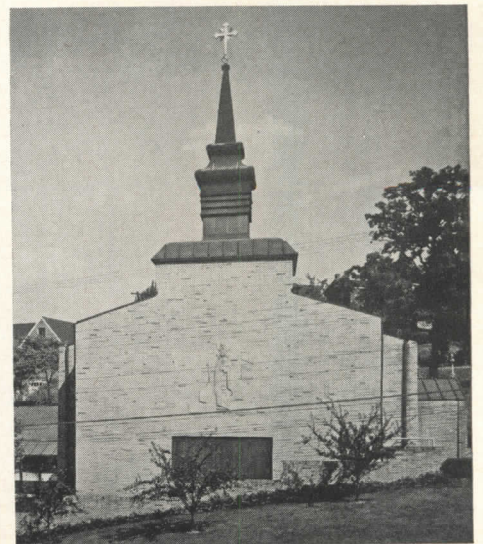
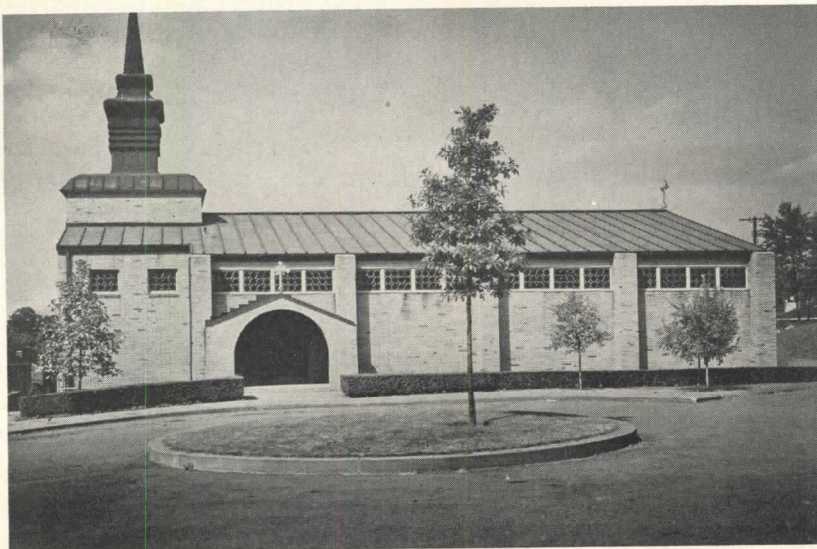
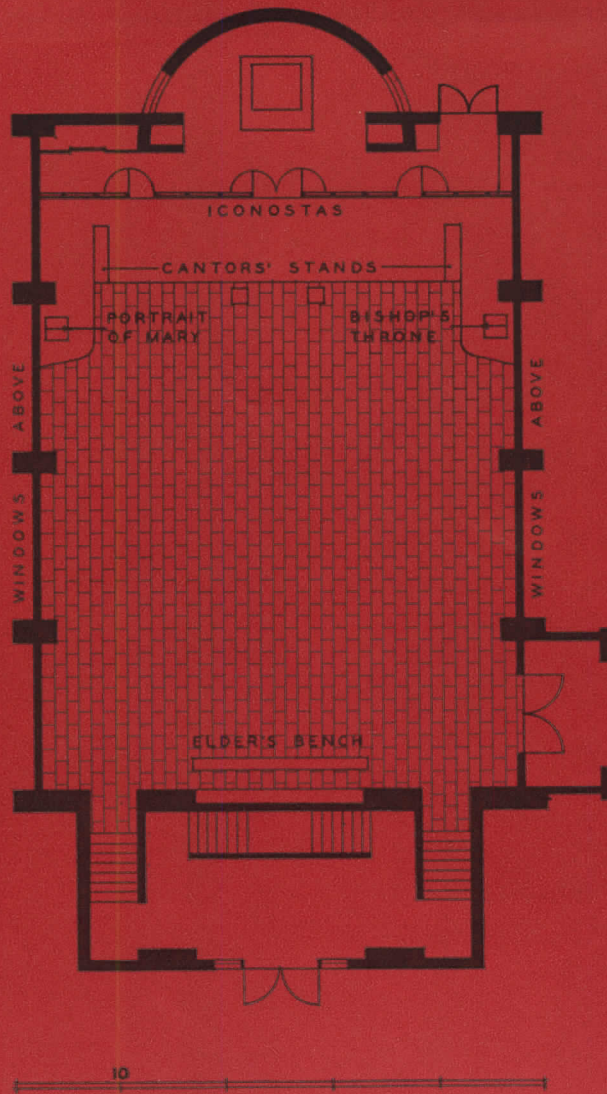
(Ed. Note: Mr. Lavanoux's challenge to men of talent: good architecture can develop only out of an understanding acceptance of the conditions and circumstances of the program)

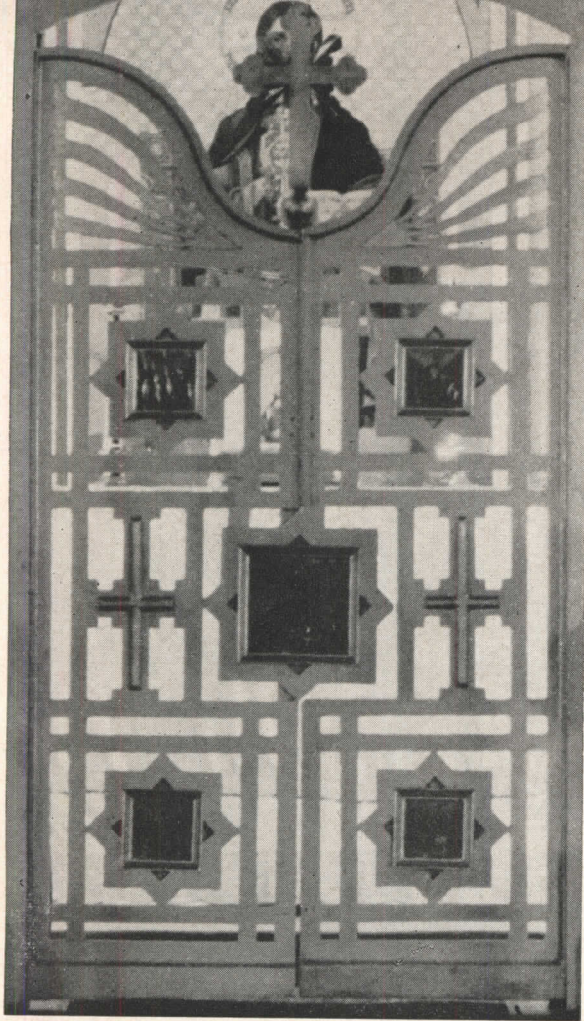


ST. SAVA'S CHURCH, McKEESPORT, PA.

John Pekruhn, Architect
Joseph E. Spagnuolo, Structural Engineer
Charles Hawk, Jr., Mechanical Engineer
Simonds & Simonds, Landscape Architects
Nicholas Le Donne, Contractor

THE SERBIAN ORTHODOX parish of St. Sava's brought with them from their former church a group of liturgical fittings and a strong liturgical tradition. They asked the architect to organize on a hillside site a setting for their worship which would recall for older worshippers the architectural forms of their European childhood and at the same time express the environment and technology and interests of the parish young people. The structure is of steel bents and open web joists, with a copper roof, acoustic tile ceiling and quarry tile floor.





The screen, gate and icons were brought from the former parish church



Worship and the Arts in the Orthodox Tradition

By Milan G. Popovich
Rector, St. Sava's Church

IN THE ORTHODOX CHURCHES, church buildings are designed in conformity with the spirit of Orthodoxy as it is expressed in both doctrine and public worship.

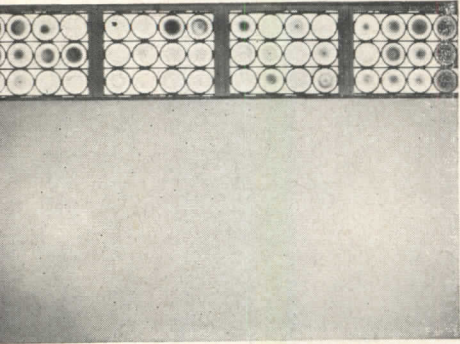
The length of every Orthodox church building must follow the east-west line, so that the sanctuary always faces east. A cross embellishes the top of every dome and belfry. It is also profusely used in the interior.

According to Orthodox belief, God is the Eternal King of Heaven, and His symbolic habitation on earth, the church building, should be royal in every respect. The earthly royal splendor has always served as a pattern for the symbolic expression of heavenly glory. The church building should be spacious, richly ornamented, awe-inspiring. The ceiling should be high and curved.

Some churches have a vestibule at the western entrance separated from the nave of the church. Above and across the vestibule, a balcony (choir loft) is built for the choir.

The nave of the church is subdivided into two sections. The rear section, which is very

Joseph W. Molitor



Glass roundels were cut from bottoms of bottles blown by Blenko Glass; relief by Ray Smith used same clay as adjoining brick and was fired by same manufacturer



spacious, is assigned for the worshippers. The front section, or chancel, is elevated by one or more steps. It is reserved for the clergy and cantors.

The nave of the church is separated from the sanctuary by a screen called the *iconostas*. It is studded with holy pictures representing the highlights from the life of Jesus Christ and the Mother of God, as well as a number of saints.

Behind the iconostas is the sanctuary, representing the dwelling of the Most High, the Holy of Holies. In the middle of it is a holy table which signifies several things: the table whereon Jesus Christ had His Last Supper,

the cross on which He was crucified, the altar on which the Lamb of God is being sacrificed in the Divine Liturgy, the sepulchre in which He was buried, and the throne of glory upon which He is sitting at the right hand of His Father.

This whole arrangement is designed to conform with the requirements of Orthodox worship, and particularly with the requirements of the Divine Liturgy, which is a mystical and symbolical drama. It represents a re-enactment of the Incarnation and Self-Sacrifice of Jesus Christ, which are correlated with the Creation, Fall and Redemption of man.

Joseph W. Mallor



*ST. GEORGE'S EPISCOPAL CHURCH, DURHAM, N. H.

John A. Carter, Architect

*Robert W. Loomis, Structural
Engineer*

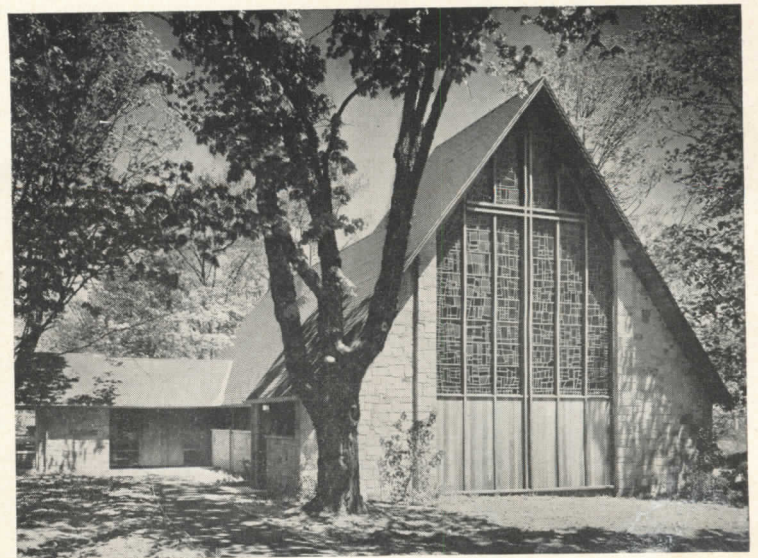
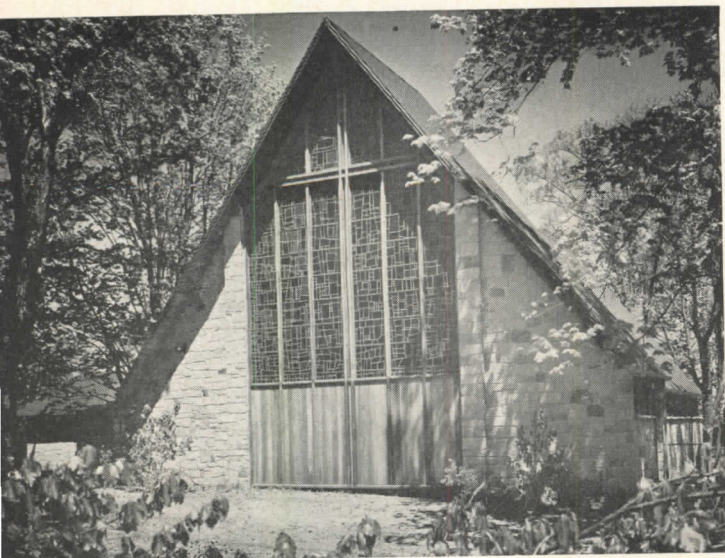
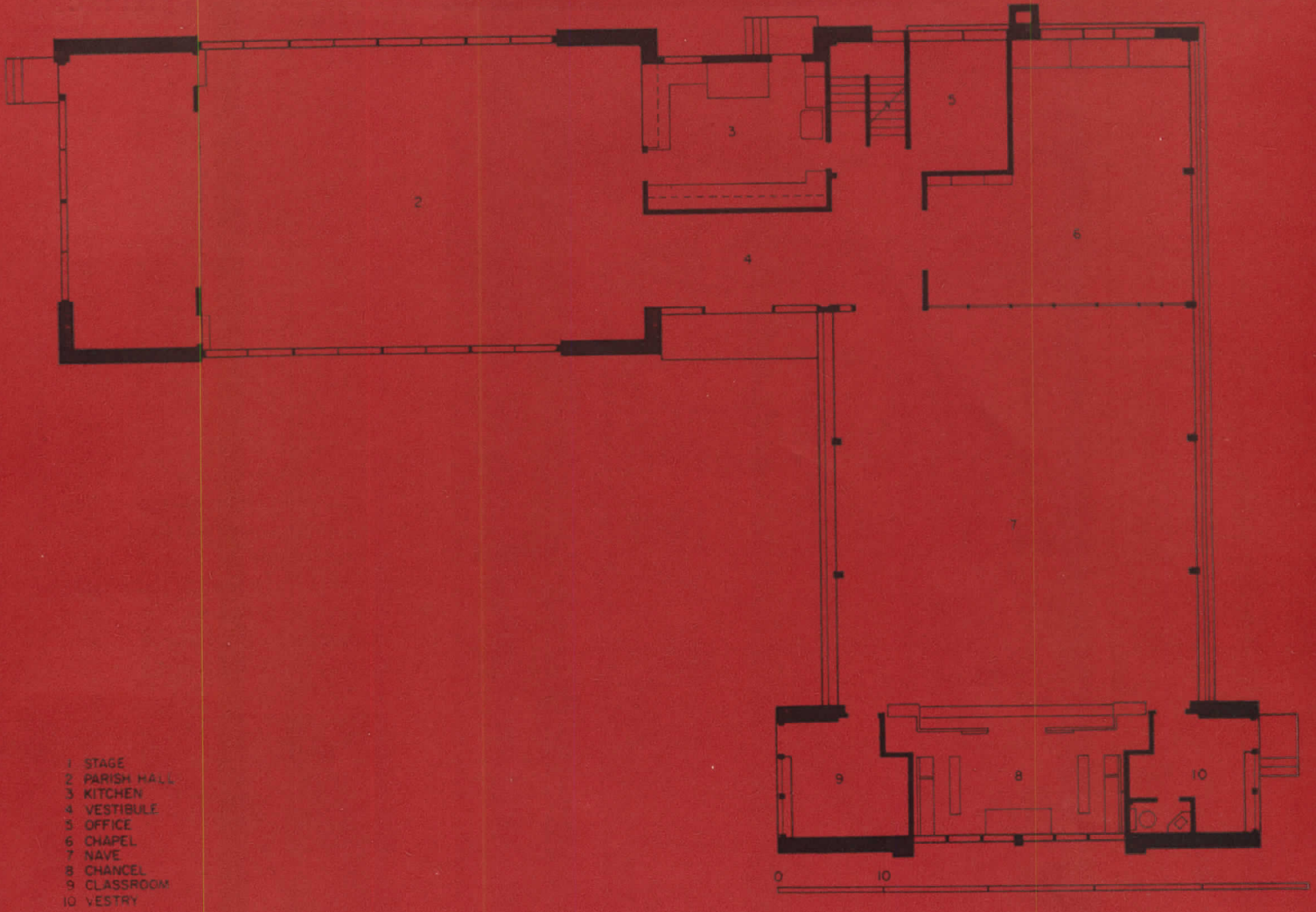
Robert Sowers, Stained Glass Designer

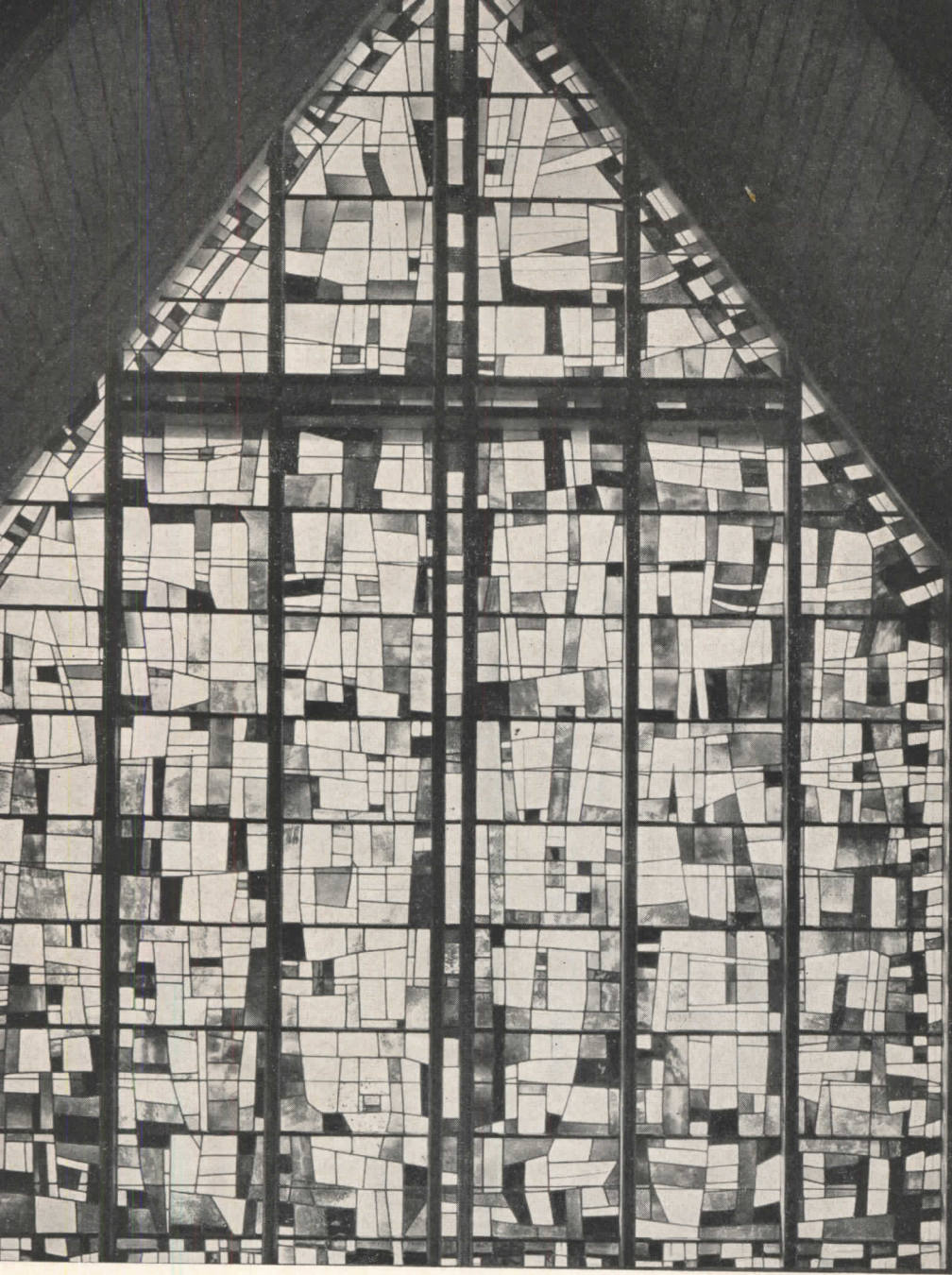
John Hatch, Muralist

Ernest R. Sanders, Contractor

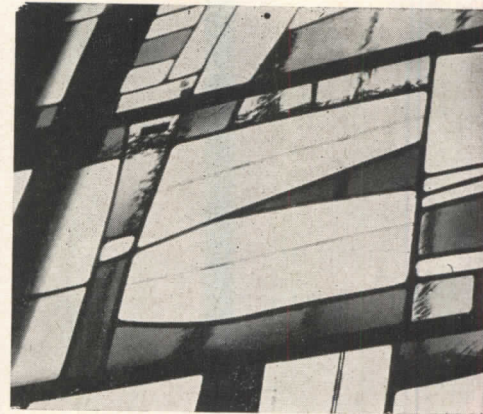
** Premiated in the 1955 Awards Program of
the Church Architectural Guild of America*

ON THE PRINCIPAL STREET of a small university town a 26-foot high chancel window expresses the worshipful character of this church which seats 150. The church furniture, designed by the architect, the stained glass, and the mural achieve remarkable unity with the pink and gray granite and the cedar of the exterior. The laminated wood arches carry a three-inch plank roof with asphalt shingles. The main floor surface is rubber tile and asbestos vinyl and interior panelling and trim is of pine. Over-all cost was \$108,000.00.





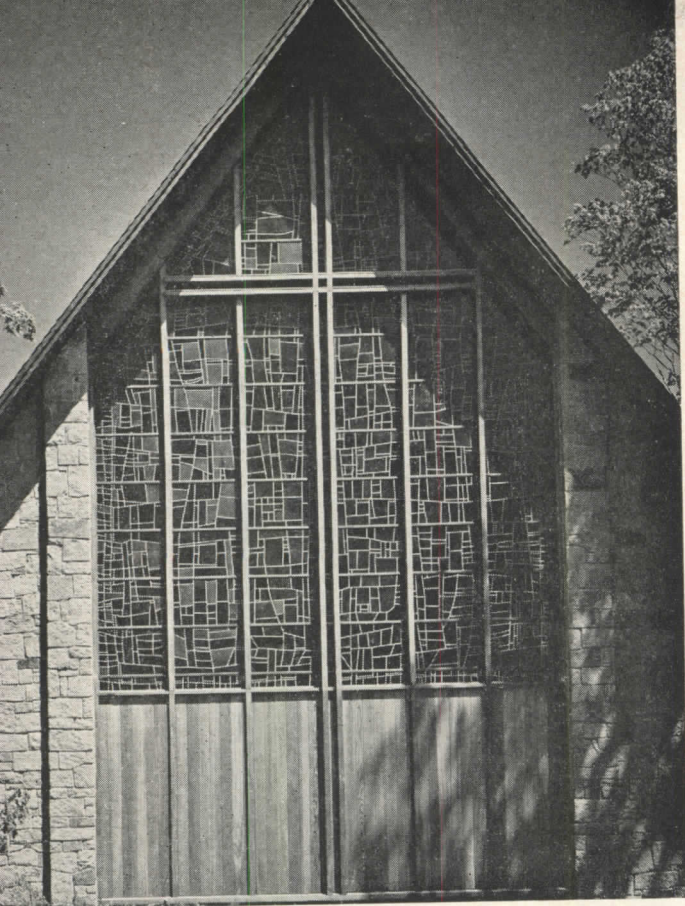
The chancel window was conceived as a color-reredos. Its structural cruciform is embellished and echoed throughout the window which is predominantly blue and white with yellow, ruby, green and copper pink as secondary colors. The window is approximately 350 sq ft



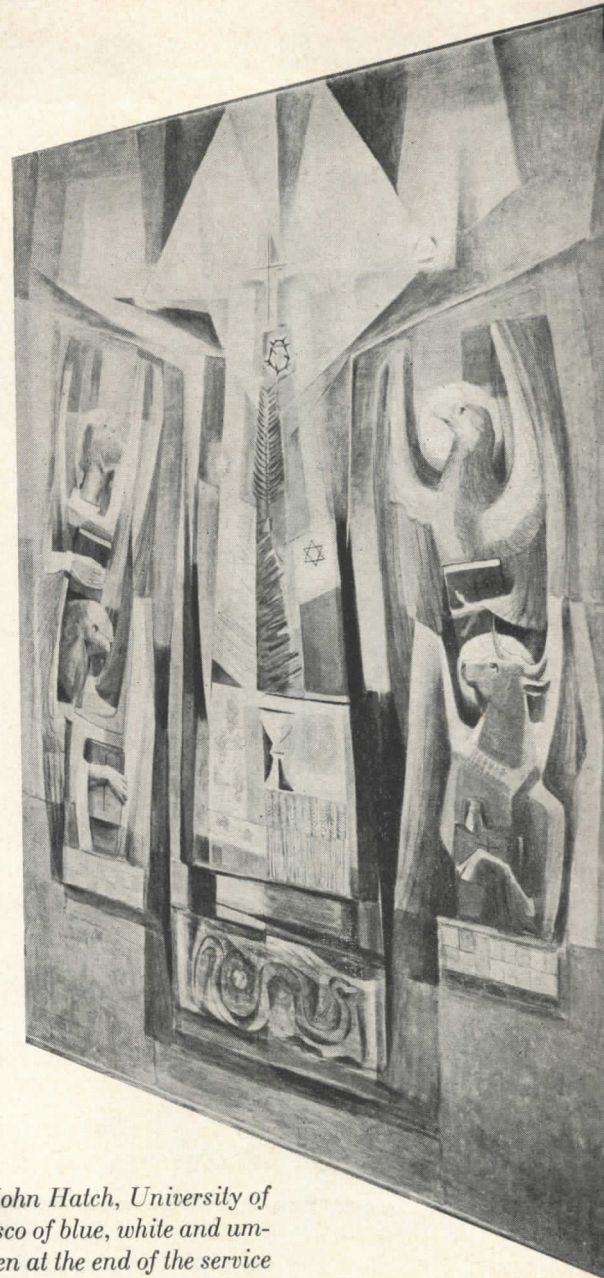
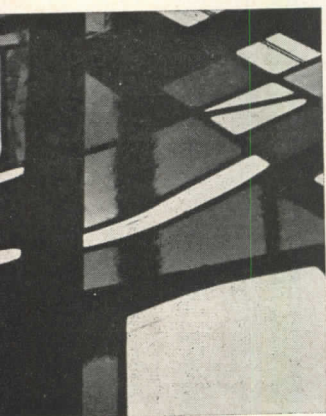
Worship and the Arts in the Episcopal Tradition

*By Edward N. West, D.Th., Litt.D.
Canon, Cathedral of St. John the Divine*

THE FRENCH MAINTAIN that one may always recognize an Episcopal Church if one finds "the eagle with suspenders." There is a certain justice in this remark since the Episcopal Church, in common with the other churches of the Anglican Communion, is invariably careful to have the written word of God placed in a prominent position, thus the eagle or lectern which holds the Bible is bound to be in a prominent position. The exact liturgies of all the churches of the Anglican Communion presuppose a careful balance between word and sacrament, thus like the early Church, the centrality of the altar is preserved, while the pulpit and lectern



Joseph W. Molitor



Six ft by eight ft mural by Prof. John Hatch, University of New Hampshire, is in a Seco Fresco of blue, white and amber transparent casein washes. Seen at the end of the service its traditional Christian symbols are arranged as an Amen

are in balancing position in relationship both to the altar and to the congregation.

Although not an ancient habit, crosses will be seen on most of the altars of Episcopal churches. There will, in addition, in most instances, be at least one pair of candlesticks. Full frontals, very long fair linens, and a total absence of lace, characterize most of our churches. In churches where the Sacrament is reserved, more often than not, this will be done in an aumbry or closet, in the north wall of the sanctuary (by north, I mean liturgical north which assumes that the altar is always in the east). Communion rails are now almost universal, but they are regarded as

conveniences for the communicants rather than as rails of separation.

There is no such thing as an exclusively Anglican style of architecture. The liturgy will work satisfactorily in any building of any style if it be borne in mind that, from our point of view, a church must be altar-centered with adequate place for the reading and the preaching of the Word, and that convenient arrangements for public baptism must exist.

An architect has only to remember these things in designing a church for us: start with an altar and build a church around it.

(Ed. Note: Compare with Reformed Tradition)



CONGREGATIONAL CHURCH, SPENCER, IOWA

*Harold Spitznagel & Associates,
Architects*

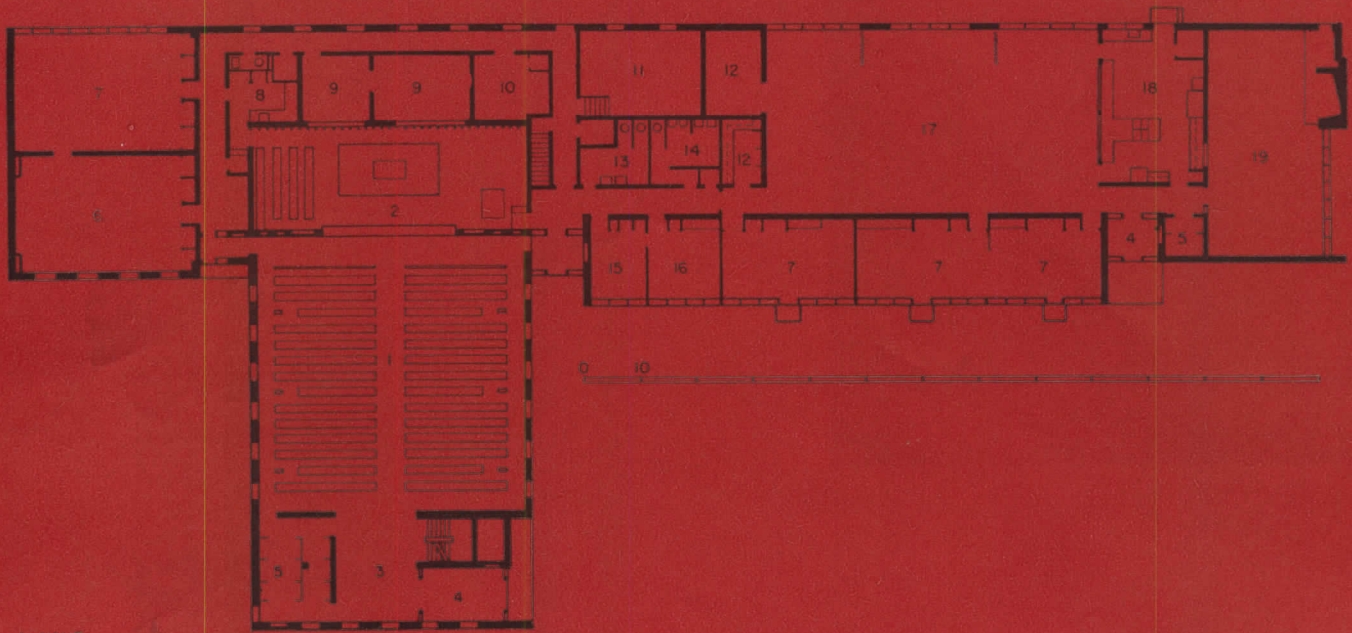
Wallace S. Steele, in charge of project

James M. Walsh, Associate Architect

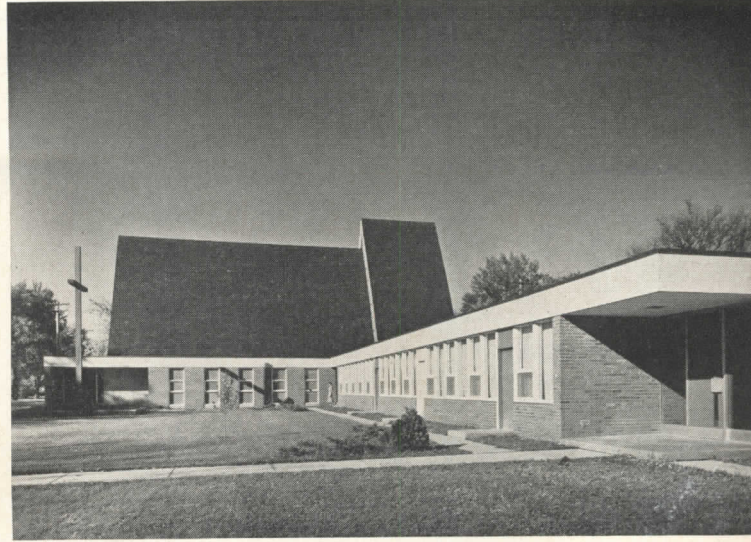
*Bolt, Beranek & Newman, Acoustical
Consultants*

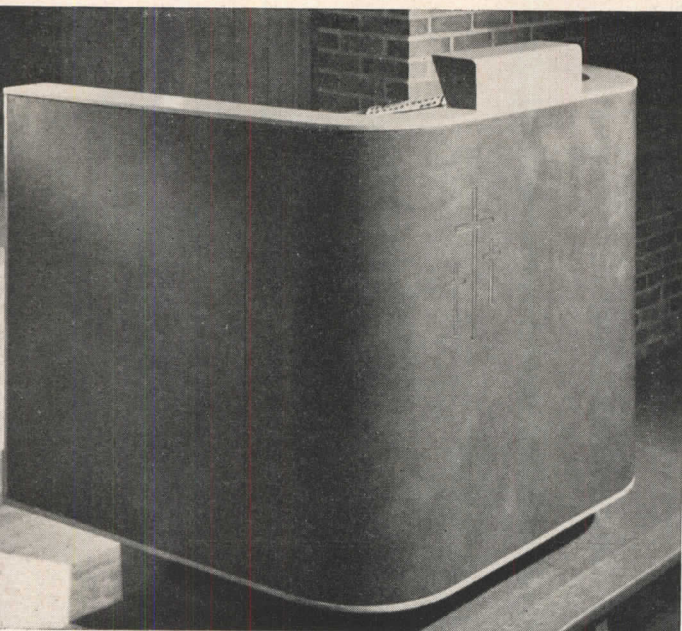
*Spencer Construction Co., General
Contractor*

THIS SKILLFULLY DESIGNED and detailed church provides a worship center for a middle-sized congregation. Structure employs steel bar joists and laminated wood members. Exterior walls are of face brick and interior walls are variously wood, plaster or brick. Pitched roof is of tile with built-up roof elsewhere. Ceilings use structural fir and acoustic tile. Floors are finished with vinyl asbestos tile. Heating system is hot water with multi-zone ventilating unit in the nave and a radiant system for supplementary heating.

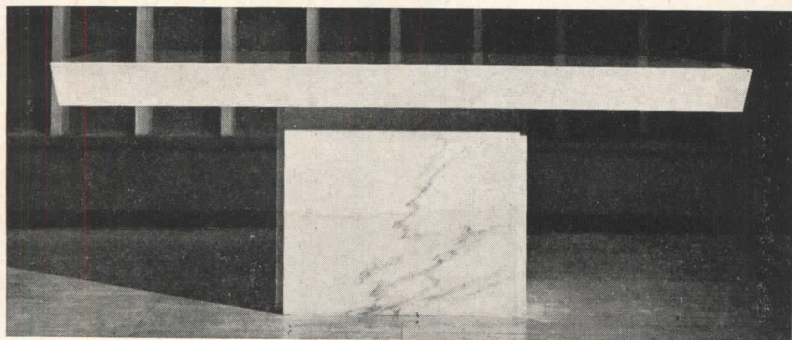
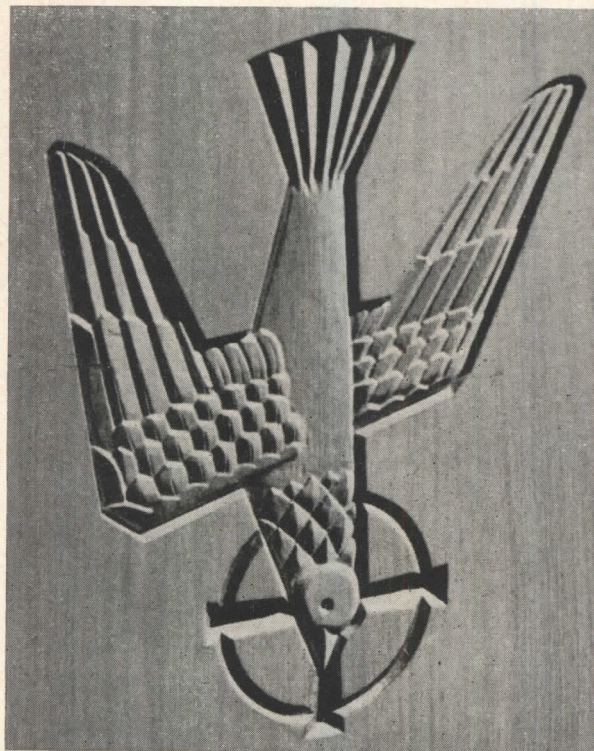


- 1. NAVE
- 2. SANCTUARY
- 3. NARTHEX
- 4. VESTIBULE
- 5. COAT ROOM
- 6. CHAPEL
- 7. SUNDAY SCHOOL
- 8. SACRISTY
- 9. ORGAN CHAMBERS
- 10. FAN ROOM
- 11. BOILER ROOM
- 12. STORAGE
- 13. GIRLS
- 14. BOYS
- 15. SECRETARY
- 16. PASTOR
- 17. FELLOWSHIP ROOM
- 18. KITCHEN
- 19. FIRESIDE ROOM





Hedrich-Blessing

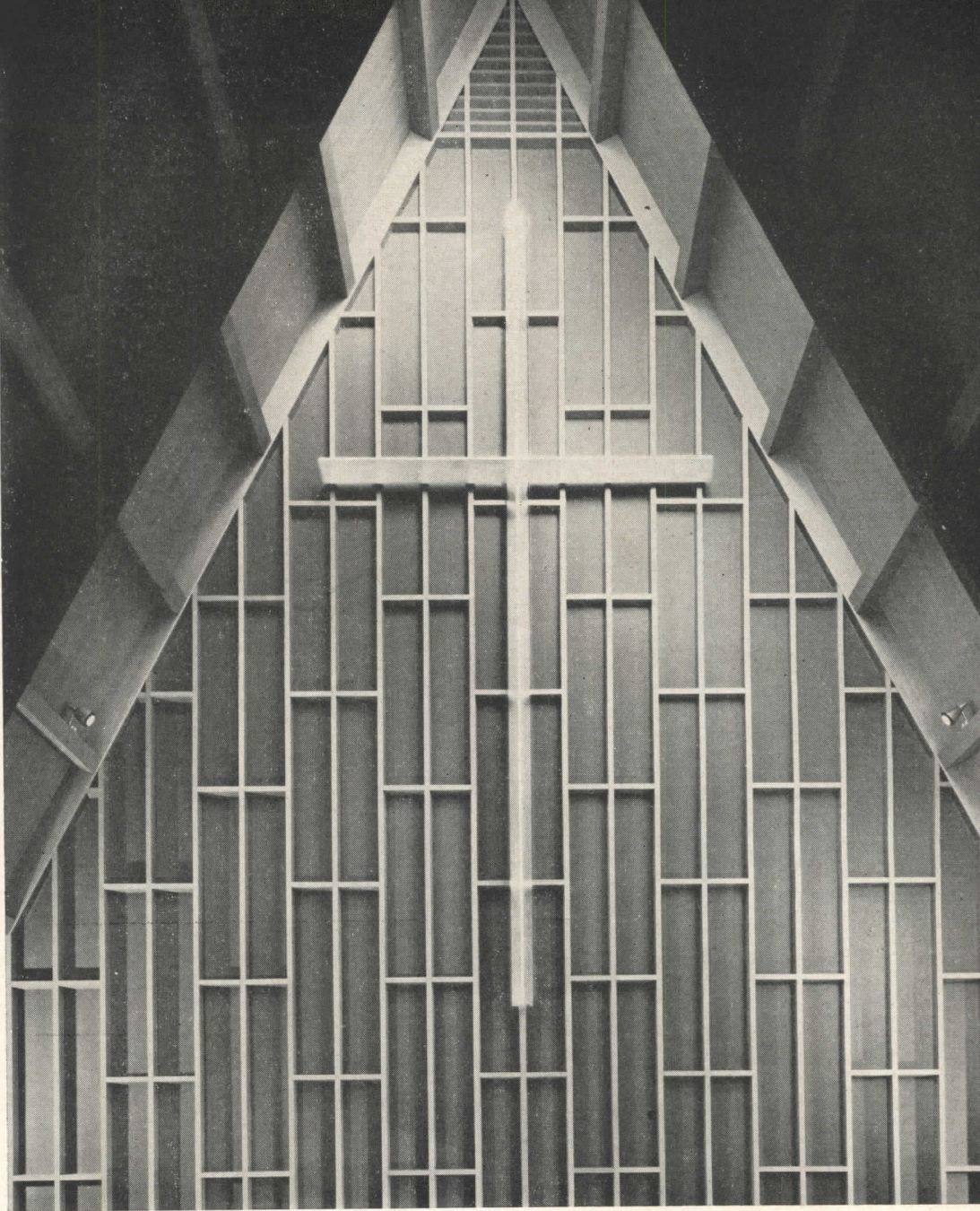


Worship and the Arts in the Reformed Tradition

By Rev. Marvin P. Halverson

Executive Director, Department of Worship and the Arts, National Council of the Churches of Christ in the U.S.A.

THE BASIS OF WORSHIP in the Reformed tradition is the recognition of God and what he has done and what he has promised to do rather than man's intentions and hopes. Such worship often has been austere because of the conviction that no physical symbol adequately can represent God in his majesty and glory and love. But it is worship of a fellowship, a community of believers who have been gathered together by God's action. The Reformed churches in New England, which we call Congregational, named their place of worship the "meeting house," for the building was the place where they met each other and as a community met their God.



In the Reformed tradition the sacrament of Baptism is that initiatory act in which a person is recognized as a member of the community. Therefore it has been considered important that Baptism take place before the entire congregation. The other sacrament of the Church is the Lord's Supper. Although it is not observed every week as hoped for and sometimes achieved in the early years of the Reformed tradition, it is central. The Lord's Supper is the celebrational "meal" of the family of God, the Church. Accordingly the Table must be large enough to suggest a banquet around which a large number of persons might gather.

The relationship of the Table to the Pulpit is crucial. The Pulpit, in the language of the earlier years, is the "throne of the Word of God" and the sermon is "the monstrance of the Gospel." Therefore the Pulpit is the place where the Bible is read and the sermon is preached. At the Lord's Table, the Word which is preached is "acted" out as it were, so the Table needs to be related to the Pulpit. Since worship is the act of a community it is necessary that all may see the Table, Pulpit and Font and that all may hear. What is required, then, is a building which enables the Church to worship God according to its understanding of God and His ways with men.

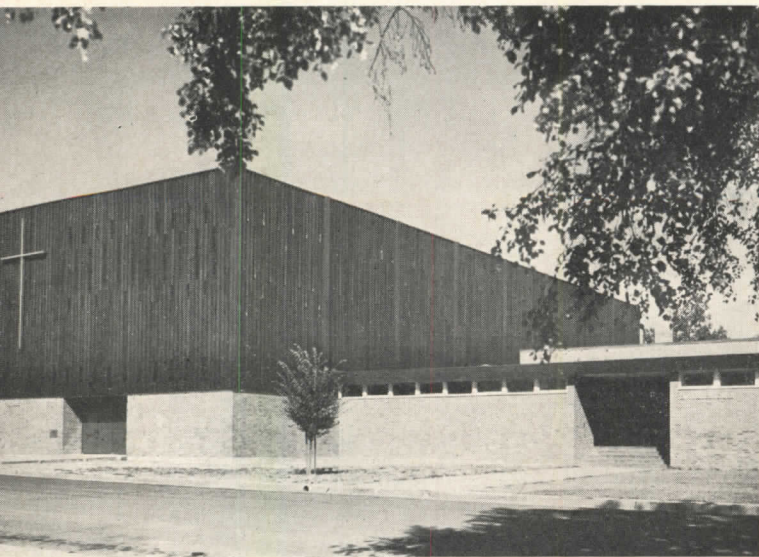
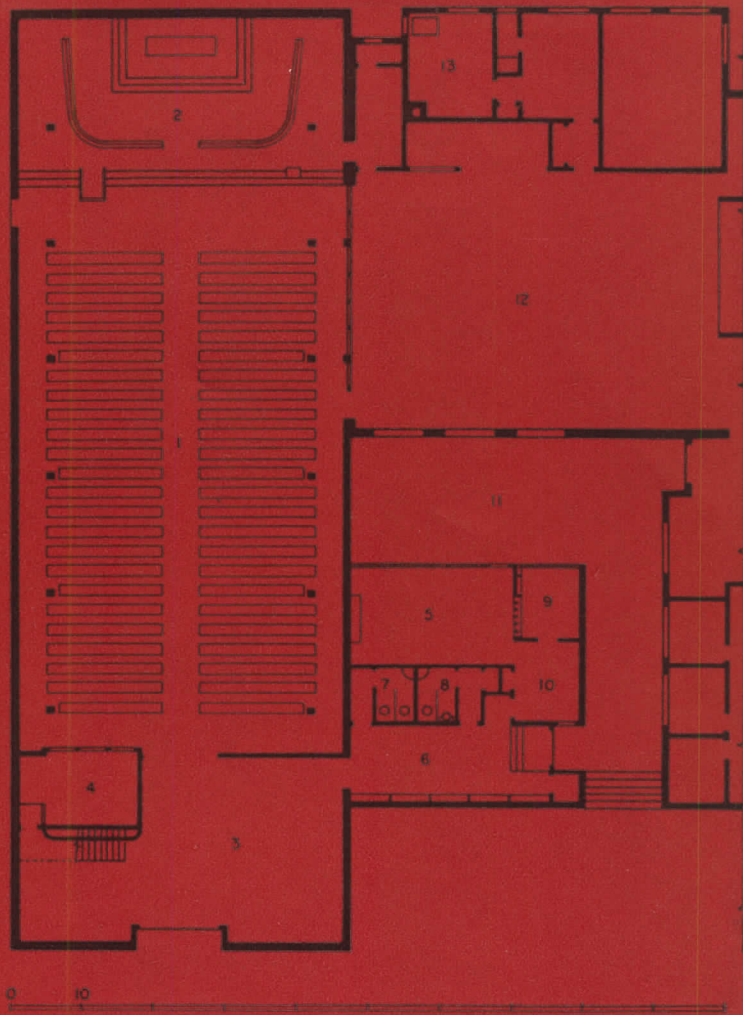


CENTRAL LUTHERAN CHURCH, EUGENE, ORE.

*Pietro Belluschi and Skidmore, Owings
& Merrill, Architects*
Cooper and Rosé, Structural Engineers
Donald J. Kroeker and Associates,
Mechanical Engineers
Pettengill and Kelley, Electrical
Engineers
Albert Vik & Son, General Contractor

THE COMPLETION this year of a nave seating 400 and a chapel for 40 brings to full realization a master plan for this congregation originally conceived by Pietro Belluschi. The parish hall and offices were completed in 1947. Laminated wood arches constitute the principal structural element. Exterior and interior walls are of brick and stained douglas fir. Roofing is built-up. Floors are asphalt tile and carpet. Hot water heating through radiant floor panels. Total cost: approximately \$100,000.00.

- 1 NAVE
- 2 CHANCEL
- 3 NARTHEX
- 4 MOTHER'S ROOM
- 5 CHAPEL
- 6 COAT ROOM
- 7 WOMEN
- 8 MEN
- 9 STUDY
- 10 WAITING
- 11 TREE COURT
- 12 EXISTING PARISH HALL
- 13 EXISTING BOILER RM.





Northwest Photographic Illustrators

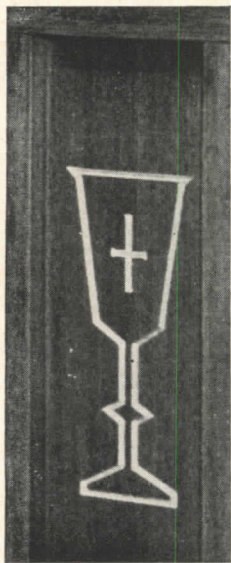
Worship and the Arts in the Lutheran Tradition

By *Dr. Joseph Sittler*
Professor, Chicago Lutheran Seminary

"THE WORD BECAME FLESH and dwelt among us." This statement puts one at the central place for pondering what the form of a Christian church should announce. "The Word" is Christ. He is the concretion of what God is, demands, gives.

"The Word became flesh" means that this reality, this saying, *this requirement* and *this gift* has occurred in history where men live. The Christian faith is not the bowing of men before a dream of religion; it is the adoration of men before the gracious act of God's Christ given and alive within man's history-house.

"And dwelt among us" means that this new reality is alive here and now. This dwell-



ing creates a community that responds to it, lives by the fact of it, calls itself the very "body of Christ" in the body of this world.

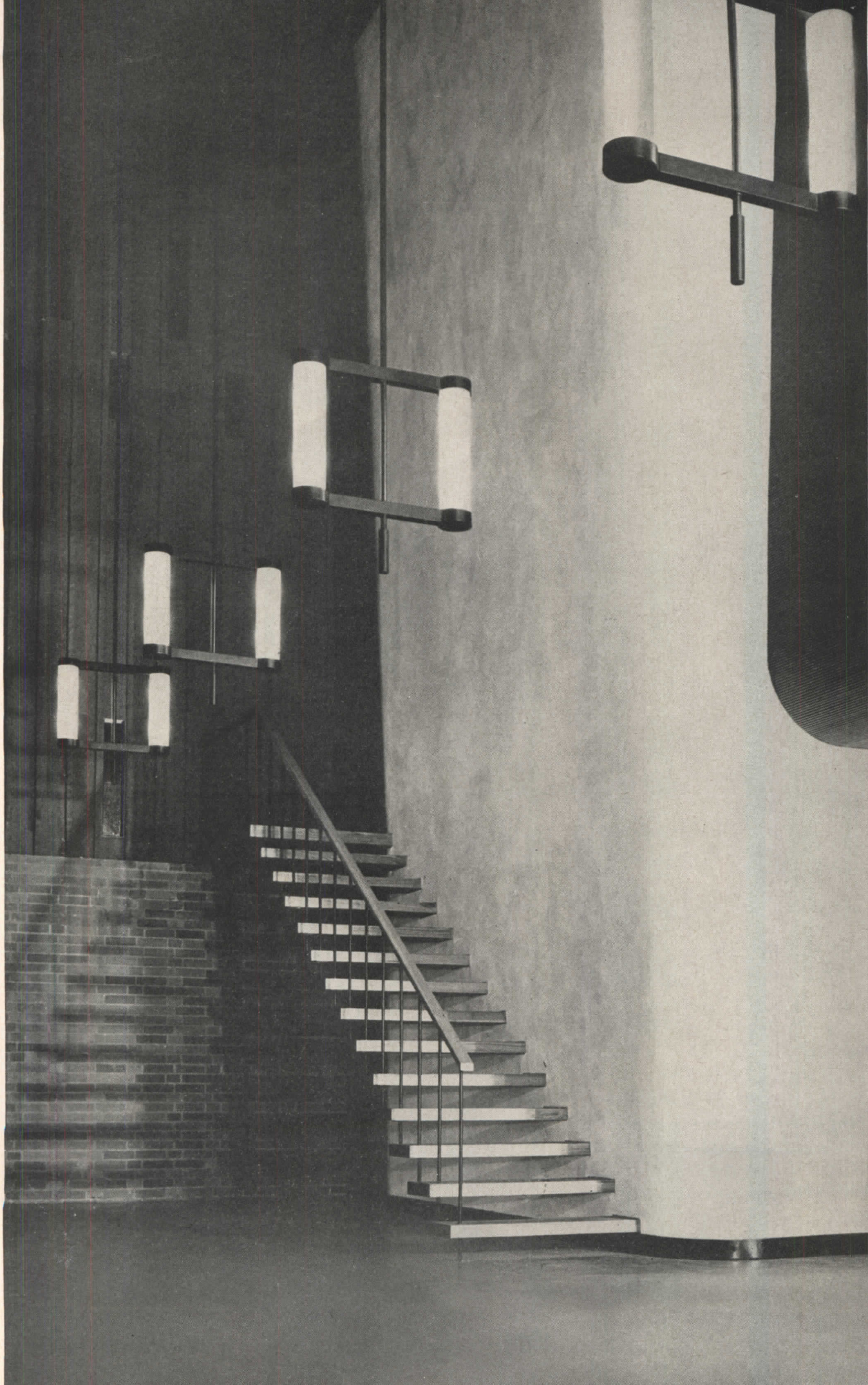
The Lutheran tradition is Christocentric through and through. God is the God who is revealed in Christ. The knowledge of God is what is offered in Christ. The worship of God centers in the entire Christ-deed, from birth through death and resurrection, to His real presence in the household of God, the church.

Therefore every effort to give this tradition palpable, declaratory force must set forth, point to, hold up and draw to the single Christ-center, the multitudinous details of worship. What should be celebrated in both

architecture and liturgy is not general religiousness, unspecified spirituality, or a miasmic if potent mood of sheer Otherness. The Lutheran understanding of the Christian faith asserts that all of this is intrinsically unredeemptive.

The sole, final and absolutely redemptive fact is God's deed in Christ: Christ in His historical actuality as Jesus of Nazareth, in His real presence as Lord of all things known, received and adored in His church.

(Ed. Note: This masterful statement places the burden of the formal expression of meaning squarely on the architect; proscribing only the generalized expressions so common today)



CHURCH DESIGN FOR MUSIC

By Albert R. Rienstra

Music is next in importance to the spoken words in church auditoriums. It is essential, then, that the acoustical design follow some basic principles that provide for projection of musical sounds into the auditorium with maximum fidelity. The quality of organ music, for example, depends not only on the design of the organ itself but on (1) location of the organ with respect to the auditorium proper and the choir; (2) design of the organ chamber when pipes are enclosed; (3) proper size and shape of space for the pipe organ and (4) acoustical design of the auditorium.

General Acoustical Conditions

Speech for best articulation requires less reverberation than music. This is unfortunate, because compromises must be made to satisfy both requirements. Modern knowledge of acoustics, however, makes it possible to meet both requirements without great sacrifice of either. Curves in the Time-Saver Standard sheet on page 205 show recommended reverberation times for church auditoriums of various sizes.

In addition to the correct amount of reverberation times at all frequencies, it is necessary to obtain a decay of the sound energy, which in general is logarithmic. A uniform distribution of the eigentones or normal modes of vibration should be achieved by avoiding dimensions for length, width and height which are integral multiples of each other.

To prevent sacrifice in speech articulation, the pulpit and lectern should be placed as far into the nave as possible. Also, the difference between direct and reflected sound should be limited.

Since an organ produces the lowest sound frequencies of any musical in-

strument, attention should be paid to building construction in order to preserve them. To prevent absorption or transmission of low frequencies by the room boundaries, hard, heavy materials are required. Any vibration or panel effect due to lack of support in the middle only means absorption. The big cathedrals, for example, with their massive stone construction provide ideal surroundings for organ music. This type of construction may not be economical for smaller buildings and does not provide acoustical control of the sound. Therefore, a sufficient amount of the room boundaries should be constructed so as to maintain the low frequency reverberation time. The construction of the remaining area can control the middle and high frequency times.

The source of music is both vocal and instrumental. In recent times, the choir has been divided which, while not optimum acoustically, does at least leave an uninterrupted view to the altar.

Organ Placement

The organ console location is important. Each choir member should be able to see the organist. The organist should be able to hear the organ and the choir well in order to balance the two.

The organ's best location is such that the tone is projected directly to the nave with no reflection or as few reflections as possible. All too commonly the organ is divided like the choir, and if it is closer to the nave than the choir (see Fig. 1), its sound is heard slightly before that of the choir. Even though the choir and organ start together, the listener receives the impression that the organ tone predominates. Because the choir is only a few milliseconds behind

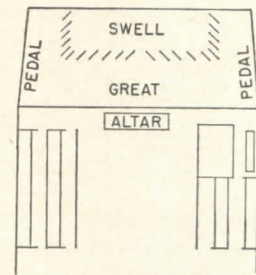


FIGURE 3

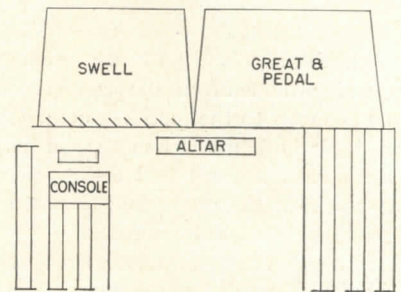


FIGURE 4

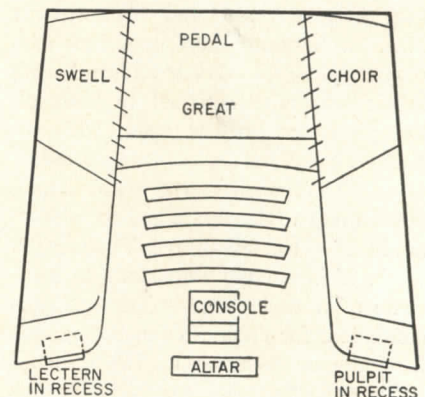


FIGURE 5

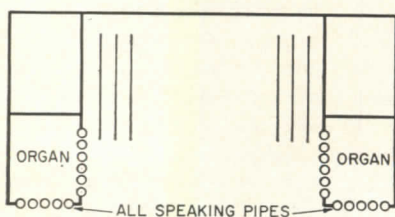


FIGURE 1

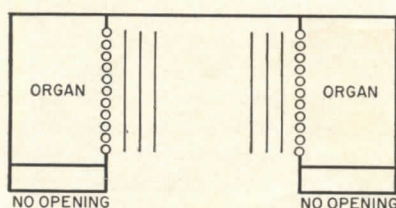


FIGURE 2

When pipe organs are at the front of the church, the best location for the organ is at the front end of the chancel. If the pipes are arranged as in Fig. 1, the organ will be heard before the choir, making it difficult for the listener to concentrate on the music. If the pipes are placed on the sides of the chancel, Fig. 2, a great deal of clarity is lost because of the indirect path that sound must travel. Figs. 3, 4 and 5 show recommended organ component arrangements for small, medium and large churches, respectively. Pedal, swell, great and choir are classes of pipes. Cross-hatches indicate shutters for loudness control of certain pipes

the organ, it must be much louder than the organ to be noticed properly. Under such circumstances, the psychological effect cannot be circumvented. The result is that the listener must concentrate with effort on the choir.

If there is no direct path for the organ sound, as in Fig. 2, and it has to travel into the chancel and then out to the nave, a great deal is lost in the way of clarity, especially for contrapuntal music.

A better solution is to place the organ at the front end of the chancel (considering the chancel the front of the church. See Figs. 3, 4 and 5). Thus the organ sound will have to travel farther than the choir sound and at the same time have a direct path to the nave. An optimum design for a non-divided choir is shown in Fig. 5. Good transmission of sound is provided from the sending area (the chancel) to the receiving area (the nave) for both music and speech. The speech path is short and direct. Note the recess of the pulpit and lectern to direct the sound to the nave.

If there is an altar, it will be necessary to build a reredos or cloth screen to hide the organ, unless the pipes are to have no covering, as is being done more and more. This is the ideal way to obtain the maximum tonal effect without blemish. Actually those musicians who play nothing but Bach and pre-Bach music are quite satisfied to have all the pipes out in the open. This restricted use of the organ is to be avoided, however, because the next organist may not want it that way. While there is no doubt as to the advantage of open pipe-work, it is equally important to have some of it under expression, and thus concealed, for choir accompanying and for more modern music. There should be smooth expression control for a range of 20 db or more. This is provided by enclosing some pipes behind shutters. The voicing of the pipes can compensate to some degree the effect of the enclosure.

In addition to the arrangements already described, another ideal one is to place choir and organ in the rear gallery (called "West Gallery" in Episcopal and Catholic Churches). In this location there is greater freedom. The choir can be placed directly in the center, facing the nave. The organ also can be placed in the center behind the choir if there is no window in the rear wall, or can be divided if there is a center window. In either case the console is placed directly in front of and facing the choir. With this arrangement the rear wall below the gallery can be deadened permanently

and the other surfaces made reflective.

In all cases the organ should be located high enough to sound over the heads of the choir, not at them. Also there should be good clearance above the tops of the pipes (at least 2 ft; the more the better). When the organ is located at the front end of the chancel the ceiling of the chancel should be as high as or higher than that over the organ, and it should not be higher than the nave ceiling so there are no pockets to trap the sound. Reflections should be from the ceiling out into the nave. If sound is directed down to the choir, absorption takes place even before the sound has started in its journey.

The organ builder should lay out the exact space required for organ installation in the early planning stages of the church. It may take a considerable amount of push by the architect to persuade a building committee to select an organ builder at this time. But if it is left to the last, the space available may be too small, have the wrong shape, or have one or more dimensions of unsuitable size.

Sizes for pipe organ sections given in the Time-Saver Standard sheet on Page 205 are conservative. They provide an adequate amount of space for the proper production of organ sound and for maintenance. When it is absolutely necessary to use awkward locations, the details should be worked out accurately with the organ builder before any building construction is commenced. In fact, the only safe course to follow is to have the detailed organ specification on all jobs drawn up and the organ contract let to a reputable builder at the time the building plans are being made. Thereafter, absolutely no changes should be made in what might seem to be insignificant details without the organ builder being consulted. The character of the sound of organ pipes depends just as much on location as on their design, especially when placed in an organ chamber which is an open ended box. Each chamber and auditorium has its own particular effect on the character of the sound of organ pipes.

A pipe organ should not be installed where a stained glass window or any window occupies an appreciable area of the wall. In the first place it restricts the organ layout, and, even though it is possible to build around the window, the temperature effects would be deleterious. An organ is very sensitive to even two or three degrees temperature change. Also, sections of the organ should never be placed at different levels unless some

means is provided to keep the temperature constant at both levels throughout the year. If the organ is tuned when the upper level is at 75 F and the lower level is at 70 F, the organ will be in tune only when these temperatures exist at their respective levels.

Careful attention must be given to acoustical treatment of the organ space as well as to the acoustical design of the main portion of the auditorium. For example, walls adjacent to organ pipes should have hard surfaces (Keene Cement), well backed up by supports to prevent any vibrating panel action at low frequencies below 100 cps. If pipes are in a chamber, the sidewalls and ceiling should have a slight slope to reflect sound outward through the front opening. Provision should be made for placing one rank of pipes in the open, preferably outside the chamber but *not in the chamber opening*, as used to be the common practice. As the size of the instrument increases, more and more pipes should be placed outside the chamber.

Attempts to correct reverberation times of auditoriums by adding acoustical treatment has often proved detrimental to organ tone. The trouble may not be too much reverberation, but the wrong kind. It is very difficult to get good musical results in a dead room. If the reduction of reverberation is carried too far, sound reinforcement with its attendant expense and bother becomes necessary.

Glossary of Terms

RANK OF PIPES — One complete set of pipes for the whole keyboard and all of the same tone, e.g. a harmonic flute.

MIXTURE — Two or more sets of pipes which provide harmonics of the fundamental and are actuated by one set of valves. Being of higher pitch they are smaller, and because of their valve mechanism, two-rank and some three-rank mixtures take the same space as one rank which is not a mixture.

GREAT DIVISION — The main pipe division with the principal organ tone. It is usually unenclosed.

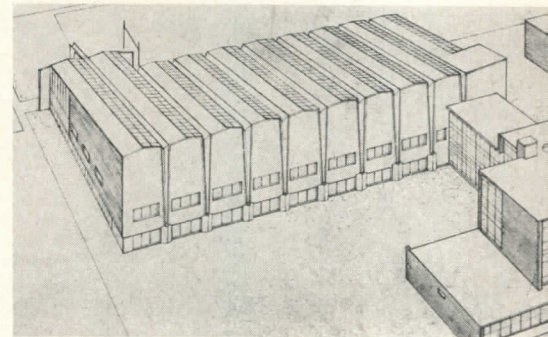
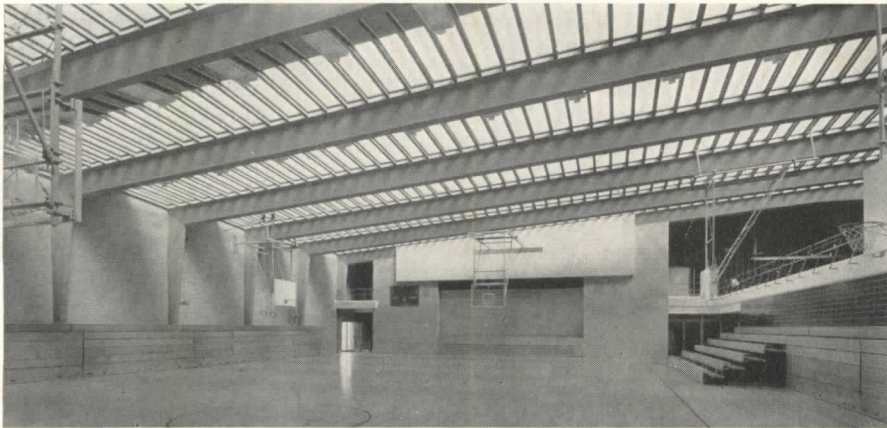
SWELL DIVISION — The swell has a different tone color for contrast and is behind shutters for expression swell effects. Hence the name.

CHOIR DIVISION — A softer accompanying division, also enclosed. Lately it provides a third contrast.

PEDAL DIVISION — The pipes played from the pedal board with the feet to provide bass and also solo effects.

GYMNASIUM STRUCTURES

Large, unobstructed gymnasium interiors — for schools, colleges and playgrounds — are essential not only for sports activities but also for proper viewing of them by spectators. Four unique structures which have been designed toward this end are presented on these pages

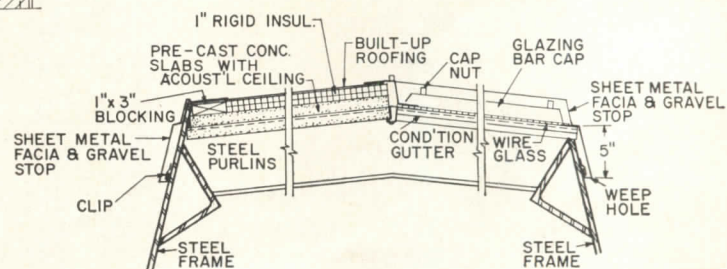
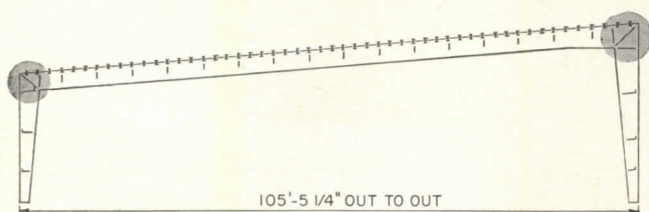
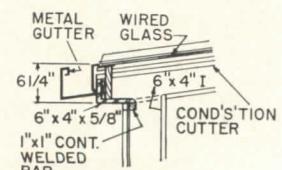
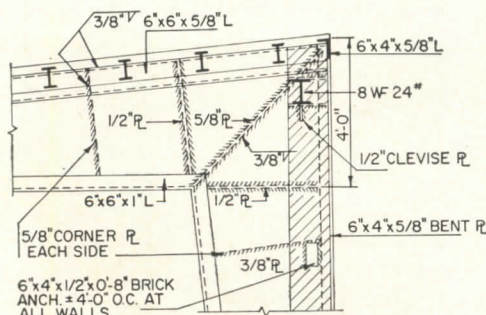
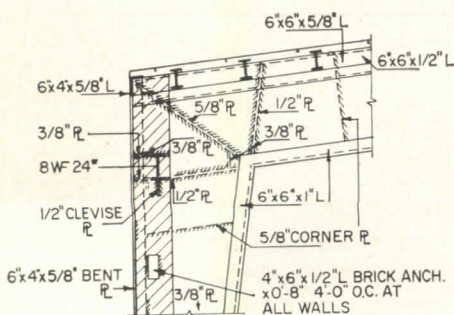
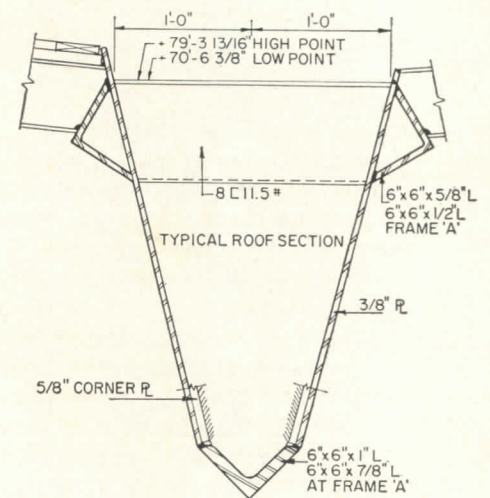


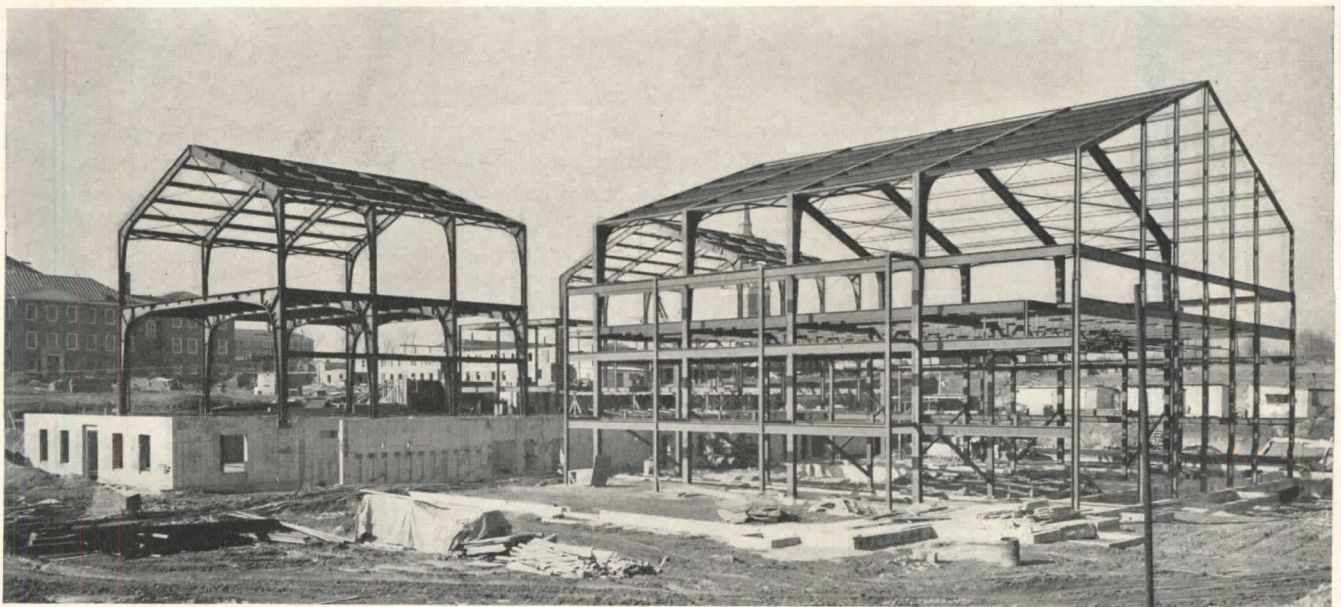
St. Patrick's Academy, Chicago, Ill.
Belli & Belli, Architects and Engineers

Nine V-shaped girders were used to frame this 178- by 105-ft gymnasium structure in order to have "girders that would give a finished appearance rather than the usual truss appearance, also to have a finish strong enough to take any shock or abuse that students might give it." The frames, according to the architect, were designed so that they could have been constructed by at least 90 per cent of the structural shops in the Chicago area. As shown in the typical roof cross section, $\frac{3}{8}$ -in. steel plates were welded to a 6x6 toe angle. The boxed appearance of the girders on the interior of the gym was achieved by welding $\frac{1}{2}$ -in. and $\frac{3}{8}$ -in. closure plates around the V shapes. Both the inside

and the outside of the steel framing members are painted. In order to have duplicated this appearance with a standard rigid frame, the sides of the section would have had to be covered with plaster or with additional steel plates.

Steel purlins span the distance between frames and support the roof covering. As can be seen in the interior photograph above, the roof sections are alternately wired glass skylights and concrete slabs with built-up roofing. Gutters catch the condensation from the glass and carry it down through the V to be drawn off in a steel drain in the base concrete. There has been no trouble with condensation forming on the underside of the steel plate.





Wake Forest College Gymnasium, Winston-Salem, N.C. Larson and Larson, Architects—Watson & Hart, Structural Engineers

Rigid frames in three different applications form the structural support of the buildings in this gymnasium system. All three of the structures are multi-story rigid frames.

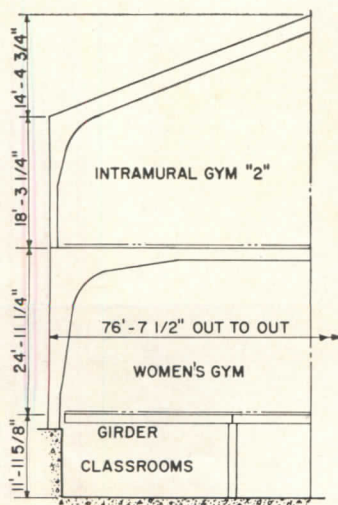
Rigid frame on rigid frame in Frame A allows headroom for basketball courts on both floors. The top frame in this right wing of the gym area spans 76 ft 7 1/4 in. and carries the roof. It is supported by the lower flat rigid frame, which carries the floor of Intramural Gym 2 and spans the floor of the Women's Gym below. The design of the upper frame is typical of any rigid frame. However, the lower frame has the added consideration of column load and tie-rod tension due to the upper frame. The con-

nection between the two frames is designed to carry the column load in bearing and the tension in shear. The column bases of the lower frames are supported on concrete walls and are tied through the lower gym floor system.

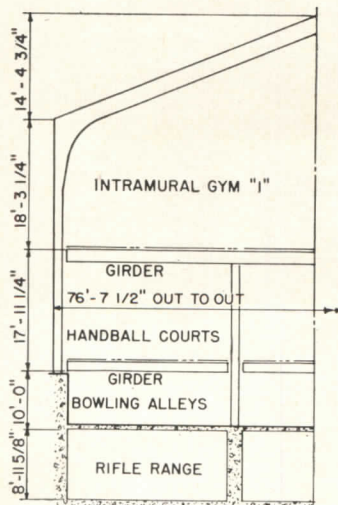
The left wing, Frame B, consists of a rigid frame roof structure which spans 76 ft 7 1/4 in. The column sections are supported by concrete walls, with the floor system of the handball courts carrying the horizontal forces which develop at the base of the columns. Due to the large tensional force at the floor of Intramural Gym 1, the column bases tend to deflect inward, making the force at the column bases a compressive load. Thus, no special connections were re-

quired in the handball court floor system. Welded plate connections carry the tension at the gym floor level.

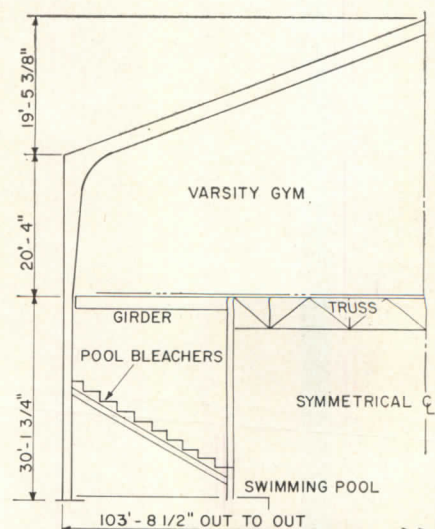
The Varsity Gym, Frame C, is supported by a rigid frame roof structure spanning 103 ft 8 1/2 in., with the column sections continuous to the footings. The principal horizontal (tie-rod) forces are carried through the top flange of the floor girders and top chord of the floor trusses. To transmit these forces, welded plate connections were used to connect the frame to the girder flange and the girder flange to the truss chord. The horizontal forces at the base of the columns are not large and are carried by the footings. The floor truss provides a 52-ft clear span over the swimming pool.



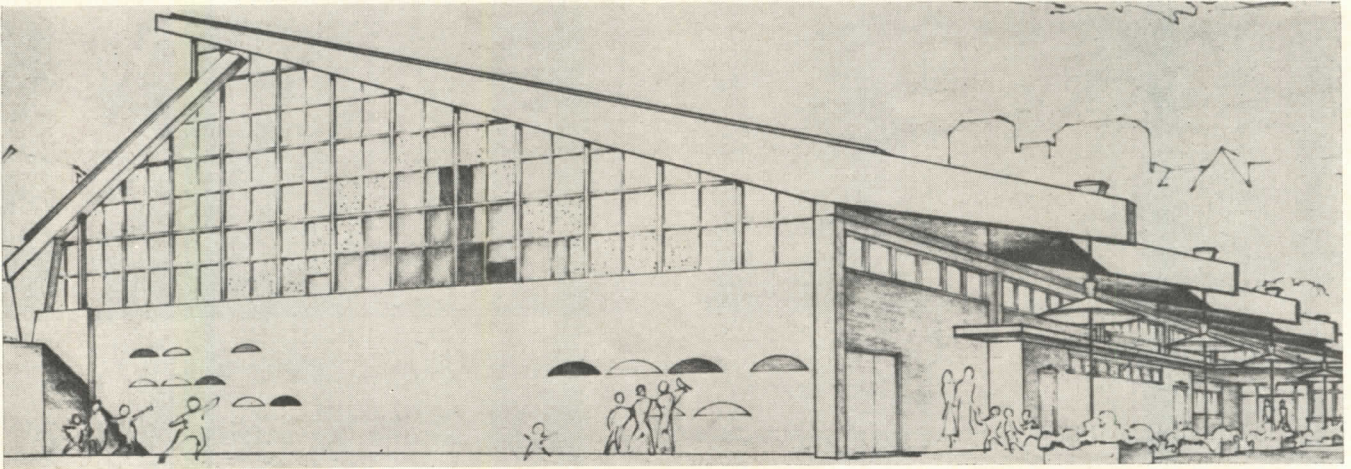
FRAME A



FRAME B



FRAME C



Two separately cantilevered roof segments supported by laminated wood beams which are not structurally connected cover this small-scale children's gymnasium. The unsymmetric arrangement was determined because (1) the building is primarily a place for children to play during the daytime and so the secondary spectator areas could be placed away from the center of activity; (2) it lends itself to the use of a clerestory for attracting daylight and warm sun; (3) it overcomes the effect of a low ceiling.

The larger of the two roof segments, covering a regulation-size basketball court, will be supported by six 93-ft $5\frac{1}{2}$ -in.-long laminated Douglas fir beams spaced on 22-ft centers. They will be cantilevered 69 ft from the side wall columns and will be restrained by $2\frac{3}{8}$ -in. round steel rods 20 ft outside the building anchored in a concrete deadman. Beam depth will taper from 5 ft $6\frac{5}{8}$ in. at the column support to 2 ft 2 in. at one end and 2 ft 10 in. at the other. The

free ends of the beams will be joined by light welded steel girders to equalize live load deflections at the end of the cantilevers and to provide support for clerestory windows.

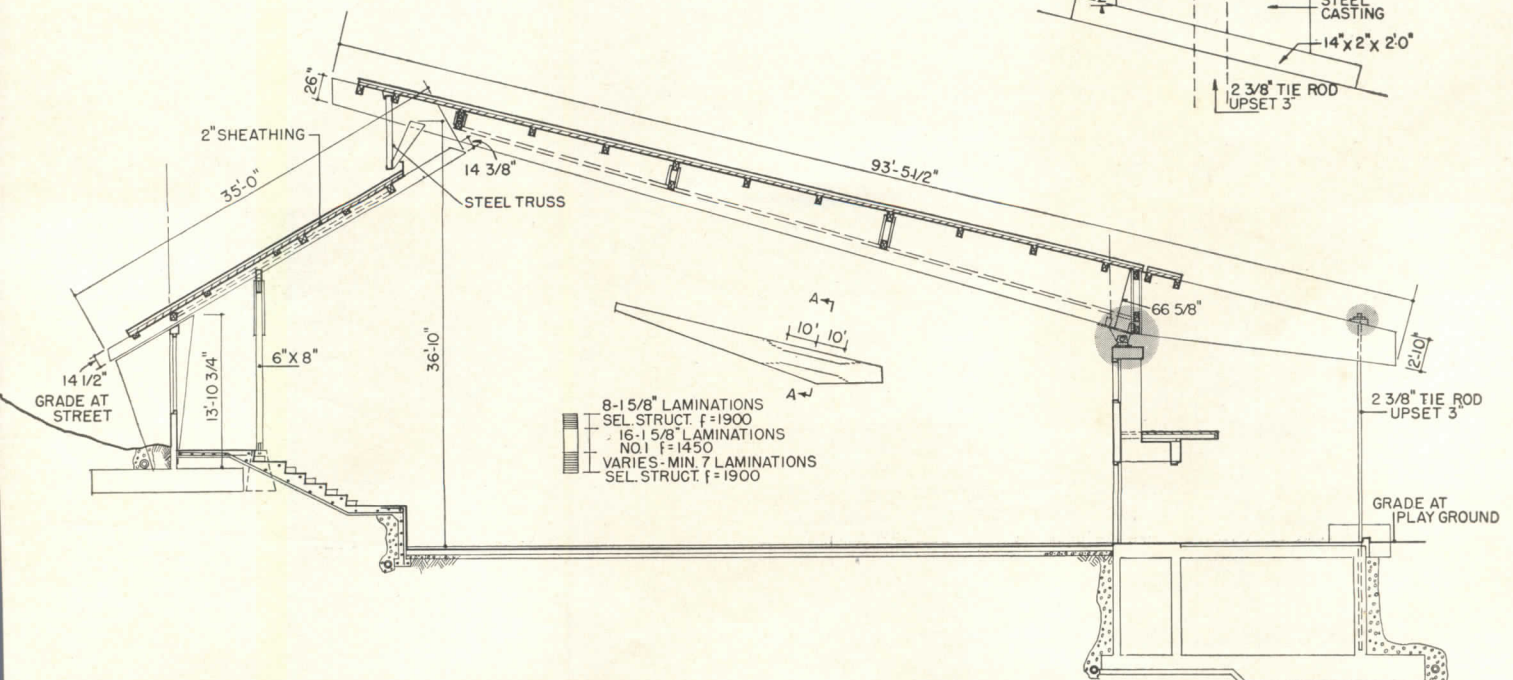
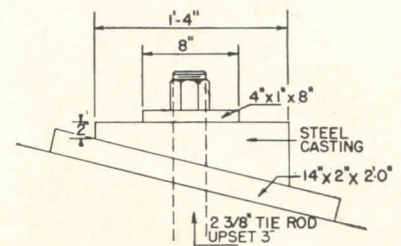
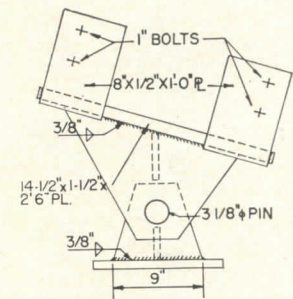
The other roof segment, covering the bleachers, will be supported by 9- by $16\frac{1}{4}$ -in. laminated beams on 11-ft centers. These 35-ft-long beams will be cantilevered 20 ft from interior columns and tied down to exterior wall columns.

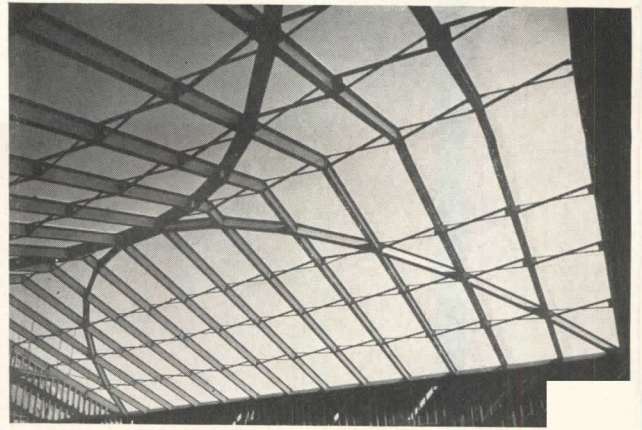
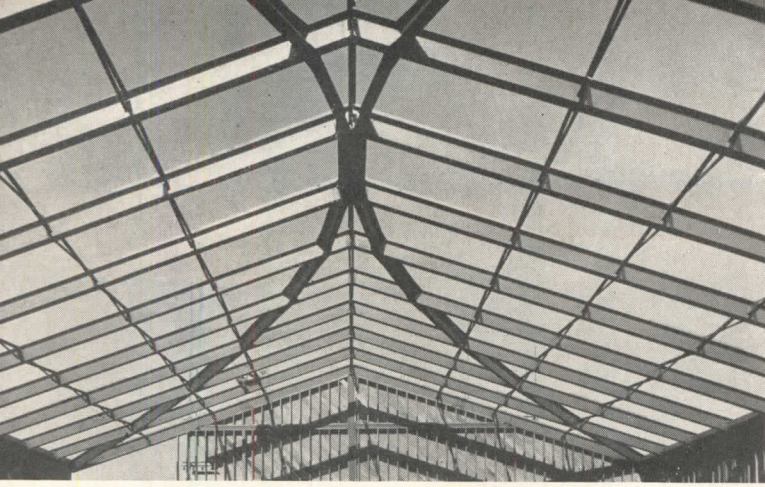
The interior portions of the beams will be finished naturally. The external portions will be sheathed in aluminum at the top and end grain and painted with an opaque pigment paint at the sides and bottom. All roof loads will be transmitted to footings and lower walls.

The resulting 80- by 110-ft gymnasium, only about 34 ft high at the peak, will give the impression of being a large, airy building. The bleacher area takes advantage of the sloping site. The low concrete walls will be surmounted by colored translucent plastic panels.

Upper Noe Playground and Fieldhouse, San Francisco, Calif.

Donald Beach Kirby & Associates, Architects and Engineers





Phil Fein

San Mateo High School Girls' Gymnasium, San Mateo, Calif. John Lyon Reid & Partners, Architects and Engineers

A steel space frame, supported by two longitudinal walls and two end-wall columns, is the roof structure of this 80- by 94-ft gymnasium. The resulting open area, requiring no interior column supports, showed economies in the amount of steel used and also in installation costs, since the space frame required 30 to 40 per cent fewer connections than would have been required with conventional gabled steel bents and purlins.

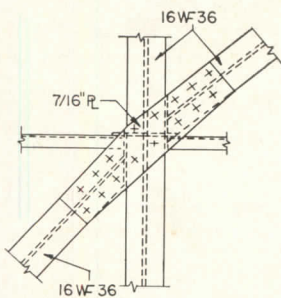
The 80-ft width of the building is spanned by 16 WF 36-lb rafters spaced 7 ft 2 in. on centers in a 4 on 12 pitch.

The rafters are supported by longitudinal walls at the eaves and butt against each other at the ridge. Since there is no direct vertical support—column or beam—at the ridge, the rafters support each other and, as a result, exert a thrust in the plane of the roof. This thrust is resisted by two parabolic arches, also of 16 WF 36-lb straight segments inserted between the rafters. These arches follow the shape of an imaginary moment diagram created by the equal thrust of the rafters on a simple beam spanning the entire length of the building. The compression in the arch at the four corners of the building is resisted by tensile forces in ties along the top of the perimeter walls. These ties are 24 WF 76-lb members in the side walls and 16 WF 36-lb members in the end walls. Two 8 WF 48-lb column

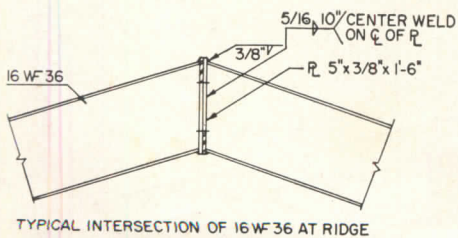
ridges developed at these points. All connections were simple flange-to-flange joints made with high-strength bolts.

Seven rows of light angle cross bracing provide support for the rafters against lateral buckling under vertical load. This same bracing system transfers earthquake or wind forces to the arch when these forces act in the longitudinal direction of the building. It is not necessary to provide any additional structural members or to use roof covering materials to resist these forces.

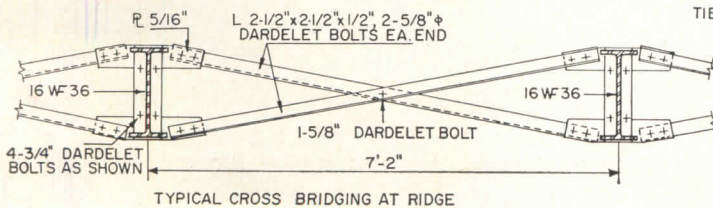
The exterior of the building is diagonally sheathed with 2-in. straight sheathing, on 2x10 studs in the end walls and 2x8 studs in the side walls, 16 in. on centers. The roof is also covered with 2-in. straight sheathing. The roof framing is exposed inside the building.



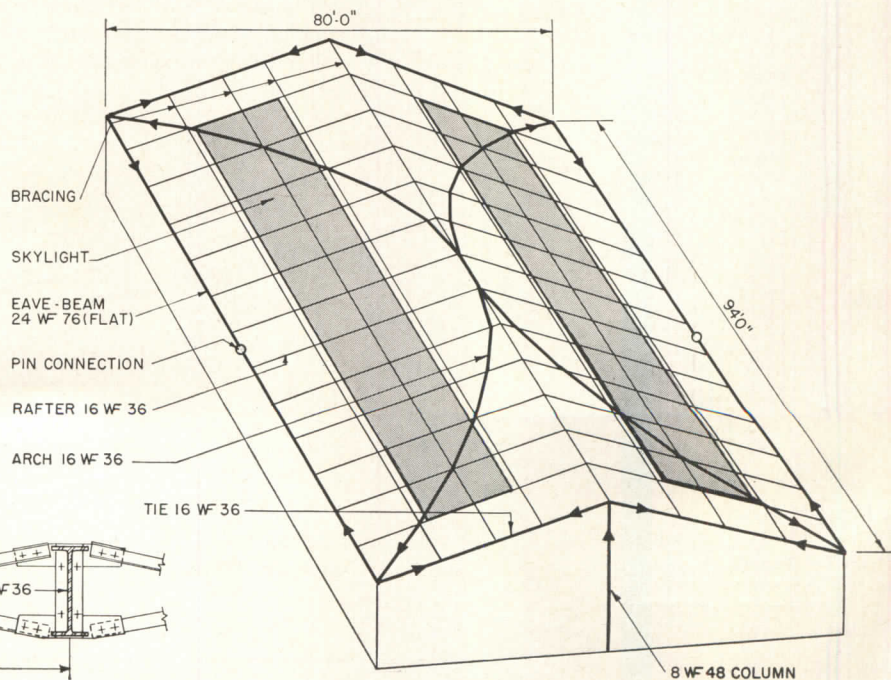
TYP. INTERSECTION-PARABOLIC ARCH AT 16 WF 36 PURLINE



TYPICAL INTERSECTION OF 16 WF 36 AT RIDGE



TYPICAL CROSS BRIDGING AT RIDGE



CHURCH DESIGN FOR MUSIC

By Albert R. Rienstra

Reverberation Times

Figure 1 gives reverberation times for church auditoriums from 10,000 to 1,000,000 cu ft in size. These values are higher than generally used for other types of auditoriums because with them organ music is enhanced a great deal and choral music somewhat. While the reverberation times for churches may fall within the range indicated by the gray band, it is recommended that the upper limit be used if possible.

The values in Fig. 1 are absolute reverberation times for the frequency range from 300 to 5000 cps. Fig. 2, then, gives correction factors to be applied to Fig. 1 for frequencies outside this range.

Organ Space Requirements

Figure 3 can be used as a guide for the allotment of pipe organ space. Figure 3A gives dimensions of the pipe space required for organs installed in one section. Solid lines apply when pedal pipes are at the sides and dotted lines when they are in the rear of this section. In large churches it becomes necessary to install the pipes in two or three sections and these situations are covered in Fig. 3B. The depth curves here have a saw-tooth shape, a tooth occurring at every place where the width increases a step. The height of organ space has only two values; 13 ft and 20 ft. If there are no 16-ft open pipes, at least 13 ft height is required for the open, 8-ft pipes. For 16-ft open pipes, at least 20-ft height is required. The height then remains constant until 32 ft pipes come into the picture. For this size, it is not possible to give estimates of space as this falls into the four manual (keyboard) and cathedral classes, and each installation becomes a special one. In the region just below this, after the depth has increased to the second maximum (Fig. 3B) three-keyboard organs are specified. For this size, a third section of width may be added, the choir-pipe division, which is placed on one side of the chancel with the swell division on the other.

Figure 1

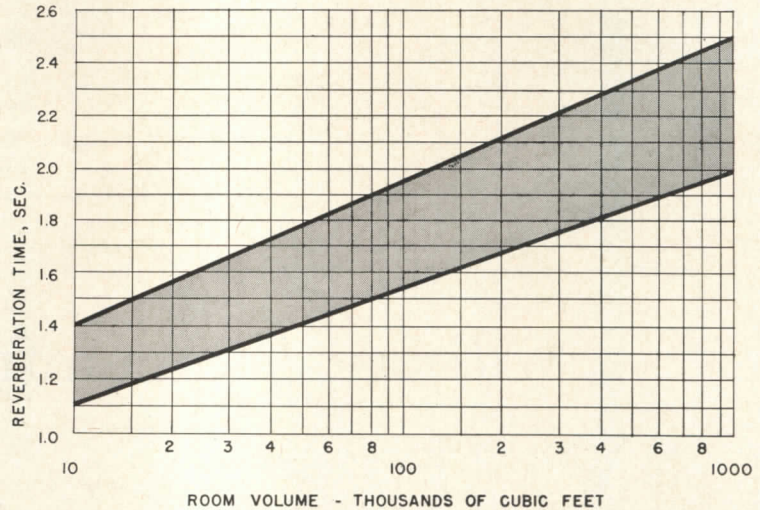
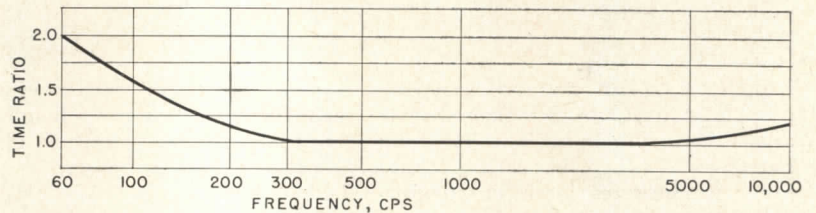


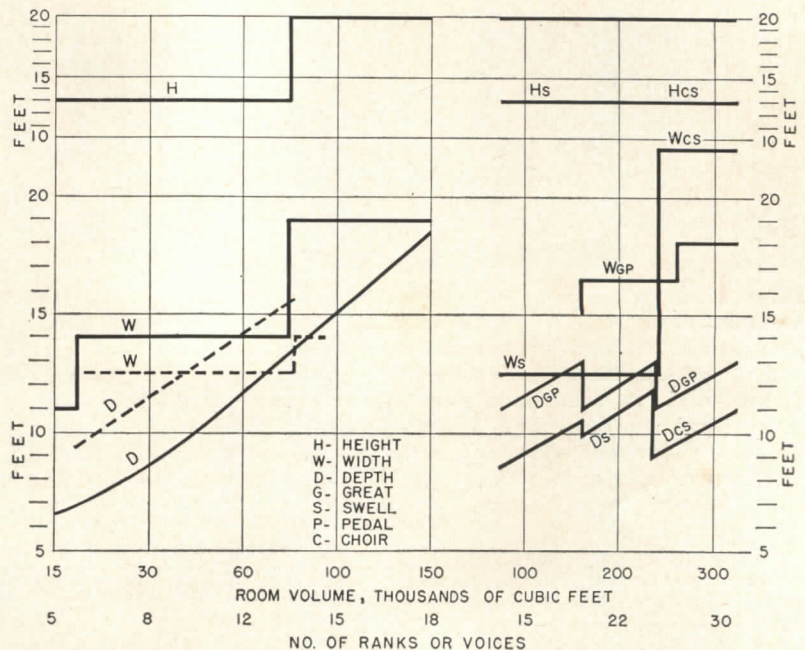
Figure 2



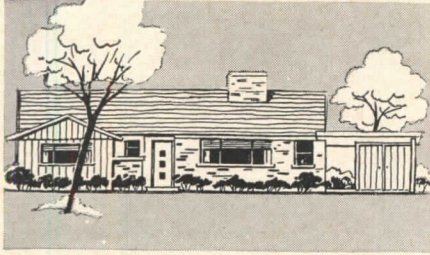
Modified from Beranek

Figure 3A

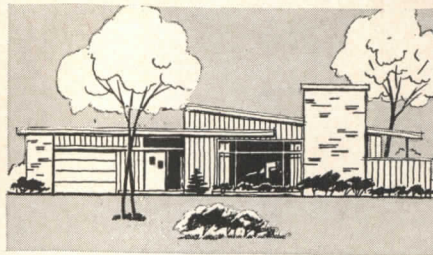
Figure 3B



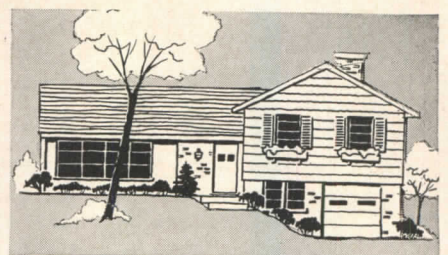
Any type home is obsolete



Designing ranch-type houses? New Honeywell *Packaged Zone Control* is practical if they're two-bedroom-and-up homes with over 800 square feet. Zone control *measures* comfort to exact needs of all occupants at all times.

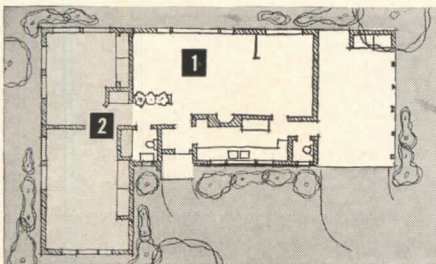


Designing contemporary homes? If you are, specify Honeywell Zone Control comfort. Large glass areas and open planning can cause excessive temperature variations, easily changed to *whole-house* comfort by the Honeywell system.

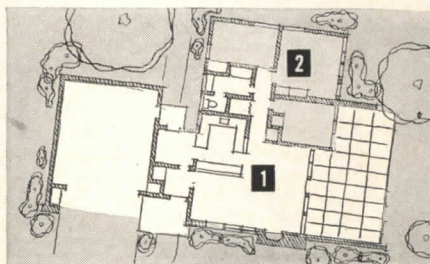


Designing split-levels? Bring ideal comfort to various activity zones with the new Honeywell Zone Control Package. Honeywell's use of standard components makes zoning easier, more effective, more economical than ever.

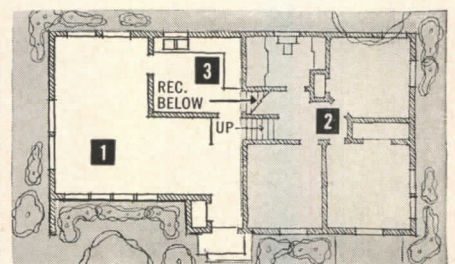
without the comfort of new



Zoned ranch house is *completely* comfortable with Honeywell Zone Control separating living-dining area (1) from sleeping area (2). Bedrooms are kept at lower temperatures ideal for comfortable sleeping.

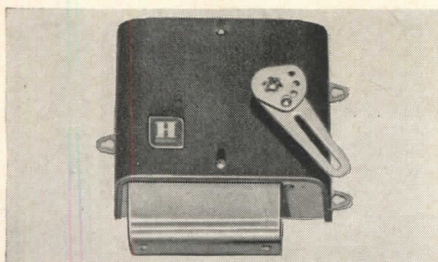


Contemporary house plan utilizes separate thermostats in living-dining zone (1) and sleeping zone (2) which create distinct comfort areas. Thermostat in Zone 1 compensates automatically for large glass areas and heat from fireplace.

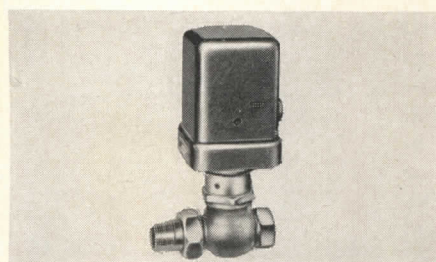


Split-level house has Honeywell Zone Control in (1) living-dining, (2) sleeping, and (3) recreation areas. Occupants receive exact comfort required, even in areas of intermittent use. Three thermostats are employed.

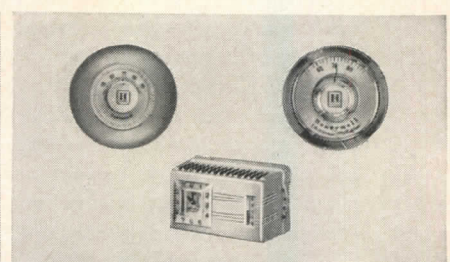
Honeywell Packaged Zone Control



New Honeywell damper actuator vastly improves forced air zoning—gives temperatures at proper levels in different activity areas. Provides true *modulating* control—delivers continuous flow of heating or cooling on demand. Noiseless; easy to install; will give years of trouble-free service. Economical, too.



Quiet, motorized valve makes it easy to zone forced hot water heating systems. Valve opens on demand from zone thermostat and at the same time starts the circulator, thus delivering heat to the zone. Versatile—works equally well on two-pipe steam systems. A low-voltage control. Easy to wire and install.



Three outstanding thermostat systems complete the package: (1) Electronic Moduflow, right, for major occupancy zone; (2) Clock Thermostat, center, in sleeping areas automatically lowers temperatures at night, raises them at morning; (3) Honeywell Round, left, perfect for zones of intermittent occupancy.

For complete information on the new Honeywell forced air zone control system, or on equipment for wet heat zoning, call your local Honeywell office. Or write Honeywell, Dept. AR-12-133, Minneapolis 8, Minn.

MINNEAPOLIS
Honeywell
Zone Control



For heating and cooling

FLUORESCENT LIGHTING FOR LARGE AREAS — 1: Guide to Fixture Selection

By K. Steve Rasiej, Syska & Hennessy, Inc., Consulting Engineers

The purpose of these sheets is to present an easy-to-use guide for appraising the relative practical merits of various fluorescent lighting systems as used in office, commercial and institutional buildings. Data given in the tables is predicated upon over-all performance and cost. Fixture appearance is not considered. Since the various systems are rated for a particular set of room conditions, the figures serve only as bases of comparison, and not as final designs for many conditions.

Following criteria were selected

to indicate the performance of each system:

Average (maintained) foot-candles (ft-c)—Gives the amount of light obtained at the desk level

Watts per square foot—Gives the amount of electrical energy consumed

Foot-candles per watt per square foot—Indicates efficiency of the system in terms of energy used

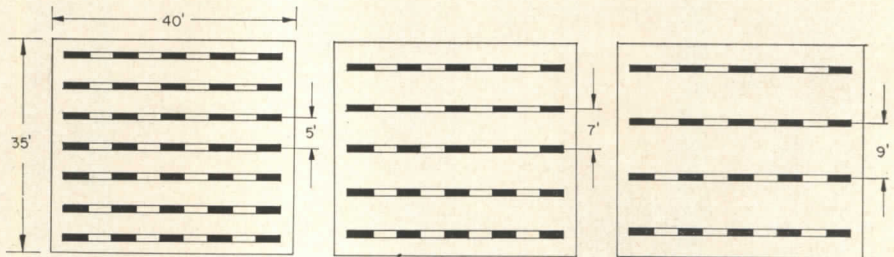
Installation cost—Indicates relative costs of various systems. Installation cost includes cost of fixtures and wiring beginning with first outlet of

the circuits in any particular layout. Installation cost of system A in continuous 9 ft spacing is taken to be 1.00

Visual Comfort Index (VCI)—The percentage of persons who will find the direct view of the lighting system visually comfortable, assuming that observers are in the least favorable position (center rear of space) and are occupied at visual tasks of some severity. Figures are based on the published data by Lamp Division of General Electric Co.

EXAMPLE ROOM

- Ceiling Height—9 ft
- Ceiling/Wall Reflectance—75/50 per cent
- Maintenance Factor—70 per cent
- Lamps—Warm White
- Fixture Spacing—5, 7 and 9 ft, continuous and individual spacing.



<p>A—2-lamp recessed troffer, with egg-crate louver for 40° x 40° shielding</p>	<p>J—suspended, 2-lamp, direct-indirect unit with metal sides and metal louvers for 40° x 40° shielding</p>
<p>B—same as type A except with 3 lamps</p>	<p>K—suspended, 2-lamp, direct-indirect unit with metal sides and metal louvers for 35° x 25° shielding</p>
<p>C—2-lamp recessed troffer, with Albalite glass diffuser</p>	<p>L—suspended, 2-lamp, direct-indirect unit with ribbed glass sides and metal egg-crate louvers for 40° x 40° shielding</p>
<p>D—same as type C except with 3 lamps</p>	<p>M—1-lamp recessed deep parabolic troffer with aluminum cross louvers 6 in. o-c. This type of fixture is suitable for installation at close spacing only and is so considered in the chart</p>
<p>E—2-lamp recessed troffer, with low brightness glass diffuser</p>	<p>N—luminous ceiling of diffusing corrugated plastic</p>
<p>F—same as type E except with 3 lamps</p>	<p>O—louvered ceiling with 2 in. x 2 in. x 2 in. cells, white steel louver</p>
<p>G—2-lamp recessed troffer, 2 ft x 4 ft, with egg-crate louver for 35° x 35° shielding</p>	
<p>H—same as type G except with 3 lamps</p>	
<p>I—two type M fixtures side by side, forming 2 ft x 4 ft, 2-lamp recessed double parabolic troffer</p>	

NOTES

1. All fixtures are 1 ft x 4 ft except where indicated.
2. For types J, K and L fixtures: assumed ceiling height—9 ft 6 in. fixture mounting height, 8 ft 0 in. For types N and O: assumed ceiling height—9 ft 0 in. Distance lamp to ceiling is 16 in. for 2 ft spacing, 24 in. for 3 ft spacing and 32 in. for 4 ft spacing.

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"Commonwealth
Promenade Apartments"
Chicago, Illinois

Ludwig Mies van der Rohe
(Friedman, Alschuler &
Sincere, Associated)
Architect

Frank J. Kornacker
Structural Engineer

Herbert S. Greenwald
General Contractor

Sumner Sollitt Company
Subcontractor

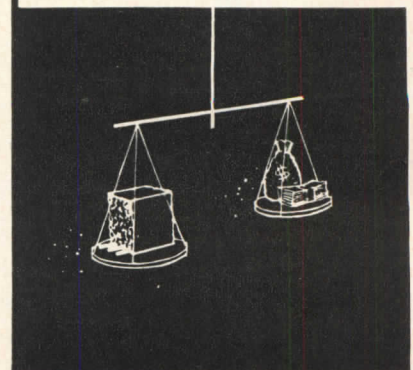


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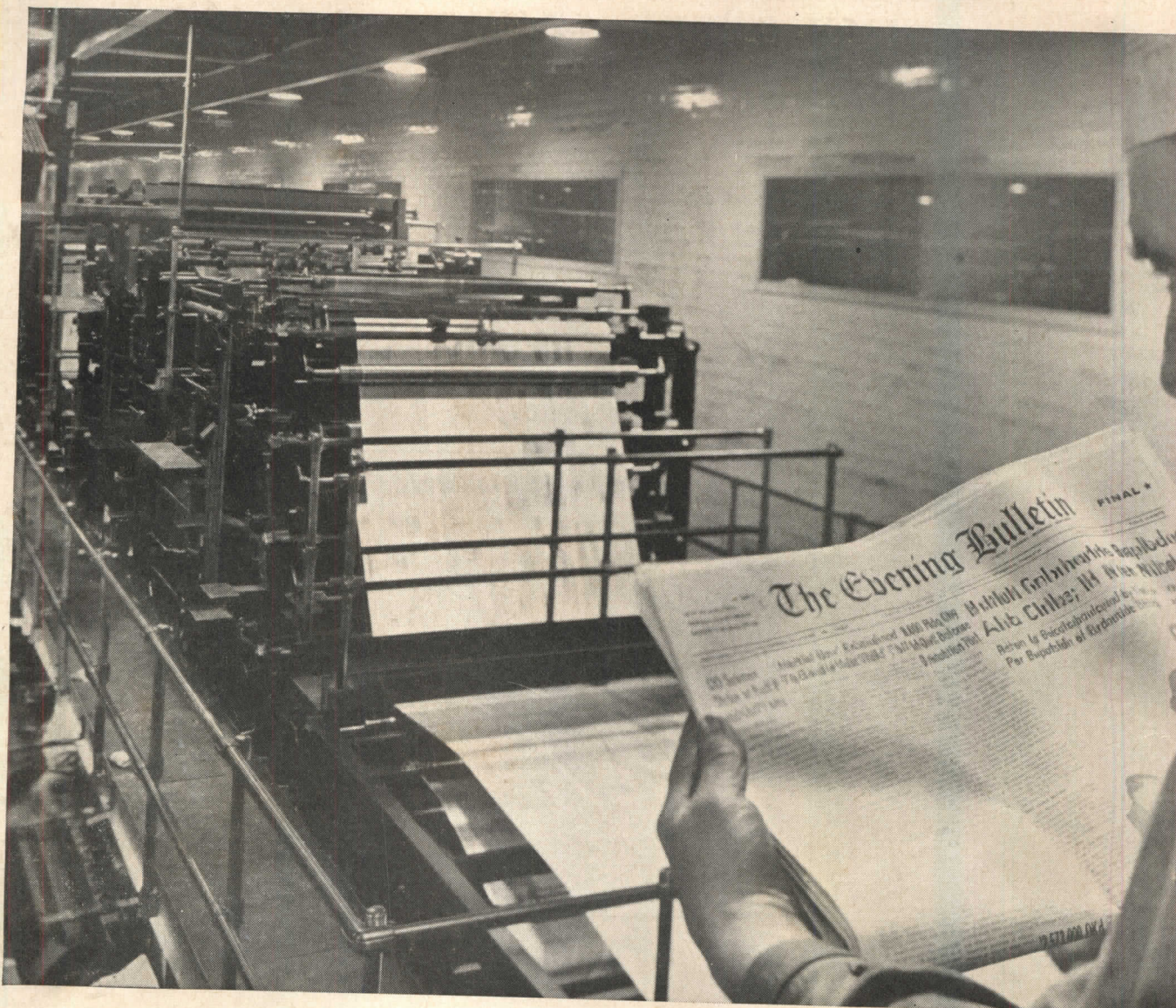




FLUORESCENT LIGHTING FOR LARGE AREAS — 2: Guide to Fixture Selection

By K. Steve Rasiej, Syska & Hennessy, Inc., Consulting Engineers

	FIXTURE TYPE	5 FT					VCI	7 FT					VCI	9 FT					VCI						
		AVERAGE FT-C WATTS/SQ FT	FT-C/WATTS/SQ FT	INSTALL. COST	LENGTHWISE	CROSSWISE		AVERAGE FT-C WATTS/SQ FT	FT-C/WATTS/SQ FT	INSTALL. COST	LENGTHWISE	CROSSWISE		AVERAGE FT-C WATTS/SQ FT	FT-C/WATTS/SQ FT	INSTALL. COST	LENGTHWISE	CROSSWISE							
INDIVIDUAL FIXTURES RECESSED	A	43	2.5	17.1	1.23	70	68	31	1.8	17.1	.88	78	76	25	1.4	17.1	.63	82	80						
	B	62	3.8	16.5	1.60	47	45	44	2.7	16.5	1.09	52	50	35	2.1	16.5	.92	55	53						
	C	46	2.5	18.1	1.31	75	75	33	1.8	18.1	.94	81	81	26	1.4	18.1	.75	85	85						
	D	62	3.8	16.5	1.64	47	47	44	2.7	16.5	1.17	52	52	35	2.1	16.5	.94	55	55						
	E	48	2.5	19.1	1.51	81	83	34	1.8	19.1	1.08	84	86	27	1.4	19.1	.86	86	88						
	F	64	3.8	17.1	1.85	64	66	46	2.7	17.1	1.32	70	72	37	2.1	17.1	1.05	72	74						
	G	51	2.5	20.2	1.67	80	85	36	1.8	20.2	1.20	84	89	29	1.4	20.2	.95	87	91						
	H	72	3.8	19.4	2.00	67	68	52	2.7	19.4	1.42	71	72	41	2.1	19.4	1.14	74	76						
	I	50	2.5	19.8	2.64	82	97	35	1.8	19.8	1.86	84	97	28	1.4	19.8	1.51	86	97						
SUSPENDED	J	45	2.5	17.8	.92	97	97	32	1.8	17.8	.66	97	97	26	1.4	17.8	.54	97	97						
	K	46	2.5	18.2	.88	91	82	33	1.8	18.2	.63	92	83	27	1.4	18.2	.51	93	94						
	L	45	2.5	17.8	1.40	94	84	32	1.8	17.8	1.01	96	86	26	1.4	17.8	.82	97	87						
CONTINUOUS FIXTURE ROWS RECESSED	A	77	4.5	17.1	1.75	53	51	55	3.2	17.1	1.25	65	63	45	2.6	17.1	1.00	67	65						
	B	111	6.7	16.5	2.32	35	33	79	4.8	16.5	1.61	43	41	63	3.9	16.5	1.33	45	43						
	C	82	4.5	18.1	1.87	57	57	59	3.2	18.1	1.34	68	68	47	2.6	18.1	1.07	72	72						
	D	111	6.7	16.5	2.38	35	35	79	4.8	16.5	1.70	43	43	63	3.9	16.5	1.37	45	45						
	E	86	4.5	19.1	2.10	75	77	61	3.2	19.1	1.57	78	81	49	2.6	19.1	1.26	81	83						
	F	115	6.7	17.1	2.70	54	55	82	4.8	17.1	1.93	58	60	66	3.9	17.1	1.55	64	66						
	G	91	4.5	20.2	2.42	64	69	65	3.2	20.2	1.73	75	80	52	2.6	20.2	1.39	76	81						
	H	130	6.7	19.4	2.94	55	58	93	4.8	19.4	2.10	63	65	74	3.9	19.4	1.68	65	67						
	I	89	4.5	19.8	3.85	74	96	64	3.2	19.8	2.78	80	97	51	2.6	19.8	2.21	82	97						
SUSPENDED	J	80	4.5	17.8	1.44	94	94	57	3.2	17.8	1.03	96	96	46	2.6	17.8	.82	97	97						
	K	82	4.5	18.2	1.37	85	76	58	3.2	18.2	.98	88	79	47	2.6	18.2	.78	90	81						
	L	80	4.5	17.8	2.20	87	77	57	3.2	17.8	1.57	91	81	46	2.6	17.8	1.25	93	83						
	M																								
RECESSED																									
CONTINUOUS LAMPS LUMINOUS CEILINGS																									
	N	96	6.1	15.7	3.05	69	69	68	4.3	15.7	2.42	83	83	51	3.2	15.7	2.10	90	90						
	O	75	6.1	12.3	4.51	97	97	53	4.3	12.3	3.88	97	97	40	3.2	12.3	3.57	97	97						



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