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Journal

OF THE AMERICAN INSTITUTE OF ARCHITECTS

May 1961



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Crisis in Egypt • Preserving the American Tradition • Temporary Agreements • Airports

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The Climatron, first American building to win the R. S. Reynolds Memorial Award. Designed by Joseph D. Murphy and Eugene J. Mackey of the St. Louis architectural firm of Murphy and Mackey, the Climatron houses the tropical collection of the Missouri Botanical Garden in St. Louis. Cover photo is by Hedrich-Blessing.



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Letters

The MIT Seminars

EDITOR, *AIA Journal*:

"A Report on the MIT Seminar" by Sibyl Moholy-Nagy in the October *Journal* seems to me only a partial report and an unfair one. There is a tendency to write down or overlook the really strong points of the week. It conveys a general mood of disappointment, which I think applied more particularly to her.

To site only one example, she says, "There was strong regret that the tours of Wellesley and Brandeis were not followed up with a full session of criticism." Perhaps she means she was sorry not to be able to attend Lawrence Anderson's evening seminar, which directly followed the tours. That was certainly one of the outstanding sessions of the week, diminished only by the lack of a contribution which she herself could have made to it.

She feels that some of the meetings were inconclusive, which indeed they were. The very nature of the offering did not lend itself to specific conclusions and dissenting minority reports. Professor Bush-Brown exposed us to a variety of points of view, and we could make them what we would. Some of us talked, some argued and some just took them home for the reflection which they deserved.

I am very grateful to MIT (Men in Thought?) for making this possible, and hope that a precedent has been established.

ROCKWELL K. DUMOULIN, Head
Department of Architecture
Rhode Island School of Design

EDITOR, *AIA Journal*:

I have the highest praise for Albert Bush-Brown who conceived, organized and directed the MIT Seminar in Theory and Criticism in Architecture and Planning. The brochure announcing this special summer program described it as follows: "Intended for practicing architects and city planners, as well as for critics, historians and teachers, the Seminar will explore the formal, social and technological objectives of modern design." I feel that it fulfilled these specifications to the letter. We were in fact just such a group and the series of lectures, discussions, architectural tours, and design explanations did in fact comprise a thorough exploration of the many facets of contemporary design. The presentation of such a bill of fare from many individual points of view and on

a highly professional post-graduate level, was a real challenge to us the students; it forced each of us to do his own classification, coordination and evaluation. Only in this way could we digest the host of ideas and principles presented to us in almost kaleidoscopic array; and the digestive process is, I suspect, still going on for many of us. Hence the continuing benefits from our investment.

This stimulating experience forced us to clear away prejudices and preconceived notions in order to follow each speaker through the labyrinth of theory and criticism. Only in this way could we emerge with any degree of clarity in our own understanding of "the measures of architecture—social, structural and formal." For those who of the end result are to be gauged, not so much by what we were given, but by what we did with it.

JOHN A. RUSSELL, Director
School of Architecture
University of Manitoba

EDITOR, *AIA Journal*:

Ah, Sibyl, thy Delphic hills delight,
And words portentous have we known from thy
fair lips.
But—hark!—dear Sibyl, make not this thy light
That praise be muffled in thy spate of scorn.

G. E. KIDDER SMITH, FAIA
New York City

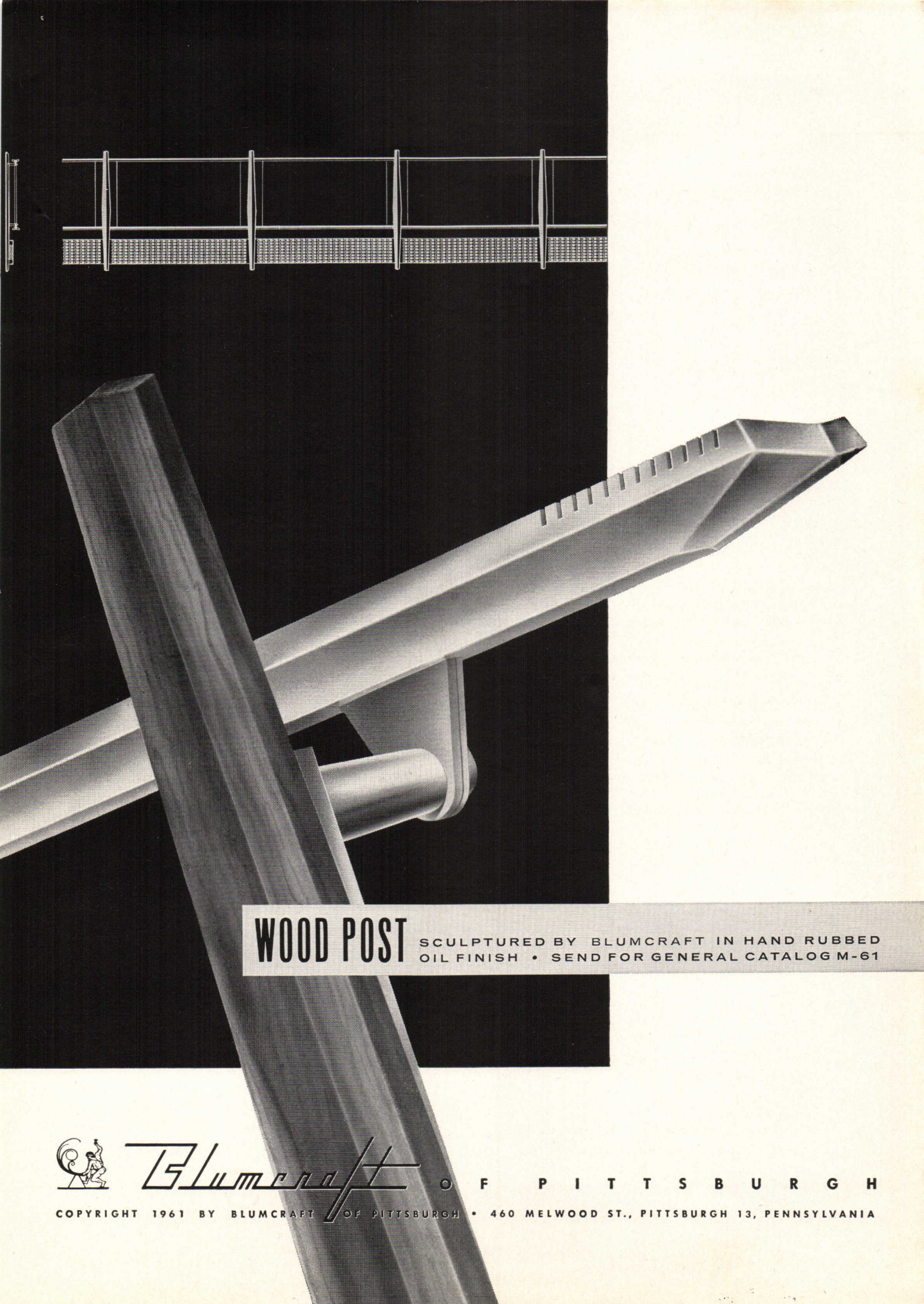
EDITOR, *AIA Journal*:

After reading Sibyl Moholy-Nagy's critical article entitled "A Report on the MIT Seminar: Theory and Criticism in Architecture and City Planning" in the October issue of the *AIA Journal*, I found myself dismayed at the way she depicted the project and the impression she conveyed that it was an expensive, not too worthwhile week.

Admittedly there were a few lulls in the seminar, but these points were low only by comparison with the many high points. Also, the lectures that were of lesser interest to some were undoubtedly of more interest to others. I did not feel that the rather severe criticism of the lecturers in the fields allied with architecture was justified. Mrs Moholy-Nagy implied that they were not sufficiently specific in their conclusions and recommendations. Personally, I prefer the approach wherein the background material and basic information is presented and the listener is left to draw his own conclusions.

The suggestion to cut the speakers to one-third the number would, in my opinion, result in loss of much of the variety and richness of the session. The participants were mature men and women

(Continued on p. 10)



WOOD POST

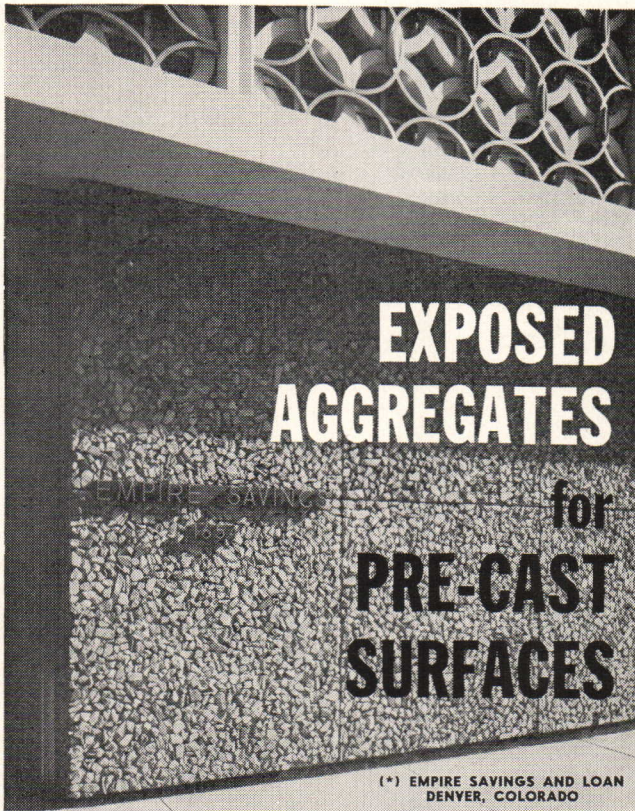
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who were able to assimilate this rich diet, rather than freshman students who should be spoon-fed one new idea at a time.

The article also emphasizes the lack of discussion by those who attended the seminar. This ignores the mingling of practitioners and teachers and the many discussions they had at meals, during off hours, and in dormitory rooms far into the night analyzing the material presented. Perhaps Sibyl Moholy-Nagy did not participate in these informal sessions, did not realize they existed, or thought them of little value. Incidentally, during the evening session after the tour of the Wellesley and Brandeis campuses, a spirited discussion of the architecture and campus planning of these two schools was led by Lawrence Anderson.

For me, the seminar was very valuable and enlightening. It brought together the practitioner and the teacher to consider their separate approaches to a common goal, and gave them a wide range of concepts and ideas to aid them in assessing this goal.

JOHN N. DEHAAS, JR
Associate Professor
School of Architecture
Montana State College

Urban Design

EDITOR, *Journal of the AIA*:

The Urban Design issue is a meaningful literary contribution to the motivation of architecture toward its proper larger responsibilities so well stated in President Will's "Mission of the Profession." This era presents the big scene for architects to mold. The comprehensive text you offer will stimulate many. You have here a significant issue.

Architects are understandably thrilled by large scale concepts but many are neither trained or experienced in the mechanics of organizing a planning job. An added service of pertinent value would be in the area of the actual mechanics of practical implementation of urban planning concepts, including information on the related steps in the actual planning process, legal, political and administrative controls, expert aids, etc. Architects should be encouraged to take graduate courses in planning.

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Architectural Tours 1961

Five tours planned specially for architects have come to our attention this year. None of these is in any way sponsored or promoted by the Institute, but we are glad to pass the information on to members.

The first one, unfortunately, we cannot give advance notice on, for by the time this issue of the *Journal* appears it will be already on its way. Thomas H. Creighton, FAIA, Editor of *Progressive Architecture*, is leading a post-convention tour to Paris, Berlin, Warsaw, Moscow, Helsinki, Stockholm and Copenhagen. (24 days, \$1875 from New York)

The next is a post-UIA Congress tour, intended for American architects attending the Congress in London July 3-7, but others may join it, of course. This tour leaves from London July 11th in two sections, one headed for Scandinavia and the other for Italy, meeting in Zurich July 22nd for a "Corbusier tour" which ends in Paris on the 27th. This is followed by a four-day tour to Holland if desired. The emphasis throughout these tours will be on contemporary architecture, city and regional planning. Costs vary according to the optional tours chosen. For further information write Arne Sorenson, Director, European Travelling Seminar, 2639 I Street, Washington 7, D. C.

On September 3rd a tour led by Joseph Watterson, FAIA, Editor of the *AIA Journal*, takes off for London, Amsterdam, Vienna, Venice, Florence, Rome, Milan and Paris. Stays at the major cities will be long enough to permit two- or three-day bus trips to nearby cities and the surrounding countryside. Not a specialized tour, it has been carefully planned to include the ancient—Salisbury, Melk on the Danube, Ostia Antica and Chartres, and the modern—British "new towns," Rotterdam, Pirelli Building and Unesco Headquarters. (31 days, \$1180 from New York) For information write Travel Abroad, Inc, 550 Fifth Avenue, New York 36, N.Y.

During September, and again during January 1962, there will be a Mexican tour including visits to San Miguel Allende, Oaxaca, Cuernavaca, Taxco and Mexico City, viewing ancient and contemporary architecture. The tour is planned in cooperation with Sociedad Arquitectos Mexicanos. (14 days, no price announced) For information write T. H. Hewitt, 2413 Driscoll, Houston 19, Texas.

The 7th Annual Architecture and Gardens Tour of Japan, under the direction of Kenneth M. Nishimoto, AIA, will leave Los Angeles on Oc-

tober 6th. The tour will visit all buildings of architectural significance and gardens old and new. There will be pre-arranged conferences with Japanese architects. A special post-tour option will travel through the little-visited "backside" of Japan. (22 days, \$1660 from Los Angeles) For information write Kenneth M. Nishimoto, AIA, 263 S. Los Robles Ave., Pasadena, Calif.

Journalism Awards

Shirley A. Wiitanen, of the *South Bend (Ind.) Tribune*, and Allan Temko, of Berkeley, Calif., writing in *Harper's magazine*, are winners of the twin \$500 first prizes in The American Institute of Architects' Eighth Annual Journalism Awards Competition.

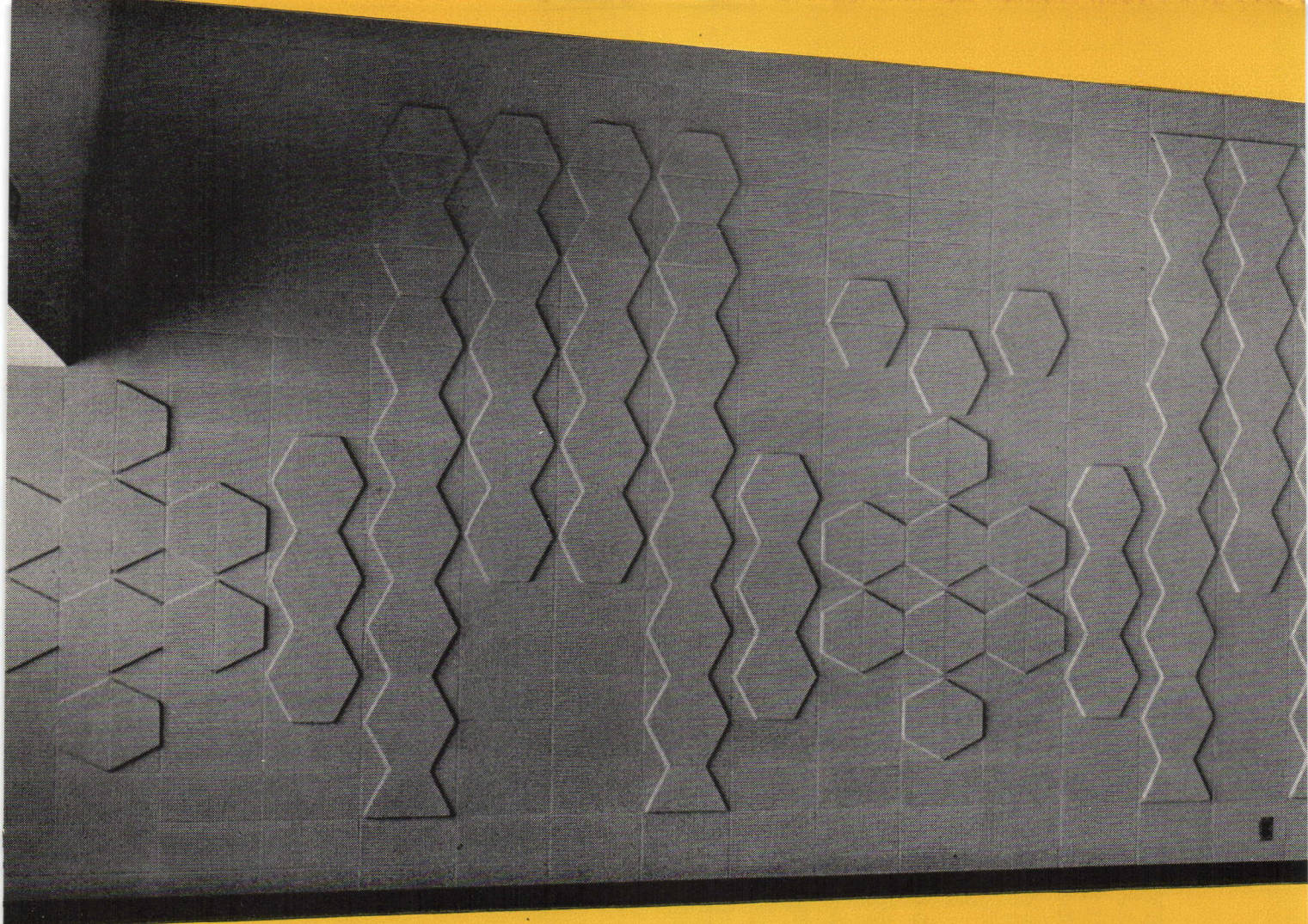
Miss Wiitanen won first prize in the newspaper class for her article "US Churches Approach Golden Age," in the *South Bend Tribune*. Mr Temko, who contributed the fourth article in *Harper's* series on building in America, was awarded first prize for this submission in the magazine competition.

Second prizes of \$250 each went to George McCue for his series of eight articles published in the *St. Louis Post Dispatch*, and to Walter McQuade for his series of articles in *The Nation*. McCue presented a comprehensive and long-range view of St. Louis and its architectural problems.

The AIA Journalism Awards Jury also awarded Honorable Mentions to: *Time* magazine, for the continuing interest displayed in architecture, both in its stories and its illustrations; Thomas W. Ennis, for two real estate section features in *The New York Times*; Alexander Fried, Music and Art Editor of the *San Francisco Examiner*, for a commendable demonstration of how the columns of a newspaper can be used to offer detail; Robert J. Lewis, of *The Washington Star*, for two series of articles which constitute an admirable example of the kind of service a real estate editor can perform in the coverage of current city development problems to create an informed public.

Serving on the Award Jury were Miss Jeanne M. Davern, Assistant to the Editor of *Architectural Record*; James Truitt, Special Assistant to the Publisher, *Washington Post & Times Herald*; and Byron C. Bloomfield, AIA, Executive Director, Modular Building Standards Association.

The \$1,500 annual awards program was established in 1953 to recognize and encourage writing that will further public understanding of architecture and the architect. In addition to cash awards, Certificates of Merit will be given awardees and the publications in which their work appeared. Presentations will be made by the AIA chapter in the locality of the publication.



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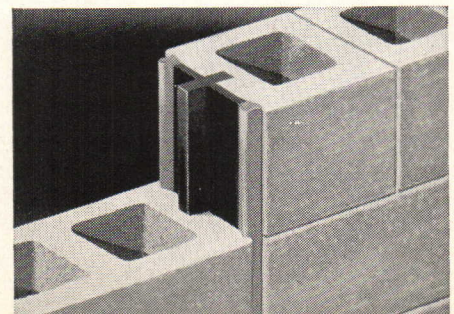
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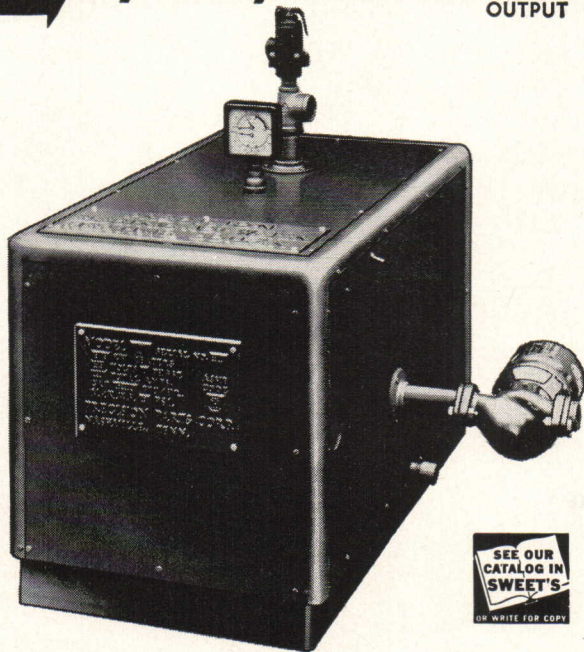
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News (Continued)

Famed Boston Atelier in Drive

The Boston Architectural Center, long a rallying point for members of the profession in New England, has fallen victim to the city's urban renewal program. The gracious eighteenth-century building atop Beacon Hill, which has served as the Center's home for over half a century, will be torn down in June to make way for Boston's new Civic Center. A Committee to raise the money needed for new facilities has been formed; Joseph P. Richardson, of Shepley, Bulfinch, Richardson & Abbott, is Executive Chairman.

Sponsor of a number of activities, the Center is probably best known for its night classes in architecture. Here the talented young man or woman, employed during the daytime in architecture or one of the allied arts, is given the opportunity to pursue an advanced architectural education for a purely nominal fee. The five-year course, oriented toward the art as well as the science of architecture, seeks to develop good architects rather than merely good craftsmen. It is supported generously by the architects and schools of Greater Boston, both in terms of money to run the Center and in time donated as instructors and critics.

Founded in 1883 by a group of Boston architects who were imbued with the Beaux Arts spirit, the Center today is believed to be the last of the privately-supported ateliers which once flourished in many metropolitan centers. In this school many of the outstanding architects of the country were trained. Here, the first sparks of such past masters as Henry Bacon, Harold Magonigle, Frederick Hiron and Otto Faelton were kindled. More recent graduates include Edward Stone, Louis Skidmore, Ralph Walker and Wallace Harrison. No less than forty-four Rotch Traveling Scholars have been alumni of the Boston Art Center.

New quarters have been located in a sturdy Victorian stable in Boston's Back Bay district, convenient to public transportation. The Committee is faced with the necessity of raising \$250,000 by June 1, in order to guarantee that the teaching work of the Center can go forward uninterrupted. Assistance is sought from the six hundred graduates of the Center whose whereabouts are known. Fully one hundred more are "lost" and it is hoped they will read in these columns the call of their Alma Mater. Architectural firms who benefit from this source of trained personnel are also being approached, as well as leading contractors in the area.

those who submitted plans for the national Capitol; it also led him to disagree with gentleman-architects like Jefferson who too frequently fell victim to copying classic forms.

Latrobe's contribution appears in many buildings of which three examples will suffice. In Center Square, Philadelphia, in 1799, he built an engine house for the pumps that raised water from the Schuylkill River. The building had a parallelepiped base that supported a tall cylinder terminated by a low dome. Its basic conformation was similar to Ledoux's Barrière at Paris. Like the French building, its proportions, emphatically unclassical, were tall at the top and low at the base. No blending ameliorated the abrupt junctions of the strong geometrical parts. The building announced the architect's intention to utilize classical elements, like columns, within pure geometric forms, to keep the buildings simple in silhouette and allow use to be the major determinant in the composition. "I would never put a cupola on any spherical dome. It is not the ornament, it is the use I want," he once wrote.

Latrobe's attempt at developing an American architecture with classical elements composed in a useful, rational exposition of spaces was rapidly submerged after 1825. Romanticism and formalism of the kind Jefferson displayed at Monticello and the University of Virginia swamped rationalism.

Rather than work out new buildings within a single renaissance tradition, as the Georgian builders had, the new generation followed the lead of the amateur. They took their architectural ideas from many sources, plunging into eclecticism for the first if not the last time. The whole encyclopedic history of architecture became a possible mine for American buildings. In 1829 the *American Quarterly Review* devoted forty pages of its March issue to Egyptian architecture. The *American Monthly Magazine* for April, 1835, contained an editorial, "Architectural Designs," which was a savage attack upon Town and Davis's design for the New York Customs House, an "utterly monstrous and barbarous" sin, combining a dome with the temple form of a Greek Parthenon or Thesion (Hephais-taion). The demand was for copying, and for correctness. The editorial praised Haviland's Egyptian prison at New York, the morbid "Tombs." In 1844, Arthur Gilman reviewed Edward Shaw's *Rural Architecture*. He expressed keen dislike for both Greek and Gothic forms in America, but admired the simpler colonial churches and Georgian houses. He advised architects to seize upon Renaissance styles and

develop them further. His own approach was fully eclectic: His Arlington Street Unitarian Church in Boston, he said, was based on the English Renaissance of Gibbs on the exterior, while its interior was inspired by the Santa Annunziata at Genoa. Americans now built villas modeled after Tuscan country houses and Chinese temples; from Asia, Indian sources were invoked, too, as at Armsmere and at P. T. Barnum's Iranistan near Bridgeport, Connecticut. Barnum said he hoped to repeat in America the success scored by King George's Brighton Pavilion but in the end Iranistan was not a copy. Instead, it was an American country house with a square central block and balanced wings but it was all bedecked with bulbous domes and exotic minarets. Easily seen from the New Haven railroad trains, it was an early example of American architectural advertising from 1848 when it was built to 1857 when it burned down. All this was, it must be said, not merely an American extravaganza. Again the Europeans were leading the way and with more *brio*. Now the lead was notably English again and the pipers to this architectural masque played even more boldly and of course much earlier in the motherland.

Associationalism spawned many progeny. It bred sphinxes and ziggurats and produced an Egyptian hospital in Richmond, Virginia; it put Chinese temples in rural New York and artificially ruined castles in a St. Louis park. It might lead to a careless or a careful Gothic revival. But it could also lead back to a tender reconsideration of Greece and Rome. One of our finest architectural residues, the products of the Classic Revival, must thus be numbered among the offspring of associationalism.

No style since the Georgian captured American hearts more fully than the classical, especially the Greek Revival. When they were permitted to do so, professional architects used Greek architectural elements, but applied them to modern practical plans. Scale and workmanship were often exquisite; the best results may vie with the best Georgian as America's finest effort to date. A Greek Revival town is a fine and handsome assembly of stately colonnades and well-turned building masses. One can catch glimpses of this civic beauty at Nantucket, where the whaling captains built Greek Revival houses, churches, banks and libraries in 1840-1860. The style moved westward to grace Saratoga Springs and Ovid in New York, Dayton, Ravenna and Newark in Ohio, Detroit and Chicago; it moved south to Frankfort, Kentucky, to Tuscaloosa, Alabama, and Athens, Georgia. The buildings in those

towns were not reproductions of white Greek or Roman buildings; at most their porticoes or cornices were copies; but largely they should be regarded first in terms of their plans and sections, where the results were practical and graceful, and then in terms of their details whose refinement was frequently original as in Mills's Customs House at New Bedford or the church at Wickford, Rhode Island. . . .

It is exciting and pleasurable to follow the course of the Greek Revival as it moved across the land until one meets the pathos of it as it dried up in the plains.

[A section on Gothic Revival appearing in the book is omitted here.]

Beginning with buildings like Hugh Reinagle's masonic hall in Broadway, started in 1826, the American landscape had long supported a weird collection of foreign visitors. But now the floodgates of eclecticism opened wide. There were picturesque Gothic rural villas like Upjohn's Edward King House at Newport of 1845. Stranger still was Wilson's Moorish temple on Plum Street in Cincinnati, complete with minarets, serving ironically as a Jewish temple, and a prime illustration of the fact that there was no Jewish-American architectural tradition (and there still is none). A church at Sag Harbor, Long Island, erected in 1844, was Egyptian, designed by Minard Lafever whose crude archeological notions led him to suppose it recalled the Temple of Solomon. Alexander Jackson Davis's Pauper Lunatic Asylum on Blackwell's Island, New York, presaged more Italianate developments, like Notman's "prospect" at Princeton and later villas by Davis, including the Litchfield House in Prospect Park of 1853-1854. At Washington, the National Soldiers' Home of 1851 was a foretaste of Ruskinian Gothic. It was a time of the Roman and Tuscan villa, the Lombard church, the Roman of Pliny and Palmyra, Vitruvian, Norman, American form or country house, suburban Greek, Regency Moorish and the Byzantine cottage. If we rely solely upon the names they assigned their work, we shall miss seeing that architects accomplished more than novelty of effect. They also apportioned spaces rationally and freed planning and silhouettes from the limitations of strict Greek and Gothic forms. One could notice this in the creative though eclectic work of architects like Detlef Lienau, whose

commercial buildings like the Noel and Saurel Warehouses in New York, of 1864-1865, stem from the eclectic architectural tradition that developed strongly in the '40s; underlying his use of picturesque forms like the mansard roof on the Schermerhorn House of 1859 was the strong insistence upon adaptation to use which eclecticism sometimes fostered when it was not mere façadism.

It did not seem to occur to many designers that the new plans and performances might yield their own new appearance. We need raise no eyebrows at this. It was natural for the men of a society which liked to adorn its steam engines and machines with fluted Ionic columns in iron, carefully placed where they would not interfere with the practical workings. It was a sincere, if inept, search for something good-looking, no less sincere than the flight to streamlining three quarters of a century later. There were some voices speaking the other way. In *Hints on Public Architecture*, an account of the eclectic Smithsonian Institution at Washington, Robert D. Owen advanced the view that "in planning any edifice, public or private, we ought to begin *from within*; that we should just suffer the specific wants and conveniences demanded . . . and then adjust . . . its architecture . . . to the individual form." But at the same time he praised the elevations of Renwick's Smithsonian building, which were Lombard Romanesque, for reflecting the plan and he did not doubt that they were well adapted to America or to Washington in 1849.

In *Rural Architecture*, of 1852, Lewis F. Allen urged farmers to be as simple as they were alleged to be and "leave all this vanity to town-folk, who have nothing better—or who, at least, think they have—to amuse themselves." In *Village and Farm Cottages*, published in 1856, the authors, Cleaveland and Backus, gained the confidence of suspicious farmers by remarking about the Greek Revival that they hoped "this folly had its day."

It seemed to many that machines and clipper ships showed how strict adherence to utility might produce a beautiful architecture. James Russell Lowell, Samuel A. Eliot and Clarence Cook praised the new American ships about 1850, and Emerson, writing in *The Dial*, in 1840-1841, described how a tyrannical nature forces men's



A · I · A

Journal

The Climatron

*Missouri Botanical Gardens, St. Louis / Murphy and Mackey, Architects
Synergetics, Inc, Raleigh, N. C.; Dome Consultant / Paul Londe, St. Louis; Mechanical Engineer*

The 1961 R. S. Reynolds Memorial Award

► For the first time in its five-year existence, the internationally-coveted R. S. Reynolds Memorial Award has been conferred upon American architects. Murphy and Mackey were honored for their design of the Climatron, a display greenhouse in the Missouri Botanical Garden in St. Louis.

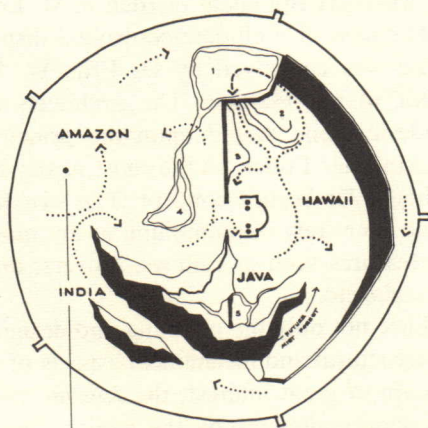
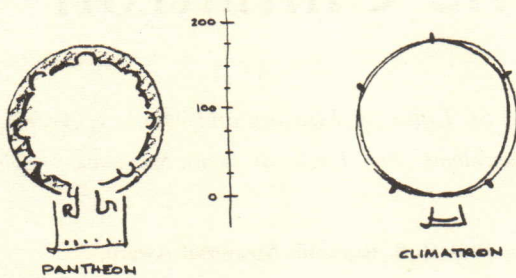
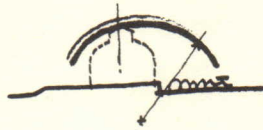
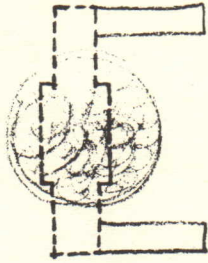
The idea of a climate-controlled display greenhouse was conceived by Dr Frits W. Went, Director of the Garden. The architects chose the geodesic dome, based upon the principles of R. Buckminster Fuller, as the most nearly ideal form to house Dr Went's concept. The structure of the dome is entirely of aluminum, as are most secondary features such as railings, louvers, ducts, heating coils, etc.

Since not only the planning and design, but also the structural and mechanical aspects of this problem are of great interest, the *Journal* presents the following comments by the owner, the architects and the engineers.

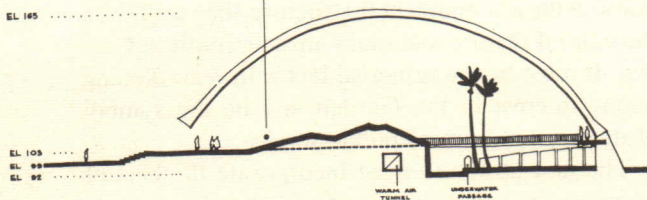
Owner's Statement

We required replacement of a large old greenhouse with a monumental structure that would be the central feature and main attraction of the Garden. It must be the principal factor in reawakening public interest in the Garden and be the symbol of its new program of public service.

The new structure must incorporate the best of advances in greenhouse performance. It must al-



CLIMATE CONTROLS



low plants of different environments to grow under nearly natural conditions. It must be a natural and attractive display area for the public and be useful to scientists for research purposes.

These requirements, among others, demanded a largely shadowless interior with very high light intensity and air control that would provide a tropical environment. Some means must be found to overcome the intense heat that quickly builds up in an enclosure penetrated by sun rays. Even with an air change every minute, temperatures in an unshaded greenhouse rise 5° to 10° F a minute.

The Climatron meets every requirement in a most satisfactory way and provides additional advantages and performances that we did not suggest or specify.

The plan for the Climatron creates the impression of mountains and valleys, allowing the creation of a very natural-seeming waterfall, and an unaffected entry and exit from a tunnel under the large pond, through which the public can observe water plants and fish in the water around them. The pond area gradually grades down to the lower level of the Climatron through a series of terraces planted with rice.

The first few months have shown an unprecedented amount of growth of the plants, partly because of the high light intensity, partly because of the air conditioning and partly because each plant can be located in that section of the Climatron of which the climate most closely coincides with its growth requirements.

The Climatron is not only used for public displays, but its air control makes it useful for research purposes, and plants can be grown in the different areas to study their climate response. In one sector of the Climatron both day and night temperatures are high, and a steaming Amazonian jungle, complete with bog and pond, is planted in it. "Little Hawaii" occupies another sector, with an oceanic climate with cool days and warm nights. Still another sector has the climatic conditions like those of the drier tropics and is used mainly for display of the cultivated tropical plants under the name of "India." The remaining sector with cool day and night temperatures will harbor a mountain mist forest of Java.

The dome shape permits a spectacular night lighting method. Along the inside periphery of the dome 110 1,000-watt incandescent lamps, shielded with reflectors, throw their light up against the skin. This light is reflected a thousandfold off the plexiglass panes and the aluminum framework, producing an even and pleasing illumination of the interior, while the Climatron glows like an incandescent globe from the outside.

A second lighting system is installed in the apex of the dome, consisting of 24 aluminum narrow





A portion of the tropical plant collection

angle spotlights, of which 20 throw an intense beam of light on a 60 x 80 feet ground area, simulating sunlight, and the other four bathe the opposite side of the Climatron in a soft blue moon-like light, reflecting from the large shiny leaves of the tropical plants. This "sun" rotates slowly, illuminating successively all parts of the periphery of the Climatron, and thus at night all plants can be observed in turn in strong light, bringing out the full color qualities of flowers and foliage.

Architect's Statement

The selection of a geodesic dome (after Buckminster Fuller) provided a "monumental structure" — about the diameter of the Pantheon — permitting solutions to all requirements.

It stands in striking contrast to the old-fashioned Palm House it replaced, as the principal feature of a series of improvements including smaller houses for other climates, new main entrance with parking, lecture hall, herbarium, administration and related services. The future plan also contemplates a fine new restaurant overlooking the principal landscape features of the 100-year-old Botanical Garden.

The enclosed space is completely free and is adequate for the future growth of tropical trees.

Climate Control

The unique requirements of climate control in an unshaded and unpartitioned greenhouse were resolved by designing two separate systems.

Since both the heating through radiation during the day and the cooling through heat conduction in the dome liner at night are continuous, an even gradient without partitions inside the structure is achieved, producing gradually-varying climates . . . and suggested the name Climatron.

Jury's Statement

Jury: Minoru Yamasaki, FAIA, Chairman; Paul Thiry, FAIA; Hugh A. Stubbins, Jr, FAIA; Dean Samuel T. Hurst, AIA; Henrique E. Mindlin, Honorary FAIA, of Rio de Janeiro.

A beautiful and refined version of one of the oldest architectural forms, this application of the geodesic dome principles of R. Buckminster Fuller is sensitively executed and strikingly appropriate to its purpose. The climate-controlled space is contained by a lacy structural network with a minimum of obstruction of the sky. Lightly posed on five points, spanning approximately 175 feet, it is about the size of the Pantheon in Rome. The uncontrived details exploit the inherent qualities of aluminum and are well refined. Although there is a minimum feeling of enclosure from the inside, the exterior is nevertheless a clear statement of form, uncluttered by additional appurtenances. By raising the dome off the ground, a hovering quality is attained which presages the feeling of lightness experienced inside.

The gardens and waterfall, disposed on two levels, appear exceptionally well designed and contribute significantly to the success of the project.

The tropical lyricism of the botanical displays seems so successfully carried out by the architects of this structure that it must be a marvelous experience for the visitor to enter this great space.

The Jury was unanimous in its selection of this architectural achievement.

Description of Mechanical System

The problem in the design of the Climatron was to achieve tropical and semitropical climates with different temperatures and humidities in particular areas to vary differently with night and day.

The system as designed consists of two major functions: Ventilation and evaporative cooling; heating.

Ventilation and Evaporative Cooling System

1 The air enters the west end of the Climatron at the lower level and will successively pass through the following:

- a Modulating dampers controlled by a ther-



Exterior of the Climatron—"A marvelous experience for the visitor"

mostat in the entry air stream which will determine the quantity of air that will be drawn into the Climatron.

b Fine spray nozzles which will create mists of water that will be absorbed by the entering air.

c Flooding spray nozzles which will drop sheets of water thru which the entering air must travel to approach more complete saturation.

d Nylon eliminator screen saturated with water will diminish water carryover. That is it will stop and absorb the large drops of water which will be suspended in the air stream.

2 The air entering the Climatron will be very nearly saturated with water and in the process of absorbing water the temperature of the air will be lowered. In the summer this will result in an air temperature of 80° F.D.B. and 85% R.H.

In its journey through the dome the air will gain heat and lose moisture. Heat gains will occur due to the—

- a Solar radiation of the sun.
- b Conduction due to the higher temperature on the exterior of the skin.
- c Heat emission of motors and equipment.
- d Heat emission from human occupants.

e Infiltration of outside air through doors, etc. Some moisture will be absorbed by the plants.

3 As a result of gaining heat moisture the conditions of the air exhausted from the dome will be approximately 90° F. and 70% R.H.

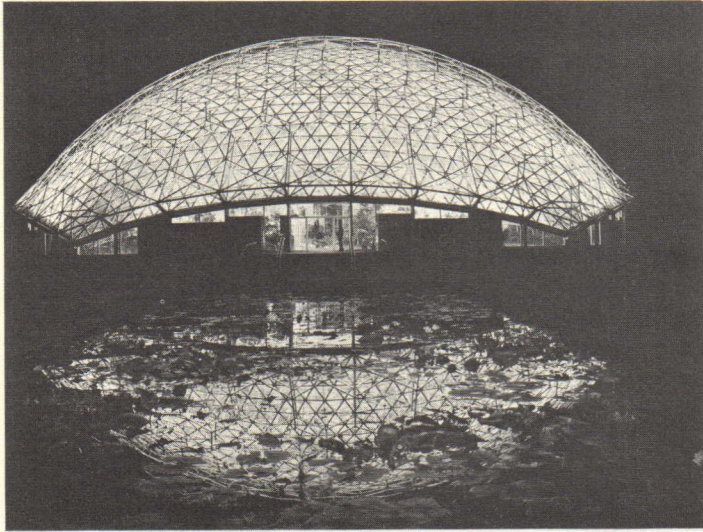
Therefore, it can readily be seen that there will be a gradient of temperatures and humidities in the path of the air from the entry at the west end to the exhaust at the east end.

4 During summer operation there will be air moving capacities capable of changing the air every two minutes.

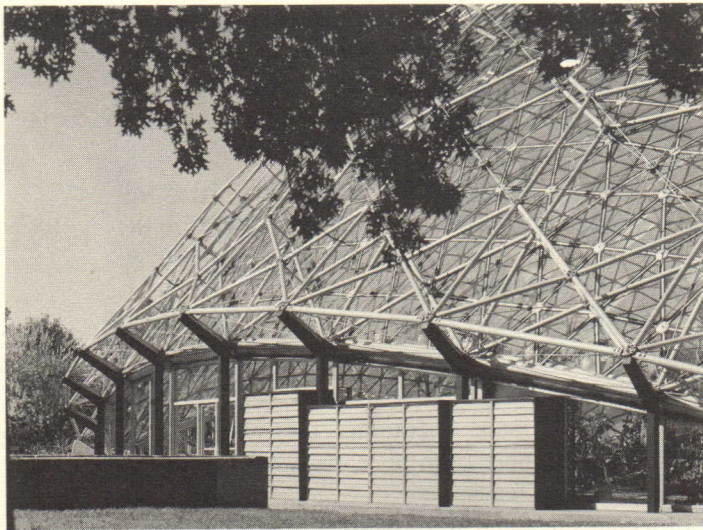
5 During winter operations the air may be changed anywhere from once every thirty minutes to once every ten minutes.

In winter the water introduced through the sprays will be heated so that the conditions leaving the sprays will approximate 79° F.D.B. and 85% R.H.

6 The temperature gradient from entry to exhaust occurs in the plan of the Climatron across approximately five paths. The intake dampers at the west end are constructed in three separately controlled sections. The conditions of the air thru these damper sections can be varied independently.



"Like an incandescent globe"



"A clear statement of form"

The air entering the three damper spray assembly will then be discharged through five banks of separately controlled exhaust fans at the east end. The quantity of air exhausted from each bank of exhaust fans will be varied by its respective thermostat. This results in roughly five paths of temperature and humidity gradients with an infinite combination of air flows to provide varying temperatures and humidities throughout the Climatron.

Heating System

In the winter when the sky is hazy the Climatron will lose heat to the exterior. To overcome this heat loss, and to simulate the heat gains experienced in the summer, and to create the required temperature gradient a heating system was oriented from south to north.

1 The major components of the heating system are the:

- a Blowers
- b Modulating steam heating coils
- c Steam spray humidifiers

2 The air path is from return air openings at the north end of the dome through mod. R. A. dampers functioning with fresh air dampers to result in a predetermined air temperature entering the main blowers. It will then be delivered through heating coils and steam spray humidifiers where the temperature and humidity will be *increased*. Through an air tunnel (and here we took advantage of an existing tunnel) the air will be delivered at the *south* end of the Dome.

3 A thermostat at the south end of the Climatron will control the temperature of the air delivered at the south end by modulating the temperature of the heating coil.

A thermostat at the north end of the Climatron will vary the amount of air the heating system will handle by varying the position of the fan inlet vanes. This will control the temperature gradient of the heating system from south to north.

4 Therefore, not only is there the facility to vary temperature gradients from west to east, but also from south to north.

In Conclusion

1 The general climate conditions can be separated in gradients.

The possibilities are infinite and completely flexible.

2 It is possible to achieve greater flexibility and obtain steeper temperature gradients by:

- a Adding refrigeration to the heating system
- b Adding chilled water through the nozzles
- c Install special filtering devices
- d Install catalytic burners ◀

The Architecture of America

by **John Burchard**
and **Albert Bush-Brown**

► When Mrs Trollope arrived in America in December 1827 it did not take her long to conclude that we were harbingers of a decaying European civilization. Many of the inferior details Mrs Trollope saw justified such a conclusion. It could be said even of Philadelphia. But if one looked beyond the façades which might please Jefferson if Roman, and Henry Cleveland if Gothic, one could observe that most of the buildings were constructed upon utilitarian plans in the shape of L's, H's, or T's, all quite innocent of Greek or Roman or Gothic precedent. Even Robert Mills's buildings, clumsy as they often were in proportion or detail, were bold compositions of serviceable, sometimes heavy, geometric elements; they lent conviction to his advice, "Go not to the old world for your examples . . . it is our destiny to lead, not to be led." By 1860 American clipper ships, machinery, and even a few buildings like the Astor House in New York and the Tremont House in Boston, hotels by Isaiah Rogers, encouraged a young architect, James E. Cabot, to believe Emerson's self-reliant rationalism and naturalism; to deny the copying of the Greek or the Gothic; to assert that beauty, convenience, grandeur, and "quaint expression" were as possible in the American as in any nation. If the American artist would only recognize that "All good architecture must be the gradual growth of its country and its age," then we might obtain houses whose "beauty must grow as naturally from their use as the flower from its stem."

The evidence for such a hope was not often clear. Charles Dickens did declare his amazement at the sumptuous galleries, colonnades, piazzas and passageways when he visited Boston's Tremont House in 1842; yet he hastened to add that Boston was special, that America was not often so refined.

Thus he was not nearly so pleasant about the national capital, which all Europeans and many

We present herewith part two of the years 1800 to 1860 as condensed from "The Architecture of America"* by John Ely Burchard, Dean of the School of Humanities and Social Science, MIT, and Albert Bush-Brown, Associate Professor, Department of Architecture and Planning, MIT. The book has been published by Little, Brown & Company. Part I appeared in the April issue

Americans agreed was a mess, despite its pretensions. Though it later became America's best tribute to monumental urban design, Washington was nearly ruined by abuse in the period before the Civil War. The term "magnificent distances" was used in scorn. Abigail Adams who was used to only modest luxury in Quincy complained about the mud of Washington. She was forced to use the incompleated East Room of the White House as a drying room for her laundry, there was no running water, and only temporary stairs afforded access to the upper story. Conditions were not much better at the time of Lincoln's first inaugural. Even after the Executive Mansion was burned by the British in 1814 (and its blackened sandstone walls were painted white), successive Congresses begrudged any funds spent upon improving its furnishings and setting; they permitted public and private architecture to destroy the brilliance of the city plan that the French engineer, Major Pierre Charles L'Enfant, had laid down for Washington beginning in 1791. This plan proposed a grand development of the area on the land lying at the confluence of the Potomac and Anacostia Rivers. The best sites were to be reserved for principal buildings, of which the most important, the Capitol, would stand on Jenkins Hill, a plateau some eighty feet above the rivers: it was "a pedestal waiting for a monument," said L'Enfant. On a line westward from the Capitol he laid out a grand avenue, four hundred feet wide, where foreign ministers might have spacious houses and gardens.

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A mile and a half northwest along the Mall, a second axis would strike north and south, leading from the White House to the Washington Monument's knoll and southward to the marshy estuary of Tiber Creek, which L'Enfant proposed to canalize. Such principal sites were to be coordinated upon a gridiron of streets running east-west and north-south. Broad diagonal avenues or "lines of direct communication" would connect principal points. Where two or more diagonals intersected there would be squares or circles, carefully adjusted to afford "reciprocity of sight" from one civic space to another. The squares and principal sites would provide opportunities for fountains, statues, a national church, residences and small churches, colleges, academies and buildings for various societies. Leading from one large square, near the White House, L'Enfant proposed to have an avenue lined with shops and an arched covering over the pavement. But his intention—to "unite the useful with the commodious and agreeable"—almost went unrealized at all and was never realized in full. The scale of his avenues acted as a challenge to later architects to erect overblown classic buildings. His formal scheme was not protected from those who tried to turn the Mall into a romantic garden and built the Smithsonian Institution, an ugly red-sandstone building, a medieval castle with towers and turrets, designed by James Renwick. Washington developed westward rather than eastward as the planner had proposed; the site of the Washington Monument was shifted southeast so that the axes were thrown off; Tiber Creek was allowed to become a menace to health. Beginning in 1835, the tracks of the Baltimore and Ohio Railroad were laid to the capital, and the Pennsylvania Railroad built a terminal on the Mall itself. Areas but a block away from the great avenues, even near the Capitol, became squalid slums. L'Enfant languished in poverty and obscurity until his death in 1825, and his plan was progressively misinterpreted, disfigured and neglected until a commission appointed by Senator James McMillan of Michigan revived it in 1901.

Even the most confident architect must have entertained the lurking suspicion that America might never achieve a great architectural tradition of its own. Primarily the arts had still to struggle against three old things: Utilitarian standards, commercial expediency and puritanical simplicity.

The first major attempt to grasp the scepter and bring some higher degree of order to American architecture was made by rationalist architects, who now sought the throne that Georgian formalists had held. Beginning in France and

England, some architects now began to question classic unity. They argued that form should be a rational expression of spaces that were arranged strictly for use. Critics and architects alike heaped scorn on Palladian excesses that permitted false windows and façades which masked interior functions as at Mount Vernon. Architecture, the rationalists asserted, must be adapted to use, to climate, to structure, not to abstract principles of unified form. Adaptation became the basis for a new international architecture. The Italian Lodoli expressed an extreme view: "In architecture only that shall show that has a definite function, and which derives from the strictest necessity."

. . .

The Frenchmen Joseph Jacques Ramée, L'Enfant, Joseph F. Mangin and Maximilian Godefroy were principally responsible for bringing rationalism to America. Ramée's design for Union College at Schenectady was characteristic. So was Godefroy's First Unitarian Church in Baltimore of 1817-1818. The most notable thing about the church is its geometry; it is a single cube capped by a hemispherical dome, with a deep entrance designated by a triangular pediment that is carried upon arches supported by columns. The massive, simple geometry, the monumental scale, and the bold juxtaposition of strong shapes are all quite different from such Georgian buildings as the neighboring Otterbein Church of 1784. Subsequently, architects who were born in America took up the style. It was the characteristic motif of Robert Mills, whose Sansom Street Baptist Church in Philadelphia was in that manner. Isaiah Rogers scored notable successes with it in his hotels, and Alexander Parris in Boston designed the Quincy Markets as a series of strong volumes extruded as simple masses, distinct from each other, kept separate without blending and without subordination to any dominant part. Towards the end of his career, even Charles Bulfinch began to break out of the Georgian and towards rationalism with his University Hall at Harvard and the Church of Christ at Lancaster, Massachusetts.

But the most important American designer in the new style was the English-born Benjamin Henry Latrobe, whose architectural and other knowledge deserved the respect of Jefferson. Latrobe recognized that architects must seek more than harmony of form. He was almost unique in early nineteenth-century America for achieving an integration of "firmness, commodity and delight" within forms that were expressive as well. His deprecations of Mount Vernon must be understood in terms of that synthesis. It led him to deplore the misdeeds of carpenter-builders like

designs to be subordinated to her wishes: "It is the law of the fluids that prescribes the shape of the boat—keel, rudder, and bows,—and, in the finer fluid above, the form and tackle of the sails." As early as 1836, John Willis Griffiths, who designed the first extreme clipper ship, began lecturing about new mechanistic bases for ship design. His lectures given at New York in 1841 were later expanded into his *Treatise on Marine and Naval Architecture*, first published in 1849; his *Rainbow* and *Sea Witch*, launched in 1846, were revolutionary: "We have spread our banner to the breeze bearing our motto of *fitness for the purpose, and proportion to effect the same.*" That was Griffiths's definition of beauty as well as his guarantee of performance.

Behind the image of the ship lay the notion that nature herself demanded functional form. Nature was regarded as the selector of the form best adapted to perform well in a given environment. The idea was proposed as a law to describe evolution when Darwin published his *Origin of Species* in 1859. The idea was particularly attractive to men of the Darwinian days when descriptive biology was at its height and when men like Robert Louis Stevenson could write intelligible essays on the physical properties of a grain of dust. Nature, always a favorite of poets, could now be scrutinized at least in a pseudo-scientific way. It is not an accident that *The Chambered Nautilus* should appear at the same time that architects, engineers and critics were once more proclaiming that nature offered models of excellent adaptation. Marc Isambard Brunel constructed the Great Shield that enabled him to tunnel beneath the River Thames by taking as his model the structural shell that enclosed the wood-gnawing mollusc, *Teredo natalis*. The structure Joseph Paxton invented for the Crystal Palace of 1851 developed from observation he made of a water lily, the *Victoria regis*, and a year earlier he had described the beautiful engineering in the underside of that Amazonian plant: "Nature was the engineer. Nature has provided the leaf with longitudinal and transverse girders and supports that I, borrowing from it, have adopted in this building." From similar examples of engineering based upon organic forms, Emerson developed a principle about nature's resources for engineers: "Smeaton built Eddystone lighthouse on the model of an oak tree, as being the form in nature best designed

to resist a constant assailing force. Dollond formed his achromatic telescope on the model of the human eye. Duhamel built a bridge, by letting in a piece of stronger timber for the middle of the under surface, getting his hint from the structure of the shinbone."

Of all the men who rode these currents at their full, Horatio Greenough was the most convincing as a writer if not as a sculptor. He sensed the urge of America to become a new and great civilization; he was saddened by our youthful misadventures, by our failure to learn deep lessons from Europe, by our insistence on founding institutions on hope rather than experience. It is tempting to interpret Greenough as a seer, well ahead of his time, a precursor of the architecture that Le Corbusier, Wright and Mies van der Rohe developed in the twentieth century. His criticism has been read that way. But, lest we think of him wrongly, we must recall his sculpture. His "Washington," now in the Smithsonian, sits on a classical throne, nude to the waist, a Zeus, in a toga, capped by Gilbert Stuart's face of the sage of Mount Vernon. It is as remote from cubism or machined forms or adaptation to America as it could be. His portrait of Lafayette had a realism that caused Cooper to insist that he recognized it as an American work; but it too was classical. In his treatise, Greenough was no more seeking a mechanistic architecture than such a sculpture. He sought adaptation within a classical tradition. He thought no architecture complete unless it were ornamented; he opposed reconstructions of Greek temples but not the kind of rationally planned classical work that Latrobe and Isaiah Rogers had designed. In fact, he championed a future development of the rational architecture that had been the most vital work in Europe during the 1830s when he was living in Italy. "Instead of forcing the functions of every sort of building into one general form, adopting an outward shape for the sake of the eye or of association, without reference to the inner distribution, let us begin from the heart as a nucleus and work outwards."

Use and expression, the two standards of eighteenth-century criticism, are also the chief themes of Greenough's writings. There were, he said, two distinct kinds of building: What he called the monumental and the organic. The *organic* is "formed to meet the wants of their

occupants.”; the *monumental* is “addressed to the sympathies, the faith or the taste of a people.” They had separate rules. The organic had its own laws: “. . . the laws of structure and apportionment, depending on definite wants, obey a demonstrable rule. They may be called machines, each individual of which must be formed with reference to the abstract type of its species.” But different laws guided the monumental: They occupied “the positions and assume the forms best calculated to render their parent feeling.” Greenough offered a concise summary of the architectural philosophy of “organic adaptation” in a letter he wrote to Emerson which was later published in *The Dial*: “Here is my theory of structure: A scientific arrangement of spaces and forms to functions and to site: an emphasis on features proportioned to their gradated importance in function; color and ornament to be decided and arranged and varied by strictly organic laws. . . .”

His was the voice of a man recalling the aims of Latrobe, but Americans of 1840 paid no more attention to Greenough than Jefferson had to Latrobe in 1820.

The American client and his architect were not often mindful of the nationalism that Greenough thought should divorce us from Europe; nor were they willing to espouse Greenough's belief in a vernacular art, or an architecture similar to “the trotting wagon and the yacht America.” They might agree that “If a flat sail goes nearest the wind, a bellying sail, though picturesque, must be given up,” but they saw no point in transferring this metaphor to architecture. Least of all did they agree with him that if we could “carry into our civil architecture the responsibilities that weigh upon our ship-building, we should ere long have edifices as superior to the Parthenon, for the purposes we require, as the Constitution or the Pennsylvania is to the galley of the Argonauts.”

Indeed, Americans at mid-century revealed a growing sense of “natural” landscape. Downing thought buildings should form a harmonious part of their settings, and Olmsted and Vaux, who created Central Park in New York City, valued romantic landscapes within urban settings.

This was a nature the urban, classic and conventionalized man would soon lose. It remained real for Thoreau, or so he said. Even Calvert Vaux, at work on Central Park, sensed “an innate homage to the natural in contradistinction to the artificial . . . with all its town-bred incongruities and frequently absurd shortcomings. An actual love for nature, however crude it may be, speaks clearly of a possible love for art.” There was also a purity and a simplicity in na-

ture which led Thoreau to question, even if self-consciously, whether civilization had improved man's condition. “I would rather sit on a pumpkin and have it all to myself, than to be crowded on a velvet cushion.”

Neither Thoreau's primitivism nor Greenough's organic adaptation was to be the way of architecture. The city was to invade Thoreau's wilderness; European taste vanquished Greenough's pleas. When Thoreau speculated that a man might be well content with a shelter that was a mere box where railroad men kept their tools, he effectively drew a curtain between himself and all but the most romantic Americans, and he did not even often live that way himself.

The future of America, for better, for worse, lay along the canals and waterfalls of the New England rivers, not in the quiet shallows of Walden Pond. It lay in Fall River and Woonsocket Falls and Pawtucket where Samuel Slater had established the first cotton mill back in 1793. It lay in Manchester, Nashua, Lawrence and Lowell—industrial communities, neither agricultural nor commercial.

The possibilities of a new pattern for the environment of industrial society made initial appearances in the '50s. Some architects seized upon relatively new materials like cast iron and sheet glass to develop new structural forms. Sometimes those materials supported traditional forms, as when Walter produced his brilliant design of wrought and cast iron for the dome of the Capitol at Washington. The Penn Mutual Life Insurance Company Building in Philadelphia of 1850-1851 indicated one possible way of using cast iron in sheets, as a sheathing for the exterior, but that was usually only a means of simulating stone in iron, much as John Haviland used it in his early bank at Pottsville, Pennsylvania. The greater potentialities of iron as structure began to be realized about 1850. James Bogardus's Harper Building in New York, done in collaboration with the architect John B. Corlies, employed iron to form a cage of columns, discontinuous at each story, which supported beams made of wrought-iron tension members and cast-iron compression supports. Foundries, like Badger's Iron Works, began to turn out prefabricated parts that were assembled to form columns and capitals made of iron. Most of these still simulated classic and Gothic forms. But increasingly a form more suited to iron appeared in buildings like the *Baltimore Sun's* iron building, R. G. Hatfield's design of 1851, and in the interior of Baltimore's Peabody Institute Library. Many of the cast-iron buildings achieved a dignity that had not been seen in city streets since the 1820s. Frequently that dignity was due

to the modular design of cast-iron prefabrication and to classical principles of composition, as they appeared in New York's Broadway Manufacturing Supply Company of 1857 by J. P. Gaynor and the Haughwout store of 1857 on Broadway at Broome. Neither of these had the spatial excitement that Paxton achieved in London's Crystal Palace, nor the soaring adventure of Bunning's rotunda and his iron skeleton dome on London's Coal Exchange. Americans treated new materials as replacements for wood and stone, rather than extending them to their limits, whether they were iron, steel, or concrete. Even when Walter followed the precedent of the remarkable cast-iron dome of the Cathedral of St. Isaac's at St. Petersburg, Russia (erected 1840-1842), he was too cautious to press that experiment to a new stage; Jefferson's mechanical interest had never led him to provide in America something he admired in France, the iron-framed dome of the Halle-au-Blé at Paris of 1811. When in 1853-1854 a competition was held for the Crystal Palace to be erected at New York's international exhibition, the most progressive design was bypassed. Bogardus with Hoppin and Leopold Eidlitz proposed to build a roof that would be suspended by wrought-iron chains from a central tower; but their radical design lost out to a pedestrian and pale reflection of Paxton's building, prepared by C. J. B. Carstensen. Americans valued iron for the ease with which it could be erected and because it was an economical way of gaining the effect of stone in structure and ornament. But they were a little ashamed of it, too! By 1859, some of its possibilities were visible, notably to the architect Henry Van Brunt who read an important paper to the American Institute of Architects, later published in *The Crayon*. He approved the repetition he saw in cast-iron buildings; far from being a deficiency, that repetition expressed industrial production, mechanical assembly, and standard design: "As regards truth of material," Van Brunt said, "monotony in iron is as noble as variety in stone." Traditional design must give way to new kinds of composition, in which superimposition, intercolumniation and proportion must be reanalyzed and given forms different from stone construction. Such ideas opened a new field for design—one that the picturesque tradition had not contemplated.

It was at this juncture, and in these days of bewildering and divisive contention, that architects climaxed nearly thirty years of ineffective efforts at being recognized as professionals by founding the American Institute of Architects in 1857. For two years before this some architects had belonged to the American Society of Civil Engineers but it

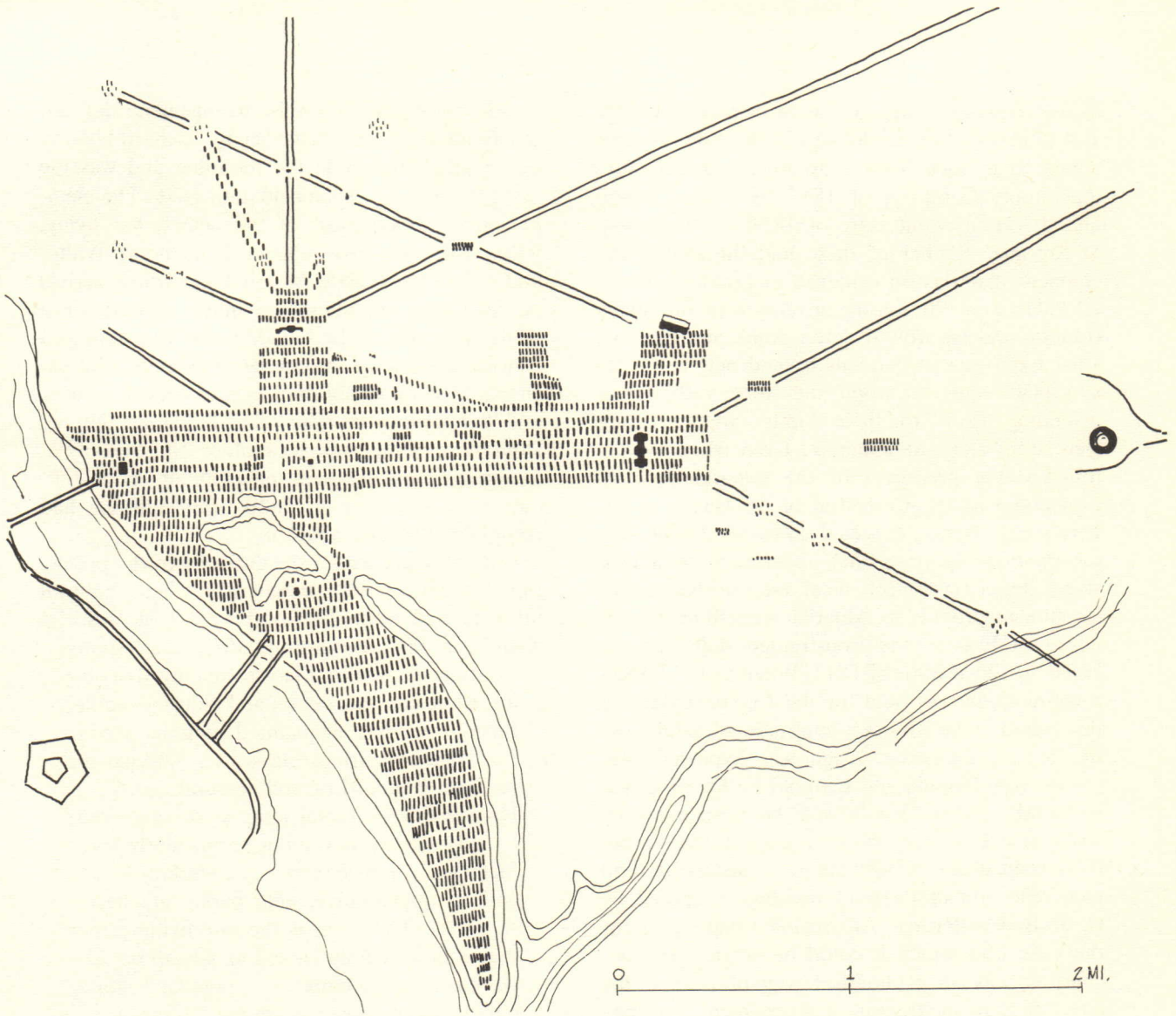
is not surprising that this arrangement did not satisfy the need for a new society. Richard Upjohn was a prime mover in the founding and was the first president, a post he held until 1876. The membership included most of the actors, yet living, whose roles we have rehearsed, including Walter and some like Richard Morris Hunt whose arrival on the scene would not be much noticed for a while. The aim of the founders was to establish a concerted effort at improving architecture by exchanging ideas, establishing ethical codes and fees, and publicizing the way their functions differed from those of the ordinary builder. But the way of the professional architect remained almost as difficult as it had been in 1820 when Latrobe had complained bitterly about it.

Calvert Vaux sensed the difficulty of the professional architect in a democracy where cultural integrity had been destroyed by a violent social change; in 1857 he wrote in *Villas and Cottages*:

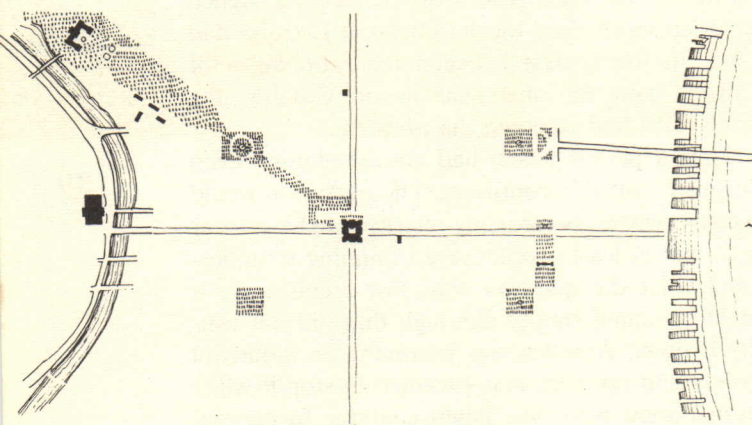
Continuous ease and leisure readily welcome art, while constant action and industry require time to become acquainted with its merits. . . . The industrious classes . . . decide the national standard of architectural taste. . . . How is this universal taste to be improved? . . . To secure any thing permanently satisfactory . . . , professors . . . , workmen . . . , and an appreciative, able public are necessary. . . . The press is the improving power that is to be mainly looked to. Cheap popular works on architecture . . . , popular lectures, popular engravings . . . are the . . . means . . . to influence the public.

It seemed a strangely weak conclusion to a period that had started so well; yet it was inevitable that America should turn to popular education, to England and to Ruskin once she was frustrated from developing an architecture for industry comparable to the Georgian. After 1860 Ruskin bewitched America more than the hardheaded Latrobe had done. In the contest between the rationalism of Latrobe and the medievalism of Upjohn, the medievalist had emerged the prophet.

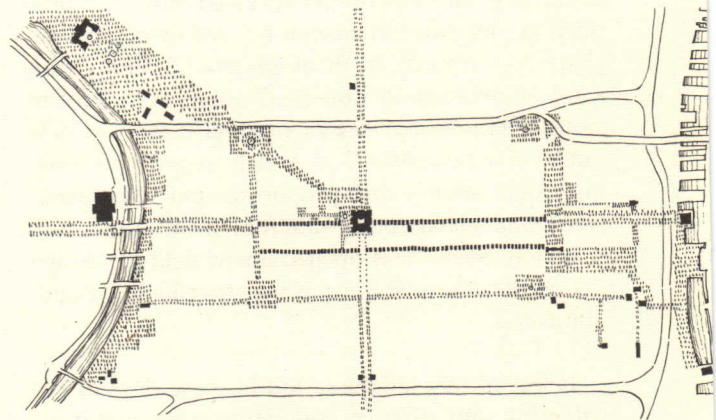
Thus a period which had started simply, even elegantly, ended in confusion. The confusion would become worse before any clarity might appear again but at least people were beginning to understand what the question was. For architecture it could be stated simply although that did not usually happen. America was becoming an industrial society and not very many wanted to stop it while no one knew how. She might continue to pretend that this was not happening by the witness of her architecture or she might admit that she was what she was and try to display it proudly. It would take her nearly three quarters of a century before she could bring herself to the latter alternative. ◀



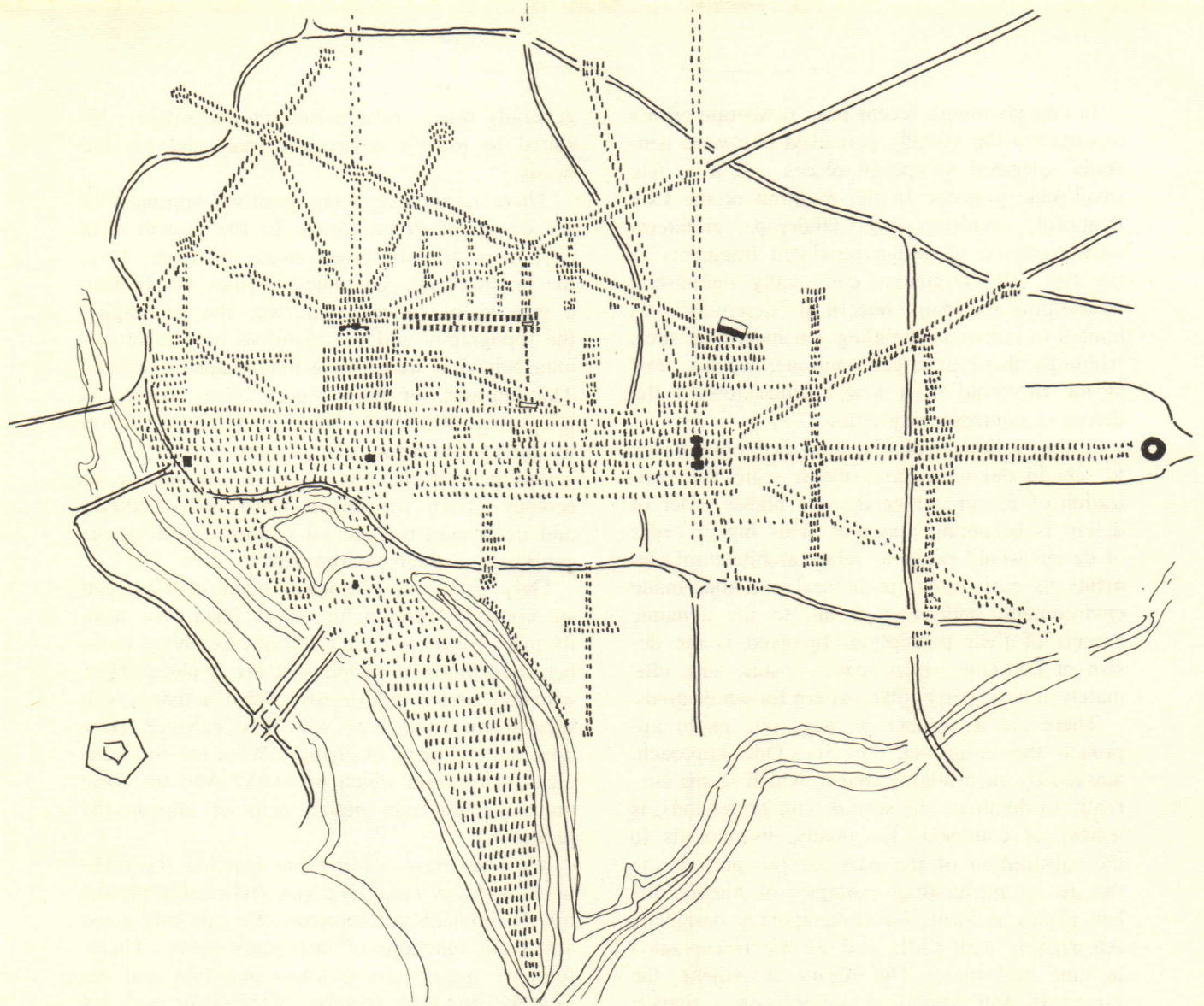
Existing Washington. The bare bones of major landmarks and diagonal vistas have served the city well. However, much of the original conception has been changed or neglected. The existence of many diagonals with neither visual nor functional focus has tended to obscure the value of the more meaningful streets. The sum of today's image of "metro-center" is limited almost entirely to the singular statement of the Mall-monumental area and the fragments of the diagonal system which have taken on a design quality consistent with their conception.



Existing Philadelphia. Relatively few elements in the cityscape take on an adequately distinct quality to create any composite image. The result to most people who use the city is probably a highly fragmented and very likely distorted concept of the physical form of this area.



The proposed system. By techniques of special treatment to selected streets, walks and roadways, a meaningful visual system can be established. Future generations will enjoy a greater sense of wholeness of the physical interrelation between the parts of the total center city area.



The proposed system. The delineation of the Metro-Center area will be largely accomplished by a ring of freeways. Within this ring is a large area (12 square miles) whose visual structure must be adequate to its functional complexity. The plan proposes to utilize special treatment as a means to "bring out" the important streets, to link up visually the special areas with each other and generally to add a series of significant open spaces at scales ranging from the grand monumentality of the Mall to the informality of special shopping or residential streets and places.

► These diagrams on these pages indicate the existing and proposed systems of special streets, parks, squares, roadways and landmarks which constitute the basic "perceptual framework" for the central areas of Philadelphia and Washington, D. C. They are drawn to approximately the same scale.

In the process of city planning, the form of the city must be considered from the visual as well as the economic and social view. The city we see must evoke a lasting esthetic response, one based on a consonance of physical form and urban function. Towards these ends there are few stated philosophies on the role of physical design in city planning. Questions of city form are, by default, going to be answered by those less able to do the job than are city planners. This article seeks to define the role of the urban designer in the planning process and to illustrate the possible implications.

The Role of Design IN CITY PLANNING

by **Morton Hoppenfeld**, Assoc AIP

Morton Hoppenfeld is presently civic designer for the National Capital Planning Commission in Washington and a teacher of design at Howard University. The ideas in this article were crystallized during his two and one-half years service as chief of the special area planning section for the Philadelphia City Planning Commission. A variation of this article first appeared in the Journal of the AIP, May 1960 and in the Potomac Valley Architect, February 1961

In city planning's recent past, deliberate efforts to organize the visually perceived city were generally relegated to special places and to a few small-scale projects. In the tradition of the City Beautiful, architects and landscape architects were retrained to design unrelated fragments of the city. The fragments continually diminished in size until the main concern of "designers" was limited to individual buildings on individual sites. Although these practices continue, we are now at the threshold of a new attitude toward the design of contemporary cities.

Little by little, with the increased opportunity to rebuild our cities on a major scale, the realization of the urgent need for a higher order of design is becoming apparent. This higher order of design would begin to relate architectural elements to each other, to natural and man-made environment, and most of all, to the dynamic aspects of their perception. Involved is the design of buildings, open spaces, vistas, and, ultimately, a basic perceptible pattern for whole areas.

There are a number of ways one might approach the design of the city. One approach, marked by an insidious charm, which seems currently to dominate the schools and professions, is worthy of comment. Essentially, it amounts to the substitution of the past for the present—to the use of outstanding examples of historic urban places as ideals for contemporary designers. An evening with slides and we are transplanted in time and space. The Agora of Athens, the Piazza di San Marco in Venice, or a market place in medieval Rotterdam—each evokes the proper adulation and conjures up further images. These places certainly deserve our admiration and study; but as purely visual things, they are insufficient and even dangerous models for emulation. They are products of their own times and the lessons they have for us today cannot be learned by mimicry.

It is quite true that contemporary urban design conceptions do not and cannot stem full-blown *de novo*. Our concepts of space and forms have been conditioned by the evolution of civilization over thousands of years. Contemporary designers can draw knowledge from a range of previous experiments inconceivable in earlier times. But, however pleasant are city areas of other periods and other places, it must continually be kept in mind that they have emanated from life functions and public spirits different from those of today.

Urban and architectural values are expressions of esthetic, social and pragmatic interests. They cannot simply be transplanted, nor can they be expected to last (in total) for eternity. A misunderstanding of the value of historical models

generally results in a pseudo-monumentality, ill-suited to today's democratic man and his life needs.

There is another, more positive, approach to the design of urban forms. In the growth of a city, there are two broad causes at work: One, the predominant economic activities which have a generalizing effect; and two, the geography, the topography and the manifold aspects of human behavior, which have individualizing effects. The interplay of both aspects gives a city its unique qualities and should therefore condition its perceptible form. The positive approach suggested here is the one basic to the science of ecology (from the Greek word *oikos*, house) and deals with the mutual relations between organisms and their environment.

Only from this ecological point of view can we come to meaningful urban form. We have to find answers to such questions as: What numbers and kinds of people will use a place? How will they arrive and depart? What activities will they pursue and how will they behave? How does the city grow or change? What are the technical means with which we work? And the basic question, how can design help or impede the processes?

We must have a form that matches the functions we know today and can realistically foresee for the immediate tomorrow. We can only guess about the functions of fifty years hence. Therefore, we must learn to know ourselves and design for our own patterns of behavior and not for some vision of a possibly more dignified but, probably, only imagined behavior.

To pursue this ecological approach, the designer must have an extensive and intensive knowledge of the city he works with. This knowledge and understanding can come about only over time and through the designers' participation in the planning process. This is not to deny that inspirational ideas and fresh concepts of urban form can come from creative minds outside the planning process. But the meaningful incorporation of such ideas, the generation of other ideas, and their incorporation into a sound workable plan, capable of being accomplished, can be done only by the creative mind operating within a broad planning process of research, analysis and the gamut of implementation procedures.

The designer then can become effective at all levels of plan decision, from the basic distribution of land uses and circulation systems to the articulation of intimate urban spaces. Only when considered as a whole can economic, social and esthetic goals be reasonably achieved.

Design is not something that can be added

on to the "functional-economic" city, nor can the reverse process of economic and social rationalization for preconceived design be fruitful. To be truly significant, design must be an integral aspect of the planning process.

Establishing the Image of a City

The unique qualities—Every city or city sector has its own character or at least the potential for it. Often, buildings and landmarks of the past are still with it. We must not depreciate the importance of the past. Here is tangible evidence of the values other men have expressed in the environment. A primary and inexorable problem is to respect and understand history without being servile to it. "Thus a beautiful city will arise, not from architectural masterpieces individually conceived, but from a sensitivity on the part of each successive builder to the values that already exist."

Visualization—Every city has its attractions, its approaches, its centers of interest, and becomes known by them. The image of a city in the mind of each beholder depends largely on the paths he treads as he moves about in it over the course of time; but for most people, in most cities their image lacks clarity, interest and wholeness.

Cognizance of the whole is a vital aspect in the enjoyment of any visual thing. This is no less true of a city area than of a work of architecture or sculpture. To be at ease with a place and to enjoy it fully, one must be able to orient himself and perceive its basic form. From man's eye level only a fragment of the whole area is perceptible at a time; to man in motion, the totality begins to unfold itself at one point of reference gives way to another. The critical cognitive link between the area as a whole and the fragments we usually perceive would be a clear visual framework. This framework would consist of variations on the essential elements of urban visualization: Open space as defined by the surrounds and points on the horizon. In extreme terms it is these two elements which in counterplay afford judgments of distance, scale, direction, shape and context. Thus man's relation to the city would be secured by planning for movement on foot as well as on wheels and for visualization as well as time-distance factors. A harmonious system of vehicular and pedestrian paths, so designated by varying degrees of speciality not only provides for an obvious means of getting from place to place but also becomes the means by which people learn to *know* the city. In detail the system would consist of specially designed streets, freeways, walkways, parks, enclosed spaces and special buildings. This frame-

work, based on the logic of basic land use and movement patterns, would tie the significant foci together, with vistas down tree-lined streets and broadened sidewalks, each with its unique qualities. As one proceeded from any one point, the system would unfold until a sense of the whole was established. Such a framework would help give discernible form to city areas, large and small, and augment visualization.

For tomorrow's city, the image evoked must reflect the wholeness of place, the complexity of function and the inter-relatedness of parts. A perceptual framework must be established to serve as a constant source of orientation and delight.

Designing for the Activities of Urban Man

It is generally agreed that the best of city plans lose value if the architectural elements are not worthy. There is one particular aspect in this realm of architecture which must have priority of attention: The ground floor of the city. In concept and design, the relationships of buildings to the street and to each other are crucial to the creation of the enclosed, semi-enclosed and flowing spaces we walk through. The streets, as we now have them, are inadequate to meet the needs that must be met if the ground floor of the city is to be the functional and symbolic stage of urban life.

The greatest attraction of a city is its variety of activity and the extent to which it reflects and enhances the urban culture. Consistent with this culture, the city should have things to do and to observe as one moves about in it.

In the building and rebuilding of our cities, a new urban scale must be achieved, new kinds of spaces must be created. Within the basic system of streets and walkways previously described, large parcels and whole blocks will inevitably be cleared and rebuilt. New buildings need no longer be bound to a street alone, but must unite the street picture with a whole series of small and large plazas, malls or terraces. It is most important, however, that these places cannot be mere meaningless replicas of the Place Vendôme or the Amielenborg. These new urban places must take their life and form from *this urban culture*.

The scale and size of these places must be precisely related to the type of activity they house, whether shopping, sitting or congregating. The space created must be a function of the activity, the surrounding buildings and the number and kind of users anticipated if it is to be successful.

In every way these places, relatively free from vehicular movement, must help to set the stage

for human activity. Their design must be carefully considered from every architectural detail to flower arrangement, paving and lighting, specialized for its own kind of use be it business, shopping or residential.

Conclusion

While it is desirable that design become more clearly recognized as a vital part of the planning process, there looms the danger of misuse. The typical illustration of a complete new city where virtually every block has been redesigned to fit an over-all site plan can be more dangerous than valuable. I submit that the preparation of such plans is not a proper function of planners, and that this grand design, more often than not, will obscure the main ideas and fail to serve as an adequate guide to actual development.

The proper and most effective role of the planners' design is to erect a basic design framework that is simple enough to be comprehended, strong enough to withstand the inevitable variety of architectural works that will be part of it, and still flexible enough to adjust to necessary changes. This design aspect of the planning

process would identify design opportunities where they exist and create them where none existed before. Its logic will rest on the degree of correlation between the appearance of the city and the way it really works. The basic medium of the design is open space which will remain for the lifetime of many buildings.

The planning designers' statement must be clear; it must illustrate principles and serve as guide and incentive to future growth, and elaboration in detail.

The value of a strong pictorial image of any aspect of the physical plan is great. Planners are beginning to appreciate the need for improved communication of ideas between the analyst and the urban designer, without which neither can develop the plan. Just as planners have striven to alert the public to the need for a comprehensive and long-range view of the city, so must the planners themselves now be alerted to the necessity of integrating design into the comprehensive planning process.

When this is done, the job of the urban architect will be made easier; he will have a meaningful point of departure. ◀

WHO DECIDES WHAT'S TO BE BUILT?

Who is it makes the judgment that allows
Money to build the boxlike towers that shade
Once happy streets? Why is it harder to arouse
Resolve for open space and give it aid?

Are men too occupied to find new ways
To get things done that cry aloud for doing?
Must builders work in just one groove that pays,
Immune to ideals of the heart's pursuing?

Living with science in atomic age,
We see our brothers struggle to invent;
But we watch figures on accountant's page,
Where dead appraisals point to limits spent.

Cities need space; but which of them has found
The way to make best use of precious ground?

ARTHUR C. HOLDEN, FAIA

Master Planning for the Small City

The Story of Bonner Springs, Kansas

by **Morley & Geraughty, Architects**

C. Ross Anderson, Associate

► In the fall of 1958 the city of Bonner Springs, Kansas, commissioned the firm of Morley & Geraughty, C. Ross Anderson, Associated, to prepare a master plan for the community. Some of the background pertaining to the development of this project follows.

With the unprecedented growth in population since World War II and with the general trend from rural to urban living, the small satellite community is feeling the pressure of metropolitan expansion. These towns and cities are ill-prepared to cope with the resulting problems, and even if the need to plan is recognized in time, there is such a shortage of trained, competent personnel that technical advice and direction is hard to come by.

To what extent architects, by sole virtue of their training, are qualified to act as city planners is perhaps open to question. One school of thought regards architecture as part of the planning field and not planning as part of architecture! In any event, it is probably fair to assume that architects, through their experience and by the general nature of their profession, at least have the perspective necessary to do truly large scale planning.

A tremendous opportunity for public service thus presents itself—the exact form that this service takes will depend upon the conditions present as well as upon the capabilities of the individual concerned. The range can vary from serving on zoning boards, local planning commissions and park boards, to the actual preparation of comprehensive plans depending upon the qualifications (and ingenuity) of the architect.

It might be well to add that certain proven theories in city planning and standards of practice are rapidly becoming established. “Intuitive” planning of the “city beautiful” era with chief stress on the physical aspects of the city is generally passé. It is now recognized that each physical alteration

must be backed up with sound economic, political and sociological investigation.

A typical example of the problems faced by the small community and an attempt to guide the city in its future growth is herewith presented. Bonner Springs is unique only in so far that it has an unusually active, informed and progressive planning board for a city with such a small population. For some years it has had a reasonably good zoning ordinance and building department. Two years ago it commissioned a land-use study. The decision to establish the Agricultural Hall of Fame in the Bonner Springs area further pointed up the need for immediate action.

The procedure in developing the master plan followed the typical pattern in working with the essential base data, namely: The topological surveys and other existing physical material, the land-use survey, population and traffic. Incidentally, the high school students were called in to help with the last two items and their help was both invaluable and enthusiastic.

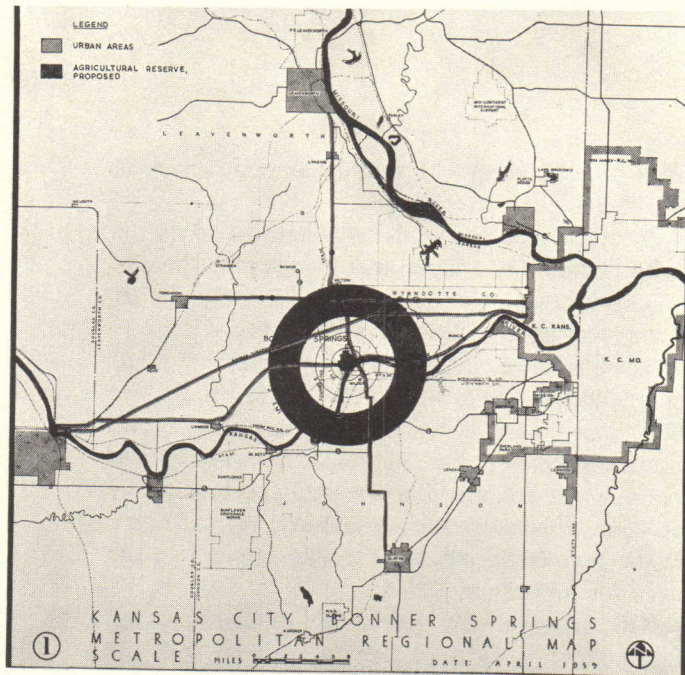
The visual presentation of this project consists of some eleven panels, from which the illustrations for this article are drawn. The base maps, school and recreation charts, zoning map and the panel showing the development program are not shown here because of space limitations. We are also forced to omit much of the supporting data on the estimated population growth, projected traffic counts and the like.

Metropolitan Regional Map

Planning is the principal instrument through which order in the growth and development of a city may be achieved. The master guide-plan for the growth and development of Bonner Springs is, essentially, its “Blueprint for the Future.”

There is every reason to expect that the future of Bonner Springs will be predicated on a progressive pattern of growth. There is also good reason to expect that, if properly directed, the product of this development will be an attractive and dynamic city.

The location map of Bonner Springs shows its proximity to metropolitan Kansas City and its relationship to other centers within a radius of



about thirty miles. Rapid population growth seems imminent and it may be assumed that in order to produce a city of optimum capacity and in order to avoid eventual loss of identity in the future, extension of services must be limited and the city's total periphery controlled.

Regional Guide Map

The maximum limits for the expansion of Bonner Springs proper are therefore established within an approximate radius from the present center of the city. It is planned that this area should be developed according to a step-by-step procedure with the residential districts limited to a maximum population of 5,000 and the total combined population limited to between 25,000 and 30,000 persons.

The occupational districts required to complement the residential areas at specific stages of development are also calculated and presented with the recommendation that certain areas be zoned for use by commerce, industry and special housing, i.e., motels, etc.

Anticipating the time when the level of the Kansas River may be controlled and the present flood plans made available for industrial use, the admittedly controversial recommendation is made that the line between Wyandotte and Johnson Counties be altered (on a simple exchange of area basis) in order to permit Bonner Springs to expand to the south.

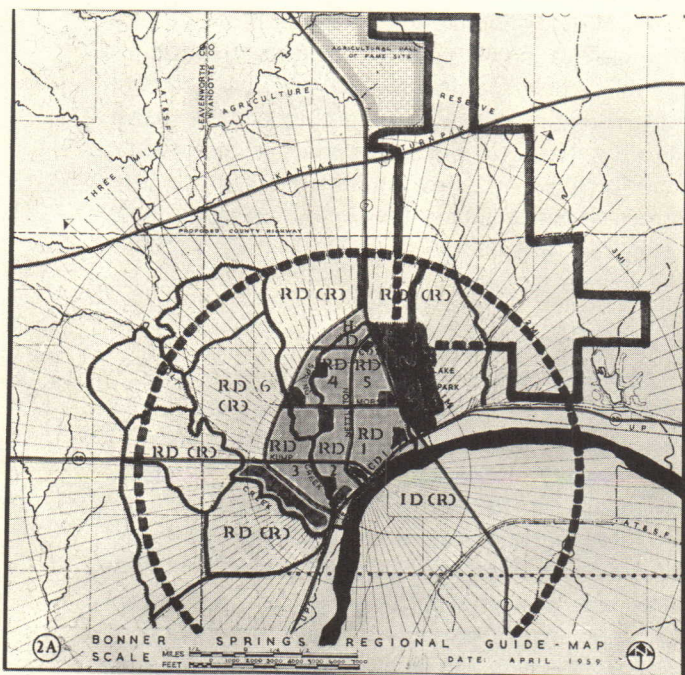
In order to preserve the homogeneity of the urban complex, the master guide-plan recommends that a two-mile "farm-reserve district" be established approximately three miles from the city center. This could be achieved by means of easements which will permit only those activities distinctly related to farming or non-commercial recreation, and assure land owners of assessment at the current rate for comparable land.

Beyond the need for open space near the urban community, the urgency of preserving the rural character of the land surrounding Bonner Springs is further emphasized by the decision to locate the Agricultural Hall of Fame within the area designated as farm reserve.

Urban Guide Map

It is anticipated that Bonner Springs will reach the first stage of complete urban coordination when the total population reaches six or seven thousand. The principal aim of planning up to this point should be to provide the framework within which orderly and balanced expansion may take place.

This means limiting development to specific areas at specific times, establishing a pattern of roads, paths, open spaces and public services which will contain and supply these areas and sustain the concept that all of the elements of the city must



eventually make up a well-balanced and coordinated whole.

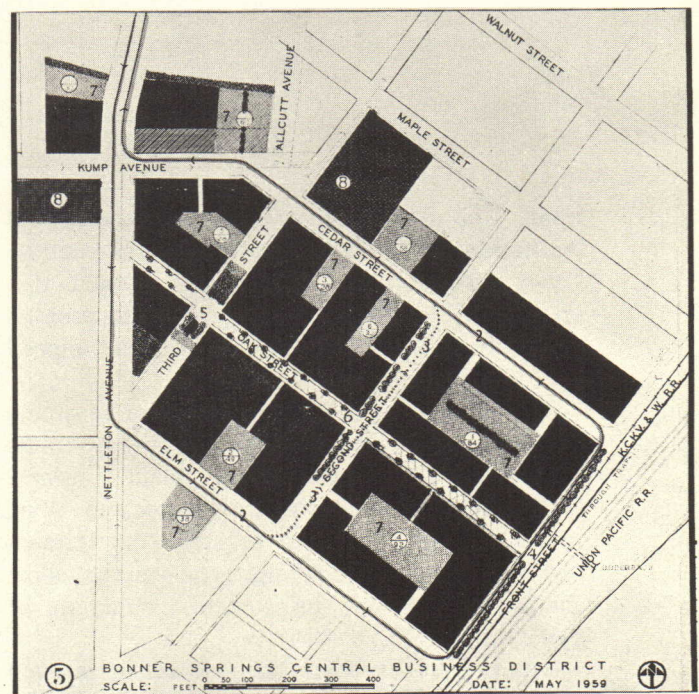
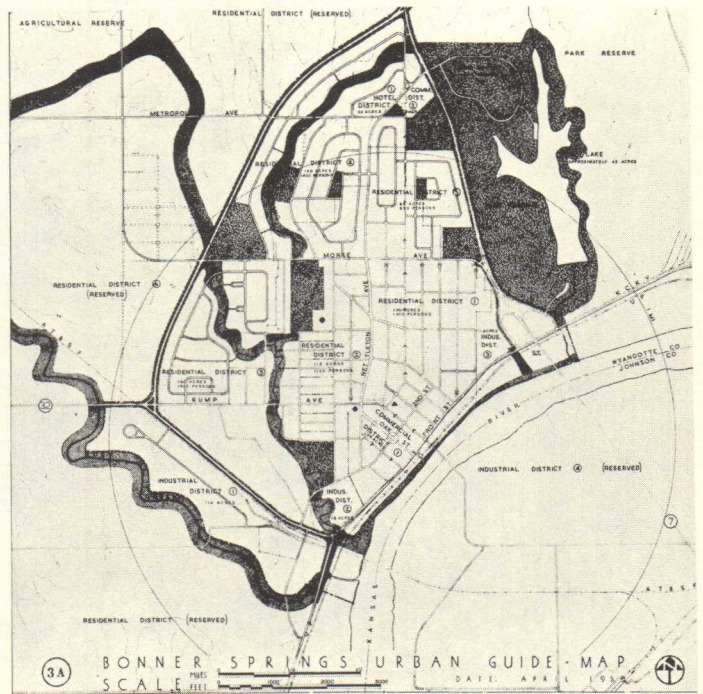
The principal aim of street and highway improvements recommended is to by-pass heavy through traffic, which at present congests the center of the city, and to help define occupational and residential districts with a simple network of "feeders" which will service these areas effectively without dissecting them. To achieve these aims, some minor changes are recommended in existing streets, but in general a new traffic pattern is developed by extending the present scheme with new roads of the limited-access type. This will permit all districts to be developed as defined units of predictable size. To define future residential districts and to encourage independent pedestrian circulation, it is also proposed that a "park-link" system be established through zoning, purchase of land and easement which will permit continuous uninterrupted pedestrian travel through and around the city. This park-link system will follow existing water courses and will contain local parks central to each residential district large enough for children's games. To the east of the city a state or county park will be centered around a small lake and this, too, will be joined to the city's park system by means of pedestrian underpasses.

As final direction towards the "realization period," a chart of projected population has been prepared showing the maximum and minimum predictable trends in population. Assuming a median trend, a development schedule was established and a schedule of major works to be accomplished during the next twenty years is proposed. The population chart indicated that within this period the city could expect to have at least 7,000 inhabitants. This corresponds roughly to what has been described as the first stage of completed urban coordination.

Typical of the problems which are involved with expansion is the need for new schools and three new buildings are anticipated therefore before 1980. Recommended sites for these and other facilities which the community will require are indicated on the Urban Guide-Plan.

Bonner Springs Central Business District

The efficiency of the commercial area of Bonner Springs, like most other American cities, is seriously affected by traffic and parking problems. Furthermore, if prospective buyers are to be drawn to local stores and shops, these must be located on attractive and convenient streets. A lesson can be learned from the new shopping centers which are the competition that "downtown" must face today. The initiative must be taken by alert merchants, who realize the value of attractive and well-designed streets and store





fronts. Coordinated redevelopment of the central business district will help meet this competition.

For maximum effectiveness it is essential that private redevelopment as well as public projects within the CBD be carefully studied and aligned with the master guide-plan.

The changes shown here consist in rerouting Highway 32 and in circulating one-way traffic counter-clockwise around the main business blocks. A planted medial strip is located along Front Street in order to separate the through and circulating traffic. These arrangements allow continuous left hand turns with a minimum of cross traffic.

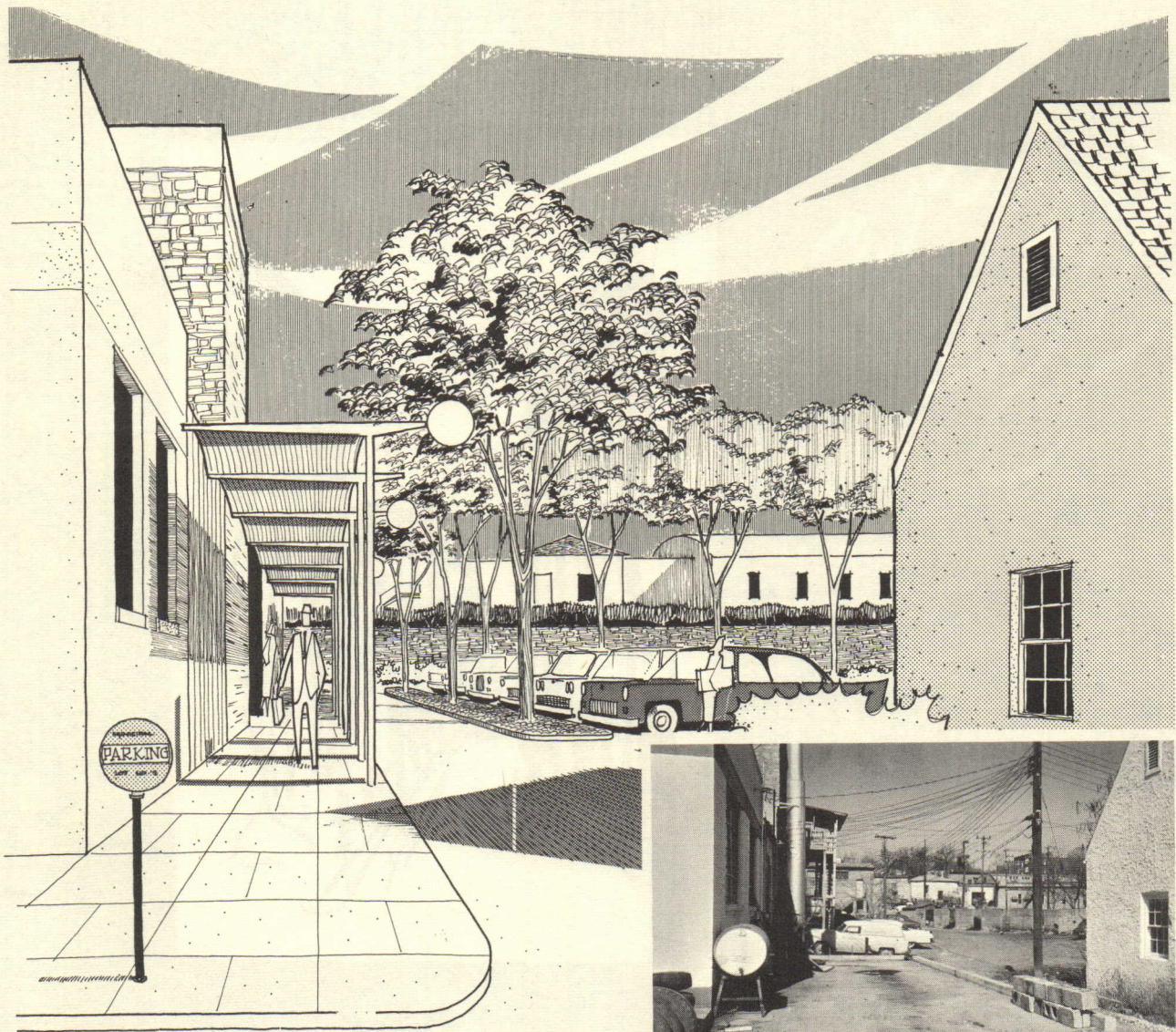
Third Street is completely closed to through traffic and it is recommended that the insides of these two blocks facing on the main business street be converted into small parklets. (See item 5 in plan.)

The principal shopping street, Oak Street (6), will accommodate "restricted" traffic only; that

is, 15MPH and 5-minute stops. Every third parking space will be turned into a planting basin—the inside block parking areas will more than balance this loss. An over-all paving pattern will be developed and then followed whenever sidewalks and street paving need replacement.

As noted above, a considerable amount of additional parking is immediately required and this should be provided in the locations and amounts indicated (7), based upon the established order of priority. Easy pedestrian access to these locations is essential to the success of such a program. Needless to say, the parking areas themselves must be fully landscaped.

The offices of public administration and services such as the city hall, fire station, police station, library, etc, are to be moved to a more appropriate location. The possibilities of moving the grade school (located at Nettleton and Kump) to a safer location and taking over this building for the above purposes is under consideration.



CBD Perspective I

This panel supplements the plan drawing of the Central Business District and illustrates several of the steps recommended in the text of that panel.

The photograph shows the street as it exists today and the drawing the same street redesigned. Although it would certainly help in adding color, this project does not consist of remodeling shop fronts, but rather illustrates a number of novel but feasible changes in the existing pattern of urban life in this community.

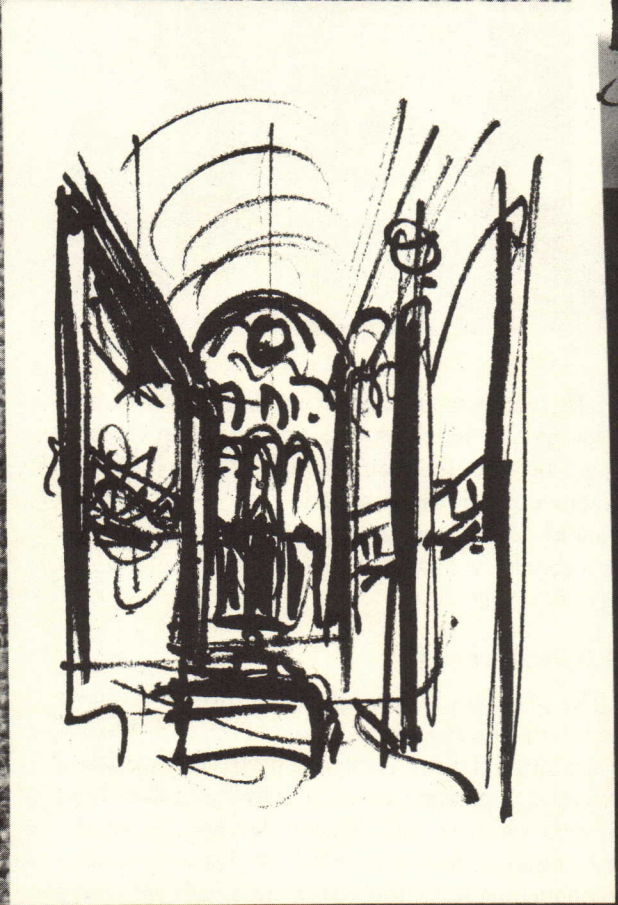
Keeping heavy traffic off the main street is of prime importance and an objective that could easily be accomplished by the suggested relocation of Highway 32. The conversion of a small percentage of street parking spaces into planted areas would give a tremendous lift to the general appearance of this area. Convenient access to the newly constructed parking areas will help to make shopping the pleasure it ought to be.

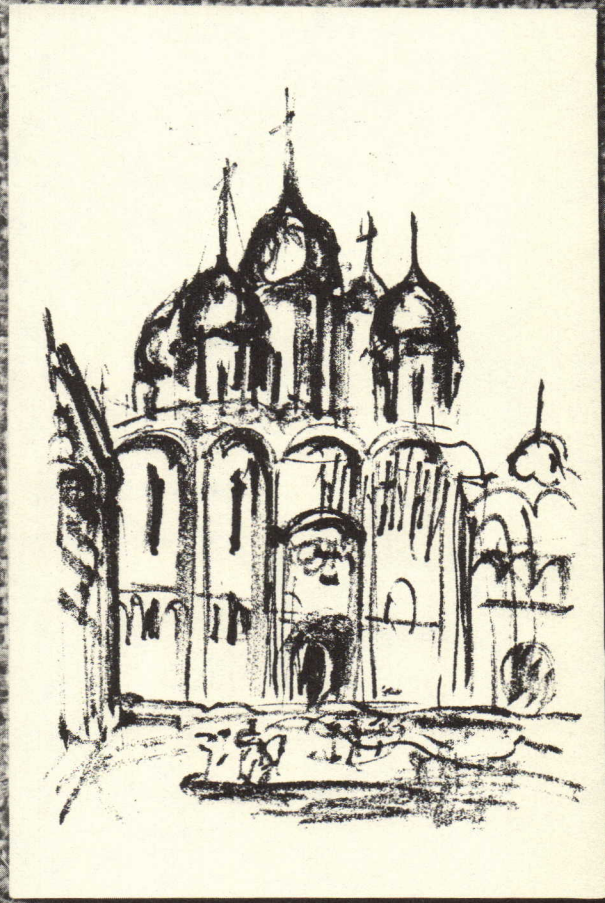
Finally, an over-all pattern in the sidewalks and street paving helps extend unifying effect established by the location of the greenery. Under present conditions there does not seem to be a demand for a complete pedestrian mall of the type generally associated with plans to save the big city's downtown.

CBD Perspective II

The photograph accompanying this panel shows the interior of one of the principal business blocks, at the present time occupied by a coal yard and providing a general area for delivery to the shops fronting on Oak and Second Streets. When the city acquires this site (through lease, purchase or condemnation) the entire area will be paved and will then accommodate some eighty-four automobiles in landscaped parking. This arrangement provides a second entrance for most of the shops in this block and almost doubles the merchandise display area. ◀

Travel Sketches



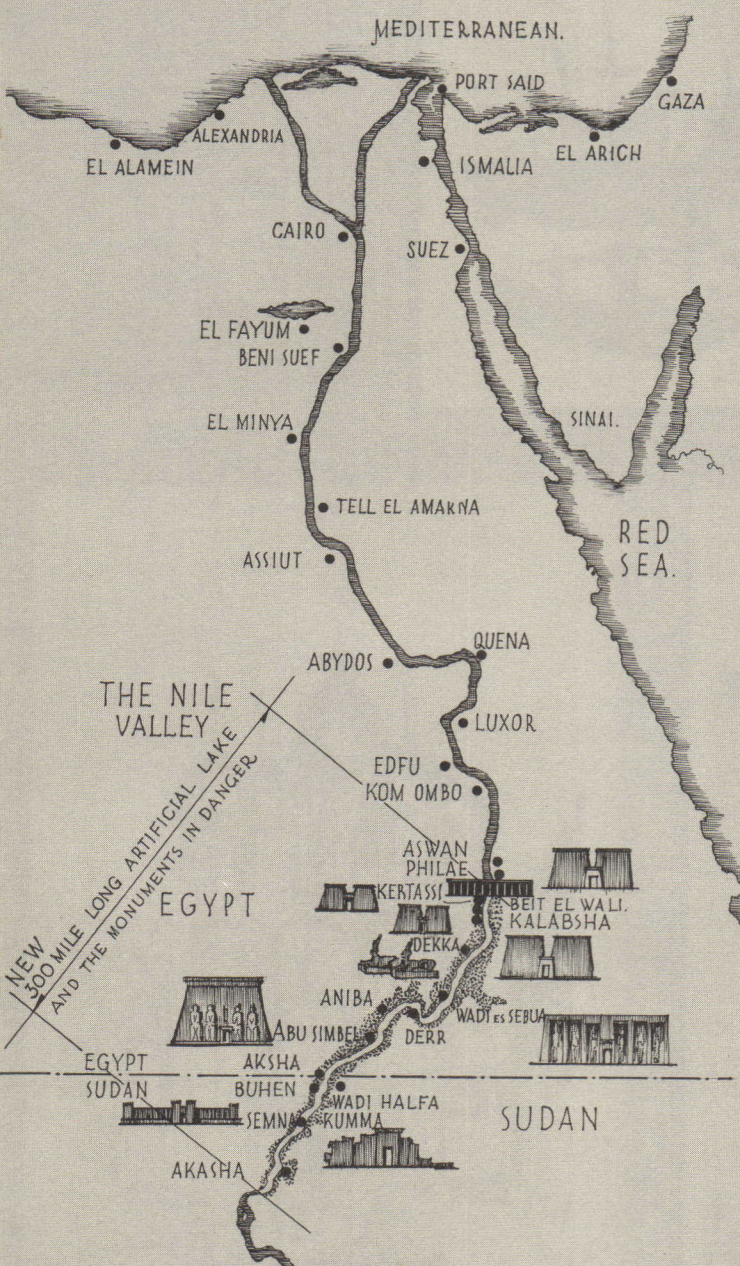


by Louis G. Redstone, AIA

An Archeological Crisis in Egypt

A Report on the Progress of
Saving Ancient Monuments
in the Area of the New Aswan Dam

by **T. A. Gorski, PhD.** London University



► The first stage of the Aswan Dam is under construction with a Soviet loan. The speed of the work is considerable, and the time in which to save the monuments before the artificial lake is formed is getting shorter. The organization of archeological activity appears to be fairly well advanced, but it must not be forgotten that, according to data provided by the United Arab Republic Department for the High Dam, work in this field must be completed before September 1964, when the water level will rise and cover the monuments forever. Since the launching of the Unesco Director-General's appeal to Member States on March 8th, 1960, which evoked a world-wide response, various measures have been taken. Public interest was widely stimulated.

Several governments and institutions have signified their intention of participating in the enterprise in various ways—organizing excavations, lending experts to take part in documentation missions, in excavation at prospecting sites or in removing temples. From the USA the Oriental Institute of the University of Chicago offered to make architectural surveys of the Temple of Bet al Wali, carrying out the excavations between Dehmit and Kalabsha, on both banks of the Nile. They also plan to go to Sudan on the completions of their excavations in the United Arab Republic. The Universities of Pennsylvania and Yale, which are to form a joint team, will go to Kuban or Tochke. The National Science Foundation offered a reconnaissance expedition concerned with prehistory. And the Parker Pen

Dr Gorski, who is Assistant Professor of History of Architecture in the Department of Architectural Engineering at Washington State University, has served as architect on an archeological mission in Egypt, and has worked on the restoration of historic buildings in England and the investigation of ancient monuments in both Italy and Switzerland

Company of Janesville, Wisconsin, wishes to remove the temple from Dendur and transfer it to Janesville!

Contribution by other nations is considerable. In the first place France should be mentioned, having done work in different fields and sites by several institutions. Then Germany, Italy, Poland, England, Belgium, Austria, Netherlands, Spain, Yugoslavia and Russia. Their participation has taken various forms—mostly in organizing excavations or in removing temples. This summer the Egyptian Government removed the temples of Debod and Taffeh which would otherwise be submerged in 1961. During the winter of 1960-1 Belgium will remove the temple of Amada. The Federal Republic of Germany intends to take full responsibility for the transfer of a temple, probably of Kalabsha, and Russians that of Kertassi. All removals to higher places and the newly created oasis must be made between 1960 and 1964.

A major operation is the protection of Abu Simbel and Philae. The safeguarding of these monuments is the most important and considerable technical matters are involved. The Government of the UAR and Unesco have signed a contract with the consulting engineers, Coyne and Bellier, by which that firm undertakes to make a preliminary survey and submit a detailed estimate for the construction of an earth dam and encroachments to protect the temples. Work has been started. The report from the firm of Coyne and Bellier has now been submitted and the publi-

cation is awaited with the greatest interest.

If the Coyne report is negative and the dam not feasible then another idea, proposed by the Italian, P. Gazzola, to move the two Abu Simbel temples to a higher elevation will be treated as an alternative and then become the subject of further study. This proposal would involve the incredible feat of hewing the temple out as one gigantic block of stone, weighing a half million tons, raising it 290 feet and moving it to a new site. The cost of such a project will be interesting. Probably it will be many millions beyond the financial and technical resources of the UAR. To keep the temples from being submerged, the archeologists proposed a 2200-foot wall of rock and sand encircling it 1000 feet into the river. That would be an excellent solution providing the necessary space in front of the temples was preserved so that no shadows will be formed on the temples by the dam. With regard to Philae, the desire is to keep it as an island by building a system of earth and stone dikes connecting the island with the neighboring islands and the right bank of the Nile. In this case, the general appearance of the monuments as a whole would be unimpaired. The cost would be about \$20 million.

The Unesco appealed for financial contributions from governments of States, institutions, public and private foundations and other bodies and in fact by any one who wishes to share in this work of international fellowship.

The raising of funds is having less striking results than the action of saving sites and mon-



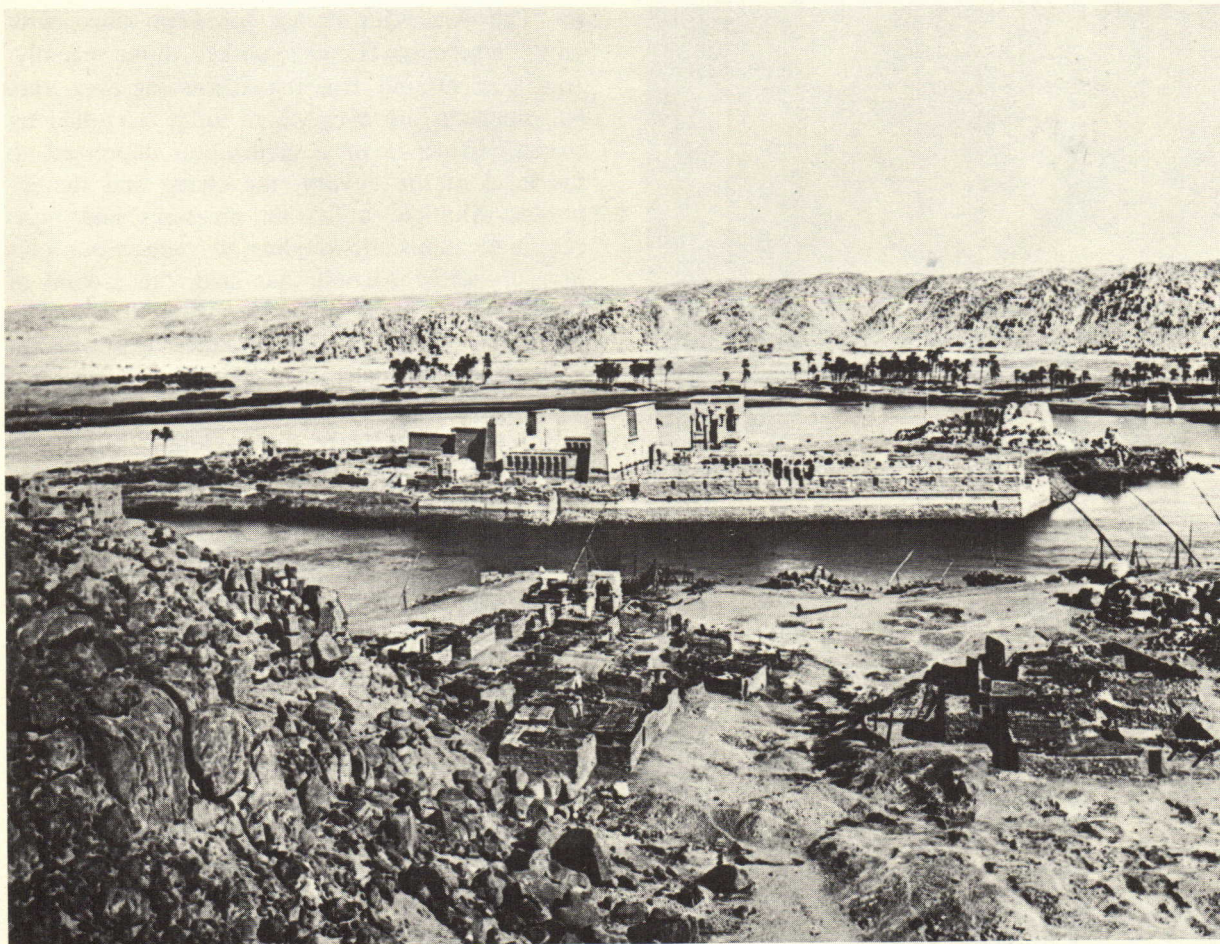
The Great Temple (Rameses II) of Abu Simbel

54 A I A J O U R N A L

uments. In the USA the Bruce Museum of Greenwich, Connecticut, is planning a large-scale campaign to raise money in local museums throughout the country and is discussing this project with the American Association of Museums. The nationwide campaign is prepared by a national committee set up by the US National Commission for Unesco under the chairmanship of Dr J. O. Brow, Director of the Peabody Museum at Harvard University. We will soon hear and see a lot about these unusual activities in the field of History of Architecture and Art. A short film, made by Unesco, has been sent to nine major distribution agencies, and another specially prepared for television has been sent to stations in twenty-eight countries. Radio Geneva has sent a reporter to Nubia to collaborate with Unesco in the production of a documentary program which will be entered for the "Italia" competition. Other documentary programs are being prepared by missions which the French radio and television stations have sent to Nubia. The French TV program will be offered to stations

around the world. NBC, New York, sent a reporter to the scene and is now preparing a half-hour television program.

Two filmstrips have been made, one in color and the other composed of drawings, which illustrate the solutions which are to be adopted to save the monuments. Now Unesco is bringing out a series of color art slides on the Nubia monuments as an additional item in its collection of color slides illustrating the world's art. All these publicity efforts are needed to stir worldwide appeal to ensure the priceless relics of a region that is to disappear forever. Many millions of dollars are urgently demanded. All eyes are turned to the USA. Here the most promising measure is that adopted in May by the US Congress and signed by President Eisenhower. It is an amendment to the Mutual Security Act which reads: "It is the sense of the Congress that prompt and careful consideration should be given to participation by the US in an internationally-financed program which would utilize foreign currencies available to the US to preserve the great cultural



Island at Philae from the west bank of the Nile River

monuments of the Upper Nile. Accordingly, the President is requested to submit to the Congress, on or before March 1, 1961, his recommendations concerning such program."

There are also counterparts offered by the Governments of the UAR and Sudan, to recompense public and private contributions. The most important part is that at least half the proceeds of their finds will be ceded to parties which have carried out excavations, with the understanding that certain unique items will remain state property. The statues, steles, inscriptions and other archeological items from the state's collections and reserves will be ceded as a counterpart for international action. As to permission to move a temple abroad, it will not be recommended only upon the financing of such removal; the offer must be accompanied by a substantial contribution toward the safeguarding of the other monuments, which is right and should not stop this kind of action.

The participation of architects in these various operations is considerable. It is not only that in

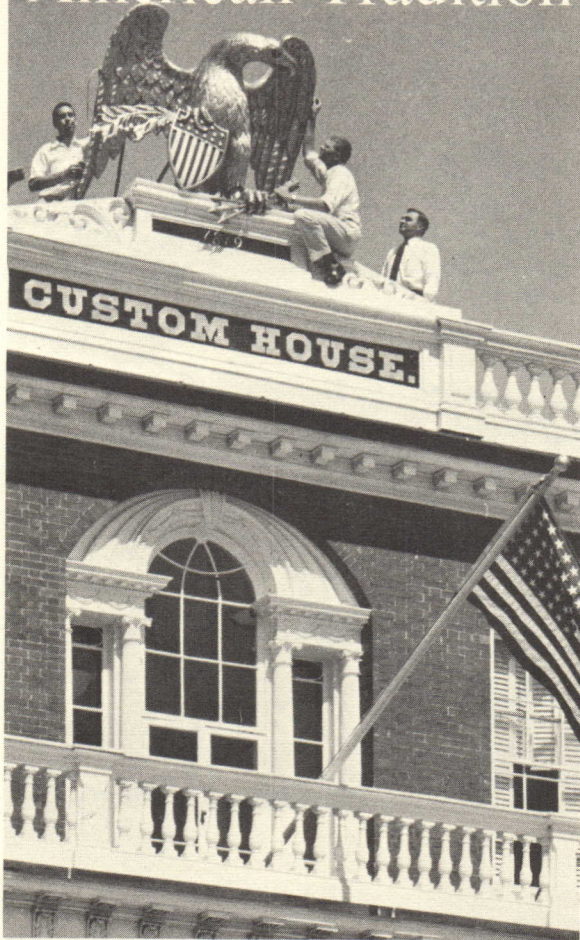
every archeological or other mission there is at least one architect familiar with this kind of work, but in all different types of work architects are needed. Some nations have already offered such services. From Belgium there is an architect for the removal of the temple and surveying. From Poland two architects will work on the removal of the temple and survey them. Switzerland and Lebanon each have one, the Lebanese a specialist in the transfer of heavy stones.

Last summer the United Arab Republic in their list of personnel requirements for documentation demanded fourteen architects, plus eight for Philae alone.

The government of Sudan urgently requested two architects for documentation and transfer of temples.

It would be highly desirable that The American Institute of Architects give its support to the program to obtain a loan from this country, and also to encourage a number of interested architects to go to Egypt as a part of this government participation. ◀

Preserving the American Tradition



THE NATIONAL PARK SERVICE SUMMER PROGRAM FOR STUDENTS

by Ernest Allen Connally

Dr Connally is Associate Professor of Architecture,
College of Fine and Applied Arts, University of Illinois.

Over the past ten years he has frequently served as
supervisor and advisor to the NPS Summer Program

Photo above: Measuring the carved wood, gilded eagle on the Salem Custom House. The work of Joesph True, successor to the McIntires of Salem, the eagle was set up in 1826 at a complete cost of \$74. It is characterized by Hawthorne in "The Scarlet Letter" as a fierce, unhappy fowl, threatening mischief to the inoffensive community and warning against any intrusion on the premises

► "The American dream has been filled with junk," a sensitive friend remarked to me recently. And it is certainly true that discerning eyes, ears and intellects are everywhere today assaulted by strident evidence of a civilization depressed to the level of the tawdry, the cheap and the ignorant. Multiple utilitarian pressures and mass communications are tending to reduce our culture, Reinhold Niebuhr has said, "to a kind of sophisticated vulgarity beside which the vulgarity of the unlettered man of other ages will appear as pure innocence." This strong statement voices a problem not entirely new; it has been variously iterated since the beginning of the industrial revolution. However, in the advanced industrialism of America today, the forces which would sweep away our central cultural tradition are vastly more powerful than ever before.

The central cultural tradition of the western world has resided in humane education. The cultivated mind has been traditionally distinguished by that love of the true and the beautiful and the good which Plato called *eros*: The ideal has been that manly intellectual and esthetic excellence which in the Renaissance was called *virtù*. It was this classical approach to life which made the western world the leading light of mankind—its objective standards giving birth to scientific inquiry, which incidentally spawned that seemingly rebellious and selfish grandchild modern technology, whose wayward applications have promoted this insidious mass culture. Traditionally the schools have been the guardians of our intellectual and esthetic legacy. But in America the public schools have largely embraced the mass culture, and its blight has now inevitably reached into the colleges and universities (Is there, for example, another nation of the western world that finds it necessary to teach the rudiments of the mother tongue at the university level?). And so we are seriously concerned with its consequences in the education of our future architects.

As a university teacher of architecture, I find two notable aspects of the problem. First, the typical student, as I am able to see him, appears a complete non-participant in the continuum of our central cultural tradition. With little sense of personal involvement or commitment, he seems essentially a spectator (and the problem is thus similar to the one of "spectator sports," of which we hear much nowadays, in its own way a deviation from tradition). It is accurate to say that we have in our colleges today a generation largely cut off from its cultural sources. While this detachment may be due as much to the heterogeneity of our population as to poor preparation, it is nevertheless worth comment when a

university lecture on early American history and architecture is received as an essentially alien subject.

Second is the overpowering burden of visual ignorance. How can you make a sensitive, discriminating architect of the man who grew up between the barbed-wire fence and the gas station, who for too many days of his life has seen only streets lined with the brutal necessities and assorted trash of the contemporary urban scene? You show him lantern slides and explain. But there is still lacking that sense of personal involvement in a great tradition; there is absent that first-hand acquaintance with reality and with quality—quality over the long time-span, which is necessary for the formation of instinctive standards of taste. What can we do?

. . .

Many jejune curricula have been contrived to overcome these deficiencies, usually failing to get to the root of the problem. More immediately valuable are our numerous travelling scholarships, both foreign and domestic; and there are other new proposals and projects of considerable merit. There is also one unusual program specifically related to the American tradition, not so well known as it deserves to be, which is worth the attention of the profession at large and particularly of the collegiate schools of architecture. It is the summer program for students sponsored by the National Park Service.

This program provides the student an opportunity to live for a summer in a different part of the country, in some important historic setting, where he becomes part of a group of students with diverse geographic backgrounds. As a group, under professional supervision, the students prepare measured drawings of historic American buildings. The group thus serves a national purpose in recording our architectural treasures of the past. As an individual, the student gets a summer of practical experience under unique conditions. The historic environment, the intimate identity with it in his daily work, the new friendships, new travel and recreational experiences all combine to give the susceptible student an unparalleled opportunity for growth in professional depth and cultural breadth.

The summer program enters its eleventh season in June. It was started by Charles E. Peterson, FAIA, a civil servant and architect well known as a scholar and an energetic protector of our American architectural heritage. Without his deep concern for preserving the physical remainder of our national history and for the worth of knowing it at firsthand, this extraordinary opportunity for the student might not have come into being.

In 1950, while he was resident architect for the national historical park under development about Independence Hall in Philadelphia, he took on two graduating architectural students, one from the University of Pennsylvania, the other from Miami University, Ohio. They made measured drawings of structures included in the development of the park. The experiment was a success. The following summer an undergraduate student team was assembled and an experienced architect was recruited as summer supervisor. Since then an informal but very effective collaboration between the Park Service and a number of collegiate schools of architecture has resulted. Most of the summer supervisors are drawn from the universities. The scope of the summer program has also expanded well beyond Philadelphia. In recent summers student teams have been stationed at historic places from Cape Cod to California.

From the beginning, one of the chief aims of the summer program has been to give our students—our architects of the future—the opportunity to participate directly in the conservation of our architectural legacy, thereby cultivating and perpetuating an informed concern for one of our most significant cultural sources.

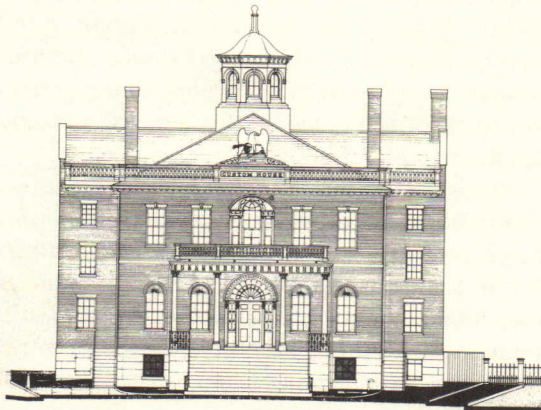
This is a responsibility of the architectural profession at large. Even so, we still require within the profession a small corps of highly trained specialists to work in the field of preservation and restoration, and one of the collateral results of the summer program has been the decision of a number of able young men to make careers in this vital work. The larger national aim of the summer program—indeed the official purpose behind it—is to record our important historic structures in measured drawings, photographs and written reports. The summer program therefore operates as the chief instrument of the Historic American Buildings Survey.

The Profession

Now, even among architects, I find that the Historic American Buildings Survey requires some explanation. The HABS, as it is commonly called, is a long-range program for assembling a national archive of American architecture. The resulting collection is kept in the Library of Congress in Washington. As an “open-ended” archive, the collection is constantly growing and now includes about 26,000 measured drawings and over 30,000 photographs of 8,000 structures. It is already one



Charles E. Peterson, FAIA, father of the Historic American Buildings Survey and of the summer program for students. Mr Peterson is Supervising Architect, Historic Structures, for the Eastern Office (Division of Design and Construction) of the National Park Service, with headquarters in Philadelphia



Custom House, Salem, Massachusetts, erected 1818-19, designed by Perley Putnam and John Saunders. Front elevation, from the set of drawings in the Historic American Buildings Survey, Library of Congress. The building was measured and drawn by undergraduate students in the summer program of 1958



Measuring a historic building at Harper's Ferry, West Virginia. In the background is the confluence of the Shenandoah and Potomac, magnificent sight which Jefferson said was worth a transatlantic voyage. At Harper's Ferry the students recorded many structures, including "John Brown's fort," which figured so tumultuously in the prelude to the Civil War

of the largest collections of this kind ever assembled anywhere. Open to all the American people, the collection enjoys a particularly brisk patronage from architects, teachers, scholars, editors and publishers. Prints of the photographs, measured drawings and data sheets in the collection may be obtained at low cost from the Chief, Photoduplication Service, Library of Congress. A guide to the collection was published in 1941 by the United States Government Printing Office and distributed by the Superintendent of Documents in Washington, under title "Historic American Buildings Survey: Catalog of the Measured Drawings and Photographs of the Survey in the Library of Congress, March 1, 1941." Additions to the collection since that date are listed in the "Historic American Buildings Survey—Catalog Supplement," published in 1959 by the National Park Service, Division of Design and Construction, Washington 25. Unfortunately the 1941 edition of the Catalog is out of print and copies are no longer available. It is being revised and will follow the expanded format as found in the 1959 Supplement.

. . .

The HABS is not exactly new; in fact, it is already twenty-seven years old. It was conceived for the purpose of enhancing the cultural life of the nation by the establishment of a comprehensive archive of historic architecture, similar to those already existing in some European countries. The occasion of its birth, however, was when the great depression of the thirties touched bottom. Architecture was one of the most seriously affected professions. The original proposal which brought the HABS into being was prepared in Washington on a Sunday afternoon in November 1933, by Mr Peterson. In two weeks the proposal had been adopted by the Park Service and Secretary of the Interior Harold L. Ickes. Field work started before the year was out. Through the Civil Works Administration over six hundred architects were given employment in the HABS.

The operation of the HABS was expressed in the "Tripartite Agreement," which formally went into effect in July, 1934. Responsibilities were divided among three cooperating agencies: The National Park Service, to administer the survey and to conduct the field work; The American Institute of Architects, to provide personnel and advice as to the selection of structures; and the Library of Congress, to receive the records and arrange the collection for public use. This agreement is still in effect. The survey was carried forward on a broad scale until Pearl Harbor, when funds were cut off.

After the war the HABS was revived largely through the summer program for students, beginning in 1950. In those first summers, work was

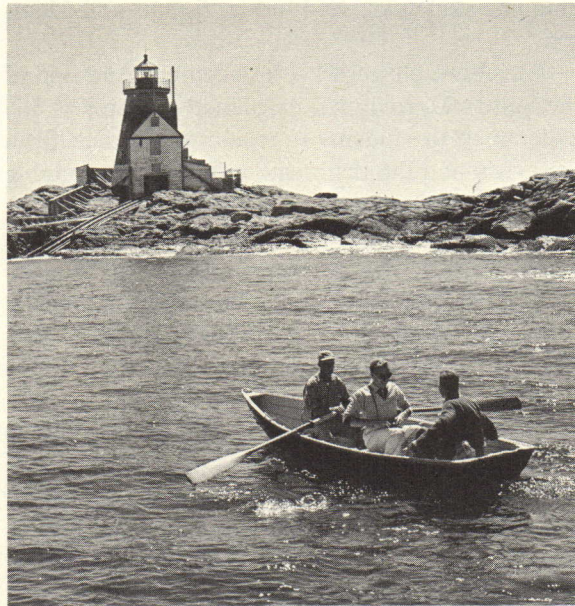
restricted to buildings which were owned by the Federal government and which figured in plans for the development of our national historic sites. Measured drawings ultimately found their way to the Library of Congress, for the National Park Service has always contributed records of the structures in its care to the HABS. In 1957, through the efforts of Thomas C. Vint, FAIA, Chief of Design and Construction, the HABS was resumed in the eastern half of the nation, and in 1958 in the western half, so now there are summer teams at work all across the face of the land.

. . .

The significance of the summer program in contributing to our national cultural life is now, I trust, quite evident. No student with any latent sensibility whatever can go through such a summer without an awareness of high purpose and worthy endeavor. Having been associated with the summer program off and on for a number of years, I can tell you something of how it works and can report what students have said it means to them, personally and professionally.

Students for the summer program are recruited from the collegiate schools of architecture on recommendation by a member of the faculty. Casual recommendations will not suffice, for the summer program has developed a tradition of excellence. To be eligible, a student must have completed two or more years of the professional curriculum of an accredited school (professional graduates are considered only for supervisory or special positions). He is expected to be a good draftsman and a generally superior student; it is especially desirable for him to have some real interest in historic American architecture. When selected, the student is given a temporary appointment, as Student Assistant Architect, in the National Park Service, United States Department of the Interior. He is expected to provide his own transportation to his place of assignment, where he will work a regular forty-hour week Monday through Friday. Salaries now average about three hundred dollars per month, and the student is expected to stay with the program for at least ninety days.

Recommendations should be addressed to Charles E. Peterson, FAIA, Supervising Architect, Historic Structures, National Park Service (Eastern Office, Division of Design and Construction), 143 South Third Street, Philadelphia 6; or to Charles St G. Pope, Supervising Architect, Historic Structures, National Park Service (Western Office, Division of Design and Construction), 1000 Geary St., San Francisco 9. The geographical location of a student's school does not matter so much as the part of the country in which he wishes to work (most of the projects are located east of the



The "Inch Worms" row out to measure the Saddleback Ledge Lighthouse in East Penobscot Bay, Maine. Built in 1839 (for \$15,000), it rises as a pure truncated cone constructed of massive blocks of hammered granite forming the complete and equal thickness of the wall

Mississippi River), for the teams are purposely mixed.

The personnel of the summer program is assigned to a number of "teams" stationed at four or five historic places. Usually some consideration can be given to the student's preference for the place at which he will work, within a list of proposed sites announced each spring. A team normally consists of a professional architect as supervisor and three undergraduate student architects as draftsmen. The photography is usually done by a professional on contract with the Park Service. Let us take the summer of 1960 for illustration. Most of the work was done in the eastern half of the United States, where there were four teams: At Philadelphia, Cape Cod, Milwaukee and Rockland, Maine. At each of these places there was a professional advisor, or local sponsor, to assist the team's supervisor in selecting the structures to be recorded and in obtaining permission to photograph and measure private buildings. On this kind of help the success of the summer program largely depends, and in this way individual members of the AIA, and its preservation committees, as well as universities and historical societies, can contribute a cultural service to their communities and materially aid the HABS. At Milwaukee, for example, the team was advised by a local architect interested and knowledgeable in the surviving examples of German *fachwerk* construction, which the students had come to record. The team itself was typical, consisting of a professional supervisor from the University of Florida, and three under-

graduate students from Florida, Illinois and Clemson.

Travel, we all know, is broadening. And one of the summer program's calculated features is the assignment of students to localities different from their own and the deliberate mixing of geographic origins in the composition of each team. The place affects the students, they interact on each other, and there generally develops a fine sense of community in a new adventure. This is not superficial travel; the students settle down in some historic place for a fairly long, intimate stay. Let us see how they live and work.

The Park Service is officially unable to provide board and lodging for the students; however, rather good arrangements are usually worked out with the help of the local sponsors. And here is another way in which the AIA, the universities and the patriotic societies can assist the summer program. Accommodations vary with place and circumstance. At Harper's Ferry, where teams were assigned for several consecutive summers, supervisor and students lived in a quaint, inexpensive resort hotel—something of an artists' colony—on top a mountain, with a dramatic view of the Blue Ridge Mountains and the magnificent confluence of the Shenandoah and Potomac, which Jefferson thought it worth a transatlantic voyage to see. You can imagine what a new experience it was for students from Chicago and Detroit to live three months in a picturesque, sleepy town of 800 population. They grew to like it, although initially the Detroiters complained of an inability to sleep nights because of the intense quiet and the Chicagoan was awakened too early in the morning by the unaccustomed sound of twittering birds. At Salem, Massachusetts, in the summer of '58 a double-team of students (representing the Pratt Institute, Rhode Island School of Design and the universities of Pennsylvania, Illinois, Florida, and Texas) happily moved into a mansion designed by Samuel McIntire and overlooking the bay. The house had been renovated, including modern kitchen and baths, by the National Park Service and was awaiting its permanent use. The students were charged a purely nominal rent, and with cots and tables borrowed from the nearby naval establishment, they were able to live comfortably, do their own cooking and save some money.

What does the summer program mean to the students as intending professionals? At different times and places they have told me what the summer program means to them, and their estimates of its value show that you are mistaken if you think it mere antiquarianism. First the students generally agree that they get a keener grasp of the reality of the building itself as the end in architecture. For in the summer program the process is reversed from

normal office practice: Our man starts with the finished building and works back to detailed drawings. Closely examining the *fait accompli*, he simultaneously recreates the paper pattern for it, thus experiencing the closest relationship between building and drawings. The students also say they become more aware of what precision really means in architecture; for a measured drawing is nothing if not exact, and assumptions are inadmissible. There is neither summary nor short-hand, and the essential requisite of precision goes well beyond that reasonably expected in a school project. The students warm up to the challenge and produce drawings in quality and quantity which often astonish older members of the profession.

Next the students seem most interested in construction. Our young architects have an incorrigible curiosity about how things fit together. They are fascinated by the combined uses of brick and wood, the simple details, the careful joinery. The students at Harper's Ferry worked on buildings with walls constructed of the local ledge limestone and got to know the quarry whence it came; they got to know, that is, why and how it was used. At Salem it seemed for a while the team was habitually short one man, who could usually be found in some practically inaccessible corner of the Custom House attic: It was hard to keep him at the drawing board until he had satisfied himself completely about those great wooden trusses—how they were put together, how they did their job. On Cape Cod the students were fascinated by the old and ubiquitous system of "plank construction," which makes a tight wall only three inches thick.

The students also get some first-hand acquaintance with the important, difficult problem of historic preservation. They begin to sense its numerous ramifications and to form some general standards for evaluating old buildings, recognizing that as professionals they may in the future be called on for decisions or recommendations regarding historic structures where new construction, such as urban renewal, is involved. They become aware of this larger responsibility of the profession and believe, as a recent editorial writer put it, that we need to keep our good buildings of the past, since they represent a physical accumulation of knowledge and experience without which we should be left as perpetual juveniles in the practice of man's most expensive art.

Our good students are dedicated to architecture, no mistake about it. They want to learn and they will seize opportunity to learn. They are susceptible of deeper professional insight and broader cultural vision. And the Park Service's summer program is helping the schools to contribute that highest form of asset to any learned profession; namely, discriminating, disciplined intelligence. ◀

Mr Naylor is Chairman of the Sub-Committee on Collaboration Between the Professions of the AIA—EJC Joint Council Committee. Recognizing the differences which exist between the engineering and the architectural professions, he states here the engineers' point of view and what he believes should be done to bring the professions closer together

Architect—Engineer Relationships

by **Henry A. Naylor, Jr, PE**

Member ASME, AIEE, NSPE, CEC-Md

Partner: Whitman, Requardt & Associates

Consulting Engineers, Baltimore

► We all know that the relationships between architects and engineers are not always of the happiest nature. It is my objective to explore some of the underlying reasons and to review some approaches toward creating an atmosphere of mutual understanding and respect between the two design professions.

Let's start with some definitions. From Webster's New International Dictionary, 2nd edition, we find the definitions for engineer and architect have in common the root words "design" and "contrive." Referring to the 1955 Encyclopaedia Britannica we find if we delete the references to "embellishments" from the architect's definition and the reference to "machinery" from the engineer's definition, the two are not too far apart.

For a moment, let us look at what the Britannica has to say about the two design professions historically. We find "Architecture originated in more permanent dwellings in which wood was used less and less . . ." We learn in the same article of tree trunks used as lintels and the need to thicken and batter walls. Is not this structural engineering? In another article we learn Gundulph, Bishop of Rochester, a famous engineer of his day, in 1078 built the White Tower of the Tower of London and Rochester Castle.

Turning from the Britannica to Finch's "The

Story of Engineering" (1960), one finds Herodotus, the father of history, records the title "architekton," but applied it to the builder of an engineering project, a public water supply. We find, too, the Romans using "architectus" to describe the architect-civil-military engineer. And we find "ingeniator" coming into use during the middle ages. Lastly, we find Italian workers of the fifteenth century using both titles: Engineer and architect.

What about education for the two design professions? The Massachusetts Institute of Technology was the first institution to develop formal architectural education in the United States. It is also one of the country's outstanding engineering schools, as we all know. In the 1959 MIT catalog, Dean Belluschi of the School of Architecture and Planning (whose doctorate is in civil engineering) states that the undergraduate *architectural* "curriculum combines selected elements of science, mathematics, humanities and basic engineering with a program of departmental studies designed to provide a generalized but thorough introduction to architecture." Except for the reference to "architecture," MIT's 1959 catalog statement for the civil *engineering* curriculum is similar in content.

Condensed and revised by the author from an address before the Institute for Consulting Engineers, University Extension Division and College of Engineering, at the University of Wisconsin, June 2-3, 1960

Returning again to the Britannica we find under "Architectural Education" this interesting paragraph:

The architect must be instructed how to make the technical sciences the servants of his art. Not only methods of construction, but surveying, sanitation, hygiene, heating, lighting, ventilation and acoustics come within this category, as also do such ancillary subjects as the law and finance of building.

If "engineer" is inserted for "architect" the quotation from Britannica would apply more than aptly to the consulting engineers in the construction field.

. . .

Now let us examine professional registration laws. The New York State architectural law says "A person practices architecture within the meaning and intent of this article who holds himself out as able to perform or who does perform any professional service such as consultation, investigation, evaluation, planning, design, including esthetic and structural design, or responsible supervision of construction, in connection with any private or public buildings, structures or projects, or the equipment or utilities thereof, or the accessories thereto, wherein the safeguarding of life, health or property is concerned or involved, when such professional service requires the application of the art and science of construction based upon the principles of mathematics, esthetics and the physical sciences." Now, if the word "esthetic" is omitted and "engineering" substituted for "architecture" we have a good definition of the practice of *engineering*. Incidentally, I chose the New York Law since that state has the reputation of being one of the toughest in which to get registration.

The National Council of State Boards of Engineering Examiners adopted August 18, 1960, a Model Engineering Law which says, with the exception of the reference to "esthetic," much of what the New York architectural law states.

Comparing the two laws just cited, we can readily see how the two design professions operating within the framework of the legal definitions can misunderstand each other.

The laws of our individual states and territories are not uniform as to registration requirements for architects and engineers. This certainly does not help foster improved relations between the two design professions. A recent incomplete survey reveals:

Architectural or Engineering Laws:

1 Thirty-nine states do not mention one profession as being subject to or exempt from the regulations of the other profession

2 Thirteen states exempt one profession from the regulations of the other profession

3 Twenty-seven states allow one profession to do work incidental to the other profession's work

Combined Architectural/Engineering Laws:

4 Eight states do not mention or exempt the one profession from the regulations of the other profession

5 Two states permit one profession to do incidental work of the other profession

6 One state and one territory stipulate *architects* can only do architectural work and *engineers* only engineering work

You will agree that this incomplete survey points up the need to revise state registration laws to secure uniformity!

. . .

Let us look at several interesting viewpoints expressed by proponents of both professions.

An architect I know well once wrote to me apropos of areas of work for architects and engineers saying ". . . that I feel we should recognize the desirability and necessity of beauty in all construction built for whatever purpose. It seems to me that the architect is the best equipped by training and experience to provide this beauty and he must have the responsibility of determining size, shape and placing of structure to accomplish this end."

On the other hand, the president of a large engineering-architectural office recently commented: "There has always been a conflict between architects and engineers with respect to the responsibility for the design of some structures. The conflict is inevitable, due to the nature of architects, engineers and owners. Frankly, much depends upon the qualifications of the individual or of the firm involved. It is my impression that the architects were conscious of the conflict earlier than others and, therefore, promoted state laws to protect their interests . . . The coordinating party, whether he be an architect or an engineer, would be the choice of the firm responsible for the design, and I, personally, would prefer to have an engineer as coordinator, rather than an architect, due to the difference in their training."

During March 1960 the *Detroit News* cited Robert F. Hastings, President of the Detroit Chapter of AIA, in a speech to the United States Chamber of Commerce in Washington, as saying that the unwillingness of architects to accept design engineers as equals results in a "cleavage between architects and design engineers" with the building industry "suffering in efficiency and prestige."

Toward the end of 1959 a joint committee of architects and engineers conducted a survey in the

Gulf States region. Here are a few of the comments the architects made relative to engineers:

Lack of coordination with structural. Piping, conduit, light fixtures, distribution panels, etc, shown where structural elements will not permit the location of these items.

Too many items left to be "worked out on the job" because the engineer does not bother to examine the architect's plan to determine location of beams, thickness of wall, etc.

Lack of factual completion schedules.

And this is what a few engineers said about the architects:

Consultants are not called in early enough for their work to be properly coordinated in the design.

With the title "architect" they go into all kinds of fields they know nothing about. Then they are not willing to pay a consulting engineer the proper fee to keep them out of trouble.

Architects are the lousiest cost estimators of all.

And who suffers when the job runs over budget?

The engineer does the job two or more times for one fee.

In all fairness, it should be made known that both the architects and engineers who made the comments said they did not apply to all members of the other profession.

. . .

From your own knowledge, and from what I have said so far, we all can easily see that just about as much confusion and tension exists today between architects and engineers as exists on a larger scale between the nations of the world. What is being done to alleviate confusion and tension between the design professions? I am aware of several things which are being done. The most important are the national level and the local level programs.

Let us look now at the national level program. In January 1957 the Board of the Engineers Joint Council accepted the EJC Planning Committee's recommendations to invite The American Institute of Architects to participate in establishing a Joint Committee to analyze and solve problems of common interest to both the engineering and architectural professions. The EJC invitation was accepted in principle by AIA during the Spring of 1957.

An exploratory meeting of EJC and AIA representatives was held in January of 1958. Those attending the meeting felt an independent Joint Committee should be formed with work in specific areas being handled by subcommittees reporting to the Joint Committee. Further, the members of the subcommittees would report and discuss the trend of developments of their assignments with their respective societies so a completed subcom-

mittee report would more adequately reflect the considered thinking of the participating societies.

Prior to and subsequent to the exploratory meeting of January 1958, appointments to the Joint Committee were made by the interested engineering societies, ASME, ASCE, AIEE, ASHRAE, NSPE, CEC, AICE, and the AIA.

The Joint Committee met again in September of 1958. It agreed to operate under the co-chairmanship of both engineering and architectural representatives and to meet on a quarterly basis and adopted the following:

OBJECTIVE: To maintain and further develop proper relations between engineers and architects. To cooperate on problems of national scope which are of mutual interest to The American Institute of Architects and the Engineers Joint Council, as well as other groups, in areas such as design, site planning, construction and matters of interprofessional interest.

PURPOSE: To improve the relationship, cooperation and joint functioning of engineers and architects and to raise engineering and architectural standards with respect to service to the public and quality of product and further:

1 To develop a sincere spirit of cooperation among professions

2 To encourage each profession to recognize the competence of each other profession to handle all stages of its respective work and business, and the paramount necessity that each profession be allowed to perform its function without unwarranted pressure or encroachment by any other profession

3 To encourage each profession to recognize the right and privilege of another profession to assume the over-all administration and direction of all phases of a project, if that profession is so qualified

4 To investigate all phases of individual and joint practice in design, site planning, construction, education, registration, standards of practice, division of responsibility, professional liability, legislative problems, public relations and other matters

Currently the Joint Committee has four subcommittees actively at work, each under the direction of a member of the Joint Committee. These are:

1 Professional Liability, which is exploring the problems of professional liability which concern architects and engineers and will outline a program of action

2 Division of Responsibility, which is revising the May 1954 publication "Division of Responsibility Among the Design Professions" to include housing, redevelopment, institutional, governmental, commercial, retail, monumental,

industrial, sanitary, highway, transportation and airport projects. It is also reviewing engineering and architectural registration laws

3 Local Collaboration, which is investigating the major problems encountered in all types of construction, as well as the question of collaboration between architects and engineers who have common interests in such projects

4 Fees, which is investigating the need for clarification of existing fee practices and establishment of principles relating to them, as well as an educational program in order to establish an equitable fee system.

In addition to the work of the four subcommittees, the Joint Committee has had under discussion a variety of items such as the AIA Allied Professions Medal, articles in *Consulting Engineering* magazine, collaboration and exchange of information with foreign professional societies and organizations, competition for professional services in urban renewal programs, etc. The EJC/AIA Joint Committee will welcome suggestions or comments as to its work, from engineers and architects. Such should be sent to either the EJC Secretary in New York or the AIA Secretary in Washington.

What about the local level? Let me cite what we are doing in Maryland, my home state. The Consulting Engineers Council of Maryland and the Baltimore Chapter of AIA were successful in having fees for Baltimore City work raised a little over twenty per cent. Next, fee schedules of the counties and state will be tackled. The Council has developed a Manual of Consulting Practice, and fee schedules for private work, and both are now being discussed with the architects. Joint appearances have been made before state legislative committees and school boards to oppose proposals adverse to both professions. Through these efforts the engineers and architects are achieving a better understanding of the problems of each and, as a result, a better atmosphere is developing. There is no reason why all of you, if you are not already embarked locally upon similar programs, should not institute programs toward improving relationships between two professions sometimes closely allied, and sometimes alienated.

What other steps can be taken to achieve a clearer understanding between engineers and architects? First, groups of engineers and architects should hold joint meetings on a regional, state or local level. Sometimes the contractors and material men could participate. Carefully planned joint meetings are a successful and a very effective means of securing local collaboration between the two design professions. To my knowledge, this is being done in several metropolitan areas. Second, architectural and engineering colleges should stress to their students the need to effectively understand

each other both in college and in practice afterwards. Registered practicing architects and engineers can help in this type of educational program. Third, the two design professions should exchange ideas, thoughts and problems through the medium of the journals and magazines of each profession and perhaps through the public press. This could be a three-level program, local, regional and national.

. . .

To summarize, I have tried to show that historically, educationally and legally, engineering and architecture have much common ground and a common heritage.

I believe that temperament is a basic cause for some of the differences and misunderstandings between the two design professions. Generally, the architect has a greater artistic sense, whereas the engineer has a greater utilitarian sense. Consequently, the architect is primarily interested in creating a harmonious blend of materials and space usage as an esthetic whole, while the engineer is interested in the application of materials and equipment to create systems—be they mechanical, structural, or any other—all to function as simply as possible within a space usage framework.

I believe engineers can do just as good a job—if not better—than architects in assuming over-all responsibility for projects. Witness the fact that so many engineers advance into management.

I feel it is vital for the success of any project that the design team of engineers and architects be a well integrated group composed not only of individuals of skill and knowledge, but individuals compatible professionally and personally—individuals who have a mutual regard for each other—individuals who are sensitive to the needs of their fellow team members.

I strongly feel that both design professions, engineers and architects, should:

- 1 Recognize their common heritage and allied backgrounds
- 2 Recognize the architect's deep appreciation of esthetics
- 3 Recognize the engineer's desire for simple applications of systems comprised of materials and equipment
- 4 Recognize the analytical and methodical training of the engineer fits them to be managers
- 5 Put aside petty jealousies and differences
- 6 Work together, nationally in the area of broad policies and locally in the area of specifics

Such a program of action would develop an atmosphere of mutual understanding, confidence and collaboration, all to the benefit of the people we, the design professions, serve. ◀

by William Stanley Parker, FAIA

Instead of the usual page of sage advice from the Institute's Consultant on Contract Procedures, we present this month his review of a recent book which will doubtless find its way into the libraries of most practicing architects

It's the Law. Bernard Tomson. Great Neck, N.Y., Channel Press, 1960. 436 pp. \$7.50

This book is by an author whose name will be familiar to readers of *Progressive Architecture*, in whose columns the articles entitled "It's the Law" form the basis for the book. It should be remembered that these articles have appeared for several years and in a few cases comments on forms that were correct when first made need correction now to fit the texts of the forms that have since been amended in later editions. The following notes deal with the author's comments on Guaranty Bonds covering "performance" and "payment for labor and materials."

For many years the AIA published a standard form of "Owner's Protective Bond." The form had been developed and copyrighted by The Surety Association of America in 1940. It covered faithful performance and also payment for labor and materials. It was found that the face of the bond was often needed to complete performance, which was given priority, and no funds or inadequate funds remained to take care of payment for labor and materials. For this reason the so-called "double form" of bond is now used, as described in the book. The two bonds are issued by the surety company simultaneously, one covering performance and one covering payment for labor and materials.

Mr Tomson quotes the basic provisions of a Performance Bond. The AIA publishes a form of bond developed by the Surety Association. It includes an important provision that does not appear in the form quoted by Mr Tomson, which

is as follows: "The Surety hereby waives notice of any alteration or extension of time made by the Owner." Many minor changes and alterations of specifications occur during a normal job. Unless a waiver clause such as the above is included in the bond, many opportunities would exist for the Surety to refuse liability due to such changes. The form of bond issued by the AIA should always be required.

The book also quotes some of the basic clauses in the Payment bond but fails to quote a clause that defines what Claimants are permitted to sue on the bond without filing a claim within ninety days of the time when the last work on the job was done. The standard form until recently required all claimants to file such a claim. In a recent case a Subcontractor sued without having filed a claim within the ninety day period and the Surety disclaimed responsibility. The Surety Association agreed that a Subcontractor claim was clearly on the books of the General Contractor and that no ninety day notice was required, such notice, however, being properly required of *suppliers of subcontractors*, as the Contractor and Surety would not otherwise be informed that he had not been paid.

With that in mind the ninety day provision was amended to read that "No suit or action shall be commenced hereunder by any Claimant unless Claimant, *other than one having a direct contract with the principal*, shall. . . ." This case developed quick action by the Surety Association and the AIA in the issuance of this revision in the form and subsequently the Surety paid the claim. This action is not recorded in the book but is of basic significance and warrants insistence by Architects on the use of the bond forms issued by the AIA.

Judge Tomson's advice on licensing and registration laws, doing business in a foreign state, partnership agreements, and dealing with the government can be of real value to Architects, and his notes on Standards of Professional Practice raise points that Architects and Engineers should carefully consider. ◀



Standards of the National Council

by **Chandler C. Cohagen, FAIA**

Billings, Montana

First Vice President, NCARB

► For a longer time than many of us have been interested in architecture we have been interested in a certain lady in the vicinity of New York. On our trips to that metropolis we did not see her every time, but it was a comfort just to know that she was near at hand. Recently as we left the shores of America, we saw her again; all 151'5" of her bronzed figure as she stood 149'-10" above the harbor water level. For almost seventy-five years she has been a symbol; an inspiration to all who love liberty and justice. We recalled the words of the little girl who asked her father, "Daddy, who is helping hold up the arm of the lady?" Well, who is? After two months away she looked better than ever as we sailed back into the Hudson River. She was more than a symbol; she indicated an open door to opportunities, and she represented an American standard.

Several, who are most active in the National Council of Architectural Registration Boards, have spent more than thirty-five years on State Boards. Why? "They are helping hold up the arm of the lady." Then, after the organization of the NCARB in 1920, they have joined with others in creating standards for one of the noblest of professions. They are opening many doors to greater opportunities. Prior to the creation of the Council the various states had regulations about as varied as the number of states represented. This is quite understandable, because each state was sailing into an uncharted sea, without a magnetic pole to guide them. There still exists a great difference since the NCARB can not dictate, nor does it attempt to do so, the policies of any Board. It only can hope to hold up a standard of excellence which will be acceptable to the majority of Boards.

The functions of the National Council are not understood by many practitioners. It is not in possession of a common panacea for all troubles.

It is not attempting to press any pattern over any state organization. Rather it is in possession of a melting pot for the fusing of ideas. It is attempting to maintain the highest standards of professional instructions, and to assist in securing modern education for an ancient profession. Someone has defined education as a process whereby we develop and cultivate ourselves both mentally and morally. By the tenets of an ancient and honorable calling, and through modern education we are the better enabled to meet the challenge of change which confronts our mode of life at every turn. It was Benjamin Franklin who wrote of America, “. . . America, where people do not inquire of a stranger, ‘What is he?’ but ‘What can he do?’” The several Boards, as they give the various tests to the candidate for an architectural license are interested in “What can he do?” The objective type of examination is an effort on the part of the Council to conserve the time of the applicant for a license, so that he may devote more time to those subjects which cannot be covered by this type of test.

The National Council has had the attention of those who have formulated many examinations; have taught many subjects; have designed many buildings; have trained many draftsmen and have enjoyed the choicest fruits of the profession. All this has contributed to a standard of professional excellence which has caused admiration and respect for the architect's ability. It has provided a common meeting ground for the exchange of state standards and experiences. It has established a pool of ideas which has proven invaluable to the profession at large. It has erected guide posts in areas where the paths are not always clearly defined.

The creation of standards pointing toward the securing of a National certificate has lowered the wall which has existed between many states. Certainly the NCARB certificate has made this wall easier to hurdle. For some time the Council has realized that many architects are not fully aware of the possibilities of the NCARB certificate or of the advantages of possessing the same. We intend to give added publicity to this phase of our activities as soon as possible. Actually there is very little difference in the requirements of widely separated areas in our nation. Walter B. Pitkin, author of “Life Begins at Forty,” says “Life grows more and more complex. We have to deal with more and more people and things in planning affairs.” The structural or mechanical requirements for the building in California may not be the same as for the one in New York, but the behavior of the people will be substantially the same. Our NCARB certificate is aiding in maintaining one uniformly high standard across the nation.

Our cooperation with The American Institute of

Architects and with the Association of Collegiate Schools of Architecture in assisting the National Architectural Accrediting Board, is but one manifestation of our efforts to hold the banner of our profession at an all time high. We intend to continue to help hold up the arm of this lady.

We have ample precedent to desire to maintain these standards, which descend from the time of George Washington and Thomas Jefferson. Marcus Whiffen, the architectural historian, said “The architectural style of the building is a visual equivalent of the good plain English in which the doings of those who met in it were written down. The only touch of fantasy is supplied by the cupola.” The cupola has disappeared, but there is no fan-



The author,
Chandler C. Cohagen

tasy in the purpose with which we are attempting to establish the regulations which will maintain the standards of our art.

Recently the directors of the Council met for an appraisal of our efforts. It might be likened to a “soul-searching” or a “stock-taking” of what has gone on before or what we are now doing. At times even the nation pauses to set other goals. The Council does the same. We intend to retain everything which has proven of value. We have reported previously that we desire to simplify certain documents. We wish to improve and unify, as much as possible, the examinations given in each area. This will promote the desire for a NCARB certificate. We have on hand the registration laws of the several states, and we have given, when so requested, aid to Boards and organizations seeking to improve the status of existing state regulations. Together with the Institute, we hope to outline a program of training and checks to insure that the draftsman is fully qualified to take the State Examination. We desire to keep State Boards and the profession generally keenly aware of what we are doing. We wish all to understand that we are truly “Helping hold up the arm of the lady.” ◀



Temporary Agreements

by Luther Lashmit, AIA
Winston-Salem, N. C.

► The Committee on Office Practice has given careful consideration to temporary agreements which make it possible for a project to proceed while certain matters are being settled and which will be superseded by formal agreements. Two kinds of situations are envisioned:

1 When an architect has been selected but the construction cost and the method of financing have yet to be determined.

2 When drawings and specifications have been completed, bids received, and the contractor selected but the formal contract documents have not been completed. Several days of valuable time may possibly be saved by use of a temporary agreement.

These temporary agreements should be in writing. They are sometimes known as *Letters of Intent*.

Conditional Employment of an Architect

It would not be prudent for an architect to proceed with even preliminary design drawings or the preparation of a program for design without a written agreement. Also, the Standards of Professional Practice of the Institute, in mandatory Rule 2 as interpreted by the Board, provide that an architect "shall neither offer nor provide preliminary services on a conditional basis prior to a definite agreement with the client that if the contemplated project proceeds, he will be employed as its architect."

The following provisions of a prototype Owner-Architect Letter of Intent is offered as a guide to architects and their lawyers:

We propose, on conditions stated herein, to render preliminary services to assist in the determination of the budget for your project, to serve as a basis for private financing,* for an appropriation,* or for a bond election* for (name of

project) located at (location of project).

The conditions referred to above are that if the project proceeds, we will be engaged as architects under a standard AIA Owner-Architect Agreement at our usual compensation of% of the construction cost.

Upon receipt of a properly certified copy of a resolution duly passed by (appropriate authority), accepting this proposal and making specific reference to this letter, we shall be happy to proceed with our services.

If the client is not a public body, the following should be substituted for the last paragraph above:

Upon receipt of a letter from you, accepting this proposal and making specific reference to this letter, we shall be happy to proceed with our services.

Owner-Contractor Letter of Intent

Among letter agreements currently under study by the Committee on Office Practice is one dealing with a limited construction proceed order. Following the receipt of bids on a project, when time is of the essence, an owner may want to save the several days of construction time usually required to assemble and execute the formal contract documents. A limited proceed order, in the form of an Owner-Contractor Letter of Intent, can accomplish this purpose. It should be prepared by the owner's attorney for the owner's signature with the architect's advice on the technical aspects for which he is responsible.

A Letter of Intent would necessarily be on an interim cost-plus basis and should be carefully considered against the possibility that the formal contract may not be executed. It should be made clear that the contractor must not enter into any subcontract agreements nor place orders for any materials beyond the scope of work authorized. The insurance provisions of the General Conditions should be immediately effected when the authorized work begins. That the Letter of Intent will be superseded upon exe-

cution of the contract should be explicit. Provision should be made to credit to the lump sum contract any payment advanced under the letter agreement.

The body of the prototype Owner-Contractor Letter of Intent, which follows and which should be prepared on the owner's letterhead, merely suggests certain technical aspects for the consideration of the owner's attorney:

Contingent on our receiving a countersigned copy of this letter we authorize you to proceed with the site preparation and excavation for the construction of (name of project) in accordance with plans and specifications prepared by (architect's name) and upon which your proposal of (date) was based.

It is our intention to enter into a formal contract with you within (number) days based on The American Institute of Architects Agreement No and the General Conditions of the Contract for the lump sum amount of \$.....

If for any reason whatsoever, it is not possible to conclude the formal contract, we agree to pay you the net cost of (1) any materials expended at the site, (2) any labor used at the site, and (3) the rental and cost of moving equipment to and from the site. To the above costs will be added% for overhead and% for profit.

As a part of overhead, as agreed, you shall immediately effect the insurance coverages required by the General Conditions. It is understood that you are not to enter into any subcontracts nor place orders for any materials beyond the scope of this authorization.

Upon execution of the formal contract this Letter of Intent shall be superseded by it, and any payments which may have been advanced on account of the Letter of Intent shall be credited in full to the formal contract. ◀

* Delete two of the three items.

Meet Matt Rockwell

► My page in this issue of the *Journal* serves the purpose of introducing to our membership Matthew L. Rockwell, AIA, AIP, who is the new Director of the Division of Public Affairs at the Institute's national headquarters. A summary of Mr Rockwell's professional background and experience appears further on this page.

For the information of our members, it is worth noting that the national headquarters was reorganized into three major divisions about a year ago. Two of our Division Directors are well-known to the membership. They are Theodore W. Dominick, AIA, Director of the Division of Membership Services, where most of the work deals with technical and office practice aspects of the practice of architecture, and J. Winfield Rankin, Honorary AIA, who is the Director of the Division of Staff Administration. In addition to what duties this name implies, this Division plans and conducts the Annual Convention and deals with the legal and insurance problems of the profession.

The Division of Public Affairs has been under the supervision of the Executive Director, serving as an Acting Director of that Division until Mr Rockwell's appointment. The activities of this Division are of great importance to the membership, embracing our public relations program, our relations with the Government and the publication of the *Journal* and the *Memo*. I think it might be asked why we chose a man with a strong background in urban planning to be the Director of this Division.

President Kennedy, in his message to Congress on housing, stresses again and again the impor-

ance of urban planning problems, and has proposed a Cabinet rank Department of Housing and Urban Affairs to deal with the planning problems of American cities. It is very evident then that AIA's dealings with the Federal government in the immediate future and beyond will call for expert knowledge of urban planning at AIA headquarters.

President Philip Will, Jr, head of AIA, is placing great importance upon the architect's role in urban planning and upon our cooperation with design professions which are involved so extensively with architects in the teamwork job of planning and building America's cities. Two AIA committees deal with housing and urban planning problems: The Committee on Urban Design, with Chairman Carl Feiss, and the Committee on the Public Housing Administration with Thomas Faires, Chairman. These Committees, as well as the Committee on the Home Building Industry, Edward Fickett, Chairman, are served by staff members of the Division of Public Affairs. The activities of these Committees will be strengthened and expanded.

We expect to extend our services to the Chapters not only at the level of Federal government relations, but also with an "intelligence service" on the problems and experiences of the Chapters and State Societies with state legislation. In the field of public relations, strong programs are being developed to promote the public "image of the architect" at the local level and across the nation.

From the foregoing I feel sure that the membership can see why I believe that the appointment of Mr

Rockwell will bring to the headquarters organization experience and knowledge for implementing important programs and expanding service to the membership which strengthen us in many ways.

Matthew L. Rockwell, the Institute's new Director of Public Affairs, was born in Chicago, Illinois, in 1915 and studied architecture and city planning at the Massachusetts Institute of Technology. He began his career as Assistant Planner of the Chicago Regional Planning Association in 1939. During 1940 he worked with the Urban Land Institute in Boston, Massachusetts, and the following year joined the Chicago Plan Commission.

During World War II, Mr Rockwell served as officer-in-charge of the Advance Planning Section of the War Department and as con-



Matthew L. Rockwell

tracting officer for several ASTP programs.

In 1945 he became a partner in the architectural and planning firm of Stanton and Rockwell in Chicago. The practice of his firm includes varied architectural assignments in the Chicago area and planning consultation for such public bodies as the Corps of Engineers, the cities of Chicago Heights and Highland Park, Illinois, Wauwatosa and Brookfield, Wisconsin, and the villages of Glenview, Arlington Heights, Wilmette and Northfield, Illinois.

Mr Rockwell is currently Chairman of the Winnetka Zoning Commission and Zoning Board of Appeals and a member since 1953; a member of the Allendale School for Boys Board of Directors since 1952; and a past President of the Chicago Chapter, American Institute of Planners and former lecturer in city planning at the Illinois Institute of Technology. ◀

Library Notes

Slides

A continuing demand for slides indicates that perhaps the time has come to publicize the Institute's small but growing collection. Started several years ago, the collection has been worked on as opportunity offered, but it has been only occasionally that it has been possible to devote regular time to it. At the present time, we have approximately 1000 slides available for use, and additions will be made as rapidly as possible.

Roughly two-thirds of these are the increasingly-popular 2" x 2" or 35 mm slide, with the majority of American subjects. Some indication of the source and scope of these slides may be helpful to potential users. About half have come from Ralph Myers, AIA, and are slides procured in connection with his work on the film "Architecture—USA." These are of contemporary American architecture. Other slides of various subjects are copies made from those taken by Walter A. Taylor, FAIA, formerly AIA Director of Education and Research, who has been involved in many of the discussions concerning the scope of the collection.

James P. Noffsinger made available his slides on Japan and some sixty of these have been reproduced for the collection. These are primarily of temple and palace architecture. As a result of a request sent to those receiving Honor Awards or mention in the AIA Honor Awards, several winners have sent in slides of the buildings for which they have been honored. A few are gifts of other individuals.

In an effort to fill in some of the gaps in the collection and to give broader representation to American architecture, we have secured two hundred of the Carnegie Art Slides in the field of architecture. These cover the whole range of American architecture and with what we have from other sources give a representative, although of course not comprehensive, picture of American buildings. Perhaps it should be noted that the seven hundred small

slides represent about 325 different subjects.

Besides the Japanese slides already mentioned there are practically no foreign slides available at present in the 35 mm size. But for those who can use 2 $\frac{3}{4}$ " x 2 $\frac{3}{4}$ " slides, we have some three hundred presented by Mr. Martin Lowenfish, AIA. These are nearly all foreign and represent both modern and ancient architecture. Countries included are Austria, England, France, Italy, Spain, Greece, Turkey, India, Thailand, Hong Kong, Japan, Guatemala, Chile, Uruguay, Argentina, Brazil, Panama, Peru and Mexico (the most, sixty-two).

Many other items are in the process of being prepared for use and among these should be noted two series of slides on "The Square of San Marco" and "Chartres Cathedral" prepared by David Cederquist. These are accompanied by a prepared talk so that they may be used for lecture purposes.

In addition to the above there should also be noted the various slide sets on building materials which have been produced by the Producers Council and the Association of Collegiate Schools of Architecture particularly for architectural school use. However some of them may well be of interest for use in chapter programs. There are some twenty-four sets on varied subjects such as "Stainless Steel Detailing," "Concrete Structural Floor Systems," "Structural Clay Facing Tile" and "Vermiculite Insulation." These sets will be lent without charge.

The slides may be borrowed for a limited time only and must be returned promptly. A summary list of the 2 $\frac{3}{4}$ " x 2 $\frac{3}{4}$ " slides is available as is also a printed list of the Carnegie Art Slides with our holdings checked. Because of the constant additions to the remainder of the collection, we have not found it possible to publish a list, although all of these slides are fully cataloged at the Octagon. We can help you with these only if you let us

know your needs in as much detail as possible, bearing in mind the scope of the collection as indicated above.

A service charge to cover postage and packing costs will be made in the amount of \$2 for fifty slides or fraction thereof. Because of limitations of number, it is not possible to reserve individual slides in advance.

Additions will be welcomed from members, especially of buildings which have received recognition in some fashion. Examples of foreign work are particularly desired.

Films

Members are reminded that the Library also serves as the distributing agency for the various films issued by The American Institute of Architects. These include the popular "Architecture—USA" produced several years ago through the efforts of Ralph Myers. A film report on contemporary American architecture, it has been widely used by schools and colleges.

Others are the various Community Relations films produced by the Institute during the last three years. These are entitled "What is a House," "A School for Johnny," "A Place to Worship," "Buildings for Business," "Designing a Better Tomorrow: A Career in Architecture," "The Second United States." Produced in a semi-animated style, these have proven quite popular, many chapters having purchased their own copies.

All the above films are 16 mm sound and are available from the library on a rental basis, or for purchase, with the exception of "What is a House?" no longer being produced.

For chapters and members the Library also has available on free loan, copies of the *Architectural Forum's* film "The New Age of Architecture."

This is a forty-five minute film in black and white sound which presents interviews with various prominent American architects, who discuss their views on contemporary architecture against a background of some of their structures.

In requesting films it is well to book them at least a month in advance since we often cannot take care of last-minute requests. Persons borrowing films are also requested to return them immediately after showing, as otherwise the next person who is scheduled to receive it may be disappointed. ◀

G.E.P.

Book Reviews

The Architecture of America—A Social and Cultural History. John Burchard and Albert Bush-Brown. Boston, Little Brown and Company, 1961. 508 pp. Illus. Bibliog. and indexes. \$15.00
Reviewed by **Thomas H. Creighton, FAIA**, for the *AIA Journal*. Mr Creighton is Editor of *Progressive Architecture*.

This book, which was originally suggested and sponsored by the AIA as an adjunct to the Centennial Convention in 1957, finally appears in print as an independent work of scholarly, if urbane and personal, social and architectural history. The Institute was wise to commission the work; it was wiser still not to rush it, and not to limit or circumscribe its subject matter. The fact that it appears in 1961 rather than 1957 probably makes it a better book for more reasons than the extra time for research and writing given the authors. Much has happened in those four years that makes for climax; a good proportion of the buildings chosen to illustrate the final section of the book have been completed in that added interval of time.

This is a very important book, and a very good book. It is important because it satisfies certain needs that badly required fulfillment. There had never been a study that truly related social and cultural history with architectural developments here; there are almost no book-length works on architecture published in the United States that direct themselves in an adult fashion, assuming informed intelligence, to those outside the profession; there are no major works that I know of that deal with the total development of US architecture in a completely *critical* manner. It is good because it is an evaluative history that has been done with great skill, understanding and knowledge.

The book weaves the strands of social movements with the threads of development in architecture and the other visual arts, to make a tapestry of cultural history in the

United States that is fascinating—easy to read, intelligent, obviously based on much research (reading, travel, correspondence, conversations), and uncompromisingly, though completely fairly, critical. Praise and blame for the various stages in our architectural development are placed where the authors think they should go—on the social totality, on the man in the street, on those who commission buildings, on the profession of architecture or on individual architects. Toward the end the plaintive comment is made that “it is dangerous to try to write history of one’s own time and about men whom one knows in life.” Knowing also many of the actors on the current stage that is described in the last sections of the book, this reviewer has the keenest sympathy for the reactions that will be inevitable as objective evaluations are read and understood.

A compliment should be paid to the smoothness of the “team” writing. The book flows well, and one very quickly ceases to wonder—or to care—which of the two authors wrote what parts. Burchard’s broad background of knowledge of the humanities, Bush-Brown’s specific interest in architectural history, and the ability of both as critics meld well into an integrated presentation.

The book is divided into six parts: A Prologue, on “The Nature of Architecture,” and five chronological sections leading from 1600 to 1960. (It is interesting that four-fifths of the history—a fair proportion quantitatively—covers the one century from 1860 to 1960; what a brief part of the history of architecture ours is!)

The Prologue, an essay in defining architecture, discusses the relationship of society and architecture (the theme of the book); the nature of architectural creativity; and the methods of evaluation. This Prologue makes clear very quickly the approach that the authors take throughout: It is comprehensive, fair, analytical—but its analysis is

not dogmatic nor, in many instances, original. This is no Bruno Zevi arguing that architecture is space, nor a Sibyl Moholy-Nagy ardently defending anonymous architecture. Both subjects are discussed, and so are the effects of climate, landscape, function, structure, materials and other factors leading to architectural “style.” For a quick, non-committal review of the critical interpretations and “metaphysical” expressions that agitate the architect-artist of our time, I know of none better than the discussion here of formalism, romanticism, mechanism and organicism. Everyone will enjoy it except the admirers of Mies, Wurstler, Gropius or Wright—because it is fair to everyone, and that is the unkindest cut of all.

The Prologue ends with a fine summary of the “great debates” that have too often made of our architectural periods an “uncertain dialogue” rather than a time of proud accomplishment. The history of the profession that the Institute originally had wanted is well summarized in these questions that the professional architect has faced:

“How was he to work with an enormous and varied terrain, and its multifarious materials and climates? . . . Should he seek personal uniqueness or a classic result . . .? . . . how much should he accept from other countries, how much attempt to stand as an American? How could he manage to produce first-class architecture in a nation of the middle class? What would happen to his profession as bigness was laid upon it? . . . Would he be for tradition or innovation, for the frontier or the cultivated area, for preservation or demolition, for evolutionary or revolutionary change, for classicism or originality, for big cities or for villages? . . . How much should he be willing to satisfy the docility of his society, how much should he affront it? . . . What position should he take between the hand and the machine? . . .”

These are the questions pursued throughout the book, period by period. And the architectural answers, it becomes clear as this sharp perspective is applied, have almost always been, as they are today, quite brilliant in individual accomplishment, quite cloudy and confused as a total picture. It is very seldom a picture to be fully proud of. There has been much bad architecture, and we have lulled ourselves into believing that much of

it was better than it was. There have been a very few truly great figures, and we have all too often let others appreciate them better than we have. An entire country has been developed and built to a high degree of concentration in a short time, and the architectural result is not much more than the fact that there is "enough brilliant architecture . . . widely enough distributed so that Americans could easily learn what they would be able to do if they ever got around to wanting to do it."

Period by period, as recent cultural history, the story is an interesting one—the story of a dogged pursuit of the American Dream (progress and democracy coming to perfect fruition in the United States). The time stretching from the development of the colonies to the start of the Civil War is described as starting "simply, even elegantly," and ending in confusion. Through such unlikely episodes as the disregard of the Indian cultures; the adoption of American Georgian as the national "professional" architecture, and its decay into the "architectural illiteracy" of the frontier towns; the haphazard growth of the cities, and the proud display of bad art in tasteless homes; the brief interest in an architecture of rationalism, swamped by romantic classicism; the on-sweep of eclecticism, and the meaningless revivals—through all of the "periods" there continued the technological advance which was so unobtrusive and so great that a completely new architecture was becoming possible for a profession unprepared for it. And through this time and for long years afterward there was little memory of the simple, elegant Colonial architecture of Shirley, Massachusetts, pictured as typical of an architecture that was "less elegant than romance depicts it . . . (that) cannot solve all the problems of today, but . . . is one of our finest architectural heirlooms."

The quarter century following the Civil War seems typified by two men well-described—Richard Morris Hunt and Henry Hobson Richardson. There were the continued growth and despoilation of the cities; the separation of the arts from the developing sciences; industrial growth (with no industrial architecture); skyscraper developments (with no stylistic architectural solution); continued eclecticism and disregard of basic social function during a time of growth of new

social types (so that a strong anti-architect move developed). These dichotomies could produce two results, and did: The romantic escapism of Hunt's mansions ("a first class development of a theme which had no relation to the real meaning either of the society or of the owner"); or the "lusty and American" growth of Richardson toward ever simpler, more compact, more monumental architecture. "America was ready for Richardson," the authors say, but his was a personal style and it disappeared along with, for a long time, the important lessons of design he had taught.

So the next quarter century—the time of the development of the Chicago School (which has suffered from "the aggrandizement of the legend")—was truly a fresh beginning. For a time still the American architects "preferred to stand aloof from the social, esthetic and intellectual ferment" of the time—from the themes of nationalism, immigration, urbanism, industrialization, imperialism, which are briefly but penetratingly described here. Our architects, in fact, remained largely ignorant of the important moves abroad—the development of *art nouveau*, the work of Berlage (deriving some inspiration from Richardson), Behrens, (training Mies, Gropius, Le Corbusier), Perret, Garnier. Much of our growth in this time was still romantic (Sullivan "wrote a great deal of flamboyantly bad poetry"; Wright, like Sullivan, "often sounded transcendental.") But there was an important move, again, toward "realistic architecture," and toward organicism; and there were many talented people in Chicago. So in the end the Chicago group—though losing out in the oft-documented World's Fair controversy to the more gentlemanly Easterners—made one of our most important architectural statements.

The section of the book covering the period 1913—1933 will be the most "controversial" among many of its AIA member-readers. Quite a few still practicing were practitioners at that time; many still revere as heroes figures of the time who now can be seen objectively. The realistic picture painted is a depressing one, though it began with hope (the hope of "making the world safe for democracy") and ended in hope (the accession of the New Deal). In between there were few hopeful moments, and the time architecturally "is epitomized by the Woolworth

Building which began it and the Empire State Building which ended it . . . it was a twenty years of missed opportunities." Eliel Saarinen, "already one generation behind the thought of the times," was "the most revolutionary architect who could be welcomed in America." Raymond Hood "moved from one traditional style to another and so on to traditional modern without formulating a personal philosophy of design. . . ." Our A.E.F. soldier-architects came back from Europe with memories of Chartres (and Montmartre) but ignorant of Le Corbusier's early work, of the stirrings of De Stijl, of the beginnings of the Bauhaus. True: Rockefeller Center was built; Corbett, Ferris and others studied skyscraper form; Neutra and Schindler began practice on the West coast, and Howe and Lescaze worked in the East. But by and large "American architecture rested in complacency."

It would be nice, for the satisfaction of American architectural readers, to be able to say that this story of an architectural development ends on a note of optimistic hopefulness. But this is a realistic history, not a public relations gesture, and it ends, as it begins, with unanswered questions. There *can* be a happy ending, but the indications that characters and events are moving toward fulfillment of the American dream are sparse. The authors recognize, and document as fully as space will allow, the great advances that have been made. "The esthetic, if not the civic, victory (of contemporary design) was complete." America had attracted to her own shores almost all of the great figures whom we did not even care about a few decades ago. There had developed almost for the first time a professional conscience about social and cultural questions, and relationship with the other arts. Planning and urban design problems were at least attracting the serious attention of the architects. Technological changes were seen, studied, and very often used. An entire generation of "younger" architects had grown to middle age, and was being pushed by a still younger group. Wright, along with those who came from Europe, finally was recognized, and did major work. There was a concern with the sciences, perhaps more conscience-stricken than informed, and a feeling of civic responsibility for the obviously worsening environment.

These moves and those who made them are well reviewed by Burchard and Bush-Brown (the capsule critiques of Mies, Corbu, Wright, Gropius; of CIAM and Giedion's works; of SOM as a big-office phenomenon, and of the minor masters one by one; of Wurster, Belluschi, and regionalism, and so on, are brilliant vignettes).

But the ending must be incomplete. The confusion of the times, the indeterminism of the best designers, the disparity among those who as individuals are not confused—this has to be pictured as the 1960 stopping point of this necessarily partial history. "The public now accepted modern architecture, but the modern architects were not quite sure what modern architecture was, and even those who seemed sure did not agree," the authors report. Or in more picturesque terms, they liken the present victory to attainment of a false summit. "Far below lay the crevasses they had crossed. But the true summit seemed perhaps farther away than the false summit had thirty years ago. Could they whip their energies again, or find new resources and new and younger talents for the next assault?"

If the writing of current history is dangerous, speculation about future history is absurd. The "younger talents" are going to write the next chapter in this book. One thing is sure: There is no loss of energies in pursuit of the American dream. Its character may change, it may become internationalized, it may not always be sharply defined, it may be questioned as a goal by other peoples, but its existence as a stimulating vision remains, and the attempt to translate it into some sort of an architecture will continue.

Rome for Ourselves. Aubrey Menen. New York, McGraw Hill Book Co. Inc, 1960. 244 pp Illus. 10" x 12". \$15.00

Here is a great big beautiful, fascinating and at times irritating book—a *must* for all those who know and love Rome or for those who hope to.

It is undoubtedly one of the handsomest books of recent years. The text is printed on a heavy buff paper with a single wide column to the page; the 151 illustrations, of which forty-one are in color, are beautifully printed, mostly full-page, some double-page. They are from

many sources—old engravings, Renaissance paintings and modern photographs, many of which are superb examples of both color and black-and-white photography. It is a book to skim through with delight, to read with absorption and to return to time and again to revel in the pictures.

What is irritating about it? The author's attitude toward the Romans and their history—and he is doubly irritating sometimes because one knows in one's heart he is right. The son of an Indian father and an Irish mother, Mr Menen has published several novels in the past fifteen years, some of them very successful. He now lives in Rome because he loves it. He leaves little doubt of his affection for the Eternal City, although some of his interpretations of its past are highly unorthodox, to say the least.

Some thirty years ago there was a literary fashion known as "de-bunking." Most of our popular heroes were debunked—Washington, Lincoln, Grant, our national history itself. Extreme as some authors were, it did a lot of good in clearing away many romantic popular notions. Now Mr Menen has de-bunked Roman history.

He opens his tale with disarming candor: "This is a book about Rome. It is, therefore, a book about history. I live in the middle of the twentieth century. I have seen a lot of history made in my time. I do not think much of it." And he closes his introduction with "This book, then, is not for saints or classical scholars, or for those who feel the past was better than our own times. It is for ourselves, we who live in the twentieth century: we who have seen everything, suffered everything and believe very little. For Rome, as I shall show, is our city, and the only one for us in the world, in which we, in a thinking mood, can feel at home."

Mr Menen's researches led him to the conclusion that the ancient Romans were "vulgar, greedy, newly-rich, unrestrained by morals or religion." They were themselves responsible for the invention of the character of the Roman citizen of history—stern, dutiful, hard-working, fearless, liberty-loving. Mr Menen says he never existed.

The cultivated Roman of the Renaissance, he says, was "far from the bold, enterprising, universally-endowed man that romantic historians of the time would have us believe. . . . Penniless,

servile, dependent upon a master for his living, and a jackanapes—this was the typical Roman of the time that we have been taught to believe was so splendidly free."

This author doesn't always play fair, however, in his efforts to pull heroes off pedestals. He says, for instance, that it is pure bunkum to say that the dome of St. Peter's was Michelangelo's masterpiece because Michelangelo died before it was finished, and its construction was not resumed until twenty-four years later, when Fontana and della Porta modified the master's design to suit the lighter fashion of their day. Therefore it is *their* dome. He places a drawing which he says was Michelangelo's design for St. Peter's next to a photograph of St. Peter's. The drawing shows a rather squat hemispherical dome; the photograph shows, of course, its elegant ogival form. This reviewer is only an amateur historian, but he seems to remember seeing a complete wooden model of the dome, made by Michelangelo and more or less carefully followed by his successors. The profile of the model dome is ogival.

Mr Menen makes a number of rather smart-aleck "discoveries," which anyone who knows or cares about the history of art has long known—such as the fact that the Greek and Roman statues were not pure white as we see them today, but brightly and naturalistically painted. And he deduces that the Etruscans were a frivolous and pleasure-loving people from the cheerful grins on the faces of husbands and wives lying on the lids of their sarcophagi, as well as from the quantities of exquisite jewelry found within the tombs. It is almost as though the book is directed at our grandfathers, for the author "discovers" the glories and sinuous beauties of the Baroque!

However, why quibble about such details. Here is a gorgeous, rambling, discursive and really charming book, with wonderful pictures. One of the best chapters is the last, in which Mr Menen stumbles across *modern* Rome, and is introduced to it by a street urchin—the vast new apartments, the six-lane highways, the filthy slums of Garbatella, the juke-box bars and the gay and vulgar beach at Ostia.

Yes, here is Rome, its grandeur and its squalor; its high fashions and its yapping Fiats. There is no place like it, or equal to it, in all the world. J.W.

The Low-Bid System

Although we in this country are pretty well committed to the system of awarding contracts to the low bidder, I wonder if there is an architect in practice who hasn't wondered if there wasn't a better way? So often one has misgivings about a bidder who is very much lower than the rest, and even though his references and financial statement check out satisfactorily, one awards him the contract reluctantly. Sometimes it works out all right, but more often the poor architect enters into a continuing headache situation and the quality of the job suffers, and sometimes, of course, the whole thing ends up in court. On much private work, a suspicious low bid can be side-stepped, but many greedy owners and most public authorities require that it be accepted. What would you say to a system that automatically throws out the low bidder? Certainly that would discourage some of the sharp operators.

I have just been reading a report in the *New York Construction News* of a talk given by Roger Corbetta, President of the Corbetta Construction Co, Inc, at a meeting of the Cement League in New York. He told of the system used in Italy in which the low and high bids are eliminated at the outset. The remaining bids are averaged and the bidders below the average are also eliminated. The successful bidder is then chosen from those that remain.

Although not suggesting that the Italian system be used here, he did recommend a similar plan, that after opening the bids and rejecting the low and high bids, the remaining bids be averaged and the contract awarded to the bidder closest to this average.

Something like this seems like a more realistic approach, and should certainly eliminate cut-throat competition. Some might feel that it would encourage collusion between bidders, but on the other hand one must agree that it would definitely encourage careful, honest estimating. And the trouble-maker who either carelessly or deliberately underbid the job would be out of the

picture. True, building costs might be a little higher, but this would probably be offset by a better quality building and lower maintenance costs.

I think it sounds interesting.

Gropius, Chaos and Maturity

Walter Gropius, in his talk at Columbia University on the second day of their ambitious program "The Next Phase in Architecture," said that recent reports from architects and architectural educators were dominated by two words, confusion and chaos. "It seems to them that the inherent tendencies of an architecture of the twentieth century as they were born fifty years or so ago and appeared then as a deeply felt, indivisible entity to their initiators, have been exploded into so many fractions that it becomes difficult to draw them together to coherence again. . . . We are supposed to have lost direction, confidence, reverence, and anything goes."

Exploring the meaning of the word "chaos," Dr Gropius finds that "With our tremendously accelerated communication system, it has become quite easy today for people in all corners of the world to reiterate the most advanced ideas verbally while being actually unable to catch up with themselves in this respect emotionally. Therefore we see all around us an astonishing discrepancy between thought and action."

Somewhere very recently — I wish I could remember where — I read the comments of a visiting British architect. He came to America to see the wonderful new buildings we were creating, which he had seen in the magazines. He was appalled to find that in almost every case he had to *seek* them out, inquiring from people on the street who had never heard of them, and finding them standing isolated in an environment utterly foreign and unsympathetic to them, a background usually of ugliness and decay.

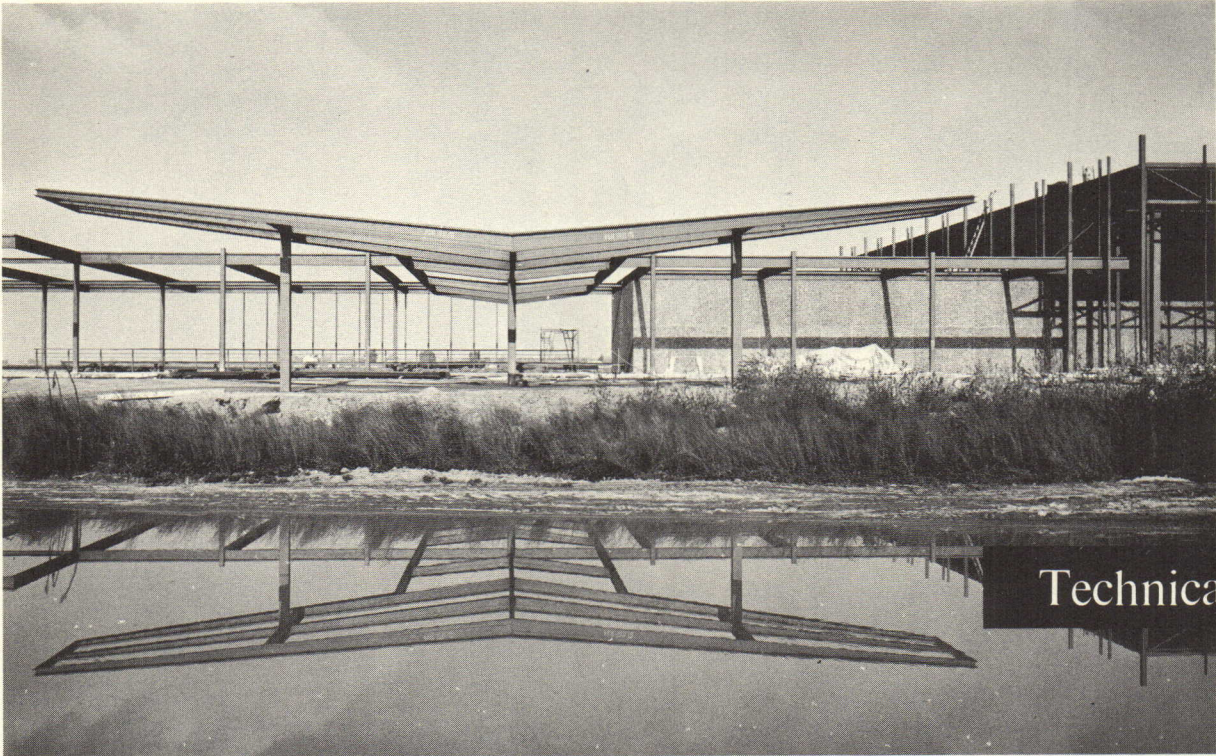
Dr Gropius brought out the same point, and said "It is here where chaos reigns supreme, it is the absence of organic coherence in the

total picture which causes the disappointment, and not the dilemma between different individual approaches to design."

He finds he cannot accept "the verdict of the critics that the architectural profession as such is to blame for the disjointed pattern of our cities and for the formless urban sprawl that creeps over our countryside. As we well know, the architect and planner have almost never received a mandate from the people to draw up the best possible framework for a desirable way of life. . . . It is the people as a whole who have stopped thinking of what would constitute a better frame of life for them and who have, instead, learned to sell themselves short to a system of rapid turnover and minor creature comforts. *It is the lack of a distinct and compelling goal rather than bad intentions of individuals* that so often ruins attempts of a more comprehensive character to general planning and sacrifices them bit by bit to the conventional quick profit motive." (The italics are mine.)

I seem to feel a connection between the above quotation and a news story I read in this morning's *Washington Post*. Dr Louis B. Wright, Director of the Folger Shakespeare Library, in an address at Georgetown University, was severely critical of present-day educational methods. He referred to the "inspired illiteracy" of the schools, and said "Quackery has been one of the plagues of American education, and the voice of the charlatan is still loud in the land."

A people who can visualize "a better frame of life" for themselves, a people who have a "distinct and compelling goal," is an educated people. A people who want more than glittering tail fins as the highest expression of status would be a people who would also look to their environment, cherish it, and demand from the planning professions that they be given something much better than acres of shoddiness relieved by an occasional tinselly glass front. A genuine desire for the good life, high goals, come from a people nurtured on well-balanced standards to begin with. It takes more than material prosperity to produce an age of architectural maturity; it takes a people brought to completeness of intellectual growth and development—mature clients.



Technical

Fresno Air Terminal, Fresno, California. Allen Y. Lew, AIA. Entrance from baggage area of terminal. Due to mild climate, area will be left open to the weather except for the roof covering for baggage handling. The only non-military strip between San Francisco and Los Angeles provided to take the new jet passenger planes, the design anticipates passenger volume of over 340,000 by 1970.

Airports

AIA Building Type Reference Guide (BTRG 7-4*) by **Clinton H. Cowgill, FAIA** with the collaboration of George R. Borsari, James Hoban, and others in the Federal Aviation Agency

Air travel patterns

In plane trips more time may be consumed traveling between home and airports than between airports. If more conveniently located sites are not made available, we must have methods of speeding ground transport. Also the time required for processing passengers and getting them emplaned may be shortened. It will become less and less possible to move airports to more accessible locations. Although most large city airports are located on distant sites, areas surrounding them are often built up with residences and commercial buildings. Increased use of jet power makes low-flying planes more annoying and hazardous.

Zoning regulations should be framed to prevent use of surrounding areas for housing, schools, hospitals and places of public assembly. Compatible uses may include

some industrial developments, farms and public parks. Since future aircraft may be larger than current models, the area of land to be controlled should be at least one mile wide and over five miles long,¹ properly oriented for wind patterns.

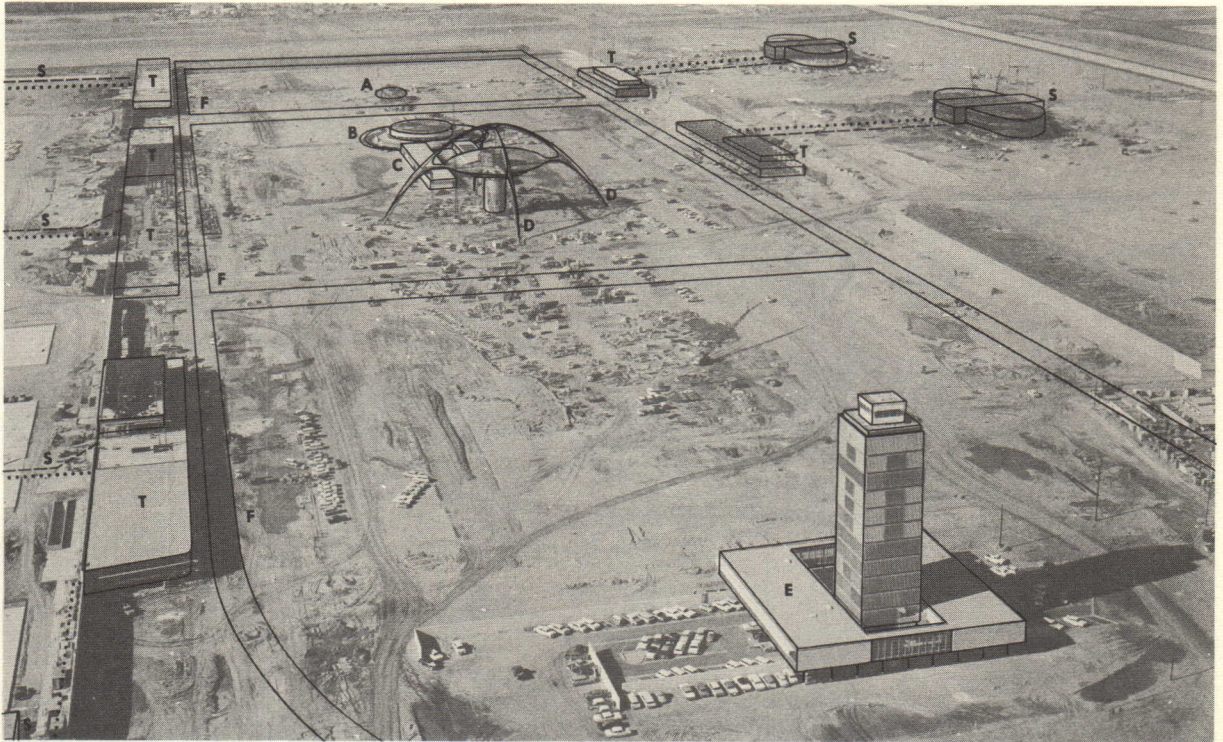
The design of airports is subject to as much criticism as their location. When many of our present airports were designed, the problems accompanying the use of jet power were not considered. Passengers, neighbors and operations personnel should be more adequately protected against noise, blast and noxious fumes. Jets may be taxied in and out of their loading positions under power (especially where loading is at ends of finger concourses) but in some places they should either be towed away from the terminal building after loading or boarded in distant plane parking pads. Protective blast

fences should be erected between adjacent loading positions.

In many cases, parking areas for private automobiles are distant from terminal building entrances, and provisions for limousine, taxi and helicopter service are inadequate. In most cases walking distance to ticket and baggage checking counters, to waiting spaces and planes is excessive. In order to increase revenue, concessions have been located so that they break into shortest line of passenger travel.

Errors of this sort are much more expensive to correct than the cost of architectural fees for competent planning based upon more adequate study.

The effect of the use of jet power on terminal design has been noted. Can still larger and faster jets be expected? Should plane positions in new airports be larger and farther from the terminal building than is



Key to above: T—Ticketing Buildings; S—Satellite Buildings; A—Cooling tower; B—Central utility; C—Central services; D—Theme structure restaurant; E—Tower (FAA, Department of Airports, etc.); F—Parking; —Passenger tunnels . . . Baggage tunnels. Los Angeles International Airport. Architects and Engineers: Charles Luckman Associates, Welton Becket and Associates, Paul R. Williams and Associates. Travelers will drive into a central parking area (capacity: 5000 cars), 14' below level of parking aprons, proceed through underground access channels into lower level of satellite structures. Boarding escalators, they will rise two levels to public lounge and departure area which is raised 13' above apron level to be on a par with jet cabin level (mobile bridges). Building flanking parking lots are restricted to ticketing and baggage service. Six satellite structures (ten big jet positions each); two separate runways, one mile apart; control tower to monitor simultaneous landings and takeoffs—maximum safety—at a rate of one every two minutes, 120 an hour on four strips. With installation of advanced electronic aids, maximum traffic saturation of runway complex; 240 hourly movements. Cost of project: \$50 million. Completion: early 1961

necessary for present plane models? What might be the effect of nuclear power for planes? Will lighter-than-air again come on the scene? May rockets be substituted for planes for transportation of mail, express or passengers?

Highway traffic leading to airports is frequently congested and with anticipated growth of cities it promises to get worse. Can helicopters be developed which can transport passengers from and to the central city economically? Will air travel increase sufficiently to justify rapid transit service by surface railway, subway, or monorail? If it is assumed that air transportation will supplant other means for long trips, will its use for shorter trips decrease or increase? Will competition with railways and buses force airlines to improve their service? Will high speeds and free champagne be sufficient attractions?

Causes of passenger dissatisfaction are methods used in loading

planes, and inadequate baggage-claim facilities at the end of the trip. Advantages of two-level loading (passengers on upper level and baggage, etc, on lower level) are partly negated by necessity of descending a stairway to apron and then climbing up to get on the plane. Covered telescoping gang planks now available are in use at San Francisco, and will be used in other cities. The mobile (self-propelled) waiting rooms which are to be employed at the new Dulles Airport serving Washington are expensive. Victor Gruen has suggested use of two-level buses which would take passengers from an in-town terminal building to a distant airport. Similar arrangements are used in London, Paris, Berlin, Hamburg and other cities. Might the next step be use of huge helicopters to transport passengers from a terminal building in the central city (where they would be processed) directly to planes on their pads on the apron? If this scheme were adopted, some passengers could be processed at airport if they preferred. Such a pos-

sibility for the future might be considered by designers of today's terminals.

Small commercial airports

In the design of a small commercial airport, we may look back to the days prior to the 'thirties, when short unpaved runways were common. We may also look ahead to the time when air travel will be used for all long trips, and consider what place a project will have in the national and world-wide travel pattern. At present, a project may serve a single airline, with a single runway and one plane position. It may serve several small cities as a feeder line to a larger terminal and may cater to private aircraft operation and other "fixed-base" operations.

For the minimum small airport the only buildings may be hangars and repair shops. If justified by activities, a building with offices, waiting room and possibly a restaurant may be included. Possibilities of expansion should be considered—especially if commercial airlines are to be served.

*See BTRG 7-1,2,3, *AIA Bulletin*, March, May, July 1951

†See *Aircraft Noise Abatement*, Federal Aviation Agency, 14 pp, 1960

Suggestions for preliminary planning, site selection, design, construction, operation and maintenance of small airports are given in the FAA's booklet "Small Airports".² The advice of the FAA District Airport Engineer is also available. Recommended minimum landing strip width is 250'; length should be from 1800' to 4600' depending upon type of aircraft and altitude of airport. Required ground area is between 27 and 55 acres. Approach areas at ends of runways, 10,000' long and widening to 2250' at far ends, should be cleared of obstructions above an imaginary plane sloping upward 1' in 20' above runway ends. Land in these approach areas may be either purchased or controlled. Fences, roads and railroads which do not project above the sloping plane are permitted, provided that there are minimum clearances of 15' above highways and 25' above railroad tracks.

Large commercial airports

To serve the largest commercial airplanes, runways should be, at a minimum, 2 miles in length and should support loads exceeding 150 tons.³ Facilities should be provided for feeder aircraft. The use of single or parallel runways is recommended.

The two usual types of plans are the unit plan and the central plan. The unit plan provides for each airline or a group of airlines in separate or connected buildings. This plan is convenient for passengers entering or leaving the city, but inconvenient for those transferring from one airline to another. For the International Airport at Idlewild, serving New York, the choice of the unit plan may have been justified, but generally the central plan is preferred. The survey of Idlewild passengers indicated about 5% transferred from one airline to another. The central scheme is preferred in most cases because it makes operation of concessions more profitable. Reasonable walking distances for passengers, however, will limit its size. For maximum passenger loads to be met in the future, a connected series of centrally planned units may be the answer. (See figures 1 to 13, pages 80-81).

In the typical terminal building, emplaning passengers enter from driveway directly into ticket lobby, deposit baggage and either check or purchase tickets at a nearby airline counter. Late arrivers check in at airline counter and then go immediately to gate and plane. If a passenger arrives ahead of schedule or if his plane is late, he walks about, makes purchases, gets a drink, eats, or just sits. His interest may be attracted to operations on the apron, especially if his plane is involved and particularly if it is being repaired! Comfortable seats facing a glass wall near exit gates are appreciated. Most activities preferably are located one floor above apron level. Dining facilities and observation areas two floors above apron level may be preferred. Baggage is handled on apron level. On this level also are facilities for handling mail, express, freight, food for planes, etc.

The deplaning passenger claims his baggage at a check-out counter near an exit driveway. His path may lead from plane, through a gangplank or "mobile waiting room" to concourse level or down to apron. In the latter case the passenger would be exposed to bad weather unless the terminal building has a projecting roof. Since most passengers wish to reach their destination as soon after arrival as possible, they are unlikely to be interested in purchases, drinks, or food. There is little advantage, therefore, in bringing them through central waiting room.

Visitors to airports are an important source of revenue. In large terminal buildings, such diversions as moving pictures, game rooms, barber shops and beauty parlors might be considered. Concessions include drug stores, news stands, gift shops, candy shops, and soft-drink stands. Show windows for display of clothing which is available in stores in the city might also be considered.

Most large airports are "international," and provision for customs inspection and health tests must be included. Baggage may be routed directly to customs. Offices for officials and representatives of foreign airlines may be required.

Medium-sized airports

Medium-sized airports and large airports differ not only in size but in types of planes served. The number of large airports will probably soon exceed the number anticipated

a few years ago—but there will be still more of medium size.

It would be helpful if types of planes used for commercial flights could be standardized, and heights and locations of doors could be made the same. The size of pad required probably cannot be standardized. It may be expected to be larger in the future. Thus for loading directly to planes from terminal buildings (or their fingers), gates should be spaced further apart than is now considered necessary.

To accommodate passengers who change planes and do not wish to make a trip into the city, some airports provide bunks and private toilet service. Units comparable to sleeping-car roomettes or bedrooms are rented by the hour. A hotel or motel may be combined with this facility.

Heliports

Helicopters are now used to transport airline passengers to and from some airports. If passengers are processed at a terminal before boarding helicopters, they should land as close to departing airplanes as possible. If passengers must get baggage and tickets checked at airport, a separate gate should be provided. Direct transfer would be preferred. For the larger helicopters envisioned for the near future (carrying up to 50 passengers) landing pads almost as large as the 220'-diameter loading pads for jet airplanes will be needed. Landing and departure area recommended for current types of helicopters is 400' x 200' with approach and departure paths cleared of obstructions at each end. Heliports undoubtedly will be required in urban centers. These could also be used for short flights between urban centers. If the cost of helicopter service can be reduced, as it may be when rate of production is increased and operating economies are achieved, it is conceivable that helicopter commuting will become a reality. If the cost of service is to be lowered, land for heliports must be inexpensive. If zoned appropriately, it is possible that land near heliports would increase in commercial value. By purchasing surrounding land, such unearned increment may be used to offset part of cost of land used for heliport.

If a heliport is to be located in a retail area or financial district, the land cost may be so high that landing area must be placed on the roof of a commercial building. Mini-

²Superintendent of Documents, US Government Printing Office, Washington 25, DC, 86 pp (20¢). See also *Administration Buildings for General Aviation Airports*, 26 pp

³*The Airport and Its Neighbors*, p 39, Superintendent of Documents, US Government Printing Office, Washington 25, DC (70¢)



Las Vegas Airport, McCarran Field, Clark County, Nevada. Welton Becket and Associates, Architects and Engineers. Facilities for the \$4,500,000 project will include: two primary two-story buildings (one for ticketing, baggage and airline offices; and the other passenger waiting terminal and restaurant: hexagonal, thin-shell ribbed concrete vault roof), passenger loading fingers (sixteen gate positions to accommodate largest jet airliners), control tower, fire station, and parking for 1400 cars. Complete passenger complex encloses 159,150 sf. Provisions for expansion to 24 jet positions by extension of fingers

num size would necessitate artificial illumination and airconditioning of supporting building, and placing corridors, elevators, stairways, toilets and mechanical equipment in the center core. Penthouses must not obstruct the heliport. Parking for automobiles might be provided in central core and basement. Waiting room, baggage and ticket counters, concessions, passenger toilets, and executive offices could be on upper floor, connected with roof by means of moving stairways.

Program

The program should answer questions. First, is an airport needed? How adequate is the service which is available? What is average travel time to and from nearest adequate airport? Do nearby communities need improved service? Does community's growth potential indicate increasing demand for airplane service? Should presently-used facility be improved, replaced or supplemented?

Reasonable answers to some of

these questions and others may require a survey, which might be tied in with a comprehensive urban or regional planning study. Recommended subjects include:

- physical and climatic conditions
- economic resources
- population, present and future
- land use
- physical facilities
- future needs for aircraft service

Federal and state regulations and local zoning laws respecting use of airspace and governing controlled areas at ends of runways should be examined. Length of runways required for types of planes to be used and airport altitude should be determined. Amount of land to be purchased should include whatever may be required for future lengthening of runways to accommodate the largest and fastest planes likely to be used. Much ground area may be saved by using single or parallel runways rather than numerous runways at various angles.

To estimate initial and future number of passengers to be accom-

modated, it may be assumed that improved facilities will bring an increased number, and that number will increase with population growth, increasing prosperity, and greater acceptance of air travel by the public.

Present and maximum future number of passengers determines most of the spaces needed. Number of planes during a peak hour in the future (ten years hence) is related to estimated number of passengers leaving, arriving, and transferring from one line to another each year. This relationship is influenced by type of service and nature of flights (long-haul and short-haul schedules, etc). If this relationship differs from established norms, the causes of the difference should be studied and the probability of their continuation determined. In this manner, assumed future total annual passengers and typical future peak-hour passengers are established.

Number of loading positions required depends upon number of peak-hour passengers planned for,

WALKING DISTANCE TO PLANES (FEET)

figure		minimum	average	maximum
1			125	
2	either entrance		100	
2	midway checking		165	225
3-5	frontal	115	265	415
6-10	finger	150-200	350-500	550-900
11	crescent	150	190	225

and also apron occupancy time. En-route traffic generally requires less apron time than terminating and turn-around traffic. Amount of space required in waiting room, length of ticket lobby counter, and areas of various parts of terminal building may be determined tentatively by average relationship of these needs to number of peak-hour passengers. The Federal Aviation Agency has made studies of this relationship.⁴

Selection of site involves many considerations. Wind direction influences position of long axis, and a wind-rose study is essential in order to design runway layout. Site should be as near center of traveling population as possible, and accessible. Relationship of site to other existing or planned airports should be considered.

Design team

Design of an airport calls for collaboration of many experts. For general layout, planning of buildings and coordination, an architect may be best prepared. A civil engineer may best make decisions regarding the airfield, particularly the especially difficult problems of drainage. Either could serve as consultant to the other, the two could assume responsibility for the project as a joint venture, or a firm in which both architects and engineers are principals, might be the coordinating agency. For greatest efficiency, an individual rather than his firm should make most of the decisions.

A city planner usually should become a member of the team. His duties could be performed as a member of an official planning body or as a consultant. A landscape architect should be asked to make his contribution as a consultant or as a member of the coordinating firm. Structural problems will most certainly challenge the

abilities of a top grade structural engineer — especially for large airports. Several structural schemes are often investigated for economy, and structural advice should be available in the earliest design stages. Other engineering specialists whose services may be needed include those for airconditioning, sanitary facilities, illumination, electrical service, mechanical devices (moving stairs, elevators, gangplanks), and acoustical treatments. A competent cost estimator should guide the design from beginning to end. Needless to say, the advice of architects and engineers of the Federal Aviation Agency should be sought.

Master plan

Due to rapid changes in aviation it is difficult to predict needs more than ten years in advance. From advance data furnished by client, the architect should first make a master plan showing facilities planned for ten years hence as well as stages of construction. As far as possible, the plan at each stage should be suitable for expected typical peak-hour passenger load. Each plan should be studied for minimum demolition, and building operations should be planned for minimum interference with airline operations.

Even using the best talent, it is unlikely that all of these objectives may be reached, and some demolition will be necessary at one or more stages. The resulting extra expense may be held to a minimum by using demountable modular units and few supporting columns. Careful study of mechanical equipment layout will help. Plan units with special equipment should be located and planned so that they can be expanded without moving.

Expansion beyond the limits of the master plan should also be considered. Expansion is usually in a lateral direction or vertically. One or both ends, therefore, should be kept free of permanent obstructions.

Schemes

While basic schemes suitable for airports are simple, they are usually complicated by secondary requirements. Following review of possible basic schemes will help in finding the best solution for local conditions and requirements.

In the diagrams (figures 1 to 13) walking distances from entrance drive to nearest and farthest plane position are given. See also the tabulation. It is assumed that passenger would enter door nearest checking station for his airline.

While some of these distances may be considered excessive, such schemes may be dictated by conditions. The frontal scheme is excessively long if more than five plane positions are to be provided.

Figure 11 illustrates a crescent-shaped scheme which is applicable where from nine to twelve plane positions are to be provided.

Where sixteen or more plane positions are required, the scheme indicated by figure 13 is widely used. Excessive walking distances may be shortened by placing moving walkways on the bridges. For these large airports, however, the advantages of "mobile waiting rooms" should be considered. See figure 12. While the need for such large terminal facilities is not now apparent, up to forty mobile waiting rooms (serving twenty planes) may be provided by a rectangular string scheme. If more than forty mobile waiting rooms are required, the landing and take-off capacity of runways would be extremely large.

Architectural distinction

Airports are supplanting railway stations as gateways to our cities. Passing through an airport is frequently less impressive than approaching a city by air. After the come-down there is a let-down. The incoming passenger is directed to an insignificant doorway and by reading direction signs mixed with advertisements he finds the baggage delivery room. Perhaps the use of "mobile waiting rooms" will give a better impression.

For the outgoing passenger, the effect is generally better, although street or highway approaches to airports leave much to be desired. Airport concourses are frequently impressive, even though congested. The appearance and planning of airport buildings (hangars and service buildings as well as the terminal buildings) should receive the best efforts of the ablest designers. It will pay off.

⁴See *Airport Terminal Buildings*, Federal Aviation Agency, 86 pp, 1960



FIGURE 1
125'—walk from curb to plane position
Arrows indicate airplane position

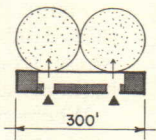


FIGURE 2
Walk from curb to plane position
100' minimum
225' maximum
162' average

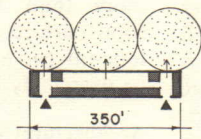


FIGURE 3
113' minimum
412' maximum
262' average

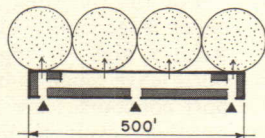


FIGURE 4
113' minimum
225' maximum
169' average

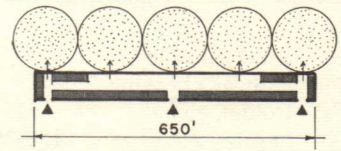


FIGURE 5
113' minimum
263' maximum
188' average

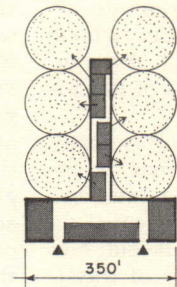


FIGURE 6
150' minimum
550' maximum
350' average

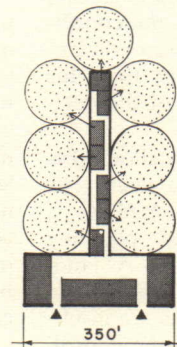


FIGURE 7
175' minimum
625' maximum
400' average

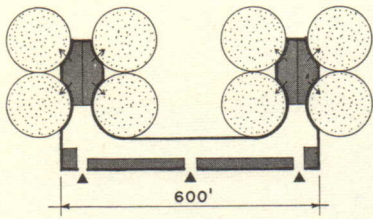


FIGURE 8
150' minimum
800' maximum
425' average

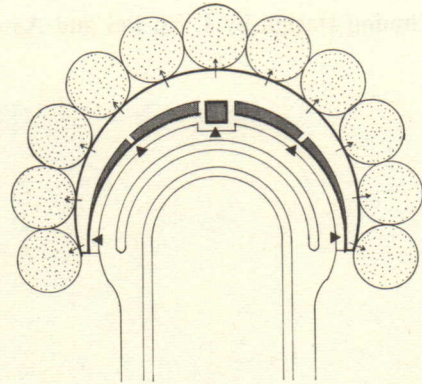


FIGURE 11
150' minimum
225' maximum
187' average

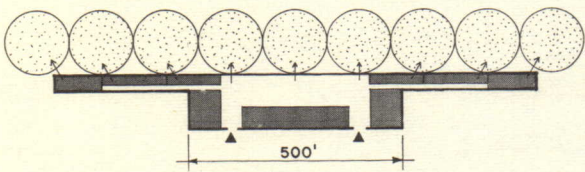


FIGURE 9
175' minimum
850' maximum
512' average

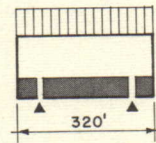


FIGURE 12
32 mobile waiting rooms serving 16 airplane
positions
175' minimum
225' maximum
200' average

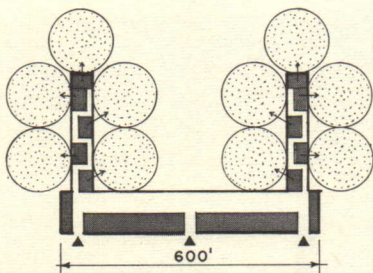


FIGURE 10
200' minimum
900' maximum
550' average

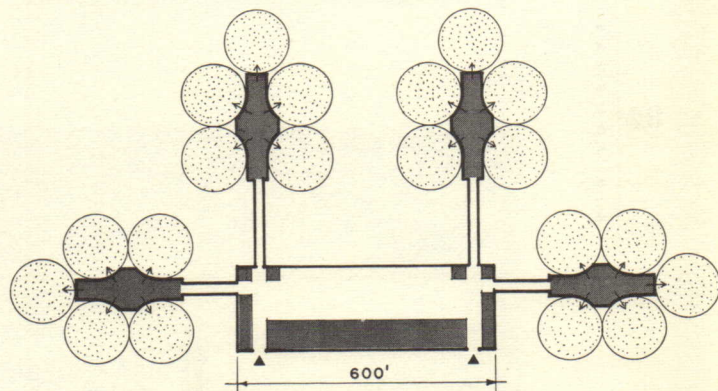
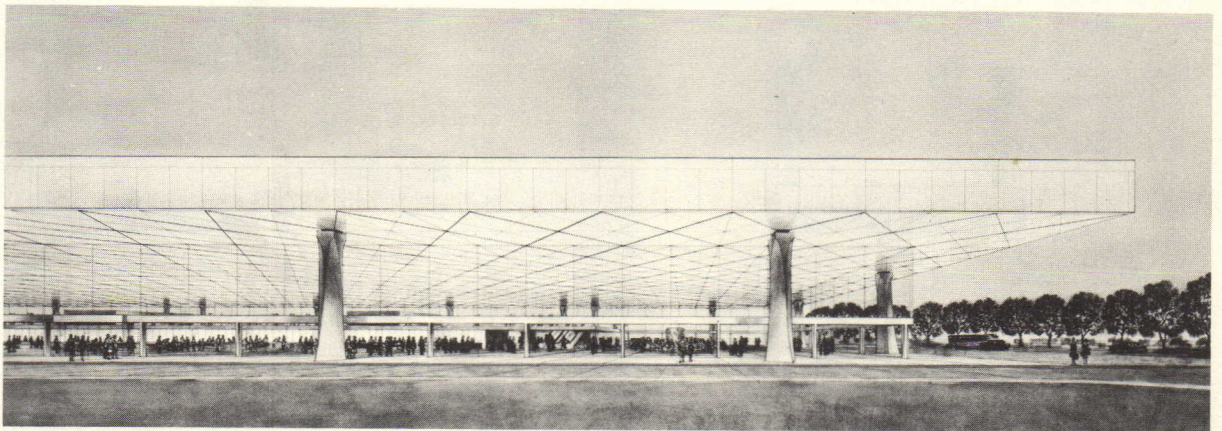
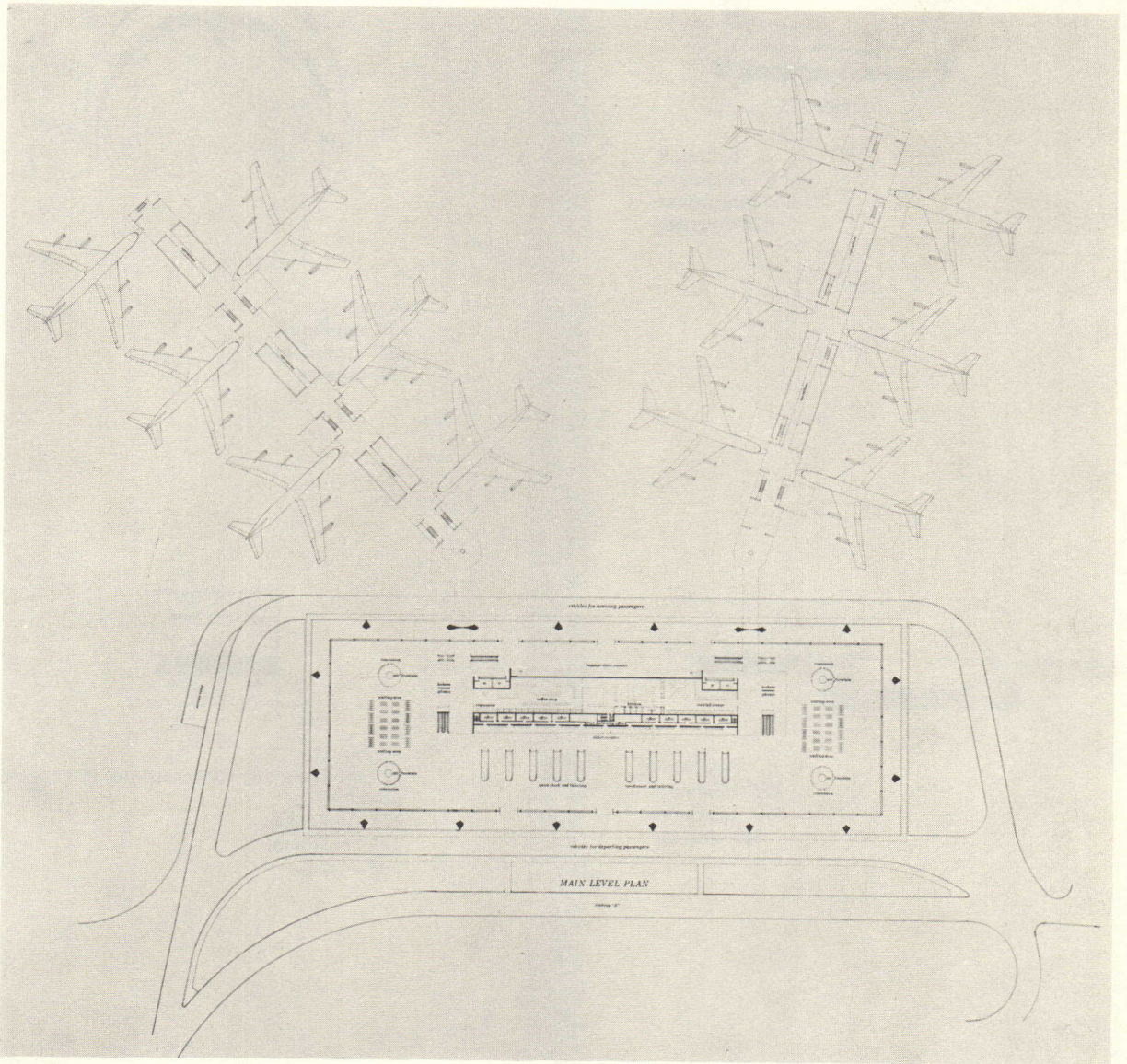
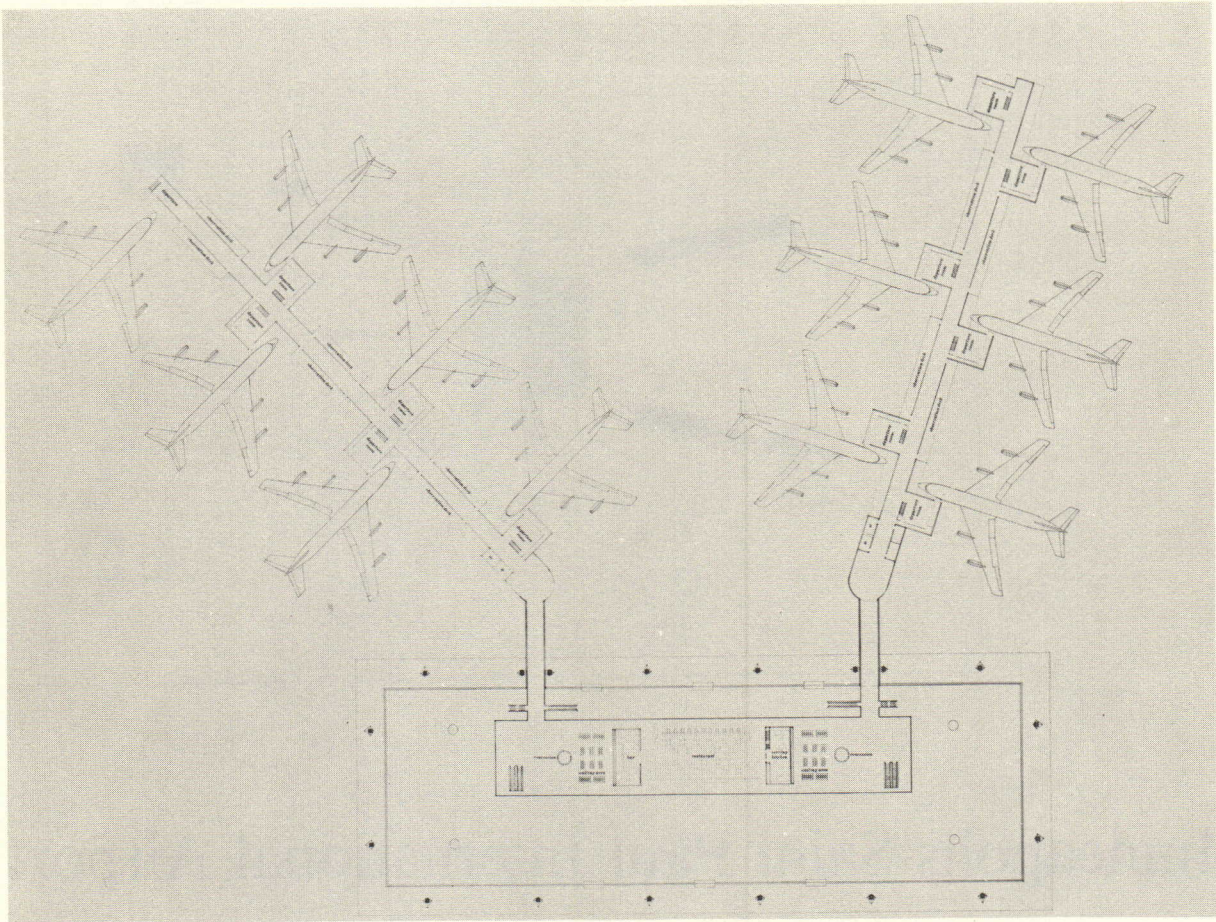


FIGURE 13
425' minimum
1,175' maximum
800' average

Idlewild Multi-airline Terminal

Winning Design by I. M. Pei and Associates

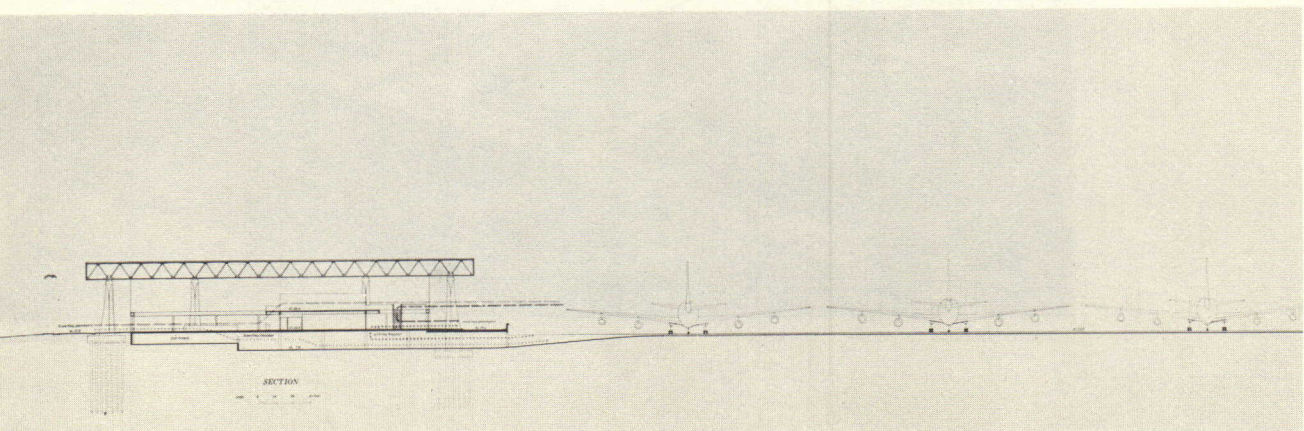


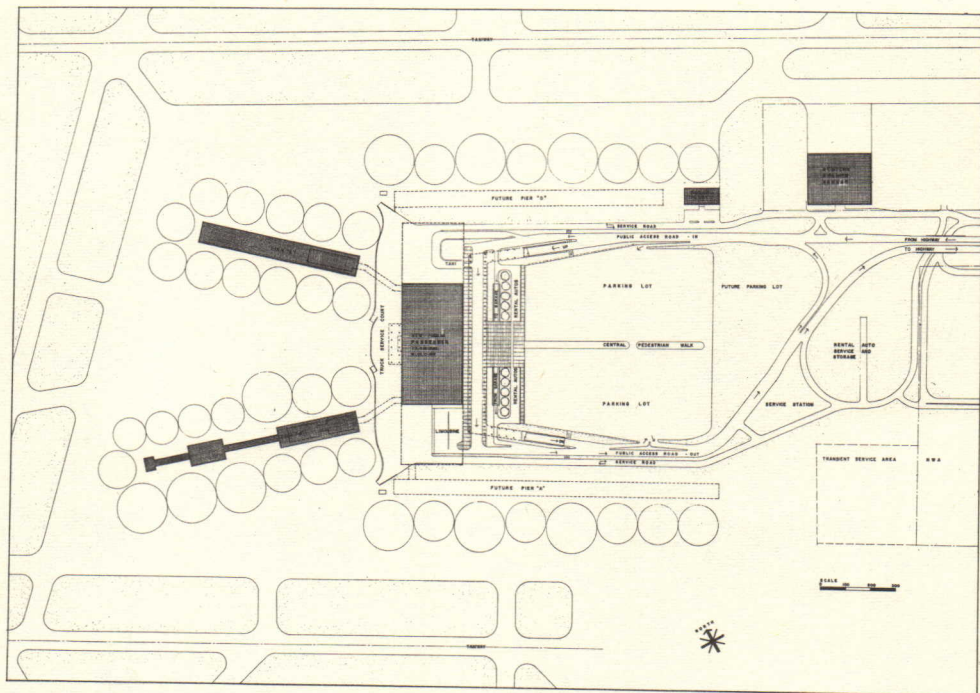


A city-block-long rectangular structure with two-story-high all-glass walls on all four sides. Flat space frame roof, supported by massive freestanding pylons outside the building walls, projects beyond pylons. Roof is made of preassembled steel pipe tetrahedrons, topped by a concrete slab, with tension cables and steel pipe compression members on the under side. Vehicular roadway provides public access to both front and field side of the building. Passenger arcades leading to aircraft

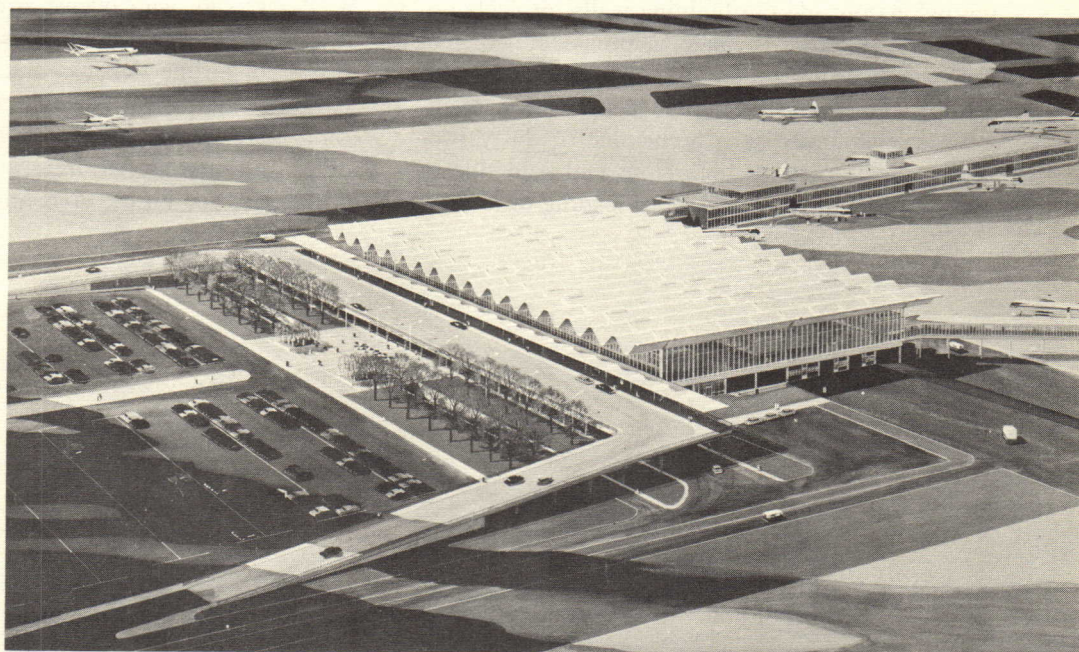
are bridged over portion of roadway on field side, separated from aircraft apron by fencing.

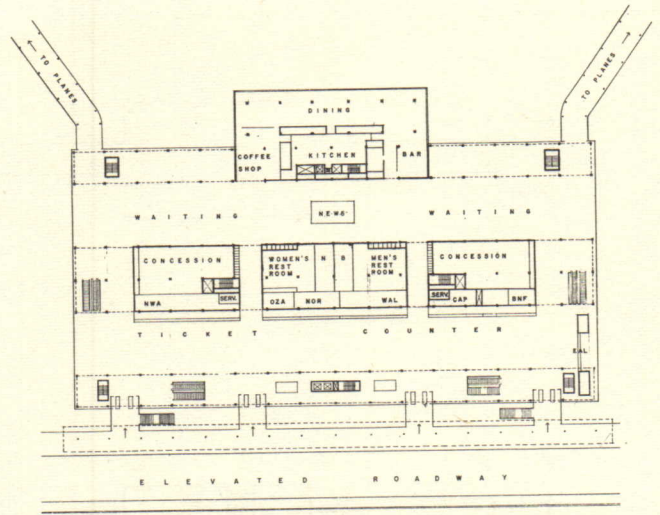
Contest specification called for: A building on a 22-acre site, with twelve aircraft gate positions, a minimum of 60,000 sf of waiting room space, 1,100' of airline ticket counter and 12,000 sf of baggage claim area. An observation deck, restaurant, coffee shop, 3,000 sf for other concessions, office and operational areas, and about 1,300' of curb space for buses, taxis and automobiles.





Minneapolis-Saint Paul International Airport



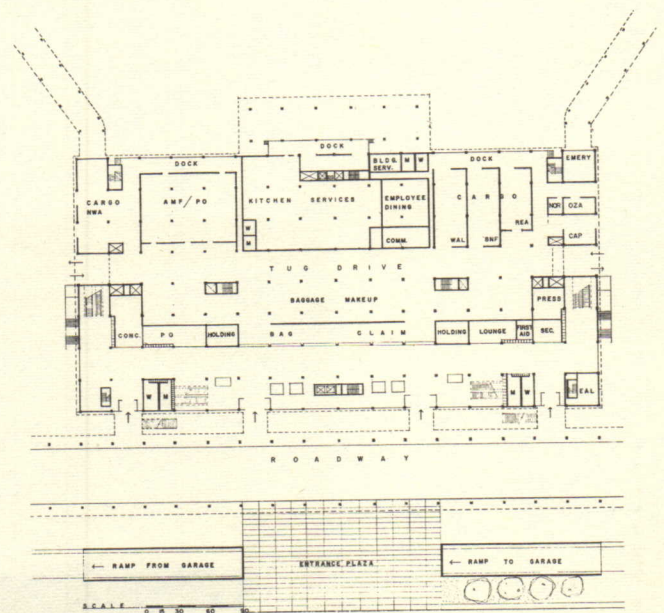


The Cerny Associates, Incorporated

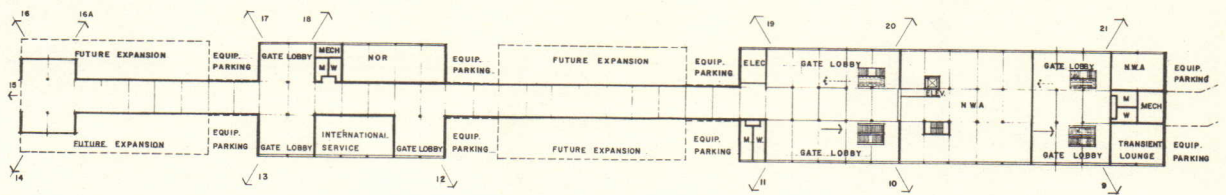
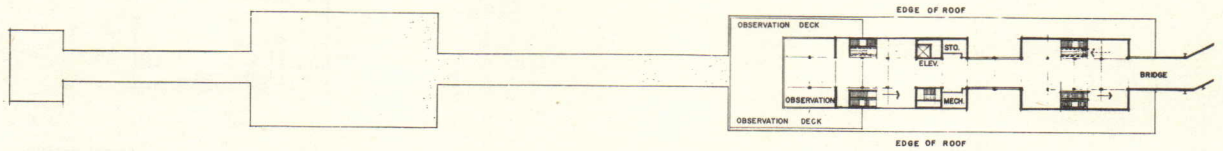
The airport for the Twin Cities is now in the last seven months of a five-year development program representing the major portion of \$54 million in capital improvements undertaken by the cities' Airport Commission. Over-all program for the passenger terminal is based upon 1970 traffic forecasts of 4 million passengers.

Present construction serves twenty-six plane positions, master plan permits 50% expansion of the main building at each end, complete enclosure of second floor space over Piers B and C, and up to three-story construction for future Piers A and D, which would serve an additional sixteen aircraft positions.

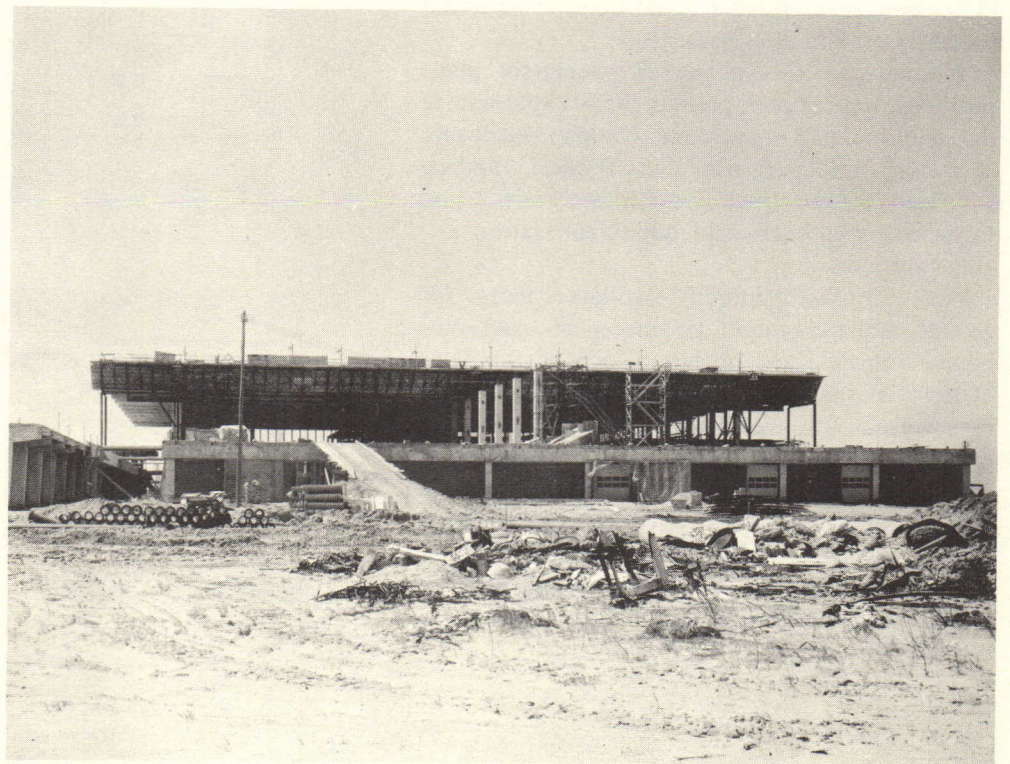
Note terminal features: Two-level access for ground transportation, separating in- and out-bound vehicles and related passenger functions of ticketing and baggage claim. Optimum capacity for ground transportation was attained by two roadway levels doubling the amount of platform space in close proximity to building. Ends of main building are free of barriers limiting future expansion. The parallel elements of main floor can be extended with variations as the building is expanded out either end. Plans at right show ground floor (top) and main floor.



Minneapolis-Saint Paul International Airport

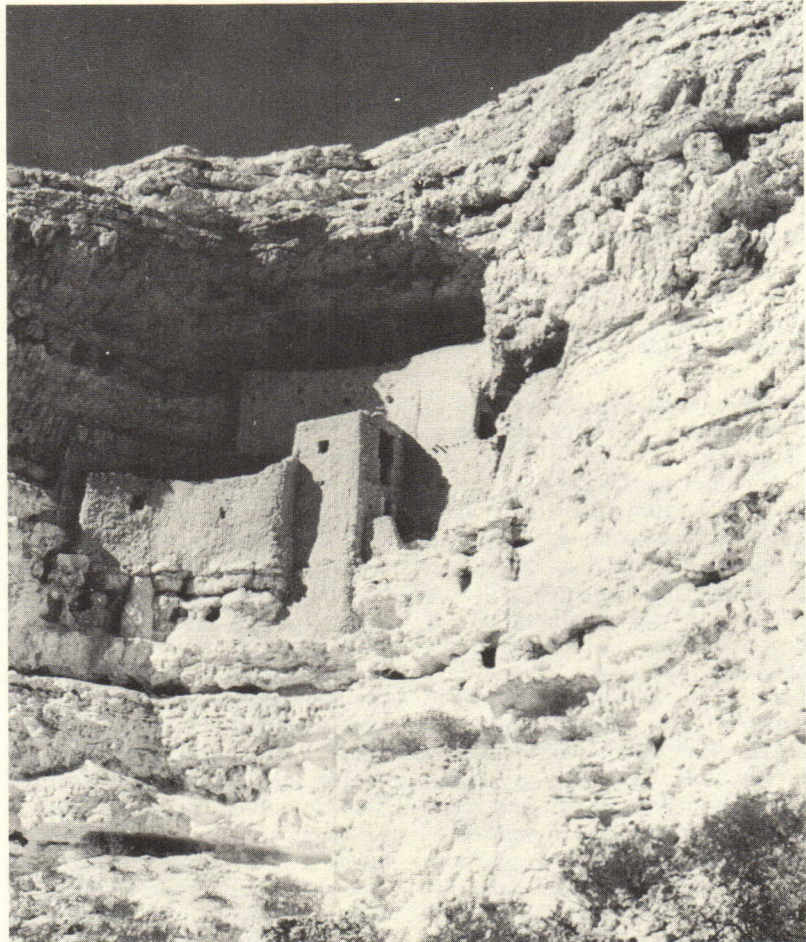


Above: loading pier B.
Below: construction
as of mid-1960



Landscape in the United States

by **David L. Medd**, ARIBA, *Architects & Building Branch, Ministry of Education*



Montezuma Castle, Verde Valley, Arizona, a five-story structure containing twenty rooms set in a cavern-pitted limestone cliff rising from a fertile valley. Dwellings were abandoned by the Pueblo Indians in the early 1400's

In December 1960, David L. Medd, ARIBA, delivered a lecture to the Institute of Landscape Architects drawing upon experiences and observations during the months he and Mary Crowley Medd spent as Commonwealth Fund scholars in the United States. We appreciate the opportunity of printing in the *AIA Journal* the notes on which his talk was based and a few of his photographs.

The Indian attitude

"Travelling with Eusabio was like travelling with the landscape made human. He accepted chance and weather as the country did, with a sort of grave enjoyment. He talked hard, ate little, slept anywhere, preserved a countenance good and warm, and like Jacinto had unflinching good manners. . . .

"When they left the rock or tree or sand-dune that had sheltered

them for the night, the Navajo was careful to obliterate every trace of their temporary occupation. He buried the embers of the fire and the remnants of food, unpile any stones he had piled together, filled up the holes he had scooped in the sand. Since this was exactly Jacinto's procedure, Father Latour judged that, just as it was the white man's way to assert himself in any landscape, to change it, make

it over a little (at least to leave some mark or memorial of his sojourn), it was the Indian's way to pass through a country without disturbing anything; to pass and leave no trace, like fish through the water, or birds through the air.

"It was the Indian manner to vanish into the landscape, not to stand out against it. The Hopi villages that were set upon rock mesas were made to look like the rock on which they sat, were imperceptible at a distance. The Navajo hogans, among the sand and the willows, were made of sand and willows. None of the pueblos would at that time admit glass windows in their dwellings. The reflection



Tularosa Basin, New Mexico. 230 square miles of pure white gypsum dunes. A natural gypsum factory is formed by the flanking mountain ranges which contain gypsum beds, and by a process of percolation and evaporation these deposits are formed. A few plants adapt to these peculiar surroundings

of the sun on the glazing was to them ugly and unnatural—even dangerous.

"In the working of silver or drilling of turquoise the Indians had exhaustless patience; upon their blankets and belts and ceremonial robes they lavished their skill and pains. But their conception of decoration did not extend to the landscape. They seemed to have none of the European's desire to "master" nature, to arrange and create. They spent their ingenuity in the other direction—in accommodating themselves to the scene in which they found themselves. This was not so much from indolence . . . as from an inherited caution and respect. It was as if the country was asleep, and they wished to carry on their lives without awakening it, or as if the spirits of earth and air were not to antagonize and arouse. When they hunted it was with the same discretion. . . . They ravaged neither the rivers nor the forest, and if they irrigated, they took as little water as would serve their needs." ("Death Comes for the Archbishop." Willa Cather. Alfred A. Knopf, 1927).

Habitat and religious ritual

New Mexico and contact with Indians was D. H. Lawrence's greatest life experience and he wrote beautifully of it.

"In the oldest religion everything was alive, not supernaturally but naturally alive. There were only deeper and deeper streams of life, vibrations of life more and more vast. So rocks were alive, but a mountain had a deeper, vaster life than a rock, and it was much harder for a man to bring his spirit,

or his energy into contact with the life of the mountain, and to draw strength from the mountain, as from a great standing well of life than it was to come into contact with the rock. And he had to put forth a greater religious effort. For the whole life effort of man was to get his life into direct contact with the elemental life of the cosmos mountain life, cloud life, thunder life, air life, sun life. To come into immediate felt contact and so derive energy, power and a dark sort of joy. This effort into naked contact, *without an intermediary or mediator* is the real meaning of religion. At the sacred dances the runners hurled themselves in a terrible cumulative effort, through the air to come at last into naked contact with the very life of the air, which is the life of the clouds and so of the rain."*

The rainmakers

For hundreds of years, by this identity with nature, they have been able to come to terms with a landscape in which most of us would rather sit down and starve than try to make a living.

Story of meteorologist talking to Navajo about rain precipitation: Navajo asked him, "Do you make male or female rain?" Scientist perplexed. Navajo, "Do you need clouds to make rain?" Scientist, "Yes, of course." Navajo, "Well anybody can do that."

"When our fields were infested with grasshoppers, we called in blue jays which devoured them. But today we have not the power."

* D. H. Lawrence, *New Mexico*, Survey Graphic, May 1931

"When the Indian boy and I planted corn at the ranch my soul paused to see his brown hands softly moving the earth over the maize in pure ritual. He was back in his old religious self and the ages stood still."

Only a small minority have ever been able to come to terms with the Indians, and the hope they would die out on the reservations was a failure to realize the Indian pertinacity. Jefferson's answer to the Indian problem is likely to prove the most effective—it will at least allow the Indians to continue to live and remove the anachronism of their existence within an ever expanding industrialized democracy. Jefferson said: "The ultimate point of rest and happiness for the Indians, is to let their settlements and aims meet and blend together, to intermix and become one people . . ." Education is an important part of this process. We saw the Indian boy whose brown hands might have been "softly moving the earth over the maize" cut his hands on the machinery in the metal shop, and we had the moving experience of searching for the boy's mother in the pueblo with the headmaster. For the boy had to go to a hospital and the mother was sure the boy would die. One aspect of this highly complex situation is the fact that in this school where the teachers naturally expected the children to do pottery, the children had been ordered by their governor not to do this craft in school for fear of imparting secrets of the craft. It is also a moving experience to see girls in the housecraft rooms shaking out the ready mix on whose packet are the words: "This is the mix that stopped mother baking."

The white man's attitude

I am sure that any visitor to the United States who does not experience this oneness with nature and the landscape of the Indians is missing an experience which enables him to see every activity of the white man from an enriched viewpoint. By comparison with this Indian attitude, which is really an oriental one, the Christian attitude towards nature is essentially secular. Nature is exploited for man's ends, and over very large areas of the United States today the landscape we see is the landscape of the spoils of technological imperialism—starting with the early colonists in New England and the southern cotton growing and to-

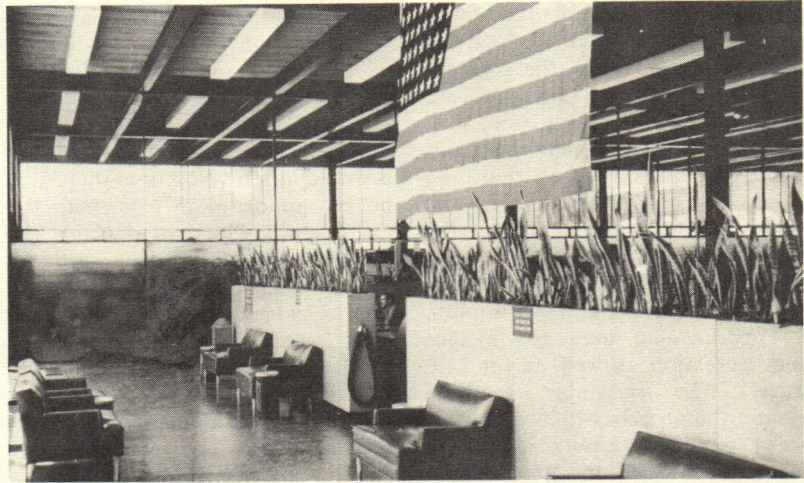
bacco states. We look back over three hundred years of activity of busy people who turned dry prairies into wheat fields and produced deserts, and who cut down forests to produce newsprint for those who measure culture in terms of pulp and produced erosion.

What we learn from the Indians, from the desert, and from erosion is surely that if you take you must give. Nature will create her own equilibrium, but if man interferes he must preserve what will be a different balance of forces, by constantly giving when he takes.

It is for this reason a moving experience to meet individuals who are determined to right the wrongs of the past, and of course to see the vast irrigation schemes, in the Columbia River Basin project area, for example, where every day a new farm is established in a country which already produces more food than it knows what to do with.

The new frontier

Americans have been so lavishly endowed by nature that it has taken three hundred years for them to reach a situation in which the song of the broad axe and the open road is an expression of nostalgia. They have been slow to realize that you can't just pack up, leave the mess, move on and start again, as selfish people could when the land represented a clean slate for immigrants and developers. Today wherever you go you are surrounded—so that the frontier is not on the horizon but at the point where you stand. This is an entirely novel situation for Americans, because it demands planning, rebuilding and preservation—the familiar pattern in all countries in which mechanized man with ever-increasing horsepower at his toe, and kilowattage at his finger, has filled the country in which he lives. In less than a hundred years Chicago has changed from a city of wood to brick and steel, and since 1880 Los Angeles has been a nice little town, an orange town, a retirement town, a movie town, an oil town, an air centre, an industrial centre, and now a road town as well. While on Los Angeles I would mention that in Orange County, still in the top ten of agricultural counties in the nation, the destruction of orange groves has been proceeding at a rate which would eliminate them in ten years. You have to be deeply dedicated to progress not to twinge when, as you drive out in the morning, you see a match being



Students' commons, Illinois Institute of Technology, Chicago, designed by Mies van der Rohe. The architect's disinterest in the problem means that the skin and bones interior of empty space and frosted glass has to be cluttered in order to be usable

set to an orange grove, and when you return in the evening, all you see is smouldering embers. "Orangeland, divisible for light industry." (So moved by this was I, that I brought back some orange wood, together with manzanita and myrtle, all of which are excellent for turning).

It is interesting that in this county the Junior Colleges are finding that while food growing is declining the ornamental nursery and horticulture business is thriving. Today agriculture has become "agribusiness." When you ask where the food comes from, as I frequently did, you are always told that more and more food is being grown in fewer and fewer places.

Rebuilding

The United States should no longer perhaps be called the New World, as the time has come when so many cities have to be rebuilt. As the development of Los Angeles shows, the history of city development is one of constant fresh starts rather than of organized growth. This will continue to be the case so long as "planning" is regarded as a swearword. Sectional rather than general interests always dominate, and today it is the roadman who dominates. He only has to throw a rubber tube across the road, count the traffic and pick up the dollars for a new highway. There are exciting developments in cities but they are dominated by the belief that man only wants to move on wheels, shop or sit in an office.

Where people have their homes is left very much to chance. In spite of this there must be a hundred

cities in which very large central areas are becoming pedestrian precincts. It is slowly being realized that man has feet as well as wheels, that the super-block rather than the single block is the new planning scale, and that linear developments are for wheels and precinct developments are for feet. Thus one wonders whether Venice is not perhaps the most modern, yet the most decayed, city in western Europe. Venice does not mean business for the landscaper, yet some of the most triumphant and influential work of the landscaper is to be seen in new precinct developments, whether they be on the single motel scale, or the gigantic shopping centre scale. I describe these as triumphant and influential, because landscaping in these contexts is not traditional, but the new approach to planning is dependent upon it.

I need not refer to the well known prestige examples of the landscaper's work, for his contribution is to be expected in this type of development. It is interesting however that as factories are being rebuilt, landscaping is coming to be regarded as part of the business. In Los Angeles one can see the trim new factory in a green setting, with treed parking lots, side by side with the slovenly predecessor. The new look of course brings prestige and therefore business, and no doubt there is an element of "keeping up with the Joneses."

In 1915 when the great arteries through Westchester County—north of Manhattan—were conceived, they were conceived not as roads, but as parkways, so today we have the most wonderfully de-

veloped examples of the landscaper's skill applied to highway engineering. Although the automobile lanes in these parkways are today dimensionally outdated, they are precedents in which the roads create the parks rather than the roads destroy the parks. In the newer roads in this region—the Taconic State Parkway and the Saw Mill River Parkway—the conception is still, as the name implies, a Parkway—an area for picnics and recreation as well as for safe travel. The miserable roadside planting approach with which we* are so painfully familiar is totally out of scale with the grandeur of the new highway operation, and of course is bad on purely functional grounds. In the new highways in the States, specially where the new pike charges through uncharted country (The Massachusetts Turnpike, for example,) we see constant variation—groups of trees here, rock formations there, a coming together, a parting and an independent rising and falling of the lanes as the topography demands. The landscaper's have caught the new scale—and massive ground cover is planted on exit ramps, whether it be shrubs in the east, or irrigated ivy, geraniums or mesembranchemums in the west. To this picture of skilled engineering and landscaping must be added the triumph of the "esthetes" as they were called in Congress, for they prevented the display of billboards along the edges of the Federally supported highways. However, one does meet those who find the big new roads boring. (New York to Chicago—1,000 miles without a stop-light certainly is a thought, as is the 32-mile-long bridge across Lake Pontchartrain, north of New Orleans on which one is driving for eight miles out of sight of land). These people prefer the visual and nervous excitement of struggling through the circus of main streets. But probably most echo the feeling of the school superintendent who when describing his 250-mile drive home every weekend said: "You just push her on the pike and let her roll along."

Preservation

Just as the horizontal spread of man over the country encourages reorganization, so does the population burst speed the relatively new phenomenon of preservation.

*the author is British, but the "we" seems universal

The population of California which was 7 million in 1940, 10 million in 1950, 15 million in 1960, is expected to rise to 26 million and 50 million in 1970 and 1980, respectively. In the United States as a whole in ten years time there will be 10 million more cars, with the corresponding increase of roads and buildings on the same ground. The present population of 180 million is expected to double by the year 2,000, by which time "twice as many people will be enjoying half as much leisure again as they now have on about double their present income and travel budget," so "the most precious thing is a plot of God-given unreconstructed open space left as nature shaped it."

This in the context of the United States may sound strange, but the process that begins with the automobile running over the grass verge ends with concrete covering the carpet of life, unless the nation itself puts up defences against the pressures of more and more experience-seeking individuals. The national parks and monuments administered by the National Parks Service total only 31,000 square miles out of the nation's 3 million square miles. These areas, as well as containing some of the finest scenery in the United States, contain primitive landscapes which it is important to preserve in order that wild life and plant habitats, which elsewhere man has eradicated, may be perpetuated. It is no exaggeration to say that public pressure on the national parks is so great that they are in real danger of failing to maintain the purpose for which they were created. As the scenic loops, overlooks, picnic areas, parking lots, comfort stations, gas stations, chalets, visitor centres multiply, so the character changes. How does one cope with the problem of numbers? One must either discourage excessive patronage by limiting the facilities to numbers that ensure that pristine nature and primeval wilderness can be preserved, or alternatively weaken to mass pressure, with the inevitable result that national parks become national resorts. Skillful as the national park administration is, and courteous and well-informed as the rangers are, the present policy of development is one that is inimical to those who derive scientific and spiritual satisfaction from the park areas. As a prominent figure in the National Park Association put it to me: "No architecture is better than good architecture."

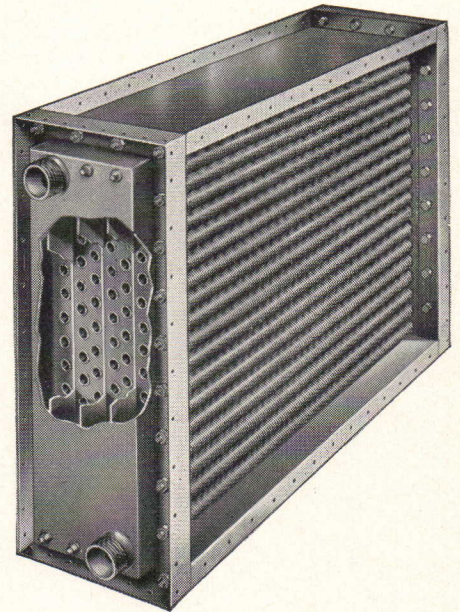
Over-access

Does not the desire to "give everyone the experience" reduce the experience to the point at which eventually Mount Everest itself becomes as familiar as our nearest open space? The swamp of Everglades National Park in the southern tip of Florida is the only area in the United States touched by the tropical life zone, and therefore is of unique importance and interest to the nation. This has now been converted into a marina, and visitors are offered little red motor boats in which to explore the swamps, and from which to observe the bird life long since frightened away. A fine mountain is no longer a fine mountain when it is capped by a parking lot. Our ability to be thrilled by the workings of our imagination is dulled by superficial familiarity that comes from ease of access. A policy of making everywhere accessible to power-propelled old ladies sounds generous, but it is fatal. If the wonders of nature are beyond our reach we must use our imagination, rather than degrade them by looking at them through cellophane. I can still recall the sense of achievement from climbing in the Cairngorms when a boy, grueling for me as some of those experiences were—but now you can drive to the top of Cairn Toul (or is it Cairn Gorm?) and what satisfaction is there in that? D. H. Lawrence put it this way in 1931: "Poor creatures that we are, we crave for experience, yet we are like flies that crawl on the pure and transparent mucous paper in which the world, like a bonbon, is wrapped so carefully, that we never get at it though we see it there all the time as we move about it, apparently in contact, yet actually as far removed as if it were the moon."

It would seem to me that despite difficulties, the excuse for avoiding excessive popularisation of national parks lies in the virtue of the two-tier system in the United States. Many wonderful tracts of country are administered as state parks (the national parks being Federally run). These are not generally of unique character as are the national parks, but they are ideal for well-planned resort facilities, and many of them are excellently provided for in this respect. These supply the safety valves which can absorb the nervous energy with which more and more Americans rush to the open air from the artificial environments of their offices and schools. ◀

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Allied Arts

Poetic Vision

by Paul A. Mankin

University of Illinois

► A great deal has been written about Le Corbusier, the architect, his creations speak so eloquently for him throughout the world that the poetic aspects of the man and indeed his own writings have been slighted if not ignored. His little volume, *Poésie sur Alger*, which he illustrated himself with curiously primitive drawings and sketches, shows a great humanist, a fighter against "académisme," against all that is "eternally old." "To raise men above platitudes and to open a path for them that leads to the discovery of everyone's heart, where each is his own master, free to reap the riches of life," is Le Corbusier's aim. It may seem naive and ultra-idealistic to our sadly sophisticated minds, but Le Corbusier lives by this formula. He does more, he creates monuments out of his visions. Urbanism is for him the expression of a society's vitality. "Cities suffer from the plague," he writes, and poetry alone can cure the disease. The Algiers plan was inspired by poetry to bring out "the essential joys" of sun, space and greenery. His plan was to cut through the town to reach the heights, to build up there. This "excelsior" motif is symptomatic of all of Le Corbusier's work.

With what wrath he wages war on cheap materialism, such as a proposed plan to set up vendors' stands near the shore where slum clearance had created space. "Destruction of poetic values! Murder of poets!" He would want to plant palm trees there, because—at some fifty feet from the ground—"they blossom out like fireworks." Algiers, with its sickle-shaped harbor, is "a city that is looking at itself."

From 1930 to 1942, Le Corbusier had offered — without remuneration — seven successive plans of urban redevelopment, and it is bitterly ironic that the municipal council of Algiers defeated his "plan directeur" unanimously. The city Le Corbusier conceived twenty years ago as the French capital of Africa has refused to listen. What will its future be?

In 1958, at the World's Fair in Brussels, Le Corbusier created his "electronic poem" within the hyperbolic-paraboloidal shell of the Philips pavilion. Forty times daily a show lasting 480 seconds was presented to a potential audience of 20,000 spectators, a synthesis of all possibilities that light and sound offered. Le Corbusier, over seventy now, asserted: "The electronic poem tries to show how our civilization from the midst of anguished tumult has set out to conquer modern times." Of all the many vague recollections that visitors to the mammoth fair can recall today, this poem where all contemporary electronic techniques were participating and interacting evokes an immediate response. Not always a favorable one, to be sure, because not many can accept Le Corbusier's credo: "One must always tell what one sees; above all — and this is more difficult — one must see what one sees. . . . It is of vital importance to reestablish the conditions of nature: In your body and in your mind: Sun, space and greenery." The Algerian experiment had borne a strange fruit in the electronic games that placed the spectator in the center of a world of light, color and images which allow no contact with the outside world. Flashed on a screen, following images of ancient civilizations, dramatic photos of Le Corbusier's own creations were perhaps the real synthesis of the electronic poem. Edgard Varèse's music ends in a crescendo "giving the impression that the implacable forward march will never stop . . . will project itself into space."

A crude drawing of a hand illustrates the basic humility of a great man. "A hand has been fashioned to grasp, to hold and to handle. There are five fingers . . . and thus a few of us came together here. . . . The road is open to everyone. This is only a beginning." The electronic age needs more poets like Le Corbusier. ◀