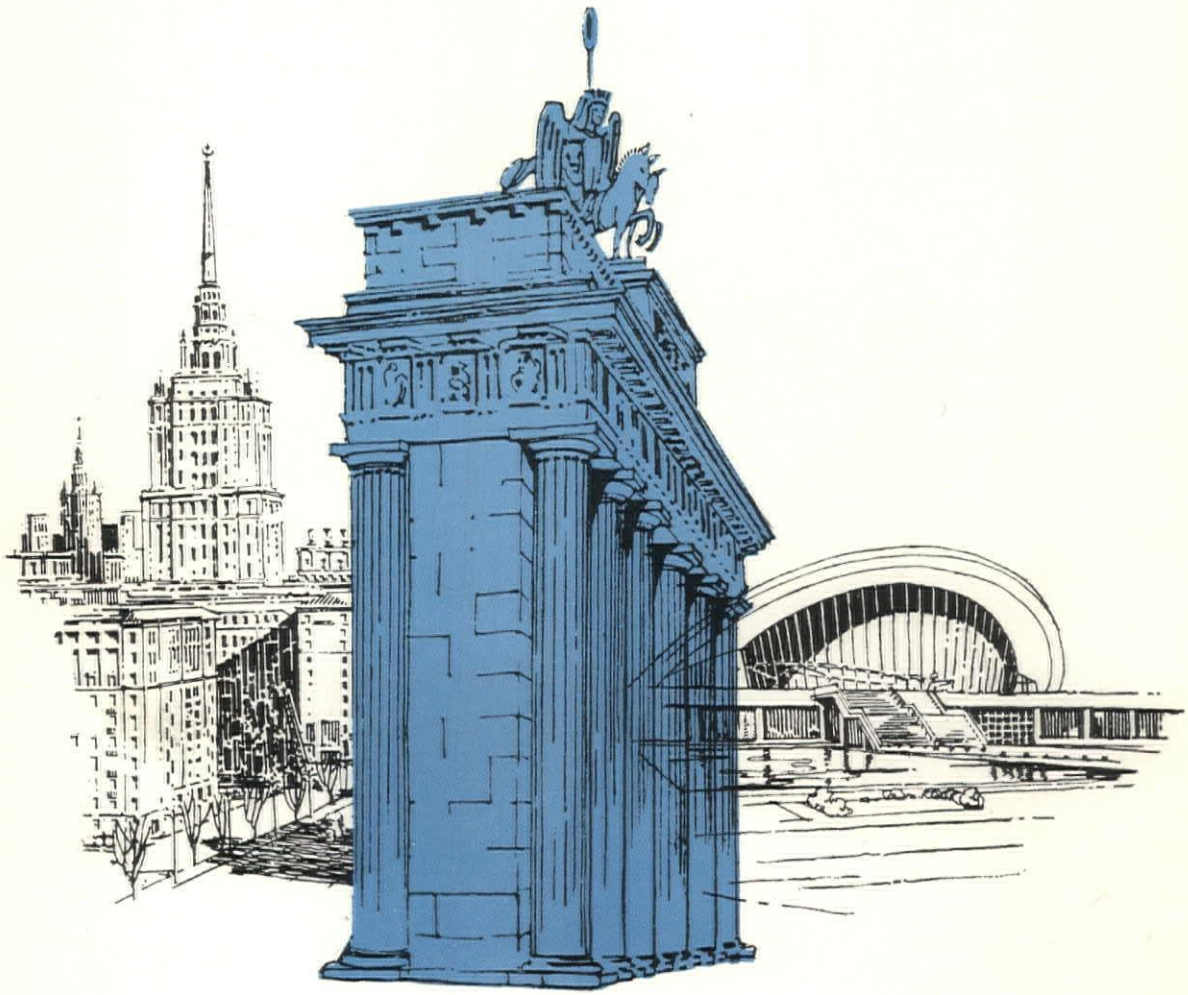
A·I·A

August 1960

Journal

OF THE AMERICAN INSTITUTE OF ARCHITECTS



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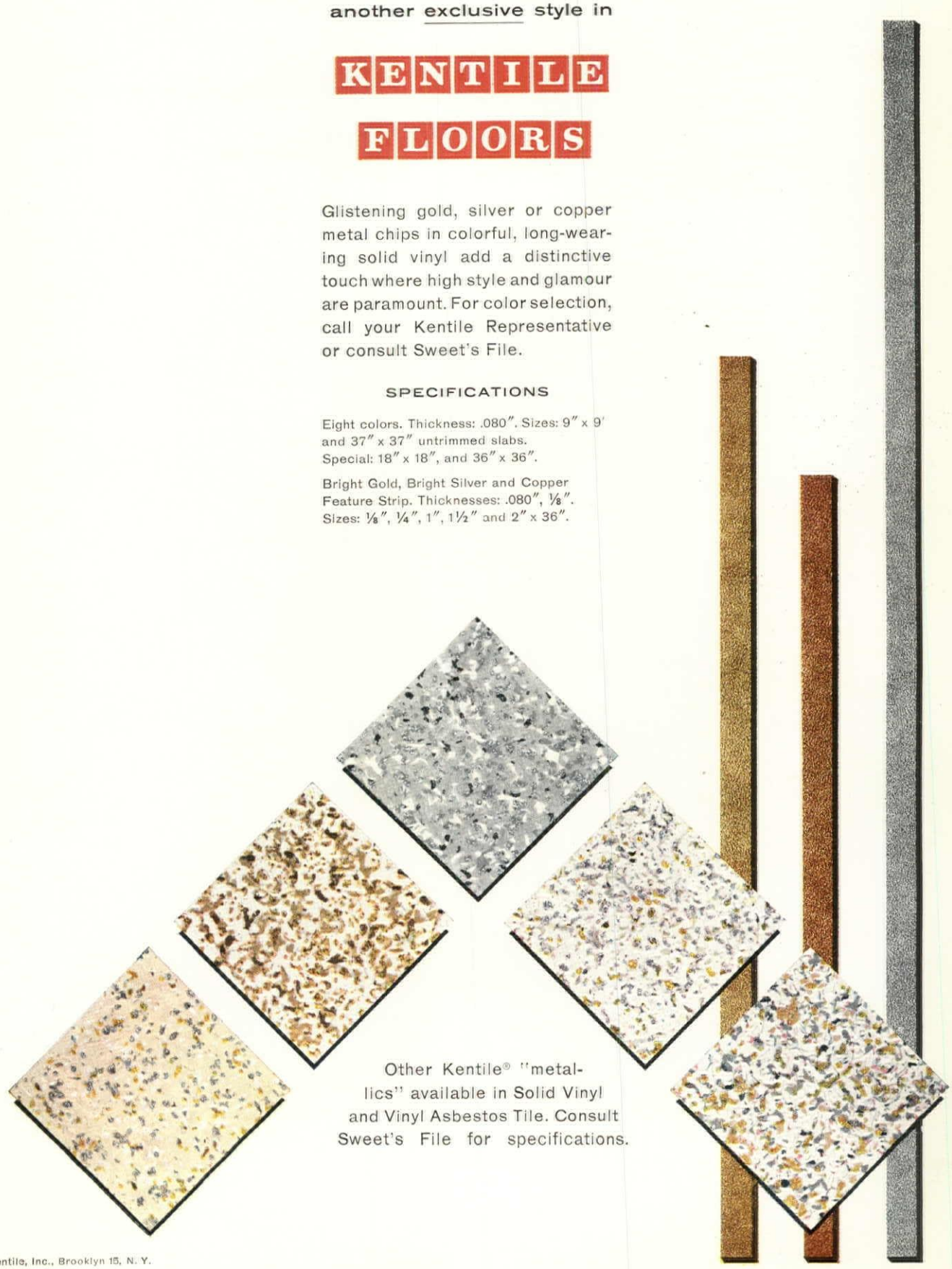

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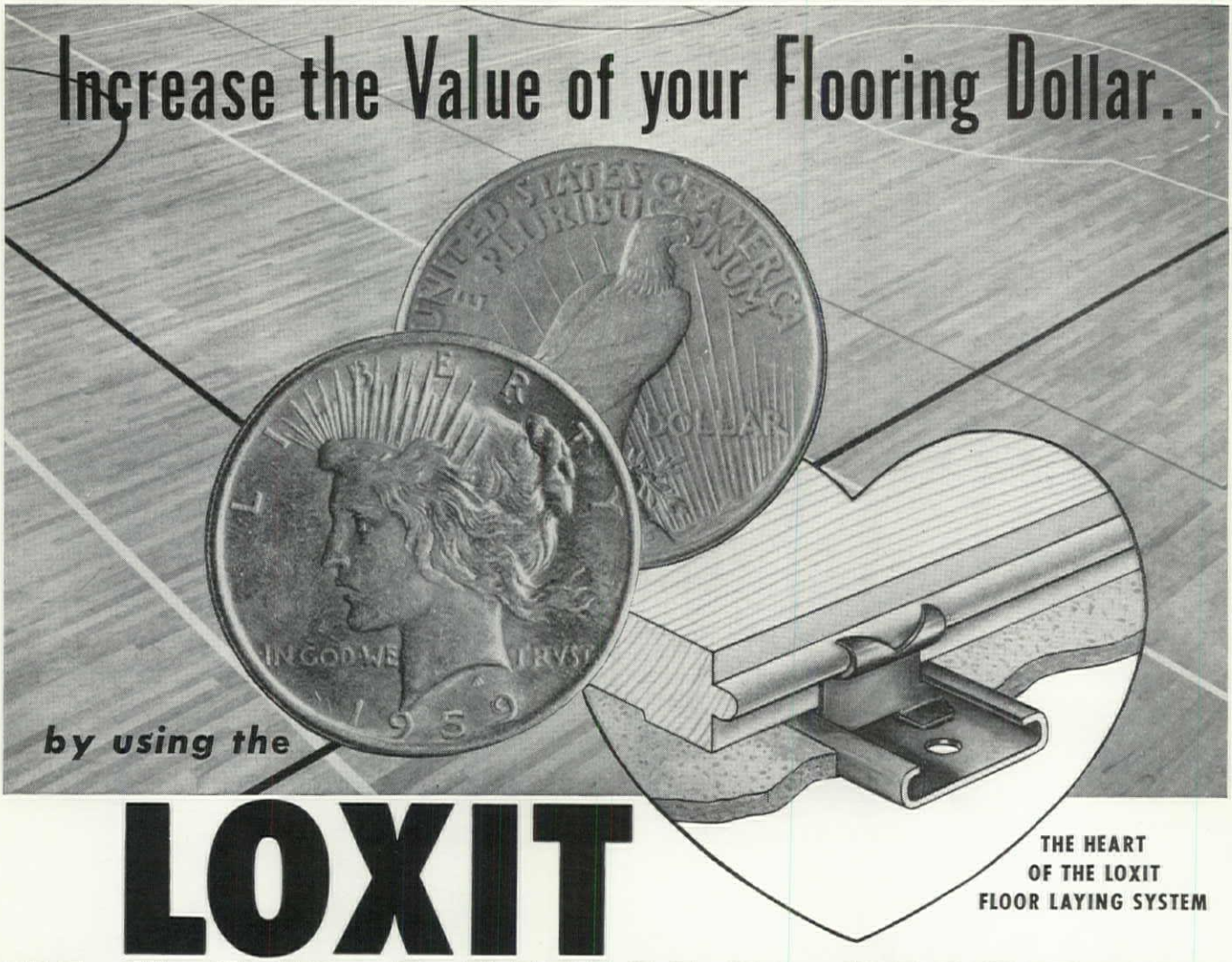

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A·I·A Journal

VOLUME XXXIV, NO. 2 AUGUST 1960

THE COVER

The rendering of the Moscow Palace of the Soviets, the Berlin Brandenburg Gate and Hugh A. Stubbins' Berlin Congress Hall is by Joe Parks.

The Journal *of The American Institute of Architects, official organ of the Institute, is published monthly at the Octagon, 1735 New York Avenue, N.W., Washington 6, D. C. Editor: Joseph Watterson. Subscription in the United States, its possessions and Canada, $4 a year in advance; elsewhere, $5.50 a year. Chapter Associate members, $2.00; Students, $2.00; Members of Art Museums, Associations, etc, $2.00 (by special group arrangement). Single copies 50c.* *Entered as second-class matter February 9, 1929, at the Post Office at Washington, D. C. under the Act of March 3, 1879. Change of Address: Notify the Octagon, giving both old and new addresses. Allow four weeks for change. • The official address of the Institute as a N. Y. Corporation: 115 E. 40th Street, New York, N. Y. • The Producers' Council affiliated with AIA, 2029 K Street, N.W., Washington 6, D. C. • Opinions expressed by contributors to the* Journal *are not necessarily those of the AIA.*

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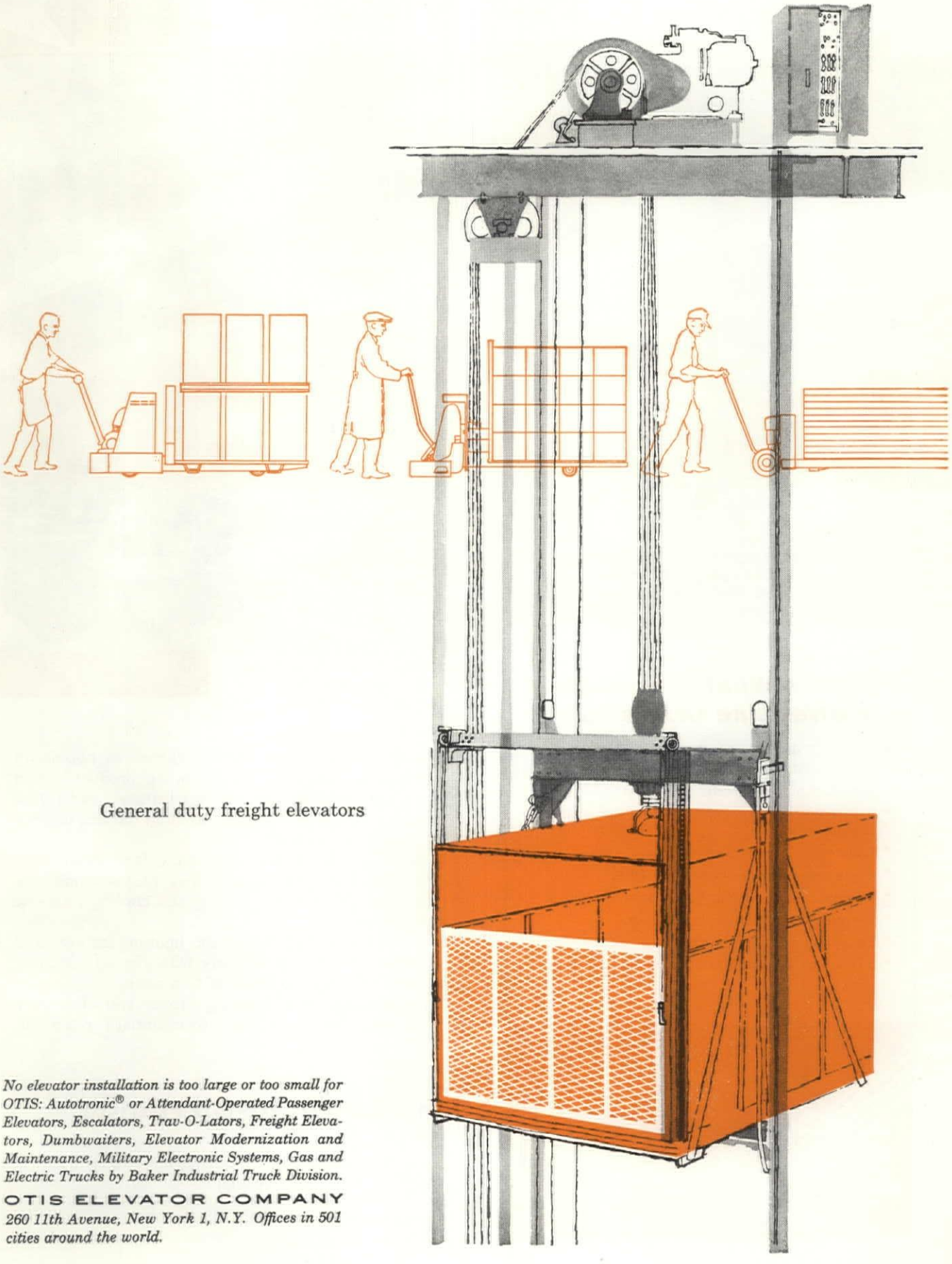

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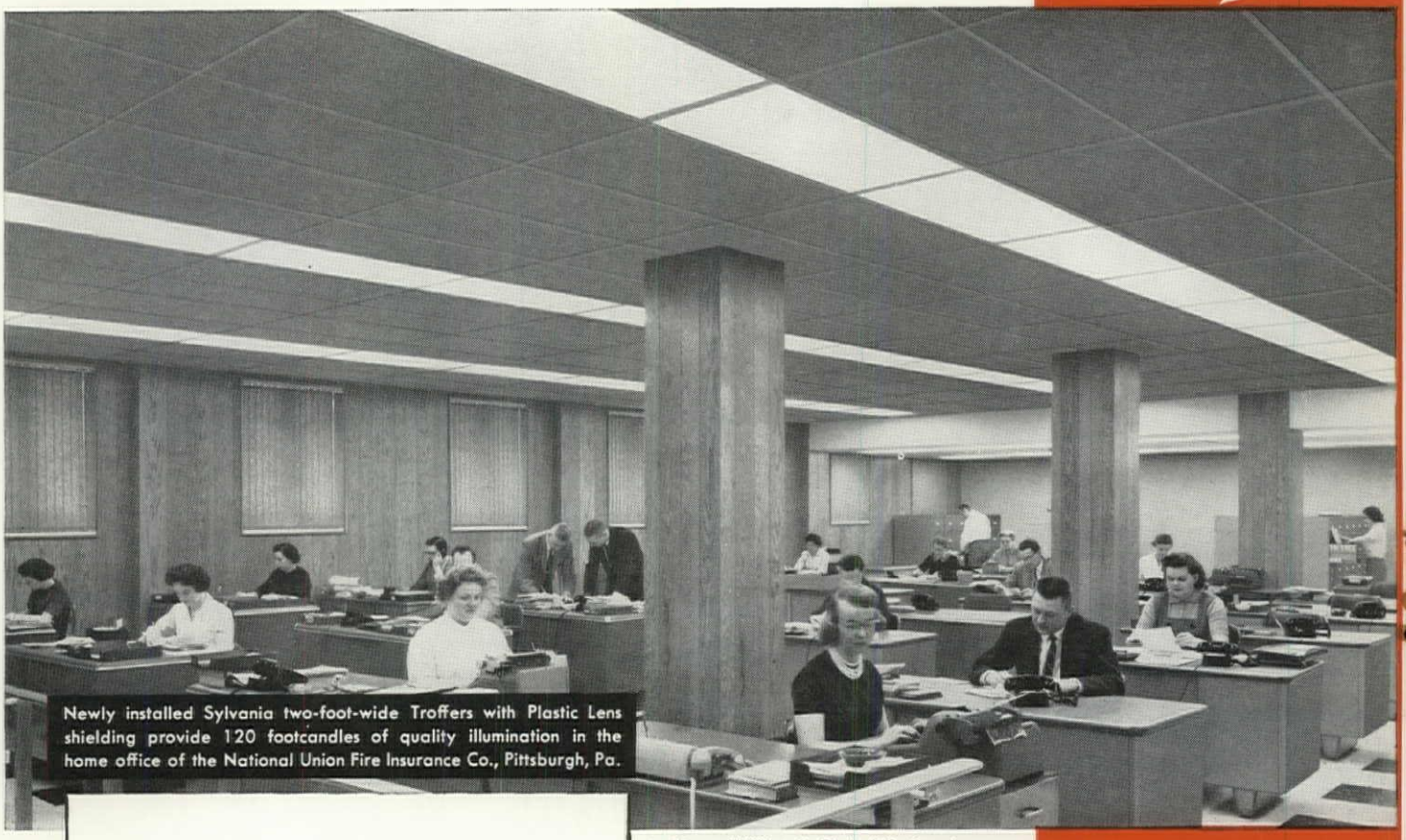

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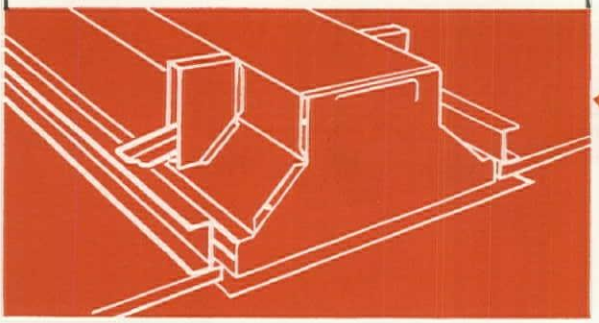

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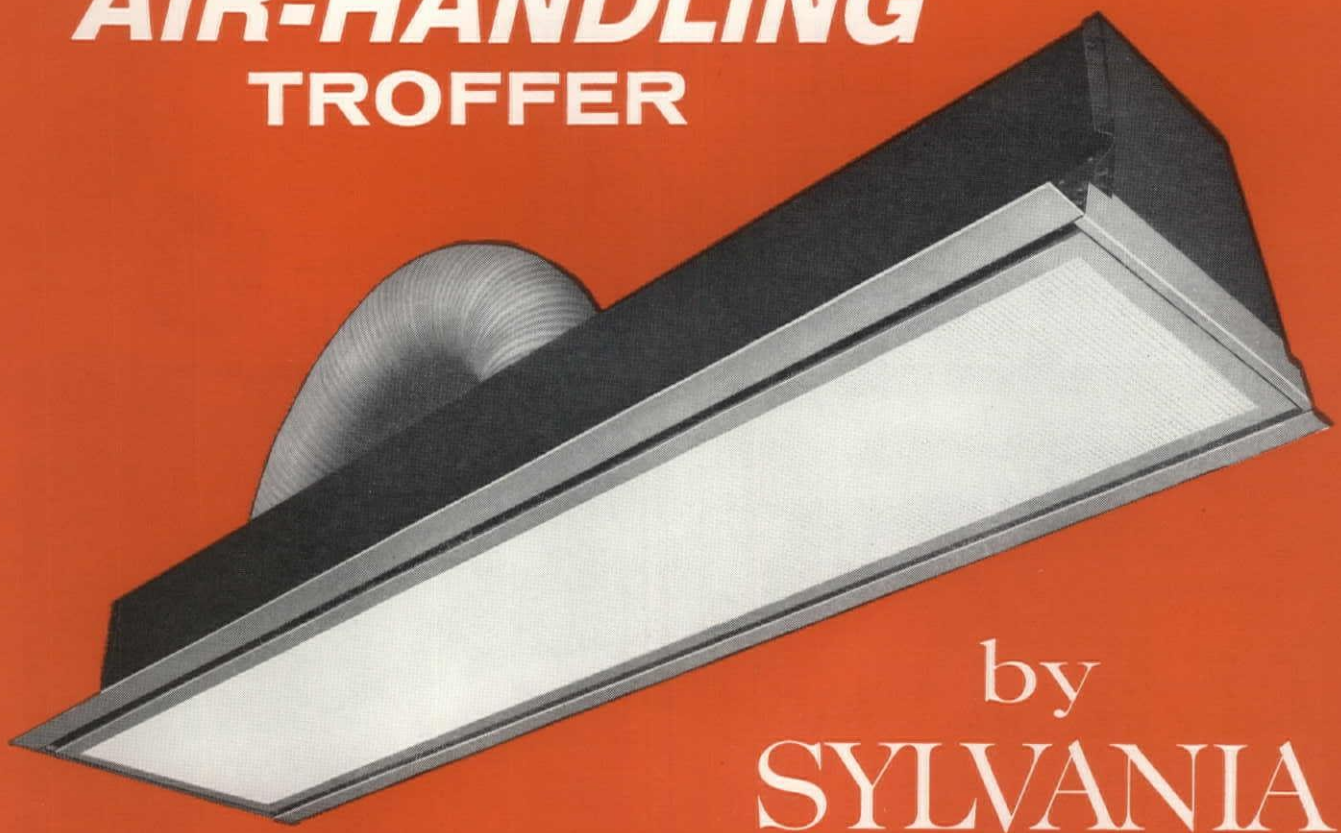

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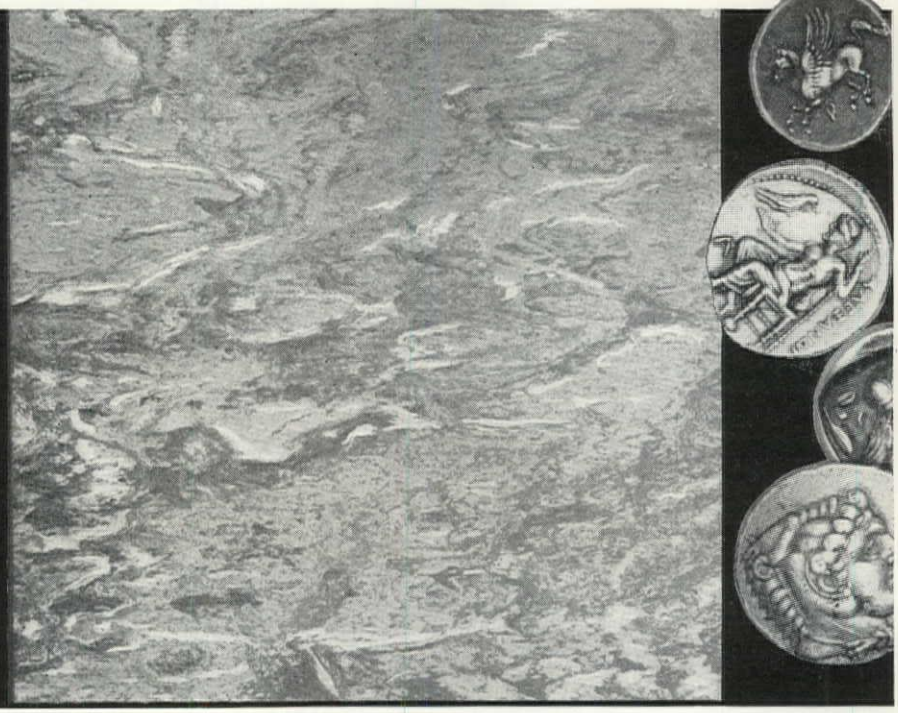

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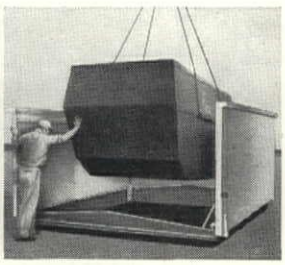

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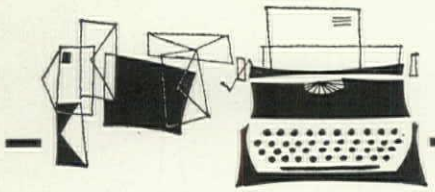


LETTERS

Pandora's Jar, Again

EDITOR, *Journal of the AIA:*

It is obvious that certain observations in my book, "The Golden City" have found their mark. Otherwise Dean John E. Burchard of the Massachusetts Institute of Technology would not have been quite so derogatory of the Grand Design in his article in your issue of March 1960.

It was with some interest that I began to read his article in the February issue as well as that of March; the reference to Pandora, a figure in classical mythology, made them inviting. The interest, alas, became clouded with melancholy when I realized that I had heard it all before. Again we have the discussion of science, sociology, psychology, etc, as part of the architect's education. The word "art," is handled with about the same ease as the federal authorities handle atomic waste. The word "beauty," is, of course, absent. (I could not help recalling a conversation several years ago with the late George Howe, then head of the Yale School of Architecture; he remarked that was one word he was determined to drive out of the estimable institution.)

Dean Burchard seems to have caught the "Whither Architecture?" flu which has attacked the more vocal members of the profession. Can it be that he too has suddenly come on Modernism's void? Like the child in the Hans Andersen's tale, he has also discovered that his hero has no clothes.

Of course history does not figure on his list of subjects as a key to architecture. The careful study of great examples of the past is evidently beneath him. His approach is a perfect reflection of the chaos in today's schools, a chaos which floats in the minds of the students, interested only in the latest, which in contemporary architectural cant, is called "new," "exciting." Compare this to the great days of the American Renaissance. Then, if you tapped the head of an achitectural student, out would fall a copy of William R. Ware's "The American Vignola"; tap the head of today's student and you will get the latest wad of advertising matter which passes for a commercial architectural magazine.

Perhaps there is no greater revelation of Dean Burchard's dismissal of history than his yearning glance at the Ecole des Beaux Arts. Although he is Dean of Humanities, along with Social Studies, he has so neglected his history that he does not know that, in its great days, the Ecole had an aim, and it was the aim which shaped the work in the ateliers. The aim? To train painters, sculptors and architects to produce monuments to the glory of France. This ability was attained by the close study of the work of the past, particularly the classical. The highest award the Ecole offered, as it does still, was the Prix de Rome which gave the winner three years at the Villa Medicis to study Rome and its heritage. By contrast, the aim of the American architectural school today is, at best, to train a technician under the slogan, "Form Follows Function."

By all means let us look at the Ecole. Let us see what it had to offer and one of the best ways is to read what the men of the American Renaissance wrote under its inspiration. And let us not forget to examine its aim.

It is an encouraging sign of the times that Professor William A. Coles of the English Department of the University of North Carolina is assembling the writing of Henry van Brunt for publication. Van Brunt, the greatest apologist of the American Renaissance, also happens to be a great American writer.

The future, unlike the present with its fondness for climbing on the shoulders of contemporary pigmies (this is not necessarily a reference to the late Frank Lloyd Wright who was notoriously short), the future will rise on the shoulders of the giants of the past.

HENRY HOPE REED, JR
New York, N. Y.

The Hunter Report

EDITOR, *Journal of the AIA:*

Congratulations on the June issue of the *Journal* of The American Institute of Architects. The content is outstanding. Under your editorship the *Journal* is bringing great prestige to the profession.

The report of Mr Hunter's committee is a memorable document, one which I should like everyone of our faculty and students to read. May I order reprints of this? At present we have about 700 students and some seventy-five faculty members so we will need about 800 copies. Please let me know what these cost and I will requisition them.

Thank you for doing such an outstanding editorial job for us all.

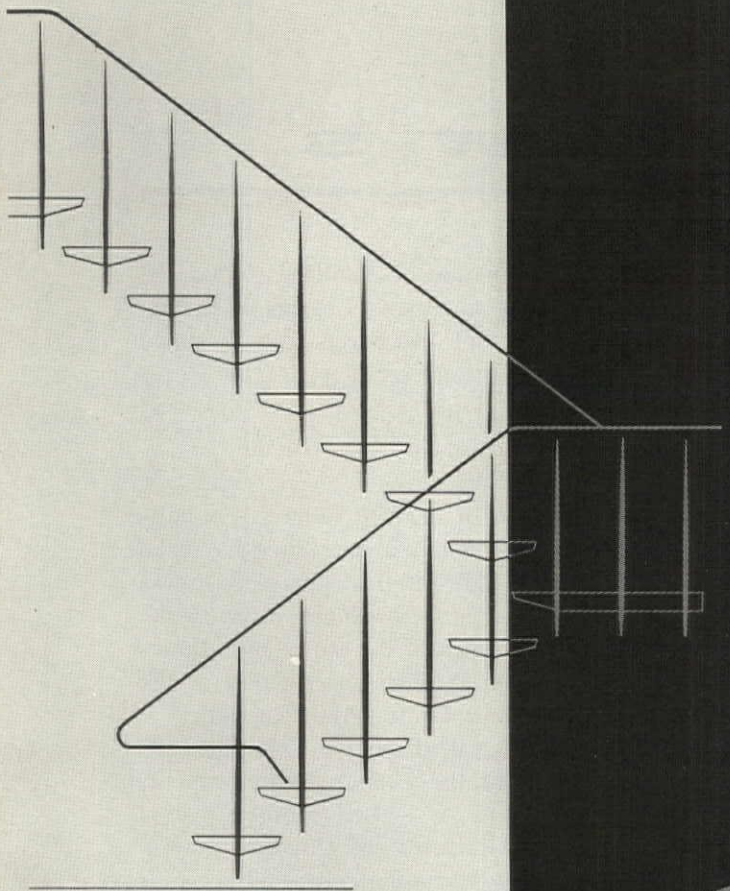
PHILIP N. YOUTZ, DEAN
College of Architecture and Design
University of Michigan

We Take A Bow

EDITOR, *Journal of the AIA:*

Your June issue is excellently contrived and is the best Convention Report that I have ever read. You are doing great things with the *Journal*. Please distribute my praise where it is deserved, after taking a great big hunk for yourself.

GEORGE BAIN CUMMINGS
Binghamton, N. Y.



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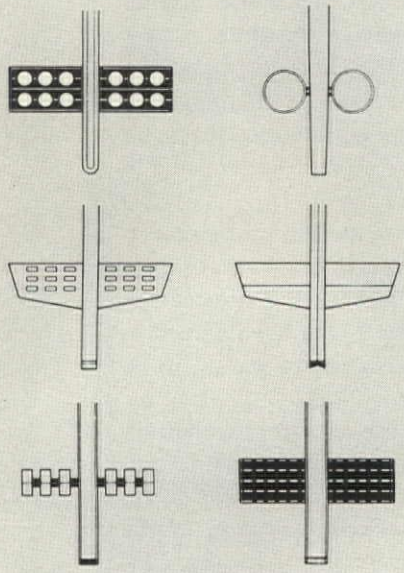

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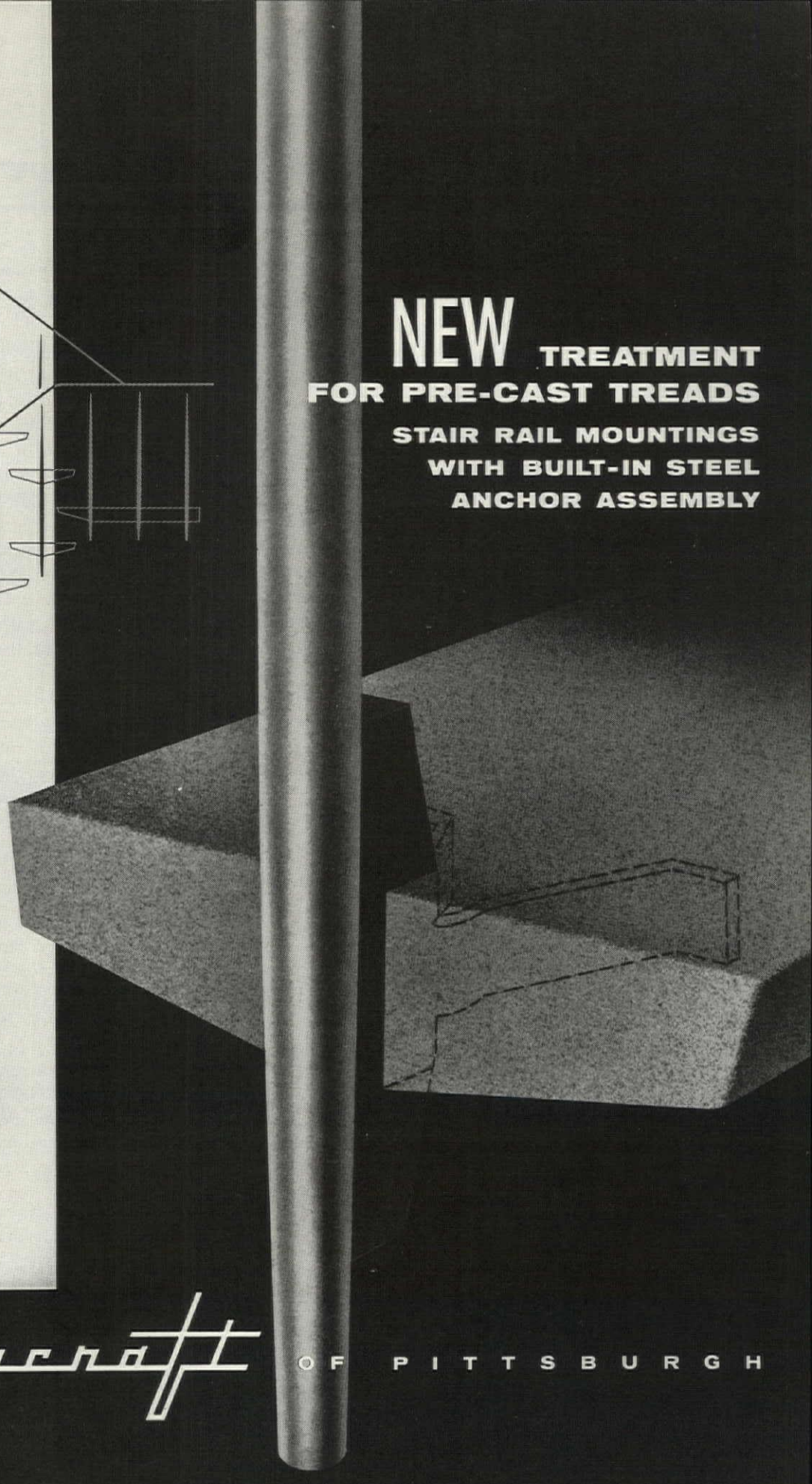

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NEWS

Freedom Foundations Award

Aloysius Schuszler, long-time AIA member from Cleveland Heights, Ohio, has received the George Washington Honor Medal from the Freedoms Foundation at Valley Forge for his lyrics to the song "Our Good American Home" which he wrote with part-time composer Voldeko Loigu, a former Estonian musician.

Originally written as a poem dedicated to President Eisenhower, the words to the song were sent to Mr Loigu who now lives in New Jersey but who has lived under both Nazi and Communist dictatorship. The combined effort won the two men one of the seven medals awarded nationally in the music awards category of the Foundation's annual competition.

The citation received with the medal cites "Our Good American Home" as an "outstanding achievement in helping to bring about a better understanding of the American way of life."

UIA Congress

Advance information on the VIth UIA Congress to be held in London June 29—July 7, 1961 indicates a full schedule of business and pleasure for architects.

The theme of the Congress will be "New Techniques and Materials — Their Impact on Architecture," and to expound the theme there will be one plenary session, three days of working group meetings and a closing plenary session. Working groups will be directed by a chairman appointed by UIA.

Admitted as ordinary members (those with voting rights) will be architects who are members of UIA, members of architectural associations from countries that are not members of UIA and those invited by the Steering Committee.

Admitted as observers (non-voting members), will be delegates from international organizations, government representatives, members of allied professions, architectural critics and historians, architectural students and members of the press and radio.

Among many social events planned for the Congress will be architectural tours of historical and modern England.

Complete information, including costs, can be secured by writing to: Sixth Congress of the International Union of Architects, 66 Portland Place, London, WI, England.

Committee for Nubia

On the initiative of the US National Commission for UNESCO, a national committee has been formed in the United States to support UNESCO's international campaign for assistance in saving the archaeological treasures of the upper Nile threatened by inundation through construction of the High Dam at Aswan, United Arab Republic.

The Committee, called the US Committee for the Preservation of the Nubian Monuments, is headed by Dr John A. Wilson of the Oriental Institute at the University of Chicago. It will institute a major fund-raising drive and serve as a clearing house of information on the manner in which interested American institutions and individuals might help in the effort to protect the Nubian sites and monuments. Contributions will be used to move small Nubian temples to higher ground and to build dams around larger temples which cannot be moved.

In addition to the monuments the group is trying to save from the flood waters, there exist many sites still unexcavated in the area to be flooded. The UAR and the Sudan have agreed to split the findings of the excavators on a 50-50 basis.

All contributions and requests for further information on the Nubian project should be addressed to: Dr John A Wilson, Executive Secretary, US Committee for the Preservation of the Nubian Monuments, University of Chicago, Chicago, Ill.

Albert C. Brown

The *Journal* notes with regret the untimely death of Albert C. Brown, Executive Director of the New Jersey Society of Architects, on June 19, 1960. Mr Brown's death came only a short time after his successful direction of the sixtieth Annual Convention of the NJSA.

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NEWS

Another Tour Available

The Town and Country Planning Association, in consultation with its Scottish Section, the Northern Ireland Ministry of Health and Local Government, the Northern Ireland Housing Trust and the Dublin Planning Office, has arranged a 2-week Study Tour of Scotland, Northern Ireland and Eire.

Dates are September 6-20. The tour includes a study of the Clyde Valley Region with special reference to the City of Glasgow and the three Scottish New Towns at East Kilbride, Glenrothes and Cumbernauld.

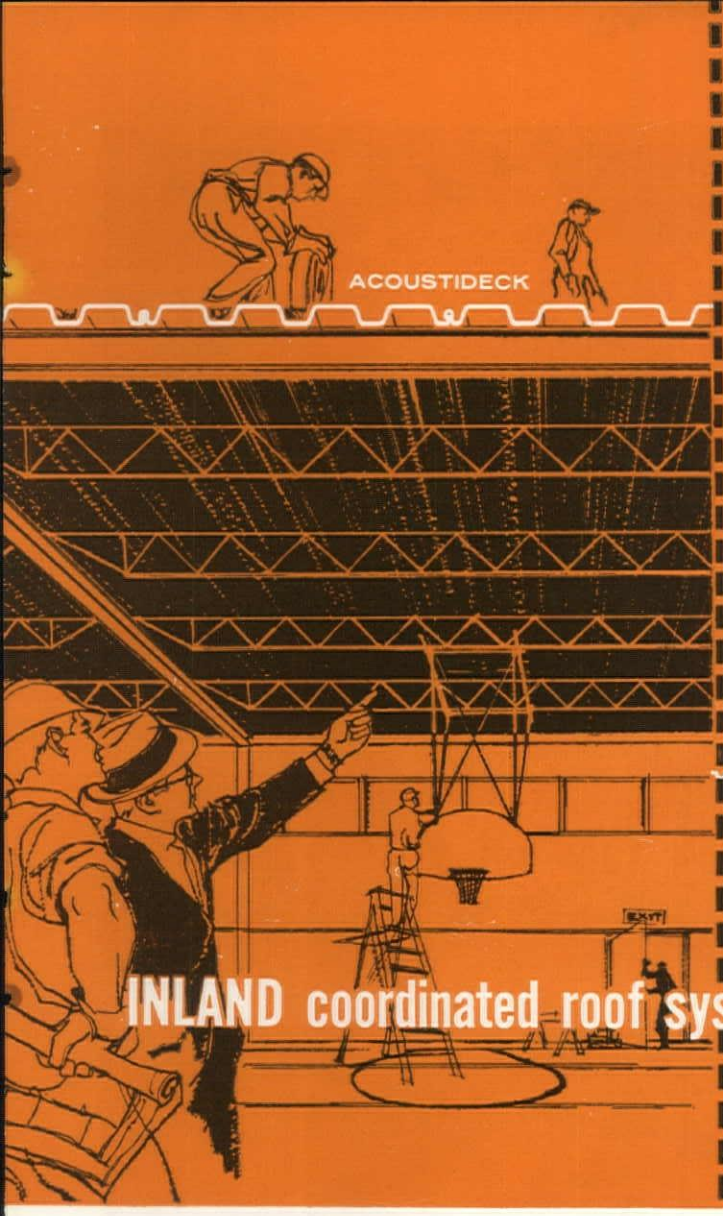
In Northern Ireland and Eire visits will be made to new industrial plants, new housing schemes, hydro-electric and peat-burning power stations, and planning and development schemes in Belfast, Londonderry and Dublin.

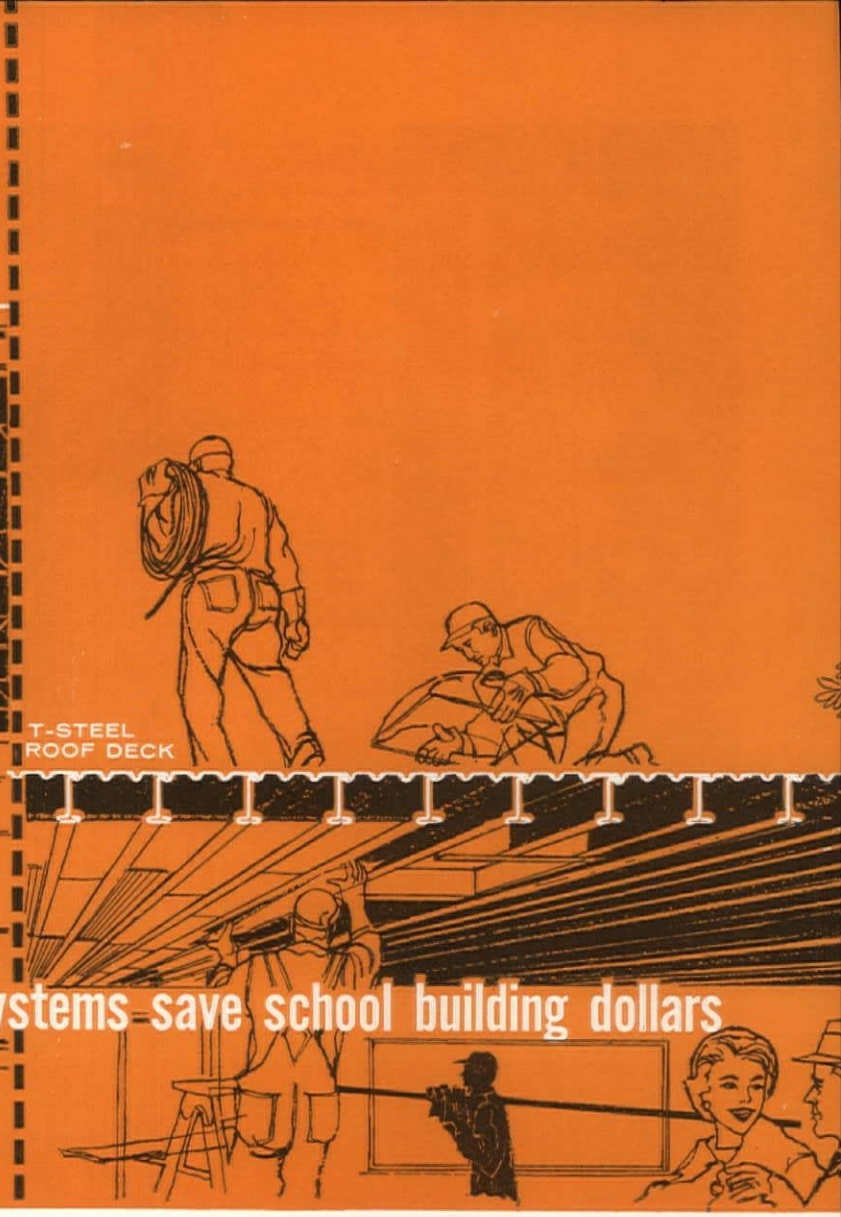
The tour starts at Edinburgh and ends in London. Travel Glasgow/Belfast and Dublin/London is by air. All other travel by coach.

Details are now available from Tour Secretary, TCPA, 28 King Street, Covent Garden, London, W. C. 2.

Names in the News

AIA Past President *John Noble Richards* was awarded an honorary fellowship in the Royal Architectural Institute of Canada at ceremonies held recently in Winnepeg, Manitoba, Canada. Earlier in the year Mr Richards was made an honorary corresponding member of the Canadian and British architectural groups, an honorary fellow of the Philippine Institute of Architects and a member of the Mexican Society of Architects . . . AIA member *Barry Byrne,* senior member of Byrne & Parks, Evanston, Illinois, has received the Building Stone Institute award for distinguished use of stone. The award was part of the BSI Seminar program held recently. Speakers on the program included *Paul B. Brown,* Vice-President of the Detroit Chapter, AIA, and *Charles A. O'Bryon,* President of the Michigan Society of Architects . . . An interview with *Eero Saarinen* is a featured article in the July issue of "Horizon Magazine." The article, entitled "Something Between Earth and Sky," gives Saarinen's reasons for his belief that the spirit of a building is as important as its functioning.





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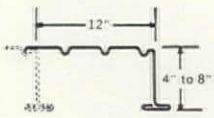

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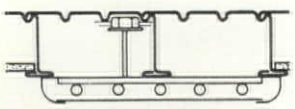

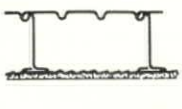

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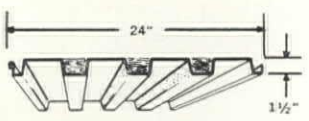

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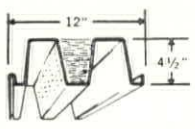

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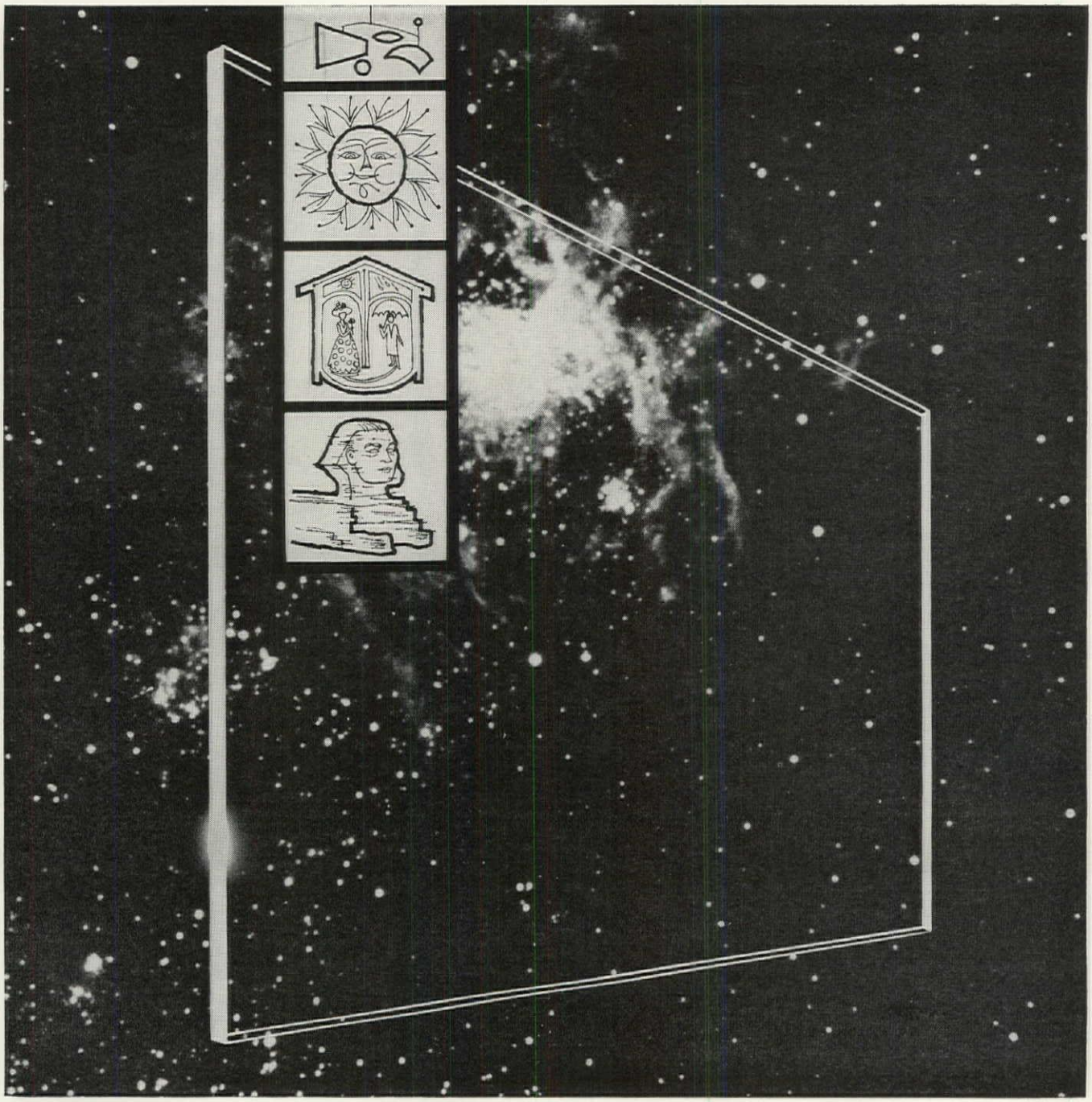

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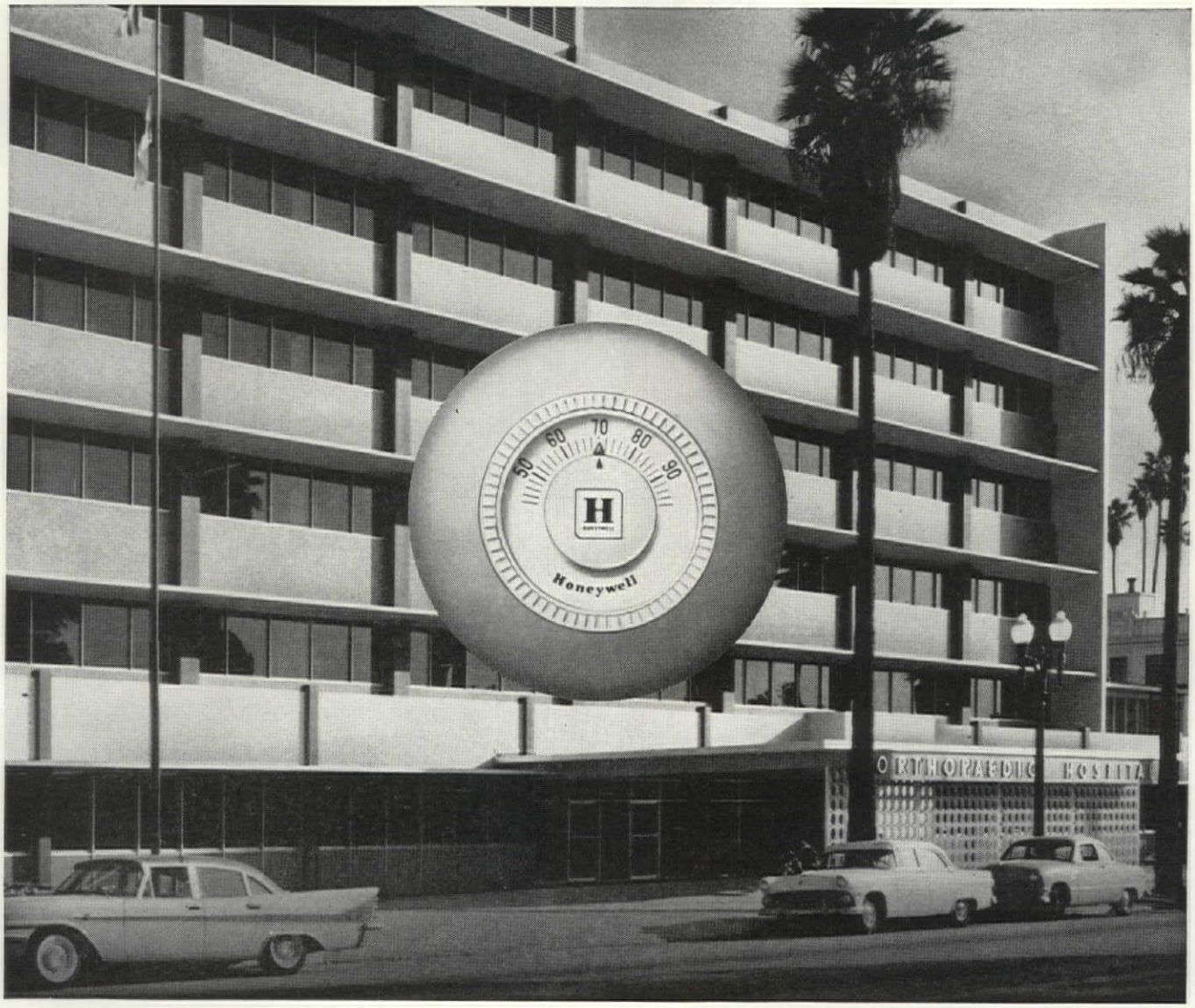

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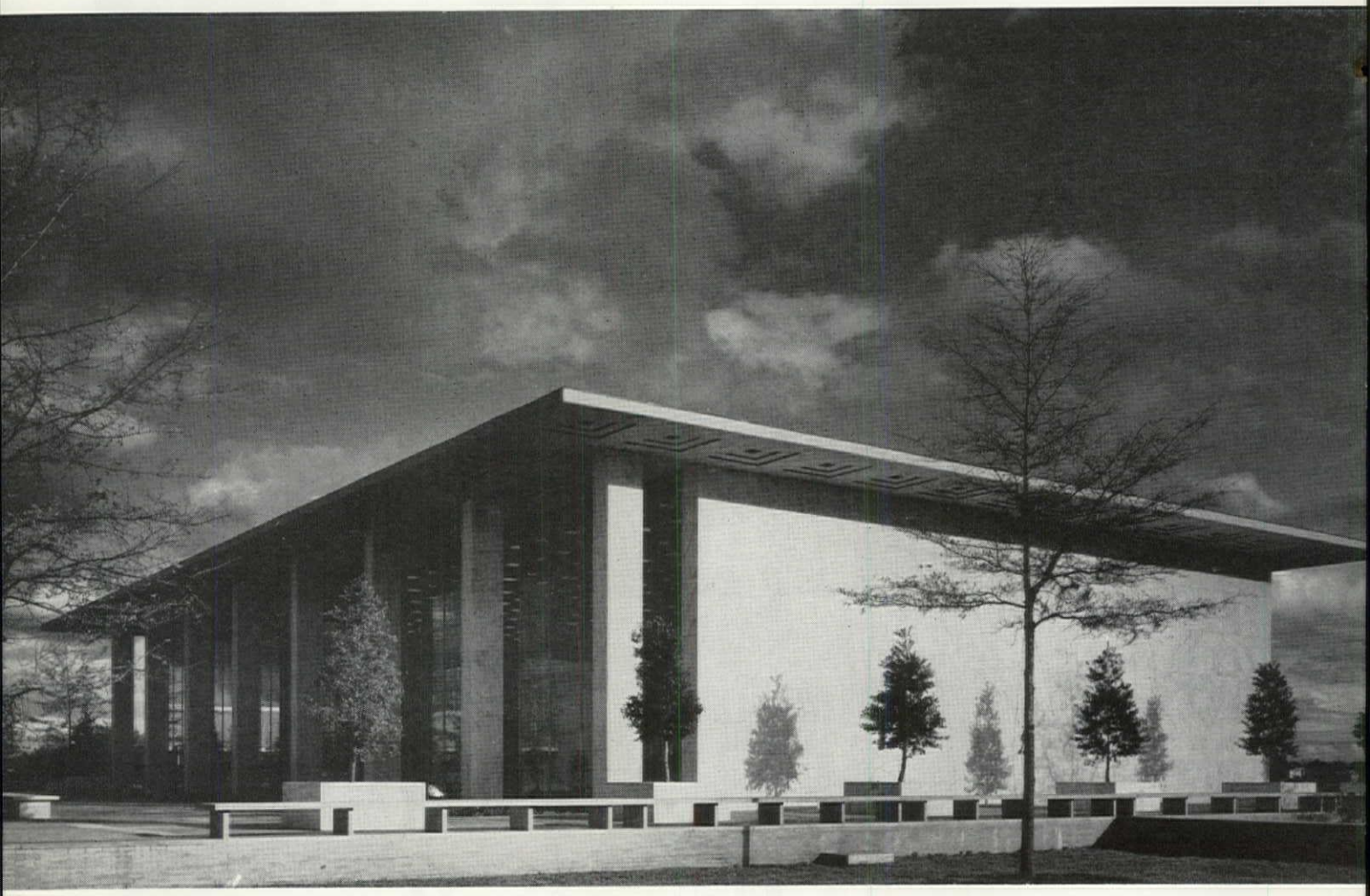

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A·I·A Journal

Architecture and City Building

East and West

BY RUDOLF HILLEBRECHT

"... the prospects of our architecture are bound up with a new orientation towards the things that are symbolized in the home, the garden and the temple; for architecture sums up the civilization it enshrines, and the mass of our buildings can never be better or worse than the institutions that have shaped them."

—Lewis Mumford[1]

► *On the occasion of the International Building Exposition in Berlin, 1957, Rudolf Hillebrecht, one of the German architects who deserves particular credit for reconstruction projects and city planning in post-war Germany, delivered a paper which was received with a great deal of interest and some heated disagreement.[2] He voiced new ideas which provide insight into the divergent architectural developments of the two "worlds," East and West. An historical perspective such as this enables us to understand developments and to point out weaknesses, whys and wherefores. Berlin, which Hillebrecht uses as one pole for comparison, in its politically unique situation, provides excellent study opportunities. It is in Berlin that the two worlds meet and clash. Ideologies, hopes and aspirations can be observed in its stones.*

As Rudolf Hillebrecht has remarked in the paper which we publish here in part, it has become quite difficult to differentiate origins (East and West) of various consumer goods, but architectural expressions have been clearly stamped either as the product of the new socialistic countries or plainly Western European.

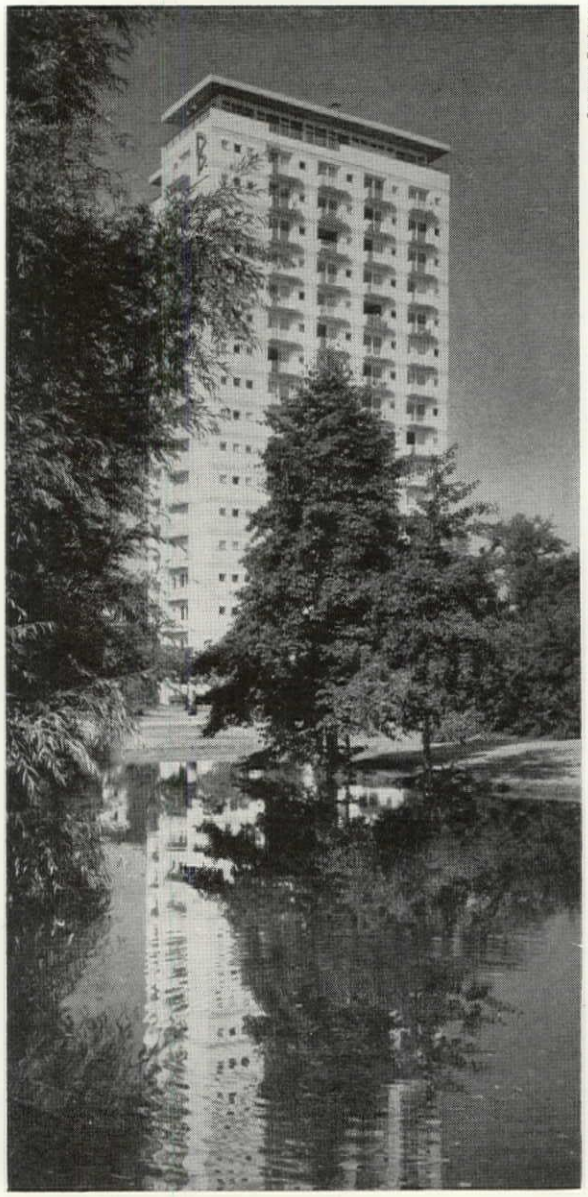
Architectural periods serve as benchmarks for evolving social orders—for men build as they feel, hope and believe. The nineteenth century failed to meet the challenge. It gave no purposeful physical form to the relationships and dependence which developed between man and his buildings. Could this have been the denial of permanence or the impact of combined faiths in human perfectibility? In the West, at any rate, the architectural brew fermented and finally exploded in pretension and corrosive slums, to harden into steel rings of limited opportunities, choking the cities and defacing the countryside.

For the first time in the history of social development, the socialist revolution in Russia established conditions required for planned co-

Peter Schmid—Pix

Warsaw — Palace of Culture

German Embassy



Berlin — Bachelor apartments

ordination of the various social activities of an entire nation. After a brief period of revolutionary re-thinking in architecture, as in all the arts (Constructivism), reaction set in with the congealing of Stalin's power. We are baffled by the so-called new Soviet architecture which, beginning in 1932, bears the stamp of genuine fascism. Could it be that bolshevism and fascism have much in common in their doctrines? According to Karl R. Popper, the governing element of each is historicism. "Can historicism offer hope or encouragement to those who want to see a better world? . . . this view would amount to a belief in social and political miracles, since it denies to human reason the power of bringing about a more reasonable world." It teaches that a realm of freedom and reason can only be brought about ". . . by harsh necessity, by the blind and inexorable laws of historical development to which they counsel us to submit."[3]

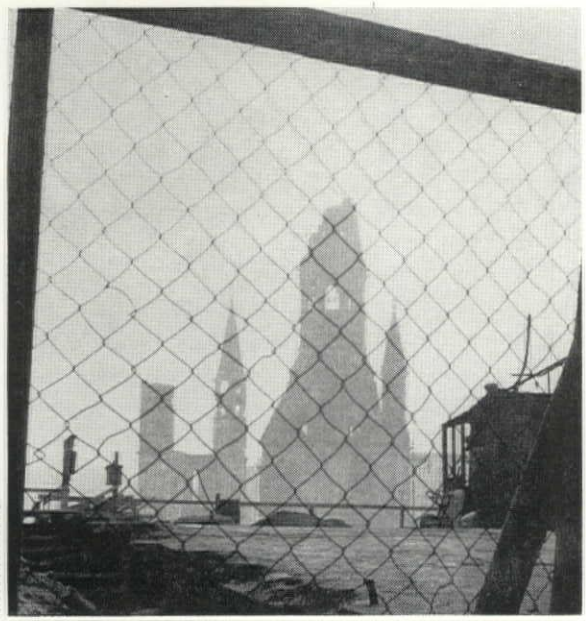
This style which says "no," is probably more baroque than classical. It is exemplified in the architecture of Hitler's Third Reich. Numerous parallels to building in the socialistic countries are visible, even for the most casual observer, in the extraordinary uniformity, the striving for unanimity in all building expression which characterize Nazi and Stalinesque design. There is no doubt that the socialistic system makes for a firm, perhaps rapid, planning program and execution of same, yet its outward grandeur leaves us with a curious theatrical impression.

This article was condensed and edited by Gudrun Huden, a native of Berlin, who has recently joined the AIA staff

Architecture and City Building **East and West**

Inner Reality

"Is baroque classicism an appropriate expression for a typical socialistic city?" I think we can accept Priene and Miletus as good examples of ancient democratic society or even Lübeck as a typical example of an established democracy during the Middle Ages. Might we not, therefore, also expect that the completely new content of socialistic society should be expressed in completely new form elements in order to arrive at a new city in a truly creative manner? The city could be considered the vessel in which this new society is to be contained.



Albrecht Hartig

The USSR has built some tremendous structures. In Moscow we inquired as to the internal function of these enormous multi-story buildings. By their external appearance and their position in the city as a whole, it might be surmised that these buildings were comparable to the temples, cathedrals, castles and palaces of the past. They seemed comparable in function with each other and, therefore, to be regarded as equal in architectural rank. We discovered that one of these buildings is a hotel, another an apartment house, a third a government building, a fourth another apartment house, and the fifth, believe it or not, a university. The use and functions of the interiors is simply not expressed or differentiated by the exteriors. There would appear to be small justification for such deliberate uniformity. All of these buildings, including the entire panoramic backdrop, are reduced to the level of elaborate stage scenery—a preconceived design abstractly developed. This might be understood if a higher idea were discernible—to the glory of which such designs were offered. At this point we encounter

a vacuum since the only possible symbolism involved could be that of the peoples' freedom, the freedom of mankind and the freedom of socialistic society. At this point the imponderables of the eastern architectural and city building phenomena begin.

In other cities of Russia a similar principle of long axes and building-surrounded plazas is also very much in evidence. The scale is smaller, but it is obvious that the design follows the same preconceived notions which have nothing to do with function. At focal points of the city plan, multi-story buildings are dominant features. In-

German Embassy

Berlin — Brandenburger Tor

quiries concerning inner content and purposes showed that these buildings contain only dwellings. Judged from the outside, they appear to be much more important. To learn that such buildings contain only dwelling units, although they are eight and ten-story structures along broad traffic arteries, forcibly compressed into facades in the best art for art's sake tradition, and arranged in triumphantly monumental groups, is truly a shattering discovery. How is it possible to take the most intimate place a man and his family possesses —the home—and degrade it by placing it in buildings which obviously have no other purpose than the glorification and service of the state? Since when have human beings expressed a common desire to live in monuments?

All of this is to be seen now in the socialistic state which was created for the express purpose of liberating mankind—in the socialistic state which possesses every resource to provide for its citizens the best and most suitable housing which, if nothing else, would at least be situated in open green areas along streets carrying limited traffic and in the best possible relationship to sunlight, nature and landscape. The value of providing such environment for the home is certainly no longer debatable. How curious to find in this socialistic society the calculated use of baroque forms, representative of absolutistic society—the forms of a society regarded as decadent and vanquished by bloody revolution. Is the new society unable to establish its own expression? (See page 27)

Socialism or Absolutism

All of this appears very suspicious to those of us who will remember that it was one objective of the Third Reich to erect similar monumental plazas and to erect uniformly disposed ten-story buildings as dwelling places. The glory of the state and the facilitation of the diabolical subjugation of the individual for the purpose of assuring a uniform attitude of the citizen towards the state was served by this single-mindedness. When we recall the Marx-Stadt Housing Projects in Vienna, built during the early twenties, and compare them in design and spirit with present-day projects, particularly the cooperative undertakings in Sweden, Denmark and England, it becomes very clear that the development of social thinking has made by far the greatest progress in these neutral nations, both politically and architecturally.

Progress during the thirties and forties succeeded in overcoming the dogmatic approach that deterred progress elsewhere, so that in these countries we see the unification and enlargement of a way of life which is reflected particularly in their architecture and city building. What a vast difference between this work and that which is being produced today by socialistic Russia. From the point of view of architectural design, the Russian work would seem to be a very unfortunate and agonizing continuation of the baroque period.

The conclusion seems inevitable—that where the architecture is that of baroque absolutism, a similar absolutistic spirit prevails, rather than one of ideal socialism. *Saxa loquuntur!* (that which is built in stone speaks an unmistakable language of eternal validity) This reminds us of a famous quotation from Karl Marx:

> "The tradition of all dead generations weighs like an Alp upon the brains of the living and while they seem to be occupied with the transformation of themselves and of their conditions,

1 "Sticks and Stones" 2nd ed., New York, Dover Publications Inc., 1955.

2 Hillebrecht will be remembered as one of the high points of the splendid tours of West Germany provided for AIA members by the Federal Republic during the nineteen-fifties. This paper was translated by Richard W. E. Perrin, AIA, who participated in the 1953 tour.

3 "The Poverty of Historicism" Boston, Beacon Press, 1957.

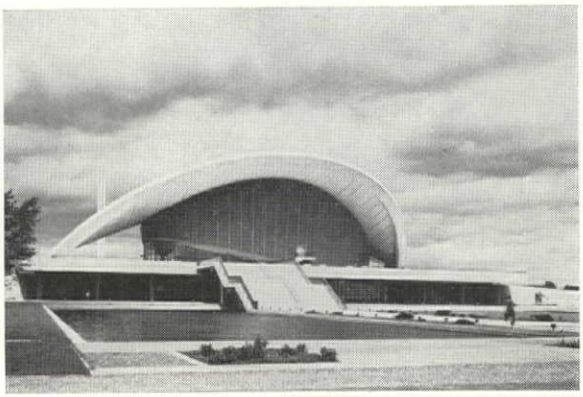
as well as to bring about things that have never before existed, it is in exactly such an epoch of revolutionary crisis that they anxiously invoke the spirits of the past and place them into their service, to the extent of appropriating names, protocol and costumes in order to appear on the theatrical stage of world history in these ancient and honorable costumes and speaking in this borrowed language."

Russia has now completely costumed itself and the rest of the Eastern socialistic world in the guise of a new freedom. As correct as Marx may have been in his analysis, he certainly would not have expected that the very first socialistic state erected upon his thinking would follow his analysis so literally. It almost appears to have been a Marxist duty to prove the accuracy of his analysis. The living quarters are built of stone and in them people live and children grow up. There is no doubt that this world of stone created in the East has yet to create the proletariat whose true feelings and requirements and whose demands for personal freedom and privacy remain to be expressed.

It is more disquieting to ask whether a spiritual sterility and creative incompetence will follow political immobility as it did in the nineteenth century. I think we should ask the same question of ourselves as to what creative competence our own society possesses in order to translate our way of life, in a cultural sense, into feasible form. The citizenry of the nineteenth century did not understand how to develop a responsible society. The paucity of creative competence in the bourgeoisie is as evident in its unfortunate architecture as it was in its failure to resolve human relations and mankind's relationship to God and to nature. Would it not be ironic if Russia, the leader of a revolutionary movement, would now be found incompetent to form a genuinely responsible society? If we were to judge this society by its accomplishments up to this time, we would be compelled to render a very unfavorable verdict.

I believe there is a ray of hope for Russia's architecture. The Soviets have recognized in the danger signals arising from their architecture and city building forms the unmistakable symptoms of incompetence. The twentieth Party Day held in February 1955 gave prominence to some very important resolutions bearing upon this matter. It would be my hope that the Russians will be able to carry out genuine reform and revisions in their developmental process in accordance with these resolutions. The Russians possess all the necessary material resources and are ideally conditioned to provide for their people everything they need if they would only demonstrate a spiritual aim, and creative competence to the degree they have shown in their political determinations. Such a combination would indeed have enormous consequences.

We must consider another possible motive that has contributed to the emptiness of socialism masquerading in the absolutistic garments of the baroque period. The obscuring of the early missionary character of Russian socialism with a nationalistic motive is more than a possibility. The story of the Crusades offers an historical parallel. Remembering later history, it is relatively easy to understand present-day Leningrad as the continuation of the imperialistic aspirations of Peter the Great, expressed in architectural design. Russia's conclusive victory unquestionably enhanced these imperialistic tendencies and has served to obscure and confuse earlier objectives. In 1955 I was told by the Russians that it was a strict requirement of Stalin that the huge monumental scale of Moscow be carried out in this manner and in no other. This is reminiscent of the visions cherished by Hitler who on the day of France's surrender in 1940 immediately ordered the execution of redevelopment plans for five German cities as if to manifest in these major undertakings a national victory. It is important to observe that both Stalin and Hitler, while possessing a preference for the classical art forms, found it necessary to express in new buildings, and particularly in the art of city building, their philosophical and social conceptions, for the purpose of attaining political objectives. Thus the architecture of the socialistic world gradually, and particularly since 1945, assumed these imperial mannerisms. Not only Stalin-Allee but monumental structures of stone are also spotted from Berlin to Peiping, eloquently docu-



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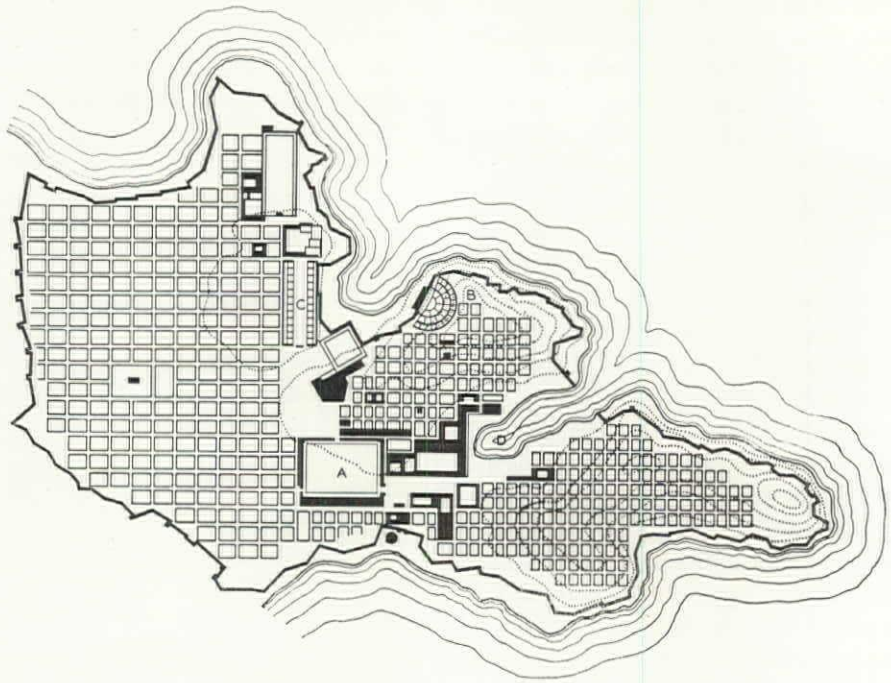
Berlin Congress Hall — Stubbins



Miletus[4]

menting the size and might of the socialistic world for the benefit of the population coming in contact with it. As interesting as it is, I will not pursue any further the question whether these buildings were motivated by socialistic or imperialistic impulses. This question will soon answer itself as the architecture of Russia develops, and particularly in other socialistic countries, since it is a truism that buildings are unmistakable evidence of the true purpose of the builder.

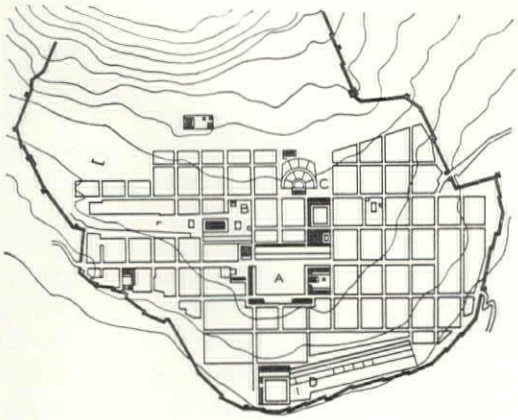
In all fairness, it should be stated that since the end of Stalinism in 1955 there has been a sincere effort on the part of many dedicated professional people in Russia to change the trend in architecture and city building not only in Russia itself but also in the other socialistic countries. We know from our own German experience how dictatorship cripples creative powers. This must be taken into consideration in any objective evaluation of the Russian situation. Even if eventually a free, responsible and self-sufficient art movement comes to pass in Russia, it will take years before the architects will be able to produce results. Even with us today, we have not fully removed the hobbles which are traceable to the crippling effects of restrictions during the 1930s. We had to begin anew and had to relearn how to think and build creatively, using as examples the more fortunate countries such as Denmark, Sweden, Holland and England. I think it behooves us to be patient and understanding.

The Eastern Satellites

In another category, but in the closest relationship to the previous discussion, is the question as to what conclusions may be drawn from the architectural developments in those countries that became socialistic after 1945, that is to say, the countries that have come under Russian influence since that time. No doubt this question is very interesting and affects us particularly because of developments in the eastern part of our own country. Can we say that the "westerly" countries of the eastern bloc, such as middle Germany itself, Poland and Czechoslovakia, were genuinely convinced of the validity of the baroque forms as being expressive of a socialistic society? Or was this acceptance of architectural forms an extra-political consequence, a necessity and an unavoidable recognition of Russian might. If the latter is the case it would support the thesis that Russian architecture is primarily an expression of imperial might and to a lesser degree, and perhaps not at all, the expression of a socialistic order. This makes all the more strange the acceptance of Russian architecture and city building art by countries that have either lost their national consciousness or have made a choice that was not voluntary.

In this connection I think that my recent impressions of China are not applicable, because in that country many other considerations have brought about a particularly unique situation. A

4, 5 "The Urban Pattern," Arthur B. Gallion. Princeton, N. J., D. Van Nostrand Co, Inc, 1950.



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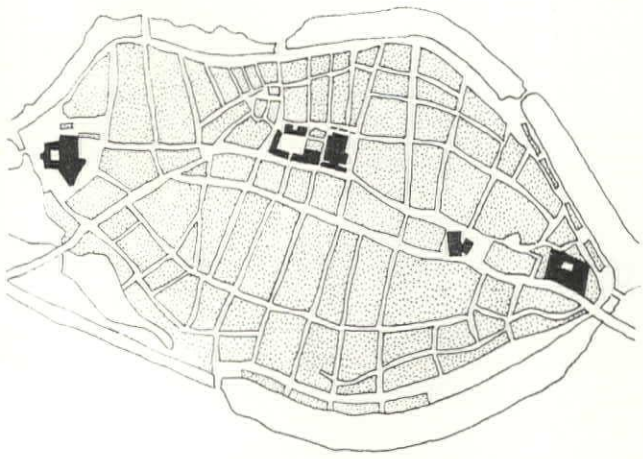


Lüebeck[6]

better example would be Poland so far as recognizable symptoms are concerned. The plan for the rebuilding of Warsaw demonstrated a remarkable solution from the planning point of view because it recognized the unique location of the city and its relationship to the Vistula. Simply the recognition of such objectives fundamentally distinguished the Warsaw plan from the typical city planning approach of the eastern dispensation. Here we had a completely self-sufficient solution to the problem characterized by the sort of free treatment we have come to associate with typical western city building in the modern manner. It would be incorrect to assume, however, that this city plan (by this time fully realized) is anything but the expression and unification of idea and form, and of a socialistic society, although obviously of a different nature from that we have become accustomed to elsewhere in the East. Poland proceeded in its own way and, it seems to me, in a good way. In contrast to this we are now confronted with an open contradiction in the form of a 300-foot-high Palace of Culture—the gift of the USSR for which Poland has been apologizing since 1956. Needless to say, in this building we see a clean-cut picture of Russian architecture as of 1952—that is Stalinesque design. The contempt in which this building is held by the Poles expresses very clearly the position in which Poland and similarly situated countries found themselves between 1945 and 1955. It seems quite clear that in both the sense of a socialistic social order, as well as the architectural forms expressing such order, the Russian effort has shown itself to be much more nationalistic and imperialistic in motivation than based upon socialistic ideology. (See page 20)

It seems that in taking on Russian architecture and city building Poland and other countries acted simply in accordance with political expediency. There is really nothing unusual about this since history is full of such examples. It would be different had these countries voluntarily accepted such Russian architectural forms as the valid and recognized symbols of the socialistic way of life, but such was not the case. It is exactly in the Warsaw example that we see a singular form and an original conception of socialism expressed as an ideology diametrically opposed to that of Russia. The constriction of architecture and city building in Russia by increasing tendencies toward imperialistic expression is brought into clear relief by the example of Poland.

What more need I say of the developments in the eastern zone of our own country. Aside from the regret that must be expressed over the deeply disappointing work being done in their cities, we conclude that our colleagues in the East were simply not in a position to follow their free and individual inclinations in the reconstruction. It has been the painful but historic duty of the German architect to reveal the architecture of the

6 "The Nature of Cities." L. Hilberseimer. Chicago, Paul Theobald & Co, 1955.

Third Reich as being identical to that of the USSR. How much better it might have been if the creative traditions developed in Weimar and Dessau could have been presented to the socialistic world as a better means of expressing its true nature. This opportunity was lost, however, because the situation in the eastern zone of our own country was not comparable to that of Poland. We lacked the political strength for national identity which Poland possessed and which encouraged its architects to follow their own persuasion. Also, it would have been very difficult to liberalize the socialistic cultural dogma of the Russians because it is doubtful that in their capacity as the monopolists of socialism since 1945 they would have tolerated the advice of German architects, let alone their criticism.

In the meantime Russia has undertaken a far-reaching self-evaluation of its architecture and city building, the full effect of which we cannot measure at this time. These developments have had a considerable influence on the more recent buildings in the eastern part of our own country. You will have heard that in its search for new architectural concepts and new building methods the East has turned to West German architects

Moscow Today—Kutuzov Avenue

Sovfoto—V. Koshevoi

and city builders. For the understanding way in which the officers of the German Municipal Association have met these requests, I believe they deserve a vote of thanks. Such cooperation is not only a self-evident duty which everyone interested in the reconstruction of our cities in both parts of Germany will readily understand, but it is also the means whereby bridges are built across the gap that separates us. It may be hoped that such cooperation will be of profit to us in that we can with modesty (perhaps unaccustomed) evaluate our own work and ask ourselves whether it is fully adequate or whether there is evidence that we need to think more deeply about it.

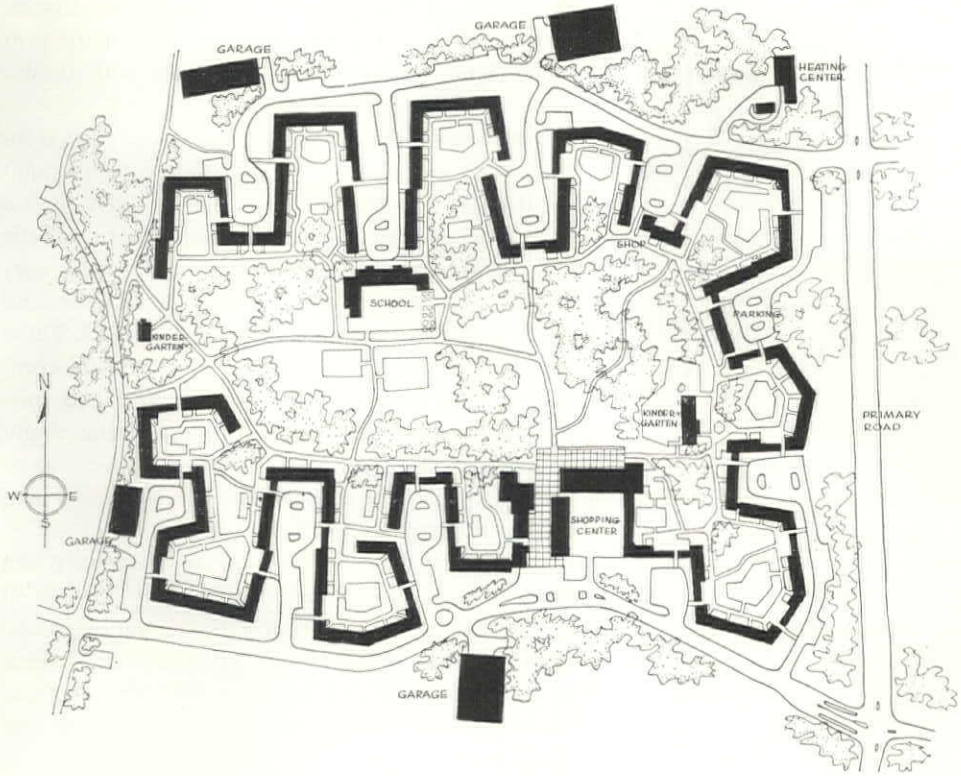
The lag in German architectural development, an after-effect of Hitler's regime and the war, is still evident. In many areas German architects may still be considered pupils of architects of other countries. Visiting American architects have recognized the problem of the slow rebuilding of craftmanship in less-skilled labor, and at the same time have admired the fine hardware available to their German colleagues. Considerable progress has been made in the understanding and application of psychological aspects of housing, and out of the ruins a phoenix of genuine promise may rise.

From Eastern Germany, however, a different, negative spirit expressed itself: "We did not build as well as we could, but as badly as we had to." Since the death of that oriental despot much more life has been exhibited in Eastern Germany's architecture, though constraint remains evident.

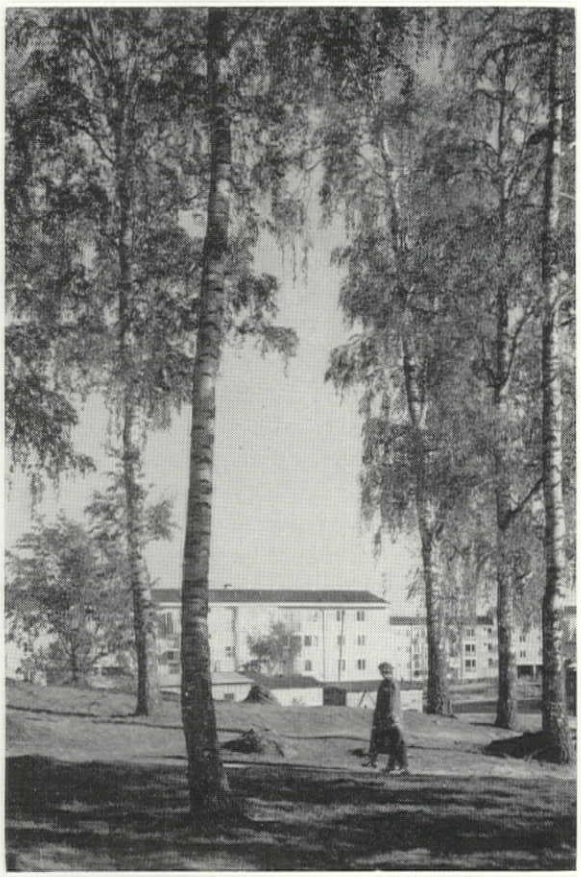
In both East and West, efforts are being made to find new and better expression in architecture. It must be noted that recent years have brought considerable awareness of error to the East. They freely confess to a great quest for improvement.

How Shall We Measure?

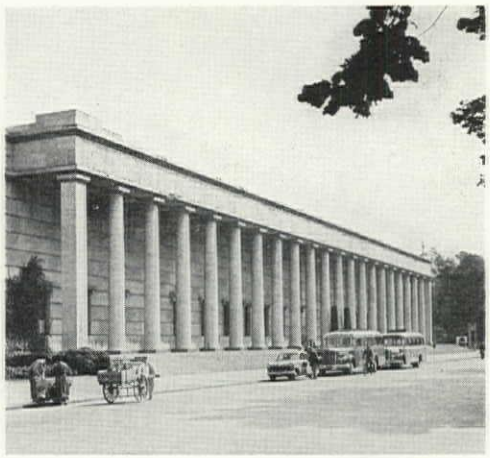
Before attempting to answer this question, I feel impelled to make several additional observations. In getting my point across I find it difficult to avoid using specific examples, and in limiting myself to cities which I regard as typical, I am doing so because I feel that everyone is familiar with them; I have no other motive. There is Cologne; we all remember the original picture of a many-towered city. How we wish that this city might regain all of its towers, and still if this were the case tomorrow, there would already be another building offering competition such as



Plan and photos of Baronbäcken from Sweden Builds *by G. E. Kidder Smith,* FAIA

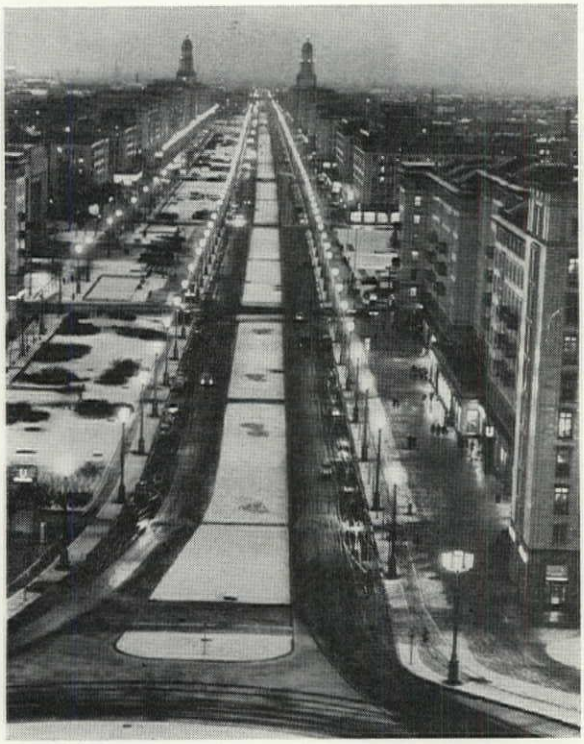


German Embassy



Haus der Kunst in München

Claude Jacoby—Pix



Stalin-Allee

the high-rise building of the Gerling Konzern. Or, think of Frankfort with its multi-story post office. I could list many other cities with similar new and imposing buildings.

These new developments must be viewed in two ways—from the purely architectural point of view, it is hardly debatable that we have reason to be disconcerted. We see rigid, hard, brittle and sleek forms of tall buildings contrasting very poorly with the many profiles of delicate and lovely church towers extending heavenward. These skyscrapers are incompatible and unnatural companions for the surrounding buildings, and particularly in the old part of the city—one might almost say the sacred part of the city—seem to be very arrogant and almost inimical to society and to the community itself.

As to the other side of the question, are not such buildings a contradiction of that concept of our society which is concerned with mutual social responsibility? What inner justification is there for such self-enhancement on the part of these buildings? To agree with Bonatz that these are "cathedrals of labor" would be very difficult. Is the faith which Christian society expressed so clearly in its city picture and characterized so singlemindedly in its cultural community now to be replaced through faith in the insurance business or broadcasting. How strange that no politician, not even the Chancellor, should raise any objections or voice any concern about such buildings. Isn't it becoming clear that private and public competitive economic power is taking the upper hand?

I think our weakness is disclosed in two significant ways. First, there are powerful forces at work that are imposing this kind of building, and all that it stands for, upon our people and, secondly, our society obviously has had no common cause of any consequence nor any particular urge to express itself in a communal way. Perhaps this is why an old city with great traditions is in danger of having erected in the shadow of its cathedral, town hall or castle, a modern natatorium (family bath every Wednesday night).

But there are additional horns to the dilemma. Dismissing financial considerations for the moment and assuming that a city would be in a position to build a new city hall, I wonder what would happen if any city today should undertake to build a city hall of such overpowering proportions as the one in Hannover built before World War I, which admittedly was a very imposing structure with its 300-foot high tower even if in some respects the building may have been lack-

ing in architectural quality. As a matter of fact, would there be any sense to such a building as an expression of the idea of self-government? Could it possibly be the embodiment of the idea of self-determination as the crowning achievement of government? Where can we find, today, community and communal interest to compare with that of centuries past?

The Missing Assignment

Going a step further, we architects must admit that it would be extraordinarily difficult to provide such a city hall with really convincing architectural forms genuinely symbolic of self-government, especially expressing the original requirements of self-government—the council chamber and the room for public assembly. These two chambers would require only a small fraction of the total volume of the building and the major part of a modern city hall would be required for the accommodation of the city government's many administrative functions. The end question, therefore, is what is the comparative weight of these two elements, one of which, according to constitutional concept, is to lead and guide the fortunes of the community, and the other—the administrative element—which in our modern-day organizational scheme of things, plays such an important role?

If I had time I could give you many other examples. One hundred years ago a railroad station was a highly significant building for the society of its period. Frequently designed along the lines of a castle or a palace, it was regarded as a building of very great importance. Today a railroad station has become a bazaar filled with as many shops as possible, which brings into serious question the entire function and purpose of the railroad station. We see buildings which formerly housed important business institutions, and whose appearance expressed the significance thereof, now loaded up with mercantile establishments of various kinds in the lower stories, completely obscuring the principal purpose of the building. There seems to be a deliberate effort to seclude, and if possible to make invisible, the arrangements that are of genuine service to society. This seems to be an attempt to avoid everything that might serve to remind the individual that of himself and without participating in a responsible society, he is nothing. To me this escapism is not only remarkable, but a serious situation. It is in complete contradiction to the avowed objectives of society which even in the East are fully accepted.

German Embassy

Frankfurt

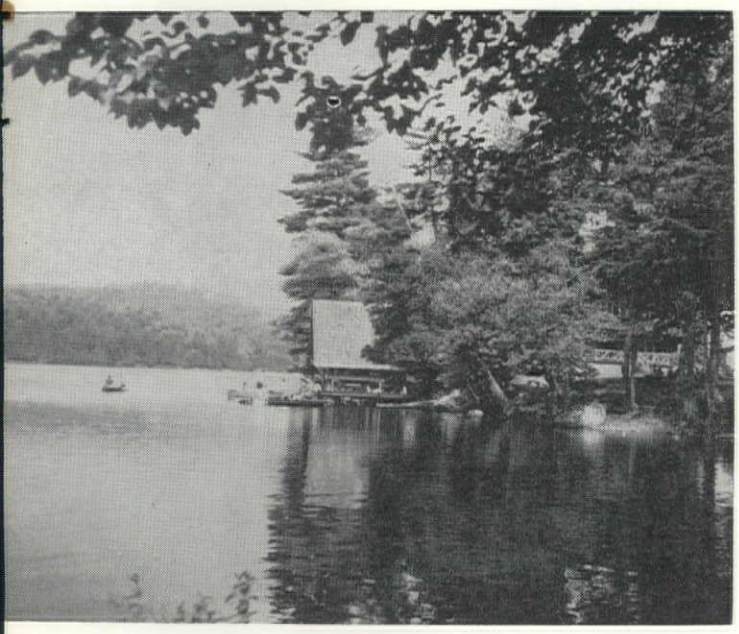
Town Hall, Hannover

The question, therefore, must be directed to every one of us whether we deem it to be sufficient to express in our buildings nothing but our material prosperity and whether we believe thereby to be able to produce something of equal rank with the work of those generations who built the old cities for us. Let us remind ourselves that these old walled cities standing next to rampart and moat, with their beautiful town halls and towering churches, were built as the communal effort of a population which generally numbered between 5,000 and 8,000 people and seldom reached 10,000. Think of the energy and willingness to sacrifice required! Does such willingness to sacrifice not imply conviction as to the value of the sacrifice? Does it not mean that there must be a recognition of the extraordinary significance of the idea that matters affecting the common good are as important as, if not more than, matters of private advantage? Let us also remember what sacrifices the social order of the East demands of each individual, under conditions and with objectives in mind which must be regarded as secondary. This fact alone is what I want to recall. Is our society prepared to acknowledge that besides attending to the ego of the individual it has the further responsibility of requiring responsible participation of the individual in matters of society and of calling forth needed sacrifice? And the most important question, what is the purpose of the sacrifice, what is its underlying value, what is its goal? To what ideal are we offering sacrifice and what actually is it in our society that is, above all else, so worthy of sacrifice?

Does not our entire existence stand or fall upon the concept of freedom, which we believed to have won in 1945? Is not this concept of freedom the concept of democracy as we understand it, and is it not incumbent upon us to make this concept expressive and substantive through our buildings and to perpetuate this freedom by our actions within these buildings? As stated, it would be almost impossible to invent building forms to carry out this assignment when in fact such an assignment and the inner need for it has never been given. Who would give such an assignment? Who would formulate it? And who would give this sort of program to the architect and builder without which no genuinely valid architecture can be produced? Is not this a most serious deficiency, and indifference on the part of all of us, but particularly of politicians and political bodies? Can a society exist without accounting for fundamentals of its existence in a spiritual sense and without restating again and again the principles of its conduct? This calls for expressive symbols which are understandable to everyone for revitalization of the imponderable elements inherent in all symbols. Perhaps the people are far more receptive to such imponderables than we realize. I believe that our society, if it is to have any future at all, cannot withdraw from the assignment thus presented. If it fails to rise to it, the experience of history offers small prospect for such a society to ripen to maturity. Certainly we are all aware of the uncertain basis upon which our social existence rests. Here we have an assignment of the highest political order. As long as it remains unsolved I see no prospects of a city building art ever reaching, or even approaching, the level of those cities of the past that were reduced to rubble and ashes.

City planning in the United States consists of a congeries of disparate activities (for instance, those which Europeans would call civic design, estate management and public relations). This planning is carried out by a host of separate organizations—public, semi-public and private—even within one city. Americans, therefore, talk of the need to "coordinate planning." What can we do to make this confusing palimpsest legible? To the European, planning implies coordination, though it may not be effective.

Hillebrecht specifically points to England as having the most advanced legislation designed to promote the good of the community as a whole in willingness to sacrifice the self-interest of the individual. Since the English like to regard themselves as occupying a position between the US and the USSR, Americans should take note when, by Hillebrecht's analysis, America is placed at the chaotic terminal of an entropy curve which spans the range of possibility from total order to chaos. This analysis might well be read as a diagnosis of anarchic inability to concentrate on our end—psychotic fixation on an impossibility on the Soviet end—and a "muddling through" middle course on the part of the British. Despite certain inadequacies, the British position, which falls between our chaotic indecision and the Soviet's historicist rigidity, gains in attractiveness from this comparison. We remained smug (at least until Sputnick) in our belief that a rigid, authoritarian system could not develop scientific-techno-artistic greatness, but we may have overlooked the fact that science, pure or applied, requires discipline. Our architectural science, so enameled over with art and emotion, might well take note of this great lesson. ◄



View from the writer's cottage, showing a discussion group assembled on the boat dock — and a couple of truants taking off in a canoe

The Fifth Annual Summer Seminar of the Association of Collegiate Schools of Architecture and The American Institute of Architects

By **Joseph Watterson, AIA**

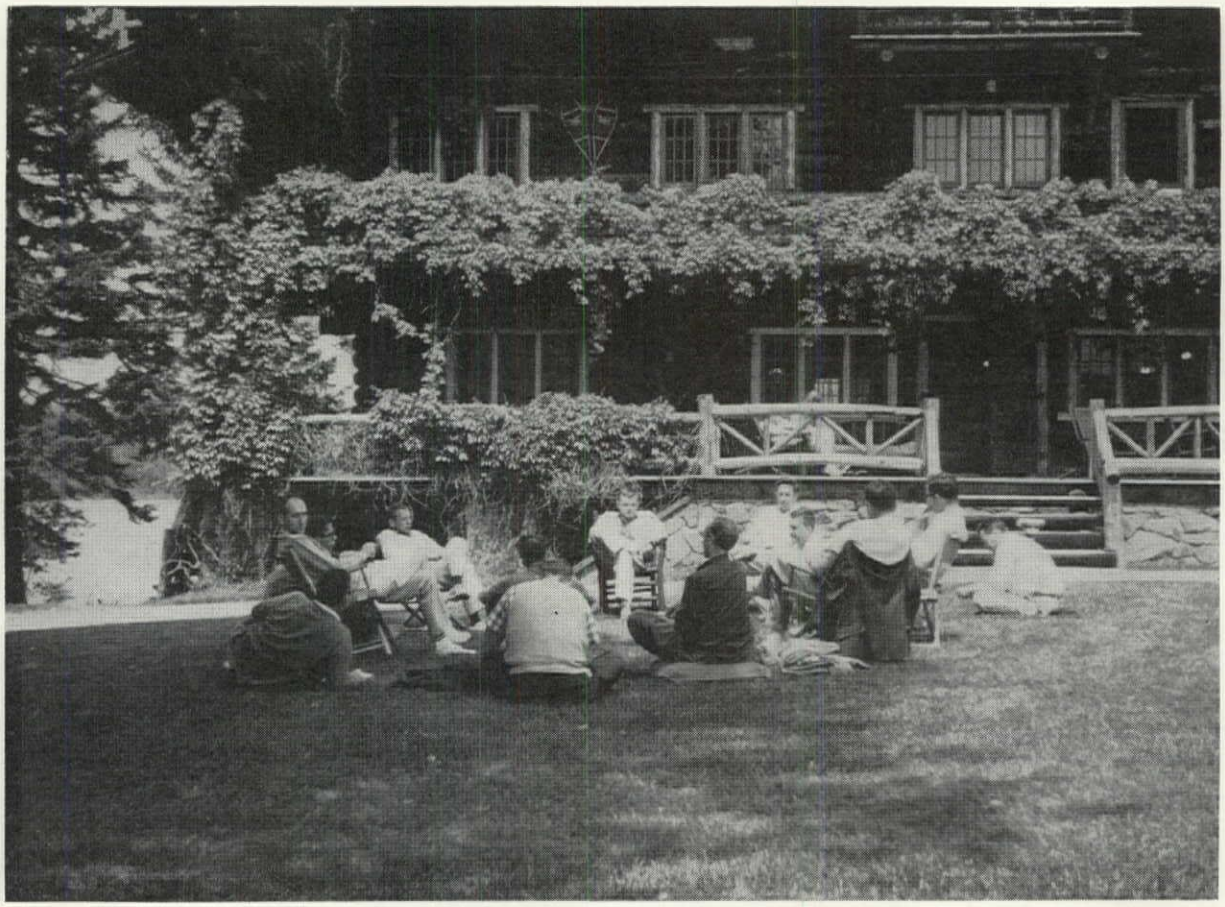
► The beautiful setting of the Sagamore Lake Conference Center of Syracuse University, near Raquette Lake, New York, was the scene from June 12 to 24, of the ACSA-AIA Fifth Annual Summer Seminar on the Teaching of Architecture. The former Vanderbilt hunting lodge, with its many cabins and outbuildings, formed a rustic yet luxurious background for the gathering during its discussions of "Architecture and Technology."

Fifty-four teachers from forty-two schools and departments of architecture in the US and four in Canada, and nine prospective teachers, gathered to listen and discuss with twenty-one speakers and nine guests and observers. Among the speakers, most of whom remained two or three days, were AIA President Philip Will, Jr, ACSA President Harlan McClure of Clemson College, Dean Harold Hauf of Rensselaer Polytechnic Institute, James M. Fitch of Columbia University, Chairman Lawrence Anderson of MIT, Dr. Frank Frybergh and J. Walter Severinghaus of Skidmore, Owings & Merrill, Fred N. Severud, Bernard Miller of Smith, Hinchman & Grylls Associates, and Felix Graham of Syska & Hennessey, Inc.

During the first week the entire group was addressed by one of the speakers each morning, followed by a question-and-answer period until lunchtime. The early part of the afternoon the participants divided up into five discussion groups, each under a leader. At three-thirty the entire group met together again to listen to reports from discussion group leaders and for further discourse with the morning's speaker. In the evenings participants or guests gave talks, often illustrated, on architectural topics.

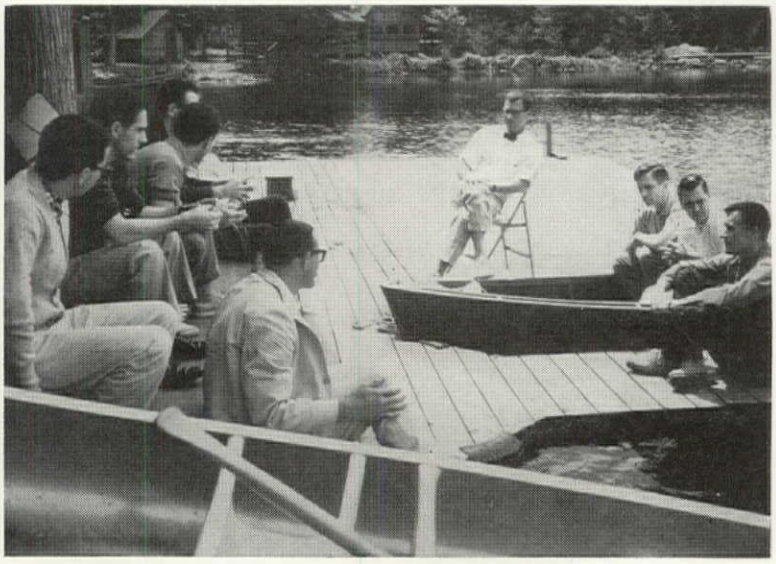
During the second week, a redistribution of smaller groups met to focus their attention upon the central problems of teaching methods in architectural education. Each group developed two workshop problems, with the assistance of a roving team of resource people representing the profession, allied professions, technical specialties and school administration. These workshops attempted to develop actual teaching situations. The seminar closed with general sessions at which these problems were presented to the entire group and evaluated, with the heads of schools of architecture serving as moderator and speakers.

Participants in the seminar are selected by the heads of the schools of architecture, mostly from the younger teachers. Half of their expenses at the seminar and transportation costs are paid by the Joint ACSA-AIA R-17 Committee—the school usually pays the other half. This year the Institute contributed $4000, various chapters and other architectural groups over $5000, and several



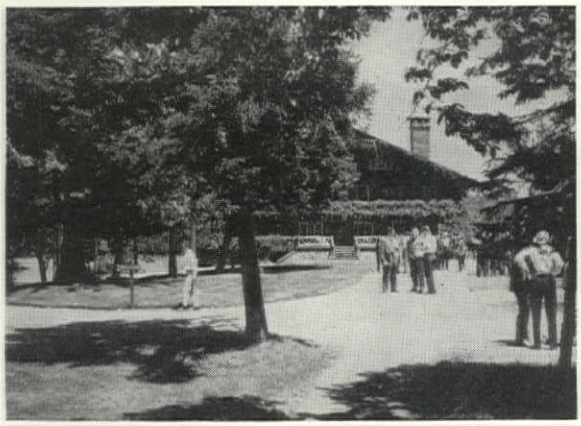
One of the afternoon discussion groups, this one led by John Mascioni of Pratt Institute

ACSA-AIA
Summer Seminar
1960

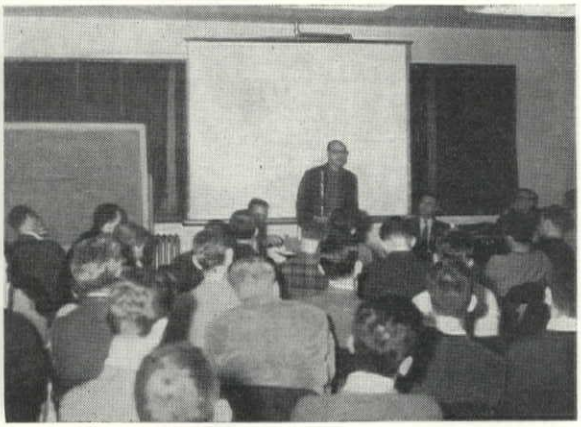


Cooper Union's Richard G. Stein took his discussion group to the boat dock on sunny afternoons. At the extreme right is Bernard Miller, Vice President of Smith, Hinchman & Grylls Associates of Detroit, featured speaker of the Friday morning session.

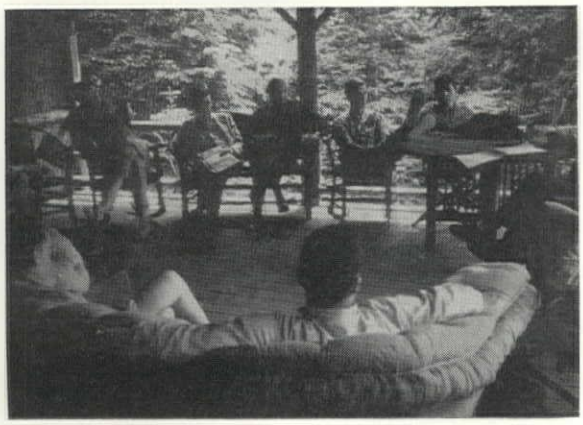
Photos from Kodachromes
by the author



The main lodge in the background overlooks the lake. In the foreground is the world's most hazardous croquet course



On rainy days the entire group met in the administration building. Dean D. Kenneth Sargent of Syracuse University is shown speaking; seated at his left is Dr Frank Frybergh of SOM and at his right is Raymond Caravaty, professor at RPI, the featured speakers of that session



The discussion group led by Willard A. Oberdick of the University of Michigan met on the porch of "The Wigwam," overlooking a woodland stream. In the left foreground is Marilyn Fraser of MIT, the only woman participant

A sunny morning permitted the entire group to meet outdoors. Bernard Miller of Smith, Hinchman & Grylls Associates is lecturing on office organization

thousand more from other sources, including the Canada Council, which contributes $2500 annually for two participants from each of five architectural schools.

The atmosphere of the seminar is exceedingly stimulating. The discussions are spirited; clever young wits are matched against experienced older minds. The atmosphere is relaxed and informal—weather permitting (which it often didn't, this year) meetings were held outdoors, and in spite of an intensive schedule day and evening, there seemed to be plenty of time for lively bull sessions, as well as for a bit of swimming, boating and fishing. The majority of the participants went home with definite new programs to be put into use in their schools during the coming academic year. It is to be hoped that the Institute, its many chapters, and the building industry, will find it possible to make even greater contributions to the Joint ACSA-AIA Committee for the seminars in the future, so this good work may be continued and extended.

The R-17 Committee consisted of the following: General Chairman, Harold Bush-Brown; Program, Christopher Wadsworth (Pratt), Harold Himes (Michigan), Roger Montgomery (Washington Univ.); Arrangements, Maurice Perreault (Cornell); Finances, Dean D. Kenneth Sargent (Syracuse); Editor, Charles W. Moore (California).

On the following pages the *Journal* presents the keynote address to the seminar this year, by James M. Fitch. The essence of Professor Fitch's remarks is here in his prepared paper, but missing are his brilliant "ad libs" and the discussion and repartee which followed. The *Journal* will present another address from the seminar in a coming issue, but the full proceedings, ad libs and all, prepared and edited from tape recordings by Charles W. Moore, will appear in the fall issue of the *ACSA Journal of Architectural Education.* ◄

The Impact of Technology

by **James M. Fitch***

Associate Professor

of Architecture, Columbia University

► The impact of modern industrial technology upon contemporary architecture can be easily traced at every level — theory, practice, finished product. The effect is most clear and most poignant at the theoretical level. Nineteenth century technology set in motion among architects a whole train of speculation as to its significance, its probable course of development and the possible responses of architecture to it. This speculation spread in steadily widening circles, involving all the theoreticians of the last century and a half. Greenough, Pugin, Ruskin, Viollet-le-Duc; Sullivan, Wright and Geoffrey Scott; LeCorbusier, Gropius and Mumford: All these men were activated by the shock waves of the impact. Nor have these speculations ceased. On the contrary, the implications of technology for architecture are, in many ways, more ominous and obscure than they were a hundred years ago.

These successive waves of speculation are also revealed with great clarity in the architecture of the period. Each has left its deposit and these the historian can trace as easily as the geologist reads his core or the archaeologist his trench. It is a stratigraphy of unparalleled confusion. For though technology, by its sheer mastery of external nature, has made possible unprecedented advances in architecture it has, by the same ironic token, made possible more bad architecture than the world has ever seen before. Architecture — unlike the fine arts—is at once the prince and the prisoner of the kingdom of necessity. It can never escape the iron laws of physics. Indeed its greatest examples are precisely those in which these laws have been most scrupulously observed. The majesty of such constructions as Hadrian's Villa or Chartres Cathedral springs from the most exact and elegant knowledge of the limits and potentials of masonry vaulting. Acceptance, not defiance, of the laws of statics was the basis of all pre-industrial architecture. Because modern technology so extended man's power over external nature, modern architects have often acted as though these iron laws had been repealed. The result, for perhaps the first time in all history, was bad architecture—ugly to look at, unsatisfactory in use.

One of today's basic assumptions is that architecture, thanks to modern technology, has made great advances in the past century. In many respects, of course, this is true. But the implication is that these advances have been steady and continuous and that we stand now at some pinnacle of accomplishment. Unfortunately for our complacency. this is not the case. The great germinal structures of the past hundred years are not evenly distributed throughout its span; on the contrary, they fall in clusters, and rather closer to the beginning of the period than its end.

If, for the sake of brevity, we simplify the historical record, then we may take Joseph Paxton's Crystal Palace (1851) as marking the opening of our era. Here was the first western structure which clearly demonstrated the arrival of a new period. It not only used the materials of the new technology—iron and glass—but it used them in an explicitly novel way, purged of all reliance on historically-determined form.

We do not find this new architectural idiom immediately adopted by the West. On the contrary, four or five decades elapse before we find a statement of equal clarity and vigor in Sullivan's use of steel and glass in the multi-story Schlesinger Building of 1899; here was a perfect understanding not only of steel cage construction but, even more important, of the esthetic expression of its essentially static non-directional quality. Four years later, in 1903, we find in Toni Garniers *Cité Industrielle* an equally mature understanding of the structural nature and esthetic potentials of an even newer material—reinforced concrete.

But these seminal structures, in the United States, had no immediate progeny. Half a century elapses before we find the idiom picked up again in such buildings as Mies van der Rohe's Chicago

* The keynote address delivered at the Fifth Annual Summer Seminar of the ASCA-AIA at Sagamore Lake, New York, June 13th, 1960.

apartments or the Lever House of Skidmore, Owings and Merrill. Thus, it has taken us better than a century to stabilize, refine and bring into general use an architectural idiom expressive of the new technology; and this despite the fact that, in a very real sense, it was perfected at the very start.

Why has this paradoxical state of affairs been true?

It is largely due to the fact that, while architecture has been exposed to the full blast of technology, it has been only obliquely touched by the sciences which lay behind it. With a few notable exceptions architects have always stood outside the scientific tradition. Traditionally preoccupied with problems of esthetics, they were completely unprepared *theoretically* for the emergencies with which industrialism confronted them. Their only contact with science was through technology, and advances in this field came so rapidly, and were of such earth-shaking magnitude when they came, that they occupied the architect's entire attention.

Moreover, many of the most significant advances were in the field of pure structure, and since the expression of structure is always geometry, they tended to focus architectural attention on that most formal and abstract of scientific disciplines. For this, contemporary architecture has paid a heavy price.

True, the march of science has amply confirmed that there *is* order, rhythm, law in Nature. But, as a system, Nature turns out to be infinitely more complex than appeared even to that contemporary of Paxton, Charles Darwin. And for this new perspective of Nature, geometry turns out to offer a very inadequate representation. The essential qualities of Nature—life and movement, and time—the dimension in which they both occur—are precisely the qualities which geometry cannot describe.

Now I do not mean to suggest that actual buildings can avoid geometric form, any more than growing tissue can be organized without the cell. But for architects, geometry has inherent conceptual dangers of which they should at least be aware. The principal one, of course, is formalism—that is, interest in the form to the neglect of its content or function. If modern science teaches us anything, it is the danger of formalism. A module never got an airplane off the ground. The Golden Mean never helped to discover the arrangement of the molecules of penicillin, and architecture can never fully discharge its tasks so long as the geometry of its forms is considered as an end rather than a means.

In saying that the architecture of the last hundred years has shown rather less forward movement than we often assume, I do not mean to suggest that this course of development has been "bad," still less that it has not been historically necessary. But any honest assessment must recognize that there is little qualitative difference between Root's Reliance Building of 1895 and our most "advanced" skyscrapers of today. Nor can we honestly argue that any upper-class house of the fifties represents a qualitative advance over Frank Lloyd Wright's Coonly House of 1908. We have, in short, made far less use of our resources than did either Root seventy years ago or Wright fifty years ago. We have, instead, been coasting on the momentum generated by these men.

If this is true, two questions immediately arise: How did the situation come about? And how can it be corrected in the future? I think it came about because we have been too concerned with the formal qualities of our work and too little with its behavior and performance in use. We are fond of assuring ourselves, nowadays, that we are aware of this. We are quick to criticize the formalism of Alberti and Palladio, of Charles Follen McKim and Stanford White; but we are oddly blind to exactly the same tendencies in Mies van der Rohe's campus for Illinois Institute of Technology or Corbusier's *Unite d'Habitation* in Marseilles. They make just as many concessions to preconceived ideas of the facade as ever did Palladio. But we will correct this weakness in our architecture only when we cease to confuse mere technology with science, when we rid our theory of gadgetry and illuminate it with truly scientific thought.

In a purely formal sense, of course, the forms of modern architecture are often extremely handsome. For example, Eero Saarinen's new General Motors Technical Center—with its clarity of line, crispness of color and sharp articulation of mass and volume—is visually very satisfactory—incomparably finer, certainly, than any of the cars which have so far come out of it. But when we try to generalize such buildings into the idiom of the future, we come a cropper. For logic and experience both show us that the problem of architecture, in the tempestuous context of American life and American climate, are anything but simple, crisp and clear. They are, on the contrary, incredibly complex. Do our current esthetic criteria of crystalline clarity and classic repose—do these really correspond to the demands of contemporary reality? Or are they accomplished only at the sacrifice of invisible but very real require-

ments; sacrifices which only life and not photography reveal? I am afraid, if we are to trust the evidence of our own senses, that many of these handsome structures are neither economical to build, comfortable to live in, nor simple to keep in operating order. Our obsession with pure geometry, in other words, leads us to make of much modern architecture a sort of Procrustean template which falls like a murderous cookie-cutter across those living processes which do not happen to conform to its outlines.

This sort of formalism operates to limit the usefulness of many modern buildings. Look, for example, at its current use of glass. Now glass is a wonderful material and its availability in hitherto unheard of sizes has been one of the principal factors in the creation of our own architectural idiom. But — pictorial evidence notwithstanding — glass does *not* simplify the design process: On the contrary, it complicates it quite unbelievably, especially when it comes to constitute the entire wall. This glass wall is very complicated, whether viewed from the angle of physics, physiology or psychology. It requires a massive assortment of auxiliary devices, if it is to be genuinely successful at any level higher than that of the picture books. These devices are necessary to provide for ventilation, privacy, insect protection, weatherproofing, insulation, light and heat control. Moreover, because of the extreme variations of our seasons, all these devices must have a high degree of flexibility.

Here, then, is the paradox. Transparency, as an esthetic criterion, dictates certain formal qualities in architecture — simplicity, structural clarity, repose. But transparency, at the biological level, often raises exactly contrary demands—complexity, opacity, changeability. How are these two contradictory sets of values to be reconciled? By meeting the requirements of the whole man? Or by imposing a merely visual order based on *a priori* conventions drawn largely from the field of painting?

Currently, the protagonists of an architecture of pure geometry offer two sorts of apologia for it. The first is actually an old and familiar one—i. e., that beauty in architecture is, in the last analysis, more important than "mere" creature comfort. The other is that, thanks to the miracles of modern technology, the problems raised by their crystalline geometry can be solved by exclusively mechanical means.

Both of these arguments, in the final analysis, are fallacious; and a detailed analysis of the glass wall offers a good opportunity to demonstrate the fact. The first proposition, for example, sets up a false conflict between esthetic satisfaction and physical well-being, implying that the two are *always* antithetical in any architectural system. Yet modern physiology and psychology alike indicate that the two are in reality only opposite sides of the same coin. The esthetic enjoyment of an actual building (as opposed to a mere photograph of it) is not exclusively a matter of vision but of total sensory perception. Thus, to be truly satisfactory, a building must meet the demands of all the senses, not just those of vision alone. It is not the eye but the whole man who reacts to architecture. Yet, even on the purely visual plane, much of our architecture seems to me to display either contempt for or ignorance of, optical reality. Under normal daylight conditions, most glass is as opaque as granite when viewed from the outside. The same glass under the same conditions, may prove intolerably bright and glarey when viewed from inside the building. At night, conditions are reversed: Then, externally viewed, the glass is really transparent but, by the same token, it is opaque from the inside. But this night-time opacity distorts the luminous balance of the room. These areas, conceived of as being light sources, are now actually jet-black, light-absorbing areas. In real life, in short, glass behaves in a quite complex fashion.

I do not argue that these paradoxes cannot be overcome by good design. I am merely pointing out that they very seldom are. Thus, even if architecture were exclusively a matter of vision, a wide range of extremely subtle problems in optics are raised. These can only be solved by a truly functional analysis and their solution will almost certainly dictate all sorts of eyebrows, *brise-soleil,* curtains and blinds. And these would certainly complicate the architecture of pure geometry.

The second argument — that modern technology can, singlehandedly, compensate for the deficiencies of the glass wall — seems to me even more hazardous. Technology has indeed greatly extended the range of our control over such various environmental phenomena as temperature, humidity, light and sound. But the limits, even here, are real and obdurate. The amount of solar energy or chilling winds which act upon a given building is of a high order of magnitude, even in these days of atomic energy. And it is dangerous nonsense to argue that, with modern airconditioning, the architect can now ignore this fact—dangerous both technically and, if I may say so, philosophically.

Henry Wright has recently shown that "for every one hundred square feet of unshaded, unfavorably oriented glass used in a tall building in most parts of the United States, an additional ton of airconditioning must be provided." Now there may be occasional budgets in which such costs are unimportant, or certain building sites where poor orientation is unavoidable. In such cases, we can have no quarrel with the use of extra airconditioning. But the danger is that we generalize such exceptions to become the rule. For the fact is that most budgets *are* affected by such costs and that there are few planning problems which inexorably dictate poorly-orientated glass.

But the problem goes deeper yet. From the standpoint of human comfort, cooling the air behind such glass gets you nowhere. Anyone with a black body thermometer—or, for that matter, an ordinary house cat—can convince himself that the solar energy transmitted by a sheet of glass is primarily radiant. Such heat is not stopped by any combination or blinds or shades *inside* the glass; nor can it be directly absorbed by any conventional cooling system. Such heat can only be deflected *outside* the glass.

Thus, in the final analysis, no optimum solution to this problem is possible by purely mechanical means, no matter what the budget. It can only be solved at its highest level by the proper adaptation of the building to its site, exposures and microclimate; by external shading devices, whether they be trees, vines or brise-soleil; in short, by architectural means. Only when all these means have been employed can the glass and the cooling system be expected to operate at maximum efficiency.

One of our more imaginative airconditioning engineers has recently complained that many architects "handed him raw space and expected him to make it habitable." He put his finger on a real and present danger to architecture: Our tendency to use technology merely as a means of correcting basic errors of design. This tendency, carried to its logical conclusion, leads to nothing less than the architect's abdication of his historic responsibilities.

We have, fortunately, some recent buildings which demonstrate that this tendency is not universal. One of them is the handsome Fifth Avenue branch of the Manufacturers' Trust in New York. This steel-and-crystal cage has been justifiably praised by many critics as being a very successful building. But none of them, to my knowledge, has called attention to the central factor which makes it successful—makes it, one might almost say, possible at all. That factor is its orientation. The building not only faces north and east; it is also shaded to the east, south and west by very tall skyscrapers. Obvious and simple though it is, this single fact spells the difference between success and failure for the building. Rotate it so that it faces south and west; remove the sheltering neighbor buildings and this crystal cage would be uninhabitable for a large part of the year, with or without airconditioning. The architects here have acted correctly. They have made fundamental decisions of an architectural nature; and these, in turn, have placed any subsequent use of mechanization in its proper reference frame. Thus, airconditioning in this building is not employed merely to make a bad building habitable but to make good architecture even better.

Plate glass and summer cooling are only two small aspects of contemporary architecture. But current use (and abuse) of them acts as a lens through which we view a central problem in our relations with technology: Is it to be a useful tool in our hands or will it become our blind master?

The typical skyscraper today is a free-standing monolith whose curtain walls are identical on all its facades. This represents a purely formal response to the facts of climate. The buildings are designed as though for an environmental vacuum or, at best, a stable and unchanging set of environmental conditions. In actuality, of course, few climates in the world (and none in the USA) offer anything approaching this state of affairs. Logically, one would expect different types of curtain walls for different exposures and different climates. But this is seldom the case in America —north and south walls, Texas and Chicago, all are identical in design.

This sort of unimaginative and inefficient standardization is possible here only because of the relative cheapness of fuel and power, as well as of heating and cooling equipment. But it becomes increasingly hard to defend from the points of view of human comfort and mechanical efficiency. Airconditioning equipment is expected to meet undeviating physiological criteria (e.g., 72° F. air temperature, 50% relative humidity) throughout the enclosed volume of the building. Yet around the periphery of this volume, conditions would vary immensely. Thus, on a cold, bright, windy day in December, the north wall—chilled by the wind and untouched by the sun—would have the climate of Canada. At the same time, the south wall of the same building—protected from the wind and exposed to the sun—

would have a climate like South Carolina. On a hot July afternoon, the west wall would have the climate of the Arizona desert while at the same time the east wall would have the climate of Massachusetts. Thus the thermal extremes within which the airconditioning is operating might be more properly expressed in thousands of miles than in tens of feet! Within this continuously shifting pattern of unequal thermal stresses, the airconditioning is expected to maintain a set of stable and uniform conditions.

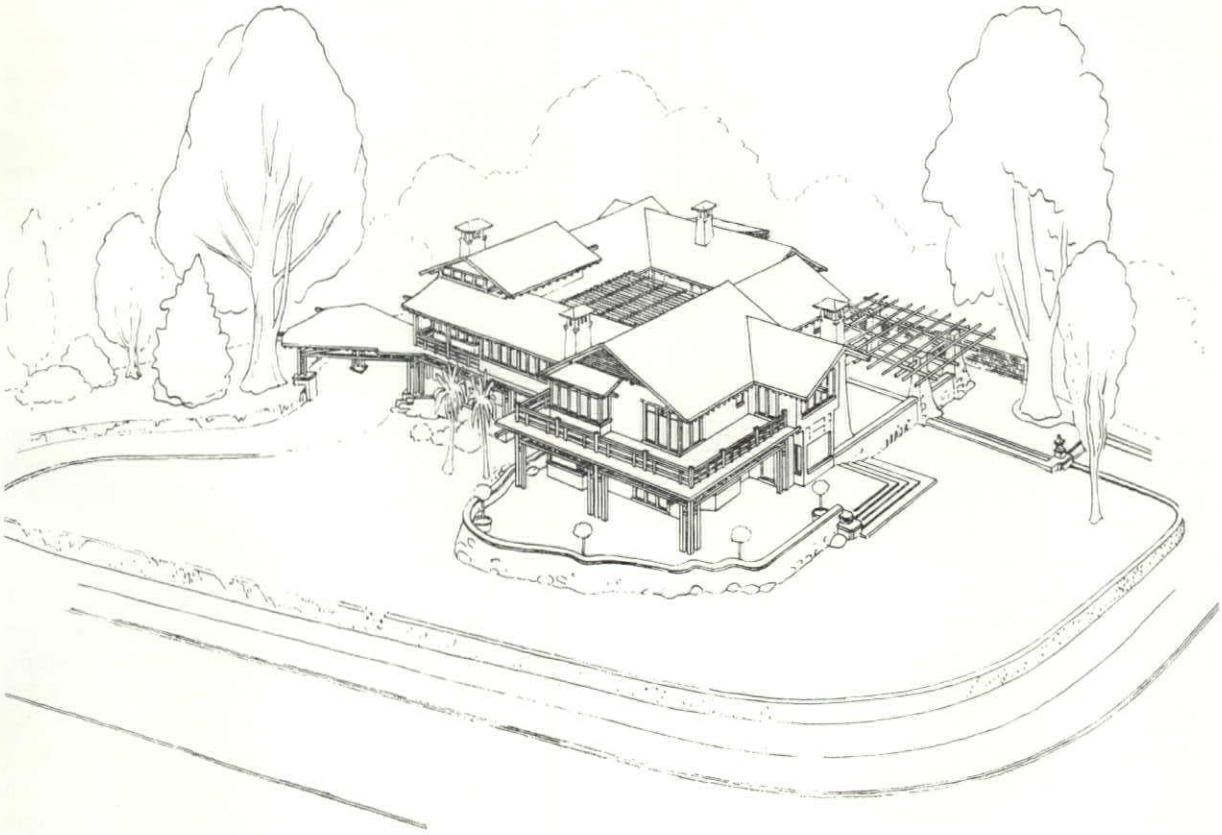
From a conventional point of view, the most urgent problem in tall buildings is protection from excessive solar radiation in summer. The simplest (though not necessarily the best) is to make the sunny walls, especially the western ones, opaque to solar energy. This alone could reduce the cooling load by as much as a ton of refrigeration for each one hundred square feet. Since many plans do not permit this, architects are increasingly using the brise-soliel of LeCorbusier and the Brazilians. However, these heavy fixed sunshades become progressively less feasible as one goes north and the length (if not the intensity) of the summer decreases. Hence we find another type of sunscreen appearing—a lightweight metal screen mounted out beyond the curtain wall, dense enough in its depth and perforations to exclude most of the high summer sun yet open enough to be unobjectionable in winter. In several of the new buildings this sort of sunscreen has been wrapped around the entire building, becoming in effect another specialized membrane of the wall itself. These are not only sensible correctives to the too-transparent wall but also yield some extremely handsome decorative textures to a building type which is all too cold and dull in appearance.

Ultimately, of course, we must demand much more than this of the curtain wall. A technology which can achieve the thermo-nuclear bomb and the moon rocket should give us a wall which behaves like the epidermis of the animal body — i. e., which responds actively and automatically to changes in its external environment. It is not too difficult to imagine such a wall. In the first place, it should have a capillary heating and cooling system built into it, much like the skin of a warm-blooded mammal. The function of these capillaries would not be actually to heat and cool the interior volumes of the building so much as to provide a thermal symmetry inside which the airconditioning could more effectively operate. A building with such a capillary system would then find its sunny walls cooled with circulating chilled water, even on the coldest winter day, while the solar heat thus picked up would be used by the system to heat the much colder walls on the shaded side of the building.

We can imagine still more efficient and sophisticated building skins than these. For example, in all but polar and sub-polar latitudes, enough solar energy falls upon any free-standing building during the course of the year to power that building—i. e., heat, cool and light it. The problem, of course, is to trap and store that energy against the hour of need. So far, most solar heat and storage devices are very inefficient or limited to regions of intense insolation or both. Though many of these devices could be vastly improved, a new contender—the solar battery—offers interesting possibilities. Assuming that their efficiency could be even modestly increased, the solar batteries might be imagined as forming the outer membrane of sunny walls; they would then pick up sunlight, convert it directly into electrical energy to power the building, storing any surplus of power in conventional storage batteries. Even this system might prove inadequate, however, for the long sunless periods of cloudy climates or high latitudes. If men ever master Nature's process of photo-synthesis we might imagine architectural tissue, built on an analogue of the vegetable, which manufactures starch and then stores this energy in the stable form of alcohol for fuel. A range of such possibilities lie theoretically open; by exploiting them intelligently, buildings might be made to approach the animate world in their operational efficiency.

Of course, some technological break-through of a quite higher order may override such developments. For example, if the thermonuclear reaction is finally domesticated, it will supply the energy for a whole new order of environmental control. We can then think of airconditioning entire cities; with such energies at our disposal we could change the climate of whole regions.

Obviously, such developments will radically alter the appearance as well as the structure and performance of our buildings. It need not be for the worse, though the area in architectural design in which personal taste can freely operate will undoubtedly be circumscribed. Circumscribed not merely by structural necessities—that has always been the case — but by our vastly increased knowledge of man's physiological and psychological requirements, as well as by the new technological processes he employs to meet them. This in truth will demand a new order of esthetic competency. ◄



Some Sources of Greene and Greene

BY CLAY LANCASTER

► Thinking back over the period covering the two decades preceding the First World War, there probably were no busier architects in America than the Greene brothers of Pasadena. If their buildings fall somewhat behind the works of some of their contemporaries in the matter of size, they nevertheless exhibit a painstaking care in construction and attention to esthetic details that testify to the assiduous industry and skill of the builders. Judging the relatively few known examples as representative of the 540 buildings claimed to have been built by Charles Sumner and Henry Mather Greene, one wonders that it was physically possible for two men to have planned, organized and carried out so much work in so little time, and to have maintained such high standards of quality. The brothers were, of course, superb craftsmen themselves, and apparently they had a knack for rounding up other workers of similar techniques and comparable purposiveness. Also, during the early days of motor cars, one was able to move around locally much faster and more freely than today, when the overwhelming volume of traffic and street and road and parking restrictions have more than counterbalanced the capabilities bestowed upon modern automobiles for short runs. Both brothers drove their own cars. At the opening of this century men worked longer hours than they do now, and they did not need to pamper their frustrations so frequently with periodic stimulant breaks. We can, indeed, look back with envy upon the tangible efficiencies achieved during that less hurried age.

Having already recorded, through the pages of the *AIA Journal* (July 1957), certain factual information gleaned from the two brothers during interviews made shortly before their decease, I now would like to turn to an aspect of their building which, to my knowledge, has not been explored and published before. I speak of the sources of

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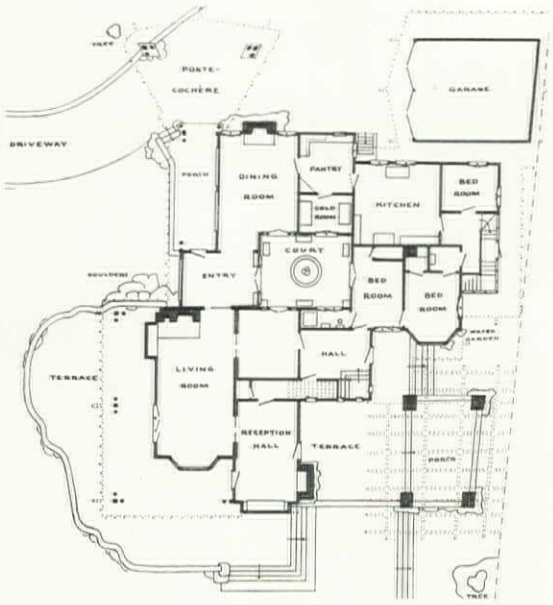


2 *First floor plan of Irwin House. Restored*

3 *West front of the Irwin House.* (The Craftsman, *August 1912*)

inspiration utilized in their architectural schemes. Greene and Greene obviously did not produce anything out of a vacuum. They were alert to the structural achievements and the artistic forces that were alive during their generation. They subscribed to architectural periodicals; they collected books, photographs and other data; and they drew upon all these resources in bringing into being their own creations. What I wish to do, specifically, is to discuss a single building that strikes me as being outstanding among those built by the two brothers, by virtue of its being the first of the two-storied timber châlets of Japanese inspiration, and thus the progenitor of the balance of examples in this noteworthy series. It is now somewhat altered, and so I would like to restore the house to its pristine condition through description and illustrations, and then submit a couple of house designs that seem to have served as models for the Greene and Greene essay, one for certain exterior features, and the other for the plan. In addition I wish to present two other layouts by the Pasadena architects, with comparisons. Superficially, this may sound as though I am trying to disparage the creativity of the brothers; but, one will see upon reading further, that nothing could be further from my intent. The work of Greene and Greene does not lend itself to much in the way of adverse criticism.

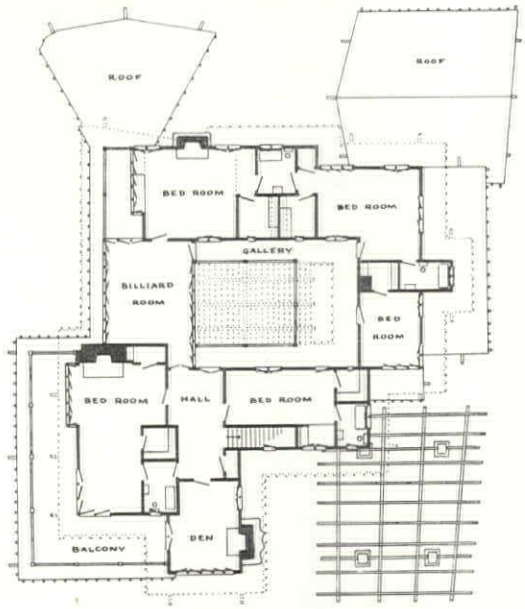
The house selected for the main part of my discussion is the residence built for Theodore Irwin incorporating an older dwelling, located at the southwest intersection of North Grand Avenue and Arroyo Terrace in Pasadena. It stands on a fan-shaped lot measuring about 150 feet along each straight side, the house itself close to the south property line, leaving the largest stretch of lawn on the Arroyo Terrace front (Figure **1**). The principal entrance to the house is from North Grand Avenue, the walk leading past a eucalyptus tree, around an open porch surrounded by a parapet wall and sheltered by a trellis supported on four tapering masonry piers at the corners, with a water garden lending its charm to the inconspicuous entrance, one door opening into the stair hall and another to the reception hall (Figure **2**).[1]

1 The plans in Figures 2 and 4 are based upon measured drawings of the existing house prepared and blueprinted by the present (1954) owner, Peter A. Horn, the ones given here restored by the author after a careful examination of the structure itself, with suggestions from photographs published in *House Beautiful*, January 1911, *The Craftsman*, July 1907, and plans and photographs in *The Craftsman*, August 1912 *(Fig. 3)*. Changes to the house include the addition of steps at the front of the porch, after removal of the wall between the end piers; enlargement of the living room and bedroom (north wall relocated); a toilet installed under the staircase, in the original passage area; staining of the main part of the house green, outside; addition of a second floor over the garage; and extension of the dormer projection on the south side.

The service entrance is farther back, accessible also from the motor court and the winding drive that connects with Arroyo Terrace, ending under the open shelter of the porte-cochère. The alternative pedestrian approach to the house is mounting the flight of steps (arranged rather like a seat) between the porch and the Japanese stone lantern on the main walk, to cross the short span of lawn to the terrace steps, and then enter the far side of the reception hall, or the living room directly. The terrace is partially protected by a verandah extending along two sides of the living room and enclosed by a low wall of free form, composed of purple, hard clinker brick and cobblestones, tying in with the other foundations and chimney shafts, and echoing the all-stone retaining wall that encircles the property along the public ways.

The Irwin house is of timber construction, the framework put together with oak pins. Very few nails were used. The outer walls are covered with split shingles, given a light brown stain. The eaves are deep, and the roof timbers left exposed for a decorative effect, the roof lines slightly curved for added grace. There are a good many outdoor recesses, and the supports and railings are an outgrowth of the main timber system (Figure **3**). Diversity is the keynote here; monotonous regularity gives way to an organic structure in which every member is specially shaped for its precise position in the house, like bones in an animate skeleton. This is the primary uniqueness of Greene and Greene buildings, which sets their work apart from the mechanical regularity of other builders.

The plan of the Irwin house constitutes a maze of rooms arranged around an open court; on the first floor, the reception hall projecting on the west front, the adjacent living room at the northwest corner, the dining room beyond an entry in the northeast corner, service rooms (including a "cold room") and kitchen to the south, with three small servants' or spare bedrooms completing the plan, and connecting to the main stairhall (Figure **2**). The porte-cochère is a trapezoid, the drive arranged so that vehicles can enter and leave around one set of supports holding up the roof. Upstairs there is a den over the reception hall, a billiard room north of the court, and five bedrooms with ample closet space and several baths (Figure **4**). Two of the bedrooms are accessible only from the gallery around the courtyard. Overhead a trellis softens the light falling into the court; and below, there is a circular pool in the center of the brick paving, with benches



4 *Second floor plan of Irwin House. Restored.*

5 *North wing of the Japanese Pavilion at the World's Columbian Exposition, Chicago.* (The Inland Architect and News Record, *October 1893*)

6 *Bungalow on the Lincoln Estate, Newton Center, Massachusetts. Designed by J. A. Schweinfurth.* (The American Architect and Building News, *August 1896*)

7 *Residence for S. Taylor, Winters, California, by Perry and Hamilton.* (The American Architect and Building News, *January 1893*)

8 *Detail of east end of the Irwin House*

around three sides of the open area. The interior decoration was in the bungalow style. Living and dining rooms were wainscoted and heavily beamed. According to a contemporary description: "Most of the walls are plastered and colored with oil stains, though some of the bedroom walls are wood paneled. One chamber has walls of pale blue, a cedar floor to which a bluish tone has been given, and fireplace facings of blue tile, the tile cut in a continuous decorative design." The chamber over the dining room originally had "pale green walls with a fireplace of green and gray-brown tiles in Indian basket pattern. Clerestory windows, glazed in opalescent glass, are a feature of this room." (*The Craftsman,* July 1907, p. 451) Lighting of the rooms varied: Some admitted quantities of daylight through long banks of casement windows and French doors, whereas others were rather dimly lit through fenestration that amounted to little more than narrow slits in the walls.

The rather obvious Japanese features of the Irwin house were the result of a natural affinity that the Greene brothers felt for Nipponese construction due to their manual-training background, and first made familiar through the Japanese exhibits seen by them at the Chicago and San Francisco World's Fairs of 1893 and 1894, especially the former. Put together of pieces brought across the Pacific from the Island Empire, the Japanese pavilion at the Columbian Exposition was a modification of the famous Phoenix Hall at Uji, built during the mid-eleventh century, the first major building to assert the native Japanese style of building. Flaring roofs, deep bracketed eaves, railings and open porches, conspicuous on the Chicago version of the Phoenix Hall, are to be seen interpreted in the design of the Irwin house (Figure **5**). The style affinity is even closer in the Greenes' stuccoed bungalows.

Of course Japanese buildings do not have chimneys, and the tall masonry shafts with their prominent caps (unsatisfactorily likened to pagodas) had to come from some other source. In this regard I would ilke to introduce a bungalow designed by Julius Adolph Schweinfurth of Boston for the William H. Lincoln estate at Newton Center (Figure **6**). The sketch illustrated was published in *The American Architect and Building News,* August 22, 1896, at which time Schweinfurth was a member of the firm of Peabody and Stearns. The Greene brothers had completed their work at MIT, served their apprenticeships, and already were ensconced in practice on the west coast in 1896; and so their acquaintance with the Schwein-

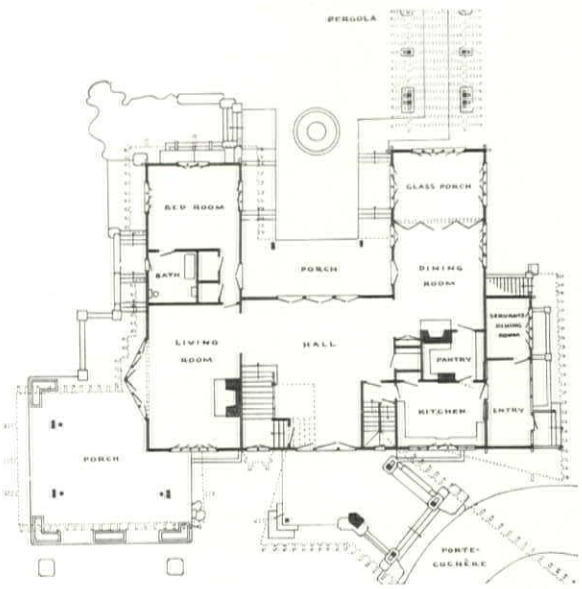
furth bungalow could have been only through the published rendering. The chimney treatment is to be noted first, suggesting that of the Irwin residence. The other unusual feature to which attention should be called is the curved terrace wall—apparently surfaced with shingles—with potted bay trees spaced around its perimeter. Bay trees are to be seen on the terrace in all of the early views of the Pasadena residence (Figure **3**). Mention should be made also of the bands of windows, though, of course, this was a device generally employed throughout the bungalow era.

The most engaging feature of the Irwin house is the enclosed court. The October 1902 issue of *House and Garden* (pp 474-480) carried an illustrated article on Moorish Courts, an example of Tetuan, Morocco, having an overhead trellis, a reasonable prototype for that of the Irwin house. However, the courtyard, or patio, was indigenous to west coast building, and reappeared in the mission-style house that came into vogue as California's contribution to the colonial revival movement at the end of the nineteenth century. A two-storied stucco domicile in "the old Spanish or Mexican style," conceived by Perry and Hamilton, architects of San Francisco, was shown in *The American Architect* issue of January 7, 1893, having a central court for "a continual circulation of air through the whole house" (Figure **7**). It was explained that the house was situated "in a valley, which becomes excessively warm during the summer months." The valley, thus described as being unpleasant in the summertime, was located at a place designated "Winters," a few miles west of Sacramento, California. The inhabitants of the house were said to sleep in hammocks around the upper deck of the court when the weather became too unbearable to stay indoors. Of course the outside of the Irwin house bears not the slightest resemblance to the mission-type house; but an examination of the plans reveals several parallels. The main rooms in both are long rectangular shapes, with fireplaces seldom centered on a wall. A billiard room extends across one whole side of the court in each house, only on the first floor of one and on the second floor of the other. It is to be observed that on the plans by the original architects the word "billiard" is misspelled, both omitting the second "i" (Figure **7**; *The Craftsman,* August 1912, p. 546). Also in common, some of the bedrooms, with closets and baths between them, are entered only from the upper gallery around the court.

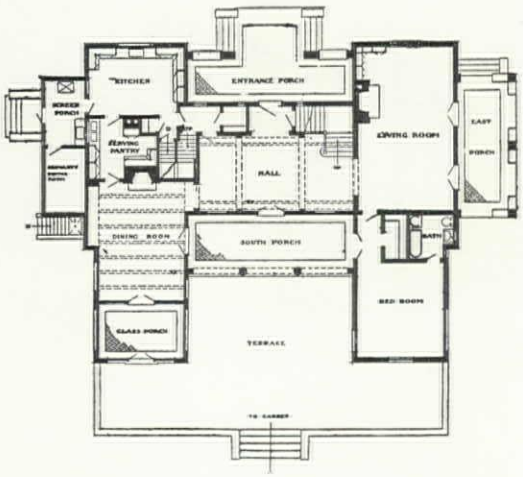
The artistic achievement of the Irwin house is its external composition: The interesting arrange-

9 *The Rev. James Kemper Log House, Cincinnati, Ohio*

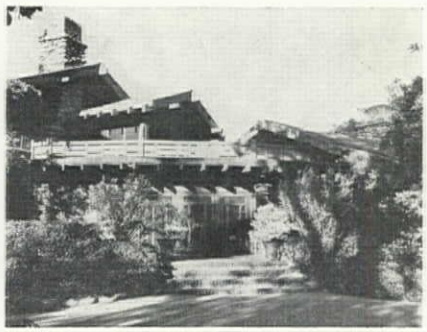
10 *Porte-cochère of R. R. Blacker House, Pasadena*



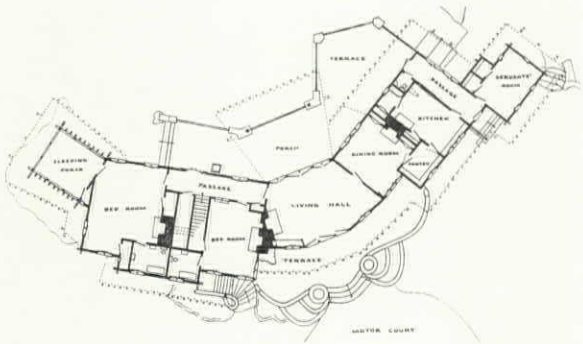
11 *First floor plan of Blacker House*



12 *First floor plan for "A House in Pasadena" by Hunt and Grey.* (The Craftsman, *October 1907*)



13 *Charles Pratt House, Ojai, California. Entrance detail*



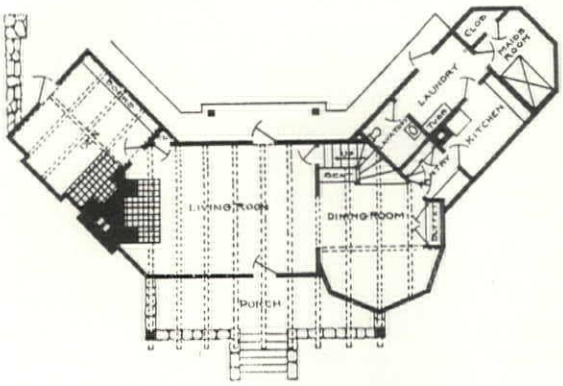
14 *First floor plan of Pratt House*

ment of closed and open forms, the subtle deviations from orthodox rectangular shapes, the use of soft color harmonies of natural materials, attention to contrasting textural combinations, and an excellence of joinery, which included — as mentioned earlier—slight curvatures, especially about the roofs, for esthetic effect (Figures **1, 3, 8**). The design combined a boldness that was not coarse, with a refinement that was in no way effete. The former characteristic relates to pioneer building in the United States. Let us consider, for instance, the small porch off the bedroom over the dining room, and the nearby chimney, which are not unlike similar features belonging to an early house in Cincinnati, Ohio, where the Greene brothers spent the first ten or eleven years of their lives. The house in question was the log residence of the Rev. James Kemper, completed in 1804, having the distinction of being the oldest construction in the vicinity. It stood formerly in Walnut Hills, but now has been reassembled in the Cincinnati Zoo (Figure **9**). There are two rooms on each of its two floors, with a stairway ascending between walls (as in the Irwin house), the upper part dividing into separate short flights terminating at the doors to the two upper chambers. Heavy stone chimneys protrude from the flanks of the Kemper house, a shallow porch interposing one chimney and the wall on the upper level, the gable above, faced with wood shingles, supported on plain square posts at the corners (compare Figures **8-9**). The ends of the logs forming the walls and the ends of the girts holding up the plates projected in houses of this species, and undoubtedly were sawed off the Kemper cabin when it was surfaced with clapboards at some intervening date. One should visualize the Cincinnati house as it was to appreciate its relationship to the Pasadena residence, and in order to allow full justice to the possibility that a portion of it may have served as a memory image for the latter.

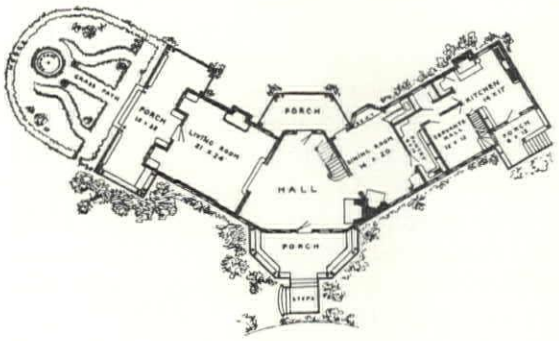
The objection to which one is justifiably entitled regarding the Irwin house is excessive segmentation of the interior. There are too many small rooms, with not as much space flow inside as there might be. This may have been due to the wishes of the client, prompted perhaps by the preexisting house on the site, and was not, therefore, any shortcoming on the part of the architects. It was the reason behind the later enlargement of the living room. The brothers avoided such lack of spaciousness on ensuing projects in the same style. The neighboring houses at numbers 2 and 4 Westmoreland Place (the latter built for David Gamble in 1908) have sizable halls with banks

of glazed doors opening onto front and rear terraces, and living and dining rooms placed at the back, or garden side, the fireplaces of the living rooms recessed in inglenooks. The rooms are larger, though there are not so many of them. The Gamble house fairly bristles with sleeping porches jutting out from the upper level. Many of its furnishings were designed and manufactured under the supervision of the architects.

The house of this vintage considered by the Greenes themselves to have been their masterpiece was the R. R. Blacker residence at 1177 Hillcrest Avenue, Pasadena, built in 1909, which makes it somewhat the successor to the three houses in the western section of the city. The Blacker house is slightly larger than the others, and its more ample grounds (approximately 400 feet square) were carefully landscaped in a picturesque manner, providing an attractive setting for the house and pergola extended on a line with the southwest wing, the garage, gardner's cottage and greenhouse. The two-storied building, framed of Oregon pine with sidewalls of split shakes stained dark green, has foundations, chimneys and other parts of clinker bricks set with black mortar. The outstanding feature is the porte-cochère that juts out from the straight front wall at an angle spanning a circular driveway, the outer end of the cantilevered roof resting on a stepped pylon (Figure **10**). The plan of the house is U-shaped, with the great paneled stairhall at the base of the figure, the kitchen (in front), service rooms, dining room and sun room in the left wing, the living room and master bedroom suite in the right, or east wing, with porches off the living room and hall (Figure **11**). Upstairs there are four major bedrooms, three of which open onto porches, plus servants' quarters. Whereas the exterior shows the culmination of the Greene's personal style, the layout seems to have been appropriated, practically verbatim. In *The Craftsman* magazine for October 1907, appeared the first-floor plan for a "House in Pasadena," designed by Myron Hunt and Elmer Grey, containing every element present in the Blacker house except the porte cochère (Figure **12**). In place of the projecting shelter is substituted a recessed entrance porch, which necessitates a more shallow hall; yet, despite this difference, the rooms are placed in similar relationship. Even the three chimneys are in corresponding positions, the living room fireplaces not centered on the long inside wall. The service stair is shifted from alongside the pantry in the 1907 plan to a front position adjoining the kitchen in the 1909 construction. There was little similarity between



15 *First floor plan of a House at Sierra Madre, California, by Louis E. Easton.* (The Craftsman, *March 1908*)



16 *Plans for a Summer Cottage by K. C. Budd.* (Country Life in America, *October 1903*)

the proposed external form of the Hunt and Grey scheme (shown on page 72 of the same issue of *The Craftsman*) and that of the Greene and Greene building, the former being more perfectly balanced, and, like the house at Winters, beholding to the mission style, utilizing walls of light-colored stucco pierced by traditional fenestration. The roof was to be single-pitched, its deep eaves only partially protecting the flat decks over the single-storied extensions at the rear.[2]

Insofar as one can judge from contemporary published accounts, the Blacker and Gamble houses were never referred to as bungalows, unlike the Irwin house and number two Westmoreland Place. Somehow the Greene and Greene mode of building seemed most suitable to the *true* bungalow, that is, the casual house that is low and rambling. One of the finest bungalows produced in America is the Charles Pratt house on Foothill Road near Ojai, California, constructed the same year as the Blacker place. The Pratt house is long and narrow, forming a crescent shape through making six bendings along a rocky ridge, that affords a magnificent view over the Ojai Valley. The motor court adjoins the entrance terrace centered on the convex side of the house (Figure **13**). The living hall is fan shaped, a porch behind sheltered by a trapezoidal roof, expanding into an open terrace to right and left. The left wing of the house accommodates dining room, kitchen, service and servants' rooms, and the right wing two large bedrooms and a sleeping porch on each of two floors (Figure **14**). The house ties in beautifully with its setting. An unusual device are the copper caps on the exposed ends of the girts projecting from the gable ends. Here again the styling and workmanship of the house is typically Greene and Greene; and, like the Gamble house, it still retains some of the designers' furniture.

The crescent plan of the Pratt house may have been borrowed, though perhaps not so literally as that of the Blacker house. One candidate for prototype is the house built by Louis B. Easton, of Pasadena, for Mrs. S. M. Caldwell, at the foot of the Sierra Madre Mountains. Foundations already were laid when Easton undertook the building, the final plan of which included living and dining rooms with polygonal ends, a den adjoining the former and service ell beyond the latter, on the first floor, and bedrooms above (Figure **15**). The lower walls had redwood siding and the upper walls cedar shingles. *The Craftsman,* carrying this plan in its March 1908, issue, captioned the design "A California Home That is Built Only One Room Deep, to Admit the Greatest Possible Amount of Air and Sunshine." In the text we learn that the builder's task was to construct the best house he could for six thousand dollars. A second possible prototype is older, printed in the October 1903, edition of *Country Life in America.* It showed the disposition of rooms for "A Summer Cottage Built in the Shape of a Crescent," described as a "Novel Treatment of a Typical Hillside Problem" (Figure **16**). The architect's name is given as K. C. Budd, perhaps Katherine C. Budd, who contributed a series of articles to the *Architectural Record* during this period. The shingled bungalow consisted of two wings attached to a polygonal stairhall, the upstairs bedrooms under a sloping roof, pierced by many dormers. Both plans have a fireplace arrangement in the living room or hall that suggests the chimney scheme in the middle of the Pratt house. Both plans have porches at front and back, and a complex service wing. Greene and Greene avoided the direct axis to the kitchen of the first, and the inconvenient remoteness between cooking and dining areas of the second.

The evidence presented seems to indicate that Greene and Greene derived suggestions for architectural styling from the Japanese, and forms and plans from traditional and contemporary buildings in the United States. At one point the matter goes so far that the plan of a Greene house (the Blacker) is almost a duplicate of that of a house by other Pasadena architects, which may be defended —as in the case of the spatial shortcomings in the Irwin domicile — on the grounds that the client perhaps insisted on this disposition of rooms; but, even if not, no greater theft has been perpetrated here than when any Greek temple or medieval cathedral (or modern skyscraper, for that matter) was built within the limitations of a traditional pattern. Certainly each of the Greene and Greene buildings that we have considered emerged with that special personal touch which is unmistakable from the work of any other builders. In this the brothers manifested their unqualified originality; and in the practical and esthetic integration of plan with structure, and structure with environment, Charles Sumner and Henry Mather Greene have won a niche in the Hall of Honored Notables for their contributions to the American practice of fine home building. ◄

2 After writing the above I have been informed about a further connection between the Hunt-Grey and Greene & Greene designs; namely, that they both were conceived for the same client. Robert J. Clark, graduate student at the University of California, in writing his master's thesis on the work of the Greene brothers, has come across the perspective drawing of the Hunt-Grey house published elsewhere than in *The Craftsman* and there identified as a proposed residence for R. R. Blacker. The plan, however, he had not seen reproduced in the other source.

THERE'S A CLIENT BORN EVERY MINUTE

The Fine Art of Architectural Deception PART II

BY HARLEY J. MCKEE, AIA

► The architect retained by a client of more than average intelligence can learn much from techniques of advertising. Of course our profession would not care to adopt the repeated bare-faced lie, but there are other good ways of saying one thing while doing another, and making people like it. They are also more appropriate to the dignified character of "the mother of the arts." An elaborate diversion may be arranged, for example, by gathering weighty statistics about boiler radiation, soil bearing, wind velocity, floor loads, light distribution, population trends and annual rainfall—what layman studying all of these would notice a flaw in the service circulation? Or the architect might build up some theory of dynamic quadrilaterals, showing their mathematical derivation, their relation to musical intervals and planetary orbits, with perhaps a slight reference to electromagnetic spectra and atmospheric pressure, all shown parallel to bricks, rugs, automobiles, earthworms, fruit flies and snowflakes, to demonstrate the universality of the principle and its application to buildings for humans. This can be used for facade design, and should be sufficient to focus the client's attention on it to the exclusion of the less glamorous parts of the building, which can be "roughed out" without wasting much time on study.

In the field of domestic architecture, theories about a full and complete life are particularly useful; the client is not only interested in realizing his potential but is prepared for this kind of advice because he has heard it all of his life from pedants, philosophers, politicians and preachers. In reality the architect is expounding ideas that have just come into his head, but the client needn't know this, nor that the actual "fullness" of the designer's life consists of a long commuter's ride every day, supplemented by the late evening television programs and a dozen brats running around underfoot. He doesn't have much of a voice in planning the family activity, so as an escape he dreams up all kinds of weird house plans, and is able to explain each in turn with the impassioned conviction that only a new and untried idea can generate. Once in the office, however, he can push people around and master-mind their lives; no wonder he likes to practice architecture!

In this age of specialization, the services of an expert command the utmost respect, and the architect who retains a consultant on structures, site plan, space analysis, school layout or kitchen services can count on the fact to enhance the firm's prestige. The snow job (survey) will sell a client on almost anything. Still better, the architect can become an authority on something himself, and carry the reputation over into all phases of his work, since the public is rarely concerned with the exact kind of competence attributed to a "personality." If a night club singer can publish a best-seller cook book, and a motion picture hero endorse some brand of cigarettes he doesn't even smoke, why shouldn't the architect who has taken a two-week trip to Patagonia and snapped a few photographs along the way (between highballs) pontificate about panel walls or acoustical correction? He can publish a portfolio of unrealized projects, with involved explanations of why each was never built, or why he didn't win the competition, and become well known as a functionalist, since his plans haven't been put to the acid test of experience. Intellectual people read such books and the self-styled professional magazines as well, so that a sketch published in *Regressive Architecture,* a bon mot in the *Architectural Podium* or a guest editorial in the *AWA Journal* will make such a client a veritable sitting duck, attracted to the architect's line and anxious to hear more of it. With such a set-up, sage remarks on Zen Buddhism or planned parenthood can be passed off as success-

Reprinted from *The Straight Edge,* of the Central New York Chapter, AIA, March 1960

fully as arguments for the superiority of hyperbolic paraboloids or discussion of reinforcing rods and vault parameters.

There remains an important branch of modern thought which the architectural profession has been slow to take up, in spite of the example set by psychologists and other PR experts (if it is safe to use initials), in clothing simple things with imposing names. Why weren't *we* the first to call an S-curve a sigmoid? According to the science of euphony, they refer to a doorbell ringer as a research assistant, a book of colored pictures as an art course, and a bucket shop operator as an investment counselor, yet the best we have been able to come up with recently are "industrial park" (factory group) and "garden apartment" (one with windows). We let go of a good thing when we allowed the Beaux Arts vocabulary to die out; in the old days architects could luxuriate in *salles des pas perdus, cours d'honneur* and *portes-cochères,* and the profession was respected as a learned one. Now even simple terms like "soffit" and "plinth" are virtually unknown, although soffits and plinths are getting larger every day. I suggest that the status of the architect will again rise when the public comes to associate him with new words as resounding as "pseudo-dipteral" and "adytum."

In our individual and corporate modesty we also overlook many good opportunities to hand out honors and distinctions — on a reciprocal basis, naturally. In his anxiety to serve his client well the architect often forgets to talk a good game in a way that will be repeated far and wide. Why not have an award every year—or every month—for "The Perfect Architect of 19XX?" There could be supporting awards for the one who designed the deepest foundation, wrote the longest specification, planned the widest door, the lowest ceiling, etc. Hollywood does it, why can't we? Each architect could then be publicized as "Mr Stock Plan of October," "Space Modulator of 1960," "Mr Porcelain Envelope," "Mr Thin Shell Barrel," "Mr One-Story Overhang" or what have you (the last two should preferably be awarded to men who look the parts). Perhaps professional ethics could be relaxed a little to permit these distinctions to be displayed on billboards.

It would be pleasant to think that architects are able to deceive other professions, but as a matter of fact they rarely get a chance to practice on doctors, lawyers and engineers. These men not only know all of the tricks themselves, but are usually aware of their own competence to design and construct buildings. The architect can, and often does, deceive himself, however, in ways that I shall try to describe in Part III. ◄

EXONERATION OF CHARGES OF ALLEGED UNPROFESSIONAL CONDUCT

At the pre-Convention meeting of the Board of Directors of the Institute held in San Francisco, California in April, the Report of the National Judiciary Committee was considered relative to charges of alleged violations of Rules No. 4 and 15 of the Mandatory Standards of Professional Practice preferred against Tennys Bellamy, AIA, of Seattle, Washington. The case concerned submissions of proposals for an office building for the city of Seattle on a "lease-purchase" scheme. Proposals were required to be submitted in "package" form including architectural, engineering services, financing and construction.

Mr Bellamy teamed with a real estate operator and submitted one of five proposals despite the fact that the Washington State Chapter previously had declared such a competition to be unethical. Subsequent to hearing Mr Bellamy's testimony in the matter, the Board of Directors concluded that he was not guilty as charged and has exonerated him of the charges of unprofessional conduct.

During the deliberation of this case by the members of the Board, it was pointed out that the initial submission by Mr Bellamy and his group was made as the only submission to the city of Seattle, and involved no competition whatsoever. As a matter of fact, three other buildings had been erected by the city of Seattle as the result of similar kinds of proposals.

Apparently it was only after Mr Bellamy's group had formally made its proposal to the City Council to design, build and finance the office building, that other architects learned of it. As the result of action by the Council, decision to accept their proposal was deferred and other teams (including architects) were asked to submit their proposals for the erection of the new office building.

With knowledge of the above facts set forth, the members of the Board were of the opinion that no violation of the Mandatory Standards of the Institute had been made by Mr Bellamy, and so ruled.

In accordance with a provision of the Bylaws of the Institute, notice of this exoneration has been published at the request of Tennys Bellamy, AIA.

J. ROY CARROLL, JR, FAIA

FOR INSTANCE—*Deductions for Uncorrected Work*

BY WILLIAM STANLEY PARKER, FAIA, *Consultant to the Institute on Contract Procedures*

► The correction of work that is defective is one of the troublesome items involved in the architect's supervision of the work. If it becomes necessary during the progress of the work, and every one involved is cooperative, an agreement on how to proceed and who is responsible can generally be arranged without much trouble. If the defect becomes observable after the contract has been completed and final payment made, the situation is more complicated. This was discussed in the November 1959 *Journal*.

There is another situation that sometimes develops that is covered by Article 17 of the General Conditions. There may be difficulties involved in doing over defective work, and it may be better to solve the defect by letting the defective work remain and taking a deduction as an offset to the unsatisfactory work, as provided in Article 17. Here is another problem which it is the architect's responsibility to decide as provided in Article 39.

An interesting dispute of this sort has recently occurred. The architect determined that a terrazzo floor did not comply with the requirements of the plans and specifications. He decided that to remove the terrazzo work and do it over again might be hazardous to partitions and walls of the building and that it would be better to permit the defective terrazzo to remain and take a deduction according to Article 17. He determined that it would be necessary to conceal the defective floor by covering the terrazzo with a carpet. It was determined that it would cost $3,000 to do this and he, therefore, determined that a deduction of $3,000 be made to offset this cost.

In accord with Article 39 he so notified the contractor and the owner in writing. The contractor took no action whatever. No protest of the decision was made by either the contractor or the subcontractor involved. No actual dispute was created. Later the contractor demanded full payment in spite of the architect's decision and materialmen filed suit to foreclose a lien. If the contractor objected to the decision he should have so stated and demanded a conference or arbitration. Article 40 states that such a demand shall be made "within a reasonable time after the dispute has arisen."

Since the contractor failed to take any of these steps, it would seem proper under the General Conditions to assume that the architect's decision was accepted. The contractor failed to take the steps clearly provided in the contract and is now attempting to take the matter to court. The case occurs in a state where there is no statute validating an agreement to arbitrate future disputes, so failure to follow the provisions of Article 40 would seem to be unimportant. It could be held that the architect's decision was in conformity with the general provision of Article 31 for a claim for damages. Since the contractor failed to take any action following his receipt in writing of the architect's decision, it may well be held that he has slept on his rights.

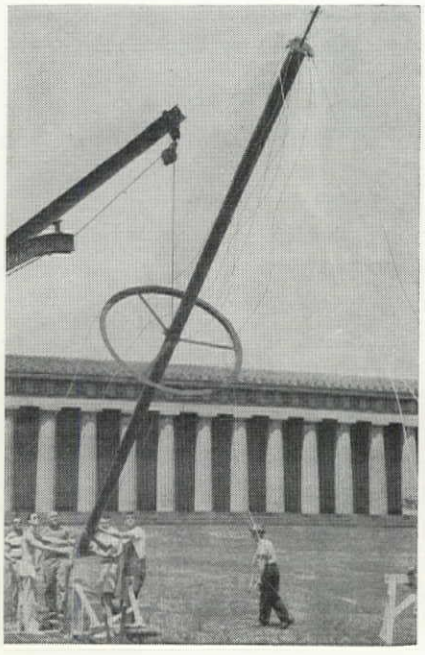
As in this case, trouble in the construction industry often results through failure to follow the procedure laid down in the General Conditions. The steps to be taken and the appropriate time limits for certain actions are clearly stated. To disregard these procedural steps can only lead to confusion and trouble. ◄

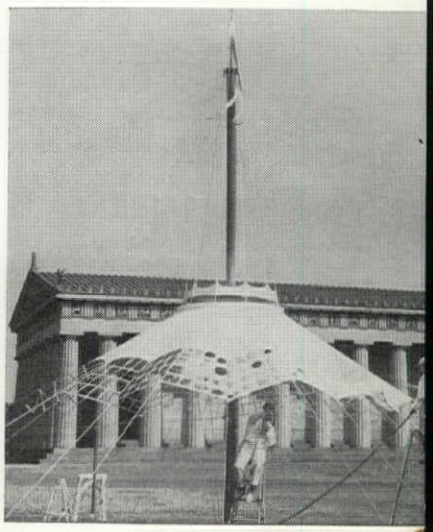
The Nashville Arts Festival AND THE

► The Middle Tennessee Chapter, AIA, has been a member of the Nashville Arts Council since shortly after its founding in 1957, and has participated in its annual Arts Festival. Exhibits have usually been housed in tents erected on the lawn in front of Nashville's famous Parthenon, in Centennial Park. This year the Chapter designed and erected its own shelter.

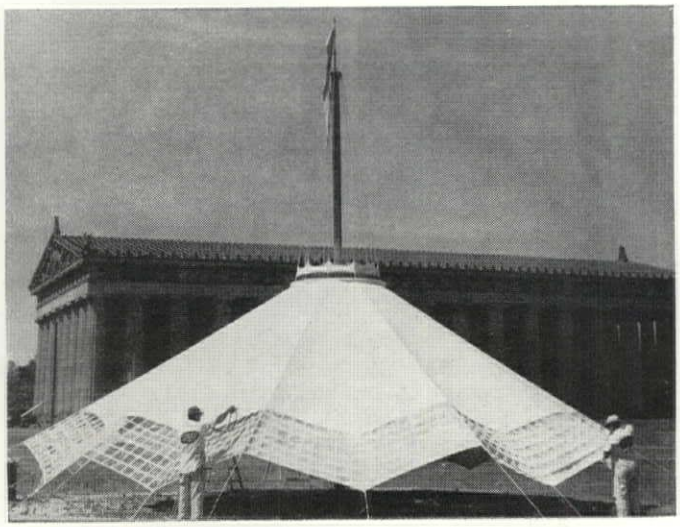
The AIA Pavilion was designed not only to house the architectural exhibits, but to function as a part of the display and to provide visitors with a first-hand experience in architectonic space and unique construction methods. The Design Committee, composed of Chairman Charles W. Warterfield, Jr, James W. Rich, R. Neil Bass, John W. Badger and Boyd Bogle, III, felt that the Pavilion should retain the same basic form as the tents housing the other displays. Since field labor was to be performed by the committee members, structural framing was kept to a minimum.

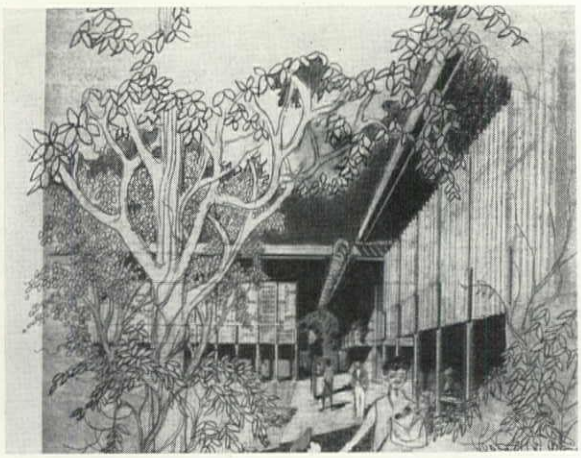
The structure consists of a steel mast with a steel ring suspended at mid-point. From the ring, ¼″ steel cables radiate to the ground, guying the mast and supporting the envelope. The envelope itself is a sprayed-on vinyl plastic material known as "Cocoon," applied to a 12″ grid of masking tape. Durable and weather-resistant, the plastic is white, with a high degree of heat reflection, eliminating the great heat usually found in tents. The envelope can be folded so the pavilion is capable of re-use. The basically traditional yet highly original form and structure of the Pavilion contributed much to the gaiety of the Arts Festival. (Photos by Charles W. Warterfield, Jr) ◄

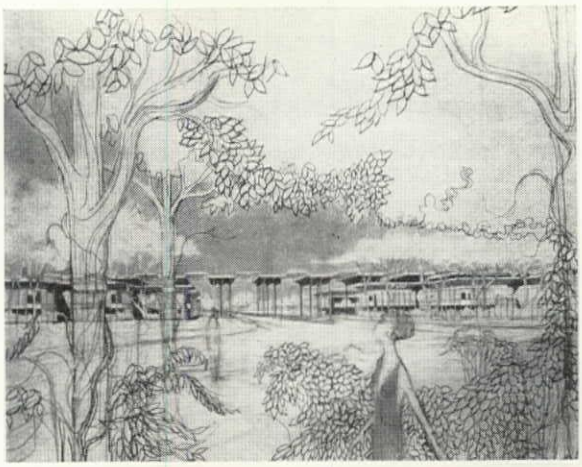




Middle Tennessee Chapter, AIA

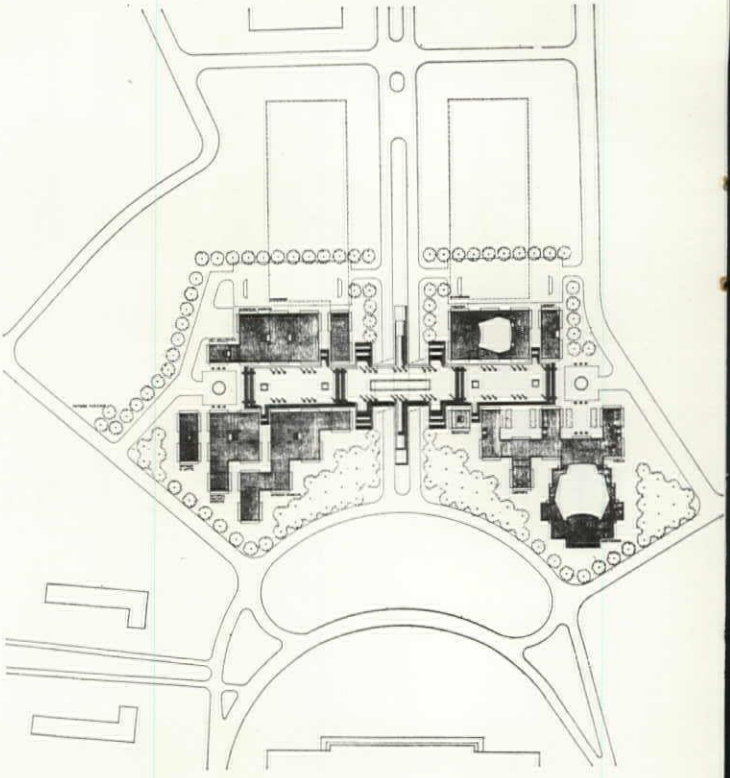




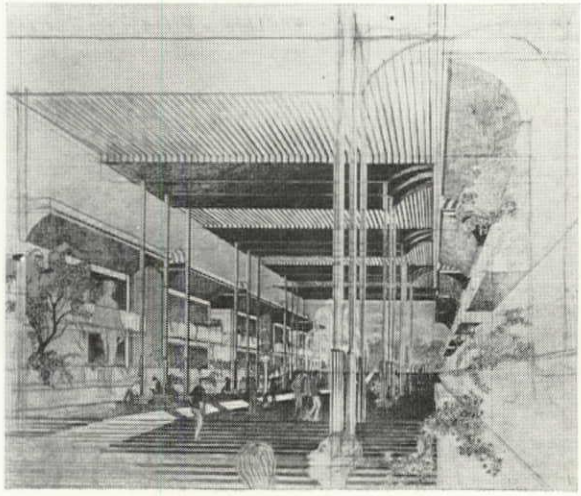


THE 1960 Rome PRIZE

Astra Zarina Haner Birmingham, Michigan
University of Washington, B. of Arch. 1953;
M.I.T., M of Arch. 1955

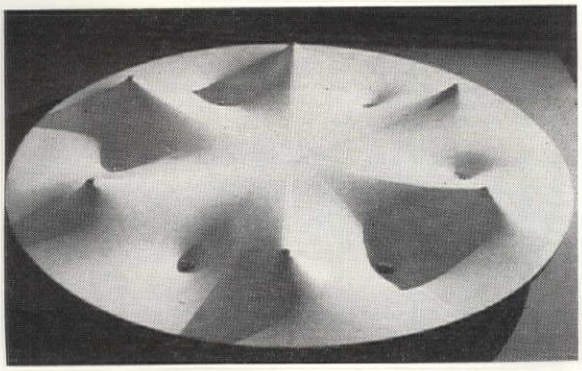


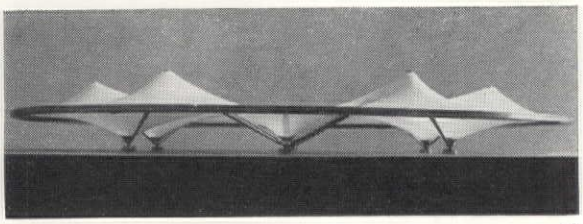
CULTURAL CENTER FOR LEOPOLDVILLE, BELGIAN CONGO. This project, prepared by Mrs Haner with her husband Douglas P. Haner, was submitted in the International Competition for the Leopoldville Cultural Center, and received the Third Prize Award.



THE 1960 Rome PRIZE

Four winners were chosen this year, by a Jury composed of William Platt, FAIA, *Chairman, Edward L. Barnes,* AIA, *Nathaniel A. Owings,* FAIA, *Joseph P. Richardson,* FAIA, *and Edward D. Stone,* FAIA. *We publish one project from each winner's portfolio.*





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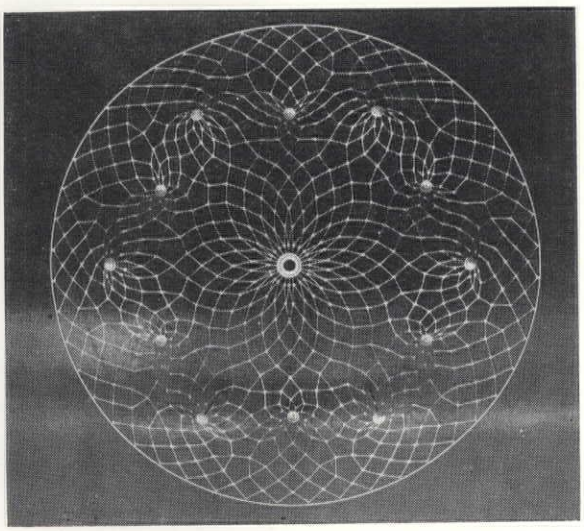
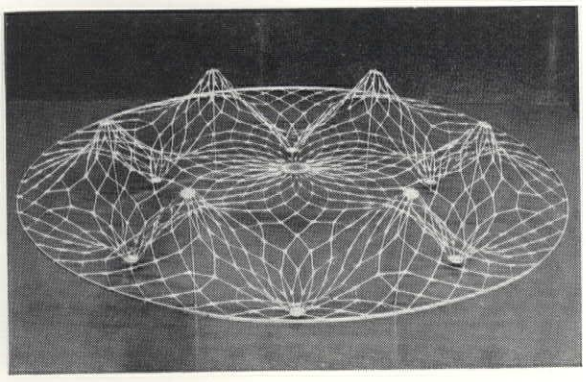
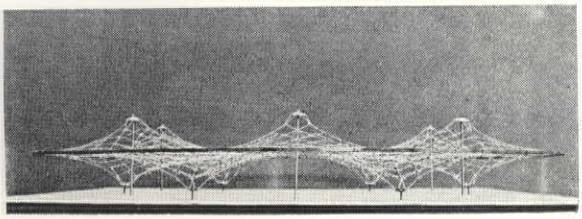






2

Wayne Taylor Maple, North Carolina

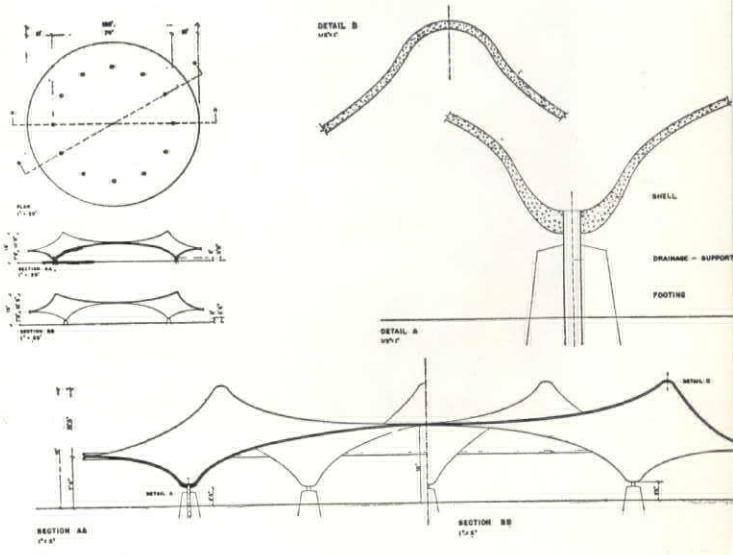
North Carolina State College, B. of Arch. 1958

MEMBRANE STRUCTURES RESEARCH

1 Tensile model of doped aircraft fabric with the supporting points and summits falling on plan circles of different size. Model is fifty inches in diameter.

2 Model with members of equal length, conforming to the isostatic lines of force. A fine mesh and concrete was applied for a test. Forms were rendered unnecessary by spraying concrete directly onto the mesh.

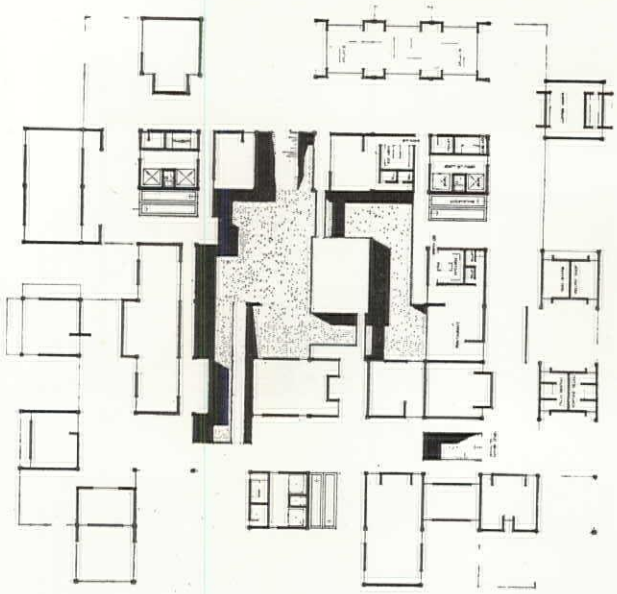
3 Design for a thin shell in reinforced concrete. Prepared in collaboration with Horacio Caminos.



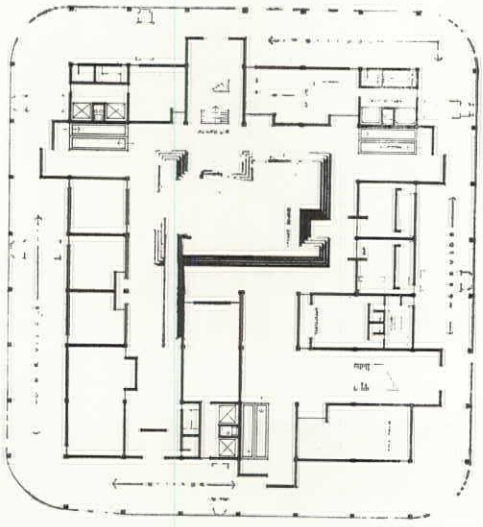
3

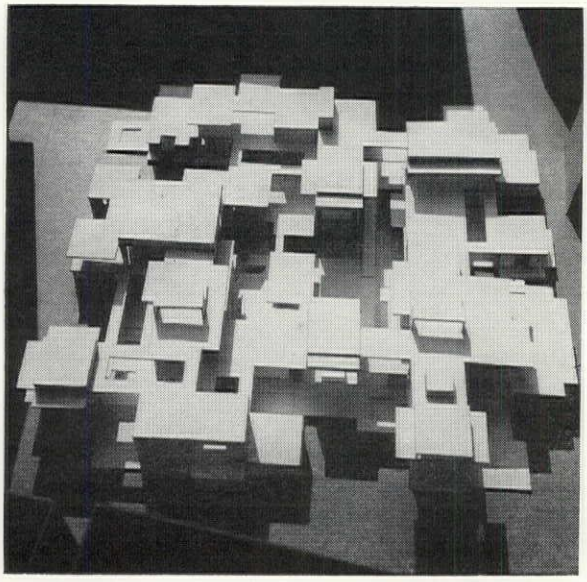
THE 1960 Rome PRIZE

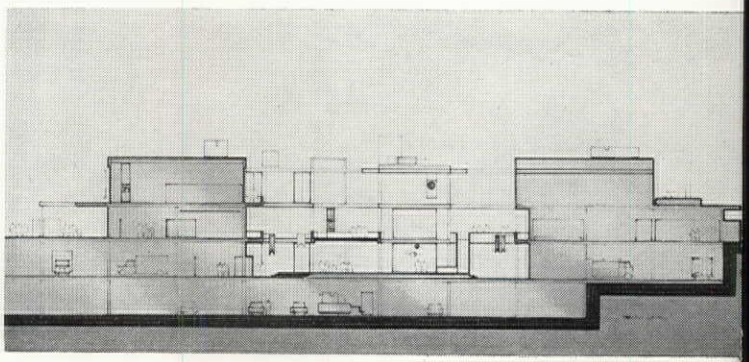
Michael Graves New York City
University of Cincinnati, B.S. in Arch 1958;
Harvard University, M. of Arch. 1959

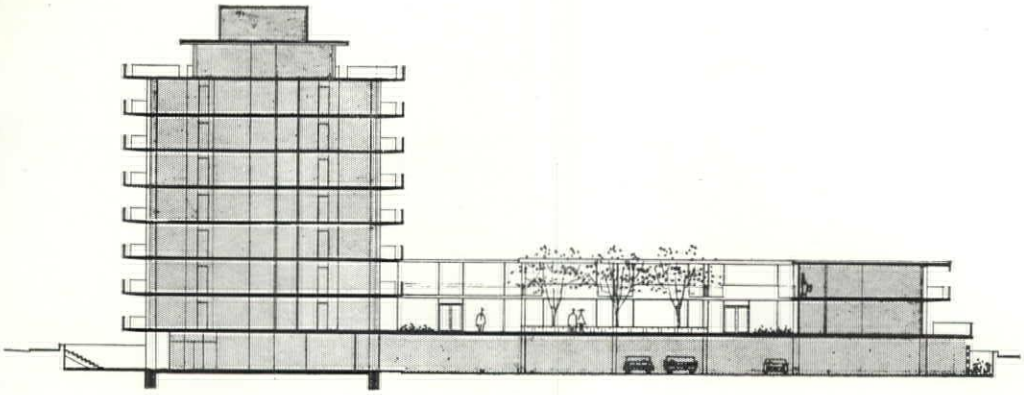


A HONKY-TONK AREA FOR BOSTON. The area is located on lower Washington Street and concentrates the cheaper entertainment facilities—bars, night clubs, restaurants, amusement arcades, bowling alleys, dance halls and movie theaters. In addition to terminating the spread of such existing facilities along Washington Street, this project would form a link with the more fashionable retail, hotel and theater districts to the west.



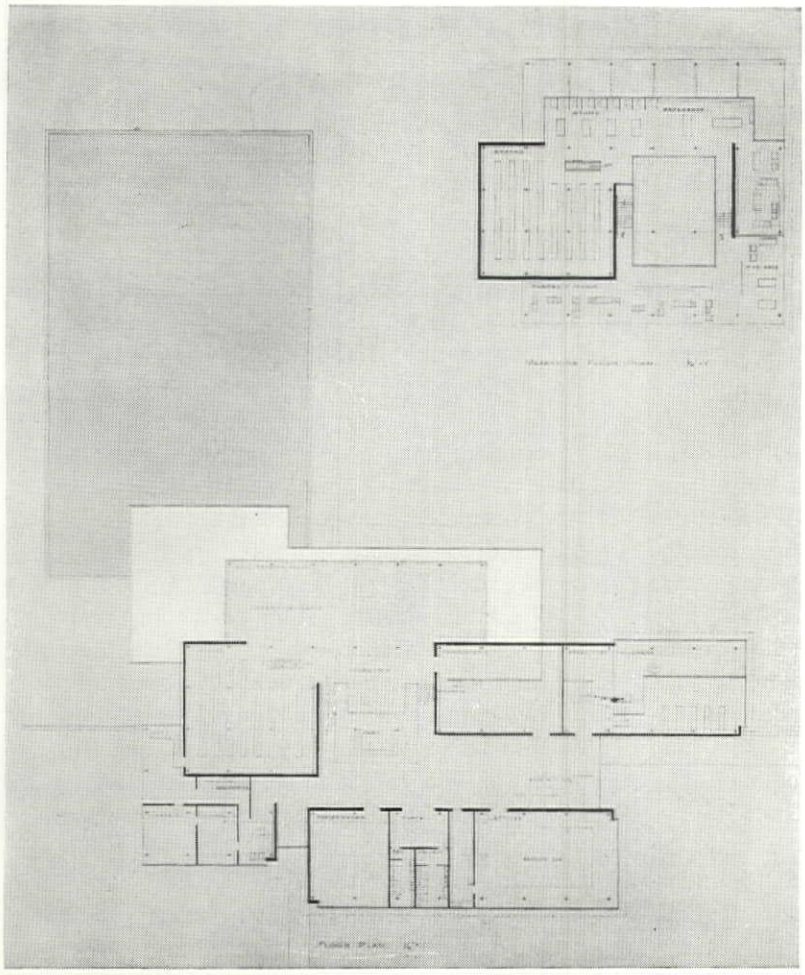






THE 1960 Rome PRIZE

Royston T. Daley Boston, Massachusetts
Williams College, B. A. 1951; Harvard Graduate School of Design, B. Arch. 1956



PUBLIC LIBRARY, SUDBURY, MASS. A library for a "new town" on a site dictated by the master plan developed by the city planning class. Desire was to provide variety of interior spaces which in massing would revolve around the anchoring volume of the stacks. Main reading room oriented east to a quiet view of adjoining lake and community center.

Russian Architects

A Visit—

An Impression

► The Russian architect smiled and raised his glass in a toast. When he had finished, he held the glass and the smile while the interpreter translated: "We do not know what the future of architecture will be, but there will always be friendship between our countries." Everybody smiled broadly and nodded their heads and raised their glasses.

Fifteen of these Russian architects and two United States interpreters had spent the morning at the Institute Headquarters, and now they were being entertained at an informal luncheon in the Octagon. The morning hours were spent in the Board Room, where Executive Director Purves spoke briefly about architecture and the Institute, and the AIA movie, "Architecture USA," was shown.

They were all eager. Most of them made copious notes as Mr Purves paused in his talk and the interpreter took over. They listened attentively. They laughed at American puns, and when they were told that the government is the largest construction spender in the United States they smiled and nodded their heads. It must be the same in their country. They could understand the fact, but did they understand the difference?

As the magnificent color movie unfolded they made sounds of approval that could be understood in any language. "Ahhhhhh," they exclaimed at a particularly handsome office building or factory or shopping center. They made no sounds when American homes appeared on the screen.

After the movie, in typical American fashion, a question-and-answer period was held. A Russian hand went up at the end of the table. "Who decides what material the outside, the facade, of the building will be?" he asked. "The owner and the architect," he was told. "There is no rule set by anyone else?" The answer shot back, "None, except whatever building code restrictions there may be."

"Do most big American architects belong to AIA?" one wanted to know. At this question Mr Purves smiled and scratched his head. "Well," he said, "We think so."

"What is the advantage of belonging to AIA?" another asked. Again Mr Purves smiled and in a few short sentences assured the Russian that no thinking architect would not be a member.

Other questions followed in rapid-fire order: Do members of AIA pay dues? Do architects going to Russia pay their own way or does the government finance their trip? What examination must be passed to become an American architect? Are contractors and homebuilders the same? All the questions were answered, and with each answer each Russian head nodded up and down.

Their final question stumped the Institute staff members for a short while. "Can we have the movie to take home with us?" There followed hurried consultations and questions of customs officials came up. "If they stop us," one Russian said, "we will tell them we took the movie with our cameras." Finally they were assured that they would be given a copy of the film. How they got it to Russia was up to them.

Like a new neighbor moving in next door, we watched them and they watched us. They took

in everything with their eyes—and so did we. There was one woman in the group. She was almost pretty, with jet black hair pulled severely back in a bun. Her skin was dark, her eyes thickly lashed. She was moderately well-dressed, and her shape was not that of the usual Russian woman one sees reaping in the fields. She wore no jewelry except for a small gold chain with a round object attached. "What is the necklace you have", she was asked. Quickly her hand went to her throat as if to hide the chain. "It is just an ornament," she replied. Sometime later through the interpreter she volunteered the information that it was an ornament given to her grandmother by her grandfather. Whatever the object was, she kept it hidden during the rest of her stay. Her only capitalistic leaning was the pale pink nailpolish on each finger.

The men wore no rings, and only a few had watches. All of them smoked long thick Russian cigarettes in "flip-top" boxes. All of the boxes were printed with a great deal of red or pink color. When offered American cigarettes, they refused, but proudly insisted that we smoke a Russian cigarette. Their suits were ill-fitting. A few wore American-type sport shirts. All wore coats with lapels that reached from shoulder to shoulder.

At cocktails before lunch, an amazing discovery: All Russians do not drink vodka! In fact, very few did. They enjoyed bourbon with coke, and sherry on-the-rocks. They drank these with their food.

The luncheon was one of those typical Institute affairs, with open-faced sandwiches, potato chips and cookies. It was interesting to note that the potato chips and the cookies went first, even before the sandwiches. It was fun to speculate why.

During the stand-up-wander-around affair, they made their toasts, they laughed, they crowded around their interpreters eager to take in everything that was said. When Mr Purves spoke, an apparently appointed mentor yelled in Russian for the crowd to be quiet. They obeyed him instantly.

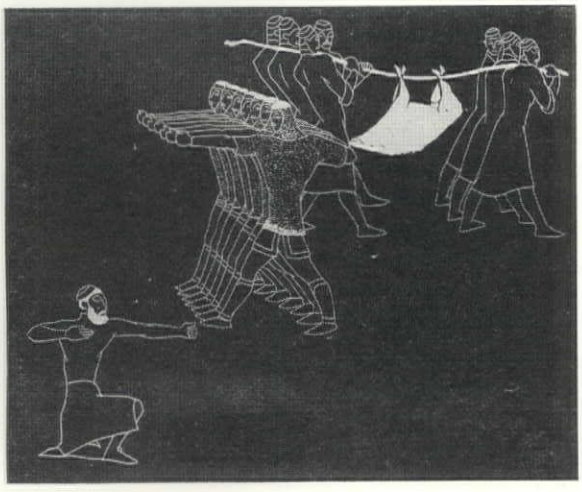
The woman in the group, the one with the gold chain, asked, "How many women are architects in the United States?" When told there were very few, she smiled proudly and said, "In Russia, thirty per cent of architects are women."

She was asked where she works. All of them work in state-controlled offices. There are, naturally, no private practices in Russia. She designs (if memory is correct) apartment houses. The people in the room next to hers design factories. Others design schools, and so on all the way through the government-owned building. She had just finished designing an apartment house for China and was very proud of it. When asked if she could be transferred from her native Georgia where she works now to another Russian state she appeared a little upset and spoke in Russian for some time. The interpreter translated: "It is possible, but not probable." Again we speculated.

Throughout the lunch hour each architect roamed around pinning lapel badges, buttons and pins on the staff members. One represented the Georgian Architects League for the Preservation of Historic Buildings, or something like that, another represented the architectural profession in general. Each one, and there seemed to be hundreds, represented something the Russians were proud of. The staff accepted them, nodded their heads, shook hands and bowed graciously. One of the pins, passed out in great abundance, was the Russian peace dove. They came prepared for everything. This symbol was the only reference to political ideology throughout the visit.

And now, somewhere in Russia, they are again at their state-owned desks. Other than the *Journals* we gave them, the movie, the AIA literature and the travel folders from Esso that they picked up, what else did they take back with them? One remarked during lunch that his most surprising impression of the United States was of the many big buildings and the friendly people. As he reads his *Pravda* over his morning coffee, does he nod his head in agreement with what he reads—or does he smile, yawn a little and turn to the Russian funnies? N.C.B.

Woodcut from the Soviet State of Georgia presented to the Institute by the visiting Russian architects



From the Executive Director's Desk

► Some day in that lovely future of those who are enjoying advancing years, there will be more leisure I am told. When that time comes I should like to pursue one of the many possible hobbies that flitter through a butterfly mind.

First among these interests would be a research on proverbs, slogans, epigrams and "wise old saws" with an eye to laying them bare, exposing their fallacies and bringing them to book for the harm they have done in misleading and misguiding generations of hopeful youth.

Those sayings attached to famous characters would come in for immediate investigation. First of all I would determine whether or not the people to whom the sayings are attributed ever uttered the bruited words. We have so many examples of the manufactured anecdote brazeningly attached to innocent famous men and women by historians and other purveyors of the biased or inaccurate accounting—a contribution to a shallow civilization now so expertly handled by the producers of biblical and historical movies.

An old saw which I know to be untrue is "The watched pot never boils." As a breakfast cook of many years standing, I can tell you that the pot which you watch boils much too soon, making the matter of having everything ready at the same moment an accomplishment which calls for experience, practice and timing. If you do not outwit it, the "watched pot" starts boiling before you are ready.

Many sayings which may have a germ of reliable foundation have been modified to fit the whims of later generations. The listed originator of the so-called remarks, if he ever made them, probably would not recognize them and might even disclaim them had he or she the privilege of safeguarding veracity.

Occasionally an author is hoist by his own petard, like the poet Browning who, when questioned about the meaning of sentences in one of the poems said, "When I wrote that line, its meaning was known only to God and myself. Now I am afraid it is known only to God."

Although one must admire the cleverness of the retort and the agility of Browning to climb off the limb, it seems that he placed a rather uncalled-for obligation upon the Almighty, like many of us who, finding ourselves in a quandary, take refuge in the Divinity.

An admittedly erroneous and doubtless manufactured quotation which flashes instantly to mind is that popularly said to have been uttered by the late General John J. Pershing. Manufactured fable relates that upon his arrival in France he repaired immediately to the tomb of Lafayette and at the not too well-known site stood at attention, his hand raised in salute, and uttered the fatuous, but nevertheless immortal pronunciamento, "Lafayette, we are here." Despite that frequently on good authority, probably including the General himself, it was learned that Pershing never said any such thing, the quotation stands intact today to convict an honest soldier of putting on an act worthy of a super-sentimental boy orator. To the best of my knowledge what thoughts the General may have had in mind as he stood at the tomb of Lafayette, presuming he did visit the tomb, have never been disclosed. It was rumored that a Colonel or some other officer of his staff, or maybe not even on his staff, audibly or possibly inaudibly said that egregious phrase, to which the shade of Lafayette could well have added "at last."

I do not know that public relations performers and press secretaries were so designated in the naive days of World War I, but there must have been one of that genus somewhere in the offing who decided even in that primitive period, for the time demanded a slogan to gloss over the fact that we as a nation and as an army were as yet untried.

Having seen at firsthand the eager scramble of the public relations officers in World War II to put words into the mouths of the innocent military, I am not surprised at anything. The contriving and promulgating of quotations never really uttered by the military hierarchy was a

standard operating procedure which engaged time and energy that might have been put to better use in the intelligence or operations office.

I recall how faithfully and assiduously the public relations officers in my outfit labored in order to build up a popular conception of our General to a point where hopefully his portrait might appear on the cover of *Time* Magazine. This then rather novel form of citation seemed to rate higher than a Congressional Medal of Honor. Unfortunately, in my outfit the sought-after portraiture never came about for not only did the General have the bad luck to command in a relatively forgotten theatre, but in a relatively unimportant and unsuccessful airforce. Also there was nothing in his history or performance to justify any greater acknowledgment than the requisite military respect from his subordinates. Of course, the PR officers worked hard to obtain the objective for it was rumored—and there may well have been good foundation—that the PR officer who succeeded in getting General X on the cover of *Time* would get the coveted trip back to the mainland.

To return to World War I in France, I have it on pretty good authority that one or two and maybe any number of American doughboys went to the tomb of Lafayette in the summer of 1919 and uttered a significant and pungent phrase, "Lafayette, we are still here"—words of considerably more import to homesick doughboys than the invented utterances of the ranking General.

Coming right down to our own vocation, a saying which seems to get more usage than any other and one which is given any sort of emphasis, depending upon the momentary need of the author of the writing, conversation or lecture, is one that seems to fit almost every occasion, especially when the writer or speaker is stuck for an epigram. It is that attributed to the late Daniel H. Burnham which starts off, "Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized . . ." and then goes on at considerable length. Among other things I never quite got the allusion to "magic"—a word of primarily juvenile intent. I was once told, though I cannot vouch for the accuracy of my information, that Burnham never said this but that it was really said by someone else—possibly a ghost-writer.

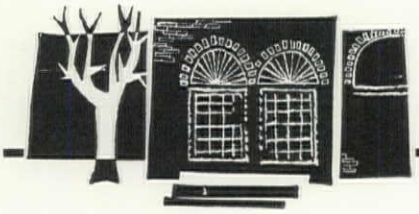
Well, despite what its origin may or may not have been, it is a saying which unfortunately has been handed down to generations of aspiring young architects as a guiding line which allegedly if held on to tightly will lead the aspirant to fame, riches, and many clients. This illusory shibboleth probably has been the cause of more frustrations and failures in the architectural profession than possibly any other one factor, save perhaps a failure to acquire selling ability along with technical proficiency.

However, "Make no little plans" never has ceased to puzzle me. I do not know what he was talking about. I have often wondered if he was really advocating the "White City" exhibition of the latter part of the nineteenth century which according to educated current thinking succeeded in setting back American architecture just about fifty years. I believe this is not a particularly modern criticism and that Louis Sullivan actually made the observation at the time of the perpetration. He could probably see that in a growing country the adulation of vulgarly acquired wealth should not be accepted as the grand concept.

What has really puzzled me is the question, what is a big plan and what is a little plan? Wherein does the difference lie? Is it in scale? Is it in scope of accomplishment? Does it lie in the contribution to the welfare of mankind? Does planning big mean the equipment for success? Are the double elephant drawing board, the long T-square and a client with acres and acres and acres wanting grand treatment the essential tools for big planning? Or does it mean the solving of those perplexing problems the solution of which would contribute greatly to the progress and enjoyment of mankind? Does big planning mean a recognition of the real fundamental factors that make for a salubrious life, light air, sense of space and ease and comfort? Or does big planning mean the multiplication of the anthill? Does big planning imply the reverting of the human race to the warren or does it contemplate the exploration of the possibilities of a richer life?

I think Mr Burnham doubtless had something rather nice and thoughtful in mind, but his expression is one that has kept many people guessing and has misled any number of young architects, (including myself when I was younger) to overlooking the fact that big planning goes into everyday life, so they spent fruitless days endeavoring to find a client who would pay for the design of a whole cluster of buildings in the grand manner. I contend that the successful solution of even a small house calls for big thinking and big planning. Perhaps it was something like this that Mr Burnham had in mind. ◄

Edmund N. Purves



LIBRARY NOTES

The House Beautiful

One day last spring, Edgar A. Tafel, AIA of New York, was in the Library and he asked me if we would like a copy of Frank Lloyd Wright's "The House Beautiful." Although I had to admit to no great familiarity with this, it seemed from Mr Tafel's description to be of unique interest and I told him we would be delighted. In June it arrived, carefully wrapped and the package was eagerly opened.

It more than met expectations for it is an example of fine bookmaking in which Wright collaborated and for which he prepared the decorations. It is worth quoting the double-spread title page.

"The House Beautiful by William C. Gannet . . . In a setting designed by Frank Lloyd Wright and printed by hand at the Auvergne Press in River Forest by William Herman Winslow and Frank Lloyd Wright during the winter months of the year eighteen hundred ninety-six and seven."

Mr Winslow was the owner of the "first" house which Wright had built in 1893 after he established his own practice. Winslow, the president of a firm of ornamental ironworkers, had as hobbies typography and printing. When Wright was designing his house, he had the architect incorporate into the stables a workshop and pressroom for his Auvergne Press.

The book itself was written by William Channing Gannett, a Unitarian minister, who lived from 1840 to 1923. Although he had been in the midwest for some years, he was then residing in Rochester, New York. The book, or perhaps it might better be called a tract, evidently enjoyed some popularity for there were several printings from 1891 on and it was still listed in print in 1928.

The present edition was produced in an extremely limited edition of ninety copies signed by both Wright and Winslow. Perhaps some of the comments which have been made about this edition would be of interest. John Lloyd Wright on page 42 of his "My Father Who is on Earth" speaks of it as "matchless" and says "Dad designed the setting and drew the intricate pattern freehand with pen and ink." On page 153 he gives "a reproduction of the ornamental design which appears at the beginning, in between chapters, and on the last three pages. The character of this design indicates Frank Lloyd Wright's evolution from the efflorescent detail of his master's into a simpler character of geometric forms entirely his own. His master's inspiration came from the characteristics of cultivated roses. Frank Lloyd Wright's from wild flowers."

R. C. Spencer, Jr, in his article entitled "The Work of Frank Lloyd Wright" in *The Architectural Review* (Boston) vol. 7, June 1900, writes on page 70: "In a decidedly different field Mr. Wright's remarkable linear enrichment of the pages of the hand-printed edition of 'The House Beautiful' is worthy of more than passing mention. These rich patterns, composed chiefly of lines and small spots, sympathize in highly conventional terms with the typographical character of this work, a little prose epic of the home, worthy of its dainty setting." Several of the design motives have been used as illustration in this article.

The magazine *House Beautiful* in its special Wright issue for Oct. 1959 lays claim to Wright as one of its founders with the following comment on page 211:

"Frank Lloyd Wright was one of three men who were the ideological founders of this magazine. Wright, William C. Gannett, and W. H. Winslow produced a book of essay sermons entitled 'The House Beautiful' in the winter of 1896-7. Only ninety deluxe copies were printed, but they were circulated and read by a good number of socially aware Chicagoans.

"The essays crusaded for a more human approach to creating a home, and against materialistic show. . . ."

The Library is deeply indebted to Mr Tafel for making available to it this rare example of Frank Lloyd Wright's excursion into the field of book design.

Goodhue

In considering architects who have been associated with the arts of the book, one can hardly neglect mentioning Bertram Grosvenor Goodhue. Certainly of architects who have distinguished themselves in their chosen field, he has won the highest reputation in the realm of the book arts.

H. Ingalls Kimball wrote in 1914, "To these others he is without question the most distinguished designer of types, bookplates and book decorations that America has ever known." Though with the passage of nearly fifty years this statement might have to be modified, it does give some idea of his stature in a world entirely apart from architecture.

In addition to owning copies of two books which reproduce examples of his work in this field, the Library is fortunate in possessing copies of two of the original publications: One is *The Knight Errant,* a magazine published from April 1892 to January 1893 for which Goodhue did the decorated title page and decorative initials and tail pieces. Ralph Adams Cram writing of it in 1925 says, "With Frank Lee he gave the short-lived *Knight Errant* its noble format, making it in fact the first example of the Morris sort of printing in America."

The other volume is a slender folio entitled "A Description of the Pastoral Staff Given to the Diocese of Albany, New York. Anno Domini 1897." [Boston, D. B. Updike, Merrymount Press, 1900], printed in a limited edition of 150 copies.

The former came to us from Ralph Walker, FAIA, the latter with the Richard Morris Hunt Collection. Items such as these add greatly to the distinction of the Library and we are grateful to the donors who have provided them.

GEP

BOOK REVIEWS

Our Housing Jungle and Your Pocketbook: How to Turn Our Growing Slums into Assets. Oscar H. Steiner. NY, University Publishers, 1960. 180 pp 5½″ x 8″. $3.95

This is an enlightened businessman's approach suggesting how we can best rebuild blighted areas with housing for lower-middle income families. Against a general account of the magnitude and the urgency of urban renewal problems and the Federal government's assertion that attacks must be pressed, Oscar H. Steiner, a Cleveland manufacturer turned housing developer (no relation to Richard Steiner, the Urban Renewal Commissioner), describes how he and his associates have built three apartment projects in Cleveland for cooperative home ownership. He argues a convincing case that what he has been able to accomplish as rather pioneering efforts might well be adopted widely throughout the country.

Steiner and his three younger partners (Max Ratner has been the architect and contractor within the group), between 1952 and 1957 built just over 500 units, mainly two- and three-bedroom apartments. The first project, Snow Village, in suburban Cleveland, was FHA-financed. But the group was so discouraged at the red tape and the increases in total costs attributable to time delays and imposed standards, that they developed their own financing, from local sources, for the final projects. The apartments in the final project, Longwood Community Homes, were sold at $500 down and $81.50 per month for two bedrooms and at $750 down and $86.50 per month for three bedrooms. Apartments in the second project, with lower land and mortgage costs had somewhat lower monthly carrying charges. A league of some twenty savings and loan associations put up most of the financing, the Cleveland Development Foundation contributed from a revolving fund, and the builders put up a small share. Steiner argues that if municipal or state mortgage-loan funds could be made available on a low-interest, long-term basis, a private builder could reasonably build so as to provide apartments at only $60 carrying charges or somewhat higher rental. He stresses the great need for new housing at this rental (or monthly charge) level.

Mr Steiner's philosophy embraces, among others, these convictions: That we need $60 billion capital investment in urban renewal; that Negroes and minorities must be adequately accommodated; that the Federal government's Urban Renewal legislation and administration is just not getting on with the rebuilding job; that the idea of rehabilitation is a phony; that a cooperative arrangement locally organized could do the job faster, for less money and with far greater flexibility than is generally now possible; and that businessmen and investors can reasonably be lured into participation with assurances of decent profits. This reviewer questions that homeownership, so strongly stressed, is so all-saving a general formula. But certainly we can use many more Steiner-style projects in order to provide for more low- and middle-rent housing in our large cities. DONALD L. FOLEY

Experiencing Architecture. Steen Eiler Rasmussen. Cambridge, Technology Press and NY, Wiley, 1959. 251 pp illus. 6″ x 9¼″. $4.50

From his modest disclaimer in the two-page preface and his first gay photograph (a hefty man in renaissance costume on a bicycle!) to his final provocative chapters on color and acoustics this book reveals a wonderful individuality. It is also a fine expression of the true substance of architecture.

A best-seller in Danish, this appealing translation with its excellent illustrations, many by the author and some in color, will help your clients—and you—to understand some fundamental concepts of architectural space, scale, proportion, rhythm, texture, daylighting, color and sound. Many of the author's perceptive comments make a reader wish he had expressed them so simply himself, they confirm ideas we are ready to believe.

". . . Japanese houses stand on the ground like furniture in a garden . . ." ". . . Mies' light-reflecting materials multiply the geometrical forms. . . ."

Rasmussen describes the complex fenestration of certain Venetian four-story rowhouses as a rhythm that "could be played on four drums."

The author is a practicing architect in Denmark and a recent visiting lecturer at several US architectural schools. His description (by hearsay) of the pageantry of the evening passage of the MIT charter across the Charles (1916) does not tell all. The late William Dewey Foster, AIA, ('11) told this reviewer ('30) that medievalist Ralph Adams Cram's neo-classic barge very nearly sank before it reached the Cambridge bank of the river and the crew of dignitaries were beginning to loosen up their academic gowns and hoods.

The best chapters are those on daylighting and color and there is a particularly fine appreciation of the Dutch four-shutter window. We may not agree completely on bi-lateral lighting (it can have some values of balance and quality contribution) but Rasmussen has observed and thought deeply about the architectural aspects of light. He also says, succinctly, ". . . in architecture color is used to emphasize the character of a building, to accentuate its form and material, and to elucidate its dimensions. . ." Finally, by indirection he sums up many avenues of architectural appreciation in this sentence—"we receive a total impression of the thing we are looking at and give no thought to the various senses that have contributed to that impression. . . ."

This is an excellent book, and remarkably inexpensive for its quality. ERIC PAWLEY, AIA

THE EDITOR'S PAGE

Architectural Criticism

A couple of weeks ago I moderated a panel discussion on "Architectural Criticism." The occasion was the Annual Convention of the New Jersey Society of Architects and the New Jersey Chapter, AIA, and the place was the resort city of Asbury Park. The two panelists were Tom Creighton, Editor of *P/A*, and Douglas Haskell, Editor of the *Architectural Forum*. The attendance was fair, considering that it was a sunny Saturday afternoon, too cool for swimming but perfect for golf. So much for the setting.

No Pink Pearls of wisdom were tossed about, but both panelists are veterans of the green baize table and talked freely and well; response from the floor was good and brought out considerable discussion. Unfortunately I carelessly tossed out my notes on what was said — or maybe it was a good idea. Following are some random thoughts on the subject—whose they are, who knows?

We hear the question often nowadays, "Why don't we have more architectural criticism?" "Why don't you magazines lambaste some of these lousy buildings?"

Let's take the first question: Architects may ask for architectural criticism, but they usually mean criticism of somebody else's building, not their own. When they get it, they don't like it. They are apt to accuse the critic of professional jealousy, or call him a "frustrated architect." There seems to be little willingness to accept honest criticism as it is accepted in the fields of the theater, music and literature. In those disciplines, competent criticism may be resented by the artist, but he seldom fights back—with a few notorious exceptions.

There's another answer to that first question: We *do* have architectural criticism right now— a fair amount of it and pretty good, too. The *Record*, the *Forum* and *P/A* have all carried a number of excellent critical articles during the past two or three years. It would appear that not enough architects read them— they look at the picture stories of the new buildings, and lay aside the "heavy" reading matter for a later and more leisurely day, which never comes. (A good argument for pictureless magazines!) Furthermore, if architects read more widely, as this page is constantly urging them to do, they would be familiar with the critiques and discussions of specific buildings and architecture in general which have appeared in *Harper's*, the *Atlantic*, the *Nation*, *Fortune*, *Horizon*, the book reviews in the *Saturday Review*, to mention only a few of the best, as well as the superlative architectural reporting, usually with color photographs, which is constantly appearing in the popular magazines such as *Life*, *Look*, *Time*, *Newsweek* and the *Saturday Evening Post*.

Now for the second question, "Why don't you magazines lambaste some of these lousy buildings?" The first and obvious reply to that is, of course, that "lambasting" a building is not architectural criticism. Criticizing a building adversely is not the sole function of architectural criticism. True, there are thousands of buildings built every year which are certainly non-art, and they are fair targets for diatribes against the taste and tendencies of our times. But no building worthy of a thoughtful critique can be just lambasted.

Architecture is not only an art of form, it is all tied up with structure and utility and human needs. A work of architecture cannot be judged hastily or superficially —it should never be judged from photographs (herein lies the weakness of our various "Honor Award" programs; what is judged may be the craft of the photographer, not the excellence of the building). The music critic or the drama critic must arrive at his evaluation at one sitting. The critic of the plastic arts has the great advantage of being able to judge the art form in the dimension of time. Lewis Mumford once told me that his method of arriving at a critique of a building was to visit it two or three times, studying it thoughtfully and at leisure "in depth." Then to make a draft of his criticism, then to revisit the building with his judgment in mind—and then finally to sit down and write his criticism.

In literature, the drama and the plastic arts there is a long-accepted tradition of criticism, and there are critics whose judgment and erudition are generally accepted and seldom challenged. There is no such tradition in the art of architecture —although there have been architectural critics before today, of course.

There is much criticism of our cities and our suburbs today. That is architectural criticism. Much architectural criticism is very general, and may not deal with specific buildings at all. Thus architectural criticism is often a form of social criticism, and there have always been social critics. All the great philosophers and essayists have been social critics. In this sense, the position of critic is one of the most vital in human affairs, and has wide influence on future events. Thus the true criticism does not follow the event, it precedes it. By stimulating and influencing thought, the true critic may shape events—and buildings—to come. Thus only the erudite, the mature, the objective, the balanced minds are fit to engage in serious criticism, architectural or otherwise.

NEW MACHINES AND AUTOMATION IN CONSTRUCTION

by **Lester C. Rogers**

Past President,

Associate General Contractors

► There are three major causes of the startling development in new machines and automation in the construction industry.

First, the high and constantly rising labor costs and expensive working conditions in the building trades have spurred the search by contractors for labor-saving devices.

Second, the heavy investment by owners, private and public, in machinery, such as turbines and boilers in electric power plants, and heavy development costs in programs such as the present intercontinental highway system. These investments cause the owner, when the project has reached the construction stage, to put pressure on the contractor to complete in a minimum of time. Whether tax money or private funds are involved, interest costs on the heavy investments must be reduced to a minimum by fast work in construction.

Third, and probably most important because it encompasses the other two items, is the fierce competition which exists in the construction industry where work is done under the contract system by general contractors. This competition, an important part of our free enterprise system, is a very healthy thing.

In a rut?

Occasionally, comments are made that the construction industry is in a rut, that it still uses old-fashioned methods, and has not moved forward with other industries. This mistaken viewpoint may result from the fact that the industry is so widespread and varied, conducted by so many organizations both large and small, that the casual observer may fail to realize that vast strides have been made. The general contractor is constantly searching for and developing new ways to save time and labor and improve quality. He puts pressure on and works with the machinery manufacturer to turn out machines which in my boyhood would have been considered absolutely fantastic. I can only give you highlights. If I took too long to describe these various machines and methods they would probably become obsolete before I finished. Developments are so rapid that the biggest problem is not wear and tear and normal depreciation but obsolescence.

Paydirt power

Probably the most amazing machines have been brought out in the field of earthmoving and hauling. The tendency has been to develop machines with larger and more flexible power units and with simplified one-man controls. The principle of diesel-electric power developed in modern railroad locomotives is now being applied to earthmoving units. Considerable research and experimentation has been going on with the so-called "electric wheel" where each wheel of large earthmoving machines is powered by individual direct current motors in the wheel, with gear reductions in the rim.

Power is automatically proportioned to each wheel on a scraper, for instance, and braking is by regeneration. In other words, the power units in the wheels, when power is turned off, act as generators and brake against the motion of the unit. On scraper type earthmoving equipment, these units will be able to operate on short hauls without turning around, because the wheels have equal power in either forward or reverse movement. Use of this sort of power is foreseen, where rough or slippery terrain is involved, on all kinds of dump trucks, on self-loading scrapers, on cross-country hauling trains, and on swamp or snow buggies. All this complicated power transmission and operation will be handled by one man with fingertip control. One man operated the little team and slip scraper of my youth, which picked up one-half to one cubic yard of material. Now one man operates mammoth machines which scoop up 50, 80, even 100 cubic yards at a load.

Because of such developments the cost of earthmoving has risen very little over the past half century, in spite of enormous increases in labor and machinery costs.

Gas turbines

In the field of hauling and earthmoving we should consider the development of the gas turbine, which before too long will undoubtedly be in use. The big advantage of this type of power is the saving in weight. For example, a 300 hp diesel unit weighs something like 2,700 lbs, or nearly 1½ tons. A unit to develop similar power with a gas turbine probably weighs less than 700 lbs. This means that a hauler can carry an extra ton of payload on his truck. Fuel consumption will probably be even less per horsepower than in a diesel motor. Cooling requirements are almost completely eliminated. Flexibility and smoothness of operation are two further important factors.

Sheepsfeet by the flock

Sheepsfoot rollers—those spiny looking cylinders covered with big steel fists, which compact the earth so effectively, are now being hooked up in quadruple units, two side-by-side in front and two in rear. These units are powered with diesel-electric power and operated by one man. They more than multiply by four the work done by the old sheepsfoot rollers pulled by a tractor, and multiply hundreds of times the output of the steamroller of earlier years. All these machines have electric power steering, which is fast, flexible and powerful, yet easily manipulated by the operator.

Air-lifts

The helicopter has proved a valuable tool, not only as a transport vehicle but also as a lifting mecha-

* Address before *National Construction Conference, U S Chamber of Commerce, 11 March 1960: Washington, DC*

nism. On one of the Convair plants, a helicopter was used to hoist and place a total of some 100 tons of heating and ventilating equipment on the roof of the 13-acre building. This enabled placing in less than one shift instead of an estimated one month by conventional methods. It also permitted a material saving in roof reinforcing. The helicopter is a natural for handling transportation and erection problems of long transmission lines in rugged or remote areas.

Television

Ingenious contractors have divorced television from its apparent purpose of proving that the good guys were always faster on the draw than the bad guys, and put it to work on construction projects. Closed-circuit layouts permit the cableway operator, high up in his tower, to see with clarity just what goes on at the tail tower location, possibly as much as a half-mile away. With the use of a wide-angle lens and coaxial cable he can even spot his heavy loads down in the hole, below him and beyond, without the aid of a signal man. On at least one of the large St Lawrence Seaway dams, a camera on a 40′ tower enabled the project manager in his office, to view all or any part of his work at will.

I have just learned that in connection with the construction of a Polaris missile experimental launching base, the contractor used an underwater TV camera to supervise from a barge the construction and inspection of the placing of prepacked concrete 100′ below the surface of the Pacific Ocean.

Lift-slab

Tremendous advances have been made in tilt-up and lift-slab construction. These methods necessitate appropriate building design. The International Lift Slab Corporation is now building a 12-story hotel in Australia and two 15-story apartment buildings in Michigan. Each slab in the apartment buildings contains an area of some 15,000 sf and the heaviest slab weighs some 945 tons. The slabs are poured one on top of the other on the ground, simplifying the operation of forming and concreting, and greatly reducing cost of these operations.

Slabs are lifted by hydraulic jacks on each building column, operated from a central power source. Lifting proceeds in ½″ increments with each jack controlled by the position of all others. If level at any jack does not check within 1/16″ at conclusion of each increment, lift stops automatically and a light indicates location of the troublesome jack.

Normally it is a costly problem to heat and protect concrete as it is poured several stories above the ground in cold weather. By pouring slabs one on top of the other, at approximate ground level, they can be heated and protected from effects of freezing with relative simplicity and at greatly reduced cost. As much of the work is done at ground level, accident rate is noticeably reduced.

Technical journals reported a similar lifting operation used in large geodesic dome buildings, such as those constructed for the Union Tank Car Company at Wood River, Illinois and Baton Rouge, Louisiana. These domes, some 200′ in diameter, are constructed practically at the ground level and jacked to their final height of about 120′.

Modular measure

I can mention only briefly the considerable savings in costs of building work to architect, manufacturer, contractor, and thereby to owner, through the use of the modular method. This method is based on designing all possible parts of a building and its components in 4″ increments. The economy of such standardization is apparent.

New strength for concrete

Prestressed concrete, precast or cast in place, presents possibilities for sizable economies in weight, construction costs and time. Its development was slow until steel rods and wires were developed of sufficiently high tensile strength.

At Orly Airport in Paris, 6½″ prestressed runway slabs replace 15″ reinforced concrete slabs—reducing by more than one half required volume of concrete.

Tricky soil tricks

Difficult soil conditions have always been a great hazard in construction. You are familiar with methods of freezing which have been employed for some time in shafts and foundations in quicksand and semi-fluid materials. Now, there is electronic soil stabilization. It has been employed with remarkable success, notably in the construction of a bridge on the Trans-Canada Highway on the north shore of Lake Superior. It was necessary to construct piers for the bridge on a long slope composed of wet, fine-grained soils. Serious slides developed when the contractor attempted to start work. He finally resorted to the use of electro-osmosis to stabilize the soil: A series of anodes and cathodes on 6′ to 10′ centers 40′ to 120′ deep were placed in four rows across the long slope. By applying 100-150-volt current with low amperage to this installation, water was drawn out of the silt by electro-osmosis and removed by wellpoints in shallow sections and by deepwell pumps in deep sections. This operation reduced water content of silt, increased its density and consequent stability. Water table was lowered by some 40′-45′ and the soil stood at 1:1, or 45° slope, and withstood the vibrations of pile driving, where previously it would withstand no vibration.

Nuclear devices are now being perfected for the measurement of moisture and in-place-density of soil and soil-aggregate mixtures.

When the problem of radioactive fallout can be solved or controlled, the use of atomic blasts for mammoth rock blasting operations in special cases will produce enormous economies in time.

Computers

Electronic computers are now used extensively in design work. Calculators of all types are in constant use by contractors and designers. One engineering school, I happen to know, is seeking a grant to explore the possibility of using electronic computers in organizing and operating construction projects. What, if anything, will come out of this no one knows, but their thinking was sparked by the fact that the Army uses computers on its logistic problems in war games. The question is, can similar methods be of value on large construction projects in solving problems of logistics, manpower, finance, etc?

The general contractor, too

Almost at a pace with the remarkable advances in the field of

machinery, and of even more fundamental importance, is the development of the general contractor over the period of three wars and intervening years. His function is *organizing*. To the general public the amazing range of this function, its countless facets, and the high pressures involved are little understood. His field may be local, nationwide or worldwide. Each project is different from the last in geographical location, geological conditions, climate, accessibility, and labor conditions.

The ability of the competent general contractor, with his staff of experienced engineers in many fields, his experienced labor relations, and ethical management has made construction by contract the economical, efficient operation which it is today.

As long as millions of clients continue to require individual structures tailored to fit the peculiar needs of each one, there will always be need for the competent designer and for the general contractor skilled in creating each structure from the design.

Under the pressure and incentives of the contract system, the general public may be assured that newer and better materials, techniques, and machines will continue to be developed and will produce increasing efficiency in construction. ◄

WHEN WILL WE ADOPT THE METRIC SYSTEM?

by **F. Ray Leimkuehler, AIA**[1]

► The usual reaction to this proposal is that our system is "so deeply rooted in our habits that conversion would be long and costly." Is this objection conclusive? There seem to be sound reasons for taking the step. Far-reaching benefits—national and international — would more than offset the temporary inconveniences.

Many people are thinking about this question and asking why we do not change to the decimal system of measures. Why do we persist in the use of the unwieldy English system of measurement? There is some evidence that the UK itself would be willing to abandon its cumbersome system when—or even before — we do. A Scottish headmaster wrote me: ". . . there is a certain amount of foolish prejudice against the adoption of the metric system, but I think it would yield to the pressure of well-informed propaganda . . . the Junior Chamber of Commerce is pledged to support this movement, the British Association is engaged in an investigation supported by the Board of Trade, and I am moving at our Annual General Meeting that the Educational Institute of Scotland prepare a case with the object of requesting the government of this country to introduce the metric system as early as possible." It would not be surprising if the British adopted the metric system before we do. They are next door to countries using the metric measures and trade is hampered by the confusion. Our good neighbor, Mexico, uses the metric system. I asked a prominent Mexican, Ramon Corona, what he thought about such a conversion in the US. His answer, briefly, was that he thought it would be a great help in many ways, wonderful—if it could be done.

When US architects design work to be built in countries using the metric system, the drawings must be converted in the field. And vice-versa.

The use of the metric system is perfectly legal in the US, but it is not usually employed outside of drug, medicine or chemical manufacture. Revised statutes of the US: sec. 3569 states, "It shall be lawful throughout the United States of America to employ the weights and measures of the metric system . . ." And again, ". . . the office of weights and measures . . . will in the future regard the international prototype meter and kilogram as fundamental standards, and the customary units, the yard and the pound, will be derived therefrom in accordance with the act of July 28, 1866." This order was approved by the Secretary of the Treasury, 5 April 1893, so the idea of using the metric system here is not new. With the end of World War II and renewed contact with European thought, American architects, such as George H Gray,[2] Allison Owen,[3] and Nathaniel Curtis[4] advocated the benefits of the metric system.

It is reported in the *St Louis Post-Dispatch* (13 December 1958) that Aleksei Markushevich, head of a delegation of Soviet educators studying this country's school systems, told newspapermen they would make two major criticisms. "High school libraries lack great literature and grade schools were hampered by the English system of weights and measures. Sometimes in the classroom it seemed to me I was looking at a slow-motion film. Further, particularly in the elementary schools, I was impressed with the difficulties they confront in having to use the English weights and measures. The metric system should be adopted. Before the revolution we had three systems: Old Russian, English and metric. When it became metric it was a great relief." This does not seem to be propaganda but a reasoned analysis.

English-speaking countries, including those of the British Commonwealth, are the only civilized countries that have not adopted, or do not use customarily, the metric system of measurements. Canada, however, enjoys a decimal monetary system instead of the British 12 pence equals one shilling, twenty shillings equals one pound.

India changed its complicated monetary system over to a decimal base in April 1957. In October 1958 that country began to shift to

1 *JAIA* "The Metric System for Us" Nov 45, p 249
2 *JAIA* "Origins and Standards of Building Materials and Codes" July 45, p 26
3 *JAIA* "The Metric System—Why Not Now?" Sep 45, p 131
4 *JAIA* "Thinking in the Metric System" Oct 45, p 180

the metric system of weights, optional at present but mandatory within two years. An editorial in the *St Louis Post-Dispatch* (6 October 1958) commenting on this shift in India, entitled "Maund and Powa go metric," observes, "If India can successfully make this shift in two years perhaps Americans should ask themselves why they don't abandon their ounces, pounds, tons and inches, feet and miles, and pints, quarts and gallons for a bit of the old metric." A news item in the same paper of 27 May 1959, reveals that the Union of South Africa ". . . gave notice yesterday a bill will be filed to convert South Africa's pounds, shillings and pence coinage to the decimal system." Outside of the other countries of the British Commonwealth that employ the pound, shilling, pence that leaves only Burma and Pakistan that do not use a decimal system of coinage. More countries find an advantage in the adoption of the established decimal system for money. Would there not be equal advantage in the adoption of the established decimal system for weights and measures?

The modular system of dimensioning, sponsored by The American Institute of Architects, the Producers Council, and many building commodity manufacturers in the recent years is a means of simplifying and expediting the drafting in the architects' and engineers' offices and construction in the field. By using a grid (and cube) of units of measure the varied materials of construction (brick, windows, doors, etc) would be coordinated. The unit adopted is 4″—or twelve times 4″. This is a makeshift and it does not help an international exchange of commodities. (The Japanese have a modular unit "Tatami" which is 3′ x 6′, the size of a standard mat, but since they employ the metric system, it is more likely 1 meter times 2 meters.) The professional engineer, realizing the clumsiness of our English system of measurements, divides inches and feet into decimals. While this has some advantage it is also a makeshift. Nothing would be lost and much would be gained if the engineer used the metric system of measures. As with the engineer, nothing would be lost by changing the architectural module to a decimeter (or meter) because the change need not be made overnight. Machines wear out, or become obsolete and the retooling could be made along with replacements perhaps some years hence. Just as we find to-day catalogs which list a dual system, standard sizes and modular, we might find a dual system of old and metric sizes for a while. It is understood that it has taken Italy seventy years to convert and rewrite deeds and surveys after adoption of the metric system.

It is neither here nor there that the standard meter is not precisely one ten-millionth of the distance from the equator to the pole, as originally intended, or that our yard dimension is the distance from the nose of King Henry I of England to the tip of his fingers. The object of this writing is to arouse widespread interest in, and urge the use of the metric system of measures. It is aimed at the future so there is not much need to refer to the interesting history of measures. Until now any voice raised to advocate the use of a universal system was like crying in the wilderness or "beating a dead horse." Not any more. Since the "world has become so much smaller," it is high time for the change.

To realize the absurd complicated system of measures we employ, it is only necessary to look at some comparative tables:

WEIGHT

US OR ENGLISH

avoirdupois

16 drams	— 437.5 grains	— 1 ounce
16 ounces	— 7000 grains	— 1 pound
100 lbs	— 1 hundred weight	— 1 cental
2000 lbs	— 20 hundred weight	— 1 ton (US)
(2240 lbs	— 1 long ton	— British)

troy

24 grains	— 1 pennyweight (dwt)	
20 dwts	— 480 grains	— 1 ounce
29.167 milligrams	— 1 assay ton	
3.086 grains	— 1 carat	

apothecary

20 grains	— 1 scruple	
3 scruples	— 60 grains	— 1 dram
8 drams	— 1 ounce	

METRIC OR DECIMAL

10 milligrams	— 1 centigram
10 centigrams	— 1 decigram
10 decigrams	— 1 gram
10 grams	— 1 decagram
10 decagrams	— 1 hectogram
10 hectograms	— 1 kilogram
1000 kilograms	— 1 metric ton

LINEAR

US

12″	— 1 foot	
3′	— 1 yard	
5.5 yds	— 16.5 ft	— 1 rod, pole, perch
40 poles	— 220 yds	— 1 furlong
8 furlongs	— 1760 yds	— 5,280′ — 1 mile
3 miles	— 1 league (US naut)	
6.080.27′	— 1 naut mile	
1.15156 statute mile	— 1 naut mile	
1 naut mile p h	— 1 knot	
6 feet	— 1 fathom	
120 fathoms	— 1 cable length	— 720′

METRIC

10 millimeters	— 1 centimeter
10 centimeters	— 1 decimeter
10 decimeters	— 1 meter
10 meters	— 1 decameter
10 decameters	— 1 hectometer
10 hectometers	— 1 kilometer

AREA

US

1 acre	— 43,560 s f	— 208.72 feet square
1 section (square mile)	— 640 acres	

METRIC

100 sq meters	— 1 are
100 ares	— 1 hectare

VOLUME

liquid

4 gills	— 1 pint
2 pints	— 1 quart (57.75 cubic inches)
4 quarts	— 1 gallon
31.5 gallons	— 1 barrel
2 barrels	— 1 hogshead

dry

2 pints	— 1 quart
8 quarts	— 1 peck
4 pecks	— 1 bushel

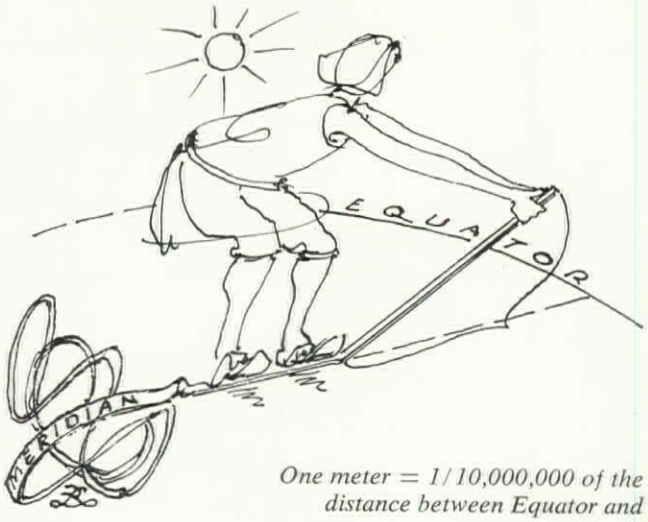
1000 cubic centimeters — 1 liter (1 cu decimeter) which is:
1 kilogram distilled water at 4°C

MISCELLANEOUS US MEASURES

4″	— 1 hand
9″	— 1 span
14 lbs	— 1 stone
24.75 cubic feet	— 1 cord
94 lbs (cement)	— 1 bag (or sack)
4 bags (cement)	— 1 barrel
about 40 yards (cloth)	— 1 bolt
15 or 16 yards (wallpaper)	— 1 bolt (or roll)
24 or 25 sheets (paper)	— 1 quire
20 quires (480 to 516 sheets)	— 1 ream

We may add to the confusion our system of gauges for sheet metal, wire etc. We don't even have one uniform system. The most usual are the Brown & Sharp (B&S gauge) and US std (USS). Neither of these bears any simple relation to the thickness of weight of the metal, and the gauge numbers decrease conversely to the thickness:

Gauge number	*thickness in inches* B & S gauge	*USS gauge*
38	.0040	.0063
10	.1019	.1406
1	.2893	.2813



One meter = 1/10,000,000 of the distance between Equator and North Pole

Or is it?

Three feet (right) = 1 yard

Let's see, now, three liters of petrol at two shillings nine pence per imperial gallon comes to . . .
(3x2/9 = 8/3 x .14 = 1.155 x .778 = .9009 x—)
I'll make it a dollar two bits

Even the different metals are measured by different systems. Copper sheet is measured by ounces/sf (16 oz - .0216") (32 oz - .0431"); tin (or terne) plate (IC or 30 ga) (IX or 28 ga); monel and steel follow US std gauge while aluminum, brass or bronze follow B & S gauge, but are usually ordered or specified by thickness in decimals of an inch; zinc has a separate gauge; lead is ordered by pounds/sf. There are at least seven different gauges used in the US and they do not have any simple relation to thickness or to each other.

The confusion illustrated in the foregoing with regard to sheet-metal gauges can be repeated with respect to our measurements of tubes, screw-threads, bolts, nuts and other metal commodities. Is it any wonder that people regard our system of measures as primitive, archaic or just identified with the "horse and buggy age"?

In a letter from the National Bureau of Standards dated 10 March 1959, I learned that there were at least three organizations interested in this subject, "two organizations in this country are interested in promulgating the use of the metric system." They are:

METRIC ASSOCIATION
Attention: J. T. Johnson, President
694 West 11th Street
Claremont, California

UNIVERSAL METRONICS
Attention: Col. Manly B. Gibson
4077 17th Street
San Francisco, California

"In addition to these two organizations there is a committee of the American Geophysical Union which is studying this matter. This committee on the metric system has as its chairman

FLOYD W. HOUGH
c/o Executive Secretary
American Geophysical Union
1515 Massachusetts Ave. NW
Washington 5, D C

An article in *Reader's Digest* of May, 59 by Harland Manchester, titled "Should We Adopt the Metric System"? says, "The time is near when all educated people must be able to think in meters, liters and grams." Perhaps it is no longer a question of "Should we," but "How soon shall we?" ◄

AIA *School Plant Studies*

BT 1-40

School Building Orientation

COSTS AND

EFFECTS ON EDUCATION

by **James R. Holmes,**
Associate Professor of Drawing
Clayton W. Chance,
Assistant Professor of Drawing, University of Texas

One of a series of papers prepared by members of the AIA Committee on School Buildings, and by selected specialists, to make laymen aware of school building problems and trends and to stimulate discussion. They are not intended to be definitive last words and carry only the authority of their respective authors. New subjects are being worked on and contributed articles are welcome. Reprints of these non-technical articles are widely distributed to educators and laymen. One copy each issue free — additional copies 10¢ each.

From *Geometrie et Horlogiographie*, Jean Bullant, Architect, published in Paris, 1608. From the Richard Morris Hunt Collection, AIA Library

School Building Orientation

by **James R. Holmes** and **Clayton W. Chance**

► Since the tremendous cost of educating our children directly affects everyone's pocketbook, taxpayers want to know if they (we) are getting our money's worth. The need to improve our educational techniques is recognized by our educational leaders. Some universities are demanding that many courses usually offered in the first year of college be taken in highschool. If highschool work is to be more rigorous, the effects will be felt all down the line.

Thus, a need to insure the best possible teaching and study conditions at all levels demands that school officials and school architects provide the "most for the money." Teaching must become swifter and easier—learning must be cheaper and more effective. The school building costs only about 10¢ of the total education dollar but many school boards and other parties concerned do not realize the impact of the sun on building and operating costs.

Importance of Suncontrol

Those who plan a school building and determine its position on the site must give special consideration to its compass orientation and relation to the moving sun. This solar relationship directly and importantly affects the school environment, teaching efficiency and learning capacity of our young scholars. Therefore, this paper provides guidance for planners who must fix the permanent orientation of school buildings. It presents information on a technique for checking the shielding of glass windows from unwanted sunshine.

If all school buildings could be airconditioned, study of shading and orientation would still be important. Although comfort may be obtained for any building by use of airconditioning units of adequate capacity, proper shading of glass is necessary to keep down cooling costs.

A prominent architect commented that while it is unlikely that any architect would design an insurance, bank or similar building without providing airconditioning, he would have few opportunities to plan airconditioned schools, especially for lower grades. School children rarely have a choice of schools. They attend the school of their district whether it is comfortable or not. If they must spend the afternoon in a room uncomfortably warm from sun heat, we, the taxpapers, are in the long run financially affected.

Still affected more or less by regional climate, the need for cooler buildings is increasing as more and more heat-producing machines, such as electric typewriters, movie and slide projectors, computers and more and more shop equipment are introduced. When it is proven that airconditioned schools can pay their way, more schools may be airconditioned, particularly in hot-humid and hot-dry climates or districts where schools begin to be used year-round. The cost of airconditioning is an item easily bluepenciled, if the estimated cost of a new building exceeds the budget. At least, the building may be planned for future airconditioning. With or without it, the school building should have the best possible orientation and sun protection. In itself this will save money.

Building orientation has received inadequate attention in current publications. William W. Caudill, AIA, one of the architects for the well-shaded San Angelo High School, has recognized this in insisting, "The sun must be kept off the glass." Rather sensational statistics developed by the Structural Clay Products Institute, Washington, DC, show that in Houston, Texas, airconditioning costs attributable to one square foot of frame wall and one square foot of glass could be $0.79 and $21.52, respectively. Unshaded windows invite large quantity of heat, thereby raising temperatures, producing discomfort and increasing costs.

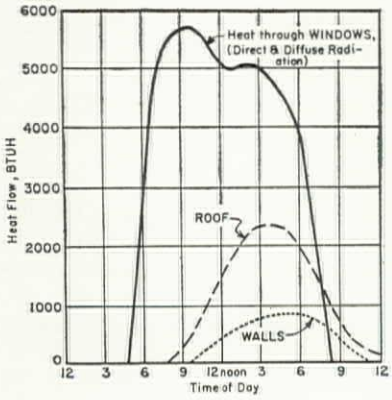
Methods

Most extensive work in the field of sun-shading has been done by Victor and Aladar Olgyay*, research architects and teachers. They compare the large amount of heat entering a building through unshaded glass with smaller amounts entering through other surfaces (Fig. 1).

They also determined that if glass is shaded at all times, the amount of diffuse heat transmitted through glass is small and varies little with orientation.

The Olgyays have provided a method of evaluating effectiveness of devices for shading glass from direct and diffuse heat. For comparing effectiveness of different shading devices at the same orientation or for comparing effectiveness of same overhang, awning, etc., at different orientations, their method can be simplified and reduced to easy graphical solutions. Thus an overhang may be designed for its esthetic appearance and then evaluated. This overhang may be

FIGURE 1 *Comparison of heat flow through glass, walls and roof on a low cost frame house developed under Industry-Engineered Homes Program in 1948, where windows were flush with wall. (Appendix Report No. 6 — Application of Climatic Data to House Design.* HHFA.)



* *Application of Climatic Data to House Design*, HHFA January 1954, Superintendent of Documents, US Government Printing Office, Washington DC

varied in dimensions and evaluated to determine its best length.

If design is set and length of overhang fixed, evaluations may be made for various orientations to determine highest efficiency rating. Best orientation should be chosen near compass direction showing highest rating, with due consideration for local factors including directions of prevailing breezes, sites, view, and relationship with adjacent buildings.

True shadows may be cast for various times of day to determine areas of glass irradiated by rays of the moving sun. Using these areas and the angle relation between sun-ray and glass, amount of sun-heat actually transmitted through glass may be closely approximated.

The Olgyay method calls for graphic projection of a drawing of the shading-device, such as awnings, walls, trees, etc, upon a diagram of the sky vault or celestial sphere. This masked area, as it is called on the surface of the sky, outlines sun positions from which glass is shaded. The mask may be superimposed on a map of the sun's hourly position for the year, on which are also plotted areas of time when shading is needed (when outside dry-bulb temperatures exceed 70°F). On this same map, curves can be plotted to indicate amounts of sun heat striking glass from all sun positions.

Thus for any glass area facing a given direction, the amount of heat prevented from reaching the glass by an overhang may be computed and compared with total amount that would reach a similar but unshaded window. Procedure for obtaining such comparisons requires data obtained from several devices which are separately illustrated in Fig. 2. Combined they form a calculator (Fig. 3) from which data may be replotted on a rectilinear chart to simplify calculations.

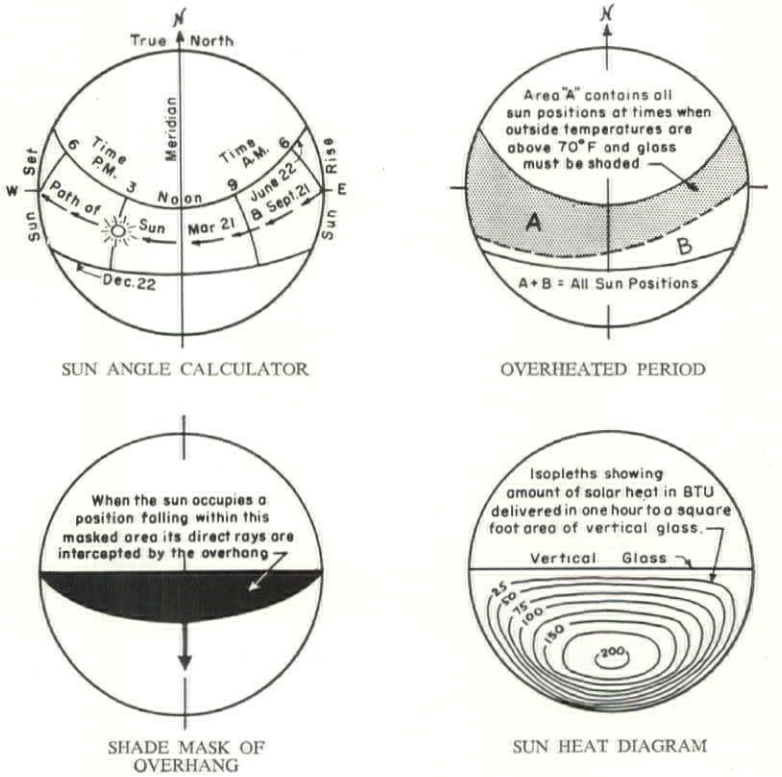


FIGURE 2 *Component parts of radiation calculator*

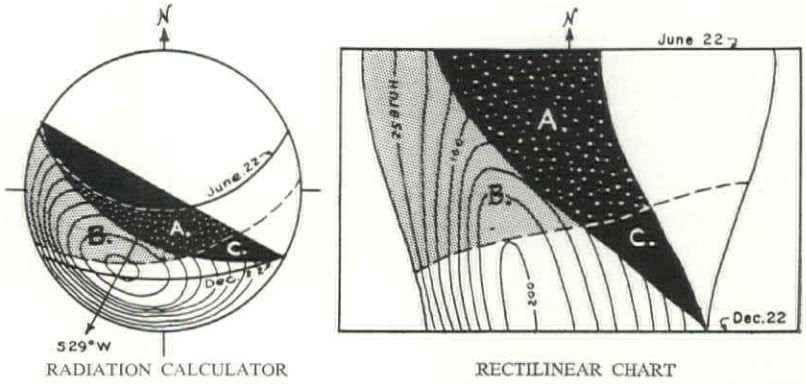


FIGURE 3 *Devices for determination of shading performance of an overhang. (Areas A, B and C replotted on rectilinear chart, are converted to amounts of time by use of a planimeter. Total amount of solar heat is found for each area by summing up time spent by sun in each radiation zone. Ratio of solar heat A to solar heat A and B is the summer shading performance of the overhang.)*

Evaluation of Design

If architects study proposed buildings for such efficiency ratings, decisions on solar orientation can be made on a firm basis. Some embarassing mistakes may be prevented. An overhang design may be based correctly on sun-angle data, but the designer remember that the "sun moves."

The designer must know how to locate the sun at all times, and be able to trace its path as it moves across the sky. He must know how to find the angle between sun-rays and surfaces in all positions. Also he should know how to cast shadows of the "moving sun." With this knowledge, he can create effective shading designs and check his results.

If a school board wants to change the orientation of his proposed building, the architect should restudy his sun-shading devices and check their effectiveness for the new orientation.

When the school building is carefully oriented, good ventilation, lighting and sun-shading may be expected. If a school building is poorly oriented, these features are often adversely affected to the extent that effectiveness of teaching may be jeopardized.

Poor orientation should not be dictated by someone's desire to keep walls parallel or perpendicular

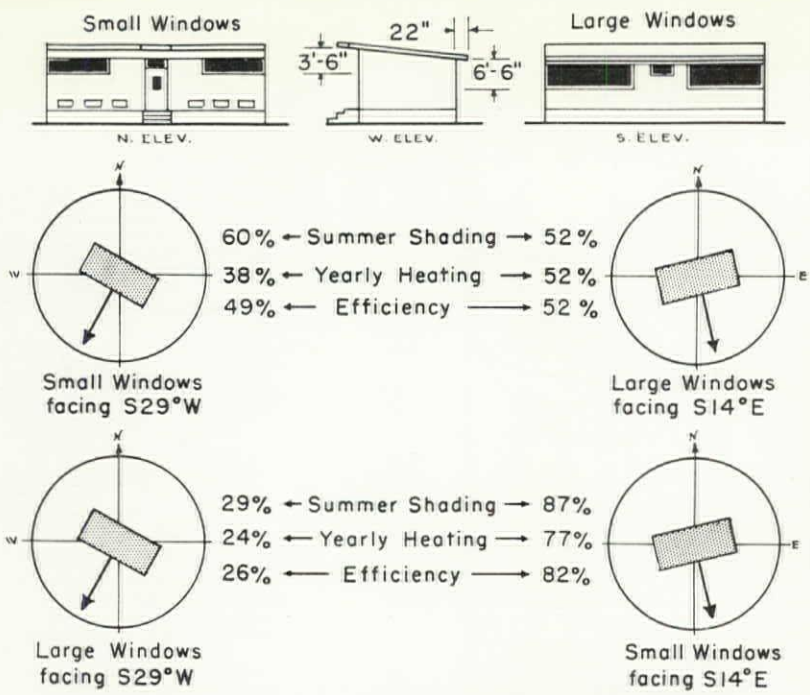


FIGURE 4 *Shading efficiency of 22" overhang for large and small windows at orientations of S 29° W and S 14° E*

to sidewalks or to other buildings. Neither should good ventilation and lighting be sacrificed for a view, especially when students pay the penalty in the form of discomfort from sun-heat and eye fatigue due to glare. Orientation, however, must be skillfully evaluated in the total design. In the hands of a less-talented practitioner these considerations may not in themselves yield pleasing appearance.

Example of Application

Using the Olgyay method, simplified for this purpose, the authors made a study of some temporary school buildings designed by a school board in a Texas city (Fig. 4). There are about 50 of these buildings facing all points of the compass. They have only a 22" overhang which is neither effective in reducing glare nor adequate for proper sun-shading for varied orientations.

Air motion is very important in this part of the country because cooling is needed most of the year rather than heating. The north wall contains ventilators, opening outward at floor level, and also has small high windows under the overhang. Facing the prevailing breeze, the ventilators permit it to enter low, sweep across the floor and thence upward to the higher windows on the opposite wall. (If the breeze enters through high windows, it crosses the room at ceiling level.

When these buildings face true south, the sun cannot reach the glass from high altitude angles. However, when they face southeast or southwest, the overhang does not fully shade glass at all times. When they face southwest, the sun begins to shine on glass about the time outside temperatures are reaching a maximum and children are beginning to tire from the day's work. It is mandatory that glass areas be shaded in the afternoon. Even if the building were airconditioned, the glass would need shading because 89% of direct sun-heat striking this glass would be transmitted into the classroom.

In this survey made at several different school sites, various orientations were studied and shading efficiency ratings were computed as described below.

SHADING EFFICIENCY RATING (by Olgyay Method): Effectiveness is computed in three ways:

- SUMMER SHADING PERFORMANCE: amount of solar heat intercepted by shading device during overheated period compared with amount delivered to unshaded window at same period
- YEARLY HEATING EFFECT: loss of winter sun effect because of glass shaded at times when heat is needed (below 70°F)
- TOTAL SHADING EFFECT RATIO: final evaluation of shading device for the year—average of summer shading performance and yearly heating effect

Summer shading performance is of more significance in the Austin, Texas, area than in more northern areas of the state such as Amarillo, where winters are very cold and yearly heating effect is more important. Also, solar and earth geometry cause 30°N latitude to receive the greatest amount of summer heat—Austin latitude is 30° 16'.

In this report, comparisons are presented for only two orientations; one very poor, and one very good. Results presented in Fig. 4 show that by selecting proper orientation for this temporary building, school officials can obtain the efficient rating of 87%, (S 14°E) in place of the poor rating of 29% (S 29°W). The difference in these ratings represents a large saving from unwanted heat. There is a direct correlation between good orientation and lowered temperatures. In a preliminary study of this building under similar conditions except for orientation, the authors have reported temperature differences up to 13°F.

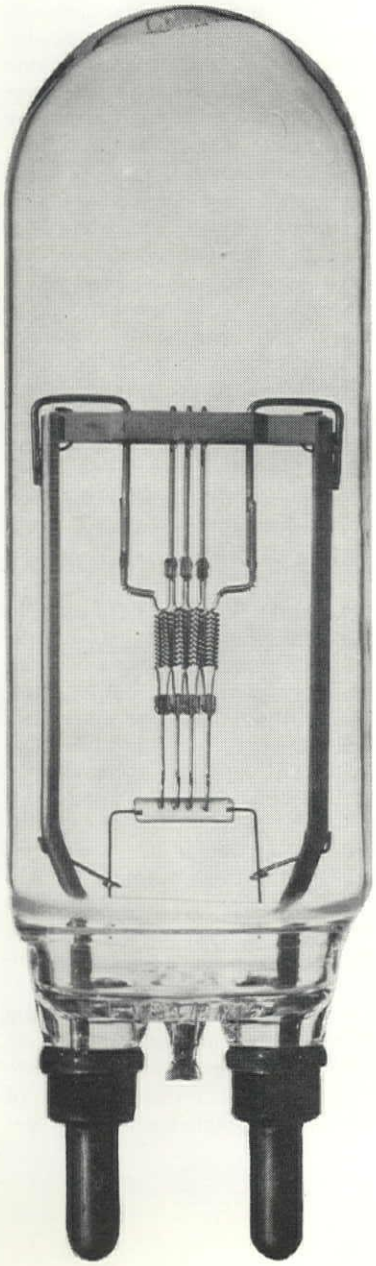
This increased amount of heat, due largely to unshaded glass at the poor orientation, should be of concern to school officials interested in a building's cost in terms of its contribution to educational processes.

Proper climate conditions within school buildings provide greater comfort to teachers and students. Just as there is a strong correlation between comfort and profit in industry, as indicated by the large number of airconditioned industrial and office buildings, there is a corresponding relation between comfort and effectiveness in teaching and learning. (Industrial airconditioning designers have long used the rule-of-thumb that for each 1°F above 70°F, human efficiency and productivity decreases approximately 1%). Much more research is needed.

With temperatures lowered, due in part to proper building orientation, a better environment is provided, discipline problems are reduced and study conditions are improved. Thus, by providing the best possible orientation and sunshading for their buildings, school officials and architects have the opportunity to make another important contribution to economical and effective education. ◄

AIA *School Plant Studies*

BT 1-41



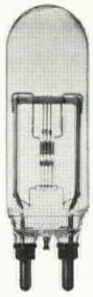
The General Auditorium

by **James Hull Miller**

Theatre Design Consultant; Director, Arts Laboratory, Shreveport, Louisiana

One of a series of papers prepared by members of the AIA Committee on School Buildings, and by selected specialists, to make laymen aware of school building problems and trends and to stimulate discussion. They are not intended to be definitive last words and carry only the authority of their respective authors. New subjects are being worked on and contributed articles are welcome. Reprints of these non-technical articles are widely distributed to educators and laymen. One copy each issue free—additional copies 10¢ each.

An excellent example of extreme filament concentration for effective use in optical devices. The filament construction is such that the 2100-watt light source is contained within approximately a ½-inch square. Photo courtesy GE.



The General Auditorium

by **James Hull Miller**

Auditorium Trends

There is, in theatre architecture, a marked trend towards an actor-audience relationship which encourages the single-chamber design concept and necessitates re-appraisal of architectural space and applied stagecraft. The open stage is one of the descriptive phrases indicating this form of theatre arrangement. A most dynamic example of the form in its purest sense can be found in Ontario, Canada, in the stage for the Stratford Shakespearean Festival. Most examples in the United States are more conservative, representing various phases of melting away or redesign of the proscenium frame to a degree which allows the traditionally separate chambers of auditorium and stagehouse to flow together.

Bringing auditorium and stage into a single architectural envelope diminishes or eliminates the concept of a working loft stagehouse. Either auditorium ceiling planes will extend over acting area, or, conversely, acting area will flow out of the window stage, abandoning the service of vertical rigging. Architecturally speaking, the void above stage is plugged.

Contributing Factors

It will require the theatre historian and the research student to invent a logical chain of development for these phenomena; for our purpose it will be sufficient to expose some aspects and results of the changing arrangements. Many things appear to be happening simultaneously, seemingly unrelated, but of tremendous interest to the planning of a school presentational center.

One factor contributing to retirement of the proscenium arch has been the determination to devise a better seating arrangement stimulated perhaps by the ultimate comfort of television viewing. Widening of the seating arc, with resulting decrease in spectator distance, has been inevitable. The pictorial dimension of the window stage has been usurped by the TV picture tube, proponents of the open stage argue, leaving the unique sculptural dimension of the living stage to the theatre. Removal of stage mask destroys traditional organization of stagecraft along strictly pictorial lines and permits absolute freedom in audience arrangement.

A second contributing factor has been the desire to eliminate a stage space which must be serviced scene-by-scene in a sequential fashion, replacing it with one which can be arranged more arbitrarily in multiple fashion, scenically or architecturally, or by a blend of both. Success of such stages at present lies in the hands of skillful and imaginative designers, for most textbooks and similar aids to a tradition have not yet overtaken these developments. Again, proponents of the multiple stage point out that bringing a scene to the frame compares unfavorably with moving the frame to the scene as is the practice with the camera. They argue for a technique of theatre which is in its own way as fluid, and not dependent on cumbersome mechanics.

Audience Viewpoint

It is obvious that the spectator will view a larger stage space. This does not mean, necessarily, that the overall stage floor will be greater, but that more present floor area will be exposed to view by removal of the proscenium frame. Since the method of stagecraft by which stage space is invested with illusion changes, the need for conventional wing-spaces equal to playing area is largely eliminated. Freed from the discipline of the frame which implies complete pictorial settings, stagecraft is reorganized into complexes of set-pieces, reducing the number of set changes as well as representing greater economy of actual space occupied.

A third factor has been acoustical. The human ear has become sensitive to high fidelity, and at the same time the luxury of volume control has been placed within reach of the individual listener. Thus one comes to the theatre disciplined to an excellence of sound of a degree unnecessary to the stage a generation ago. When a theatre is designed from an acoustical standpoint, inevitably the forward ceiling planes find their way across the major acting area and the single-chamber concept is fulfilled. When one considers deployment of stagecraft to serve a production in multiple rather than sequential fashion, there is no great loss from retirement of the stage loft. Multiple stagecraft is developed from floor-based islands of set-pieces, not from suspended units whose terminal lines aloft require the masking of a frame.

Acoustics Affect Design

Designers have been quick to realize that the extension of the auditorium ceiling planes over the acting area creates an entirely new esthetic discipline, one of rather dynamic intimacy. Ease and effectiveness of lighting is encouraged through employment of many catwalks and associated lighting slots. Curtains on lateral tracks may be developed through ceiling slots. Absence of rigging and nuisance-masking cloths permits effective background projection and eliminates need for painted drops.

A fourth factor helping to bring about an abandonment of the two chamber concept of stage and auditorium has been development of economical single-span structures

For other views on the same subject see BT 1-30 "Educational Theatre Architecture" Nov 57, and BT 1-34 "A Hat in the Ring" Oct 58.

of overall envelope type. In stores, schools, office buildings and libraries alike the tendency has been to wrap up the overall volume of space with one structural thrust and then to partition in a manner reminiscent of traditional Japanese screen devices. Inevitably new space divisions are suggested to the theatre architect.

A contingency to the fourth factor has been the desire to retain a manner of permanent control over the initial freedom of space division which accompanies overall structural envelopes. Never before in the history of theatre has division of space been freer nor demand for multiple-use zoning greater, especially in school and community facilities.

Fifth, and last, contributing factor to breakdown of traditional lines of demarcation between stage and audience structures seems related to stagecraft itself, including provision of many types of acting areas.

Few theatres are built today for specialized programs. Hence, if opera and drama are to share the same roof, the decision for a wide or for a narrow proscenium must be avoided, and a stage devised that will satisfy requirements of both.

Actually, the open stage does just this by permitting scenic occupation of open space rather than filling a framed space of predetermined size. If forum and drama are to share a stage, a forward-thrust platform, serviced by a properly designed ceiling, will go further towards solving particular needs than a stage withdrawn beyond a portal with or without apron. If the theatre is to develop any degree of fluidity in scenic transitions and at same time feature its intrinsic sculptural dimensionality, its stagecraft must tend towards easily deployable units, or stationary set-piece complexes, both of which are part and parcel of the platform-type stage. More fabulous stage machinery is not the ultimate answer here. A great amount of such machinery has been designed to service the sequential area of the frame. Most of this equipment lies beyond the budget of the college and community theatre. For living theatre to survive as a grass-roots institution, the answer to the mechanics of stagecraft will be found in creative design—with guidance, not beyond the schoolchild.

Special School Needs: Flexibility

Let us consider now demands made upon average school auditoriums. These run a gamut from forum and concert to operetta and drama. Forums are best conducted from a forward projecting platform. Concerts are best held on a stage within the acoustical chamber of the audience. Operetta demands a large stage area, drama, a smaller area. The traditional picture frame stage offers no advantage to concert or forum. Between operetta and drama the dimension of the picture frame becomes a controversial factor. In addition, all frames, including the screen, dictate a narrow but deep audience arrangement.

An older and rather unsatisfactory solution was the combination of apron and contained stage. Spacewise, necessary playing area existed; esthetically, its proper use was denied, because stagecraft for open stage and that for window stage are categorically opposed. Also, the main curtain, at the proscenium, becomes, in effect, a secondary or intermediate divider of total stage space, in conflict with the idea of a curtain as a temporary mask of the stage area. Furthermore, lighting systems are forced to straddle a single space, architecturally divided.

It would appear from a study of the total program to be serviced by a school auditorium that strictly theatrical phases are in a minority position. The fact that discussion of provisions for dramatic art plays a major role in auditorium planning lies in the technical complexity of stage requirements. It is my belief, after experience in production designing and theatre planning for over twenty years, that the solution of school auditorium design lies in increase of technical facilities which can be incorporated into architectural elements of a ceiling common to stage and seating areas, and abandonment of separate stagehouse.

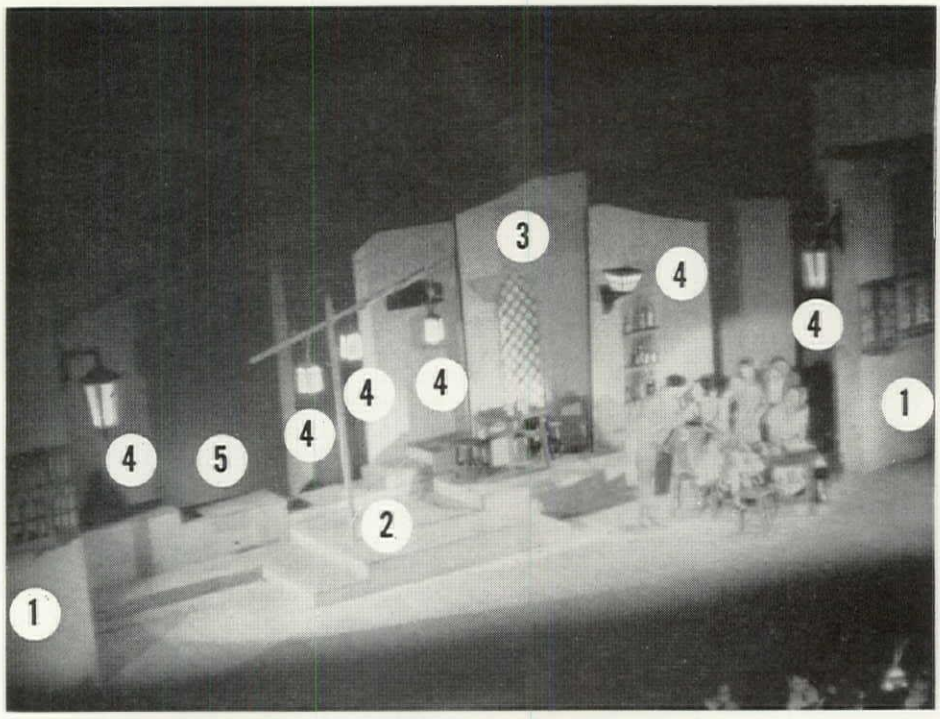
A Modest Proposal

This proposal is not as drastic as it may seem when theatre production for schools is reviewed objectively. First, a properly developed ceiling will immediately separate the function of general illumination from that of stage illumination. Architectural downlighting may be developed in efficient patterns at reasonable heights. These units may be controlled by raise-lower dimmer switches on motor-driven circuits, controls being placed at locations strategic to those using the chamber for general programming. Dramatic lighting by spotlights distributed along various catwalk-and-slot positions in the ceiling is placed under central control in an observation booth accessible to specialists. Economy of current as well as equipment preservation results. Now it is possible to design a theatrical lighting system to specifications of and for use by trained theatrical personnel, without present watering-down of equipment to combine with general purpose use. With efficient spotlights, readily accessible to theatre workers, specified areas of the large stage can be highlighted and zoning of a particular scene defined. Material factors of stagecraft in schools have always been a problem. Theatrical shop and storage spaces found in commercial and university plants are too large in area for school plants. Open stage, however, is less demanding than proscenium stage in amount of settings required, for, in open stage technique, a set more often than not dominates the center of the acting area, already defined by light, rather than surrounding it, or depending upon the presence of a proscenium frame for its termination. Regardless of other contributing factors, open stage would appear to favor a more practical type of stagecraft.

Acoustically, all programs receive equal advantages in sound projection, and extension of auditorium ceiling planes over major stage area eliminates many sound problems now corrected by expensive public address systems, especially in elementary schools. The void over the contained stage is an acoustical handicap, and this space is further deadened by insertion of cloth masking-pieces. In most school construction, these adjuncts are added to a stage by scenic supply houses and have little relation to original school plans.

Dramatic Lighting

Reference to the illustration on background projection will show how a very simple projection method can be developed for the open stage. Actually a drastic revision of the old Linnebach idea,



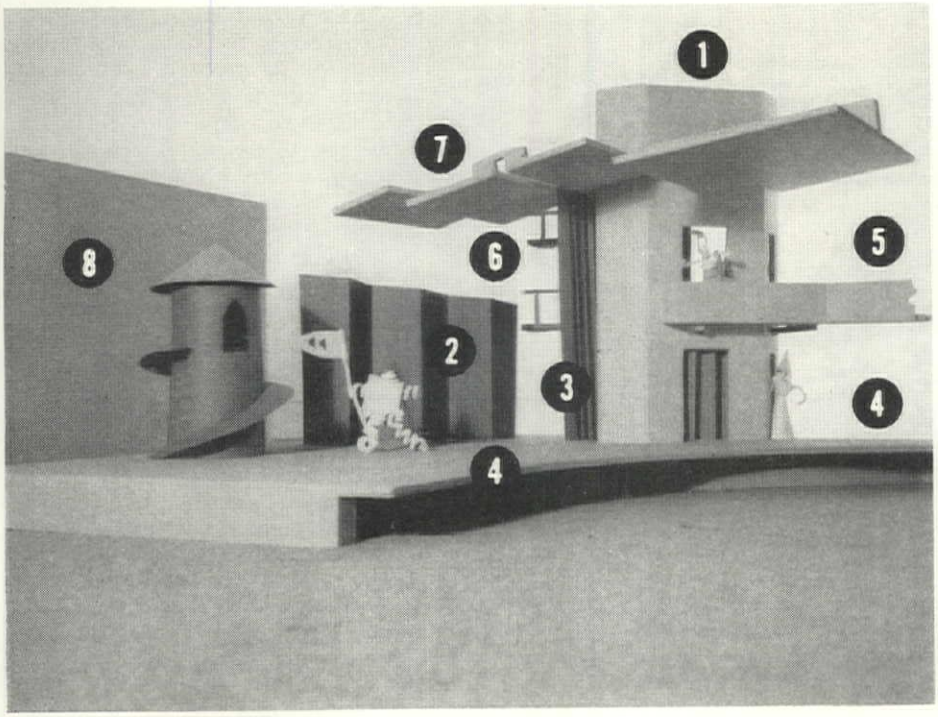
Example of true open staging for a scene from Act II of Carmen, *the tavern of Lillas Pastia, as produced by the Shreveport Symphony Society and designed by Miller. Zonal limits established by light, concept of the tavern has become that of an island in space. Essential features of the set are diagrammed above.* **1** *Signature screens in this case used as flexible elements in area zoning of scene. Actually, they represent exteriors, past which the tavern is disclosed.* **2** *Platform complex used throughout* Carmen, *from which many setpieces derived support. Also served to mask floods at base of background screens* **5.** **3** *The "island" screen complex representing the tavern—flats covered with flamingo-colored Indian Head cloth. Only fabric, no paint, was employed on all screens for this production.* **4** *Note manner by which environment of tavern is extended beyond the three screens by lanterns in space. Note also glow in windows, adding luminosity.* **5** *Background consisted of 5' x 14' screens, set at 60° to one another, and covered with charcoal-gray burlap. "Illusion" of traditional cyclorama, being artificial in concept, would be destroyed by such illusion-shattering factors as "spill," although the other screen units were nearby and shadows were present. There is no other way to explain illusion of space created in the spectator's mind*

the present system owes its creation to Thomas Wilfred, in my mind, the most advanced pioneer in the art of pure light that we have in this country today. Wilfred's Direct Beam system capitalizes on finer lamp filaments available in recent years. It introduces a greater lamp-to-image distance for clarity, and eliminates necessity of using heat-resistant materials for construction of images. The system cannot be mounted efficiently in a working loft stagehouse but can be inserted easily in open stage design. It is attractive for school use because complex background imagery can be fashioned directly from such materials as cardboard, wrapping paper, gelatines, lacquer dyes or lamp dips on acetate or plastic sheets, or even silhouettes of real objects such as potted plants and random foliage.

Study of the illustrations will reveal the necessity of accurate theatrical consultation in development of the ceiling planes, such as the distance from one lighting slot to another and their overall height from stage floor, angles of illumination, location of slots for curtain tracks and relationship of the projection system to plaster-wall background. No open stage design should be considered unless a proper auditorium ceiling is to be furnished.

Some examples from experience

Rethinking of traditional theatre planning came about almost helter-skelter, not so much as an ordered development within the theatre as an interaction between domestic and industrial developments and the theatre world. Considerations such as seating, multiple space use, acoustics, structural envelopes and stagecraft, were influenced by pressures from without the theatre proper. I myself ventured into common ceiling plane design by degree, through challenging problems in remodelling as early as 1953. At first these planes were scenic structures lashed to service catwalks in situations where fly lofts were discarded either for structural or financial reasons. Next, the proscenium frame, now disengaged from overhead service, was well-upstaged, playing the role of wing



Model of stage-left portion of an open stage theatre, showing organization of space within this discipline of design. Stage vestibule **1** *is all that remains of old side proscenium treatment, reduced to 11' in plan for the 100' wide total building span. Wing space for sequential staging is recovered at will by folding screens* **2** *or by curtain* **3**. *"Plateau-type" stage* **4** *flows elliptically into audience area, providing additional acting area or valuable circulation in general purpose programming. Vestibule itself* **1** *is terminal point for gallery* **5** *with its lighting and acting possibilities and also for light catwalks* **6**, *as well as providing access to catwalks above ceiling planes* **7** *for adjustment of stage-lighting instruments. These ceiling planes in plated fashion are common both to audience and stage areas for acoustical as well as visual reasons and are slotted for curtains and offset for lighting ports. They also contain architectural downlighting fixtures for general purpose illumination. Plaster background* **8**, *finished in pale slate gray, completes architectural envelope of theatre.*

Access to storage, shop and dressing areas to rear is by vomitoria around ends of background. With development of open stage design we are able to employ a building structure rectangular in plan and with a low, common roof line

facades as in the case of the Midland Theatre Center in Texas. Here the open stage concept replaced that of the proscenium to satisfy a program which often included over twelve hours of continuous and varied activities per day.

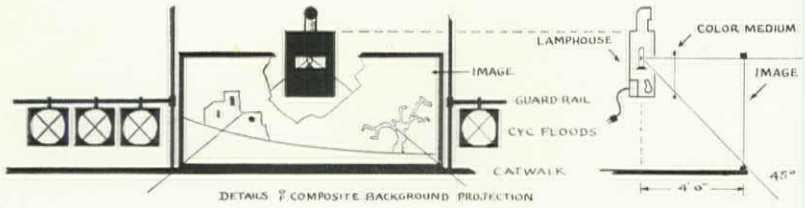
Until I remodeled the auditorium at Lamar State College of Technology in Beaumont, Texas in 1958, I had not realized the full acoustical implication of continuation of ceiling planes of the auditorium over the major portion of the stage area. Nor was I prepared for the amazing esthetics of these planes which seemed to float the stage forward towards the audience. I have heard this identical observation from many who have witnessed productions in this theatre. A barn-like audience chamber had become intimate.

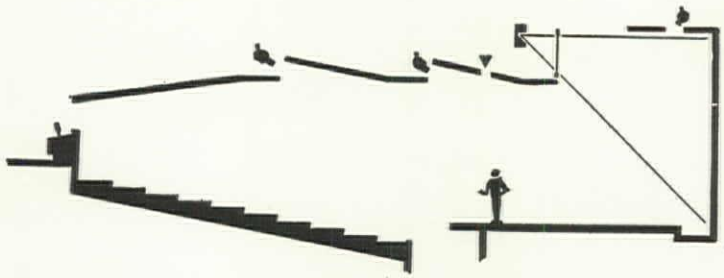
During the last few years I have become fascinated with the adjustment of theatre craft to its own presentational competitors, movies and television, and to contemporary influences beyond the theatre proper. There are two fields however, where little progress has been made, one being the multiple-purpose school auditorium, the other, low cost but efficient theatre housing for the small college and community. Obviously none of the more elaborate mechanical solutions associated with million dollar theatres are appropriate here. At the same time stagecraft itself should be simplified and made more fluid. These two fields are complimentary to one another. Solution through design rather than through machinery and sound systems was sought.

An Arts Laboratory

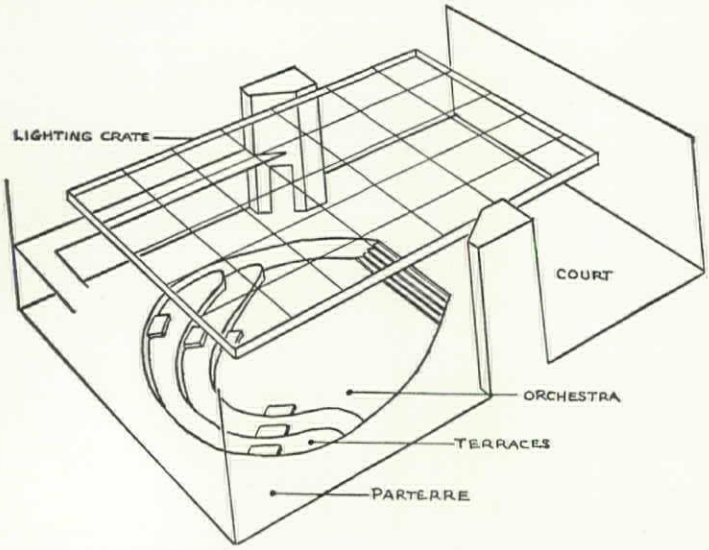
Towards these ends I set up in Shreveport, with the help of friends, an institution known as the Arts Laboratory, for study and development of space stagecraft and further experimentation with equipment for my projection systems. Materials for the work come through contracts for sets for regional productions. Only those seeking new solutions or with exceptional problems are attracted to the Laboratory.

Objective experimentation applied to stagecraft has brought some amazing and largely unanticipated results. By dissociating living the-





Section of an open stage community theatre seating four hundred. No spectator more than forty feet from stage. Acoustically excellent space-envelope for set-piece stagecraft, multiple staging and full background projection. Variation of same profile can be used in proscenium theatres where space-staging replaces framed sets and expensive loft structure



Waco Civic Theatre, Waco, Texas, 1958. Designer: James Hull Miller. Core: 50' x 80' overall. Seats: 150 canvas folding chairs. Note adaptability to various types of performance: proscenium, open, arena or classical staging

atre stagecraft from a surface pictorialism, elements of a scenic shorthand to the mind's eye begins to emerge. We have discovered tremendous latitude between the object which stimulates the mind and recollection of the experience. We think that it is not necessary for *stage* scenery to satisfy the eye of the camera in order to be a successful communicator of an environment. I do not imply absence of scenery, nor excessive stripping down, the style of selective realism, nor even symbolism in the 1930 American sense. I do mean those processes whereby a play is analyzed for essential meaning and a legitimate abstract pattern set up to which visual elements necessary to realism of the piece are anchored. We address the spectator in terms of his own process of imagery, the eye, a roving reporter, the mind, a calculator of values from collected scraps of reality.

All this is not as drastic as it might appear. This approach is closer to producing the fragmentary than to the continuous setting, but this is precisely what we require for the space stage. To build a stage as wide as the building, to be able to recover all the stage for the spectator when we desire, and to invest this total space with variously devised environments in whole or in part, simultaneously or sequentially, these are our practices. When all this is accomplished properly on one stage, we have reached our goal, that of the true general purpose auditorium.

By de-emphasizing the proscenium and by creating a complete architectural envelope with ceiling and floor planes passing through the old conventional line of demarcation, it is possible to employ space staging in new complexes, both multiple and simultaneous, especially avoiding costly implication that a scene must extend from one side of a stage mask or proscenium to other.

Of all elements shown, those representing ceiling planes are possibly the most important esthetically and acoustically. Relationship of upstage ceiling plane to background projection techniques is illustrated in diagrams but this whole technique requires expert geometrical analysis.

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In the AIA Technical Reference Guide 13-2, "Tornadoes," published in the May issue of the *Journal*, the name of Ralph Mott, Chairman of the Disaster Committee, was inadvertently omitted.

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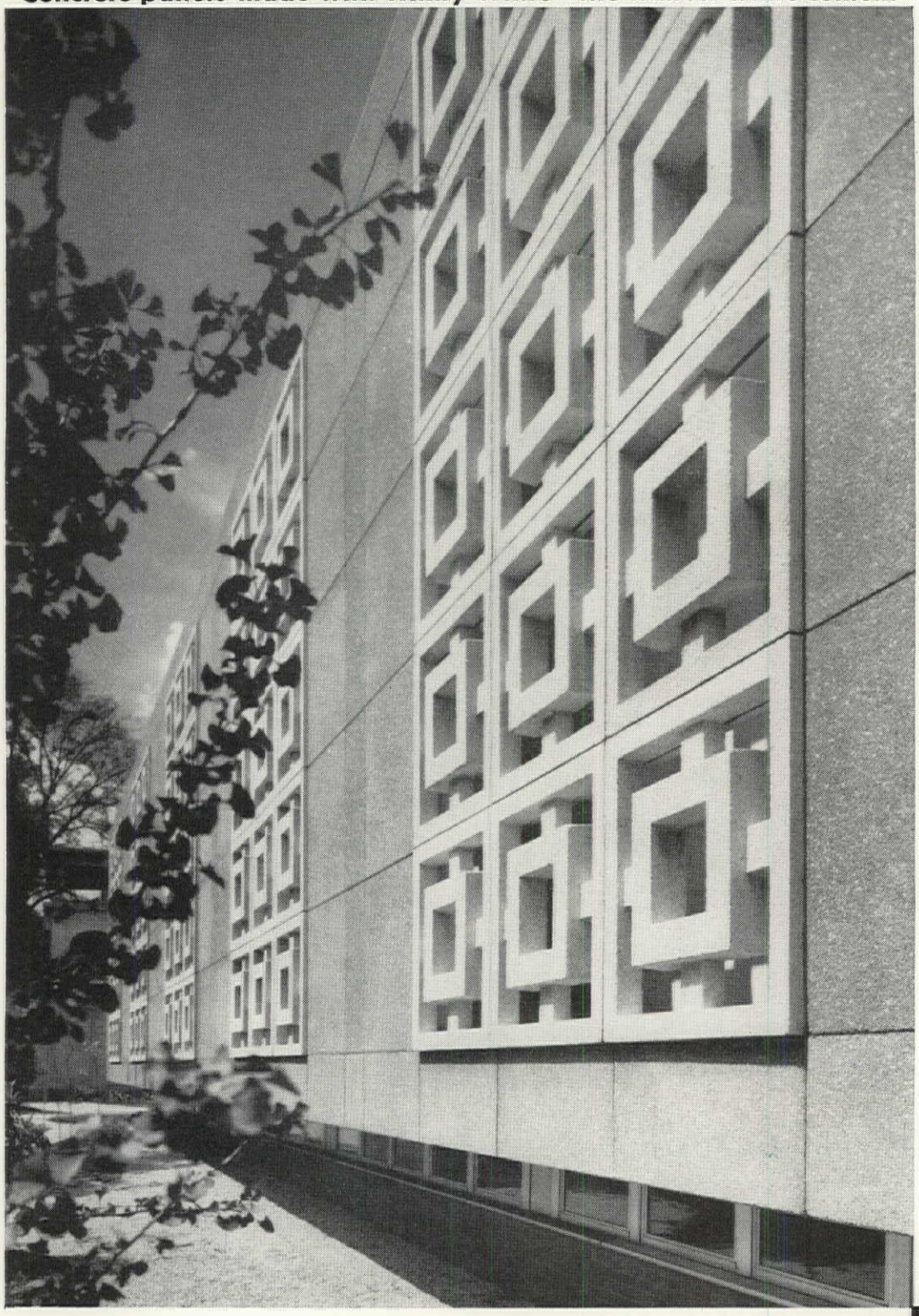

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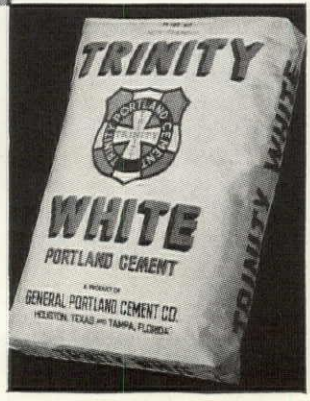

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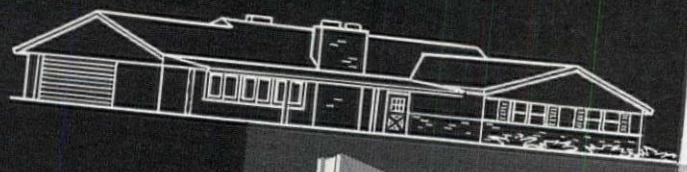

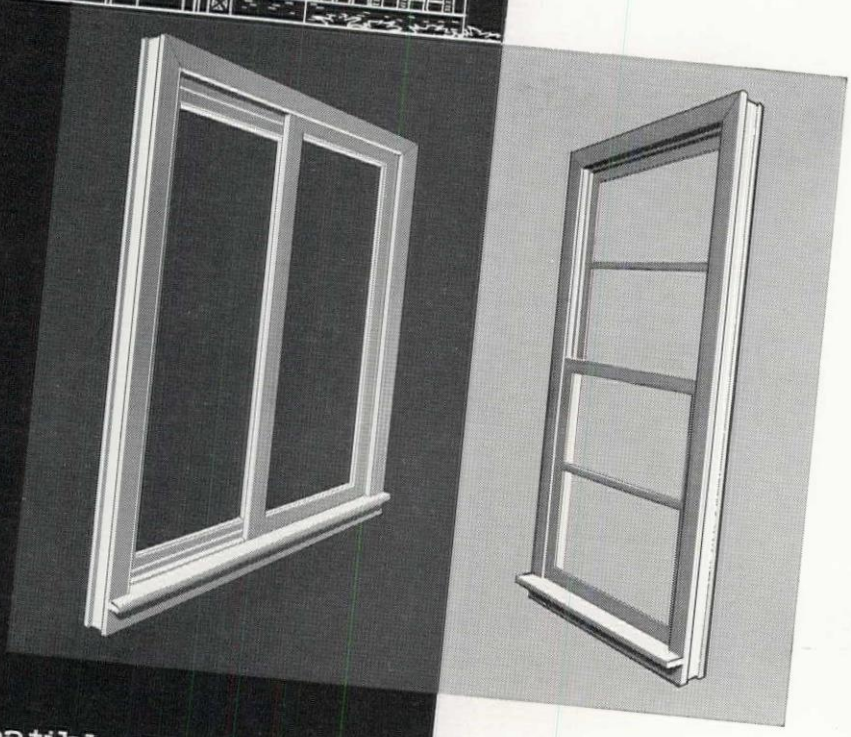

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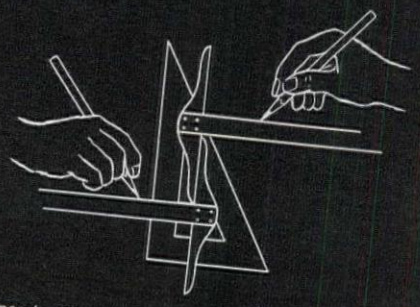

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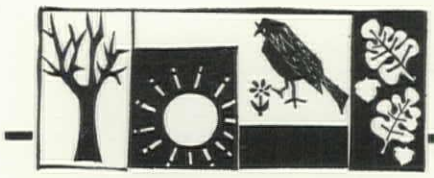


CALENDAR

August 20-September 3: Annual Mexican Architecture Seminar Tour in cooperation with Sociedad Arquitectos Mexicanos. (For full information write Gira Arquitectura, T. H. Hewitt, Director, 2413 Driscoll, Houston 19, Texas.)

September 26-30: Board of Directors, AIA, Las Vegas, Nevada.

September 26-late October: South American Trek led by Executive Director Edmund Purves.

September 27-30: Sixth Annual Convention of The Prestressed Concrete Institute, Statler-Hilton Hotel, New York City.

October 2-13: International Seminar on Industrial Architecture, Kazimierz, Poland.

October 5-7: Thirty-ninth Annual Meeting, The Producers' Council, Inc, Drake Hotel, Chicago, Illinois.

October 6: Sixth Annual Architects' Tour of Japan.

October 8-16: Pan American Congress, Buenos Aires, Argentina.

October 10-11: Construction and Civil Development Committee, US Chamber of Commerce, The Cloister, Sea Island, Georgia.

July 3-7, 1961: Sixth Congress of the International Union of Architects, London. (For full information write Secretary, Royal Institute of British Architects, 66 Portland Place, London W. 1, England.)

AIA District and Regional Meetings

August 11-13: Michigan Society of Architects Annual Meeting, Grand Hotel, Mackinac Island.

October 1-5: Northwest Regional Conference, Sun Valley, Idaho.

October 2-4: Gulf States Regional Conference, Hot Springs, Arkansas.

October 12: New York Region Annual Meeting, White Face Inn, Lake Placid, New York.

October 12-15: Annual Convention, New York State Association of Architects, White Face Inn, Lake Placid, New York.

October 14-16: New England Regional Meeting, Jefferson, N.H.

October 19-23: Annual Convention, California Council, AIA, Yosemite National Park, California.

October 20-22: California Regional Conference, Yosemite, California.

October 26-29: Western Mountain Region Annual Conference, El Conquistador Hotel, Tucson, Arizona.

October 28-31: Western Mountain Regional Conference, Tucson, Arizona.

November 2-5: Twenty-first Annual Convention of the Texas Society of Architects, Cortez Hotel, El Paso, Texas.

NECROLOGY

According to notices received at the Octagon between June 7, 1960 and June 24, 1960:

AGREE, ALLAN G., Detroit, Mich.

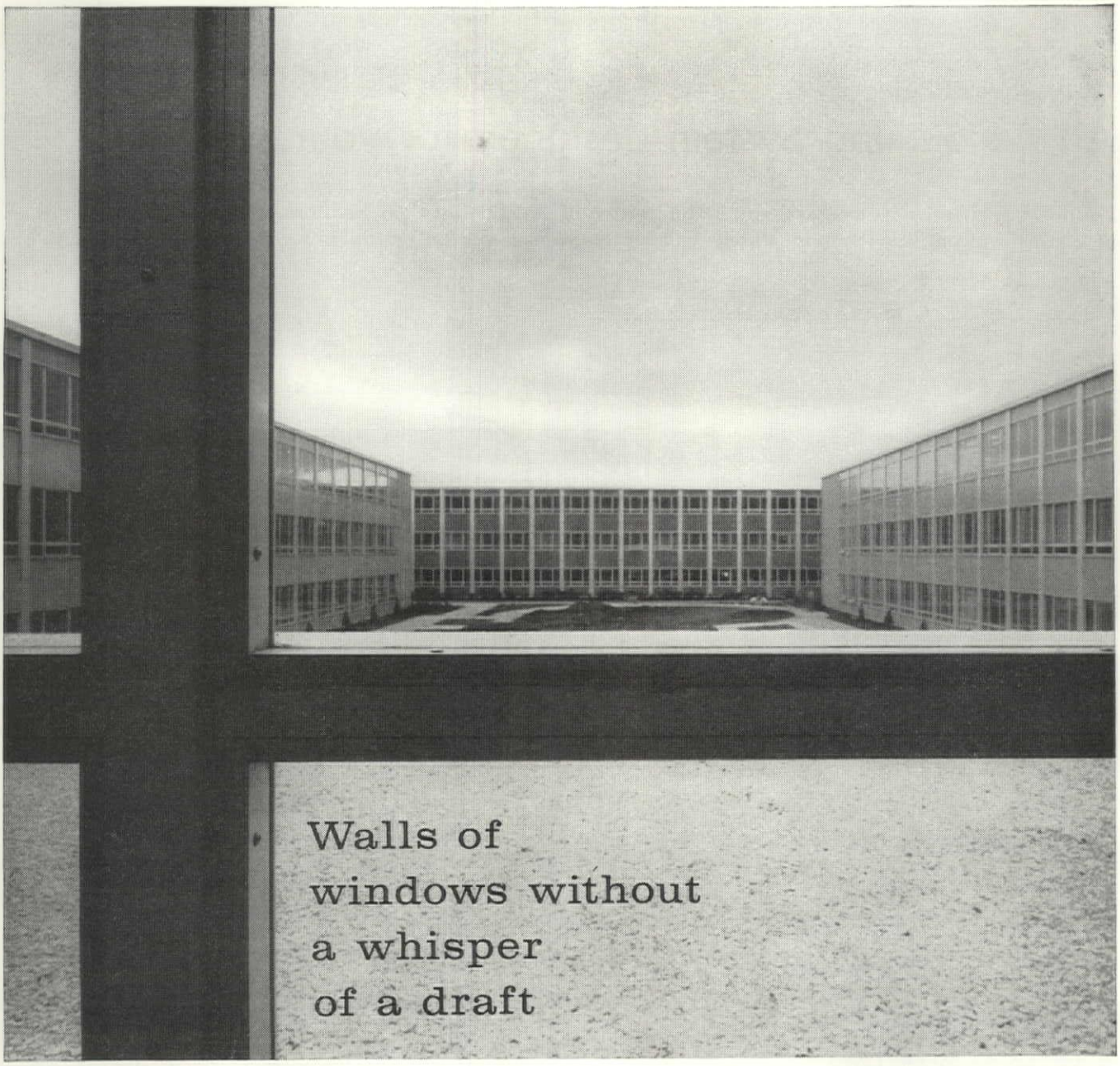
DUNKELBERGER, GEORGE L., Wethersfield, Conn.

GRIESHABER, H. EUGENE, JR, New London, Conn.

MOECKEL, HENRY T., SR, Naugatuck, Conn.

SHUMAKER, ROSS, Raleigh, N. C.

WALTER, EUGENE L., Buffalo, N. Y.



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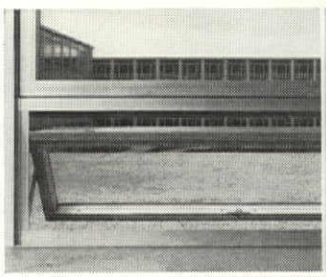
East High School, Rochester, N. Y., anticipates the city's population growth. Built to accommodate 3000 students. Architects: Faragher & Macomber.



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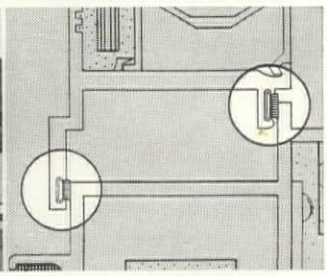

Drawing, courtesy of Adams & Westlake, showing application of Schlegel Woven Pile Weatherstripping.

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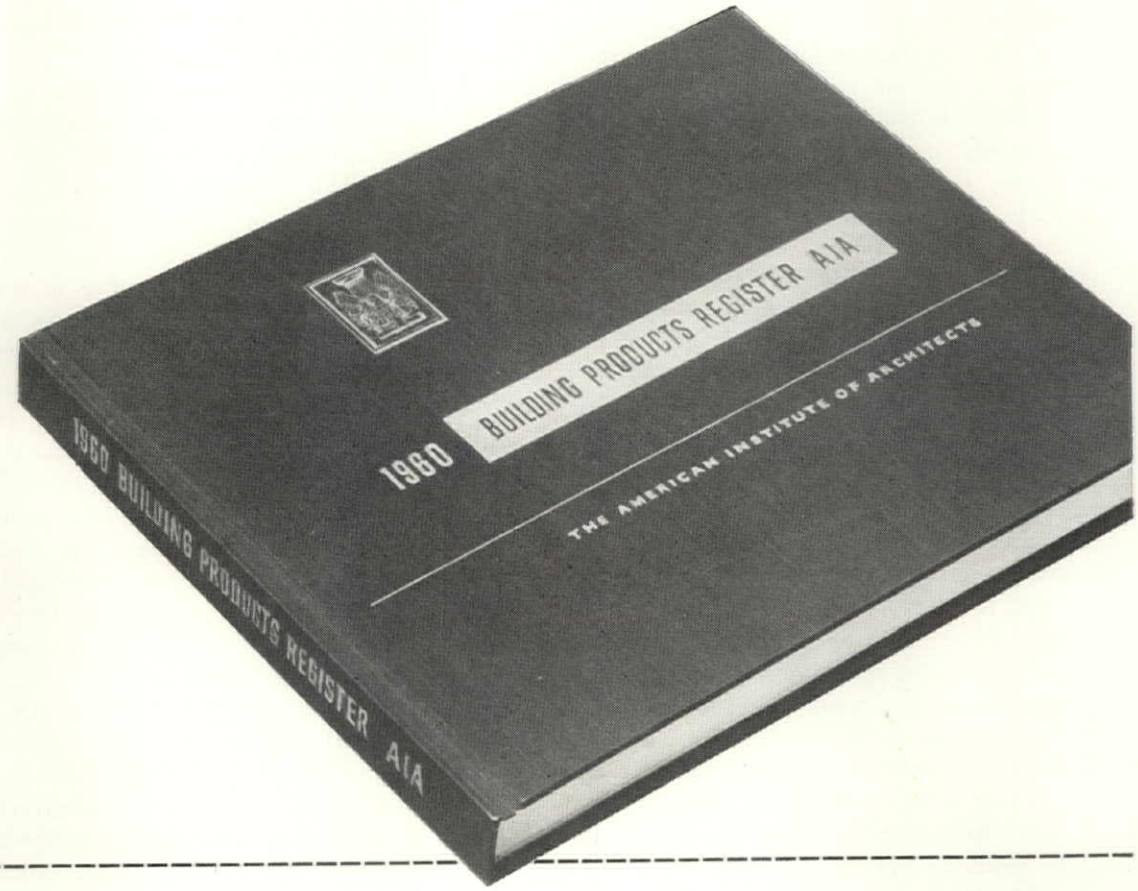

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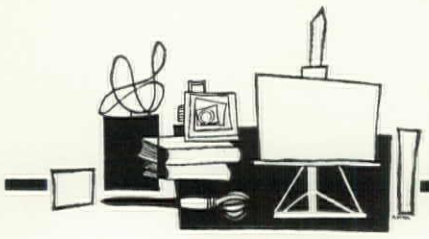

ALLIED ARTS

BY WOLF VON ECKARDT

"All Art is Performance"

► "Like a wandering biblical tribe, and with the same faith in ultimate redemption" the Boston Institute of Contemporary Art has, in the words of its director, Thomas M. Messer, moved about the city for a quarter of a century. Early this summer it finally found its promised land—the Boston Arts Center site along the Charles River—and its own home—a new gallery, the center's first permanent building.

Designed by Saltonstall & Morton, the new gallery is an entirely open, elongated space, broken up only by flexible partitions. The only adornment is a grand view of the river. The building straddles a small moat on twelve foot stilts and resembles nothing so much as a Miesian covered bridge, if Mies ever designed one. It will be interesting to see how it will integrate with the plan and design of the rest of the center which is to include a theater for the Cambridge Drama Festival and an opera house for the Boston Opera Association. A promising project!

It is all the more promising because in contrast to New York's Lincoln Center or Washington's still indiscernibly distant National Cultural Center, the Boston plan will be the first to closely associate the performing with the visual or so-called "fine" arts. This augurs well for an end of the fragmentation of what, for lack of a better word is called "cultural institutions." If you ponder this fragmentation, in fact, a national cultural center without space for paintings and sculpture approaches a contradiction in terms. This may be forgivable in the national capital where there are several splendid art museums. Smaller communities now trying to meet the growing popular demand for a suitable setting for their culture will do better to emulate the Boston example.

The Boston Arts Center grew out of necessity. A homeless theater group eyed a strip of land between Soldiers' Field Road and the Charles across from Cambridge. It belonged to the Metropolitan District Commission, an agency of the Commonwealth of Massachusetts. It is doubtful that the theater people could have obtained it exclusively. But when they teamed up with the opera group and the Institute of Contemporary Arts and formed an Arts Center Board, action was surprisingly swift. The Commonwealth even furnished an initial building fund, which, to be sure, depends on augmentation from private sources. Quite obviously the approach makes sense.

For the Institute, says Mr Messer, in an article in *Museum News,* the affiliation with the theater and opera people "means a new departure, far-reaching in its consequences, no doubt, and hardly imaginable as yet in its specific aspects. The closeness to the performing arts is a novel sensation, freshly stimulating on the one hand, and not, of course, without surprises and initial difficulties on the other. As for the public, the effect of the interaction between [a museum, a theater, and an opera] remains to be tested."

Actually, some such testing is quietly going on in every major city in the country where there are intimate, high-class movie theaters. These places not only serve coffee to their customers but also often display paintings and other art works, mostly by local talent and sometimes of high caliber. This lends atmosphere to the establishment and this writer, for one, finds discovering a good painting or two some consolation for seeing a poor movie. At any rate, the gallery tends to highten the enjoyment of an evening of artistic entertainment and relaxation, away from the merely escapist din of television and such.

This is not to say that a modern museum such as the Boston one should be put close to a theater simply to lend atmosphere. I merely point out that the thought is not entirely new and that the possibility of viewing paintings between acts of a play or before going to the opera is pleasant to contemplate. An arts center which is truly a center for the arts harbors many new opportunities both for the performing arts and the museum—some of them as yet unpredictable.

For one, this concept should, as Messer points out, help to reduce the dualism between "educating" and "entertaining" us. It may thus, as he says, "merge into a new unity that will carry the arts toward the center of human awareness where they belong."

As Robert Frost said recently, "All art is performance." ◄